U.S. Army Military Intelligence History: A Sourcebook

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Contents

Dedication

According to some social scientists, notably Alvin and Heidi Toffler, the Age of Information is upon us, logically succeeding such grand epochs as the Age of Agronomy and the Age of Industrialization. Now, they say, information and its processing will be the force that shapes us and determines our future. MI soldiers have been the harbingers of the Age of Information throughout the 20th century. They have recognized early, spurred on by the urgency of military contingencies, that information is the lifeblood of military operations and they sought to devise more and better ways to collect and disseminate intelligence. Since the days of the Revolutionary War when George Washington, starved for information about his enemy's intentions, ordered spies to send reports to him exclusively by express courier, intelligence-minded officers in the U.S. Army have inventively ushered in the Age of Information. Thaddeus S. C. Lowe unspooled a telegraph wire from the basket of his balloon in 1861 so that he could pass along his observations instantaneously. Benjamin Foulois, suspended in his Army Aeroplane No. 1 from the ceiling of a Chicago Exposition hall, sent the first wireless message to the ground below in 1910. In the DESERT STORM operations of 1991, TV pictures of battle damage were viewed by millions of Americans hours after the air strikes had taken place. From Valley Forge to the Basra Valley, from lanterns in church bell towers to TROJAN SPIRIT, the intelligence-minded have relied upon their resourcefulness to send out their early warnings. They are the cognoscenti of the Information Age. As we turn the corner into the 21st century, their day has come. It is to all the members of the MI Corps and to their forbearers that these volumes are dedicated.

Preface

Defining military intelligence as "all the knowledge which we have of the enemy and his country," Carl von Clausewitz goes on to discount its trustworthiness. "Great part of the information obtained in War is contradictory, a still greater part is false, and by far the greatest part is of a doubtful character." To sift through the false and exaggerated intelligence in the thick of war calls for an experienced and history-minded commander. Clausewitz says, "What is required of an officer is a certain power of discrimination, which only knowledge of men and things and good judgment can give."

Military intelligence has come a long way since the Napoleonic wars. The art has combined with science and a large array of sophisticated sources tend to filter out many of the "lies and untruths" with which Clausewitz concerned himself. The commander has a much more trustworthy tool at hand. In modern warfare, however, the commander will rely to no less a degree on the power of discrimination that good judgment can give.

Convinced that judgment is honed by the two-sided whetstone of experience and history, these volumes gather together some essays on military intelligence that have been written by both sitting historians and U.S. Army officers. The collection forms an introduction to the subject from the practioners of both history and warfighting over the course of America's history.

Just as military intelligence within the U.S. military establishment has been a growth industry since the Vietnam War, so too has historical research on the subject been burgeoning. A big part of that upsurge in MI historical research is the work of the Command History Office at the U.S. Army Intelligence and Security Command, probably the most productive history shop in the U.S. Army today. James Gilbert and Dr. John Finnegan are the forces behind that effort, and have been aided by former staffer Diane Hamm. Their names appear repeatedly throughout this compendium. I am indebted to them, not only for allowing me to use their work, but for edifying me and the thousands of others who enjoy their books.

A second factor in the furtherance of MI history has been *Military Intelligence*, the professional bulletin published at the U.S. Army Intelligence Center. Since 1974 it has been providing a forum for professional exchange and encouragement for authors of military intelligence history papers. Most of the articles herein first appeared in *Military Intelligence* magazine. From its pages are drawn the offerings of scholars like Peter Maslowski, Marc B. Powe, Michael Bigelow and John Della-Giustina. Other authors that appear are Ralph Van Deman, William F. Friedman, John F. Stewart, Jr., and Richard J. Quirk, III, whose work was selected for the authors' obvious immediacy to the events described.

Marc B. Powe and Edward E. Wilson, military officers teaching the Military Intelligence Advanced Officer Course at Fort Huachuca's U.S. Army Intelligence Center and School in 1973, jointly wrote a chronological and analytical account entitled *The Evolution of American Military Intelligence*. It was a seminal work, for the first time drawing together a comprehensive survey of the military intelligence experience in the United States Army in an unclassified form. It has been used as a text at the Intelligence School ever since.

The groundwork for their compendium was laid in the 1950s by Colonel Bruce W. Bidwell, who carefully researched and wrote his *History of the Military Intelligence Division, Department of the Army General Staff: 1775-1941*. Written from a departmental viewpoint, the book was classified TOP SECRET when it first appeared in 1954, however, and kept from the public eye until 1986 when the first four parts, covering up to 1941, were declassified and published by University Publications of America. The second four parts were still classified at this writing. Bidwell said in his preface, "Authoritative historical documentation covering the field of military intelligence has been seriously neglected, not only for security reasons but also due to the wide complexities and controversial features of the subject. …The great need for such documentation, however, has remained clearly evident, particularly in view of the

intelligence history more accessible. Both informative and readable, the book's photographic dimension gave us visual references for the heretofore shadowy events of MI history. In fact, no photographs were used in these volumes because they are intended to be used in conjunction with *Military Intelligence: A Picture History* and a sequel volume, *The Military Intelligence Story: A Photo History*.

The above works formed the basis for the introductory sections of this book. At this writing, a volume that will form the fourth corner of the MI history foundation is in the final stages of publication at the Army's Center of Military History. It is the work of John P. Finnegan, and will give us the lineage and honors of MI units along with a general history.

The whole idea of these volumes was to take advantage of some of the good history being written about military intelligence and put it in one place where it could be especially useful for students and staff at the U.S. Army Intelligence Center and Fort Huachuca. It is designed to form a basis for a professional reading program. Besides the suggestions for further reading at the end of each introductory section, there are two military intelligence bibliographies listed in the "General" section under House, Johathan and Constantinides, George C. They cover the harder-to-find books and manuscripts up to 1993 and are well annotated. Also in the General section appears Marc Powe's peerless bibliographic essay.

Because these volumes are intended mainly for members of the Army's military intelligence corps, the history of intelligence in the Navy and Air Force, and writings relating to national level intelligence collected by civilian agencies were not considered for inclusion. That is not to deny the importance of strategic intelligence and the work of the other services to the Army commander, most often operating today in a joint environment. But considerations of editorial focus had to prevail.

Also missing is any discussion of the role of the Operation of Strategic Services in World War II. Although many Army personnel were involved in these operations and they were often conducted to gain intelligence, it was felt that this area can be best left to studies of special operations. These omissions can be compensated for by referring to appropriate sections of Jonathan House's excellect military intelligence bibliography cited in the "General" section of volume two.

I would like to acknowledge and thank the dozens of authors for their good work and recognize those magazines that first published their articles. The following articles appeared in *Military Intelligence*.

"George Washington: America's First Spymaster," by Peter Kross [Jan-Mar 91]; "The Union's Blind Eyes: "Confederate Espionage," by Ernest A. Miller [Apr-Jun 79]; "Intelligence in Peace Operations—A Historical Example: The Military Information Division (MID) in Cuba, 1906-1909," by John Della-Giustina [Oct-Dec 94]; "United States Army Intelligence School, France, 1918," by James P. Walsh [Apr-Jun 75]; "U.S. Army Counterintelligence in CONUS: The World War I Experience," by Dr. John P. Finnegan [Jan-Mar 88]; "U.S. Army COMSEC in World War I," by James L. Gilbert [Jan-Mar 88]; "The Enigma Cipher Machine," by Gary M. Bateman [Apr-Jun 82]; "Auschwitz-Birkenau: Why the World War II Photo Interpreters Failed to Identify the Extermination Complex," by Dino A. Brugioni [Jan-Mar 83]; "Eisenhower and Intelligence," by Michael E. Bigelow [Jan-Mar 91]; "Intelligence in the Philippines," by Michael E. Bigelow [Apr-Jun 95]; "The Ardennes 1944," by Basil J. Hobar [Oct-Dec 84]; "The Battle of the Bulge: The Secret Offensive," by Kevin R. Austra [Jan-Mar 91]; and "Big Business: Intelligence in Patton's Third Army," by Michael E. Bigelow [Apr-Jun 92]; "The Heroic Stand of an Intelligence Platoon," by John Della-Giustina.

Some U.S. Government publications were:

"Historical Sketch," by Ralph Van Deman; "History of the Military Intelligence Division of the General Staff, October 1, 1918;" *History of the Counter Intelligence Corps, Volume III, The Inception of the Counter Intelligence Corps, World War I, 1917-1918*, U.S. Army Intelligence Center, Fort Holabird, MD, March 1959; "A Brief History of the Signal Intelligence Service," by William F. Friedman; "U.S. Army Signals Intelligence in World War II: An Overview," by John P. Finnegan [Introduction from *U.S. Army Signals Intelligence in World War II: A Documentary History*, edited by Gilbert, James L. and Finnegan, John P., Center of Military History, United States Army, Washington, DC, 1993]; SRH-108, "Report on Assignment with Third United States Army, 15 August- 18 September 1944," by Major

Warrack Wallace, USA; and "Deserter in the Ranks," by Diane L. Hamm [*Military Intelligence: Its Heroes and Legends*, U.S. Army Intelligence and Security Command, Deputy Chief of Staff, Operations, History Office, Arlington Hall Station, VA, 22212-5000].

"Military Intelligence Sources During the American Civil War: A Case Study," by Peter Maslowski, is from *The Intelligence Revolution: A Historical Perspective*, Proceedings of the Thirteenth Military History Symnposium, U.S. Air Force Academy, Colorado Springs, Colorado, October 12-14, 1988, edited by Lt. Col. Walter T. Hitchcock, USAF, published by Office of Air Force History, United States Air Force, Washington, D.C., 1991.

Other publications were:

"Army Intelligence at Yorktown: Catalyst to Victory," by Edmund R. Thompson [*Defense*, Oct 81]; "The Military Information Division: Origin of the Intelligence Division," by Elizabeth Bethel [*Military Review*. Spring, 1947]; and "Invasion on the Ether: Radio Intelligence at the Battle of St. Mihiel, September 1918," by William A. Morgan [*Military Affairs*, April 1987].

The credit for the enormous amount of typing goes to the indefatigable Mrs. B. J. Hayes and her always cooperative boss Tom Daly. I also wish to thank Barbara Tuttle, Tim Phillips, and Sfc. Dan Francis for their dependable and peerless work on behalf of the history program at the U.S. Army Intelligence Center and Fort Huachuca. Special thanks goes to Jim Chambers, a champion of MI traditions; Dr. John Finnegan and James Gilbert, MI's premier scholars; and John Della-Giustina, the military history instructor at the Intelligence Center and School; all of whom reviewed this text and made percipient suggestions for its improvement.

Jeanne Reilly, an extraordinarily talented Chicago-based graphic designer, deserves special mention. She voluntarily and generously undertook not only design work, but printing and production of these books as well. She has made a big difference.

I would like to thank the staff of the U.S. Army Intelligence School Library, Chris Hurd, Anita Lewis and Jerry Hawkins, for their long-standing, smiling tolerance of my vague queries. They swiftly turn miscited and recondite sources into real books, if not off their own shelves, then through their skillful manipulation of the interlibrary loan system. They are what librarians are all about.

While these articles combine to tell the story of military intelligence within the U.S. Army, they indirectly have another message. Whether it is Arthur L. Wagner making the case for a field intelligence organization, or Ralph Van Deman pleading for a professional intelligence organization within the U.S. Army. Whether it is William F. Friedman calling for peacetime training that will allow intelligence capabilities to be in place in times of emergency, or John F. Stewart examining the lessons of the Gulf War; a pattern emerges. These leaders all sought to convince the American military establishment of the need for MI to ward off that nemesis that haunts American military history—unpreparedness. And they all relied upon history to drive home their point. Their historical awareness became a part of their professional judgment and allowed them to champion the military intelligence cause, one that sought only to prevent the mistakes of the past that exacted such a horrible price on American youth.

Their collective message was not a new one. A Chinese military analyst some 2,400 years before them had penned a clarion call in the last of his 13 chapters on *The Art of War*. "Secret operations are essential in war; upon them the army relies to make its every move." Sun Tzu sometime after 500 B.C. wrote: "Know the enemy, know yourself; your victory will never be endangered. Know the ground, know the weather; your victory will then be total."

It is in the interest of knowing who we are that these volumes have been compiled, for only by knowing about those who have founded and lived by the same traditions can we ever achieve self-knowledge.

JAMES P. FINLEY
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The Beginnings

The American Revolution was one of the great upsets of history. A small colonial force, made up mostly of militia, eventually defeated the splendid disciplined ranks of the professional British Army, with a grateful nod to French naval power. It was a vision that shaped the American Army over the centuries to come. The ideas of freedom and democracy would cloak the Americans in invulnerability. No large standing professional army would be needed. The British experience had taught America that regular armies were engines of oppression. Instead they would depend upon their militia. When dangers reared, determined American males would pull their hunting rifles off the wall and they would prevail.

This anti-standing-Army attitude would inhibit the growth of the U.S. Army and retard the development of professionalism in its ranks. But it would also shape its character, calling into play in all of its wars the qualities of resourcefulness and ingenuity. These characteristics would be especially apparent in the field of military intelligence, which was forced to reinvent itself in every campaign. While the British Army formed a Department of Military Knowledge as early as 1803 to collect terrain and Order of Battle information on potential foes, no such organization existed in the U.S. Army until 1885, and then it was on an insignificant scale.

The Revolutionary War, with the appearance of the Continental Army in 1775, is thought to be the beginning of American military history, even though many of its key participants were seasoned in the French and Indian War. It was that earlier war on the North American continent that gave the American Army its unique personality, its hardy resourcefulness, its frontiersman's distaste for authority, and its irregular way of fighting, even though it rested solidly on English military traditions.

The Revolutionary War was one of generalship, tremendous courage and suffering, and, not surprisingly, military intelligence. Because it was impossible to know where one's sympathies lie, it was also difficult to know whom to trust. Spies were everywhere on both sides. General George Washington relied heavily upon the use of spies and his ledgers show that he spent $17,000 on his network of paid informants. To safeguard security, Washington would not reveal the identity of these men and this secrecy became the subject of the novel The Spies by James Fenimore Cooper.

The year 1776 appears on the Army's military intelligence emblem, a reference to the formation of Knowlton's Rangers as a recon and intelligence unit during the American Revolution. Realizing how blind he was to the British movements around New York, General George Washington instructed Lt. Col. Thomas Knowlton, another experienced veteran of the French-Indian war, to handpick a company of volunteers to scout British positions and gather intelligence on their movements and intentions.

It was from the ranks of Knowlton's Rangers that Captain Nathan Hale stepped to undertake an espionage mission, one that would ultimately result in his capture and present him the opportunity to declare while standing on the British gallows, "I regret that I have but one live to give for my country."

No lesser fate was handed down to Knowlton and his Rangers. The intrepid colonel had been killed in action on 16 September and his company was decimated in the battle. This was not an auspicious beginning for U.S. Army intelligence. But there would be some important triumphs in the months and years to come, as well as some unforgivable tragedies.

Major Benjamin Tallmadge, a Yale classmate of Captain Nathan Hale and an officer in the Second Connecticut Dragoons, was a veteran of some hard fighting at Long Island, White Plains, Brandywine, Germantown and Monmouth. The former Connecticut high school superintendent would be charged with superintending a network of spies in and around his native Long Island. Tallmadge also had a hand in counterintelligence efforts, exploiting the capture of the British operative Major John Andre which led to the exposure of Benedict Arnold as a turncoat and spy. The Culper Ring was the best known net run by Tallmadge, with ample direction and advice from General Washington. In this role he was seen as a proto-G2, serving the commander. But, as several historians of this period are quick to point out, Washington acted as his own intelligence officer, never relinquishing control of intelligence operations

and always placing the gathering of information about the enemy uppermost in his command priorities.

One of the legion of harrowing spy missions involved a dedicated young sergeant named Daniel Bissell whose risk-taking in the furtherance of intelligence work would earn for the NCO one of only three Purple Heart medals awarded during the Revolutionary War.

Washington was not only a spymaster but a master of deception operations, the most striking of which was the battle of Yorktown where the British were frozen in their vulnerable positions by an ingenious campaign of misinformation. The American Revolution was a laboratory for rudimentary intelligence gathering and it was given form and purpose by the Commander in Chief of the American forces himself. General Washington is eminently quotable on the subject of the importance of good intelligence. However, for all of Washington's emphasis on intelligence in the newborn American Army, after the war's end in 1783 no intelligence organization had been institutionalized and that discipline would be largely ignored over the next century.

The explorations of men like Captain Meriweather Lewis and Second Lieutenant William Clark in 1804 up the Missouri River and the reconnaissance of First Lieutenant Zebulon M. Pike into Colorado and New Mexico in 1806 can rightly be seen as intelligence operations as their object was the acquisition of information about unknown terrain. But they were peacetime efforts by adventurous soldiers.

It would take the War of 1812 to remind the amateur American Army that intelligence was a function of warfare that could not be ignored without deadly consequences. In August Colonel William Hull surrendered Detroit to the British, having fallen victim to their clever misrepresentations of their strength. Tragic loss would befall the Americans again two years later when British troops marched through Washington, torching the capitol and the White House. Both of these defeats and others can be traced to faulty or absent tactical intelligence, although the U.S. Army was woefully unprepared in most other respects as well.

Secretary of War John Armstrong, who took office in February 1813, was known to have strong opinions about the requirement to obtain good intelligence. The intelligence systems of the day were conventions like cavalry reconnaissances, cavalry screens, outposts, pickets, scouts and spies. In the field, intelligence was the job of Indian scouts and spies. William Henry Harrison had 13 "spies and scouts" in his employ when he marched on his way to the Battle of Tippecanoe. The British also depended heavily on the help of Indians for intelligence purposes. Enterprising Indians like Tecumseh regularly captured the mail to learn of the American's situation.

Sometimes prisoners and deserters could be the source of information and at least one commander, Brig. Gen. Zebulon Pike, took advantage of a lull during the attack of Fort York in April 1813 to personally interrogate a few prisoners.

Deception was used repeatedly during the War of 1812, mostly by the British, to misrepresent strength. At the siege of Fort Wayne, Tecumseh sought to convince the small American force that he had been reinforced by British artillery by setting up dummy guns made from logs, demonstrating the military sophistication of this Indian adversary.

By the time of the 1846 Mexican War, the intelligence art was still unformed and did not exist in the curriculum of the U.S. Military Academy or in the drill manuals of the day, but only in the minds of some officers as an ill-defined requirement akin to reconnaissance. In spite of knowing nothing of the terrain or the enemy's numbers or dispositions, the American units under Zachary Taylor were able to succeed in Northern Mexico only because of the extraordinary mettle of their soldiers.

Winfield Scott, moving on the Mexican capitol after landing at Veracruz, was likewise blinkered, but he was ably served by a soldier with an acute insight into the exigencies of warfare. Colonel Ethan Allen Hitchcock spent a considerable amount of his time as Scott's Inspector General seeing to the intelligence needs of his commander, relying on informers and his Mexican Spy Company. A life of philosophic inquiry may well have honed his clarity of vision which allowed him to foresee the possibilities presented by a native intelligence and reconnaissance company. But the Mexican Spy Company's contribution was not Scott's sole tactical intelligence tool. The purpose of intelligence was also notably served by daring

reconnaissances made by young engineering officers like Robert E. Lee and George B. McClellan.

During and after the war, the officers of the Army Corps of Topographical Engineers were assigned a mission unique in U.S. Army history. They were to reconnoiter routes through rarefied and intimidating mountain ranges, canyons awesome in their vastness, down rushing rivers and across parched deserts, so that the American people could expand westward to Pacific shores and so that the Army outposts placed to protect the pioneers could be supplied overland. At the same time they would observe and record a plethora of data on the heretofore unknown natural history of some of the most exciting wildlife habitats in the world. These men ranged over America's great Southwest, campaigned during the 1846-48 Mexican War, surveyed the new border with Mexico, opened wagon train trails, provided tactical maps for the Indian-fighting Army, mapped transcontinental railroad routes and produced, in just twenty years, one of the most comprehensive scientific inventories ever made of any part of the earth. They were men like John C. Fremont, William H. Emory, Lorenzo Sitgreaves, Amiel W. Whipple, George H. Derby, John G. Parke and George Stoneman.

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*PETER KROSS * George Washington: America's First Spymaster*

The American Revolution was the proving ground for American spy operations in years to come. General George Washington's use of deception, covert activities, secret inks and informers was a model for future generations of spymasters. His idea that with good intelligence a smaller force could defeat an enemy of much larger size was proven on the battlefield. It truly can be said that without the splendid espionage network established by Washington the tide of battle and the future shape of the United States might well have been difficult.

Legend has it that Washington never told a lie. The fact is that he told plenty of lies in furthering the American cause against Britain. Washington was America's first master spy. He deceived the British on numerous occasions and ran one of the largest espionage operations in American history. As leader of the American forces, Washington was responsible for the safety of the troops under his command. Badly outnumbered by the British, he used every means at his disposal to counteract the numerically superior British forces. He realized not only that American secret agents could gather vital information on the British but could give the enemy false information as well.[1]

Elias Boudinot

Washington gave Colonel Elias Boudinot the job of deceiving the British into thinking that the colonists had more men than they actually had. Boudinot was a native of New Jersey and later served as a member of the Continental Congress.

Under Washington's instructions, Boudinot ordered his troops bivouacked in two's and three's at their winter quarters in Morristown, New Jersey. To anyone interested in the size of the colonial troops, the sight of men stretched out for miles would surely gain attention.

A British agent whose activities were well known to Washington was allowed free access to Morristown where he could readily see for himself the "large" number of colonial troops bivouacked in the area. The British decision not to attack Washington's encampment was a direct result of American deception.[2]

John Honeyman

During the battle of Trenton, Washington recruited a butcher named John Honeyman to get information on the British strength. Honeyman, who had come to America from Ireland, was a resident of Griggstown, New Jersey.

In December 1776, Washington personally sent Honeyman to Trenton to scout the British forces. Washington told Honeyman that American troops along the Delaware River would be on the alert for a suspected "British spy." After Honeyman had gotten all the information he could on British forces, he was to tell any American patrol that he came across to take him personally to Washington's headquarters. Sure enough, as he was returning to the American lines, he was captured by an American patrol and taken directly to Washington. He then told his boss everything he had learned in Trenton.

Honeyman's cover as a British spy was enhanced when he "escaped" from an American jail after his guards discovered a small fire nearby. Once back in Trenton, Honeyman told the British that the colonists were badly disorganized and were not ready for battle. The British believed his story and were taken completely by surprise when the Americans attacked Trenton on the day after Christmas.[3]

The Merserau Spy Ring

During the war, most of the British troops were stationed in New York City and had command of the vital Hudson River. In order to keep tabs on their activities in New York, Washington organized the Merserau spy ring, which operated in Staten Island and Manhattan. The man in overall command of the Merserau spy ring was Colonel Elias Dayton of the 1st Essex New Jersey Militia. The members of the group included Joshua Merserau, his son John and Joshua's brother, Paul. They traveled to and from New York City and returned to Washington's headquarters with the vital information they picked up.

For 18 months, John Merserau stayed in New Brunswick, New Jersey and collected information on the occupying British troops. The younger Merserau constantly traveled between New Jersey and Staten Island using a courier named John Parker to help him in his spying activities. On one of his trips, Parker was caught and died while in a British jail. With the death of Parker, Merserau took on the job as courier until he attracted the unwanted attention of the British and returned once and for all to American territory.[4]

The Culper Ring

The most effective spy group Washington organized was the Culper Ring led by Major Benjamin Tallmadge. Tallmadge recruited Abraham Woodhull of Long Island, Robert Townsend of New York City, James Rivington and Caleb Brewster. These men traveled between New York and Long Island on the pretext of doing business in New York. The men of the Culper Ring used Austin Rose as their secret courier to take their message from Long Island to New York. In order to protect Rose if he happened to be stopped by a British patrol, they hid their messages by using invisible ink. This ink, also called "white" or synthetic" ink, was produced by Sir James Jay, a doctor who was the brother of John Jay, a prominent American patriot. When this ink was used on plain white paper, it would be invisible to anyone reading it. At Washington's suggestion, the members of the Culper Ring wrote innocent looking letters with their secret messages inserted in between the lines with the invisible ink.

As an extra precaution, Tallmadge created a code or cipher system that substituted names and places with numbers. For example, Tallmadge was 721, Woodhall 722, Townsend 723 and New York 727. Tallmadge had three code books made up and gave one to Washington. Two episodes in particular proved the worth of the Culper Ring. In November 1779, they learned that the British had gotten hold of reams of paper identical to the type used to print American money. The British planned to print this currency and give it to their Tory sympathizers in Connecticut to pay their taxes. After Culper Ring detected the operation it was quickly shut down.

The second major operation uncovered by the Culper Ring concerned the arrival of the French troops under the Comte de Rochambeau. Rochambeau's troops were to arrive in Newport, Rhode Island, in force. The British commander in New York, Sir Henry Clinton, knew of Rochambeau's planned landing. Washington, in order to deceive the British, arranged for Clinton's spies to intercept a message saying that the Americans were going to attack Clinton in New York once the British troops left to intercept Rochambeau's forces in Newport. Believing this false information to be true, Clinton kept his forces in New York and the huge French force landed unopposed. The Culper Ring proved to be the best kept secret in Washington's intelligence network.[5,6,7]

Benedict Arnold

One of Washington's worst intelligence failures concerned his friend of many years, Benedict Arnold. Arnold, a Brigadier General in the American Army, became a British agent. It was the Culper Ring that first discovered that he was working for the British when British Major John Andre paid a visit to the home of Robert Townsend's father in Oyster Bay, Long Island.

Townsend's sister Sarah saw a stranger leave a note addressed to "John Anderson" and later heard

Andre talking to other British officers who were also in the house about the fortifications of West Point and how easy it would be to capture the fort. Sarah told her brother about the mysterious man in their father's home. Townsend quickly sent a message to Tallmadge who found out that Andre-Anderson had been picked up with information about West Point stashed in his boot. Tallmadge remembered that Arnold had issued orders that Andre be allowed through the American lines. Townsend immediately sent word of Arnold's treason to Washington's headquarters.

Unfortunately, before Arnold could be captured he fled to a waiting British warship and returned to British-occupied New York where he worked openly for the British. Washington planned an operation to capture Arnold and bring him back for trial, but before the plan could succeed, Arnold and his unit were sent to the Chesapeake Bay area.

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1. O'Toole, G. J. A., *The Encyclopedia of American Intelligence and Espionage*, Facts on File, New York, 1988, pp. 487-489.
2. Miller, Nathan, *Spying for America. The Hidden History of U.S. Intelligence*, Paragon House, New York, 1989, p. 21.
3. Ibid, pp. 3-5.
4. O'Toole, p. 296.
5. Ibid, pp. 149-150.
6. *American History Illustrated*, November-December 1989, Volume XXIV, Number 6, pp. 26-27, 69.
7. Miller, pp. 22-23.

*EDMUND R. THOMPSON * **Army Intelligence at Yorktown: Catalyst to Victory***

Two o'clock in the afternoon, October 19th, 1781, Yorktown, Virginia. The victorious armies of the Grand Alliance, America and France, are formed on either side of the road leading out of town. The French, resplendent in white uniforms with varicolored regimental facings, are drawn up on the left. The Americans, in the tattered remnants of the uniforms of the Continental Line of the plain homespun of the militia, calmly face their French allies. All are soldierly, possessed of a bearing described as "commanding respect."

The British and German column marches out, arms shouldered and proud colors cased, to the old tune, "The World Turned Upside Down." The world of the British in North American had indeed been turned upside down, by the diligence, patience, and skill of the Continental Army and its commander. Reflecting later, that commander found it difficult to believe "that such a force as Great Britain had employed for eight years in this country could be baffled in the plan of subjugating it, by numbers infinitely less, composed of men often times half-starved, always in rags, without pay, and experiencing every species of distress which human nature is capable of undergoing."

Cornwallis, prominent in past victory, delegated the odious task of surrender to his deputy. Washington, although new at victory, delegated receipt of the surrender sword to General Benjamin Lincoln, who had himself suffered defeat at the hands of Cornwallis one year before. Six years, six months, and a little over eight hours since Lexington Green, Washington's American Army stood proud in victory—a victory of spirit, of dedication, and of excellence. The war had been won, and in winning, a nation born.

The web ensnaring Cornwallis at Yorktown was composed of three strands, gathered together from afar. The first, Lafayette's 3,000 American troops opposed and harassed Cornwallis during his retreat from an unsuccessful campaign in the Carolinas. As Cornwallis put his army into Yorktown, in a vain effort to preserve his sea line of communications, the pursuing Americans were reinforced by two additional columns of 1,000 men each, under Anthony Wayne and von Steuben. The combined force moved into a blocking position commanding the sleepy village during the first week of August and waited. The second strand, the French Fleet of Admiral de Grasse, had been operating in the West Indies, under orders from Paris to cooperate with Washington should the opportunity arise. The third strand, the 6,000-man combined force of Washington and Rochambeau, held Clinton's troops in check from positions around New York. On August 14th, Washington received word that de Grasse's Fleet, its transports packed with 3,000 French soldiers, was sailing for Chesapeake Bay and Cornwallis' doomed army. Seizing the opportunity, Washington hurried to set his forces in motion south on the 19th.

De Grasse arrived, disembarked his troops, and turned back the British Fleet on September 5th. On September 14th, Washington arrived at Lafayette's headquarters and assumed command. By the 28th, the entire force of 16,000 French and Americans was on hand. Washington now laid siege "in the regular way" to Yorktown, and in less than a month the campaign was over and with it, nearly 180 years of British dominion in the colonies.

The temporary web of troops spun about Cornwallis at Yorktown was made possible by another web, more lasting and secretive, skillfully spun around the British forces by the American commander. The web of Washington's intelligence network stretched from the dazzling courts of Europe to the warm bays of the West Indies to colonial taverns and even into the very camps and headquarters of the British Army.

As did most 18th century commanders, Washington served as his own Chief of Intelligence, retaining personal control over agent networks and the product of their efforts. Although two of the three components of the triad of modern intelligence, photographic and electronic, were unknown 200 years ago, the third component, human, was a highly developed art. Spies and counterspies; codes, ciphers, and cryptography; secret inks and false documents; and reconnaissance troops and prisoner of war interrogators all

played their parts in the deadly secret war which continued unabated between the better known campaigns and battles. So carefully did Washington and his agents guard their methods and secrets, their total contribution to the final defeat of Britain remains partly obscured to this day. However, one thing is not obscured. Intelligence was vital to the successful Campaign of 1781. This then is the story of that success.

For three years, ever since the French alliance had forced the British to evacuate Philadelphia and retreat to New York, Washington had sought to bring the combined weight of French and American forces to bear in a decisive clash which would drive the British from the colonies. Realizing he still lacked sufficient troops to carry the British positions by direct assault, Washington's Army laid siege to New York, while both sides simultaneously conducted protracted warfare far to the south in the Carolinas and Georgia.

But during the spring and summer of 1781, the arrival of a sizeable French Army and Fleet made Washington's dream of an attack seem nearer to reality. With his elaborate intelligence network in New York providing detailed reports on British dispositions and intentions, it seemed possible that the combined allied army could select a weak point to assault. Unfortunately, the British commander's agents also kept him well informed of the American commander's objective. Taking full advantage of interior lines, Clinton quickly reinforced threatened positions.

Nevertheless, Washington ordered Rochambeau to move the French from Newport to Westchester, determined as he was to attack the British someplace, anyplace. Once again Clinton smugly received detailed strength reports of both opposing armies, as their units passed his watchful spies, and readied his defenses. However, Washington's plans changed abruptly on August 14th with the arrival of de Grasse's message, reporting that he could depart the West Indies with 29 ships carrying three French regiments, but would not conduct operations further north than Chesapeake Bay. Quick to make a virtue of necessity, Washington immediately changed his plans and decided to concentrate all available forces against Cornwallis at Yorktown.

Since it would be impossible to conceal the movement of such a large force from the eyes of Clinton's agents, Washington realized he must rely on deceiving his opponent about the purpose of the move rather than its existence. Washington fully understood the essence of deception: to make an action appear to coincide with the enemy's preconception.

In this case, as Washington agents informed him, Clinton fervently believed he was about to be attacked in New York; so the ruse devised by Washington was to make the shift of the Continental Army toward Yorktown appear to be a ruse concealing a real attack on New York via Staten Island. Only too late would Clinton realize that his conceptions of ruse and reality were actually reversed. Furthermore, Washington realized that the surest way to strengthen his deception was by manipulating Clinton's intelligence system.

To further Clinton's perception of imminent attack, Washington carefully wrote letters to that effect addressed elsewhere but designed to fall into British hands. When these letters were duly brought to Clinton, his worst fears of attack were confirmed. Sir Henry's spies were quick to report the French Army's crossing of the Hudson and the beginning of the combined force's move south into New Jersey. However, British analysis continued to see the situation as orchestrated by Washington.

As Washington and Rochambeau started south on August 21st, their route of march through New Jersey was beyond the range of British patrols. The crossing of the Hudson at King's Ferry had been screened by General Heath's forces, which were being left at West Point to threaten New York. To lend credence to the cover story, Washington halted the force in New Jersey and laid out an elaborate camp, including a large bakery at Chatham. To reinforce British reports of these preparations, French troops were marched along the Palisades, their white uniforms clearly visible from the New York shore. Boats were assembled along the Jersey shore. Washington himself engaged a known British agent in conversation, asking him questions about landing beaches on Staten Island and the terrain around Sandy Hook. These efforts were successful, especially when reinforced by Washington's reputation for deception; as

the march resumed southward, the British were convinced that it was itself a ruse and that Washington soon would double back to join with the French fleet to strike New York.

Only Washington and Rochambeau knew their armies' destination. Until the armies had passed New Brunswick, even the other generals believed their destination to be Staten Island, from which to launch an attack on New York; and Philadelphia was reached before the rank and file understood the plan. It was not until mid-September, by which time de Grasse had landed troops to reinforce Lafayette and Washington was approaching the Head of Elk in Maryland, that Clinton was willing to admit that he had been surprised.

While Washington spun his web of deception around Sir Henry Clinton, Lafayette sought intelligence on Cornwallis' forces and developed his own tactical deception. Aware that Cornwallis might escape the trap by transferring his army across the York River to Glouster, Lafayette sent Private Charles Morgan of New Jersey into Cornwallis' camp. He posed as a deserter with the false story that the colonials had adequate numbers of boats to cross the York. This story confirmed a belief Cornwallis already held and dissuaded him from an immediate evacuation. Morgan later escaped to the American lines bringing several deserters to supplement his eyewitness account of the terrible conditions prevalent in the British camp.

While Washington's deception of Clinton relied on manipulating Clinton's intelligence network, the compromise of his own network was prevented by the utmost attention to the details of what is known as "tradecraft" today. Among the most important technical facets of this craft was the extensive use of invisible ink and chemical developer invented by James Jay, brother of the famous patriot and statesman John Jay. The messages, even though written in invisible ink, were encoded and enciphered, transported by secret messenger and deposited in a dead drop for later recovery. So effective was the procedure that, although due to their own counterintelligence efforts the British were well aware the messages were flowing, they were unable to stop them.

Major Allan McLane, one of Washington's agents, had been sent in early July as a confidential emissary to de Grasse to discuss plans for the French Fleet. McLane sailed with the fleet to the Chesapeake, landing in Virginia on August 28th. He was then sent to Long Island with instructions to obtain information on movements of the British Fleet and to contact James Rivington, one of Washington's most effective agents in New York City. Rivington had obtained a copy of the Royal Navy signal code. McLane was successful and delivered the signal code to de Grasse in time for the French to use it and enable them to outmaneuver Admiral Graves' British Fleet in the entrance to Chesapeake Bay on September 5th. Graves, thoroughly discouraged, returned to New York, leaving the French in command of the bay and Cornwallis to his fate.

General Nathaniel Greene captured some encrypted correspondence from Cornwallis to his subordinates. Greene sent the message to the Continental Congress, which received it on September 17th. Within four days the message was solved by Congressman James Lovell, who has been called "the father of American Cryptanalysis." The information was no longer current, but Lovell sent the keys to Washington in the hope that Cornwallis would continue to use the same cipher in his correspondence with Clinton. On October 6th, Washington was able to confirm the continued use of the same system by the British commanders.

This correspondence between Cornwallis and Clinton was maintained by small boat. The boats sent out of New York on September 26th and October 3d were captured. On one was a Tory carrying encrypted dispatches. Lovell attacked the messages and by October 14th was able to write to Washington, confirming the continued use of the British cipher. Thomas McKean, president of the Continental Congress, sent copies of the clear text to both Washington and De Grasse. The letter gave assurances that by October 12th Admiral Graves would sail to attempt the relief of Cornwallis. In the meantime, Cornwallis surrendered on October 19th. The next day, October 20th, Washington received Lowell's solutions from McKean and immediately forwarded his copy to de Grasse. De Grasse maintained his blockage and continued to be watchful. Clinton arrived with supplies and reinforcements off the Virginia Coast on

October 24th, but learning of Cornwallis' surrender and finding the French Fleet alert to his movements, Clinton sailed back to New York. The British cause now was irretrievably lost.

For two more years Washington continued to besiege the British forces in New York. During this long period of stalemate, American intelligence operatives remained active and continued to report denials of British activities and intentions. When the glorious day finally came and the triumphant Continental Army marched into New York City on the heels of the embarking British, among the first to enter was the 2d Continental Dragoons, whose Major Tallmadge had supervised Washington's key agent network in the city. Tallmadge's orders were to protect his agents lest they be mistaken for Tories in the confusion.

Washington himself reportedly met secretly with several of his principal agents, notably Hercules Mulligan and James Rivington, prior to his emotional farewell to the officers of the Continental Army at Fraunces' Tavern. But the most secretive agent of all, Robert Townsend, remained unknown even to Washington. His identity was not revealed until the 1930's when modern handwriting analysis uncovered his secret. Townsend's role before Yorktown and throughout the war is surely one of the best kept secrets in American military history.

In comparison to warfare today, the scale of war in the 18th Century was much smaller and more personal. Armies numbered in the thousands; campaigns were measured in weeks and hundreds of miles. Thus, it is easy to see the crucial role played by the daring intelligence activities of particular individuals. Today warfare is conducted by tens of millions over vast areas and into space with technology undreamed of by our colonial forbears. Yet, it is important to remember that a conflict is still fought between men. Decisions are still made by individual leaders on the basis of their personal convictions based on such evidence as is available. Therefore, there is still a vital role for intelligence as it seeks to inform the friendly commander and confound the enemy. The individual intelligence agent and analyst today must be no less courageous, resourceful, and daring than were Washington's intrepid band. The commander must "think and see deeply" in order to ensnare his opponent while avoiding pitfalls himself. Intelligence activities in the Yorktown campaign and throughout the Revolutionary War are therefore worthy of careful study and emulation today.

Probably the first patriotic organization created for counterintelligence purposes was the Committee (later called commission) for Detecting and Defeating Conspiracies. It was made up of a series of groups established in New York between June of 1776 and January of 1778 to collect intelligence, apprehend British spies and couriers, and examine suspected British sympathizers. In effect, there was created a 'secret service' for New York which had the power to arrest, to convict, to grant bail or parole, and to jail or to deport. A company of militia was placed under its command to implement its broad charter. John Jay has been called the first chief of American counterintelligence because of his role in directing this Committee's work

Nathaniel Sackett and Colonel William Duer were particularly successful in ferreting out British agents, but found their greatest success in the missions of one of their own agents, Enoch Crosby. Crosby, a veteran of the Continental Army, had been mistaken by a Westchester County Tory as being someone who shared his views. He confided to Crosby that a secret Tory military company was being formed and introduced him to the group. Crosby reported the plot to the Committee and was 'captured' with the group. He managed to 'escape' and, at Committee direction, infiltrated another secret Tory unit. This unit, including Crosby, was also taken and he 'escaped' once more. He repeated the operation at least two more times, before Tory suspicions made it necessary for him to retire from counterintelligence work.

Another successful American agent was Captain David Gray of Massachusetts. Posing as a deserter, Gray entered the service of Colonel Beverly Robinson, a Tory intelligence officer, and became Robinson's courier. As a result, the contents of Robinson's dispatches were read by Americans before their delivery. Gray eventually became the courier for Major Oliver DeLancey, Jr., the head of the British secret service in New York. For two years, Gray, as DeLancey's courier to Canada, successfully penetrated the principal communications link of the British secret service. Upon completing his assignment, Gray returned to the ranks of the Continental Army and his name was struck from the deserter list, where George Washing-

ton had placed it at the beginning of the operation.

Colonel Benjamin Tallmadge, a senior intelligence officer under Washington, is credited with the capture of Major John Andre, who preceded DeLancey as chief of the British secret service in New York.

Although Tallmadge declined to discuss the episode in his memoirs, it is said that one of his agents had reported to him that Major Andre was in contact with 'John Anderson' who was expecting the surrender of a major patriot installation. Learning that a 'John Anderson' had passed through the lines 'en route to' General Benedict Arnold, the commander at West Point, Tallmadge had Anderson apprehended and returned for interrogation. 'Anderson' admitted to his true identity—he was Major Andre—and was tried, convicted, and executed as a spy. Arnold, learning that Andre had been taken and that his own traitorous role no doubt was exposed, fled West Point before he could be captured, and joined the British forces.

General Washington demanded effective counterintelligence work from his subordinates. On March 24, 1776, for example, he wrote, "There is one evil I dread, and that is, their spies. I could wish, therefore, the most attentive watch be kept…I wish a dozen or more of honest, sensible, and diligent men were employed…in order to question, cross-question, etc., all such persons as are unknown, and cannot give an account of themselves in a straight and satisfactory line…I think it a matter of importance to prevent them from obtaining intelligence of our situation."

*DIANE L. HAMM * **Deserter in the Ranks***

As Sergeant Daniel Bissell, member of the 2d Regiment of the Continental Line, stood rigidly at attention, General George Washington fastened a badge of purple silk, edged with silver lace, over Bissell's heart. Sergeant Bissell was one of the only three soldiers to receive the "Purple Heart" during the War of Independence. All three were noncommissioned officers from Connecticut units. Here, however, the similarity ended. Whereas the other two had been decorated for their bravery under fire, Sergeant Bissell's award was recognition for a much different kind of heroism, one best appreciated by the honor's bestower. General Washington realized the extreme importance of military intelligence and entrusted it to none but his most intimate and personal associates. Sergeant Bissell had earned his well-deserved recognition for actions performed in deep secrecy which had led him through extreme peril and the shadow of disgrace.

Born December 30, 1754, in East Windsor, Hartford County, Connecticut, Daniel Bissell enlisted as a fifer in the 8th Connecticut Regiment on July 7, 1775. Two years later, on April 1, 1777, he reenlisted as a corporal in the 5th Connecticut Regiment. On September 1, Bissell was promoted to sergeant and transferred to the 2d Connecticut Regiment as a result of consolidation of units. Throughout his service, Bissell demonstrated a great degree of personal courage, self-reliance, prudence, and strict integrity.

In early 1781, the stage was being set for Sergeant Bissell's greatest challenge. The year was a critical one for the hopes of the colonies if they were ever to succeed in acquiring their freedom from Great Britain, but the prospects were not bright. Morale and resources were at a low ebb in the six-year struggle. The British forces were divided between General Clinton in New York and General Cornwallis in Virginia. Although outnumbered, Washington had successfully persuaded the French allies to join him in a combined land and naval assault against the British forces. But to achieve success, Washington required a number of ingredients, among them, knowledge of the enemy's plans while at the same time deceiving the enemy as to his own intentions. General Washington selected Sergeant Bissell to play a significant role in the events which would follow.

Bissell's instructions came through Colonel Humphreys who was acting on behalf of General Washington. The mission would be dangerous, and the goal would be to determine any plans by General Clinton to evacuate New York City and to move his troops south. In addition, Sergeant Bissell was to spread misleading rumors to confuse and delay the British in execution of their plans. Finally, he was to learn as much as possible about the number and disposition of the enemy's troops.

To gain access to the British occupied city, Bissell would travel as a deserter from the American Army. However, to win the confidence and trust of British authorities would require that Bissell be able to convince them as to his character. This meant he would be written off the rolls as a deserter, not only to mislead the British but his own comrades as well.

On the morning of August 13, 1781, Bissell put some food in his pack; put on a suit; packed an extra suit in his bag; put on his watch, silver buckles, etc.; and slipped away while the regiment was on parade. This was to give the illusion of deserting. When Bissell arrived at the dividing line between the British and American armies, a bridge manned by the Connecticut Light Infantry, he was approached by the infantry commander, Colonel Schammel. Previously briefed on the mission, the colonel escorted Bissell past the camp guards and sentinels; he ordered off all guards and patrols as far as Croton Bridge until midnight, giving Bissell time to cross into enemy lines. From the time Bissell crossed over, he was to answer if hailed, "Friend to Britain."

When Bissell arrived in New York, he found that General Benedict Arnold had returned from Virginia with a newly raised corps and established recruiting parties in every place where deserters could come in; that the British fleet had got into New York and shut out the French Fleet; that the press gangs were in every part of the city; and that the commander in chief, General Harry Clinton, had issued a recent order that there would be no protection given to deserters.

After avoiding the press gangs for three days, Bissell, stricken by fever, was forced to enroll in Arnold's

regiment for medical attention. He was soon sent to the hospital at Flushing, and by December, moved to York Island into a barn which served as a regimental hospital where he remained until May. Unable to walk, Bissell suffered from cold, hunger, and filth. The only wood allowed was for the purpose of cooking pork and peas; there was little to no medical attention; blankets were given to only one of two men; and because his clothes had not been changed for the three months there, Bissell found himself covered with head and body lice.

The sudden threat of exposure finally forced Bissell to abandon his mission and escape. It seems that from early boyhood he had been in the habit of talking in his sleep, and during the temporary delirium of his fever in the British hospital, Bissell unconsciously revealed his secret to his attending physician. When the doctor hinted to Bissell of the incident, Bissell immediately made up his mind to leave. Taking into his confidence a comrade who also wished to escape, the two obtained permission from the officer of the guard to leave the lines in search of a pig which they pretended had strayed away. Accompanied by a boy whom they took along as a blind, they started forth. The adventures which followed were numerous and exciting.

Coming to a small river, Bissell supported his comrade (who was a larger man, but no swimmer) on his shoulders as he and the boy swam across. At another and wider river, they were at a loss in how to cross, and were deliberating on the subject when they spied a person approaching in a boat from the other side. When they hailed the man, he seemed frightened and threw overboard what seemed to have been a quarter of beef. As he was about to paddle off in the opposite direction, Bissell seized a small stick about the size of a horse pistol and threatened to shoot him immediately if he did not come ashore. When the man reached the beach, Bissell ordered him to take he and the other man across the river with "no questions asked or answered." This the man did, and appeared quite relieved when he was well rid of his load. He was probably a renegade farmer who was smuggling in beef to the British Army on New York Island.

It wasn't long before Bissell and his party's escape was suspected, and they were pursued by a detachment of the British light horse. Luckily, however, they reached a large swamp in which they hid themselves for some time, with nothing but their heads out of water. Their pursuers, accompanied by bloodhounds, rode around in vain search. Fortunately, the water threw the dogs off their scent, and after two or more hours of the most amazing suspense, Bissell and his comrades were delighted to hear the bugle sound of recall and the footsteps of their pursuers gradually receding. They climbed up into the trees, and there, cold, wet, and hungry spent a desolate night. Sergeant Bissell reached General Washington's camp on the 29th of September.

Two days after Bissell had returned safely to the American headquarters, he was informed that General Washington would not be able to give him the commission he had been promised. Because of the length of Bissell's mission, by the time he returned there were so many supernumerary officers that Congress had ordered that there be no more commissions given. Bissell was then offered a discharge or the opportunity to join the Invalid Corps and receive a pension, but he declined both and returned to his regiment as an Orderly Sergeant.

On August 7, 1782, General Washington instituted a system of positive incentives in the Continental Army. Previously, promotion in rank was the only means available to recognize outstanding conduct. Now chevrons on the left sleeve of uniform coats were authorized for noncommissioned officers and privates who completed three years of service "with bravery, fidelity, and good conduct"; two chevrons designated six years of service. The Badge of Military Merit presented to Sergeant Daniel Bissell, Jr., on June 10, 1783, represented a more significant award which combined both conspicuous gallantry and sustained outstanding conduct; even distinguishing it from today's Medal of Honor. For Sergeant Bissell to have received the "Purple Heart" meant that he had been nominated for the award by his regimental commander and the supporting documents reviewed by brigade, division, and army-level special boards. Besides the badge itself, Bissell received a certificate and had his name recorded in a special honor roll which listed all the recipients. But Sergeant Bissell was not the only one who felt a sense of personal achievement on that June day in Newburgh, New York. General Washington himself must have gained a

great amount of satisfaction of his own as evidenced by his proclamation, "the road to glory in a patriot army and free country is open to all;" a reference to the fact that decorations in European armies of this period were normally restricted to officers.

Through the years, the initial decoration of the three soldiers with the Purple Heart has represented a milestone in the proud and cherished traditions of the Army's enlisted soldiers. But the presentation of the award to Sergeant Daniel Bissell, Jr., symbolizes even more. It marks the first formal recognition of the role, although often unheralded, which military intelligence specialists have played in our nation's history.

Daniel Bissell's illustrious military career did not end with the War of Independence. In the immediate years following the war, Bissell became involved in the efforts of the United States to gain control over the Indian tribes occupying the old Northwest Territory which lay north of the Ohio River. Once, while assigned the duty of dispatcher from Philadelphia to Pittsburgh, he traveled on foot, alone, to deliver important messages; all the while eluding hostile Indians and enduring bitter cold and limited rations. In 1791, Sergeant Bissell was with the St. Clair military expeditions near the Maumee River when it suffered its disastrous defeat at the hands of the Indians. He and his brother were the only members of his company who escaped. He was mustered back into the service on April 11, 1792. As an officer of the Regular Army, Bissell served in the campaign against France in 1799, known as Adam's War, holding the rank of first lieutenant in the 16th Regiment of the U.S. Infantry. In 1804, Bissell commanded Fort Massac, a military post on the Ohio River, participating in many of the important battles on the western frontier.

Upon the purchase of the province of Louisiana from France, President Jefferson appointed Bissell as military commander of that portion which today embraces the states of Missouri and Illinois. Promoted to colonel on August 15, 1812, and later to general on March 9, 1814, Bissell participated in the last engagement of the War of 1812, when he led the United States forces in the battle of Lyon's Creek. After commanding posts at Mobile, New Orleans, and Baton Rouge in the South, Bissell retired from the Army in 1821.

The Civil War

The American Civil War, like the American Revolution, was an occasion for widespread human intelligence operations, owing to the fact of an identical language and the shared cultural backgrounds of the protagonists. It was an easy matter to conceal allegiances and pass through the familiar countryside. It was also the brink of the modern era of warfare, employing new technologies like railroads, telegraphs, photography and lighter than air ships. This opened new avenues for intelligence exploitation. With the proliferation of new concepts of warfare came the attendant potential for intelligence opportunities. It became incumbent upon the intelligence operative to invent ways to seize these chances. Signals intelligence was born. Codes were deciphered with regularity by both sides. Aerial reconnaissance emerged with Thaddeus Lowe and his balloon corps. The role of cavalry was redefined. Special operations were launched to infiltrate battle lines and spread havoc in the enemy's rear. Railroads brought a new dimension for massing forces and supplying armies. They also became the obvious target for sabotage.

During the Civil War the U.S. Army began using the telegraph, not only to link major headquarters, but tactically, in the form of the "Flying Telegraph." This was the name given to the Beardslee magneto-electric telegraph set, the American army's first electric weapon. It was portable, hand-operated, without batteries, and could signal over several miles of insulated field wire. For the first time the U.S. Army had an electronic Command, Control and Communications (C3) system. And, for the first time, telegraph lines were tapped and messages intercepted.

Captain Anson Stager, head of the Military Telegraph Service, established in 1861, developed a route transposition cryptosystem to provide an elementary safeguard against wiretapping. It scrambled the words of a message according to a prearranged pattern and, although far from sophisticated, it defied Confederate decryption, at least according to employees of the Military Telegraph Service.

The Federals on the other hand had little trouble with the Confederates' Vigenere polyalphabetic substitution system, owing to their habit of only partially encrypting the messages and leaving substantial plaintext clues. The possibility of using the vulnerable telegraph to send misleading messages was not lost on either side, and both made good use of disinformation.

It was during the Civil War that the Army Signal Corps first began attempting aerial surveillance from lighter-than-air balloons overlooking enemy lines. (During the Mexican War a civilian balloonist suggested their use, but the idea was rejected as impracticable.) Thaddeus S. C. Lowe, a 28-year-old New Hampshire meteorologist, demonstrated the usefulness of balloons as observation platforms to President Lincoln in 1861 when he sent the first air-to-ground telegraph message. The president authorized the formation of an Army Balloon Corps with Professor Lowe, commissioned a captain, at its head. By the end of 1861, Lowe had a fleet of seven balloons and nine aeronauts to man them. In March 1862 with McClellan's Army of the Potomac facing Confederate positions at Yorktown, Lowe took Brig. Gen. Samuel P. Heintzelman, one of the corps commanders, aloft and described the intelligence value of the observation flight:

> *The entire great fortress was ablaze with bonfires, and the greatest activity prevailed, which was not visible except from the balloon. At first the general was puzzled on seeing more wagons entering the forts than were going out, but when I called his attention to the fact that the ingoing wagons were light and moved rapidly (the wheels being visible as they passed each camp-fire), while the outgoing wagons were heavily loaded and moved slowly, there was no longer any doubt as to the object of the Confederates.*

It was one of the earliest recorded instances of an intelligence analyst keeping the commander informed. But the value of Lowe's observations were deemed marginal by most commanders. Little could be seen from great distances, especially when the enemy's positions took advantage of foliage cover. Lowe's salary was cut from $10 per day to six, an insult in Lowe's mind. He resigned in protest and the balloon corps was deactivated in April 1863.

It was at the time of the Civil War that photography was introduced as a means of recording military information. Thaddeus Lowe had used cameras to take pictures from the basket of his balloon.

In the American Civil War the principal intelligence gathering arm of the U.S. Army was the cavalry. Early in the war, however, they could not be said to live up to the present-day motto of the Military Intelligence Corps, "Always Out Front." Rather the cavalry seldom ventured very far from its infantry and artillery support. Its sorties were marked by timidity, and therefore its usefulness as the eyes of the army was hooded. That is until the arrival upon the scene of a "Man on Horseback"—Brig. Gen. John Buford.

Buford recognized that the Union cavalry was no match for the better mounted Confederate cavalry. He also knew that the use of horsemen as shock troops with sabers drawn was a thing of the past. Massed formations of cavalry only made big targets for the more accurate, farther ranging and more rapid-firing rifle. Instead he called upon his Indian-fighting experience and used the cavalry like dragoons. The horse offered mobility, but when it came to fighting he dismounted the troops and had them seek cover. In this way he was able to repel charge after charge of confederates in the saddle. This meant that Buford could keep his cavalry out on reconnaissance without fear of being beaten off by the enemy. This he did tenaciously, taking many important prisoners and gathering some very useful intelligence information such as a letter from Lee outlining his plan for the campaign found in the pocket of J.E.B. Stuart's adjutant.

Maybe the best combat commander of the Civil War, Phil Sheridan was called by William Sherman "A persevering terrier dog—honest, modest, plucky and smart enough." He was also remembered as the best informed commander of the war, relying on a highly organized spy network and reconnaissance. What we call intelligence today, Sheridan called "that great essential of success, information." This careful attention to intelligence would serve him well again in the Indian Wars when he assembled an intelligence network composed of scouts who had much experience with the Indians and could keep him informed, not only of enemy movements, but of their intentions.

The lack of any official intelligence gathering body was keenly felt in the opening years of the Civil War. A railroad detective named Allan Pinkerton became the secret service of the Army of the Potomac, telling its commander, George McClellan, that the Confederates facing him were double the strength they actually were and feeding the cautious McClellan's penchant for inaction. Pinkerton and his men were better at counter intelligence than they were at pinpointing order-of-battle information. They snagged some southern spies in Washington. The detective also seemed more at home with a political kind of espionage.

Military intelligence took on a more professional look in early 1863 when Colonel George H. Sharpe, Assistant Provost Marshal of the Army of the Potomac, formed the Bureau of Information to provide a more efficient and systematic collection of military information from all sources. Sharpe appointed as his deputy John C. Babcock, a volunteer in the Sturgis Rifles and, after his enlistment expired, a civilian order-of-battle expert with the Topographical Department. It was Babcock who stayed on after Pinkerton resigned to prove that accurate information could be assembled about the enemy's numbers. Third in command was Captain John C. McEntee.

The bureau employed some 70 "guides" to gather intelligence in the field. Using information collected from their own scouts, from southern refugees and deserters, from intercepted communications, from balloon observations, from military patrols, prisoner interrogations, and from open sources like newspapers, they were able to write informed and coordinated intelligence summaries for the commander. Sharpe also benefited from a windfall of information provided by the Richmond underground, a highly organized and far-reaching spy organization improbably directed by Elizabeth Van Lew, a 44-year-old abolitionist in 1862 and a resident of the southern capitol. Among Van Lew's sources was Mary Bowser, a freed slave who was planted as a housemaid in the home of Jefferson Davis. The Bureau of Information was the first case in the U.S. Army of a modern military intelligence organization, comparing intelligence from a number of sources and evaluating it before passing it along. The head of the bureau was promoted to brigadier in March 1864. It would seem that the U.S. Army had realized the importance of the intelli-

gence function and the necessity of having it performed by a distinct unit of specialists. But at war's end, the bureau was disbanded and its members returned to civilian life. The lesson about the key role intelligence could play would have to be relearned, the next time by young officers in the decades to come who studied European armies seeking a more professional U.S. Army.

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*PETER MASLOWSKI * Military Intelligence Sources During the American Civil War: A Case Study*

Few who have read them ever forget the dramatic opening lines in Michael Shaara's *The Killer Angels,* a 1974 Pulitzer Prize-winning novel about the Battle of Gettysburg:

> He rode into the dark of the woods and dismounted. He crawled upward on his belly over cool rocks out into the sunlight, and suddenly he was in the open and he could see for miles, and there was the whole vast army below him, filling the valley like a smoking river. It came out of a blue rainstorm in the east and overflowed the narrow valley road, coiling along a stream…spiked with flags and guidons like a great chopped bristly snake, the snake ending headless in a blue wall of summer rain.
>
> The spy tucked himself behind a boulder and began counting flags. Must be twenty thousand men, visible all at once. Two whole Union Corps.[1]

As expected in a novel, much of the narrative in *The Killer Angels* is fiction. But in this case Mr. Shaara had introduced a real spy, one of the most famous in American history. Henry Thomas Harrison, a Mississippian, had discovered the Union Army of the Potomac rapidly nearing the Confederate Army of Northern Virginia commanded by General Robert E. Lee, who believed the Union Army was far away, still south of the Potomac River. When Harrison reached Confederate headquarters with his startling information on the evening of 28 June 1863, he precipitated the events that led to the Battle of Gettysburg. Based on Harrison's report, Lee ordered his invading army to concentrate in the Cashtown-Gettysburg area to meet the swiftly approaching menace.[2]

Three points about this episode deserve notice. First, the event is symbolic of the decentralized nature of Civil War military intelligence operations. Harrison was Longstreet's spy; that is, he worked for General James Longstreet, who commanded the Army of Northern Virginia's First Corps. Lee did not know Harrison and acted on the spy's information only because Longstreet vouched for him. In both the Union and Confederate armies, every commanding, officer was free to devise his own intelligence operations, sometimes personally supervising them, but oftentimes assigning them to a provost marshal, adjutant, signal officer, or perhaps to a specially designated staff officer. Neither the North nor the South developed a national intelligence organization that imposed even a semblance of coordination on these disparate efforts.[3]

However, despite the absence of a unified national intelligence system on either side, a few separate commands developed sophisticated intelligence operations. The foremost example was the Bureau of Information, which General Joseph Hooker established in the Army of the Potomac. Headed by Col. George H. Sharpe of the 120th Regiment of New York Volunteers, the bureau functioned until the end of the war. Sharpe's principal assistants were Capt. John McEntee and a civilian, John C. Babcock.[4]

A second noteworthy feature is that historians know the precise intelligence source that prompted Lee to act. In many cases, however, the source (or sources) is maddeningly ambiguous. Primary documents abound with references to commanders receiving or learning important information without ever disclosing how or from whom they obtained it,[5] and this vagueness in the original documentation often spills over into secondary accounts.[6]

Explaining the ambiguity in the primary sources is not difficult. Good intelligence people were reticent, especially when covert operations were concerned. General Grenville M. Dodge, perhaps the most effective Union spymaster in the Western theater, kept the names of his agents--almost 120 of them--from even his most trusted staff officers, and only he read their reports. When his immediate superior demanded all of his agents' names and locations, Dodge refused to provide the data and appealed to General Ulysses S. Grant, then engaged in the siege of Vicksburg, for support. Like everyone else, Grant knew nothing about Dodge's spies, but he did know that the information Dodge supplied him was vital,

and so he sustained him. "If I had the time," wrote Babcock, "I could not tell you now of my life and doings in the S.S. [Secret Service], so you must wait until the close of the war…." But forty years later at least one man who was familiar with the Union's intelligence operations still feared that "it would be impolitic to mention" the names of wartime agents. Reticence during the war was necessary not only because the adversaries frequently captured each others' mail, but also because official reports had a disconcerting habit of becoming public. Either way, the intelligence source would be exposed if explicitly identified in the documents.[7] In the postwar era, spies whose identity became known suffered ostracism and persecution from those whom they had betrayed.[8]

The third point about the spy episode is that Lee based such a momentous decision on a single source, and one of doubtful reliability at that. After all, Lee had scant opportunity to assess Harrison's veracity. Could the spy differentiate between an entire corps and a mere cavalry patrol? Perhaps Harrison had sold his services to the highest bidder, and was actually a double agent. Who knew for sure? In any event, few Civil War commanders ever had to muster the moral courage to act upon such a questionable single source as did Lee that Sunday night at his headquarters near Chambersburg, Pennsylvania. Generals usually had multiple and diverse ways to obtain what General Philip Sheridan called "that great essential of success, information."[9]

The methods of acquiring military intelligence fell into two broad categories. By far, most of it came from HUMINT sources that armies had historically used. But in military intelligence, as in so many other ways, the Civil War marked a transition from traditional to modern warfare, for SIGINT emerged as an important, if not yet indispensable, source.

One method of HUMINT is spying, which is as old as warfare.[10] Several factors made espionage relatively easy, and hence common, during the Civil War. The belligerents shared the same language and culture (with a little practice, an agent could master regional dialects and cultural practices); they had an extensive common border, unhindered by easily patrolled natural barriers; and on both sides of this boundary numerous individuals were so opposed to their government's war effort that they willingly assisted the enemy.

Great diversity existed among Civil War spies. They included men and women, military personnel and civilians, and, occasionally, even children.[11] But several distinctions among spies are especially significant. One is between those who wrote memoirs and those who did not. Three points about the espionage memoirs deserve emphasis. First, historians know the most about those agents who wrote memoirs.[12] Second, a substantial amount of what the agents wrote in their memoirs may not be true. Their accounts are almost never possible to authenticate; since spying is a secretive business, the intelligence agent is often the only witness to what he or she did. "That I shall speak often of myself," wrote one spy, "is because much of my experience was acquired when I was alone with God."[13]

Even when verifiable in their broadest outlines, the memoirs contain embellishments and hyperbole.[14] Since giving more than a few examples of these traits would be pedantic, let four suffice. Felix G. Stidger claimed that he "succeeded, single handed and alone" in "completely overthrowing the treasonable designs and intentions of" the Order of the Sons of Liberty. Rose O'Neal Greenhow bragged that she "was, of course, a close observer of the smallest indications, and often drew accurate conclusions without having any precise knowledge on the subject" and that "of course, no word or indication was lost upon me." On several occasions, Sarah Emma Edmonds, who served a Michigan regiment under the alias Franklin Thompson, allegedly assumed female disguise to penetrate enemy lines, that is, she became a woman impersonating a man impersonating a woman! Not one shred of valid historical evidence confirms Edmonds' stories. Lafayette C. Baker perfectly recalled, a half-dozen years after they supposedly occurred, several extensive dialogues between himself and Jefferson Davis when the Confederate President was interrogating him in Richmond as an alleged spy.[15]

Although almost all memoirs engaged in the highly suspect practice of recounting exact dialogues that took place many years before, specifics are conspicuously absent when it comes to dates, places, and precisely what intelligence the spy provided. To use Baker again as an example, after returning from his

espionage mission to Richmond, he merely wrote, "I at once reported to General [Winfield] Scott, giving him all the information desired respecting Manassas, Fredericksburg, and Richmond, the resources and plans of the rebel chiefs, and the blockade running of the Potomac."[16]

The third point is that spies who wrote memoirs are invariably more famous, but were often less important, than those who did not. Greenhow, who operated in Washington, and Belle Boyd, whose exploits occurred in the Shenandoah Valley, published memoirs in 1863 and 1865 respectively. Their accomplishments were modest and Union counterintelligence quickly neutralized both of them, but they nonetheless became the war's (not just the South's) most famous female spies.[17] Having equal or even greater claim to fame were Elizabeth Van Lew, a Union agent in Richmond, whose length of service and accomplishments far exceeded Greenhow's, and Rebecca Wright, a Unionist who, like Boyd, lived in the Valley. But neither of them wrote memoirs, and they remain virtually unknown.[18] Two male Union intelligence operatives, Allan Pinkerton and Baker, are much more famous--or perhaps that should be infamous--than Samuel Ruth, who was the superintendent of the Richmond, Fredericksburg, and Potomac Railroad, which was of vital importance to the Confederacy. Ruth was also a Union agent who had access to information about the movement of Confederate troops and supplies on Virginia's railroads, but alas for his historical reputation, he penned no reminiscences.[19]

Another useful distinction is between resident and itinerant spies. Van Lew and Ruth were the former type, for they stayed in Richmond and sent information to Union authorities via secret couriers. By contrast, early in their Civil War secret service careers, both Baker and Pinkerton undertook personal espionage missions into the South and then came back to friendly soil. Disguised as an itinerant photographer, Baker walked from Washington to Richmond and then returned to give his report to General Scott.[20] Pinkerton undertook a roving spy mission through Kentucky, Tennessee, and Mississippi. He also claimed to direct a band of operatives who "moved in and out among the Rebel troops at all times and places," including Pryce Lewis, who supposedly penetrated the South disguised as an English nobleman on a pleasure tour.[21]

A third distinction is between ordinary spies and double agents. One double agent was Richard Montgomery who, using the alias James Thompson, served as a trusted courier between the Confederate government in Richmond and rebel agents in Canada. On the way he regularly stopped in Washington, reporting to Assistant Secretary of War Charles A. Dana to allow Union authorities to read the secret dispatches he carried.[22] Other Union double agents were Timothy Webster, who was Pinkerton's favorite spy, and Philip Henson, whom Grenville Dodge considered "probably one of the best, if not the very best, man in his stable of talented agents.[23]

As at least some spies realized, being a soldier was easier than being a spy. Soldiers enjoyed long periods of relative safety while in camp or on the march and only occasionally confronted the dangers of the battlefield, where the comradeship that traditionally animates men in battle would sustain them. On the other hand, spies were usually alone and unarmed in the midst of their enemies, were dependent solely on their wits and brains, and had to employ ceaseless vigilance lest the slightest misstep call forth the hemp.[24] Indeed, the most important distinction to the spies themselves was undoubtedly between those who survived and those who hanged. In at least one respect women spies had an advantage over males. Although General Orders No. 100, issued by the War Department in April 1863, decreed that the law of war "makes no difference on account of the difference of sexes, concerning the spy," neither side hanged a female spy.[25] However, both sides occasionally resorted to the hangman's noose when it came to males.[26]

Judging the significance of spying is difficult, but surely the small, loosely coordinated, and somewhat overlapping spy rings in Richmond headed by Van Lew and Ruth were a godsend to the Union. Several points about these two rings warrant special notice. First, although Van Lew and Ruth both commenced their pro-Union activities early in the war, their contribution to Northern victory reached its zenith during the siege of Petersburg. With the Union armies essentially stationary so close to Richmond, intelligence steadily seeped through the Confederate lines. Sometimes Union generals sent agents into

Richmond to get the information from the spies, but often the spies sent couriers out of the city and into Union lines.[27] Either way, the messages were at times verbal, and at other times written (either in plaintext or in cipher).[28] Occasionally difficulties occurred in one communications channel, but since multiple lines operated simultaneously, the information flow never ceased.[29] The communications channels became so systematic that when Grant's headquarters needed specific information from inside Richmond, all Grant or his subordinates had to do was ask and it could be obtained.[30]

Second, disentangling which ring provided what specific information is probably impossible in most cases because officials were so circumspect in their communications, usually using such innocuous phrases as "Our friends in Richmond," "The Union men of Richmond," and "It is reported from Richmond."[31] However, in some cases the intelligence source can be pinpointed. When, on separate occasions, General Benjamin F. Butler and Grant referred to intelligence "from a lady in Richmond," Van Lew was surely the source.[32] And two congressional reports specifically linked the Ruth ring to ten specific intelligence items.[33]

Third, no matter which ring was the source, the information that came out of the Confederate capital was invaluable. As head of the Bureau of Information, Colonel Sharpe was more intimately involved than anyone else with acquiring and processing this information, and in the postwar era he lavished praise upon both Van Lew and Ruth.[34] Perhaps an even more glowing testimonial to their success came, unknowingly, from a Confederate source. Throughout the winter of 1864-65 John B. Jones, an astute clerk in the Confederate War Department, lamented the Union's espionage penetration of Richmond. "The enemy," he wrote in his diary, "are kept fully informed of everything transpiring here," and he informed President Davis that "there was no ground for hope unless communication with the enemy's country was checked…."[35]

A second traditional HUMINT source was scouting, which was frequently indistinguishable from spying. People used the words "spy" and "scout" interchangeably since men designated as scouts often combined legitimate scouting in their own uniform with actual spying, either in the enemy's uniform or disguised as civilians.[36] In *The Killer Angels,* Longstreet refers to Harrison as a spy, but Harrison retorts, "Scout sir. I am a scout." In spirit Harrison (both in fiction and in real life) may have been a scout, but his pre-Gettysburg activities were those of a spy. Although a Confederate lieutenant, in June 1863 he was operating in civilian attire, and General Orders No. 100 stated that "Scouts or single soldiers, if disguised in the dress of the country, or in the uniform of the army hostile to their own, employed in obtaining information, if found within or lurking about the lines of the captor, are treated as spies, and suffer death."[37]

With spying and scouting inextricably linked, commanding officers had to ask the same question about scouts that they asked about spies: Were they reliable? Scouts could be unreliable in two ways. All too often they reported rumors rather than facts. "Pickets or scouts bringing in false or exaggerated rumors," wrote Lee, "should be severely punished." Grant also questioned the overall veracity of scouts' reports, even though one of the war's best scouts worked for him when he was in the West.[38] Perhaps even worse, scouts were inherently untrustworthy because they could be working for the enemy. Horace Porter, one of Grant's aides, was so suspicious of scouts that he even doubted the loyalty of J. A. Campbell, who performed numerous heroic deeds for Sheridan.[39]

Like spying, scouting was decentralized; every general could establish his own scouting service. Some generals organized specialized scout battalions, which rarely contained more than a hundred men. While commanding at Rolla, Missouri, early in the war, Dodge formed a "Corps of scouts" from men in the 24th and 25th Missouri Regiments. Toward war's end Sheridan created a scout battalion commanded by Maj. Henry H. Young.[40] Other generals simply used aides and staff officers as scouts. General Thomas J. ("Stonewall") Jackson repeatedly sent his renowned mapmaker, Jedediah Hotchkiss, on scouting missions. On the crucial second day at Gettysburg, Lee dispatched scouting parties under staff officers Armistead H. Long, William N. Pendleton, and Samuel R. Johnston to investigate the Union right flank. And much of General Jeb Stuart's success can be attributed to an impressive list of individuals who served him as scouts, including Redmond Burke, Will Farley, Charles Dabney, John S. Mosby, and Frank

Stringfellow.[41]

Scouts performed diverse functions. At times scout battalions conducted irregular operations that were similar to those of organized guerrilla units, such as the Confederacy's Partisan Rangers.[42] And the battalions often specifically undertook anti-guerrilla missions. Young's unit "operated efficiently against the guerrillas infesting West Virginia," and even captured Harry Gilmor, whose partisans had bedeviled Union forces in the Valley for several years.[43] Scouts acted as saboteurs when they penetrated enemy lines to burn or blow up bridges,[44] and were invaluable as couriers.

Scout couriers accomplished some remarkable exploits. In October 1863 Corp. James Pike carried a vital message from Grant to General William T. Sherman that hastened the latter's movement to Chattanooga. Pike, wrote Sherman, "got a canoe at Whitesbury opposite Huntsville and came down the Tennessee, over Muscle Shoals--all alone for one hundred miles of river, every mile of which was picketed by the enemy, and reached me safely" at Iuka.[45] And in March 1865, when Grant was anxious for news from Sheridan, A. H. Rowland, Jr., and J.A. Campbell departed Sheridan's headquarters at Columbia, Virginia, with a vital message. Dressed in gray, they rode hard for two days through Confederate territory. Along the way they had "quite a confab with four of General Lee's scouts," but escaped from the predicament by posing as Confederate scouts. When they arrived at Grant's headquarters they were so exhausted they could scarcely answer questions, but they produced Sheridan's dispatch, written on tissue paper, wrapped in tin foil, and carried inside Campbell's mouth.[46]

The most important scout duty was gathering information about the enemy's location, movements, and order of battle. Generals kept their scouts active and "well out," for they realized, as Lee phrased it, that their "own movements must be in a measure regulated by" the enemy's activities.[47] During mid-1863, as General William S. Rosecrans' army maneuvered Confederate forces out of Middle and East Tennessee, scouts sent out by his chief secret service officer and by his various corps and division commanders reconnoitered well in advance of the army, as far south as Atlanta. Then in January and February 1864, Dodge's scouts traveled from Union-controlled Tennessee to Dalton, Rome, Decatur, Atlanta, Savannah, Selma, Montgomery, Corinth, and dozens of smaller communities, bringing back information on enemy fortifications, troop locations and strength (including militia units), changes in command, the condition of Confederate cavalry horses, and the shortages of forage and meat in the South's interior.[48] So audacious were Southern scouts that Grant had reason to worry about his personal safety from them, for the redoubtable Frank Stringfellow claimed that he had been near enough to a cluster of Union officers, including Grant, to hear their conversation.[49]

Knowing that each other's scouts were watching and probing, both sides tried to foil the enemy's scouts. Tight picketing could, at a minimum, forestall scouts by forcing them, as Lee once complained, "to make so wide a circuit, that their information is frequently late reaching me." When one side located a concentration of enemy scouts, it sent cavalry units to kill or capture them, and death and injury often resulted whenever either scouting parties or lone scouts bumped into each other. Scouts were also ready prey for bushwhackers and guerrillas.[50] The fate of Major Young's unit indicates how dangerous scouting was. It had fewer than sixty men and became operational only in August 1864, but it lost ten men by the time Lee surrendered in April 1865.[51]

If individual and small-scale scouting was often identical with spying, large-scale scouting blended almost imperceptibly into a third HUMINT source, that of cavalry reconnaissance. The cavalry's primary role was not fighting, but simply watching the enemy to discern its positions, movements, and numbers. Generals as diverse as George B. McClellan, Jackson, and Stuart realized this,[52] and the Union Army's regulations expressly stated that reconnaissance forces should avoid fighting; and see, if possible, without being seen...."[53]

One of the South's great advantages early in the war was that Stuart excelled in the reconnaissance mission. "As soon as you can get exact information of the strength and movements of the enemy, let me know," wrote Lee to Stuart, fully aware that his cavalry commander could routinely acquire this knowledge. As Lee once emphasized to Stuart, he "received no positive information of the movements of the

enemy, except through you."[54] However, after mid-1863, as the Union cavalry improved and the Confederacy's horsemen and mounts endured ceaseless attrition and inadequate logistical support, the North equaled, and perhaps exceeded, the South's reconnaissance capabilities.[55]

For both sides, no source of military intelligence was more vital than cavalry reconnaissance. It could not guarantee success in battle, but its absence was frequently a major factor in defeat. At the start of General John Pope's campaign leading to the Second Battle of Bull Run, many of his 4,000 cavalrymen, and especially their horses, were still recovering from unrelenting service during the Valley Campaign. Yet Pope continued driving them hard, despite withering heat, exhaustion, and near-starvation. When the battle began, his cavalry was in such deplorable condition from constant patrolling, marching, and countermarching that he had only about 500 serviceable mounts available, which was too few to provide necessary combat intelligence in a fluid situation.[56] As his adversaries admitted, Hooker's planning that resulted in the Battle of Chancellorsville was superb, except for one fatal defect; he sent most of his cavalry on a raid against Lee's supply and communications lines, leaving the infantry with no way to monitor Confederate movements or prevent Stuart from discovering the Army of the Potomac's vulnerable right flank.[57]

Union generals were not alone in misusing their cavalry and thereby contributing to their own defeat. During his second invasion of the North, Lee expected Stuart to alert him when the Federal Army crossed the Potomac. Hearing nothing from Stuart, he "inferred that the enemy had not yet left Virginia." But Lee might just as logically have deduced that Stuart had encountered unexpected difficulties and was unable to communicate with him. Moreover, Lee still had two cavalry brigades (totaling 3,000 effectives) with the Army of Northern Virginia, but did not use them for reconnaissance missions. To Lee's credit, he reacted quickly once the spy-scout Harrison made his report. Yet, errors with the cavalry forces at his disposal meant that at Gettysburg the Army of Northern Virginia fought at an unexpected time and place, and without Stuart to supply the expert tactical intelligence to which Lee had become accustomed.[58]

Cavalry and scouts were often instrumental in providing a fourth source of HUMINT, captured documents and mail. The most famous example of this occurred on 22 August 1862 when Stuart raided Pope's headquarters at Catlett's Station and captured his official papers. From these Lee learned that Pope had only 45,000 men and that he intended to wait until McClellan's forces reinforced him before attacking. Forewarned, Lee launched a preemptive offensive against Pope and routed him at Second Bull Run.[59] Mail captured at Staunton in June 1864 revealed information to McEntee about reinforcements Lee had received. He also discovered that General Richard S. Ewell was incapacitated and had been replaced by Jubal A. Early as corps commander, that Pegram's Brigade had lost 300 men in a recent engagement, and that various brigades had been consolidated. The pockets of dead enemy soldiers were also ransacked for documents. A morning report found on General William E. Jones' body after the Battle of Piedmont allowed Babcock to determine the composition and numerical strength of Jones' command.[60]

One type of enemy document was so highly prized that it constituted a distinct HUMINT source: newspapers. Northern papers published so much reliable information that Sherman believed correspondents "should be treated as spies" because they revealed "all plans, and are worth a hundred thousand men to the enemy…." "Napoleon himself," he lamented, "would have been defeated with a free press."[61] Sherman was a special case--no Civil War general loathed the press quite as much as he did--but many other commanders on both sides would have agreed that a free press had become dangerously unfettered. Neither belligerent imposed efficient, consistent censorship, although Southern editors were more discreet than their Northern counterparts.[62] Still, again and again Lee had to urge Confederate secretaries of war to "use your influence" to prevent publication of sensitive information.[63] Repeated pleadings for discretion indicated the ineffectiveness of voluntary restraint.[64]

Significant leaks began early in the war and persisted for the duration. In June 1861 a Hagerstown paper enumerated the units in General Robert Patterson's army in the Shenandoah Valley, thereby allowing General Joseph E. Johnston to confirm that reports from his scouts and civilians regarding Patterson's strength were correct.[65] Sherman discerned the South's intentions in the Western theater during the fall of

1864 by reading published accounts of President Davis' speeches. Davis "thus gave us the full key to his future designs," wrote Sherman. "To be forewarned was to be forearmed, and I think we took full advantage of the occasion."[66] Sherman's intentions also became public when, just before he departed on the "March to the Sea," the *Indianapolis Journal* discussed the size of his force and his plans. Other Northern papers picked up the story, compelling Grant to try to prevent them from getting into Southern lines. If Confederate authorities read the article, he feared it would allow them to make "the best arrangements they can to meet this move."[67] Another serious leak occurred the next month when the papers disclosed "some confidential circumstances which ought not to be made public" about the Wilmington expedition.[68]

With so much vital information being printed, enemy papers were worth acquiring systematically. In the summer of 1861 the "principal business" of Confederate agents in Washington was to get Northern papers. "From them," wrote Edward P. Alexander, the future commander of the Army of Northern Virginia's artillery, "we learned not only of all arrivals, but also of assignments to brigades and divisions, and, by tabulating these, we always knew quite accurately the strength of the enemy's army." Stuart sent one of his best scouts, Frank Stringfellow, to live in Alexandria for months to gather information from enemy newspapers.[69] And, of course, Union authorities just as diligently sought papers from Richmond and other enemy cities. As Grant wrote in March 1865, he received the Richmond papers daily at his headquarters.[70]

No two officers were more avid readers of enemy newspapers than Grant and Lee. During the siege of Petersburg, Grant not only read the papers from Richmond and elsewhere, but also regularly telegraphed summaries of the military information he gleaned from them to Secretary of War Edwin M. Stanton, Assistant Secretary of War Dana, and Chief of Staff Henry W. Halleck. If a day or two went by without Washington receiving these communications, President Abraham Lincoln wanted to know why. On a less regular basis, Grant also sent summaries to his foremost subordinates and to Rear Adm. David D. Porter.[71]

Grant considered much of the published information reliable. When Southern papers showed that Confederate forces at Wilmington had been weakened to send reinforcements to oppose Sherman in Georgia, Grant hastened the departure of the December 1864 expedition against that North Carolina seaport.[72] During his marches through Georgia and the Carolinas, Sherman was never cut off from communications with the North because the Union high command "watched" Sherman's campaigns through Confederate newspapers.

Grant and his staff were so anxious to maintain this one-way communications link that at one point his adjutant, John A. Rawlins, cautioned that "it would be well not to take official notice of this summary of news from the Richmond papers lest the rebel authorities prohibit the publication of news from Sherman altogether."[73]

Rivaling Grant's scrutiny of enemy papers was Lee's perusal of Northern papers. After digesting their contents, Lee customarily sent the papers to Davis, with comments directing the President's attention to items of special interest.[74] "I hope you get the Northern papers," Lee wrote to Early in July 1864, "as they will keep you advised of their [the enemy's] preparations to oppose you." This was good advice that Lee himself followed throughout the war.[75]

A sixth HUMINT source, which was less romantic than spying, less dangerous than scouting and cavalry reconnaissance, and as mundane as reading the enemy's newspapers, was the interrogation of deserters, prisoners, "contrabands" (fugitive slaves), refugees, and ordinary civilians. Although not always exciting, interrogations were essential, as every commanding officer recognized. "All spies, 'contrabands,' deserters, refugees, and many prisoners of war, coming into our lines from the front, were carefully examined," wrote McClellan, who had issued a special circular and specific orders to ensure that the examinations were thorough and coordinated.[76] High-ranking officers, such as Sheridan and George C. Meade, frequently became personally involved in the interrogations.[77] And if a delay occurred in forwarding people for examination, army headquarters wanted to know why, since intelligence must be

timely to be useful.[78]

What types of intelligence did interrogations yield? Perhaps the most important was the location and movements of enemy units. "Have you any information of changes or movements of the Enemy in your front? If so please communicate the same to the Head Qtrs.," Rawlins wrote to Butler and Meade. Both responded by reporting the most recent information from deserters.[79] Through rebel deserters and prisoners during the siege of Petersburg, Grant kept daily track of almost every enemy division and brigade. For this purpose, knowing that no changes had occurred in the Confederate lines was as valuable as learning when the enemy moved.[80] If doubts existed about which units were located where, a raid might be ordered with the intention of taking prisoners and extracting this information from them.[81] Reports from refugees and citizens were also helpful in locating and tracking the enemy.[82]

Before the 1864 campaign began, Lee issued a circular imploring his soldiers, if captured, to "preserve entire silence with regard to everything connected with the army, the positions, movements, organizations, or probable strength of any portion of it," but he failed to dissuade many Confederate prisoners from telling their captors all that they knew. Lee may have sincerely believed that the "chief source of information to the enemy is through our negroes," and their contribution to the Union cause in this respect was very great, but at least during the war's last year the worst information hemorrhage regarding the Army of Northern Virginia came from Confederate deserters and prisoners.[83]

Interrogations also supplied data about the strength of units,[84] establishment and location of artillery batteries,[85] extent of railroad repair and construction,[86] location of mines,[87] local topography and roads,[88] and enemy intentions. For instance, deserters indicated that Longstreet's corps intended to attack the Union lines before dawn on 18 July 1864 so that Lee could throw the Yankees onto the defensive, which would allow him to detach troops to Georgia. Grant alerted his appropriate corps and they were ready to spring the trap on Longstreet. But no attack came because, as Grant learned from a deserter, "so many deserters had come into our lines & exposed their plans."[89]

The final HUMINT category might simply be called "visual observations." Sentinels and vedettes, of course, watched the enemy,[90] but two newer methods of observation deserve special notice: balloons and Signal Corps stations of observation. War balloons had a short history, beginning in 1794 when the French Committee of Public Safety created a balloon company. Between then and 1860 various European nations sporadically experimented with balloons in their military establishments. Meanwhile, the first ascension in the United States, which was non-military in nature, occurred in January 1793, sparking an enthusiasm for ballooning among innovative (and brave) civilians. But suggestions for using balloons in the Seminole and Mexican Wars came to naught. During the Civil War, however, both sides employed balloons for aerial reconnaissance.[91]

As in most of the war's major technological developments, the resource-poor South could not compete on equal terms with the more populous, wealthy, industrialized North. The Confederacy produced only a few balloons, and their active service lasted from June 1861 until late 1862 or early 1863. The most famous Confederate balloon was the so-called "Silk Dress" balloon. Built in Savannah--from donated silk dresses according to legend, but actually from new silk purchased in Savannah's shops--and transported to Richmond, it made daily ascensions during and immediately after the Seven Days Battles until captured by Union forces on July 4. Subsequently the South constructed only one more balloon, which did brief service at Richmond and Charleston before being carried away by a strong wind. Thus ended the South's limited experimentation with aerial reconnaissance' [92]

In the North many civilian balloonists hurried to Washington to offer their services, but the dominant figure among them was Professor Thaddeus S. C. Lowe, who gained the support of Joseph Henry of the Smithsonian Institution and then of McClellan. By early 1862 Lowe's aeronautic corps had at least seven balloons, along with a system of portable generators for inflating them in the field. During the Peninsula Campaign, the Battle of Fair Oaks, and the Seven Days Battles, his balloons made hundreds of ascensions with two balloons often aloft simultaneously. Passengers on some of these flights often included Generals McClellan, Fitz John Porter, Daniel Butterfield, George Stoneman, and Samuel P. Heintzelman. The

balloon corps was inactive during the Second Bull Run and Antietam Campaigns, but played a modest role at the Battles of Fredericksburg and Chancellorsville. Immediately after the latter battle Lowe resigned. His health was precarious, his patron McClellan was no longer in command, and his dedication was undercut by army red tape and a recent pay cut. Lowe's sudden departure abruptly ended the balloon corps' existence.[93]

A balloon's great advantage over a land-bound picket was its elevation. From heights of 500 feet or more, an observer could study the terrain and sketch maps or take pictures; locate encampments, artillery batteries, and field fortifications; estimate the enemy's strength by counting tents or campfires; watch the movements of troops and wagon and railroad trains; direct artillery fire; and scan the countryside for dust clouds indicating deployments beyond the horizon. Under favorable conditions and with competent observers aloft, an army had a large measure of security against unpleasant surprises, and could readily exploit unexpected opportunities.[94]

The phrases "favorable conditions" and "competent observers" indicate the limitations of balloons as a reconnaissance tool. Circumstances were frequently far from favorable. High winds could keep a balloon from attaining sufficient elevation or make the basket wobble and spin, preventing the observer from focusing his telescope or field glasses. A hazy atmosphere, fog, and battlefield smoke--not to mention rain, snow, and ice--hindered vision. Although enemy artillery fire never downed a balloon, it often kept the passengers ducking, and not particularly eager to stay aloft any longer than pride demanded. Moreover, troops in the vicinity did not appreciate incoming artillery projectiles aimed at the balloons, and in one instance a general ordered a balloon to descend to protect nearby soldiers. Civilian balloonists lacked the expertise for accurately estimating enemy forces. Generals knew this, and sometimes went aloft themselves or ordered a qualified observer to accompany the ascension. Even then oblique distortion prevented perfect observation, and armies soon learned to use camouflage and terrain features for concealment.[95]

Despite these weaknesses, Confederate officers were envious of the North's balloon corps., "We longed," wrote Longstreet, "for the balloons that poverty denied us." Another officer noted that, at a minimum, balloons "forced upon us constant troublesome precautions in efforts to conceal our marches." A number of Union generals also recognized the balloons' value and tried to persuade Lowe to return. But after May 1863, neither side again used balloons.[96] Although balloon use reached its zenith during the spring and early summer of 1862 and then faded rapidly, Signal Corps stations of observation were of paramount importance throughout the war. When the Confederates fired on Fort Sumter in April 1861, the United States army had exactly one signal officer, Maj. Albert J. Myer, who had developed a system of visual signaling that had been successfully field tested just prior to the war with the assistance of Lt. Edward P. Alexander. When the onset of war fractured the officer corps, Myer remained loyal and Alexander joined the South. Both men introduced ad hoc signal services into their respective armies in 1861. In April of the following year the Confederacy created a Signal Corps--the world's first independent organization of professional signalmen--and the North did likewise nearly a year later. Myer became the Union's Chief Signal Officer, but Alexander had rejected an analogous position and transferred to the artillery. Command of the South's Signal Corps went to William Norris, who had established a signal system in the Army of the Peninsula during the second half of 1862.[97] From the beginning, signalmen utilized both stations of observation and of communication; individual stations, of course, frequently combined both functions. Stations of observation had four important similarities with balloons. First, they needed height to be effective. As one signal officer recalled, he spent much of his time "watching the rebel roads from any high point I could find, for movements of their troops."[98] Energetic observers utilized a variety of high points. They could erect towers, some reaching skyward more than two hundred feet. Rooftops, courthouse cupolas, and church steeples afforded good views, as did ships' masts when campaigning was near navigable waterways. In the absence of manmade help, nature sufficed. Mountain tops, high hills, and tall trees served admirably on numerous occasions.[99] Second, height did not guarantee unimpeded observation. Many of the factors that afflicted aerial reconnaissance, such as atmospheric conditions and

enemy suppressive fire and concealment, also affected Signal Corps observers.[100] Third, from their commanding elevations signalmen provided the same types of military intelligence that balloonists observed.

Signal observation played a significant role in all of the war's battles. At First Bull Run, Alexander was at one of his signal stations when he noticed a glint of sunlight reflecting off a brass artillery piece eight miles away toward Sudley Springs Ford. He had discerned the North's turning movement in time to allow the Confederates to react successfully.[101] Perhaps the most famous example of signalmen influencing a battle occurred on July 2 at Gettysburg, where the Union had a signal station on Little Round Top. Eager to launch a surprise attack against the enemy's left flank, Lee ordered Longstreet to avoid being seen on the approach march. To follow this order, Longstreet had to make a long countermarch, delaying the attack for several hours. During this time Union forces that were crucial in the late afternoon fighting arrived on the battlefield.[102]

The fourth similarity was that observation alone did balloonists and signalmen little good. They also had to communicate what they saw quickly and often over long distances, which they did by sending signals. Signal-sending impelled the enemy to try intercepting the signals, which resulted in the signalers employing ciphers to foil the interceptors. And using ciphers led, inexorably, to codebreaking.[103] Thus, the need to communicate pushed Civil War armies beyond HUMINT and into the realm of SIGINT. In SIGINT, as with steam and steel warships, submarines, railroads, massive firepower, conscription, and trench warfare, the American fratricidal conflict presaged many of the hallmarks of twentieth-century warfare.

In theory, the Signal Corps provided frontline communications, sending messages in four ways. By using different colored flags depending on the background (white against a forest, for instance, or scarlet against snow) and wagging them to the left or right to imitate the dot and dash of telegraphy, signalmen could send fifteen to twenty words in five minutes. On a clear day, flag signals could be sent up to twenty-five miles, though the normal distance between stations was far less than this. A second method, used at night, substituted torches burning turpentine for the flags, and a third utilized colored lights and rockets.[104] Finally, Myer's Signal Corps developed a field telegraph system, based upon a device invented by George Beardslee, that had the advantages of needing neither batteries (it operated on a pile of magnets) nor trained operators. Myer employed the first one during the Peninsula Campaign and by mid-1863 sixteen were in use among various Union armies.[105] Unfortunately for Myer, with the introduction of field telegraphy the Signal Corps collided with another new organization, the United States Military Telegraph, which initially provided only medium- and long-range telegraphic communications. The USMT developed as an expedient to operate existing commercial lines, and to build new ones as occasion demanded. It utilized the telegraphic system introduced by Samuel F. B. Morse in the mid-1840s. Although technically under the Quartermaster General's orders, Secretary of War Stanton exercised direct control over it. Anson Stager, the prewar general superintendent of the Western Union Company, headed the organization, with his principal assistants being Thomas T. Eckert in the East and Robert C. Clowry in the West.[106]

Both Myer and Stager realized that the distinction between battlefield telegraphy transmitted by the Signal Corps and longer-range messages wired by the USMT made little sense. The result was a battle over roles and missions, with each man laying claim to all telegraphic communications. Resolving the conflict became urgent in mid-1863 when, after the Beardslee machines had consistently malfunctioned, Myer decided to convert to Morse telegraphy, which meant raiding the USMT's personnel and logistical support. The climax came in November when Stanton ordered Myer to an obscure job in the Western theater, and directed the Signal Corps to surrender its field telegraph equipment to Stager. From then on the Signal Corps employed visual signals only. The USMT never used the Beardslee machines, but instead relied on the Morse system for all telegraphy.[107]

The telegraph was of immense importance. By mid-war the USMT had created a network linking Washington to various army headquarters. From there temporary field lines snaked forward to corps and division headquarters, and even to advanced field works, Signal Corps stations, and picket lines. When

an army advanced, telegraphic communications moved apace, to the marvel of commanding officers. At times, telegraphers even extended their operations into enemy lines during the heat of battle.[108] Through mere strands of wire (which were relatively impervious to atmospheric conditions and weather), generals directed the movement of their armies, in both the strategic and tactical arenas. They synchronized advances (or retreats) and logistical support, learned about enemy activity, and dispatched reinforcements. The number of telegrams indicated how heavily Union armies relied upon the USMT. For the fiscal year ending 30 June 1863, Stager reported that it had sent and received 1,200,000 messages ranging in length from ten to more than a thousand words. During the war, the daily average of military and government telegrams was 4,500.[109] Both sides sent many of their important visual and telegraphic messages in cipher. In both the North's and the South's Signal Corps, authorities changed codes frequently, but none of them remained secure for long. The Chief Signal Officer of the Department of the Cumberland reported that the same day the enemy changed its cipher, two of his men broke it, and a Confederate signalman recalled that the rebels "not infrequently" deciphered Federal messages. Lee's aide-de-camp sent General Early a copy of "the enemy's signal alphabet as deciphered by some of our signal corps," and noted that the Confederates were reading enemy messages "with facility." As one Union Signal officer lamented, "the enemy can read our signals when the regular code is used, and it is equally evident to the minds of all who have had anything to do with interpreting ciphers that our cipher is unsafe and cannot be trusted."[110]

At times, Grant noted, it took too long "to make translations of intercepted dispatches for us to receive any benefit from them. But sometimes they gave useful information."[111] With such a potential intelligence bonanza so readily available, Signal Corps personnel spent much of their time watching each others' signal stations, jotting down the wigs and wags, and then decoding the communications. "I am daily reading the enemy's signals & get much good information," wrote one. On the Bermuda Hundred expedition a Union station provided a superb view of three enemy signal stations, so a regular watch was established over them. And in operations around Charleston in 1863 the Confederates employed seventy-six signalmen, twelve of whom did nothing but read enemy messages.[112] One historian has estimated that the respective Signal Corps fought about 99 percent of the Civil War's SIGINT war, and if the Official Records are an accurate indicator, he is correct, for they teem with reports of intercepted Signal Corps messages.[113]

Anson Stager devised the first military telegraph cryptographic system, which was an enciphered code that fit on a single card, for use in McClellan's 1861 West Virginia campaign. Stager's original system went through numerous improvements, primarily at the hands of youthful War Department cipher operators. Finally, in its twelfth and final version introduced in March 1865, its codewords and plain-language equivalents filled forty-eight printed pages.[114] Those responsible for the code were primarily the USMT's civilian operators, who swore not to "reveal or divulge to any person or persons any cipher that may be given me for United States military purposes," and who reported directly to Stager. Commanding officers and their most trusted staff officers had no access to the ciphers.[115]

Occasionally this situation bred tension. The most notable instance concerned Grant's cipher operator, Samuel H. Beckwith. Grant ordered him to give the cipher to Captain Cyrus B. Comstock, who was going to accompany him on a trip, and whom Grant considered "a wise and discreet man who certainly could be trusted with the cipher…." Beckwith refused, Grant threatened dire punishment, and Beckwith relented. When the War Department learned of the operator's indiscretion, it ordered him fired; only Grant's most earnest entreaties got Beckwith restored to duty. However, with the old cipher compromised, the War Department sent a new cipher. Its secret, wrote Beckwith, "remained close locked in my possession, and henceforth the General always took me with him on his travels." To avoid similar difficulties, cipher operators customarily accompanied Union expeditions; for example, nine went with Sherman through Georgia.[116]

Apparently, Confederates never broke the USMT's ciphers even though this should have been possible. After all, they regularly broke Yankee Signal Corps ciphers, the USMT ciphers were quite simple, the rebels captured several USMT cipher operators and their operating books, and they got their hands on

a number of enciphered Union messages. Still, no evidence has come to light to contradict the judgment of a USMT cipher operator that "no case is recalled of the enemy having translated a Federal cipher despatch."[117] The Confederacy's secret service records, however, were destroyed in the fires that gutted much of Richmond in early April 1865, which may explain the absence of relevant evidence.

The USMT definitely read some enemy enciphered messages. The Confederate Signal Bureau in Richmond, headed by William Norris for most of the war, was not only the headquarters of the Signal Corps, but also of the Secret Service Bureau, which had authority over the cipher used by government officials, generals, secret service agents, and diplomats.[118] The Confederates believed their cipher, which was based on a system developed by Blaise de Vigenere in the sixteenth century, was safe, but it actually contained weaknesses that allowed Union cipher operators to solve it. The enciphered messages read by USMT personnel were captured in the field or delivered by spies; none resulted from a wiretap.[119]

However, wiretapping or capturing a telegraph station could be an intelligence triumph because both sides sent many unenciphered messages. In either case, the interloper could sit quietly and listen or send bogus dispatches that confused the enemy. A federal operator tapped the line between Albert S. Johnston's headquarters at Bowling Green and rebel forces at Cave City, another tapped a line between Charleston and Savannah, two telegraphers listened in between Chattanooga and Knoxville for a month, and one of Sherman's operators tapped an important enemy line during the March to the Sea. Much of the success of George Stoneman's southwestern Virginia raid resulted from capturing the Bristol telegraph office, where Stoneman's operator listened to enemy communications and compelled the Confederate operator to send false traffic.[120] The South had similar successes.[121]

"Many intelligence reports in war," wrote the Prussian soldier-scholar Carl von Clausewitz in his monumental *On War,* "are contradictory; even more are false, and most are uncertain." Two dozen pages later he returned to the problem, noting that "the general unreliability of all information" ensured that military action occurred "in a kind of twilight, which, like fog or moonlight, often tends to make things seem grotesque and larger than they really are."[122] Few, if any, Civil War generals would have disagreed with him.

Despite their many HUMINT and SIGINT sources, commanding officers on both sides never found it easy to discover the truth. Echoing Clausewitz, Lee informed President Davis that "The reports are so conflicting and sometimes opposing, and our people take up so readily all alarming accounts, which swell in their progress, that it is difficult to learn the truth till too late to profit by it." About a year later he wrote a similar missive to Stuart: "I am unable yet to determine what are the plans or intentions of the enemy; reports are so contradictory."[123] Union generals, and their subordinates engaged in intelligence work, had the same problem. One particular enemy division, Meade told Grant in July 1864, "has now been positively placed in our front & on our left & rear & on its way to Pa."[124] And how was George Sharpe, commanding the Bureau of Information, to reconcile a report from his trusted assistant, John Babcock, that a certain Confederate division had "positively gone to Wilmington," and a telegram the next day from Maj. Gen. E. 0. C. Ord presenting evidence that the division had not left?[125]

Why were so many intelligence reports contradictory or wrong? One reason was that rumors and exaggerations often shielded the truth. "Rumors, and reports of rumors," Hooker wrote Lincoln, indicated that the enemy was making changes, but he could not yet determine what they were.[126] "Reports from citizens however intelligent and honest cannot be relied on," Lee asserted. "Had General Foster received all the reinforcements that have been reported … he ought to have the largest Federal army now in the field." And a citizen informed Henry Gilmor that one hundred enemy cavalrymen were nearby; this, he said, "I put down at fifty, and was right." Deserters often embellished their stories "to add to their consequence, and the supposed value of their information." When writing about the interrogation of blacks, McClellan (no doubt unaware of the irony in accusing others of his own glaring fault) asserted that "their estimates of numbers were almost ridiculously inaccurate."[127] Newspapers contained intelligence nuggets, but they were usually buried in tons of useless ore consisting of bluster, puffery, blatant fabrications, sensationalism, faked eyewitness accounts, and conjectures based on nothing more substantial than

a reporter's unrestrained imagination.[128]

A second explanation for contradictory intelligence was enemy deception. Each belligerent understood the other's HUMINT and SIGINT information-gathering methods and developed ways to foil them. Spies and scouts could be--and sometimes were--double agents. Along with reconnaissance, cavalry also conducted counter-reconnaissance missions to protect their army from prying enemy cavalrymen.[129] Captured mail could contain documents manufactured to mislead, and commanders sometimes told correspondents lies disguised as facts, knowing that the enemy would read them.[130] Interrogators could be deceived in many ways. On his ride around McClellan's army, Stuart queried citizens about the road network leading one way and then quietly moved in the opposite direction, hoping that the civilians would tell his pursuers what he had asked them and thereby sow doubt and confusion.[131] Deserters sometimes lied,[132] or perhaps were not even genuine deserters. Both sides used mock deserters to plant false information, or to have them acquire intelligence and then return.[133] Bogus deserters were in a dangerous situation, especially those interrogated by Sharpe and his subordinates, who knew enough about Lee's army and Virginia's topography to ask probing questions that could trip up an unwary man. And if they doubted a deserter's authenticity, they were not above using torture to try to learn the truth.[134]

Visual observers could also be frustrated. One method was to make them keep their heads down through suppressive fire. Another was to create illusions by such ruses as kindling extra campfires and mounting dummy guns, or by leaving "the usual amount of force generally visible" to persuade the enemy that all was normal when a movement was actually in progress. Generals also learned how to conceal their forces behind hills or woods, or by moving at night.[135]

As with HUMINT, so with SIGINT; both sides developed techniques to lead it astray, especially by sending false messages when they knew the enemy would intercept them. On the night of 26 June 1862, during the Seven Days Battles, a Union force planned to evacuate a position. But to confuse the Confederate high command about Yankee intentions, the signal officer had his men send in cipher, but from a location that the rebels could see, a message saying that five divisions had arrived; he expected the enemy to decipher it. The telegraph could also be manipulated to mislead. In September 1864 a rebel operator got on a Union line pretending he was the regular USMT employee. Because the interloper's key signature was different, a USMT operator at another station recognized what had happened and alerted the commanding officer. The latter then fed the enemy operator misinformation about nearby Union forces.[136]

"It behooves us to be on the alert," Lee wrote to Longstreet in March 1864, or we will be deceived. You know that is part of Grant's tactics." The Confederate commander was correct, for Grant was a master at deception. He had, continued Lee, "deceived Pemberton when he turned him, and in this last move of Sherman threw dust in Polk's eyes." Of course, Grant had lots of help, for deception was a collective enterprise. As Assistant Secretary of War Dana assured him, "If you wish any false information to be given to the Rebel authorities, I have the means of conveying it so that it will be believed. It will take seven to ten days to reach them."[137] Confederate generals and government officials returned the favor whenever they could.

How could generals stitch together the truth from their intelligence sources when they knew that each was vulnerable to falsehood and deception? Generally, they followed two practices. One was to be discerning, to assess the reliability of the source of every single intelligence report. Interrogators consistently differentiated between well-informed, intelligent deserters, contrabands, refugees, and citizens,[138] and those who appeared dull and uninformed.[139] When Grant received a scout's report that Early was returning to Richmond from the Valley, he wanted the scout sent to him so that he could personally judge his reliability. And Lee attached special importance to the Philadelphia *Inquirer* because its stories were often more accurate than those of other Northern papers.[140]

The second practice was to seek cumulative corroboration from multiple sources; indeed, the quest for confirmation pervaded the intelligence war. When confronted with new information, intelligence operatives and consumers immediately asked others whether they could verify it.[141] "By our scouts from the Chickahominy last night," wrote Sharpe to a general, "we have received a written communication from

an agent in Richmond, much of which is only strongly corroborative of our own information, but is repeated here in order to show the value of the whole." Dana wrote that a spy's report about the Confederate army "was of no particular value, except that in its more interesting features it agreed with our information from other sources."[142]

Yet, until war's end reality confounded even the most diligent intelligence assessments. In March 1865 Grant received reports from deserters, refugees, and scouts all confirming, over a two-day period, that Sheridan had defeated Early and captured the Confederate commander and his staff. As had been true so often in the previous four years, these reports, all seemingly certain, were only partly true; the rebels had been smashed, but Early had escaped.[143] Nor could the truth always win the battle against self-deception. McClellan, Pope, and Hooker were victimized not so much by faulty intelligence as by their inability to cast aside preconceived notions even when confronted with evidence that their ideas were wrong.[144]

Thus, despite the numerous methods of acquiring HUMINT and SIGINT, and despite efforts by wise and clever men to evaluate and apply the information these sources provided, Civil War military intelligence was never perfect, as the numerous successful surprise attacks from the spring of 1861 through the spring of 1865 so amply attest!

The author expresses his most profound thanks and appreciation to Mr. Edwin C. Fishel of Arlington, Virginia, who knows more about Civil War military intelligence than anyone. He is not a professionally trained historian, but is a former employee of the National Security Agency and its predecessors, the Signal Intelligence Service and the Army Security Agency. Mr. Fishel has greatly helped shape this paper through his published works cited in the following notes, and through numerous phone calls and an extensive correspondence. In a noble display of scholarly generosity, he has even shared his sources and some of his notes with me and one of my graduate students, Mr. William B. Feis, who is currently working on Grant's use of military intelligence. Mr. Fishel's forthcoming book, tentatively entitled The Secret War for the Union, will be a magnificent contribution to Civil War literature. The author also wishes to thank Professors Howard Jones of the University of Alabama and Benjamin Rader of the University of Nebraska-Lincoln for critiquing a draft of this essay. Although neither is an expert in Civil War history, I admire their keen intellects and fine writing styles, and, as I expected, their comments were extremely helpful.

1. Michael Shaara, *The Killer Angels* (New York: Ballantine Books, 1976), p 3.

2. James 0. Hall, "The Spy Harrison," *Civil War Times Illustrated* 24 (Feb 1986):18-25; Clifford Dowdey, ed, and Louis H. Manarin, associate ed, *The Wartime Papers of R. E. Lee* (New York: Bramhall House, 1961), p 574; Gen G. Moxley Sorrel, *Recollections of a Confederate Staff Officer,* reprint ed (Dayton: Morningside Bookshop, 1979), pp 161-65; Harry W. Pfanz, *Gettysburg: The Second Day* (Chapel Hill: University of North Carolina Press, 1987) pp 3-5; Edwin B. Coddington, *The Gettysburg Campaign: A Study in Command,* reprint ed (Dayton: Morningside Bookshop, 1979), pp 180-81. Historians knew Harrison only by his last name until Hall's article appeared and finally revealed his true identity.

3. Edwin C. Fishel, "The Mythology of Civil War Intelligence," *Civil War- History* (hereafter CWH) 10 (Dec 1964):344-367, and "Myths That Never Die," *lnternational Journal of Intelligence and Counterintelligence* 2 (Spring 1988):27-58; David C. Sparks, "General Patrick's Progress: Intelligence and Security in the Army of the Potomac," *CWH* 10 (Dec 1964):371-384; Marc B. Powe and Edward E. Wilson, *The Evolution of American Military Intelligence* (Fort Huachuca: U.S. Army Intelligence Center and School), p 9.

4. On the Bureau of Information, see Record Group 393, The Records of United States Army Continental Commands, 1821-1920, Part 1, Entry 3980, Box 9 ("Miscellaneous Letters, Reports, and Lists Received, 1861-1865"), Box 10 ("Miscellaneous Letters, Reports, and Lists Received, 1861-1865), and Box 11 ("Miscellaneous Letters, Reports, and Lists Received, 1861-1865"), in the National Archives, Washington, D.C. (Sharpe Papers henceforth); Fishel "Mythology" and "Myths;" Sparks, "Patrick's Progress," Lt. Col. C. T. Schmidt, "G-2, Army of the Potomac," *Military Review* 28 (July 1948):45-56; Robert Isaac Schneider, "General Hooker's Use of Combat Intelligence During the Chancellorsville Campaign, April 30-May 5, 1863," unpublished M.A. thesis, University of Maryland, 1957.

5. For just a few specific examples, see U.S. War Department, *The War of the Rebellion: Official Records of the Union and Confederate Armies (OR* henceforth) (128 vols., Washington: Government Printing Office, 1880-1901) Series I (henceforth all references are to Series I unless noted), vol 11, pt 1, p 262, vol 39, pt 2, pp 727-28; Dowdey and Manarin, *Wartime Papers of R.E. Lee,* p 192; E. P. Alexander, *Military Memoirs of a Confederate: A Critical Narrative* (New York: Charles Scribners Sons, 1907) p 324; Ulysses S. Grant, *Personal Memoirs of U.S. Grant* (2 vols., New York: Charles L. Webster, 1886) II, pp 326-27; Philip H. Sheridan, *Personal Memoirs of P. H. Sheridan* 2 vols., (New York: Charles L. Webster, 1888) I, p 481; William T. Sherman, *Memoirs of General William T. Sherman By Himself,* 2 vols, (Bloomington: Indiana University Press, 1957) II, p 56.

6. As one recent example see James Lee McDonough and James Pickett Jones, *War So Terrible: Sherman and Atlanta* (New York: W. W. Norton, 1987), p 129.

7. Stanley P. Hirshson, *Grenville M. Dodge: Soldier, Politician, Railroad Pioneer* (Bloomington: Indiana University Press, 1967), pp 67-68; John C. Babcock to Dear Aunt, 6 June 1862 and Henry G. Sharpe to Babcock, 11 Jan 1905, both in the John C. Babcock Papers, Manuscript Div, Library of Congress, Washington, D.C. For an example of 11 spy's exposure via captured mail, see OR, vol 12, pt 3, p 943.
8. See Elizabeth Van Lew to Mr. Rogers, 10 Apr 1877, to Dear General, 1 Feb 1887, and to Mr. Forbes, 20 Mar 1891, all in the Elizabeth Van Lew Papers, New York Public Library.
9. *OR,* vol 46, pt 1, p 481.
10. Sun Tzu had much to say about spying; see Samuel B. Griffith, trans., *Sun Tzu, The Art of War* (New York: Oxford University Press, 1963), p 147.
11. For example, during the siege of Petersburg, Lee reportedly had "two little boys trained as spies" who traveled in the Union lines posing as newsboys; see OR, vol 42, pt 3, p 472.
12. Belle Boyd, *Belle Boyd in Camp and Prison: Written by Herself,* edited by Curtis C. Davis (New York: Thomas Yoseloff, 1968) Appendix. Davis identified twenty-five intelligence service accounts, with some having appeared in several editions. I have read at least one edition of each.
13. James Dudley Peavey, ed, *Confederate Scout: Virginia's Frank Stringfellow,* (Onancock, Va: Eastern Shore Publishing, 1956), pp 1-2.
14. As Davis, *Belle Boyd,* pp 8, 38-45, has shown, these memoirs often fit into the accepted standards of mid-nineteenth-century romantic fiction. Davis argues that Boyd's memoir "has proved itself out as reliable to a high degree," yet points out that she employed a literary advisor to add zest to the narrative. In one case, the editor of his memoir admits that he cannot prove whether his subject's story is fact or fiction, but that either way it "is one of the most unusual stories to come out of the Civil War;" see [Henry J. Acker], *Gulf Spy: Sgt. Henry J. Acker, 23rd Wisconsin Vol. Inf.* (Tall Timbers, Md: Headquarters Press, 196 1) p 3.
15. Felix G. Stidger, *Treason History of the Order of Sons of Liberty*…. (Chicago: Published By The Author, 1903) p 23; Mrs. [Rose O'Neal] Greenhow, *My Imprisonment and First Year of Abolition Rule at Washington* (London: Richard Bentley, 1863), p 229: *Mrs. Emma E. Edmonds, Nurse and Spy in the Union Army* …. (Hartford: W. S. Williams. 1865); Sylvia G. L. Dannett, *She Rode with the Generals: The True and Incredible Story of Sarah Emma Seelye, Alias Franklin Thompson* (New York: Thomas Nelson, 1960): and Betty Fladeland, "New Light on Sarah Emma Edmonds, Alias Franklin Thompson, *Michigan History* 47 (Dec 1963):357-362; Fishel demolished Edmonds' more blatant fabrications in a letter to the author dated 28 June 1988, and in an enclosure with the letter entitled, "Female Nurse, Male Spy;" General L. C. *Baker, History of the United States Secret Service* (Philadelphia: L. C. Baker, 1867) pp 56-60.
16. Baker, *United States Secret Service,* p 72.
17. As Greenhow's book explains, she was arrested in August 1861 and deported in the spring of 1862. Her fame rests upon messages she sent to General P. G. T. Beauregard warning him of the Union army's advance in July 1861. However, her information was only one of many sources Beauregard utilized; see John Bakeless, *Spies of the Confederacy* (Philadelphia and New York: J.B. Lippincott, 1970) pp 18-26. Davis, *Belle Boyd*, shows that Union authorities arrested Boyd twice before deporting her in late 1863. Although she had engaged in some genuine espionage, her fame derives from a wild dash she made on May 23, 1862, to alert Jackson of the small size of Union forces at Front Royal; this was not an act of espionage, and merely confirmed what Jackson already knew. Davis considers her "The Civil War's Most Over-Rated Spy," *West Virginia History* 27 (Oct 1965):1-9; also see his "'The Pet of the Confederacy' Still? Fresh Findings About Belle Boyd," *Maryland Historical Magazine* 78 (Spring 1983):35-53. Greenhow would be a close second for the title of most over-rated spy.
18. The best single statement of Van Lew's importance is the long letter from Sharpe to General C. B. Comstock, Jan 1867. A copy is in the Van Lew Papers. Wright once provided invaluable information about Confederate forces in the Valley to Sheridan; see Sheridan, *Memoirs, II,* pp 2-6.
19. On Ruth, see U.S. Congress, House of Representatives, 43d Cong. (1874), 1st Sess., Report No. 792, and 44th Cong. (1876), 1st Sess., Report No. 823; Angus J. Johnston, II, "Disloyalty on Confederate Railroads in Virginia," *The Virginia Magazine of History and Biography (hereafter* VMHB) 63 (Oct 1955):410-426; Meriwether Stuart, "Samuel Ruth and General R. E. Lee: Disloyalty and the Line of Supply to Fredericksburg, 1862-1863," *VMHB* 71 (Jan 1963):35-109.
20. Jacob Mogelever, *Death to Traitors: The Story of General Lafayette C. Baker, Lincoln's Forgotten Secret Service Chief* (Garden City: Doubleday, 1960) pp 52-60; Baker, *United States Secret Service,* pp 45-71.
21. Allan Pinkerton, *The Spy of the Rebellion* …. (Hartford: M. A. Winter & Hatch, 1885) pp 183ff, 210ff, 467; Harriet H. Shoen, "Pryce Lewis, Spy for the Union: Operations in Western Virginia, June-July 1861," *Davis and Elkins Historical Magazine* 2 (Mar and May 1949):22-30.
22. Charles A. Dana, *Recollections of the Civil War: With the Leaders at Washington and in the Field in the Sixties* (New York: D. Appleton, 1898) pp 238-47; David Homer Bates, *Lincoln in the Telegraph Office* …. (New York: Century Co., 1907) pp 78-81; Meriwether Stuart, "Of Spies and Borrowed Names: The Identity of Union Operatives in Richmond Known as 'The Phillipses' Discovered," VMHB 89 (July 1981):308-327.
23. Pinkerton, *The Spy of the Rebellion,* p 469; George S. Johns, *Philip Henson, the Southern Spy*… (St. Louis: Nixon-Jones Printing, 1887)-the quote is on p 87.
24. Johns, *Henson, the Southern Spy,* pp- 5-6, explains how much easier soldiering was than spying. Van Lew's autobiographical sketch, in the Van Lew Papers, vividly describes the constant tension that Richmond Unionists endured.

25. Section V, paragraph 102, General Orders No. 100, in OR, Series III, vol 3, pp 148-64. General Braxton Bragg sentenced Union spy Pauline Cushman to be hanged, but fortuitous circumstances saved her; see F. L. Sarmiento, *Life of Pauline Cushman, Celebrated Union Spy and Scout* (Philadelphia: John E. Potter, 1865) pp 270-325.
26. Two Union spies who hanged were Timothy Webster and Spencer Brown, and two Confederate spies were Sam Davis and David 0. Dodd. See Pinkerton, *The Spy of the Rebellion,* p 56; George G. Smith, ed, *Spencer Kellogg Brown: His Life in Kansas and His Death as a Spy, 1842-1863, as Disclosed in His Diary* (New York: D. Appleton, 1903) p 374; Grenville M. Dodge, *The Battle of Atlanta and other Campaigns, Addresses, etc.* (Council Bluffs: Monarch Printing, 1910) pp 165-70; Bakeless, *Spies of the Confederacy*, v, p 258.
27. OR, vol 33, pp 519-21, 681-82 and vol 42, pt 3, pp 226, 445, 613; Marsena R. Patrick, *Inside Lincoln's Army: The Diary of Marsena Rudolph Patrick, Provost Marshal General, Army of the Potomac* [David Sparks, ed] (New York: Thomas Yoseloff, 1964) pp 349-50.
28. Sharpe to Bowers, 21 Jan 1865, Box 9, Sharpe Papers.
29. For problems in communications, see Stuart, "Samuel Ruth," pp 94-99; Sharpe to Bowers, 29 Aug 1864, Box 9, Sharpe Papers; Sharpe to Rawlins, 29 July 1864, Record Group 108, The Records of the Headquarters of the Army, Entry 112, Box 1 ("Information from Examination of Scouts, Deserters, etc."); OR, vol 46, pt 3. pp 29, 1073. For the simultaneous channels, see OR, vol 46, pt 2, p 75.
30. OR, vol 42, pt 2, pp 568, 736, and pt 3, p 710; Sharpe to Comstock, Jan 1867, Van Lew Papers.
31. OR, vol 42, pt 2, p 1050, and vol 46, pt 2, p 525; John Y. Simon, ed, *The Pal)el-.v Ulysses S. Grant (GP* henceforth) (15 vols. to date, Carbondale and Edwardsville: Southern Illinois University Press, 1967): XIII, p 5.
32. OR, vol 33, p 519; *GP,* XIV, p 160.
33. Report No. 792 and Report No. 823.
34. Sharpe to Comstock, Jan 1867, Van Lew Papers; Report No. 792. Butler once wrote that he "would willingly stake my life" on Van Lew's loyalty; see *GP,* X, p 560.
35. John B. Jones, A *Rebel War Clerk's Diary,* edited by Earl Schenck Miers (New York: Sagamore Press, 1958) pp 469, 477, 486, 492, 505, 509. Besides the Ruth and Van Lew rings, other individual spies penetrated Richmond. For example, Orazio Lugo de Antonzini was a navy spy who visited Richmond, Charleston, and Wilmington; see Meriwether Stuart, "Dr. Lugo: An Austro-Venetian Adventurer in Union Espionage." *VMHB* 90 (July 1982):339-358.
36. For examples of the words used interchangeably. See Pinkerton's *The Spy of the Rebellion,* which refers to Timothy Webster in the title of Chapter XX as "The Spy at Richmond" and to him in Chapter XXXIV, "No Tidings of the Faithful Scout;" [John Fitch], *Annals of the Army of the Cumberland* …. (Philadelphia: J. B. Lippincott, 1864) p 491; Johns, *Henson, the Southern Spy,* p 9; *OR,* vol 33, p 1324.
37. Shaara, *Killer Angels,* p 7; Section IV, paragraph 83, General Orders No. 100 (also see Section IV, paragraph 84 and Section V, paragraph 88).
38. Dowdey and Manarin, *Wartime Papers of R. E. Lee,* p 673; *GP,* XII, p 101. The scout who worked for Grant was Corporal Lorain Ruggles; see *GP,* XII, pp 457-58; and E. C. Downs, *Four Years a Scout and Spy* … (Zanesville, Ohio: Published by Hugh Dunne, 1866). Another scout Grant praised was C. S. Bell; see *GP,* X, p 387.
39. Horace Porter, *Campaigning with Grant* (Bloomington: Indiana University Press. 1961), p 455. For a scout who was an enemy spy, see Sheridan, *Memoirs,* ll,pp 108-11.
40. Dodge, *The Battle of Atlanta,* p 19; Sheridan, *Memoirs,* II, pp 1-2.
41. Jedediah Hotchkiss, *Make Me A Map of the Valley: The Civil War Journal of Stonewall Jackson's Topographer,* edited by Archie P. McDonald, (Dallas: Southern Methodist University Press, 1973) pp 47, 55-56, 83; G. F. R. Henderson, *Stonewall Jackson and the American Civil War,* 2 vols., (London and New York: Longmans, Green, 1898) II, p 427, concluded that "Jackson had scouts who were more useful to him than many of his brigadiers;" Pfanz, *Gettysburg,* pp 105-07; R. Shepard Brown, *Stringfellow of the Fourth: The Amazing Career of the Most Successful Confederate Spy* (New York: Crown Publishers, 1960) pp 61-64. Mosby tells of his own exploits in *The Memoirs of Colonel John S. Mosby,* edited by Charles Wells Russell, (Boston: Little, Brown, 1917).
42. *Revised United States Army Regulations of 1861.* With an Appendix… (Washington, D.C.: Government Printing Office, 1863) p 95, defined the purpose of partisan corps in words that are almost a perfect description of what scouting battalions did.
43. Sheridan, *Memoirs, II,* pp 104-07; Harry Gilmor, *Four Years in the Saddle* (New York: Harper & Brothers, 1866) pp 277-78; Hirshson, *Grenville M. Dodge,* p 69.
44. Patrick, *Inside Lincoln's Army,* p 222; Sheridan, *Memoirs, I,* pp 248-50.
45. James Pike, *Scout and Ranger: Being the Personal Adventures of James Pike of the Texas Rangers in 1859-1860,* [Carl L. Cannon, ed,] (Princeton: Princeton University Press, 1932) p ix.
46. Sheridan, *Memoirs, II,* pp 120-21; Porter, *Campaigning with Grant,* pp 397-99; William G. Beymer, *On Hazardous Service: Scouts and Spies of the North and South* (New York: Harper & Brothers, 1912) pp 31-33. For another example of using a scout as a courier, see *GP,* XIII, p 102.
47. OR, vol 33, pp 1324-25; vol 46, pt 2, p 357; vol 46, pt 3, p 549; and vol 5 1, pt 1, p I 1 59; *GP,* XIII, p 464; Dowdey and Manarin, *Wartime Papers of R. E. Lee,* pp 251-52.
48. See Record Group 393, Part 1, Entry 986 ("Summaries of the news reaching Headquarters of General W. S. Rosecrans, 1863-64") and the reports from Dodge in *GP,* X, pp 44, 507-08, 521-22, 537-38. Sherman also had scouts scouring the rebel

heartland; see *ibid,* pp 272-73. I am indebted to W. Glenn Robertson of the Combat Studies Institute of the U.S. Army Command and General Staff College for calling my attention to the "Summaries of the News" document.
49. *GP,* XIV, p 259; Peavey, *Confederate Scout,* pp 61-62. Gilmor, *Four Years in the Saddle,* p 273, claims that he and six of his men, dressed in blue uniforms, "went within one hundred yards of Sheridan's headquarters…"
50. Dowdey and Manarin, *Wartime Papers of R. E. Lee,* p 594; OR, vol 33, pp 830-31 and vol 42, pt 3, p 664; Gilmor, *Four Years in the Saddle,* pp 87, 273-74; McEntee to Sharpe, 22 Apr, 27 Apr, and 3 May 1864, all in Box I 1, Sharpe Papers.
51. OR, vol 46, pt 1, p 48 1.
52. George B. McClellan, *McClellan's Own Story* … (New York: Charles L. Webster, 1887) p 109; Russell, ed, *Memoirs of Colonel John S. Mosby*, p 31; James B. Avirett, *The Memoirs of General Turner Ashby and His Compeers* (Baltimore: Selby & Dulany, 1867) pp 185, 212-13, 300, 336, 362-63, 366, 401; Henderson, *Stonewall Jackson and the American Civil War,* I, p 274.
53. *Revised United States Army Regulations,* p 94.
54. Dowdey and Manarin, *Wartime Papers of R. E. Lee,* p 329; OR, vol 25, pt 2, pp 827-28. Also see Douglas Southall Freeman, *R. E. Lee: A Biography* (4 vols., New York: Charles Scribners Sons, 1934-35) IV, p 171.
55. For the improvement in the Union cavalry, see Stephen Z. Starr, *The Union Cavalry in the Civil War,* 3 vols., (Baton Rouge: Louisiana State University Press, 1979-85).
56. Starr, *Union Cavalry in the Civil War, I,* pp 299-302.
57. Alexander, *Military Memoirs of a Confederate,* p 324; Douglas Southall Freeman, *Lee's Lieutenants: A Study in Command,* 3 vols., (New York: Charles Scribners Sons, 1944) II, p 639; Henderson, *Stonewall Jackson and the American Civil War, II,* pp 525-26.
58. Dowdey and Manarin, *Wartime Papers of R. E. Lee,* p 574; Coddington, *The Gettysburg Campaign,* pp 183-84; Edward G. Longacre, *The Cavalry at Gettysburg: A Tactical Study of Mounted Operations during the Civil War's Pivotal Campaign, 9 June-14 July 1863* (Rutherford: Fairleigh Dickinson University Press, 1986) pp 151, 271.
59. OR, vol 12, pt 3, pp 940-43; Emory M. Thomas, *Bold Dragoon: The Life of J. E. B. Stuart* (New York: Harper & Row, 1986) p 149.
60. McEntee to Sharpe, 8 June 1864, Box I 1, Sharpe Papers; Marginal notation in the "Index of the Army of Northern Virginia," Babcock Papers. For other examples of captured mail, see *GP,* X, p 539, and the entries for 24 and 29 June, 4 and 28 July, and 10 Sept 1863 in RG 393, Part 1, Entry 986 ("Summaries of the news").
61. Rachael Sherman Thorndike, ed, *The Sherman Letters: Correspondence Between General Sherman and Senator Sherman from 1837 to 1891,* (New York: DeCapo Press, 1969) pp 187, 190, 193-94. Also see Sherman, *Memoirs, II,* p 408; M. A. DeWolf Howe, ed, *Home Letters of General Sherman* (New York: Charles Scribners Sons, 1909) pp 238-40; John F. Marszalek, *Sherman's Other War: The General and the Civil War Press* (Memphis: Memphis State University Press, 1981).
62. J. Cutler Andrews, *The North Reports the Civil War* (Pittsburgh: University of Pittsburgh Press, 1955) and Andrews, *The South Reports the Civil War* (Princeton: Princeton University Press, 1970); James G. Randall, "The Newspaper Problem in its Bearing upon Military Secrecy during the Civil War," *American Historical Review,* 23 (Jan 1918):303-323.
63. Dowdey and Manarin, *Wartime Papers of R. E. Lee,* pp 191, 240-41, 607-08: Douglas Southall Freeman, ed, With Additional Dispatches and Foreword by Grady McWhiney, *Lee's Dispatches: Unpublished Letters of General Robert E. Lee, C.S.A. to Jefferson Davis* … (New York: G. P. Putnam's Sons, 1957) pp 240-41.
64. In mid-July 1863 a Charleston newspaper proposed a set of voluntary censorship guidelines. In a negative sense, the guidelines indicate the extremely valuable military information that the Southern press had been publishing. See Andrews, *South Reports the Civil War,* p 530.
65. Joseph E. Johnston, *Narrative of Military Operations Directed, During the Late War Between the States,* By Joseph E. Johnston (Bloomington: Indiana University Press. 1959) p 22.
66. Sherman, *Memoirs, II,* p 141.
67. Marszatek, *Sherman's Other War,* pp 172-74; Andrews, *North Reports the Civil War,* pp 576-77; P, XII, pp 403-04.
68. Howard K. Beale, ed, *Diary of Gideon Welles: Secretary of the Navy Under Lincoln and Johnson* (3 vols., New York: W. W. Norton & Company, 1960) II, p 205.
69. Alexander, *Military Memoirs of a Confederate,* p 55; Brown, *Stringfellow,* pp 76-80, 93.
70. *GP,* XIV, p 80. Commanders in the Western theater also perused enemy papers for military intelligence; see, for instance, the entries for June and July 1863 in RG 393, Part I, Entry 986 ("Summaries of the news").
71. *Ibid,* XII, XIII, XIV. He often received papers from Raleigh, Columbia, Savannah, and Augusta. Recipients of his summaries included Sheridan, Meade, Butler, Thomas and Schofield. For Lincoln's interest in the Richmond papers, see XIV, pp 80-81.
72. *Ibid,* XIII, pp 36-37, 401-02. The Assistant Secretary of the Navy wrote to Grant regarding the Wilmington expedition that "I hope you will use every exertion to get us a Richmond paper as we shall hear first through that source concerning the joint expedition." *Ibid,* p 165.
73. *Ibid,* XIII, XIV. As Grant wrote Sherman in March 1865, "the Richmond papers were full of the accounts of your movements…" XIV, p 173. The Rawlins quote is in XIII, pp 57-60.
74. Freeman, *Dispatches,* pp 51, 223, 241, 265, 362-63; Dowdey and Manarin, *Wartime Papers of R. E. Lee,* pp 257, 345, 832.
75. Dowdey and Manarin, *Wartime Papers of R. E. Lee,* p 819.

76. George B. McClellan, *Report on the Organization and Campaigns of the Army of the Potomac*… (Freeport, NY: Books for Libraries Press, 1970), pp 1 19-21.
77. GP, XI, 219, XIII, 111, XIV, pp 160-61; OR, vol 33, p 998; Babcock to Sharpe or Patrick, 31 Dec 1864, Box I 1, Sharpe Papers.
78. Sharpe to General [A. A. Humphreys] 20 July 1864, and the multiple endorsements, on this letter, Box I 1, Sharpe Papers. Also see Sparks, p 379.
79. *GP,* XIII, p 14. For similar examples, see *ibid,* XI, p 370, XIII, p 39, XIV, p 282; Meade to Babcock, Dec 16, 1864, Babcock Papers. For examples of the detailed information derived from deserters, see Patrick to Humphreys, Mar 28, 1864, Patrick to Humphreys, Mar 30, 1864, and Sharpe to Humphreys, May 1, 1864, all in RG 108, Entry 112, Box 1. Lee also milked deserters and prisoners for similar information; see Dowdey and Manarin, *Wartime Papers of R. E. Lee,* pp 247, 253-54, 404, 449.
80. *GP,* XI, p 228, XII, p 64; OR, vol 42, pt 2, p 552, vol 42, pt 3, pp 666, 955-56; McEntee to Sharpe, 22 Nov 1864, Box 10, Sharpe Papers.
81. OR, vol 42, pt 3, p 959.
82. *Ibid,* vol 12, pt 3, p 946, vol 42, pt 2, pp 75-76, 195-96; Shepley to Davis, 14 Sept 1864, Box 9, Sharpe Papers; McEntee to Sharpe 22 Apr 1864 and 27 Apr 1864, both in Box I 1, Sharpe Papers; Dowdey and Manarin, *Wartime Papers of R. E. Lee,* pp 294-95; Henderson, *Stonewall Jackson and the American Civil War,* II, p 148.
83. Dowdey and Manarin, *Wartime Papers of R. E. Lee,* p 693; OR, vol 25, pt 2, p 826. For examples of blacks supplying important information, see *GP,* X, p 537, XI, pp 95, 203, XIII, p 93, XIV, p 253; OR, vol 33, pp 616, 683, vol 42, pt 2, p 116, vol 42, pt 3, pp 152-53; Patrick, *Inside Lincoln's Army,* p 271; JCB [Babcock] to Sharpe, 4 Feb 1864, Box II, Sharpe Papers; Meade to Grant, 14 July 1864, RG 108, Entry 112, Box 1.
84. OR, vol 42, pt 2, pp 656-57, 734, 1050, vol 42, pt 3, p 956. RG 393, Part 1, Entry 975 ("Summaries of the news") contains much detailed information obtained from deserters and civilians about the enemy's order of battle in mid-1863.
85. *GP,* XIII, p 479; OR, vol 42, pt 2, p 266.
86. *GP,* XIII, p 478, XIV, p 18; many entries in RG 393, Part 1, Entry 986 ("Summaries of the news").
87. OR, *vol* 42, pt 3, p 666.
88. *Ibid,* pp 659-60; Patrick, *Inside Lincoln's Army,* pp 175-76, 202-03; Hotchkiss, *Make Me A Map,* p 13; many entries in RG 393, Part 1, Entry 986 ("Summaries of the news").
89. *GP,* XI, pp 269-75; Patrick, *Inside Lincoln's Army,* pp 399-400; Grant, *Memoirs, II,* p 308.
90. *Revised United States Army Regulations,* p 90.
91. F. Stansbury Haydon, *Aeronautics in the Union and Confederate Armies, with a Survey of Military Aeronautics Prior to 1861* (Baltimore: Johns Hopkins University Press, 1941) pp 8-35; Joseph J. Comish, *III, The Air Arm of the Confederacy: A History of Origins and Usages of War Balloons By the Southern Armies During The American Civil War* (Richmond: Richmond Civil War Centennial Committee, 1963) pp 7-11; J. Duane Squires, "Aeronautics in the Civil War," *American Historical Review,* 42 (July 1937):653-54.
92. Comish, *The Air Arm of the Confederacy,* pp 17, 30, 33-34, 39-43, 48; Squires, "Aeronautics in the Civil War," pp 663-64; J. H. Easterby, ed, "Captain Langdon Cheves, Jr., and the Confederates Silk Dress Balloon," *The South Carolina Historical and Genealogical Magazine,* 45 (Jan 1944): 1-11 and 45 (Apr 1944):99-110; John R. Bryan, "Balloon Used for Scout Duty," *Southern Historical Society Papers,* 32 (1905):32-42; Alexander, *Military Memoirs of a Confederate,* p, 172.
93. William A. Glassford, "The Balloon in the Civil War," *Journal of the Military Service Institution of the United States,* 18 (1896):255-266; General A. W. Greely, Chief Signal Officer, USA, "Balloons in War," *Harper's Monthly Magazine 101* (June 1900):33-50.
94. Haydon, *Aeronautics* pp 308-20, has an excellent discussion of these matters; Squires, "Aeronautics in the Civil War," p 662, notes that Lowe took pictures from a balloon on several occasions; for exploiting an unexpected enemy movement, see OR, vol II, pt 1, p 456.
95. Haydon, *Aeronautics* pp 92-93, 116-18, 206-16, 335-40; Bryan, "Balloon used for Scout Duty," pp 35-37; Greely, "Balloons in War", p 40; Glassford, "The Balloon in the Civil War," p 256; Comish, *The Air Arm of the Confederacy,* p 36; OR, vol 25, pt 2, p 277.
96. James Longstreet, "Our March against Pope," *The Century Illustrated Monthly Magazine,* 31 (February 1886): 601-02; Alexander, *Military Memoirs of a Confederate,* 172-73; Squires, "Aeronautics in the Civil War," p 668.
97. Paul J. Scheips, "Union Signal Communications: Innovation and Conflict," CWH 9, (Dec 1963):399-404, 406; J. Willard Brown, *The Signal Corps, U.S.A., in the War of the Rebellion* (New York: Amo Press, 1974), pp 20-22, 43-45, 50, 55-56, 207; Lt. Col. Max L. Marshall, ed, *Story of the U.S. Army Signal Corps* (New York: Franklin Watts, 1965) pp 21-24, 63; Alexander, *Military Memoirs of a Confederate,* pp 3-4, 13-16; David W. Gaddy, "William Norris and the Confederate Signal and Secret Service," *Maryland Historical Magazine* 70 (Summer 1975):167-188, and Gaddy, "Gray Cloaks and Daggers," *Civil War Times Illustrated* 14 (July 1975):20-27; William A. Lidwell, with James 0. Hall and David Winfred Gaddy, *Come Retribution: The Confederate Secret Service and the Assassination of Lincoln* (Jackson, Miss: University Press of Mississippi. 1988) Chapter 3, "The Secret Service Corps."
98. Brown, *Signal Corps,* p 125; *OR,* vol 11, pt 1, pp 238, 240, 242; Lester L. Swift, ed, "The Recollections of a Signal Officer," *CWH* 9 (Mar 1963):48.

99. Porter, *Campaigning with Grant,* p 207; Swift, "Recollections of a Signal Officer, p *43; OR,* vol 11, pt 1, pp 241-42, 248-49, 250, 257, vol 25, pt 1, pp 224-25; Sheridan. *Memoirs, I,* pp 489-90; Dr. Chas. E. Taylor, *The Signal and Secret Service of the Confederate States* (Hermans, Md: Toomey Press, 1986) pp 6-7; [Fitch], *Annals,* pp 304-5.
100. For examples, see OR, vol 11, pt 1, p 235, vol 42, pt 2, pp 1124-5, vol 42, pt 3, p 807. As Sherman lamented about flag and torch signals, "almost invariably when they were most needed, the view was cut off by intervening trees, or by mists and fogs." see Sherman, *Memoirs, II,* p 398.
101. Alexander, *Military Memoirs of a Confederate,* pp 30-31; Johnston, *Narrative of Military Operations,* p 42; Marshall, *Story of the U.S. Army Signal Corps,* pp 24-25. asserts that "Bull Run was the first battle of modern times that was lifted to victory by causes clearly traceable to the use of combat signaling;" Edward H. Cummins, "Signal Corps in the Confederate States Army," in Ben LaBree, ed, *The Confederate States Soldier in the Civil War* (Paterson: Pageant Books, n.d., reprint) p 196.
102. Coddington, *The Gettysburg Campaign,* pp 378-79; Pfanz, *Gettysburg,* pp 116-19: Alexander, *Military Memoirs of a Confederate,* p 391.
103. Ciphers and codes are technically different, but in the Civil War people used the words interchangeably, as have I. The word "codebreaking" includes solving ciphers. See David Kahn, *The Codebreakers: The Story of Secret Writing* (New York: Macmillan Company, 1967) pp xiv-xv; Ralph E. Weber, *United States Diplomatic Codes and Ciphers, 1775-1938* (Chicago: Precedent Publishing, 1979) pp 3-5.
104.Brown, *Signal Corps,* Chapters V and V]; Scheips, "Union Signal Communications," pp 400-01; Taylor, *The Signal and Secret Service of the Confederate States,* pp iii, 5, 8-9; [Fitch], *Annals, 307;* OR, vol 5, p 71, vol 11, pt 1, p 25 Communication from balloons was by dropped messages, visual signals, or telegraph; see *Haydon, Aeronautics,* pp 244, 323-26.
105. Brown, *Signal Corps,* p 177; Scheips, "Union Signal Communications," pp 420-21: Marshall, *Story of the U.S. Army Signal Corps,* pp 29-43; OR, vol 11, pt 1, pp 236-37: William R. Plum, *The Military Telegraph during the Civil War in the United States,* 2 vols., (New York: Amo Press, 1974, reprint) II, p 89.
106. Scheips, "Union Signal Communications," pp 402-03; Plum, *The Military Telegraph, I,* p 130; Bates, *Lincoln in the Telegraph Office,* pp 27, 31-35; "Relief of Telegraph Operators Who Served in the War of the Rebellion," Senate Document No. 251, 58th Congress, 2d Sess., p 1; John E. O'Brien, *Telegraphing in Battle, Reminiscences of the Civil War* (Scranton, Pa: n.p., 1910) pp 295-99, 311. As several of these sources explain, the South did not develop an equivalent of the USMT, but relied on its commercial and railroad telegraphers for its military telegraphy.
107. Marshall, *Story of the U.S. Army Signal Corps,* pp 46, 53-58; Scheips, "Union Signal Communications," pp 408-10; Plum, *The Military Telegraph, II,* pp 97-103; OR, vol 25, pt 1, pp 217-18, 229.
108. Grant, *Memoirs, II,* p 207; Sherman, *Memoirs, II,* p 398; "Relief of Telegraph Operators," pp 7-8, 41; O'Brien, *Telegraphing in Battle,* p 142.
109. Plum, *The Military Telegraph, II,* p 366; W. G. Fuller, "The Corps of Telegraphers Under General Anson Stager During the War of the Rebellion," in *Sketches of War History, 1861-1865: Papers Read Before the Ohio Commandery of the Military Order of the Loyal Legion of the United States* (Cincinnati: Robert Clarke, 1888) II, p 399. Naturally, everyone wanted to use the telegraph for every message. The result was that the telegraphic network became "lumbered up with long unimportant dispatches," detracting from one of its greatest virtues: its rapidity; see "Relief of Telegraph Operators," p 32.
110. Brown, *Signal Corps,* p 215; Taylor, *The Signal and Secret Service of the Confederate States, pp* 10- 11; OR, vol 25, pt 1, p 228, vol 43, pt 1, pp 1009- 10. The aide-de-camp also reported that "The enemy also reads our messages, and the general suggests that your signalmen be put on their guard to prevent the enemy obtaining information by that means."
111. Grant, *Memoirs, II,* pp 207-08.
112. Wayne C. Temple, ed, "A Signal Officer with Grant: The Letters of Captain Charles L. Davis," CWH 7 (Dec 1961):435; Swift, "Recollections of a Signal Officer," p 48; Taylor, *The Signal and Secret Service of the Confederate States,* p 12.
113. Fishel, "Myths," p 54. For just a few examples see OR, vol 42, pt 2, p 28, vol 42, pt 3, pp 645-46, 660, 711-12. Determining whether intercepted Signal Corps messages were in a genuine cipher or simply in a new wig-wag alphabet is frequently impossible. Signalmen often used the word "cipher" loosely, or else merely stated that they had intercepted a message without giving any hint as to whether or not the enemy originally sent it in cipher.
114. Kahn, *Codebreakers,* pp 214-15; Plum, *The Military Telegraph,* I, pp 56, 60; Bates, *Lincoln in the Telegraph Office,* pp 49-53.
115. "Relief of Telegraph Operators,". p 2; John M. Schofield, *Forty-six Years in the Army* (New York: Century Co., 1897) pp 169, 232.
116. John Y. Simon and David L. Wilson, eds., "Samuel H. Beckwith: 'Grant's Shadow'," in Simon and Wilson, eds., *Ulysses S. Giant: Essays and Documents* (Carbondale and Edwardsville: Southern Illinois University Press, 1981); Grant, *Memoirs, II,* pp 103-04; *GP,* X, pp 48-49, 79-82, "Relief of Telegraph Operators," pp 41, 56.
117. The judgment is in David H. Bates, "A Rebel Cipher Despatch: One Which Did Not Reach Judah P. Benjamin," *Harper's New Monthly Magazine* 97 (June 1898):105-06. *O'Brien, Telegraphing in Battle,* p 88, asserted that "it is believed that no instance is known of the enemy having been able to decipher a telegraph in one of our ciphers." Fishel, "Myths," pp 53-55, believes that the South probably managed to translate at least a few USMT messages. He argues his case at much greater length in a letter to the author, dated June 29, 1988, and in an enclosure with that letter entitled, "Some General Thoughts on Civil War COMINT."

118. Cummins, "Signal Corps in the Confederate States Army," p 197; Gaddy, "William Norris," 173 and "Gray Cloaks," pp 23-26; Taylor, *The Signal and Secret Service of the Confederate States,* pp v, 4.
119. David W. Gaddy, "Secret Communications of a Confederate Navy Agent,"*Manuscripts* 30 (Winter 1978):50-53; Kahn, *Codebreakers,* p 217; Fuller, "The Corps ("Telegraphers," p 394; Fishel, "Myths," pp 54-55; Plum, *The Military Telegraph, I,* p 3(, Bates, "Rebel Cipher Despatch," p 106.
120. Plum, *The Military Telegraph, I,* pp 201,II, 163-65, 247; O'Brien, *Telegraphing in Battle,* pp 125-27; "Relief of Telegraph Operators," p 54.
121. Bates, *Lincoln in the Telegraph Office,* pp 58-60; Plum, *The Military Telegraph,* I, pp 264-66; O'Brien, *Telegraphing in Battle,* p 303; James A. Ramage, *Rebel Raider: The Life of General John Hunt Morgan* (Lexington: University Press of Kentucky, 1986) III, 51, 95-97, 140, 166.
122. Michael Howard and Peter Paret, eds. and trans., *Carl von Clausewitz, On War*; (Princeton: Princeton University Press, 1976) pp 117, 140.
123. Dowdey and Manarin, *Wartime Papers of R. E. Lee,* p 232; OR, vol 25, pt 2, p 844.
124. *GP,* XI, p 225. For other examples of conflicting intelligence reports, see *ibid, III,* 214-15, XIII, pp 9-10, 86; J.C.B. [Babcock] to Dear Gen'l, 19 Mar 1865, Box 11, Sharpe Papers.
125. J.C.B. [Babcock] to Sharpe, 26 Dec 1864, and Ord to Sharpe, 27 Dec 1864, both in Box 11, Sharpe Papers. For a similar example, see McEntee to Sharpe, 28 Apr and Apr 1864 (two different communications on 29 Apr), all in Box 11, Sharpe Papers.
126. OR, vol 25, pt 2, p 529. Also see McClellan, *Own Story,* p 391.
127. Dowdey and Manarin, *Wartime Papers of R. E. Lee,* p 386; Gilmor, *Four Years in the Saddle,* pp 152-53; Sharpe to Parker, 31 July 1864, RG 108, Entry 112, Box 1: McClellan, *Own Story*, pp 253-54.
128. Andrews, *North Reports the Civil War,* pp 639-44; Marszalek, *Sherman's Other War,* pp 43-44; Fishel, "Mythology," p 366.
129. For example, before departing on his ride around the Union army during the Gettysburg campaign, Stuart had engaged in "inspired counter-reconnaissance efforts: see Longacre, *Cavalry at Gettysburg,* p 272.
130. Despite his loathing of a free press, Sherman was not above using it to plant misleading information; see Marszalek, *Sherman's Other War,* p 167. Lee well understood that the Federal government used Northern papers "to create false impressions;" see Dowdey and Manarin, *Wartime Papers of R. E. Lee,* p 682.
131. Thomas, *Bold Dragoon, p* 118.
132. *OR,* vol 42, pt 3, pp 924-25, vol 46, pt 2, p 287.
133. For examples of mock deserters, see *GP,* XII, p 476, XIII, p 489; OR, vol 11, pt 3, *1)* 22, vol 42, pt 3, pp 608-09; [Fitch], p 574; General Braxton Bragg, "The Chickamauga Campaign, August 16 to September 22, 1863," in LaBree, *The Confederate States Soldier,* p 199; Meriwether Stuart, "Operation Sanders: Wherein Old Friends and Ardent Pro-Southerners Prove to Be Union Secret Agents," *VMHB* 81 (Apr 1973):180.
134. Sharpe to Parker, 31 July 1864, RG 108, Entry 112, Box 1; McEntee to Sharpe, ., 1 Aug 1864, Box 10, Sharpe Papers. In this letter McEntee writes that he had one deserter "tied by the thumbs all day yesterday and still he sticks to his story," and that it would be "useless to abuse" another deserter any more because he had been "tortured here and it made a perfect lunatic of him for twenty four hours."
135. OR, vol 11, pt 1, pp 228-29, vol 42, pt 2, p 131; Haydon, pp 215-16; Dowdey and Manarin, *Wartime Papers of R. E. Lee,* p 746; Sheridan, *Memoirs, II,* pp 35-37; Grant, *Memoirs, II,* p 55; *GP,* XI, p 214.
136. *OR,* vol 11, pt 1, p 250; "Relief of Telegraph Operators," pp 57-58. For other examples, see Brown, *Signal Corps,* pp 213-15.
137. Dowdey and Manarin, *Wartime Papers of R. E. Lee,* p 685; *GP,* XIV, p 26.
138. OR, vol 11, pt 3, pp 415-16, vol 33, p 1014, vol 42, pt 2, pp 169-70, 476, 629-30. 988-89, vol 46, pt 2, pp 499, 827; Babcock to Humphreys, 17 July 1864, RG 108, Entry 112, Box 1; multiple entries in RG 393, Part 1, Entry 986 ("Summaries of the news").
139. OR, vol 42, pt 2, pp 267, 855, 965. No wise general would put credence in the information a deserter provided when he learned that it came from the deserter's regimental doctor, who heard it from a lieutenant, who had supposedly heard it from a government official! See *GP,* XIII, p 156.
140. GP, XII, p 107; Freeman, *R. E. Lee,* IV, p 171.
141. Babcock to Oliver, 29 Jan 1865, Box I 1, Sharpe Papers; OR, vol 42, pt 2, p 1079; *GP,* XIII, p 82.
142. OR, vol 42, pt 3, pp 1107-08; Dana, *Recollections of the Civil War,* p 240. Similar examples of a concern for confirmation abound; see OR, vol 42, pt 2, pp 41-42, 256, 662, vol 42, pt 3, pp 893-94, 956, vol 53, p 410; *GP,* X, p 176, XI, pp 233, 387-88, XIII, pp 364, 489, XIV, p 160; Dana, *Recollections of the Civil War,* pp 235-36.
143. *GP,* XIV, pp 102-03, 107.
144. Michael C. C. Adams, *Our Masters the Rebels: A Speculation on Union Military Failure in the East, 1861-1865* (Cambridge: Harvard University Press, 1978) pp 89-98, makes this point, especially about McClellan. Reinforcement for Adams's argument comes from two more recent studies. See Edwin C. Fishel, "Pinkerton and McClellan: Who Deceived Whom?" CWH 34 (June 1988):115-142, and Stephen W. Sears, *George B. McClellan: The Young Napoleon* (New York: Ticknor & Fields, 1988). Henderson, in *Stonewall Jackson and the American Civil War, II,* p 229, concluded that more fatal than Pope's "neglect

of personal reconnaissance was his power of self-deception." Provost Marshal General Patrick made essentially the same point about Hooker in mid-June 1863; see Sparks, *Inside Lincoln's Army,* p 261.

*ERNEST A. MILLER * Confederate Espionage*

The role of the spy in the American Civil War is one of the most neglected facets of that turbulent conflict. The historian who would address this subject must uncover tracks carefully camouflaged by the agents themselves, the governments of both the United States and the Confederacy, and time itself.

Judah Benjamin, Secretary of State for the Confederacy burned all espionage records as the Federals entered Richmond. The U.S. considered its records so sensitive that they were sealed in the National Archives until 1953.[1] This has resulted in a most incomplete understanding of the tremendous impact of espionage agents, particularly those of the South, on the military and political actions of the Civil War.

In the South, necessity was truly the mother of invention. Unable to meet the Federal Forces as equals on the battlefield, the South poured ever-increasing resources into unconventional projects that resulted in the introduction of the torpedo and the submarine.[2]

The intelligence arena saw the introduction of primitive microdot technology, imitative deception on the telegraph and, on both sides, aerial surveillance from balloons.

The general superiority of Confederate field commanders, cited as a major reason for the surprisingly long survival of the Confederate cause, was largely due to their access to and use of superior military intelligence. Simultaneously, the Confederacy directed enormous efforts to the exploitation of Northern ambivalence concerning the war to bring about a favorable political settlement.

Neither side entered the war with a formal intelligence organization and such organizations as did develop were generally ineffective. Generals normally operated their own spy rings—often recruiting and directing agents personally. Strategic intelligence was a game played by both Presidents and their respective secretaries of State and War. Jefferson Davis, in particular, devoted an enormous amount of time to playing spymaster. Still, only on November 30, 1864, with the war virtually over, did the Confederacy establish a Secret Service Bureau which, even then, was an adjunct to the Signal Corps.

Most of the North's intelligence agencies were actually counterintelligence networks organized in response to the increasingly successful Confederate efforts at espionage, sabotage, and subversion in the North. The most famous of these, Pinkerton's, was hired directly by General McClellan to support his Army of the Potomac. Allan Pinkerton had been employed by the general before the war as a railroad detective while McClellan was president of the eastern division of the Ohio and Mississippi Railroad. The detective was as big a disaster as a military intelligence operative as the railroad president was as general. They lost their jobs together.

The circumstances of the war greatly favored Southern agents. Since the vast majority of military operations occurred in border and Confederate states, the Southern spy could count on the assistance of a sympathetic civilian population. As a matter of fact, many spontaneous acts of subversion and espionage were perpetrated by civilians who were caught up in the sense of patriotism and romantic glory of the moment only to return to more mundane pursuits when the armies passed them by.

Until the final year of the war, when the struggle became especially bitter, very few captured spies were executed. Most women agents were sternly lectured and escorted home if they promised "not to do it again." One suspects that the Southern belle's reputation as a "femme fatale" stems largely from the ease with which she extracted information from gullible Yankee officers. Security was so lax on both sides that the only real danger was in getting information back and forth across military lines. Elaborate Confederate courier networks could move information from Lincoln's cabinet room to Richmond within a day, but the ordinary line-crosser faced enormous difficulties passing through unfriendly lines.

The most famous Confederate spies fell into three main groups: The aforementioned civilians living in the main battle areas; Southern sympathizers living in the North after the war began; and members of the flamboyant calvary commands of Morgan, Forrest, and Early. Miss Belle Boyd, a 17-year-old girl living in the Shenandoah Valley, Mrs. Rose O'Neal Greenhow, a middle-aged Washington hostess and Capt. Thomas H. Hines of Morgan's Cavalry were the most effective of their respective groups. In their day,

they earned outraged headlines throughout the North. In retrospect, it is apparent that just as their successes prolonged the war, their failures doomed the last hopes of the South.

Belle began her career by killing a drunken Yankee soldier who tried to tear down a Confederate flag from her bedroom wall. The Union officer who investigated the incident wound up posting a guard in front of her house to spare her further such inconveniences! Her numerous friendships among the boys in blue were a town scandal but resulted in the delivery of much valuable information to Stonewall Jackson during his Shenandoah Valley campaigns. Her finest hour came when she ran across a battlefield to give Jackson the disposition of Federal troops in her hometown of Front Royal. The result was a rout of the Union, terror in Washington and fame for Belle.

Falling repeatedly into Union hands, Belle was always released. Illness freed her from her second imprisonment and she was escorted through the lines to Richmond and given an honor guard reception. Her jailor sent a wedding trousseau bought with his own funds and, although her jailhouse romance with a captured Confederate officer faded, she kept the trousseau. Carrying dispatches to England, she was captured running the blockade. Ever La Belle, she married her captor and converted the young Union naval officer to the Confederate cause. Her spying days were over however, and Belle spent the remainder of the war in England, lionized as the most romantic spy of that most romantic war.

The exploits of Rose Greenhow were somewhat less colorful, but more effective than those of Belle Boyd. Rosie's career was brief (she and Belle were both amateurs), but she nearly won the war for the South before it really got started.

Rose was a lioness of Washington society. Widely believed to have been President Buchanan's mistress, the widow Greenhow cultivated lesser men from Secretary of State Seward to mere army captains possessing maps of Washington's fortifications. Despite her well-known Southern sympathies, her illustrious dinner guests spoke freely in her presence of war plans and preparations.[4]

Rose prepared for her self-appointed task early—by the time Fort Sumter fell she had organized a spy ring which reached the inner circles of the War Department. In the uncertain days before Bull Run, a steady flow of high-level intelligence was delivered by Mrs. Greenhow (on one occasion, she let down her long black hair before an astonished Confederate general and plucked out the message) and her accomplices to Richmond.

The most important of her intelligence, concerning the ease with which unguarded Washington itself might be seized, was never exploited by leery Confederates. But when Rose informed Beauregard of the day, routes of march and strength with which McDowell would finally open the initial campaign of the year, the forewarned Confederates put the information to good use. The consequent rout at the first Battle of Bull Run nearly wrecked the already fragile support for "Mr. Lincoln's War."

Rose was arrested not long afterward. She had attracted too much attention to herself with her overtly pro-Southern sympathies. The story of her undoing is a comedy of errors too long to recount here, but it was Allan Pinkerton's first and greatest counterintelligence success. Because of her powerful friends, Mrs. Greenhow endured a brief and rather luxurious imprisonment. Security remained so lax that Rose supplied the South with more valuable information while imprisoned. Her exasperated captors finally rid themselves of their politically protected enemy by delivering her through the lines to a heroine's welcome in Richmond. But, like Belle, Rose remained a thorn in the side of the Union. She, too, went to England where she wrote a book about her exploits. The book was a very effective piece of pro-Southern propaganda in Europe and its plentiful royalties were devoted to Confederate causes. Rose died while escaping a grounded blockade runner in heavy seas in 1864. She was drowned when her small boat capsized and she was weighted down by the gold she was smuggling into the South. Her body washed ashore to be buried with honors. Even in death Rose Greenhow served as a romantic symbol of dedication to the cause.

Unlike Rose and Belle, Capt. Thomas H. Hines of Morgan's Raiders was no amateur. A capable combat commander and a resolute secret agent, Hines was arguably "the most dangerous man in the Confederacy."[5] He never wrote a book. More than 20 years after the end of the war, Jefferson Davis

ordered him to remain silent.[6] The magnitude of his operations was only partially revealed in 1953 when the Federal government allowed historians to examine the records extant in the National Archives.

Any member of the confederate cavalry command was half spy almost by definition. They operated largely in enemy territory on missions that we would today term special operations. Their uniforms could most charitably have been described as irregular. For most of the war, Hines rode with Morgan as a valued troop commander, or ahead of him, to mobilize sympathizers and perform advance reconnaissance.

He was operating in a reconnaissance role when Morgan made his famous Indiana raid in 1863, the real purpose of which was to encourage a massive uprising by anti-war Northerners known commonly as Copperheads. Their numbers and influence can hardly be overestimated and they created enormous political problems for Lincoln. The South saw in them, particularly after Gettysburg, its only real hope for a favorable end to the war and devoted vast resources to fomenting an insurrection in the North that would topple Lincoln's administration either politically or by force of arms. There is considerable evidence, for example, that the New York draft riots in 1863 were instigated by Confederate agents.[7]

Hines failed in Indiana. The Copperheads proved to be (and not for the last time) more sound than fury. Morgan's raid fizzled when the uprising failed to materialize and both he and Hines were imprisoned along with most of the command. The raid had caused much consternation throughout the North, however, and the pair were celebrated prisoners in the Columbus, Ohio, penitentiary. Only a few months later Hines electrified the country by engineering his (and Morgan's) escape. Shortly after his return to the South, Hines was commissioned by President Davis to undertake the most secret and most incredible mission of the war—the Northwest Conspiracy.[8]

The Northwest Conspiracy was aimed at sparsely populated Indiana, Illinois, Ohio, and Michigan and those states bordering Canada; New York was also targeted. The conspiracy, a campaign of terrorism, involved a number of loosely coordinated schemes aimed at bringing the war home to the North and preventing Lincoln's reelection in 1864. Hines operated from Canada and was technically subordinate to three high-level Confederate commissioners sent by Davis to oversee the operation. But the Northwest Conspiracy was the 24-year-old Hines' project. Canada was well-suited as a base of operations. Several large prisoner of war camps were situated near the border and numerous escaped Confederate soldiers had taken refuge there. The British authorities were not disposed to interfere with Confederate activities and isolated towns near the border were unprotected.

The major objective of the conspiracy, the revolt of the Copperheads, did not occur. Their national leader, former Congressman and would-be President Clement Vallandingham, promised Davis that a million armed men would rise at his command, but despite prodigious efforts by Hines, their temperament proved to be more defensive than offensive. They constantly defied the authorities, but had neither the leadership nor the inclination to attack them.

Because of the caliber of men conspirators must deal with, Hines found himself betrayed many times. What is amazing is that his attempts at sedition were so nearly successful.

On the political front, the Copperheads were much more active. They controlled numerous local politicians and, in fact, Hines funnelled a large amount of Confederate money into the campaign of the Copperhead gubernatorial candidate in Illinois. Their greatest achievement was forcing (through influence at the nominating convention) the War-Democrat McClellan to run on a "peace at any cost" platform.[9] The election day terror campaign never materialized because a thoroughly alarmed Lincoln imposed all but martial law to ensure peace and reelection.

Many other activities falling under the general heading of the Northwest Conspiracy were of lesser importance. These were more or less successful than the abortive Copperhead revolt. Raids on Vermont and Maine were conducted by Hines' men in Canada. The famous St. Allan's bank robberies netted a few greenbacks, but, more importantly, made the Union feel vulnerable. A plan to seize Chicago collapsed, compromised by the sheer weight of planning and the numbers of persons who knew about it. A partial success was the proposed burning of New York City. On the night of November 25, 1864, several of Hines' men, abetted by sympathizers in the city, set fire to some 15 hotels and several ships in the harbor.

Damage was tremendous and panic widespread, but the envisioned general conflagration was averted.[10]

Hines' record was one of failure, near misses, and partial success; hardly what one expects to hear about a top secret agent. Yet he and his small band (never more than 25 intimates) were a psychological success. Hines became the most hated and feared man in America. Because of his efforts, thousands of soldiers were required to keep order in the North; soldiers the hard pressed Confederate armies would not have to fight.

The South took understandable, if perverse, pleasure in the terror Hines spread. Hines found it politic to remain in Canada for almost a year after the war to allow passions to cool before returning to his native Kentucky to become a lawyer and, later, a respected judge. Ironically, his narrowest escape came after the war. Because of his striking resemblance to John Wilkes Booth, he was nearly lynched by a mob while making his way back to sanctuary in Canada.[11]

Hines, Belle Boyd, Rose Greenhow and hundreds like them are a part of American history known by few. They contributed immeasurably to the Confederate war effort and to the history of American military intelligence. A tabulation of "what-ifs" and "might-have-beens" involving Confederate espionage agents drives home dramatically the thin line between victory and defeat in military conflicts and the importance of the clandestine warrior to the military commander. The lessons these nearly successful agents taught the Union War Department were largely responsible for the development of the intelligence and counterintelligence sections in the United States Army of today.

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1. Horan, James D., *Confederate Agent: A Discovery in History*, The Fairfax Press, New York, 1954, p. xvi.
2. Stein, Philip Van Doran, *Secret Missions of the Civil War*, Greenwood Press, Westport, Connecticut, 1975, p. 14.
3. *Ibid.*, p. 18.
4. Kane, Harnett T., *Spies for the Blue and Gray*, Doubleday and Company, Inc., New York, 1954, p. 131.
5. Bakeless, John, *Spies of the Confederacy*, J.P. Lippincott Company, Philadelphia, 1970, pp. 6-13.
6. Horan, *op. cit.*, p. 3.
7. *Ibid.*, pp. 286-7.
8. Stein, *op. cit.*, p. 148.
9. Horan, *op. cit.*, pp. 71-76.
10. *Ibid.*, pp. 132-133.
11. *Ibid.*, pp. 208-223.
12. *Ibid.*, p. 261.

Indian Wars

With the Civil War at an end, the American Army turned its attention to the frontier where a different kind of warfare would occupy them for the next quarter of a century. The low intensity conflict of the Indian Wars once again drew forth the resourcefulness that would become the hallmark of the American Army leader. The use of Indian Scouts by U.S. Army commanders on the frontier was one way military intelligence was employed with ingenuity and effectiveness. A prominent example was the Apache campaign in Arizona and New Mexico between 1862 and 1886. Their use in Arizona, as both spies on the reservation and as reconnaissance patrols in the field, was given credit for bringing the renegade Apaches to bay and significantly shortening the Apache campaigns.

In the 1870s, the telegraph was employed extensively in the Arizona/New Mexico theater of operations to quickly relay intelligence of Apache movements and to get orders out to the far-flung outposts. The Apache realized the threat posed by the telegraph and severed the lines, thus effectively disrupting American communications. But the Indians took their jamming efforts one step further, employing deception. They would cut the wires where they passed through a tree or were attached to a pole and then join the wires with a piece of rawhide. When the U.S. Army rode the line looking for the break, they would not be able to locate the broken line without much effort. One response to this problem was to field an experimental back-up communications system, the heliograph.

The Apache Scout is usually thought of as falling within the category of human intelligence because of his job as a long-range reconnaissance man, but the Indian's skills at tracking resemble the techniques used by the imagery interpreter. Imagery intelligence studies the earth's surface for clues to identify and locate enemy activity. Today that is accomplished mainly by photographic, radar, infrared, or electro-optic images, some conveyed from platforms in space. The Apache too scrutinized the ground for signs of enemy activity, but he gathered his images from as close to the earth's surface as you can get. Occasionally his platform was the back of a horse.

Here, an early observer, John C. Cremony, tells how the Apache could read the signs of the trail.

> *…They can tell you, by the appearance of the grass, how many days have elapsed since it was trodden upon, whether the party consisted of Indians or whites, about how many there were, and, if Indians, to what particular tribe they belonged. In order to define these points, they select some well marked footstep, for which they hunt with avidity, and gently pressing down the trodden grass so as not to disturb surrounding herbage, they very carefully examine the print. The difference between the crushing heel of a white man's boot or shoe, and the light imprint left by an Indian's moccasin, is too striking to admit of doubt, while the different styles of moccasin used by the several divisions of the Apache tribes are well known among them. The time which has elapsed since the passage of the party is determined by discoloration of the herbage and breaking off a few spires to ascertain the approximate amount of natural juice still left in the crushed grass. Numbers are arrived by the multiplicity of tracks.*
>
> *If a mounted party has been on the road, their numbers, quality and time of passage are determined with exactitude, as well as the precise sex and species of the animals ridden. The moment such a trail is fallen in with, they…find some of the dung, which is immediately broken open, and from its moisture and other properties, the date of travel is arrived at nearly to a certainty, while the constituents almost invariably declare the region from which the party came. This last point depends upon whether the dung is composed of gramma grass, barley and grass, corn, bunch grass, buffalo grass, sacaton, or any of the well known grasses of the country, for as they are chiefly produced in different districts, the fact of their presence in the dung shows precisely from what district the animal last came. …When maize is found they feel confident that the travelers were either Mexicans or people from that country.*

The American Army had used Indians as guides ever since its inception, but they were employed as civilians. It was not until an Act of Congress in July 1866 that Indians were actually enlisted and became

an official unit of the U.S. Army. General George Crook made extensive use of Apache scouts in Arizona territory to track down Apache renegades. Crook would emphasize their worth in his official report: "I cannot too strongly assert that there has never been any success in operations against these Indians, unless Indian scouts were used. These Chiricahua scouts…were of more value in hunting down and compelling the surrender of the renegades than all other troops…combined. The use of Indian scouts was dictated by the soundest of military policy."

On the reservation where many Indian factions intrigued against each other and the U.S. Army, a network of "Confidential Indians" would report to the military any plans or dissatisfaction. This proved useful in 1882 when informants alerted the Army to the intentions of renegades to attack the reservation at Camp Goodwin and breakout Loco and his Warm Springs people to join them in raiding. The information, however, did not prevent Geronimo, Juh, Chato, and Nachez from doing just that.

It is now necessary to shift our attention from the exhausting vertical chases over Southwestern mountain ranges after Apache renegades to the cooler heights of the Army hierarchy in Washington, D.C. This is where, according to one observer who noticed that staff officers spent most of their time in billiard parlors, "the balls flew the thickest." But it was also where organizational decisions were made, and while the Army in the field was hunting for Geronimo, the Army staff was making room for military intelligence.

In his memoirs, Ralph Van Deman claims that the 1885 establishment of a military intelligence division under the Adjutant General was the result of the Secretary of War asking for information on a foreign nation's military might and learning that nothing was known about it. Whether this was the germination of the Army's first headquarters level intelligence organization, or whether the War Department simply saw a need to build a military reference room to house the influx of reports being written by touring military observers, this event is accorded the significance of being the beginning of an MI establishment within the U.S. Army.

While the organization of the little MID is now thought of as a watershed, it certainly was not thought of as greatly important by Major William J. Volkmar, who together with a handful of clerks, crowded into a single room in the State, War and Navy Building. His modest shop was named the Division of Military Information, a subsection of the Reservations Division of the Miscellaneous Branch of the Adjutant General. It was not until 1889 that the office was charged with assembling "Military data on our own and foreign services which would be available for use of the War Department and the Army at large." Here would be filed maps and monographs, reports and rosters. The Adjutant General, in a letter to the field, asked "all officers" to "make report on anything which it may be desirable for the government to know in case of sudden war." The determination of what was military intelligence and what was not, was left to the "discretion of the officers." It was a minor archive that would grow quickly since the void it was filling was so wide.

If being lumped under "Miscellaneous" was not humbling enough, the office had to endure the sneers of their naval colleagues who's Office of Naval Intelligence (ONI) had been established three years earlier. When an Army officer was found to have borrowed a report from ONI, the Navy chief was outraged enough to write, "Such an incident as this served to make me doubly cautious, especially in dealing with these Army people, who in matters of tact or discretion seem to me to be a lower order of intellect than the mule." It was an early example of the begrudging cooperation that was to plague joint operations over the next century.

Four years later, the Military Information Division (MID) was expanded to encompass a network of military attaches. The attache system which Congress had authorized in 1889 involved the stationing of officers in four major European capitols and one in St. Petersburg. Their job was to observe the training and exercises of foreign armies and make reports on their relative strengths and weaknesses. A War Department memo exhorted them to:

> *Examine into and report upon all matters of a military or technical character that may be of interest to any branch of the War Department and to the service at large. Keep informed…of the*

occurrence of all military exhibitions and trials of Ordnance…. Examine the military libraries, bookstores and publishers lists in order to give early notice of any new or important publications or inventions or improvements in arms, or in any branch of the service; also give notice of such drawings, plans, etc.; which may be of importance and within your power to procure.

The attache in France in 1892 was Captain Henry Dana Borup, who was following instructions of the War Department to collect "drawings, plans, etc. which may be of importance and within your powers to procure," when he tried to buy some plans for the fortification of the seaport of Toulon from a Ministry of Marine employee. He was found out and earned the distinction of being the first attache to be expelled for espionage. Jefferson Coolidge, an American diplomat in France voiced his puzzlement at Borup's actions, calling them "perfectly useless," since we were not at war with France and did not yet possess a Navy with which to invest Toulon.

Attache duty was usually reserved for officers who had personal wealth, since the Army lacked the funds to support them overseas. This criterion was seldom a guarantee that the attache had any knowledge of intelligence work. The MID with its attaches soon would have a chance to prove its worth. Tensions with Spain were building.

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*MICHAEL E. BIGELOW * A Historical Perspective on Low-Intensity Conflict:The Apache Campaign Under General Crook*

In the 1870s and 1880s, brevet Major General George Crook, commander of the Department of Arizona, conducted military operations against the Apache Indians. A study of Crook's campaigns can offer us insight as we grapple with the demands and complexities of military operations in low-intensity conflict doctrine.

LIC was the Army's primary mission from 1790-1890. As the United States surged westward, the Army became the enforcer of the government's political and economic policies against the Indians. Nowhere was the Army challenged more than in the Department of Arizona in the 1870s and 1880s. This challenge came from an inadequate doctrine, a hostile landscape and a skilled enemy.

As an institution, the post-Civil War Army never developed a doctrine for Indian warfare. Instead, it relied on the conventional means of the day. These slow-moving columns of infantry and cavalry, supplied by even slower wagon trains, rarely caught their elusive Indian foe.

The southwestern terrain further impaired the Army's mobility. This environment of vast distances, rugged mountains, stony deserts, and sparse water and forage quickly wore down the heavily-laden soldiers and horses.

The Apaches, however, were masters of this harsh environment, exploiting it to their advantage. Cruel and cunning, they were warriors of unmatched skill. They excelled at guerrilla warfare and fought only when the odds were in their favor. Knowing no national borders, they often slipped into Mexico to their fortress-refuge, the Sierra Madre mountain range. In short, they were a formidable enemy.

Crook Accepts the Challenge

In June 1871, Crook took command of the Department of Arizona. Having established himself as a successful Indian fighter against the Paiutes, he concluded that the Apaches needed to be soundly beaten before a lasting peace could be achieved. As he planned his operations, however, Washington sent out peace emissaries. These agents set up initial reservations and even made peace with the feared Apache chief, Cochise. But the emissaries didn't achieve peace. When the Apaches continued their raids and killings, Crook was unleashed.

Tonto Basin Campaign

Crook's first offensive was the Tonto Basin Campaign from November 1872 to April 1873. From four posts encircling the area, he launched nine mobile columns of cavalry and Indian scouts. In 20 small unit actions, Crook's columns killed almost 200 Apaches. Moreover, their constant pressure broke the Apaches' will to fight. In April, the last of the Apaches surrendered. With the surrender of over 2,300 Indians, Crook had brought about an unprecedented period of peace.

1st Sierra Madre Campaign

In 1875, Crook was reassigned to fight the Sioux. Once he was gone, the peace began to crumble. For economy and control, the government decided to put all Apaches on the San Carlos Reservation. Hot and barren, it was a horrible place to live. Discontent combined with corrupt Indian agents and intertribal disputes to once again stir up trouble.

In 1881, several Apache leaders and their bands left the reservation and cut out for Mexico. The

famous Geronimo was among them. His daring raid against San Carlos itself prompted a change in the Army's leadership. Once again Crook was assigned to Arizona. He began preparations for a military campaign into the heart of the Apaches' Mexican refuge—the towering Sierra Madres.

In response to an Apache raid, Crook plunged into Mexico with a mixed column of 193 Apache scouts, 45 cavalry troopers and 350 pack mules. On 15 May, the scouts attacked an Apache camp. Although small, the breach of their mountain refuge was enough to shock the hostile Apaches into surrendering. Again Crook achieved peace.

2nd Sierra Madre Campaign

This peace, however, proved temporary. Restless under military rule and discontent over the ban on wife-beating and alcoholic tizwin-making, Geronimo and other leaders once again broke out and headed back to the Sierra Madre.

Crook's first two expeditions were unable to trap the renegade Apaches. After refitting, he once again set out south of the border. In January 1886, the scouts found an Apache camp and attacked. With their sense of security shocked, the Apaches were willing to talk. On March 25, 1886, Crook met with Geronimo and the other leaders. The Apaches agreed to return to the United States, spend two years in confinement in the East, and then return to the reservation. However, Crook's hurry to wire the good news to the head of the Army was overly hasty.

On the way north, Geronimo met a whiskey trader, got drunk and had second thoughts about surrendering. With about 30 followers, Geronimo fled back south. It would remain for Crook's successor, Brigadier General Nelson A. Miles, to bring Geronimo in for good.

Leadership

Crook was a vigorous leader who led by example. He instilled initiative and confidence in his officers. At the same time he gave his troops the morale and determination necessary to overcome the harsh environment and elusive enemy. Moreover, he was aggressive. He instructed his men that "no excuse was to be accepted for leaving the trail; if horses played out, the enemy must be followed on foot, and no sacrifice should be left untried to make the campaign short, sharp and decisive."

Knowing the Area and Enemy

Crook took every opportunity to learn about his area of operations. Immediately upon taking command of the department, he ordered all officers in Southern Arizona to report to him. From them, he learned about the area's geography and topography. To strengthen this knowledge, Crook went on a 675-mile reconnaissance of the area.

Building on a knowledge acquired before the Civil War, Crook made every effort to learn about his Indian enemies. Through his efforts, he became "more of an Indian than the Indian himself." He would use this knowledge not only during the campaigning but also during the negotiations.4

Innovative Tactics

Although the Army didn't develop a doctrine for fighting Indians, Crook did. His strategy for fighting Indians was twofold—pack mules and Apache scouts.

Crook made the organization and operation of the pack train into a science. The mules gave him mobility that almost matched the Apache. "It was only when General George Crook chased [us] with a column supplied by mule pack trains," one of Geronimo's warriors remarked, "that [we] had a hard time staying out of reach."

Although using Indians to fight Indians wasn't a new idea, Crook put a new twist on it. Rather than using one tribe to fight another tribe, Crook used Apaches to fight Apaches. In his first campaigns, Crook used mixed columns of cavalry and scouts, but increasingly be came to rely on the scouts almost exclusively. When the scouts pursued Geronimo in 1886, they did so without any cavalry.

Not only did Crook's Apache scouts give him the ability to locate and surprise his enemy in the depths of their refuges, but they gave him a psychological advantage as well. Seeing their own people hunting them, the renegade Apaches lost the will to resist.

History can put the challenges of modern low-intensity conflict doctrine in perspective. By studying past LIC military operations, such as Crook's, soldiers can gain a deeper insight and better understanding for tomorrow's LICs.

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2. *Ibid.*, pp. 378-381.
3. John G. Bourke, *On the Border with Crook*, University of Nebraska Press, Lincoln, 1971, p. 182.
4. *Ibid.*, pp. 108-113 & 136-140
5. Jason Betzinez, *I Fought with Geronimo*, Bonanza Books, New York, 1959, p. 57.
6. Bourke, pp 212-213.

*ELIZABETH BETHEL * The Military Information Division: Origin of the Intelligence Division*

The value and importance, to say nothing of the convenience to the service, of having military data respecting our own and foreign armies in available shape for the immediate use of the War Department and the Army at large were subjects not seriously considered by the War Department until an incident occurred in 1885 which brought the matter forcibly to its attention. In that year the Secretary of War requested the Adjutant General, Brigadier General R.C. Drum, to furnish him immediately with information regarding a certain foreign army.[1] Much to his embarrassment, the Adjutant General had to reply that he did not have the information and that it would require some time to compile it. But if not supplied immediately, the information was of no use to the Secretary.[2]

The occurrence of such an incident in 1885 is not surprising. At that time there was no General Staff, and none of the so-called staff departments were responsible for gathering and collating data on all subjects of military interest. To prevent the recurrence of such an incident, General Drum decided to establish a unit in his office for the collection of military data regarding our own and foreign armies which should be available for the use of the War Department and the Army.[3] Accordingly, he directed Major William J. Volkmar, who was in charge of the Military Reservation Division of the Miscellaneous Branch, The Adjutant General's Office, to submit a project for organizing a Division of Military Information.[4] The selection of Major Volkmar was probably because of the fact that he had more than the usual appreciation of the value of a knowledge of foreign armies. In 1883, while on leave of absence in Europe, he had been designated by the Secretary of War to attend the special maneuvers of the French Cavalry[5] and had submitted noteworthy official reports. In these he stressed the advantage of an exchange of views with distinguished officers of other countries and made various comparisons between our service and that of foreign countries.[6]

With the assistance of several clerks of the Military Reservation Division, Major Volkmar went to work gathering items of military interest from all available sources.[7] For a preliminary organization he recommended that, besides the officer in charge, the Military Information Division should be composed of a Captain from the Ordnance Department, a Captain or First Lieutenant from the Engineers, Artillery, Cavalry, and Infantry, each, and a Second Lieutenant from the Signal Corps;[8] but this recommendation was not adopted, and it was many years before the division had more than one or two officers detailed to it in Washington. The assistance of the commanders of military departments and the chiefs of War Department bureaus "in the matter of increasing the efficiency of the 'Division of Military Information' " was requested in letters from The Adjutant General to these officers, dated November 23, 1886.[9] The department commanders were asked to send in copies of reports of officers on hunting and fishing trips and on scouts near the frontier, as well as information concerning the resources of this country, and neighboring foreign countries and concerning means of transportation. Officers of the Quartermaster's Department were to report concerning the resources of the part of the country in which they were serving, with particular reference to the supply of leather and cloth, and on the means of transportation; officers of the Subsistence Department were to report concerning the food supply, both as regards centers of production and output; officers of the Ordnance Department were to report regarding the sources of supply and output of arms and ammunition; and all officers were requested to report on anything which it might be desirable for the government to know in case of sudden war. A confidential call was also made upon the Adjutants General of the States and Territories for information concerning the strength, equipment and availability of the National Guard in case of a sudden demand.[10] In order to make the information received accessible, an examination was made of the card system used by the Office of Naval Intelligence, which had been established in 1882, and that system with certain modifications, was adopted by the Division of Military Information.[11]

A beginning was thus made in a small way, toward the establishment of a military intelligence agency. Although usually referred to as the "Military Information Division," for the first few years of its existence this agency was merely an adjunct to the Military Reservation Division Miscellaneous Branch, The Adjutant General's Office.

System of Military Attaches

The year 1889 was marked by two important developments as far as the Military Information Division was concerned; these were the inauguration of the system of military attaches and the separation of the division from the Military Reservation Division. By the Act of September 22, 1888, Congress had provided for "the pay of a clerk attendant on the collection and classification of military information from abroad" and that "the officers detailed to obtain the same shall be entitled to mileage and transportation, and also computation of quarters while on this duty, as provided when on other duty."[12] Under the authority of this act the first military attache was detailed to our legations at London and Berlin on March 11, 1889, and was instructed to report to the Secretary of War at least once every month, and as much oftener as circumstances might require, upon all matters of a military or technical character that might be of interest and value to any branch of the War Department and to the service at large.[13] Later in the year military attaches were detailed to Paris, Vienna, and St. Petersburg.[14] Under instructions from the Secretary of War the reports, maps, and plans received from these officers were sent to the Military Information Division where they were noted and filed.[15] The Secretary also directed that several copies of all publications on military subjects be sent to the military attaches for exchange purposes.[16] This resulted in the securing by the division of foreign publications and maps that were not for sale in the open market.[17]

On April 12, 1889, by confidential orders of the War Department, the Military Information Division was established as a separate and distinct division and placed under the personal supervision of The Adjutant General of the Army.[18] Captain Daniel M. Taylor of the Ordnance Department was designated as officer in charge.[19] Since 1886 he had been on special duty in connection with the division and he remained in charge until 1892.[20] All the information previously collected and filed in the Military Reservation Division was transferred to the new division.[21]

As constituted by these orders and instructions, the division proceeded with its work,[22] receiving reports, publications, and maps, indexing and filing them, and answering calls for information. It was hampered by inadequate personnel and office space, occupying a single room in the State, War, and Navy Building, with three clerks and a messenger constituting its clerical force.[23] Outside of the War Department it was little known, due in part to a feeling that it was not wise to advertise its work.[24] Nevertheless, some progress was made and by 1892 four thousand items of military interest had been carded.[25]

Evidently most of the information received came from military attaches, for the Secretary of War stated in his annual report for 1892 that the information gathered by the division was of professional and scientific value but that it pertained exclusively to foreign armies.[26] A reorganization of the division was therefore announced in War Department General Orders No. 23, March 15, 1892, with a view to making its work on the home front more effective.[27] The duties assigned to the division by this order were essentially those discharged by foreign general staffs[28] and were as follows:

(a) The collection and classification of military information of our own and foreign countries, especially with regard to armed, reserved and available strength, natural and artificial means of communication (rivers, canals, highways, and railroads), the manufacture of arms, ammunition, and other war material, supplies of food, horses, draft animals, etc.

(b) The preparation of instructions for the guidance of officers of the Army serving or traveling abroad, or acting as military attaches, and the arrangement and digest of information contained in their reports.

(c) The issuance to the Army of military maps, monographs, books, papers, and other publications, and the dissemination of information on military subjects throughout all branches of the service.

(d) Correspondence with State authorities and militia officers on questions affecting the organization and armament of the militia of the States and Territories, and the reference to proper authorities of questions for decision relating to tactical instruction, discipline, and equipment.

(e) The preparation of instructions to the officers detailed by the Secretary of War to visit encampments of State troops and to witness the movements and exercises of the militia, as well as the digesting, arrangement, and preservation of the reports submitted by these officers.

(f) The study and preparation of plans for the mobilization and transportation of militia and volunteers and their disbandment, and for the concentration of the military forces of the United States at the various strategic points on or near the frontiers of the country.

The issuance of this order marks a turning point in the history of the Military Information Division. For the first time its functions were stated in more than general and perfunctory terms and they included, in addition to the collection, classification, and dissemination of military information, certain planning functions which properly pertain to a general staff. In fact, the duties now imposed on the division were similar to those which Major George M. Wheeler stated in his study "Confidential Notes on Military Intelligence Departments and General Staffs" were considered to be those of the "Great General Staff" of European armies.[29]

Reorganization

Under the impetus of this order, the Division of Military Information made considerable progress during the following decade. The work was systematized by organization into the following sections: militia , military progress, frontier, map, and Latin American.[30] In the latter part of 1897 a photographic section was added,[31] and the organization of the division into these six sections remained practically unchanged until its transfer to the General Staff in 1903.[32] The personnel was increased both in quantity and quality. An effort was made to place the sections in charge of officers who were carefully selected from the different arms of the service because of their aptitude for the work required of them.[33] The chiefs of the division included officers of prominence or who were to attain prominence in their profession. The order reorganizing the division designated Colonel Robert Williams[34] as officer in charge, with Major Arthur MacArthur as assistant.[35] Colonel Williams served for only a few months, however, as he was appointed Adjutant General of the Army in July of 1892. During the next two years Major John B. Babcock,[36] who subsequently served as a Brigadier General of Volunteers, had charge of the division. For slightly more than a year, dating from the fall of 1895, Colonel Thomas M. Vincent served as chief.[37] Vincent had long and prominent service in The Adjutant General' Office and was the author of "Staff Organizations—a Plea for the Staff" and of several official reports on army and staff organizations. At the outbreak of the Spanish-American War, Major Arthur L. Wagner,[38] chief of the division for the past year, relinquished that post on orders to go to Cuba and establish a military information division with the army in the field.[39] Wagner had previously been instructor in military art at the U.S. Infantry and Calvary School at Fort Leavenworth, and while serving as head of the Military Information Division had also been a member of the joint Army and Navy Board to harmonize military and naval operations. He was a prolific writer on military subjects, among his works being *The Service of Security and Information*. The chief of longest tenure was Colonel William A. Simpson,[40] who served from October 1898 to June 1903, and was one of the officers initially selected as a member of the General Staff.

Personnel Changes

As regards numbers, the personnel increased from a staff of one officer, three clerks, and a messenger in 1889 to twelve officers, ten clerks and two messengers at the outbreak of the Spanish-American War.[41] In addition, forty officers on duty with the national guard and militia of the States and Territories[42] and sixteen military attaches assigned to our legations abroad[43] received reports from officers specially detailed

to attend encampment and other military activities of State and Territorial troops and from officers sent abroad for special purposes. It was on the initiative of the Division of Military Information that Major Theodore Schwan spent seven months in Germany in 1892-1893 collecting military information[44] and that at the outbreak of the Spanish-American War Lt. Andrew S. Rowan was sent to Cuba, in advance of our forces, to establish communication with General Garcia, the commander of the insurgent forces then operating against the Spaniards.[45] The former mission resulted in the publication of a report entitled *Organization of the German Army*[46] and the latter in the delivery of the famous "Message to Garcia."[47] During the Spanish-American War the personnel of the division was drastically reduced, as all but two officers in the division proper and five military attaches were relieved for field service.[48] By 1902, however, its personnel had grown to five officers, four clerks, four translators, three draftsmen, two photographers, three messengers, and nine attaches.[49]

With these improved facilities came an ever-increasing volume of work. Calls for military information were received from officers of all grades, members of Congress, other civil officers of the Government, and occasionally from private individuals.[50] By 1894, the number of index cards on file had jumped to thirty thousand,[51] fifteen thousand more were added during the year 1896,[52] and by 1903 the cards totalled over three hundred thousand.[53] Among the subjects covered by the cards were inventions in arms, equipment, and explosives; progress in all phases of military art; and the armed strength, geography, and resources of foreign countries.[54] The information thus compiled was not simply filed away for possible future reference, but pertinent non-confidential information was forwarded, for notation and return, to the Chiefs of Bureaus, the Headquarters of the Army, and the several military schools.[55] In countries where we had no military attaches the division secured information through our consuls and diplomatic officers[56] and eventually it was officially designated as the channel through which foreign governments received military information about the United States.[57] Information was also exchanged with the Chief Intelligence Officer of the Navy and a system was developed whereby professional information received in one office of interest to the other was promptly forwarded for notation and carding.[58]

New Promotion Methods

The division's role in connection with the military schools was a particularly important one. In 1890 Congress passed an act providing for a system of examination to determine the fitness for promotion of all officers of the Army to grades below that of Lieutenant Colonel.[59] At this time academic training was limited to those officers who were selected to attend the special schools, and there was no provision for the continuing professional education of the Officers Corps as a whole. To remedy this situation, War Department General Orders No. 80, October 5, 1891, provided that there should be established at every post garrisoned by troops of the line an officers' lyceum. The post commander, as president of the lyceum, was to prepare a course of instruction and assignments were to be made with special reference to requirements of examinations for promotion. In addition to systematic recitations in connection with the prescribed course of study, every officer belonging to the lyceum was annually assigned a selected professional subject on which he made original investigations and a written report. These papers were read and discussed at meetings of the lyceum and, if the officer concerned wished, they were submitted to his promotion board where they were considered in determining his fitness for promotion. The Military Information Division answered many a call in connection with the lyceum courses.[60] It not only furnished the actual information needed when it was on file, but also indicated sources and loaned pertinent publications. In 1895 department commanders were directed to forward the more valuable reports to the adjutant General's Office, with a view to publication by the Military Information Division.[61]

The development of the division's map collection kept pace with that of its information file. Prior to the division's organization, the War Department was not in possession of any authentic maps of Canada or

Mexico,[62] but by 1891 the Military Information Division had prepared an excellent map of Canada and had one of Mexico nearing completion.[63] Anticipating active military operations, the division issued maps and notes of Cuba and Puerto Rico and later of the Philippine Islands.[64] By 1902 it had in its files over six thousand maps of domestic and foreign territory, including complete sets of the general staff maps of a number of European countries.[65]

In 1893 a program of publication was inaugurated, with a view to publishing annual or semi-annual reports of military progress for the information of the line of the Army.[66] These publications played an important part in the dissemination through the Army as a whole of information relating to military affairs in general and particularly to foreign armies. The first was a pamphlet on the Hawaiian Islands with maps and charts, the second was Major Schwan's report on the organization of the German Army, already mentioned, and others included a series on the organized militia of the United States at its annual encampments, a series of annual "Notes of Military Interest," and "Colonial Army Systems of the Netherlands, Great Britain, France, Germany, Portugal, Italy, and Belgium."[67] In addition to their main, if unspectacular, function of increasing the flow of professional information, the publications furnished an outward and visible sign of the activities of the division and were thus of great value as a concession to Congressional impatience.[68] To illustrate, in 1898, but before the Spanish-American War broke out, notice was taken of the fact that the division had published nothing for some time, and it was directed to get out something. A protest was made on the ground that the officers of the division, realizing that war was imminent, were working night and day to collect data on Cuba, but to no avail. The answer was that something had to be done to justify to Congress the division's existence. So the officers all laid aside their really important staff work, dug into the files, and published a collection of papers on "Pioneer Tools in Foreign Armies," which seemed to answer the purpose![69]

Inadequate Appropriations

The division was always hampered by inadequate appropriations. Until 1894 it was dependent for funds upon whatever was allotted to it from the appropriation for contingent expenses of the War Department,[70] but in that year Congress appropriated $3,640 for the contingent expenses of the Military Information Division.[71] This amount, which continued to be appropriated in the years following, soon proved insufficient, and it was with great difficulty that Congress was persuaded to raise the appropriation. By 1903, the appropriation had only been increased to $10,000 and of this amount an allotment of $3,000 was made to the Manila Office of the division.[72]

Although still rudimentary in form and concept, the Military Information Division proved its worth on the outbreak of the Spanish-American War. When Spain began to send troops and material to Cuba our military attache at Madrid sent in reports, newspaper clippings, etc., from which the strength of the Spanish Army in Cuba was computed. Some time later the Spanish government published an official statement of the men and material sent to Cuba, and although the number of men reached the figure of nearly 130,000, it was found that the computation made by the division was correct to within less than 2,000 men.[73] In consequence of the attache's reports, the War Department was fully aware in 1897 of Spain's preparation for war and of her military condition,[74] information which was to prove priceless when war actually came. The collection of data regarding Cuba by the staff of the division in the United States as well as the sending of an officer to the island to communicate with General Garcia has already been mentioned. In addition, an officer was also dispatched to Puerto Rico to prepare the ground for the arrival of our forces on that island.[75]

The War Department General Staff was established by Act of February 14, 1903,[76] to be effective on August 15, 1903, and on August 8, 1903, the Secretary of War issued an order providing for the transfer of the Military Information Division to the Office of the Chief of Staff.[77] This was a logical step, inasmuch as the General Staff was responsible for the efficiency of the Army and for making plans for its organization and mobilization in the light of all contingencies that might arise in the future, duties that could not

possibly be carried out successfully without the information necessary to arrive at correct military decisions. Thus, the Military Information Division was the forerunner of the indispensable Military Intelligence Division of the General Staff.

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1. Copy of "Brief Outline of the Origin, Growth and Work of the Military Information Division, Adjutant General's Office." by Maj. W.A. Simpson, Feb. 21, 1902. Army War College (abbreviated hereafter as A.W.C.), file no. 639.13, National Archives. (All unpublished materials cited hereafter are located in The National Archives unless otherwise indicated.) The request of the Secretary of War and the reply of The Adjutant General must have been verbal, as no further record of them has been found.
2. Ibid.
3. Copy of "Memorandum Outlining the Functions of the Adjutant General's Department and Tracing the Origin and Development of an Intelligence Division as Part of the Office of The Adjutant General," by Adjutant General J.C. Kelton, 1892, A.W.C., file no. 639.
4. Ibid.
5. Volkmar was graduated from the Military Academy in 1858. For an outline of his military career, see George W. Cullum, *Biographical Register of the Officers and Graduates of the U.S. Military Academy* (hereafter cited as Cullum), No. 2249
6. His reports, entitled "French Cavalry Manoeuvres" and "The Manoeuvres of the 7th and 8th Corps of the French Army—Autumn 1883," are published in the *Journal of the Military Service Institution*.V, 1884.
7. Simpson, loc, cit.
8. Volkmar to Adjutant General Drum, Jan. 21, 1886, Adjutant General's Office (abbreviated hereafter as A.G.O), copy book of letters sent, vol. 77, p. 33 ff.
9. A.G.O., copy book of letters sent, vol, 79, p. 225 ff.
10. Kelton, loc. cit.
11. Copy of "Memorandum for The Adjutant General, U.S. Army" (no author given),, Sept. 11, 1891. A.W.C., file no. 639.
12. U.S. Statutes at Large, XXV, 483.
13. Simpson, loc. cit.
14. Ibid.
15. Copy of a circular issued by the Secretary of War, Apr. 19, 1889, in Ibid.
16. Copy of a circular issued by the Secretary of War, Nov. 11, 1889, in Ibid.
17. Ibid.
18. Ibid.
19. Ibid.
20. Cullum, No. 2277.
21. Simpson, loc. cit.
22. Ibid.
23. Ibid.
24. Taylor to the Secretary of War, March 23, 1892, A.G.O., document file no. 1547-ACP-1874.
25. War Dept., *Annual Report,* 1893, vol. I, p. 167.
26. Ibid., 1892, vol. I, p. 7.
27. Ibid.
28. Copy of "Notes on the Military Information Division," by Lt. Carl Reichmann, Sept. 14, 1897, A.W.C., file no. 639-5.
29. Simpson, loc. cit.
30. Ibid.
31. Copy of "Memorandum" (no author given), June 11, 1903, A.W.C., file no. 639-16.
32. Simpson, loc. cit.
33. Ibid.
34. Cullum, No. 1512. Prior to being actively engaged in combat during the Civil War, Williams had served in the West and as instructor at the Military Academy. After the Civil War, he had several tours of duty in The Adjutant General's Office in Washington, D.C., interspersed with assignments as Adjutant General of various military departments and divisions.
35. MacArthur served as a volunteer officer in the Civil War and entered the Regular Army in 1856. See Francis B. Heitman, *Historical Register and Dictionary of the United States Army, 1789-1903* (cited hereafter as Heitman). He rose to the grade of lieutenant general.
36. Babcock also served as a volunteer officer in the Civil War, entering the Regular Army in 1857. See Heitman.
37. Cullum, No. 1589. During the two years just prior to the Civil War, Vincent was an assistant professor at the Military Academy; most of his service during the Civil War was as a staff officer in Washington; and thereafter the greater part of his service until his retirement in 1895 was as an Assistant Adjutant General in Washington.
38. Cullum, No. 2589. Prior to his assignment to the Military Information Division, Wagner's service was mostly in the West. He saw active service in the Spanish-American War, and subsequently served as an Adjutant General in the Philippines and in

various military departments in the United States. In 1904 he was appointed to the General Staff Corps and was serving as Assistant Director of the Army War College at the time of his death on June 17, 1905.
39. Simpson, loc. cit.
40. Cullum, No. 2555. Simpson had been an assistant professor at the Military Academy, and after his tour of duty with the Military Information Division he served as Chief of Staff and Adjutant General of a number of military departments. He reached the retirement age in 1918 but was continued on active service during the war.
41. Simpson, loc. cit.
42. Ibid.
43. Ibid.
44. A.G.O., "Yearly Station Book of General and Staff Officers," 1892. Schwan was born in Germany and entered the Army as a private in 1857. He received an officer's commission during the Civil War and was appointed a brigadier general just prior to his retirement in 1901. In 1893 he was awarded the Congressional Medal of Honor for gallantry in action during the Civil War. See Heitman.
45. Simpson, loc. cit.
46. War Dept., *Annual Report,* 1895, vol. I, p. 184.
51. Ibid., 1894, vol I, p. 181.
52. Ibid., 1896, vol. I, p. 157.
53. Ibid., 1903, vol. I, p. 157.
54. Simpson, loc. cit.
55. Copy of "Memorandum" (no author given), Sept. 5, 1891, A.W.C., file no. 639-2.
56. Copy of "A Brief Summary of the Establishment and Progress of the Military Information Division" (no author given), March 21, 1907, A.W.C., file no. 639-31.
57. War Dept., Circular No. 6, Sept 4, 1903.
58. War Dept., *Annual Report,* 1902, vol. I, p. 322.
59. *U.W. Statutes at Large,* XXVI, 562.
60. War Dept., *Annual Report,* 1894, vol. I. p. 182
61. War Department General Orders No. 58, Nov. 13, 1895.
62. Copy of "Memorandum for The Adjutant General,"Sept, 11, 1891, loc. cit.
63. Ibid.
64. Simpson, loc. cit.
65. Ibid.
66. War Dept., *Annual Report,* 1894, vol I, p. 181.
67. By 1903 a series of thirty-eight numbered publications had been issued, as well as a number of maps. The titles of some of the publications are as follows: *The Autumn Manoeuvres of 1894, Austria-Hungary*, *France, and Germany: Reports on Military Operations in South Africa and China (1901); Target Practice and Remount Systems Abroad; The Military Schools of Europe and Other Papers Selected for Publication: Sources of Information on Military Professional Subjects; Notes on the War Between China and Japan; and French-English Military Technical Dictionary*. For others, see War Dept., *Annual Reports*.
68. Copy of "Memorandum for the Chief of the Second Division," by Capt. C. DeW. Willcox,, Oct 17, 1906. A.W.C., file no. 639-30.
69. Ibid.
70. Reichmann, loc. cit.
71. *U.S. Statutes at Large,* XXVIII, 243.
72. War Dept., *Annual Report,* 1903, vol. I, p. 157.
73. Reichmann, loc. cit.
74. Ibid.
75. Simpson, loc. cit.
76. *U.S. Statutes at Large,* XXXII. 830.
77. Copy of "Memorandum for the Secretary, General Staff." by Maj. D.M. Boughton, May 10, 1909. A.W.C., file no 639-4.

Spanish-American War

American support for Cuban insurrectionists against an increasingly oppressive Spanish regime brought the United States and Spain ever closer to war. When an unexplained explosion sunk the U.S. battleship Maine in Havana harbor on February 15, 1898, the incident was thought to have been caused by Spanish treachery and it precipitated the war, which was officially declared by the U.S. Congress on 25 April. It was a war which President William McKinley had souught to avoid and for which the United States was ill prepared. From a military intelligence standpoint, however, the U.S. Army was the best prepared it had ever been in its history.

It was the first American war in which a military intelligence function was up and running before the war began. While the work of the Military Intelligence Division would be considered rudimentary and slight by today's standards, it was unusual for the U.S. Army to have even this fundamental degree of knowledge about its adversary on the battlefield.

During the 1890s, the MID accomplished much with its dozen officers, not only monitoring the preparedness of American militia and National Guard units, but preparing over 50,000 card file entries of information received; producing much needed maps of Mexico, Canada, Puerto Rico, Cuba and the Philippines; and completing studies on foreign armies. By the time the Spanish-American War started, the U.S. Army attache in Madrid had compiled much useful information on Spain's military capabilities.

In 1893 the MID thought its work sweeping enough to warrant four branches. A Progress in Military Arts Branch compiled information sent in by attaches and observers. Information about the Canadian border was processed by the Northern Frontier Branch. A Spanish-American Branch kept an eye on developments in Spanish possessions in the Caribbean. The readiness of state National Guard units was monitored by the Militia and Volunteer Branch.

The MID was in good hands in 1897. Its chief was Major Arthur L. Wagner, who was a respected military educator and thinker, but, more importantly, a believer in intelligence. He brought to the job a professionalism and a voice for intelligence reform. His MID consisted not only of 11 officers, but a network of 40 officers stationed at National Guard headquarters around the country, who reported directly to MID. He had 16 attaches, 10 civilian clerks and 2 messengers, occupying four rooms, and an annual budget of $3,640 to keep the whole thing going. It had been assembling information about Cuba since 1892, mostly from emigres living in New York and from traveling Army officers like Captain George P. Scriven who toured Cuba in 1893.

The output of MID was prodigious during the years under Wagner's leadership. Anticipating the war with Spain, MID produced special studies, orders of battle, and maps on Cuba, Puerto Rico and the Philippines. Wagner convinced the leadership to send Lieut. Albert Rowan on an espionage mission to Cuba, and Lieut. H. H. Whitney to Puerto Rico.

A basic example of human intelligence operations was the mission in 1898 of Andrew S. Rowan. A lieutenant with the Military Information Division in Washington, he was entrusted with a job directed by the president himself. Chosen by his boss, Arthur L. Wagner, the Chief of MID, to carry out McKinley's instructions, Rowan first traveled to Jamaica, then by small craft landed on the shores of Cuba. Guided by Cuban rebels, Rowan cut through the jungles of the island until he reached the headquarters of General Garcia. There he conferred with the rebel leader, elicited information about the strength and disposition of Spanish forces on the island, discussed Garcia's suggestions for joint American-Cuban operations against the Spanish, then returned to the U.S., taking with him two of Garcia's most knowledgeable aides to furnish intelligence information to the American military. His exploits were the subject of a post-war, best-selling essay entitled "Message to Garcia," which lauded the virtue of self-initiative. Rowan retired in 1908 as a Colonel and in 1922, after a campaign by General Nelson Miles and other friends, Congress bestowed upon him the Distinguished Service Cross.

In 1898 Wagner set up a war room in the White House, next door to the State, War and Navy building

in which MID was located. Then, his staff work completed, he turned over the reins of MID to Capt. Louis C. Scherer. Another of the officers he left behind to assume the intelligence work was Lieutenant Ralph Van Deman.

Appointed to the staff of General Nelson Miles, the Army's Commanding General, Wagner was able to use his influence to organize the Bureau of Military Information which would be assigned to the General William R. Shafter's V Corps to centralize and collate all intelligence information in the theater. As visionary as this organization was for its day, it would not get off the ground due to petty rivalries. General Shafter would dismiss the Bureau of Military Information, believing that Wagner was sent by Miles to spy on him. Without a job, Wagner volunteered to lead reconnaissance patrols behind enemy lines to gather intelligence for Brig. Gen. Henry W. Lawton, the Second Division commander.

Remarking after the war on the failure of General Shafter to make use of his field MI concept, Wagner said:

> *…No use was made of the Bureau of Military Information. …I believe that a bureau…would be of great value; but the utilization of such a bureau implies a certain degree of system and intelligent organization in the military force to which it is attached.*

Wagner would be the first to agree that "Intelligence is for commanders."

By the turn of the century, cameras were being attached to large kites (which were cheaper and more portable than balloons) and the shutters triggered with clock devices or fuses. These kite surveillance devices were reportedly used in Puerto Rico during the Spanish-American War. About the use of observation balloons in the Spanish-American War, a cumbersome device hard to move down the narrow trails and an inviting target for enemy fire, Wagner had this to say: "For the first time in military history a balloon was seen practically on the skirmish line, and it will probably be the last time that such an exploit will be witnessed. It is hard to understand what fantastic conception of the art of war could have caused such a reconnaissance to be seriously contemplated in the first place."

In August 1903 the Military Information Division became the Second Division, one of the three main divisions of the new General Staff, the others being the First Division in charge of all Army administration and the Third Division in charge of plans. One of the new chief of staff's early actions was to issue a call for qualified officers to assist the Second Division in translating Russian, German, French, Italian, Spanish, Portuguese and Japanese documents.

The job of the Second Division was spelled out as "collection, arrangement, and publication of historical, statistical, and geographical information; War Department Library; system of war maps, American and foreign; general information regarding foreign armies and fortresses; preparation from official records of analytical and critical histories of important campaigns." It was also responsible for the system of military attaches. The first chief was Major William Dorrance Beach who was supported by only five officers and the same four rooms in the State, War and Navy Building. He organized the division into six sections: 1. Military Attache and Manila Office Section; to be controlled by the Division Chief, assisted by Capt. J.C. Oakes. 2. Classification, Card Indexing and Library Section; to operate under the supervision of Capt. H.C. Hale, the Division Secretary. 3. Map and Photographs Section; directed by Capt. H.M. Reeve. 4. Historical Section; to which any officer of the Division may be assigned as required. 5. Monograph Section; to which all officers of the Division will be automatically assigned and provided with appropriate work projects of a continuing nature. 6. Publication Section; headed by Capt. C.T. Mencher.

One of the early successes of the new Second and Third Divisions acting jointly was anticipation of insurrection in Cuba and the preparation of a plan for U.S. Army intervention. The Cuban Pacification plan was put into effect after requests for aid from the new Cuban government in 1906. As part of the occupation forces, a branch office of the Second Division was created in Havana and "engaged in collecting valuable statistical and topographical information."

The Third Division planners, essentially the members of the Army War College, relied extensively on information provided by the Second Division and worked closely with them. So when the Third Division moved into its new quarters in the War College Building at Washington Barracks, D.C., it recommended

that the Second Division move there too to facilitate coordination between the two staffs. While objected to by the military information people, the Chief of Staff approved the move and it was completed in May 1908. A month later the chief directed the merger of the Second and Third Divisions into a Second Section. Its chief would be the president of the War College. A Military Information Committee was created in this new organization, along with a War College Committee. The mission of the Military Information Committee was not much different from the one assigned to the second division in 1903, but centralization followed and the intelligence function was virtually absorbed into the War College. A mission statement issued in February 1912 showed fewer true intelligence tasks and more work related to the education of the Army. By May 1915 the Military Information Section of the Army War College had even less to do with intelligence duties, instead being charged with doing "current General Staff work."

In 1898 an Insurgent Records Office was created in the Manila headquarters of the Expeditionary Force in the Philippines to sift through and translate the boxes of captured documents that could furnish valuable information to the field commanders. The importance and scope of the office grew and so did the staff, finally becoming the Military Information Division of the Adjutant General's Office, Headquarters, Division of the Philippines, on 13 December 1900. The new agency was performing all tactical and counter intelligence tasks for the Philippines, recruiting Filipino agents and working closely with the MID in the War Department. It was eventually merged with the War Department MID on 18 June 1902, receiving its funding from Washington and serving as a branch of the MID in the War Department. This had the disadvantage of excluding the local commander from the direction of intelligence work.

Its first chief was Lt. Colonel Joseph T. Dickman, who would later be a major general and lead the Third U.S. Army over the Rhine to occupy Germany in November 1918. He was seconded by Captain John R.M. Taylor who would be assisted by Capt. Ralph Van Deman. It was Van Deman who set up a Map Section and ordered terrain reconnaissances.

Unlike Cuba, where informants were plentiful, little was known about the Philippines at the time of the Spanish American War. The researchers in MID seemed to have neglected these far-away Pacific islands and their data was not always up to later standards. The aide to Maj. Gen. Wesley Merritt, commanding, Capt. Thomas B. Mott gave this picture of the MID product in the summer of 1898:

> *The Military Information Division of the Adjutant General's Office in Washington had, of course, furnished us with its maps and documents concerning the Philippines, but these were sadly lacking in military details. The maps were on a scale of about one to two million and the information was mostly devoted to fauna, flora, and trade statistics. General Merritt had charged me, when in Washington, with collecting data concerning the Islands and one document had been handed me with special recommendations as to its care and early return, for it was "confidential.' I read it eagerly when I got back to Governor's Island, but as the first pages seemed familiar, I compared it with other papers I had already collected. Lo and behold, it was a transcription of the article on the Philippines from the last Encyclopedia Britannica!*

The Spanish-American War for the first time presented this young nation as a global power. Military intelligence had little or no effect on its outcome, but because of the commitment of a dozen officers, military intelligence spread out from its few rooms in the War Department to the provinces of Cuba and the jungles of the Philippines. But as memory of the war receded, so too did intelligence work shrink until the word disappeared altogether on the Army's organizational charts. It would take some troubles along the Mexican border and a world war to revive the intelligence craft in the second decade of the 20th century.

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JOHN DELLA-GIUSTINA * ***Intelligence in Peace Operations: A Historical Example: The Military Information Division (MID) in Cuba, 1906-1909***

The 1898, the Spanish-American War thrust the United States onto the international stage as a world power for the first time. As the U.S. closes its first century as a global leader, we face one of the same problems encountered during our initial decade in this position. Our government leaders have struggled consistently with the question of how to pacify unstable foreign countries in which we have a national interest. To accomplish this, they have often deployed U.S. military forces to conduct peace enforcement and peacekeeping operations in these foreign lands. In the ten years following the end of the Spanish-American War, the military was deployed to the Philippines, China, Panama, and Cuba. In the final decade of the 20th century, this can be seen in Somalia, the former Yugoslavia, and Haiti.

The role of intelligence is crucial to the success of all U.S. military peace operations. In the past, the intelligence mission in many of these situations has been vague. This article will show the importance of intelligence in peace operations by examining the historical example of the Military Information Division (MID) during the second occupation of Cuba from 1906 to 1909. The intelligence support the MID gave to the Army of Cuban Pacification (ACP) will be analyzed to draw lessons from their experience and to understand the parallels to our present and future missions.

Historical Background

After the Spanish-American War, the United States had a unique relationship with Cuba. In the December 1898 Treaty of Paris, Spain ceded Puerto Rico, Guam, and the Philippine Islands directly to the U.S. and they became national territories. At the same time Spain gave Cuba to the U.S. but the Teller Amendment prevented the island from becoming American territory. In April 1898, the U.S. Congress had passed this amendment as a stipulation to declaring war on Spain. It stated that after the war Cuba would receive its independence once it was pacified. The pacification and rebuilding of Cuba, primarily under the leadership of U.S. Army Brigadier General Leonard Wood, took over three years to complete. On 20 May 1902, Cuba was granted its independence and Thomas Estrada Palma became its first president.

However, prior to granting Cuba its freedom, the U.S. Congress once again exerted control over the island's destiny. It attached a provision to the independence agreement known as the Platt Amendment, which declared that the U.S. could intervene in Cuba to preserve a government adequate for the protection of life, property, and individual liberty."[1] The Cubans reluctantly made this a part of their constitution.

In August 1906, political turmoil caused an internal revolt to erupt in Cuba. The rebellion quickly gained momentum. On 29 September, Estrada Palma and his weak government resigned because attempts to negotiate a settlement with the rebels had failed. This left no one in charge of Cuban affairs. President Theodore Roosevelt and his administration, who had been involved in the crisis for a month, immediately sent five thousand U.S. soldiers and Marines "to restore order" and "temporarily assume political control of the island."[2] The U.S. Army played an integral part in the administration's decision to intervene.

MID's Role in Intervention Planning

The Army's leadership realized that intelligence would be essential if the military deployed to Cuba. Brigadier General Frederick Funston, a Medal of Honor winner in the Philippine campaign, knew the Cuban rebels better than any other officer in the Army because of his service with the Cuban Army of Liberation prior to the Spanish-American War. He wrote to the Army Chief of Staff, Major General J.

Franklin Bell, that the Cubans were highly mobile insurgents with good scouts and excellent information sources among the population. Bell, also a veteran of the Philippines, emphasized the importance of intelligence in a pacification campaign in a letter to President Roosevelt at the end of August. It declared that if the military was going to support Estrada Palma and successfully quell the revolt, the Army should send personnel to collect information on the Cuban rebels and to establish a network capable of identifying, "every individual secretly connected with their supply, information, and communication service."[3] General Bell then directed the General Staff to prepare a plan for possible intervention in Cuba. The Second Division of the staff, better known as the MID, provided vital information for this plan.

The MID had a short but increasingly significant history prior to the intervention in Cuba. Established in 1885, this small section of the Adjutant General's office was responsible for collecting information on foreign military forces, controlling the Army attache system, and compiling maps and geographic studies. From 1898 to 1902, the agency grew slightly making important contributions to the Army's efforts during the Spanish-American War and the Philippine Insurrection. In 1903, Secretary of War Elihu Root established the General Staff with three divisions. The MID was its Second Division.[4] This demonstrated that the stature of intelligence had grown, and its function had become institutionalized at the highest level within the Army for the first time.

The MID was a key contributor to the Army's planning for the Cuban operation. This was the first real mission that tested the proficiency of the new General Staff. The official U.S. Army intelligence history states that the excellent planning by the Second Division, MID, and the Third or War College Division, "should have served to silence forever any lingering doubts about the desirability of a General Staff Corps being formed in the United States Army."[5]

The MID supplied information about the Cuban rebels, populace, weather and terrain, as well as providing available maps of the island. These formed the basis for a "realistic" plan, declaring that the Army would need 18,000 soldiers to quell the revolt. Roosevelt approved both the plan and Bell's recommendation to send two officers to Cuba immediately to collect information.[6] The MID had done its staff planning duties well in preparation for the intervention. It would now shift its focus to providing on-the-ground operational intelligence support to those forces sent to pacify the island.

MID and Intelligence on Cuba

The MID sent several of its officers immediately to Cuba when the intervention began. In September 1906, nine MID officers were in Washington. A month later, five of these officers had been sent to Cuba. By 11 October, Major David Gaillard and Captain John Furlong had established the MID headquarters of the Army of Cuban Pacification in Marianao, just outside of Havana. They were assisted by Captain Dwight Aultman, a Spanish linguist who had been stationed in Cuba during the first occupation after the Spanish-American War. He had also been one of the two officers sent to Cuba by Bell at the beginning of September to gather intelligence prior to the intervention.[7]

The MID soon built an effective political and tactical intelligence organization throughout Cuba. It divided the island into twenty-six sectors placing an intelligence officer at each of the major Army detachments outside Havana. These officers, except in one region, reported directly to MID headquarters near the Cuban capital. In the large sugar-producing province of Santa Clara, a center of rebel sympathy, the twelve sectors passed information to a regional MID office headed by Major William D. Beach, who had been the MID Chief in Washington from 1903 to 1906.[8]

The majority of the intelligence officers at the outlying sectors were captains and first lieutenants detailed to the MID. Although they had little or no experience in MID matters, they performed their duties adequately, providing information to skilled MID officers like Capt. Furlong, who correlated it to accurately portray what was occurring on Cuba.

During the occupation, MID officers performed a variety of intelligence functions. Initially, their task was "to identify the insurgents, including their hiding places, sources of supply, and sympathizers in the

civilian population."[9] Soon after the intervention began, however, the large U.S. Army presence and a joint American-Cuban Disarmament Commission virtually eliminated the possibility of a major conventional armed conflict with the insurgents. The MID's principal mission then became the collection of information about the various Cuban political factions and special interest groups.

In their first year on the island, MID also aided the Army's Chief Engineer in creating a detailed map of Cuba. Bell considered a complete map of the island a necessity for assisting in maintaining order. The MID officers often supervised the terrain mapping conducted by the infantry and cavalry units in their sector. The final map was excellent and, according to several reports, instrumental in deterring any Cubans considering a return to armed insurrection. The populace observed the mapping operations and believed the U.S. Army knew the terrain as well as any Cuban did. Therefore, rebel actions could be counteracted anywhere on the island. In addition, MID officers continually forwarded descriptive reports of the "terrain, towns, and communication systems" in their area.[10]

During the entire second occupation of Cuba, the MID provided excellent intelligence to the Army. Both MID headquarters in Marianao and Major Beach's regional office routinely submitted reports to the Chief of Staff of the Army of Cuban Pacification. They also gave critical political intelligence to the American Provisional Governor of Cuba, initially Secretary of War William H. Taft, and from November 1906 until the end of the intervention, Charles E. Magoon.[11]

One of the primary sources of data throughout the occupation was the Cuban populace. Intelligence officers used civilians extensively. MID spent as much as a thousand dollars a month on Cuban informants. For this purpose, the MID had an initial allocation of twenty thousand dollars from the War Department's Emergency Fund created by the U.S. Congress in 1899.[12]

Capt. Furlong repeatedly wrote superb analyses of the political situation on the island. His four years of experience in the Philippines and Cuba prepared him well for understanding insurgent warfare and pacification efforts during the occupation. His work kept both the Army and the Provisional Governor aware of current trends and conditions among the people. MID released some of the best examples of these reports during their first several months on the island.[13]

On 2 November 1906, Furlong disseminated "Notes on Field Service in Cuba." This pamphlet was a study of the Army's approach to pacification, based upon previous U.S. programs in the Philippines and Cuba, as well as Spain's experience on Cuba. Furlong believed the three essential duties in counterinsurgency operations were to determine the identities of the insurgents, to prevent them from maintaining "popular support," and to decimate them through vigorous, unrelenting offensive assaults. Intelligence would be important in each of these three missions but Furlong considered it most critical in identifying the insurgents. He stated that there must be a great amount of available information to carry this out properly, and advocated that "all field commanders have secret service funds available for this purpose." When interrogating captured rebels, he declared that prisoners should be kept awake for as long as it took to complete a thorough interrogation. The objective of these sessions was to find out as much biographical information as possible on other rebels. Furlong also recommended that the most effective method of centralizing these operations would be to have one officer serve as the "intelligence officer, provost marshal, and provost judge for each Army sector."[14] This emphasized the importance of close coordination between law enforcement and intelligence agencies in peace operations.

In December 1906, MID wrote "an extensive biographical study of the many influential politicians and rebel officers throughout Cuba. This compilation contained photographs of some of these men and accounts of their lives and political activities. In 1907, Capt. Furlong provided analytical reports of Cuban political speeches, including a projection of the favored candidates in the yet unscheduled nationwide elections.[15]

One of the most important events that the MID evaluated and reported was the planned conspiracy of Juan Masso Parra. In late July 1907, Masso Parra, an exiled revolutionary, returned to Cuba and started to stir up anti-American sentiment. He advocated assaults against the U.S. Army and the destruction of "foreign-owned property." Several reports to Provisional Governor Magoon convinced him that a revolt

was imminent. On 26 September, he had Masso Parra and his confederates arrested. Due to Magoon's swift action any support for Masso Parra's violent ideas quickly dissipated.[16]

MID also furnished information about another potential threat to the island's stability in 1907. From various sectors, commanders and intelligence officers reported that non-Cuban businessmen on the island were planning large gun-smuggling operations. To protect their interests from the prolonged instability in Cuba, these plantation owners and merchants were allegedly attempting to instigate violence between the U.S. Army and Cubans with the ultimate goal of U.S. annexation of the island. Further intelligence work proved most of these activities false.[17]

Thus, in several instances, MID had proven its worth. It had provided crucial indications and warnings (I&W) on possible threats to the decision makers at ACP headquarters and the Provisional Governor's office. In the Masso Parra case, Magoon then took the necessary action and averted a possible rebellion that could have gravely damaged U.S. efforts to successfully pacify Cuba and return government to the Cuban people.

The End of the Intervention

On 7 December 1907, President Roosevelt, in his yearly speech to Congress, spoke about the ongoing intervention in Cuba. He lauded the efforts of the Americans working there, declared that elections would return government to the Cubans, and stated that the U.S. would depart the island by 1 February 1909. These pledges firmly set U.S. policy in regard to Cuba. Thereafter, the Provisional Government and U.S. Army continued their duties but began preparing for their eventual withdrawal.[18]

In August 1908, the Cubans held provincial and local government elections, followed by national elections on 14 November, all without incident. Peace at the polls ensured a successful end to the second occupation. In January 1909, the majority of American soldiers left the island, with the last troops departing at the end of March. President Roosevelt and Cuban newspapers praised the U.S. Army for its fine efforts throughout its thirty months on the island.[19]

The Army used MID to provide intelligence about conditions in Cuba as late as November 1908. With the end of the occupation drawing near, Bell requested that MID supply information about which Cuban politicians would be likely to keep U.S. interests in mind after the withdrawal. Two days after the national elections, Furlong sent a memorandum to Bell detailing "who were 'the best men' or those most suited for 'being used by Americans.' "[20]

The Aftermath for the MID

After doing an outstanding job in Cuba, the MID officers returned to Washington in 1909 to find a very different General Staff. In 1908, MID and the War College Division had moved to Washington Barracks, twenty miles from the capital. Officers on the War College staff then convinced the Chief of Staff to make MID subordinate to the War College Division. MID officers protested both of these actions without success. Apparently, MID's contributions to the success in Cuba had not been publicized. As a result intelligence throughout the Army suffered greatly for nearly a decade. It was not until 1917 that Colonel Ralph Van Deman resurrected intelligence functions in the General Staff and the Army.

In 1909 Van Deman, then a captain in charge of MID's Map Section, saw many of his fellow MID officers leave intelligence duties or become instructors at the War College. However, in 1909 MID was able to publish two works on their time in Cuba. One was a "sanitized" version of Furlong's 1906 pamphlet, "Notes on Field Service in Cuba," called *Military Notes on Cuba, 1909*. It deleted his references to counterinsurgency operations and the activities of Cuba's politicians. They also published *Road Notes, Cuba . . . 1909*.[21] Even with these two publications, the virtual disbanding of MID kept it from capitalizing on what it had done and learned during the years in Cuba. Therefore, many of the lessons from the intervention in Cuba were quickly forgotten. The U.S. soon changed its focus to European

problems, which eventually began World War I.

Summary and Lessons Learned

Today, intelligence soldiers can learn some of the lasting lessons that the MID officers in Cuba understood. The study of the MID's experiences in Cuba re-emphasizes many of the principles currently contained in literature concerning the role of intelligence in Operations Other Than War (OOTW), including: (1) the primacy of human intelligence (HUMINT) operations; (2) making the peace enforcement mission the first priority before peace-keeping programs can be emphasized; (3) the centralization of intelligence; (4) using intelligence information and analysis to provide timely I&W to the decision makers; and (5) the need to get intelligence assets on the ground as soon as possible.

The main source of intelligence in peace operations is HUMINT. In Cuba at the start of the twentieth century, the MID was entirely dependent on this sole source as are many current peace operations. As the world has grown more technically oriented, other sources have become significant in providing an overall view of events in peace operations but none is as valuable as HUMINT. When the U.S. Army is involved in maintaining order of a population in an area threatened by violence, it is information about people, provided by other people or documents, that is usually paramount. Our present MI force structure in those units most likely to be involved in peace operations reflect this simple tenet.

In this type of peace operation, intelligence and all other assets must initially concentrate on peace enforcement. The Army, usually in joint or combined (multinational) operations, has to establish military security or an atmosphere of peace, prior to implementing a widespread pacification plan. Therefore, it is necessary to neutralize, often by military force, any potential insurgents or terrorists and break them away from their popular support. This is the initial step for comprehensive peace operations to succeed.

The MID's task in this regard was made easier because many of the Cuban rebels welcomed the U.S. presence in their country as long as Estrada Palma was not in power. In October 1906, all major insurgent groups submitted to the decisions of the joint American-Cuban Disarmament Committee. However, MID's focus during its first several months on the island continued to be on possible violence by various rebel groups. MID compiled the information necessary to support any army action against the rebels. This initial data later proved useful when MID supplied political intelligence on many of the former rebels' political aspirations.

When the U.S. Army is deployed and tasked to control a large geographic area, it is essential that we establish a centralized intelligence infrastructure. In Cuba, despite the lack of an assigned intelligence officer in every battalion and higher level staff as we now have, MID stationed an officer at all major garrisons on the island. The precedent for this had been MID's operations in the latter stages of the Philippine Insurrection.

The parallels between MID's operations and those of the current intelligence apparatus are easily seen. As in Cuba, local intelligence officers analyze information obtained in their own sector to provide intelligence to their commander. Local intelligence is also reported to the centralized intelligence office that monitors the overall situation in the country or area and issues periodic analyses of ongoing events. MID did both of these tasks well and even set up a regional intelligence office to concentrate exclusively on the region where violence was most likely to erupt.

The local and centralized office structure also provides the best way to disseminate I&W intelligence. Local intelligence officers must know every aspect and be sensitive to all nuances of their sector. This includes an understanding of the relationships between the belligerent threat, the society, the terrain, and other significant regional influences. Each sector is different, and only by thoroughly understanding the causes and effects of events in their areas will accurate I&W be possible. The centralized office does likewise, only with a broader scope. It combines each of the local situations with regional, national, and perhaps international incidents to determine threats throughout the area of interest. The MID central office in Marianao did this by warning the military and Provisional Governor of the Masso Parra and gun-

smuggling episodes based on information received from local and other sources.

Intelligence assets and personnel must be among the first to arrive in an area to conduct peace operations. The foundation for effective U.S. Army peace operations is the early establishment of centralized and local intelligence offices, that collect HUMINT and other intelligence, initially focusing on peace enforcement operations, to give accurate I&W to commanders. In October 1906, for the first time in U.S. Army history, intelligence soldiers and organizations were in the vanguard of a major operation. MID officers were an essential part of the planning and execution of the successful peace operations by the Army of Cuban Pacification from 1906 to 1909.

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2. *Ibid.*, 102.
3. *Ibid.*, 66.
4. Powe, Marc B., *The Emergence of the War Department Intelligence Agency: 1885-1918*, (Manhattan, KS: Military Affairs, 1975), pp. 42-43.
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6. Powe, p. 50.
7. *Ibid.*, pp. 51-52; Millet, p. 130.
8. Powe, p. 51; Millet, p. 130.
9. Powe, p. 51.
10. Millett, pp. 130-132.
11. Powe, p. 51.
12. Millett, pp. 130-131.
13. *Ibid.*, p. 14.
14. *Ibid.*, p.
15. *Ibid.*, pp. 82, 130, 159.
16. *Ibid.*, p. 178-183.
17. *Ibid.*, p. 172.
18. *Ibid.*, p. 245.
19. *Ibid.*, pp. 254-257.
20. *Ibid.*, p. 253.
21. *Ibid.*, p. 141.

World War I Era

Despite the reorganization of Army by Secretary of the Army Elihu Root and the creation of a general staff after the turn of the century, intelligence, originally the Second Division of the general staff, was increasingly ignored in favor of the more robust Third Division, or plans division. There were too few voices defending the importance of intelligence to an Army leadership absorbed with plans and operations. One of the few advocates of a stronger military intelligence organization within the U.S. Army, Ralph van Deman, would be recognized only when the United States was on the brink of a war. But before he could be heard, another Army commander was conducting a rehearsal along the uneasy Mexican border for the full-scale war in Europe. In the mountains of northern Mexico, John J. Pershing would learn some things about intelligence.

Political instability in Mexico, which often spilled across the border in the form of bandit raids and refugee exoduses, resulted in a troop buildup along that border as early as 1911. In 1914 it was proposed by the Chief, Army War College Division, who also chaired the Military Information Committee of the War College, that some officers along the border be invested with intelligence duties. This was adopted but with the proviso that they not cross into Mexico, limiting their work to the interrogation of refugees. That ban was lifted after Pershing mounted his Punitive Expedition.

We know that at least one intelligence officer crossed into Mexico. In 1916 a lieutenant of the First Arizona Infantry, Sidney F. Mashbir, was asked by the Department Commander, Brig. Gen. Frederick Funston, to conduct a secret reconnaissance of northern Mexico to check out persistent rumors of a sizable Japanese military presence. Mashbir, an Arizonan familiar with the Sonoran desert, with the help of his Papago (today Tohono Oodham) spies, found Japanese ration tins and Kanji written on rock faces that confirmed that Japanese military exercises were being conducted and that Japanese patrols may have even crossed into the United States to obtain water.

During the Punitive Expedition into Mexico in 1916 led by General John J. Pershing, human intelligence (HUMINT) and signals intelligence (SIGINT) took on new proportions. Although an embryo intelligence staff had been organized in 1903 as part of the Army's General Staff, it was up to General Pershing to organize his own field intelligence network. He realized that good intelligence was necessary if he was to track down the bandit/revolutionary Pancho Villa. Pershing appointed an intelligence officer to his staff, Major James A. Ryan, 13th Cavalry, and started an "Information Department." Later, when five separate districts were established in the Mexican theater of operations, he instructed the district commanders "to organize [their] own agents and establish as far as possible [their] own service of information."

The Information Department employed a network of agents who were reported to have penetrated Villa's camp. The department reported in 1917 that it "soon was able to decipher any code used in Northern Mexico. Thereafter, by tapping the various telegraph and telephone wires and picking up wireless messages we were able to get practically all the information passing between the various leaders in Mexico."

The use of the newly developed military asset, the airplane, for reconnaissance missions was first undertaken along the Mexican border between 1913 and 1915. Later, during Pershing's 1916 Punitive Expedition into Mexico, the First Aero Squadron was deployed to support Pershing with aerial reconnaissance. Their purpose was thwarted however, when the planes were unable to reach the altitudes necessary in the mountains of northern Chihuahua. Instead the aviators were relegated to a role of flying dispatches from headquarters to the roving columns of cavalry.

Apache scouts from Fort Huachuca accompanied the 10th Cavalry and others from Fort Apache joined the 11th Cavalry on their long scouts into Mexico in search of the bandit/revolutionary, Pancho Villa. It was the last time Indian Scouts were used in U.S. Army operations, though they remained as part of the U.S. Army until 1947.

Captain Parker Hitt was 34 years old in 1911 when the Signal School at Fort Leavenworth conducted its first conference on military cryptology. The infantry officer had interrupted his studies in civil engineering at Purdue University to join the Army in 1898. He served in the Philippines, Alaska and California before attending the Signal School and then becoming an instructor at that institution. He possessed a flair for solving ciphers and deciphered coded messages intercepted from Mexico from both the agents of Pancho Villa and the Constitutionalists, the latter code becoming known as the Mexican Army Cipher Disk. Hitt wrote the U.S. Army's first publication on cryptology in 1915 when his Manual for Solution of Military Ciphers was printed at Fort Leavenworth. From 1914 to 1917, Hitt developed a code machine that, after some improvements by Joseph Mauborgne, Chief of the Signal Corps' Engineering and Research Division, would become in 1922 the Army's M-94. It was used up until World War II. In the 1930s it was replaced by the M-138a, which incorporated some more improvements on Hitt's prototype. As a Colonel, Parker Hitt went to France with the American Expeditionary Force (AEF) in 1918 and served on Pershing's staff before becoming the Chief Signal Officer for the 1st Division.

Known as the Father of Military Intelligence, Ralph Van Deman had worked as a young lieutenant in the Military Information Division in the days of Arthur Wagner, who we then must call the "Grandfather of Military Intelligence." He was influenced by the scholarly Wagner who had a firm conviction in the importance of intelligence. Van Deman was an intellectual in his own right, a graduate of Harvard, Yale, and Miami Medical School, with degrees in both law and medicine, first entering the Army as a surgeon. He would carry on the crusade for a professional intelligence organization within the U.S. Army.

While his wife was going up for plane rides with the Wright brothers in the Virginia countryside [thus earning the distinction of being the first woman passenger], Van Deman in 1909 was laboring in obscurity, but acquiring more experience than any other officer in the American Army about the subject of intelligence. He had the opportunity to draw an that extensive experience when he was assigned in 1915 to the Army War College, the organization that had absorbed the functions of intelligence and relegated it to an obscure committee.

Following the lead of his boss, the Chief of the War College Division, Brig. Gen. H.H. Macomb, Van Deman sought to convince the Army Chief of Staff Maj. Gen. Hugh L. Scott that a separate intelligence function was needed in the Army's general staff. He wrote a staff study to that effect, but was turned down by Scott who thought that our allies in Europe would provide all the information that we needed if we entered the war in Europe. Repeated briefings by Van Deman failed to move the chief, a man who President William Taft thought was "wood to the middle of his head." When Brig. Gen. Joseph E. Kuhn, Macomb's successor resubmitted the recommendation to form an intelligence section just one week after Congress declared war, it was again firmly turned down. Van Deman resorted to other means, enlisting the support of his British intelligence counterparts to urge the case at higher governmental levels, and even using an unnamed woman writer who had influence with Secretary of War Newton D. Baker. With suggestions now coming from Scott's superiors, he reversed himself a few days later in April 1917.

When a separate Military Intelligence Section was organized in May 1917 by Brig. Gen. Joseph E. Kuhn, Chief of the War College Division, it was given these functions:

(a) The collection, collation and distribution of military information. This will be understood to embrace every class of military information, formerly handled by the Information Committee or by the War College Division as a whole.

(b) The supervision of the duties of our Military Attaches abroad, insofar as those duties pertain to the collection of military information.

(c) Supervision over Department Intelligence Officers and Intelligence Officers at posts or stations and with commands in the field in matters relating purely to military intelligence.

(d) The consideration of questions of policy to be promulgated by the General Staff in connection with all matters of military intelligence.

(e) The supervision and control of such system of military espionage and counterespionage as shall be established, by authority of the Chief of Staff or the Secretary of War, during the continuance of the

present war.

(f) Cooperation with the Intelligence Sections of the General Staff of the various countries at war with Germany, in connection with military intelligence work in the United States and with our forces in the field, either at home or abroad.

(g) The preparation of instructions in military intelligence work for the use of our forces in the field.

The new organization was more than a staff agency, but an operational department with control of all field intelligence units in the Army.

Van Deman was named the chief of the new Military Intelligence Section (MIS). Starting small with three officers and two clerks, it grew with the force of an idea whose time had finally come, with 282 officers and 948 civilians in the outfit by war's end. Van Deman benefited from his close liaison work with British intelligence, particularly Colonel Claude Dansey of the British Security Service who provided a handbook on intelligence organization and methods. This gave structure to the organization which was divided into positive and negative branches, positive intelligence being information about the enemy and negative corresponding with the job of today's counter intelligence. The Military Intelligence Section was made up of these subsections:

Positive	*Supports Both*	*Negative*
MI-2 (Foreign Intelligence) Service)	*MI-1 (Administration, which included:)*	*MI-3 (Counterespionage in Military*
MI-5 (Military Attaches)	*Personnel*	*MI-4 (Counterespionage Among Civilian Population)*
MI-6 (Translation)	*Office Management*	*MI-10 (Censorship)*
MI-7 (Graphic: Map and Photo)	*Publications*	*MI-11 (Passports and Port Control)*
MI-8 (Cable and Telegraph: Code and Cipher)		*MI-12 (Graft and Fraud)*
MI-9 (Field Intelligence:Field Training)	*Military Morale Section*	

MI meant military intelligence, with "intelligence" replacing "information," a British usage that now became institutionalized in the U.S. Army, although there were examples of its use at least back to 1907 when an appointment was made for an "Intelligence Officer for the Hawaiian Islands." Earlier in American history, intelligence was a synonym for "news."

The MIS would later become responsible for training all of the officers and NCOs needed in Europe in each battalion intelligence section and those sections in regimental, divisional and corps headquarters. The Military Intelligence Section also filled the AEF G-2's request for 50 sergeants with investigative experience and the ability to speak French. This became the nucleus of the Corps of Intelligence Police (CIP) organized in August 1917. The CIP had 750 agents in France, where they were headquartered near Bordeaux, and 500 in the United States. They would be cut back to 28 in the year following the armistice.

Van Deman had ultimately accomplished his goal of restoring intelligence to equal footing with the other general staff sections in the War Department, as had originally been envisioned in 1903.

The intelligence organization would undergo yet another reformation. Taking over as the new chief of staff in March 1918, Maj. Gen. Peyton C. March viewed the Military Intelligence Division as "a minor appendage to the War Plans Division," which was not quite true as it was assigned to the Executive Division of the General Staff. March wanted to place MI back on the General Staff. In his 26 August 1918 reorganization, there were four divisions on the general staff: Operations; Military Intelligence; Purchase, Storage and Traffic; and War Plans. Replacing Van Deman who was on his way to France, Marlborough Churchill was promoted to brigadier and appointed Director of Military Intelligence. His

division would:

> *have cognizance and control of military intelligence, both positive and negative, and shall be in charge of an officer designated as the director of military intelligence, who will be an assistant to the Chief of Staff. He is also the chief military censor. The duties of this division are to maintain estimates revised daily of the military situation, the economic situation, and of such other matters as the Chief of Staff may direct, and to collect, collate, and disseminate military intelligence. It will cooperate with the intelligence section of the general staffs of allied countries in connection with military intelligence; prepare instructions in military intelligence work for the use of our forces; supervise the training of personnel for intelligence work; organize, direct, and coordinate the intelligence service; supervise the duties of military attaches; communicate directly with department intelligence officers and intelligence officers at posts, camps, and stations; and with commands in the field in matters relating to military intelligence; obtain, reproduce and issue maps; translate foreign documents; disburse and account for intelligence funds; cooperate with the censorship board and with intelligence agencies of other departments of the Government.*

One of the jobs accomplished by the MI section since its inception was the production of daily and weekly intelligence summaries that covered a wide range of subjects, not only military, but political, social and economic areas as well. Early efforts were characterized by rudimentary collection techniques, like newspaper clippings and even brochures provided by the French General Staff, and superficial assessments. But, as resources increased, so too did the sophistication and interpretative content of the intelligence summaries.

By the Fall of 1918, these summaries were being distributed to the Army Chief of Staff, the Secretary of State and the President. The main source of information was the military attache network, but reports supplied by the Office of Naval Intelligence and the State and Justice Departments were relied upon as well. The MI section also drew upon the services of "confidential agents, special informants, and distinguished foreign visitors." In 1922, with its staff reduced, the MI division cut back production to a weekly basis.

To respond to an increasingly pressing need for interpreters in the American Expeditionary Force in France, the Secretary of War approved the commissioning a limited number of officers who could qualify as interpreters. In July 1917, a Corps of Interpreters was created in the National Army which would fall under the supervision of the Chief of Staff with a close affiliation to the Military Intelligence Section. Exams were conducted around the country with the ranks of the corps filling up with 17 captains, 41 first lieutenants and 72 sergeants. It sent men to all the major field headquarters and to the MIS.

American neutrality at the outset of World War I was shattered when a coded message from German Foreign Secretary Arthur Zimmerman to the Mexican government was intercepted by the Americans and deciphered by British Intelligence. The Zimmerman telegram proposed an alliance between Germany and Mexico in the event of war with the United States. If the alliance proved victorious, Mexico would regain Texas, New Mexico and Arizona. As a result, border outposts at Douglas, Naco and Nogales were strengthened.

The lessons Pershing learned about the value of military intelligence during the 1916 Punitive Expedition caused him to place great reliance upon this tool during World War I when he commanded the American Expeditionary Force and organized a G2 section along French and British examples. An intelligence section existed in every battalion and higher command.

Adopting an organizational system for his American Expeditionary Force (AEF) staff, General Pershing took the four main staff sections from the French (Personnel, Intelligence, Operations, and Logistics) and added the British prefix "G" for General Staff. So his intelligence staff, led by Colonel Dennis E. Nolan, a Spanish-American veteran and close friend of Van Deman, became the G2 with these various subsections and duties:

G2A (Information): 1-Order of Battle and Strategic Intelligence, 2-Translation/Interpretation and Technical Intelligence, 3-Situation Maps and Aerial Reconnaissance, 4-Summaries and Terrain Studies,

5-Artillery Target Development, 6-Radio Intelligence and Carrier Pigeons, and 7-Dissemination and G2 Journal.

G2B (Secret Service): 1-Counterespionage Policy and Investigation of Atrocities, 2-Dissemination of Information from Secret Sources and Control of Intelligence Contingency Funds, and 3-Index of Suspects, Control of the Civil Population and Counterespionage Operations.

G2C (Topography)

G2D (Censorship) 1-Press Relations and Press Censorship, 2-Censorship Regulations and Postal and Telegraphic Censorship, and 3-Photograph and Movie Censorship and Visitors.

G2E (Intelligence Corps)

Nolan had far-reaching plans for his intelligence network, extending it beyond the collection of battlefield intelligence. He wanted his G-2 to reach beyond the front in France and Belgium and collect strategic intelligence from theaters in Italy and Macedonia, places where the AEF might be expected to fight later in the war. For this purpose he formed a G-2 Secret Service unit which also had a counterespionage staff with stations in neutral countries.

In the AEF, intelligence was now recognized as a critical element of war-fighting. Up and down the command structure could be found G-2s. Starting at the infantry battalion, an intelligence staff officer could call upon a reconnaissance platoon of 15 scouts, 11 observers, and 2 snipers, a total of 28. The regimental intelligence officer had eight observers. Each division had a G-2 who also was assigned men to act as observers. At the Corps level, the G-2 could rely upon observation posts, balloons, aero squadrons with both visual and photographic recon, and flash or sound-ranging teams which targeted enemy artillery. These tools gave him the ability to look five miles beyond the enemy's front-line positions.

In addition to those assets at corps, the field army headquarters had a radio intelligence section working on decoding and translating enemy messages. Intercept was done by a Signal Corps radio section at GHQ in Chaumont, using a combination of direction-finding equipment, listening posts, and induction coils placed near enemy ground lines. Communications security was undertaken by the Signal Corps.

A Radio Intelligence Subsection (RIS) was created under the American Expeditionary Force G-2 early in 1917, long before the first American fighting forces would arrive. Cooperating with their French and British allies counterparts, they prepared for the coming joint operations.

When the American First Army arrived in France, a three-man RIS was formed on 12 June 1918 with "Code" and "Goniometric" (Direction Finding) sections. Commanded by First Lieutenant Charles H. Matz, it was enlarged to three officers and eight men by the armistice. The First Army RIS was responsible for analyzing and translating communications intercepted by the Signal Corps radio intelligence operators, and locating enemy radio stations based on bearings plotted by Signal Corps "gonio" operators. These Signal Corps radio intelligence personnel had arrived in France in December 1917 and had undergone training enabling them to intercept messages at the rate of 25 words per minute and to translate 15 words per minute from the German. All of their intercept, direction-finding, or wire-tap stations were tied into the division RIS.

The goniometric teams used the portable SCR-83 radio receiving sets with six-foot-square antennas. Two stations could triangulate signals transmitted by enemy radios and pinpoint their locations. By analyzing traffic and combining that information with direction-finding, they could determine the depth of the enemy echelons and compile a daily order of battle.

One indication of the value of this kind of information occurred at the battle of Saint Mihiel in September 1918 when American commanders, believing the Germans to have withdrawn from the salient, considered sending up the infantry without artillery support. Goniometric stations warned that all the enemy radio stations were still operating in their former positions, a solid indicator the enemy was still there. General John Pershing decided to attack only after a four-hour artillery preparation, thus saving the lives of considerable infantrymen. In that same battle, SIGINT alerted the Americans to a German counterattack, giving the strength and exact time three hours before it was launched.

The GHQ also had 450 sergeants in its Corps of Intelligence Police by war's end. The AEF G-2 had a psychological warfare mission, bombarding German troop concentrations with 3 million propaganda leaflets delivered by balloon, plane and infantry patrols.

Perhaps a tribute to its versatile capabilities, G-2 also collected some marginal missions, like publishing the new Stars and Stripes newspaper, considered a morale builder, supervising eight Army artists in the theater, and being the principal section for press relations. Having the department responsible for keeping the Army's secrets also charged with releasing information to the press was not a sound idea. It would foster distrust and hamper Army press relations in the years to come.

Like Van Deman's organization back in Washington, Pershing's AEF G2 would be a model for supporting tactical organizations. In his book, Military Intelligence: A New Weapon in War, published after the war, Walter C. Sweeney wrote:

> *There is nothing new in a recognition of the necessity of having ample information of the enemy upon which to base military plans. The successful plan of campaign always has been and always will be based upon knowledge of the strength, situation, plans and intentions of the enemy.*
>
> *What is new, however, is that in recent years there has been such an increase in the amount of information of the enemy to be gathered, and so many changes in the means and methods of collecting and utilizing it, as to make necessary the creation of an entirely new organization or system to keep track of it….*
>
> *Before America entered the World War, the Military Intelligence Service, as a coordinated and cooperating system, did not exist in our military establishment…. There was no conception of the modern Intelligence Service which, with specially trained personnel, would make systematic and continuous effort to find out and record the strength, position, situation, and movements of the enemy….*
>
> *During the World War, under the name of Military Intelligence, there was built up in the American forces a carefully organized system represented by an Intelligence Service group at every headquarters from that of the battalion on up to include the War Department.*

On 1 February 1918 in Nogales, Arizona, Lothar Witzke, carrying a Russian passport identifying him as Pablo Waberski, was taken into custody as a suspected German spy and saboteur. He was arrested at gunpoint by two U.S. Army agents, members of Van Deman's Military Intelligence Section. Upon his person was an encoded letter from the German consul in Mexico City charging him with undercover operations in the United States. In fact this German naval officer had been responsible for several incidents of sabotage, including the famed Black Tom explosion. It was this message, decrypted in Washington by MI-8, the code and ciphers section of the Military Intelligence Section, that led to his conviction for spying. The damning message read: "The bearer of this is a subject of the Empire who travels as a Russian under the name of Pablo Waberski. He is a German secret agent. Please furnish him on request protection and assistance; also advance him on demand up to 1,000 pesos of Mexican gold and send his code telegrams to this embassy as official consular dispatches." Convicted by a military court, his death sentence, the only one to be handed down during World War I, was later commuted by President Wilson to life imprisonment. Witzke was released from Leavenworth prison in 1923, owing in part to his heroism during a boiler explosion incident.

The Witzke case was not only an example of good Army counter intelligence, but was illustrative of one of the more dubious functions of the MIS, the "counterespionage among the civilian population" charged to the MI-4 subsection. Encroaching on civilian jurisdictions, domestic security became one of the largest areas of MIS operations during and after the war. One of the areas in which the Army focused was "Negro subversion and political demagoguery," disseminating counterpropaganda in black communities in the Southeast. The Army investigated what they considered to be anarchist or revolutionary organizations like the Industrial Workers of the World, the Communist party, the Communist Labor Party, and the Union of Russian Workers. After an incident in October 1922 in Oregon in which the American Federation of Labor was included among these organizations, a wave of protests was sparked and field commands were ordered by the War Department not to involve themselves in the collection of unauthorized

domestic intelligence.

After the war, General Marlborough Churchill, the successor to Van Deman as Director of Military Intelligence in Washington, made the case for a separate intelligence organization within the War Department.

> *At present, the Military Intelligence Division is one of four coordinate divisions of the General Staff.… This staff organization is essential to success. It is especially vital in intelligence administration, …[since] it is obvious that national policy must depend on correct predictions concerning the international future.*
>
> *[In sum] there must be a G2 in the War Department …performing a similar function, not only with the War Plans Division in the initiation and perfection of plans, but concurrently with the State Department in the work of prediction upon which national policy is based.*

Soon after becoming the Chief of Staff of the Army, General John J. Pershing reorganized the War Department General Staff to resemble his AEF structure. Effective 1 September 1921 there would be five General Staff Divisions: The Personnel Division (G-1), the Military Intelligence Division (G-2), the Operations and Training Division (G-3), the Supply Division (G-4), and the War Plans Division (WPD). This organization would be duplicated down to division level, with battalions and companies adopting the "S" prefix to delineate their S-1, S-2, S-3, and S-4. The G-2 lost the Negative Branch and added the formal duty of "press relations."

This marked the beginning of a period of decline for the intelligence function, as its head was only authorized to be a colonel, while all the other chiefs were general officers. They were to be called henceforth "Assistant Chiefs of Staff." In 1920 the G-2 was authorized 234 people (79 officers) and $400,000. It reached a low point in 1939 with a total of 69 personnel (20 officers) and $89,450 dollars. The division underwent an almost annual reorganization between 1919 and 1939 at the instigation of each new chief.

The advances in weaponry by World War I created a stalemate in the trenches of France. A part of the new technology was full blown aerial surveillance to determine enemy strong points and direct artillery fire. Sausage-shaped balloons with tail fins for stability were tethered in the thousands along the trenches and used by both sides for observation. Observation balloons could reach an altitude of between 1,200 and 1,800 meters, depending on whether it carried one observer or two. A fighter pilot named Frank Luke, Jr., from Phoenix, Arizona, earned the reputation as the "Arizona Balloon Buster."

Aerial reconnaissance also included airplanes. Cameras were aimed from the cockpit by photographers/observers. Most of the pictures were taken at oblique angles rather than pointed straight down. Fighter planes were developed with the express purpose of shooting down the reconnaissance planes. The first American tactical surveillance flight of World War I was made on 15 April 1918 by Major Royce of the 1st Aero Squadron.

Great importance was placed on aerial photography by both the Germans and the allies. Near the war's end, during the Meuse-Argonne offensive in 1918, the U.S. Army reported that 56,000 aerial shots were printed for use by the American Army. Between 1 July and 11 November 1918, 1.3 million aerial photos were taken. And the products were approaching a "real time" usefulness as the time between a photograph being taken and the time it was developed, printed and interpreted, was as little as twenty minutes.

The Army had formed an aerial photography school in Ithaca, New York, in 1917. One of its first graduates and instructors was 2d Lieut. George W. Goddard. Goddard pioneered many of the advances in aerial recon, experimenting with infrared photography, and long-focal length camera lenses. On 20 November 1925 he took the first night aerial photograph, using a flash-powder bomb with timing fuses to light the city of Rochester, New York, from above, while a camera shutter was opened in his airplane. He foresaw the need of getting the photographs to the users in a timely manner, and in 1927 he took an aerial picture of the federal penitentiary at Fort Leavenworth, Kansas, developed the shot in the plane, and

transmitted the picture telegraphically to New York within twenty-three minutes. Between 1936 and 1939 he worked on a stereoscopic camera that employed two lenses and a strip camera. The strip of film was electronically moved through the camera in synchronization with the plane's ground speed, eliminating blurs that had existed before.

Another champion of aerial photography between wars was Captain A. W. Stevens, who devoted his time to long-distance photography as a solution to the vulnerability of recon planes to both fighters and ground fire. Along with pilot Captain St. Clair Streett, he set a two-man airplane altitude record of 37,854 feet in 1928, and later established another record for long-distance photography when he took a picture of Mount Rainier from a distance of 227 miles.

One of the first intelligence manuals to be published was the Tactical Interpretation of Aerial Photographs which came out in 1925.

An Air Section within the Military Intelligence Department was created in 1926, in recognition of the growing importance of aerial reconnaissance. Maj. Joseph T. McNarney, Air Corps, was assigned to MID in August 1926 to act as chief of the new section. He would:

1. *Handle all questions on policies pertaining to the use of Air personnel in combat intelligence.*
2. *Handle in connection with the Map section all questions on policies pertaining to serial photographs and mapping.*
3. *Handle in connection with the Communications Section all questions on policies pertaining to codes or communications between airplanes and the ground.*

In Europe during World War I, the code analysts in the Intelligence Section of the General Staff (G2) supervised the code compilers of the Signal Corps. Some of the men who worked at making and breaking the codes of the war in GHQ in the Radio Intelligence Section of G2 were Major Frank Moorman, later the Army's Chief Signal Officer, Lieut. J. Rives Childs, Corporal Joseph P. Nathan, Lieut. William F. Friedman, and Lieut. Herbert O. Yardley. They would form the nucleus of America's cryptology development.

Back in the U.S., MI-8 was operating a radio intelligence service with a line of listening posts along the Mexican border. The 14 radio tractors spaced along the border were eventually replaced with permanent stations. A large station in Houlton, Maine, pulled in signals from the North Atlantic.

Following the war, America's cryptology work would be a joint undertaking of the War and State Departments under Herbert O. Yardley, whose inflammatory book about his work christened the effort the "American Black Chamber." His cryptology section was an outgrowth of the organization he had worked for under military intelligence in the war. The crowning achievement of the Black Chamber was the breaking of the Japanese diplomatic codes in 1920. In 1929 Secretary of State Henry L. Stimson closed the nation's only code-breaking office, declaring "Gentlemen do not read each other's mail."

When the American Black Chamber closed down, the Army decided to enlarge its cryptology operations and appointed William Friedman, now a civilian employee and Chief Cryptanalyst of the U.S. Army Signal Corps, as its chief. In 1930 the Signal Intelligence Service was created, staffed by Friedman, three junior cryptanalysts and two clerks. The official name was the Signal Intelligence Section, Office of the Chief Signal Officer, but Friedman called it the Signal Intelligence Service and that became the more common usage. Friedman thought the purpose of the new agency should be to organize and prepare "for operations at maximum efficiency in war."

Friedman conducted some short courses in cryptology from 1930 to 1933 despite the absence of funding for any training. He also developed some extension courses for an Officer Reserve Corps program. By 1934 the SIS school was formed with 1st Lt. W. Preston Corderman as the instructor. Nine regular Army officers would receive extensive training in communications intelligence there by 1941. Signals intelligence field work was brought together in the 2d Signal Service Company established at Fort Monmouth, New Jersey, in January 1939.

The giant of U.S. Army cryptography, William Friedman, became the Chief Cryptanalyst of the Signal Corps in 1922. His many publications made him preeminent in the field. His series of Army texts, Military Cryptanalysis, are the most lucid presentations on the solution of basic ciphers that have ever been

published. As the Army mobilized for World War II, the Signal Corps cryptography effort expanded under the leadership of Major General Joseph Mauborgne, Chief Signal Officer, and Friedman. He reached the peak of his career when he and his team solved the Japanese PURPLE code system in 1940. The strain of this endeavor, however, led to a nervous breakdown and his medical retirement as a colonel in the Signal Corps reserves.

Friedman and the other inventors in the SIS developed the M-134A Code Converter in 1937, signing their individual patent rights over to the Secretary of War. The machine saw limited production because of small budgets and only 69 were in use just after Pearl Harbor. Used for high-level communications, it was called the SIGABA.

The Corps of Intelligence Police, continued after the war, performing security tasks for the Versailles peace talks, conducting investigations in the U.S. Army occupation forces in Germany, and functioning in Army departments, notably in the 8th Corps Area which encompassed the Mexican Border. The number of noncommissioned intelligence police hit an all-time low of 15 in 1934. The organization was revitalized in 1940 when its authorized staff was raised to 288. The were redesignated the Counter Intelligence Corps, U.S. Army, on 1 January 1942.

Attaches continued, between the two world wars, to be a first line source of information on foreign military developments. In major countries the attache was authorized an assistant in the form of an Air Attache to look at the technology of air warfare. The attache in Germany was especially active between 1935 to 1939, making good use of the U.S. officers who were attending the German War Academy. Chosen for their proficiency in the German language, these student officers mingled at the highest levels in the German War ministry and wrote authoritative studies on various assigned aspects of the German Army. Their reports found their way back to the Intelligence Branch. (The Positive Branch was reorganized in February 1922 and emerged three years later as the Intelligence Branch of MID.)

The National Defense Act of 1920 created a military intelligence reserve within the Officers Reserve Corps. It became effective on 4 August 1921, adopting the secretive Sphinx as its symbol. The ACofS, G-2, WDGS, Brig. Gen. Dennis E. Nolan, saw this as a way to expand the number of military intelligence specialists in time of war. But because of a number of factors, not the least of which was the lack of an authorization to grant commissions to recently demobilized intelligence personnel, the MI Reserve never reached its full potential, averaging only about 635 officers in the years 1921 to 1941. At the time of the Japanese attack, the MI Reserve was "woefully inadequate to fulfill its assigned mission of providing a proper cadre of military intelligence officers for required use in war," according to Maj. Gen. Sherman Miles, the G-2 at the beginning of World War II.

Electronic warfare got its start early in the century, according to Alfred Price's book, The History of U.S. Electronic Warfare. During the 1904 Japanese bombardment of the Russian naval base of Port Arthur, a Russian radio operator on shore heard radio signals from Japanese scouting craft used as spotters and correctly guessed their mission. Using his spark transmitter, he successfully confused the signals and unwittingly opened the era of electronic warfare. Some of the early landmarks in EW follow. An elementary radio direction was placed aboard the U.S. Navy coal ship Lebanon in 1906. The Navy bureau chief wrote that "the system will have a far-reaching effect on the safety of vessels at sea, and will possibly play an important part in naval warfare by making it feasible to locate the direction of the enemy's fleet." Scientists at the Naval Research Laboratories at Anacostia discovered in 1922 that the radio signal that they were sending across the Potomac River was interrupted by passing ships, leading to the discovery of a principle upon which radar would be founded.

A provisional Radio Intelligence Detachment was organized at Fort Monmouth, NJ, in 1934. In 1936 engineers at the Naval Research Lab built a 28 Mhz pulsed radar that could detect aircraft 10 miles away. Subsequent models increased the range with the addition of megahertz. With information from NRL, the Signal Corps Lab at Fort Monmouth also tested a 110 Mhz pulsed radar. The NRL also developed a ground direction finder.

Between wars the Regular Army intelligence staff was again pared away to peacetime levels. Now

called the War Department G2, there were 20 officers and 48 civilians on staff. General Dwight Eisenhower remembered the "shocking deficiency" in intelligence assets that hampered planning. "The fault was partly within and partly without the Army. The American public has always viewed with repugnance everything that smacks of the spy: during the years between the two World Wars no funds were provided with which to establish the basic requirement of an intelligence system—a far-flung organization of fact finders." General George C. Marshall voiced a similar view of the pre-war situation. "Prior to World War II, our foreign intelligence was little more than what a military attache could learn at dinner, more or less over the coffee cups."

The length of this section on World War I is indicative of the rise of intelligence to a fully functioning part of military operations both on the War Department General Staff and in the field in Europe. In the decade following the war, however, the intelligence effort, with the exception of some internal security missions and codebreaking, would collapse to almost negligible levels.

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*RALPH VAN DEMAN * **Historical Sketch…***[2]

1. It is, of course, entirely unnecessary to point out the absolute necessity for the collection, classification, carding, filing and distribution of military information. Nor is it necessary to call attention to the fact that the mass of information, and particularly that which will be the most necessary in war, must be obtained in peace.

2. These facts are so well known and recognized among military men the world over that it would be a waste of time to discuss the matter, since every officer who knows anything of General Staff duties realizes that the collection, classification and distribution of military information is the fundamental function of that body and that without it no General Staff duties worthy of the name can be accomplished. It is also everywhere, except in our service, fully appreciated that a highly trained and well equipped organization is necessary for the purpose of exercising these fundamental functions of a General Staff. This lack of a clean-cut, decisive policy in regard to keeping up such a trained personnel in our service is shown by the various orders, circulars and memoranda issued from time to time by the War Department.

3. That there was a necessity for work of this character was forced on the attention of our military authorities many years ago, long before the need of a General Staff was recognized, and steps were taken to provide the agency to accomplish the work as early as 1885. This agency took the form of a bureau which was established in the office of the Adjutant General of the Army. In 1889 this bureau was made a separate division of the Adjutant General's Office by the following confidential order:

> 1. A separate division under the personal supervision of the Adjutant General, to be known as the Military Information Division will be organized for the purpose of obtaining and collecting such military data as may be deemed useful and beneficial to the Army at large.
>
> * * *
>
> The Division will occupy room 345, third floor, north wing, and all books, papers, etc., pertaining to this class of information will be transferred to it.

4. On March 15, 1892, the Secretary of War issued the following order which reorganized the Division and further prescribed its duties. Several duties were assigned to the Division by this order which did not properly pertain to a Military Information Division, but they were then so assigned because, at that time, there was no other organization in the Army to which they could be assigned. The essential duties, however, of a Military Information (or Intelligence) Division were set forth in the order and are still in force, although there is no distinct organization now in existence to carry them out:

> The Division of Military Information heretofore created in the office of the Adjutant General of the Army is hereby reorganized as follows:
>
> 1. The division will be placed in charge of an officer of the Adjutant General's Department, to be selected by the Secretary of War.
>
> 2. In addition to its other duties the division will be charged with—
>
> (a) The collection and classification of military information of our own and foreign countries, especially with respect to armed, reserved, and available strength, natural and artificial means of communication (rivers, canals, highway, and railroads); the manufacture of arms, ammunition, and other war material; supplies of feed, horses, draft animals, &, &.
>
> (b) The preparation of instructions for the guidance of officers of the Army serving or traveling abroad, or acting as military attaches, and the arrangement and digest of information contained in their reports.
>
> (c) The issuance to the Army of military maps, monographs, books, papers, and other publications, and the dissemination of valuable information on military subjects throughout all branches of the service.
>
> (d) Correspondence with State authorities and militia officers on questions affecting the organization and armament of the militia of the several States and Territories and of the District of

Columbia, and the reference to proper authority of questions for decision relating to tactical instruction, discipline, and equipment.

(e) The preparation of instructions to the officers detailed by the Secretary of War to visit the several encampments of State troops and to witness the movements and exercises of the militia, as well as the digesting, arrangement, and preservation of all reports that may be duly submitted by them.

(f) The study and preparation of plans for the mobilization and transportation of militia and volunteers and their disbandment, and for the concentration of the military forces of the United States at the various strategic points on or near the frontiers of the country.

3. The Division of Military Information will also have charge of a museum to be established for the proper care and preservation of such military relics as are now in the several bureaus of the War Department, or as may hereafter be obtained.

4. The officer in charge shall perform such other duties as naturally as pertain to the division, or as may be hereafter assigned to him from time to time by the Secretary of War.

5. By Special Order, No. 210, Headquarters Division of the Philippines, Manila, P.I., December 13, 1900, a "Division of Military Information" was established in the Adjutant General's Office in Manila, and by direction of the Secretary of War was, on June 18, 1902, annexed to and made a part of the Military Information Division of the Adjutant General's Office in the War Department, Washington, by operation of the following instructions:

[War Department, Adjutant General's Office, Washington, June 18, 1902, to the Commanding General, Division of the Philippines, Manila, P.I.]

Sir:

I have the honor to communicate the following instructions of the Secretary of War:

With a view to increasing the facilities and rendering its operations broader and more effective, the Division of Military Information now existing in the office of the Adjutant General, Headquarters Division of the Philippines, is, for the purpose hereinafter set forth, annexed to and made a part of the Military Information Division, Adjutant General's Office."

* * *

7. The Act creating the General Staff Corps was passed February 14, 1903, and was promulgated to the Army by General Orders, No. 15, War Department, 1903. The duties of the General Staff are set forth in Section 2 of the Act, which is as follows:

[Headquarters of the Army, Adjutant General's Office, Washington, February 18, 1902, General Orders No. 15]

* * *

Sec. 2. That the duties of the General Staff Corps shall be to prepare plans for the national defense and for the mobilization of the military forces in time of war; to investigate and report upon all questions affecting the efficiency of the Army and its state of preparation for military operations; to render professional aid and assistance to the Secretary of War and to general officers and other superior commanders, and to act as their agents in informing and coordinating the action of all the different officers who are subject under the terms of this act to the supervision of the Chief of Staff; and to perform such other military duties as may be from time to time prescribed by the President.

8. Referring to that part of the Act creating the General Staff Corps which enumerates the duties of the General Staff, it will be observed that every clause of this section prescribes the performance of duties which requires the previous collection and classification of military information before these duties can be performed. That the then Secretary of War, Mr. Root, recognized that the collection of military information was one of the functions of the General Staff, is evidenced by the following order:"

[War Department, Washington, August 6, 1903.]

The Military Information Division of the Adjutant General's Office, together with the records, files, property, and the persons now employed therein, are hereby transferred to the office of the Chief of Staff, to take effect August 15, 1903."

9. From the fact that this order prescribed that the Military Information Division, Adjutant General's Office, should be turned over to the General Staff Corps as a complete organization, with all of its "records, files, property, and the persons now employed therein," it is perfectly evident that the Secretary of War expected that the Military Information Division would continue to exercise the functions for which it was organized and developed during the years from 1885 to 1903, namely, the collection, classification, etc., of military information. And it is a matter of record that it did continue to exercise its proper functions after it was transferred to the General Staff and for several years thereafter, acting under its own chief who reported directly to the Chief of Staff.

10. This transfer also carried with it to the General Staff the annual appropriations by Congress, made for carrying into effect the purposes for which the Military Information Division was formed and developed. The Act in force at the time of the transfer—that of 1903—read as follows:

> For contingent expenses of the Military Information Division, Adjutant General's Office, including the purchase of law books, books of reference, periodicals, and newspapers, and of the military attaches abroad, and of the branch office of the military information division at Manila, to be expended under the direction of the Secretary of War, six thousand six hundred and forty dollars. For pay of the translator and librarian of the military information division of the Adjutant General's Office, one thousand eight hundred dollars.

This appropriation has been continued up to 1915, the only change in the wording of the Act being the change in designation of the "Military Information Division, Adjutant General's Office" to "Military Information Section, General Staff Corps" and an increase of the amount appropriated from $6,640.00 to $11,000. That Congress considers that this appropriation is made for the use of a specific organization for the purpose of military information work, I do not believe that anyone questions it. That the various Chiefs of Staff so considered the matter is plainly shown from the fact that every order or memorandum which reorganized and prescribed the duties of the War Department General Staff has always been careful to retain, as a designation for one of its subdivisions, the name "Military Information Division" or "Section."

11. This is, perhaps, as convenient a place as any to give the various Acts of Congress appropriating money for the purpose of enabling the Army to carry on the work of collecting, classifying, etc., military information.

The first Act was in 1888, in which year Congress passed an act as part of the appropriations bill for military purposes. It read as follows:

> For the pay of a clerk attendant on the collection and classification of military information from abroad, fifteen hundred dollars; and the officers detailed to obtain the same shall be entitled to mileage and transportation and also commutation of quarters while on this duty as provided for while on other duty.

Through the efforts of the Military Information Division, our first military attaches were sent abroad in the following year.

This appropriation was passed in the same form each succeeding year until 1894, when its form was changed to read as follows:

> For contingent expenses of the military information division, Adjutant General's Office, and of the military attaches at the United States embassies and legations abroad, to be expended under the direction of the Secretary of War, three thousand six hundred and forty dollars.

In 1897 the section dealing with pay of the clerk was changed to read:

> For pay of a clerk attendant on the collection and classification of military information, one thousand five hundred dollars.

The omission of the words "from abroad" allowed the clerk to be employed in all classes of military information "selection and classification."

In 1899 the section dealing with contingent expenses was changed to read as follows:

> For contingent expenses of the military information division, Adjutant General's Office, including the

purchase of law books, books of reference, periodicals and newspapers, and of the military attaches at the United States embassies and legations abroad, to be expended under the direction of the Secretary of War, six thousand six hundred and forty dollars.

In 1901 the section dealing with the clerk was changed to read as follows:

For pay of translator and librarian of the military information division of the Adjutant General's Office, $1,800.00.

In 1903 the appropriation was made to include the branch office at Manila by including the following words in the Act: "and the branch office of the military information division at Manila." The amount appropriated this year was increased to $10,000.00.

In 1905 the words "General Staff Corps" were substituted for the words "Adjutant General's Office" in both sections of the Act.

In 1906, in the section dealing with contingent expenses, the word "professional" was added before the words "books of reference," and the words "professional and technical" before the words "periodicals and newspapers."

In 1909 the word "Section" was substituted for the word "Division" just before the words "at Manila," in the section dealing with contingent expenses.

In 1910 the word "section" was substituted for the word "division" after the word "information" and before the words "General Staff Corps," in the section dealing with contingent expenses.

In 1912 the word "section" was substituted for the word "division" in the section dealing with the translator and librarian.

In 1913 the words" and the actual and necessary traveling expenses incurred by military attaches abroad under orders from the Secretary of War" were inserted in the section dealing with the contingent expenses.

In 1914 the same section was reenacted and the amount was increased to $11,000.00.

In 1915 the section of the Army appropriation bill dealing with contingent expenses was changed to read as follows:

For contingent expenses of the military information section, General Staff Corps, including the purchase of law books, professional books of reference, periodicals and newspapers; drafting and messenger service; and of the military attaches at the United States embassies and legations abroad, and of the branch office of the military information section at Manila, the cost of special instruction at home and abroad and in maintenance of students and attaches; and for such other purposes as the Secretary of War may deem proper; to be expended under the direction of the Secretary of War, $11,000.00.

Although the Military Information Section of the General Staff Corps and the Army War College are associated in the same subdivision of the General Staff, it should be noted that all the acts which appropriate money for contingent expenses appropriate expressly for the "Military Information Section, General Staff Corps." The Army War College has its own separate appropriation for expenses and maintenance. The appropriation acts are thus consistent in regarding them as two separate and distinct bodies, although both are now quartered in the War College building.

12. We will now go back and again take up the internal organization of the War Department General Staff.

By the following General Order the duties of the General Staff Corps were finally enunciated and the general organization prescribed under which the War Department General Staff was to begin work on August 15, 1903:

[Headquarters of the Army, Adjutant General's Office, Washington, August 14, 1903, General Orders No. 120]

* * *

Duties

3. The General Staff Corps, under the direction of the Chief of Staff, is charged with the duty of investigating and reporting upon all questions affecting the efficiency of the Army and its state of

preparation for military operations.

* * *

4. The General Staff Corps, under like direction, is further charged with the duty of preparing plans for the national defense and for the mobilization of the military forces, …and incident thereto with the study of possible theaters of war and of strategic questions in general; with the collection of military information of foreign countries and of our own; the preparation of plans of campaign, of reports of campaigns, battles, engagements and expeditions, and of technical histories of military operations of the United States.

5. The officers of the General Staff Corps are committed the further duties of rendering professional aid and assistance to the Secretary of War and to general officers and other superior commanders. …They perform such other military duties not otherwise assigned by law as may from time to time be prescribed by the President.

* * *

War Department General Staff

8. To facilitate the performance of its duties the War Department General Staff will be arranged in divisions, each under the direction of an officer of the General Staff Corps to be assigned by the Chief of Staff. Each division will be subdivided into sections as may be directed by the Chief of Staff.

* * *

The distribution of duties to the several divisions and sections is regulated by the Chief of Staff.

13. On June 16, 1904, the following organization of the War Department General Staff was prescribed:

[War Department, Office of the Chief of Staff, Washington, June 16, 1904, Memorandum]

Until further orders the distribution of business of the War Department General Staff will be as follows:

* * *

Second Division

(a) Military Information; collection, arrangement, and publication of historical, statistical, and geographic information; War Department library; system of war maps, American and foreign; general information regarding foreign armies and fortresses; critical histories of important campaigns.

(b) Military attaches.

It will be noted that all the duties pertaining to the collection of military information were still assigned to a separate Division of the General Staff, acting under its own chief who reported directly to the Chief of Staff.

14. In June 1907, the Army War College building was ready for occupancy and the Third Division - the Army War College - was moved there from its temporary quarters in Jackson Place. During the time the Army War College had its offices at Jackson Place, it was found absolutely necessary to call on the Military Information Division, then located in the Lemon Building, for military information of every description. As the time approached for the War College to occupy the new War College Building, the President of the War College realized that it would be most inconvenient, if not impossible, to continue to utilize the Military Information Division as had been done while the War College occupied quarters at Jackson Place. He therefore recommended that the Military Information Division be moved bodily down to the War College Building. This was strenuously objected to by the Chief of the Military Information Division, in which he was backed by the opinion of every General Staff officer then on duty in that Division. The views of the President of the War College, however, prevailed and in May, 1908, the Second (Military Information) Division was transferred with its personnel and material to the Army War College building. At the time the transfer was made the duties of the Military Information Division were as prescribed in the following memorandum:

[War Department, Office of the Chief of Staff, Washington, May 24, 1907, Memorandum]

1. Until further orders the distribution of business of the War Department General Staff will be as follows:

* * *

Second Division

Military information; collection, arrangement, and publication of historical, statistical and geographical information; War Department library; system of war maps, American and foreign; general information regarding foreign armies and fortresses; preparation from official records of analytical and critical histories of important campaigns.

Military attaches.

Photographic gallery.

Issue of military publications, maps and documents.

The duties of the Army War college were defined by the following order:

[War Department, Washington, May 28, 1907, General Orders No. 116]

* * *

4. The objects of the War College are:

(a) The direction and coordination of military education in the Army and in civil schools and colleges at which officers of the Army are detailed under Acts of Congress, and the Army and in civil schools land colleges at which officers of the Army are detailed under Acts of Congress, and the extension of opportunities for investigation and study in the militia of the United States.

(b) To provide facilities for and to promote advanced study of military subjects and to formulate the opinions of the college body on the subjects studied for the information of the Chief of Staff.

5. The personnel of the Army War College shall be in part permanent and in part temporary.

6. The permanent personnel shall consist of a President, to be assigned to that duty by the Secretary of War, and the officers for the time being of the Third Division, War Department General Staff. The Chief and one other member of the division shall be directors of the college. The Secretary of the college shall also be selected from the permanent personnel. The directors and secretary shall be designated in orders.

15. It will be observed that, as yet, there has been no interference or curtailment of the functions of the Second Division as an agency for the collection, classification, and distribution of military information. Also that up to this time there is a clean-cut separation of duties between the Second and Third Divisions, that each is separate and distinct and acting under its own chief who reports directly to the Chief of Staff.

16. In the memorandum to which this paper is attached, attention was called to the fact that the collection and classification of the large amount of information in the possession of the General Staff, the cordial relations established between the Military Information Division and the State Department, the Navy Department, the United States Secret Service, and many other agencies necessary for the collection of military information, was only made possible by the fact that there was a distinct organization which was charged with military information duties. Attention is again called to that fact here. There was in existence a body of General Staff officers, small to be sure, but more or less trained in the work required of them. There was also a trained force of clerks, draftsmen, photographers, etc., whose activities were all expended on this work. It was possible, also, to handle the confidential work pertaining to the Division, so much of which is necessary and of such vital importance, directly and personally with the Chief of Staff or the Secretary of War, so that it was not necessary to put everything on paper in the form of memoranda or letters as afterwards became the case. It was possible to carry along a consistent policy in respect to information work and to train officers in the duties pertaining to such work.

The transfer of the Military Information Section to the War College building marked a backward step in the organization of the War Department General Staff. The Second and Third Sections were now to be merged into one and the majority of the conditions enumerated as absolutely necessary to the effectual accomplishment of military information work were vastly changed and some of them ceased to exist entirely. The new order of things went into effect under the memorandum, quoted later, dated June 27, 1908, Office of the Chief of Staff.

17. For a period after the consolidation of the Second and Third Divisions into the new Second Section,

a semblance of a distinct organization for military information work was maintained. But it was only a semblance and the essential things which made it possible to fulfill the functions and duties devolving on the organization disappeared. Even before the memorandum quoted was issued, all the records of the old Second and Third Divisions were consolidated into a single record section pertaining to the new Second Section. The clerks, typewriters, translator, librarian, draftsmen, photographers, etc., of the old Second Division were merged with the clerks of the old Third Division into one general body library, photograph gallery, and all other material formerly pertaining to the old Second Division and the former chief of that Division ceased to have any authority over such functions. To effectually supervise and control the functions of the organization charged with information duties requires the undivided time and thought and attention of any one officer. Indeed, as experience has shown, if these duties are properly performed, that officer will find that he has more than any one man can handle. To charge, then, the Chief of the new Second Section with all the duties and responsibilities of the officer in charge of military information work in addition to those entailed by the supervision of the old Third Division, and to expect him to have time for all of the duties with which he was now charged was to expect the impossible. He would either have to pay particular attention to one class of duties to the detriment of the other, or find himself forced to perform all of his duties in a perfunctory manner. There are simply not enough hours in the day to make it possible to do the work.

18. The condition just described was brought about by the following memorandum, and the Military Information Division, as an efficient agency for the collection and classification of military information, passed out of existence. It is interesting to note that the officer who, as Chief of Staff, issued the memorandum which virtually emasculated the Military Information Division in 1908, issued an order, as commanding general, Western Department, establishing a Military Information Division in that Department in 1916:

[War Department, Office of the Chief of Staff, Washington, June 27, 1908, Memorandum]

1. The following organization and distribution of business of the War Department General Staff is announced, and will be in force until further orders:

* * *

Second Section

Military information; collection, arrangement, and publication of historical, statistical, and geographical information; War Department library; system of war maps, American and foreign; general information regarding foreign armies and fortresses; preparation from official records of analytical and critical histories of important campaigns.

Military attaches.

Photographic gallery.

Preparation of non-technical manuals.

Issue of military publications, maps, and documents.

Collection and discussion of all obtainable data relating to strategic, tactical, and logistic features of future military operations, and formulation of complete working plans for passing from a state of peace to a state of war under such conditions as can be foreseen or may be assumed. Direction and coordination of military education in the Army, the militia, and in civil schools and colleges at which officers of the Army are detailed.

Plans for field maneuvers.

Permanent fortifications.

Submarine defense.

Field engineering.

Signaling, technical manuals, and logistics.

Military resources of the country."

* * *

19. In order to carry into effect the provisions of the foregoing memorandum, the Chief of the Second

Section issued the following memorandum:

[Office Chief of Second Section, General Staff, Washington, June 27, 1908, Memorandum]

The Second Section of the General Staff having been created by paragraph 762 of the Army Regulations, (W.D. G.O. No. 128, 1908) and the duties hereto performed by the Second and Third Divisions of the General Staff having been assigned with certain modifications, to the Second Section of the General Staff, by memorandum from the Chief of Staff's Office date June 27, 1908, the following executive staff and committees of the Second Section are announced and the following assignment of personnel and duties to the committees is made:

* * *

Military Information Committee

Chairman of Committee:

* * *

Members of Committee

* * *

To this Committee the following duties are assigned: Military information; collection, arrangement, and publication of historical, statistical and geographical information; War Department library; system of war maps, American and foreign; general information regarding foreign armies and fortresses; preparation from official records of analytical and critical histories of important campaigns.

Military attaches.

Photographic gallery.

Issue of military publications, maps, and documents.

* * *

VII

Correspondence

All letters and papers pertaining to the business of the Section, or to the business of the Army War College, addressed to superiors or to persons outside the Second Section, and all papers prepared for the signature of superiors, will be prepared under the supervision of the Chairman of each Committee; the originals of the former class will be initialed by the Chairman; and the duplicate copies of the latter class will show in the upper right-hand corner the typewritten initials of the Chairman of the Committee, and will be submitted to the Chief of Section with such written or verbal explanations as may be necessary.

Each Committee will keep a complete file and record of all its correspondence independent of the other committee. The copies of the correspondence and files of all matters pertaining to the office of the Secretary of the Army War College will be kept with the records of the Army War College Committee.

VIII

Vouchers

Vouchers for expenditures under the appropriations made by Congress for contingent expenses of the Military Information Division, General Staff Corps, and for all other expenditures which properly pertain to that Committee, will be prepared under the direction and supervision of the Chairman of the Military Information Committee in accordance with existing laws and regulations and submitted to the Chief of the Second Section for signature.

* * *

20. It will be observed that the duties assigned to the Military Information Committee of the new Second Section by Section II of the above memorandum are the same as those assigned to the old Second (Military Information) Division by the memorandum of the Chief of Staff dated June 14, 1904. However, all authority to direct the work prescribed to be done, all control over correspondence, files, records, maps, etc., all power to direct the clerical force, in short all power to control the work or to plan for and initiate new work, was taken from the officer assigned in charge of military information duties. This fact is

emphasized by Section VII of this memorandum.

It will also be observed that each Committee was directed to "keep a complete file and record of all its correspondence independent of the other committee."

This provision was intended to give each committee a certain degree of independence and initiative. An attempt to carry it out was made, but, as the clerical force was all under the control of the Chief of Section and as no clerks or typewriters were ever assigned to the Committee, the effort was abortive and was abandoned.

21. It would seem that the above memorandum was amply sufficient to render it utterly impossible for the officer immediately responsible for the collection and classification of military information to exercise his functions and to reduce the activities of the committee to purely clerical duties, but we will find that, ten years later, his functions were to be still further curtailed, and the work of the Committee on Military Information made still less effective. This was accomplished by the following memorandum:

[War Department, Office of the Chief of Staff, Washington, September 26, 1910, Memorandum]

> The following organization and distribution of business of the War Department General Staff is announced:
>
> * * *
>
> War College Division
>
> (a) Collection and distribution of military information; War Department library; preparation of non-technical manuals; direction and coordination of military education; plans for field maneuvers; collation and discussion of all obtainable data relating to strategical, tactical and logistic features of future military operations and formation of complete working plans for passing from a state of peace to a state of war.

22. The above is an additional step in the process which abolished the functions of any distinct body charged with that most important duty—the collection and classification of military information and all that the expression implies. The next step we will find in the following memorandum:

[War Department, Office of the Chief of Staff, Washington, February 3, 1912, Memorandum]

> To further expedite the work and increase the efficiency of the War College Division of the General Staff, the following assignments of personnel to committees, and the duties of said committees are announced:
>
> * * *
>
> IV
>
> Duties
>
> War College Division
>
> Military information; collection, arrangement, and publication of historical, statistical, and geographical information; War Department library; system of war maps, American and foreign; general information regarding foreign armies and fortresses; preparation from official records of analytical and critical histories of important campaigns.
>
> Military attaches.
>
> Photographic gallery.
>
> Preparation of non-technical manuals.
>
> Issue of military publications, maps, and documents.
>
> Chief of Division and President of the War College:
>
> The Chief of Division has supervision of all questions and matters of policy and administration, executive and professional work of the Division and the Army War College, the military attaches, confidential missions abroad, the War Department library, the photographic gallery, the distribution of documents, and considers and decides all important questions affecting the action or recommendation of the Division, as well as signing of communications to equal or superior authority.
>
> Papers, reports or recommendations upon subjects of special importance can be submitted to the Chief of Division in person with such verbal or written explanations as may be necessary, but all papers or

routine matters of office work will be submitted to the Secretary.

* * *

V

Committees

Committee on War Plans:

The Committee will collate and discuss all obtainable data relating to strategical, logistical and tactical features of possible future military operations, and will formulate complete working plans for passing from a state of peace to a state of war under such conditions as can be foreseen or may be assumed. The Committee will be charged with the coordination of technical and non-technical manuals with the Field Regulations and with each other, and will keep the Secretary of the War College Division advised of the Committee's needs as to maps, appropriate to its studies.

* * *

Committee on Military Information:

The Committee is charged specifically with the following duties:

(1) The preparation and maintenance of military monographs. These monographs will be prepared in accordance with a general form approved by the President of the War College. In its monographic work the Committee will have the assistance of such officers of the War College as may be available for that duty.

(2) The direction and coordination of military education in the Army, the militia, and in civil schools and colleges at which officers of the Army are detailed.

(3) The preparation and maintaining of a system of military maps, American and foreign.

(4) The preparation from authentic sources of histories of important military events.

(5) The compilation and editing of important articles on military subjects for publication to the Army, either as War Department Documents or in the service journals.

(6) The furnishing of information to officers entitled thereto, and the preparation for transmittal to military posts and headquarters, of monthly lists of books and subjects carded in the War College library.

(7) The arrangement, carding, classification and filing of publications, periodicals, newspapers and of the carding of the reports of the military attaches abroad, as well as the miscellaneous information received in the division, for ready reference.

* * *

23. Of the above duties assigned to the Committee on Military Information, (1), the first clause of (6), and (7) are essentially functions of a Military Information (or Intelligence) Division. The other sections are not necessarily so, although (3), (4) and (5) might be assigned to such a division or section if there were no other agency to perform such work. The other duties enumerated in this section have no relation whatever to military information work. But, in addition to the fact that the body charged with the above duties has no power to control its own work or to initiate new work, is the fact that no officer or group of officers is charged with the duty of obtaining military information other than military attaches or military observers in time of war. As has been said before, the most necessary and essential kind of information, the information without which no war plan can be made that is worth the paper it is written on, does not come in of its own accord or as a matter of routine. It must be actively sought and traced out and proved up. Other agencies than those in the War Department and other men than those occupying chairs in the offices of the General Staff must be put to work. To find these agencies and men and to put them to work and keep them at it along the proper lines requires no small degree of thought and planning by a strong, permanent central authority. Yet, in this assignment of duties, this vital element is not mentioned.

But this is not all. Section (7) requires the arrangement, carding, classification, and filing of publications, periodicals, newspapers, and the carding of the reports of the military attaches abroad, as well as miscellaneous information received in the Division, for ready reference.

One would naturally suppose that this work was to be done by officers, whose professional knowledge

would make it possible to do it in an efficient manner. This, however, is not the case. It is done by civilian clerks, who, however zealous and efficient as clerks, cannot be expected to have the expert knowledge possessed by the trained and experienced officer. It is not even made the duty of any officer or group of officers to supervise this work. This is work of the utmost importance and should be done, not only by officers, but by officers especially trained in military information work, since the information received must be digested and checked and proved and re-checked before it is of any value whatever. To use information which has not been through this process is not only a waste of time—it is positively dangerous.

24. This omission to provide the agencies for the very foundation of General Staff work is undoubtedly not intentional. It is simply the result of the lack of familiarity with the details and functions of military information work.

25. But the above are not the only handicaps on military information work that we find in this memorandum. The following section takes away from the already emasculated Military Information Committee all the agencies usually employed to obtain information and vests their control in this Chief of Division. If the Chief of Division had no other duties to perform except this, the arrangement could not be criticized. But it is simply a physical impossibility for one man to attend to the many and various duties imposed upon him as Chief of the War College Division and take over and perform these others in addition. Here is what this section says:

> Chief of Division and President of the War College:
>
> The Chief of Division has supervision of all questions and matters of policy and administration, executive and professional work of the Division and of the Army War College, the military attaches, confidential missions abroad, the War Department library, the photographic gallery, the distribution of documents, and considers and decides all important questions affecting the action or recommendation of the Division, as well as signing of communications to equal or superior authority.

26. If it were only a matter of supervision, there would be little criticism of the above section of the memorandum. But read in connection with the remainder of the memorandum it will at once be seen that it is not only supervision that is involved. For in no place do we find that any other officer, other than the Chief of the War College Division, is charged with any of the duties mentioned in the above paragraph. That it is not only supervision, it is all of the duties which pertain to the subjects mentioned that devolve on the Chief of Division, at least insofar as the initiation of work is considered. The effect of such a provision was, of course, to make it impossible for the Committee on Military Information to inaugurate any work. They could only do what was assigned them by the Chief of Division. It made it absolutely impossible for the Committee to carry on a continuous policy in the work or to train officers in information work.

27. That just the results that were to have been anticipated were realized is evident from the following letter from the Chief of Staff:

[War Department, Office of the Chief of Staff, Washington, January 20, 1913, Memorandum for the Chief, War College Division]

> There have been brought to my attention, from time to time, certain statements concerning the Military Information Section, which I think the following fairly well embraces. This is sent to you because I know you are anxious to get this section on the best possible basis, and I think you will find in it some valuable suggestions; at least, I send it to you for what it is worth. I am inclined to think we can shake out a good deal of dead material, and get the work on the line which I indicate below.
>
> There seems to be a lack of organization and coordination of the work. Undoubtedly much valuable work is done, but a great deal (if not the major part) is wasted and the effects lost to the army through the lack of crystallized results.
>
> 1. There seems to be a lack of continuity about the work. The section's work does not go forward continuously. An officer may spend months of a year or so on a particular subject or line of work and when the time comes for his relief another officer is assigned to that subject who has no previous

training or familiarity with it. It therefore takes him months to get up to the point where his predecessor left off—the time so spent being waste effort, except insofar as the officer himself is concerned—the problem or line of work being in the meantime at a standstill.

In other words, the section does not seem to be sufficiently self perpetuating. It is not training up a set of officers to carry the work forward uninterruptedly.

2. All reports coming in from officers in all parts of the world are carded and filed as if all were of equal value. These reports are generally sent around to the members of some committee to read, but they do not seem to be empowered to make any comments thereon. It seems as though there might be a committee of censors to throw out reports that are of a temporary nature and prevent the permanent records becoming clogged by so much dead wood; at least they might express their opinion as to a report being "good," "indifferent," "of permanent value," "of temporary interest only," etc., etc. If the report is saved, the committee's appraisal of the same should be noted on the card index. An officer looking for information on a given subject ought to be able to tell something from the card index as to the value of the report and thus what reports he wants to consult; this would save a great deal of time not only for himself, but of the clerks', which is otherwise spent in hunting up and looking over reports that turn out to be of no value to the particular subject under investigation.

* * *

4. Military monographs are, for the most part, in a very incomplete stage....

5. As said above, most of the monographs seem to be in a very incomplete stage; in most cases this is probably for lack of accurate or trustworthy information, but no one seems to be specially charged with seeing that efforts are put on foot to obtain this needed information.

6. There is lack of coordination with other departments of the government. Much information that is useful is to be had from consular and other reports that are continually coming into the State Department. A tactful officer detailed for that work could easily justify his time; he could make himself persona grata to the State Department by helping to fill out gaps in their information that might be supplied from the War College Division, having due regard to confidential matters, of course. Of course, more could be obtained from the Navy Department than from the State Department if satisfactory arrangements were made for a regular exchange of information, by means of an officer charged with the duty of keeping up this relation.

* * *

(Sgd.) Leonard WoodChief of Staff

28. In reply to the above, the Chief of the War College Division submitted a memorandum dated January 27, 1913. In his comments the Chief of the Division very plainly indicates that the difficulties encountered by the War College Division in handling matters connected with military information are just those which I have pointed out in this paper, although he does not express it in exactly the same way. In paragraph 2 of his memorandum, we find the following:

2. All questions of any importance are considered by committees and if they are questions of more or less permanence, these committees are permanent ones. There are, for example, the committees of each arm of the service, composed of all the officers of that branch of the service, a committee on schools, a committee on equipment, a committee on the reorganization of the army, which are permanent or semi-permanent in nature. For special subjects, special committees are appointed, such as for field regulations, service manuals, etc.

* * *

It would not be practical to educate one officer to take the place of another, as the head of a subcommittee must naturally be the officer of the highest rank assigned to that committee.

* * *

3. As to the question of censorship of information coming in, this has been done by the officer in charge of the library. There has been discussed in the committee a number of times the question of the desirability of appointing a separate committee on the subject of censorship. Up to the present time

this has not been considered desirable but the subject has not been neglected.

* * *

The officers of the War College class are at present engaged in preparing monographs on various countries.

* * *

4. It is a fact that the monographs are not in as satisfactory a state as could be desired. This fact has been admitted here for several years past and efforts have been made to correct it. It has not been possible to do this satisfactorily on account of the small number of officers and the numerous changes that have been made. During the last two or three months the situation in that respect has improved and it is hoped that we will be able to place the monographs in better shape.

* * *

5. As to the statement in paragraph 8 in the memorandum that no one is charged with seeing that efforts are being put on foot to obtain other information. This is not strictly a fact, although it may be admitted that new information on various subjects may be needed. However, requests are sent constantly to military attaches and others to obtain information on special subjects."

* * *

29. The above reply, read in connection with the letter itself, make it perfectly clear where the trouble lies. The conditions complained of in the letter obtained because there was no proper organization for handling matters connected with military information. The explanation in the reply to the letter of the Chief of Staff of the manner in which the business was handled in the War College Division make it perfectly evident that all initiative must come from outside the Division—that there is no organization or especially designated group within it whose function is to study the needs of the army and the government with respect to military information and formulate plans for the accomplishment of the desired ends. The criticisms made by the Chief of Staff in 1913 could be made today. Nothing of a permanent nature was done to remedy the conditions mentioned. Nor could anything have been done as matters stood then and still stand today, because the fundamental, basic trouble lies in the lack of organization.

30. The following memorandum gives the duties assigned to the War College Division and describes the manner in which the routine work of the Division is performed:

[Washington, May 3, 1915, Memorandum for the Chief of Staff, Subject: Names of officers on General Staff work at the Army War College, their specific duties and the different committees organized]

Distribution of General Staff Work.

The General Staff officers enumerated above, together with the attached officers, constitute the personnel of what is known in the Army Appropriation Bills as the "Military Information Section, General Staff Corps." This is the legal designation of one section of the War College Division, General Staff; the other section is designated the "Army War College," which will be referred to later.

It is the primary function of the Military Information Section to do current General Staff work. As papers requiring General Staff action come into the War College Division, they pass over the desk of the senior General Staff officer, who supervises the work of the section, assigning the papers to individuals and committees for report. He reviews these reports before he lays them before the Chief of the War College Division for signature. He presides at called meetings of the various committees of which he is chairman and at those of the Military Information Section in full committee, except on some special occasions when the Chief of Division is present. These duties require the constant attention of this senior General Staff officer and he should not be hampered with outside work not pertaining to this section of the General Staff, as Colonel Treat now is, as explained in paragraph 5 of this memorandum.

* * *

Army War College

6. The purpose of the Army War College is to train officers of recognized ability and experience in the functions of higher command, and in General Staff duties appropriate to the higher grades.

* * *

31. The following memorandum gives briefly the duties of the War College Division under the two sections, Military Information Section and Army War College:

[War Department, Officer of the Chief of Staff, Washington, November 6, 1915, Memorandum for the Chief of Staff, Subject: Duties of the War College Division and assignment thereto of individual officers]

1. Herewith is a memorandum from the Chief of Staff, dated November 3, 1915, directing the submission of a brief statement of the duties of the War College Division, its subdivisions and the assignment of individual officers thereto. The following statement is submitted accordingly:

Establishment.

The division was established under the designation "War College Division" in accordance with a memorandum from the Office of the Chief of Staff, dated September 26, 1910, and is housed in the War College building.

Composition.

The division is composed of two distinct bodies: (a) the Military Information Section, General Staff Corps; and (b) the Army War College, both of which are recognized by Congress in that separate appropriations are made for each. Both are accommodated in the Army War College building where they have been located, the former since June, 1908, and the latter since June, 1907, and each has its own distinct functions and duties.

Duties.

These duties are briefly stated as follows:

(a) Military Information Section. Collection and distribution of military information; War Department library; preparation of non-technical manuals; direction and coordination of military education; plans for field maneuvers; collection and discussion of all obtainable data relative to strategy and tactics of future military operations; and formation of complete working plans for passing from a state of peace to a state of war. Also, system of war maps, American and foreign; military attaches; military publications; photographic gallery; preparation, from official records, of analytical and critical histories of important campaigns.

(b) Army War College. Development of officers of recognized ability in the functions of higher command and in the duties of the General Staff in the higher grades.

32. The organization under which we are working today is specified in the "Manual of the War College Division, General Staff," dated August 10, 1915. This manual is a compendium of all rules and regulations in force relating to the present organization of the War College Division.

33. Let us see, now, just how this organization of the War College Division works practically insofar as military information work is concerned.

The explanation given in the memorandum to the Chief of Staff of May 3, 1915, gives this very exactly. All of the General Staff officers on duty at the Army War College, together with the attached officers, "constitute the personnel of what is known in the Army appropriations Bills as the 'Military Information Section, General Staff Corps'. This is the legal designation of one section of the War College Division."

34. That expresses it exactly. It is a "legal designation" and nothing else and the designation was probably used because it was necessary to do so in order to utilize the appropriation made by Congress for the purpose of handling matters connected with military information work. That the duties of this section are not primarily related to military information work is emphasized by the following: "The primary function of the Military Information Section is to do current General Staff work." And that is precisely what the Section does—"current General Staff work" (and much which is not General Staff work at all). As explaining how this "current General Staff work" is performed, the memorandum continues: "As papers requiring General Staff action come into the War College Division, they pass over the desk of the senior General Staff officer, who supervises the work of the Section, assigning the papers to individuals and committees for report." Now, although General Staff work embraces military information work, it

also embraces a vast amount of work which does not pertain to military information at all. On the other hand, military information work embraces much which is not current work but which must be inaugurated within he organization which handles it. The memorandum continues: "He reviews these reports before he lays them before the Chief of the War College Division for signature." But who attends to the various duties pertaining to the "collection, classification," etc., of military information and the many other and various duties connected with work of this character? Who is to do the planning for future work and who considers the many important questions which arise in this connection? The senior General Staff officer could not do it even if it were assigned to him unless he neglected his other duties, as is pointed out by the memorandum: "He presides at called meetings of the various committees of which he is chairman and at those of the Military Information Section in full committee.... These duties require the constant attention of this senior General Staff officer and he should not be hampered with outside work not pertaining to this section of the General Staff, as Colonel Treat now is, as explained in paragraph 5 of this memorandum" Nor even if he had the time, could he carry out the work, since we will find that some of the most important of the agencies created to carry on military information work are removed from his supervision, and their control vested in the Chief of Division, namely, "the military attaches, confidential missions abroad, the War Department library, the photographic gallery," as we will find in the memorandum of February 3, 1912.

As a matter of fact, the designation "Military Information" no better describes the duties really performed by this Section of the War College Division than does the term "War College," the duties performed by the Division as a whole.

35. If then, as is evidently the fact, the senior General Staff officer, who is charged with the supervision of all the work of the so-called Military Information Section, General Staff Corps, is not able to attend to actual military information work, who does it? On what group of officers does the duty devolve? The only possible group in the Division which might be expected to look after it is the Committee on "Military Information and Monographs." The chairman of this committee is the Chief of the Division and one of its members is the secretary of the Division. The reason for this is that these officers have charge of the military attaches and observers and direct their work. While this arrangement is good as far as it goes, these officers, due to numerous and pressing additional duties, cannot give the time and attention required to various other important phases of military information work. Nor can the remaining members of the committee do so, there is not one of them who is not assigned necessarily to one or more additional committees which have to consider other and entirely different subjects.

The consequence is that the General Staff cannot digest the information that is being collected and put it in shape for use, and are utterly unable, through lack of proper organization, to keep up a constant flow of the kind of information we need for planning military operations intended primarily for is, necessarily, confidential in character. This is true even of many matters handled by military attaches as matters of routine, and serious trouble is likely to ensue unless they are so regarded. Much of the information absolutely essential in war must be obtained in the country to be operated in before even a suspicion of war arises. A great deal of this is of such character that it cannot be obtained through our regularly accredited military attaches, and other means must be sought. Whether this is accomplished through officers of our own army who are sent into the country in question, or through agents already residing there, it must be regarded as highly confidential.

But it is not only matters connected with foreign countries that require secrecy in their handling. Certain information in our own country cannot be obtained unless you can convince the persons who furnish it that the information and the source from which it comes are to be considered as confidential. If they are not absolutely convinced of this, the information will not be forthcoming, no matter how essential it may be to the government and the army.

40. Matters of this nature must be handled personally. They cannot be treated as mere matters of routine which pass under the eyes of many people. Indeed it often happens that certain matters should not be committed to writing at all. In many of these cases the matter must be taken up directly with the Chief of

Staff or with the Secretary of War and sometimes with the President. This is essential in time of peace and it is especially so in time of war. It is, therefore, not only important but essential that the officer who is charged with military information duties deal directly with, and be responsible to, the Chief of Staff.

41. It transpired a short time since that the Quartermaster Corps was engaged in collecting information with regard to the railroads of the United States with a view to preparing the data for use in case of war. This is, of course, essentially the work of the Information Section of the General Staff. But since that Section is not organized exclusively for information work and since it has been the specific duty of no one to study the subject in question, it naturally has not been done. However, as such information was vitally important to the Quartermaster Corps, and as they knew it was not being collected by the General Staff, it is hardly to be wondered at that they took it up. Information concerning not only railroads but concerning many other classes of industry should be collected by the General Staff. We should be engaged on that work now. If there had been a properly organized Military Information Division in existence, that work would have been begun as soon as it became evident that it was going to be essential to the government.

42. Mention has been made in the memorandum to which this paper is attached, of the organization of the Military Information or Intelligence Division with the forces in the field in time of war. The importance of General Staff work in the field has increased enormously during the present European war. Just what the organization and duties of the general Staff of the various belligerent powers are, in detail, we do not yet know because the entire subject is guarded with great care. We do know, however, that the powers and duties of the General Staff in all of the warring nations are much greater than ever before. We also know that the organization of the various Intelligence Departments is most complete. For one of these nations we have the organization and assignment of duties of the General Staff in the field. In this organization the General Staff with the troops in the field is divided into four primary divisions, each reporting directly to the Chief of Staff of the unit to which it is attached. The second in order named of these divisions is the Intelligence Division. The duties which it is called upon to perform are many and intricate and call for a high degree of previous training. They also make a very close and intimate relation with the home Intelligence Department absolutely necessary. If all this has been found to be necessary in Europe, it will be found to be equally necessary in this country.

43. But, beyond defining the duties to be required of the Intelligence Section in the field in our Field Service Regulations, we have done nothing in this direction to prepare for war conditions. And, naturally, as we have no organization in time of peace whose duty it is to train officers and others for such duties, we have no trained personnel. For the same reason we have none of the material which will be necessary immediately upon the outbreak of war and no plans for its preparation.

44. To sum the whole matter up in a single sentence, we are no better prepared, insofar as organization for intelligence duties in the field are concerned, than we were the day the General Staff was created, and so far as military information is concerned we are not so well prepared since much of the information on hand at that time, particularly the topographical data pertaining to our neighbors on the North and South, has not since been corrected or added to and is now so old as to be practically worthless.

45. Does it not seem that the time has come when the General Staff should take steps to correct this condition of affairs? The power to do this is within the General Staff itself—as is also the obligation. Both are placed there by Congress in the Act which created the General Staff Corps. It will not answer to say, when we are tried and found wanting, that Congress did not furnish us the means to accomplish the desired results, because we have not used the powers we have.

46. From all of the above considerations, and many others not possible to enter into in this paper, I am forced to the following conclusions, if we hope to have more effective General Staff work in the future: (1) That the Military Information Section, General Staff Corps, must be re-established as a separate unit of the War Department General Staff and freed from all those duties which do not pertain to military information work. (2) That this Section must have an independent organization and that its chief must be responsible directly to the Chief of Staff. (3) That it must have its own personnel of officers and clerks, draftsmen, photographers, and other assistants. (4) That it must have its own records and files. (5) That

it must handle all matters connected with military information work and it must not be required to consider matters not connected with its legitimate duties.

47. The question of where such an organization should be housed is a secondary matter. Without doubt it would be much more convenient for the Chief of Staff, and would make for efficiency, if it were located near the office of the Chief of Staff. In time of war or public danger this might become imperative. But in ordinary times of peace other sections of the General Staff, notably that whose duty it is to consider and prepare war plans, and also the Army War College in its educational capacity, could utilize the services of the Military Information Section to very great advantage. For this reason, it would, perhaps, be best to house it in the War College building. There is no more reason for claiming that two or more separate sections of the General Staff could not work under the single roof of the War College building could not function as distinct entities.

48. It is futile for us to try to delude ourselves with the idea that the General Staff has taken the place in the regard of the Army and of Congress that it was hoped and believed it would. The Army at large is certainly no more than lukewarm in its support; the various bureaus of the War Department cannot be said to be enthusiastic; and there is a distinct spirit of hostility developing in Congress. This is not pleasant to contemplate. The General Staff Corps has now been in existence for 13 years. There is a wide-spread feeling that it has not accomplished all the good that it was expected to accomplish—that it has not entirely fulfilled the functions for which it was created. This feeling may be erroneous or there may be reasons why it was impossible for the General Staff to fully carry out its functions. But whatever has caused the feeling, it is there. This being so, is it not time that we were examining into the matter and finding out if, after all, the cause for this feeling does not lie within ourselves? I believe that if any cause for the feeling of dissatisfaction be found, it if develops that we really have not been doing all that should have been done, that one of the primary causes will be found in our lack of a proper internal organization.

49. In presenting this paper for consideration, I desire to say that it is not done in any spirit of carping criticism or faultfinding. It is merely a presentation of the facts as I see them and is presented because I believe it to be my duty, as a member of the General Staff Corps, to point them out for the consideration of higher authority. With that accomplished, my duty and obligation in this connection cease.

R.H. Van Deman
Major, General Staff

THE FUNCTION OF THE MILITARY INTELLIGENCE DIVISION

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The United States, prior to its entry into the present conflict, with its small military establishment, with its isolation and its traditional policy of friendliness to other nations, found itself virtually without those agencies necessary for gathering military information in time of war.

On the other hand it found itself pitted against a nation that had developed the art of gathering military intelligence in all its branches to a degree far surpassing any other similar organization known to history. The capacity for patient, painstaking effort, which the German has developed, had served him well in this task. For two generations, with the determination of making wars for conquest, he had winnowed with minute care every grain of information concerning every possible enemy. The world, during the last four years only, has come to appreciate the extent and the thoroughness of the German organization.

History

The General Staff was quick to appreciate the weakness of its position, and the strength of that of its antagonist. It set about the development of the Military Intelligence Division, General Staff. A sketch of that branch, its origin and its evolution since war was declared, may prove illuminating.

In 1885 the Secretary of War called upon his subordinates for certain important information concerning a foreign army. He was told that there existed no office nor officer charged with the collection or supply of military information. To meet the obvious need, he created a Military Information Division in the office at The Adjutant General. Four years later, it became a separate division under the personal supervision of The Adjutant General.

In August, 1903, this division was transferred to the Office of the Chief of Staff, and later became the Second Division of the General Staff. In June, 1908, the Second and Third Divisions were consolidated and this work was thereafter handled by what was known as the Military Information Committee of the Second Section, General Staff. Personnel and appropriation were limited, the powers of the committee were narrow, and its accomplishments, though valuable, were necessarily meager. Such was the situation at the time war was declared.

The entrance into the war with Germany made an immediate extension of intelligence work necessary. On April 28, 1917, the Chief of Staff directed the Chief War College Division, to organize a Military Intelligence Section, and to report on the requirements of this work. On May 3, 1917, a memorandum by the Chief of Staff approved by the Secretary of War, authorized the Chief, War College Division, to put an officer in charge of military secret service work, and to detail to him such other officers and men as might be necessary.

Accordingly, the Director, War College Division, organized the Military Intelligence Section, assigned it a chief and personnel from among the personnel of the War College Division, and delegated to it authority to correspond directly with such departments, agents and individuals as may be found necessary in the proper performance of the duties with which the section was charged. The Chief, Military Intelligence Section, was directed to begin military secret service work at once. The map room and photograph gallery were placed under his supervision and he was furnished with such clerical force as the limited personnel of the War College Division permitted.

Owing to the limited number of officers on duty in the War College Division and to the fact that few of them had any experience or training in intelligence work, the assignment of personnel at the time consisted of but three officers—one major, General Staff, as Chief of Section; one captain, General Staff, and one major, retired.

Upon recommendation of the Chief of Staff, an item of $1,000,000 for military intelligence was approved by the Secretary of War, and submitted to Congress in the emergency estimates. It was arranged, as in the case of a similar appropriation for the Navy, that expenditures deemed necessary could be made on confidential vouchers approved by the Secretary of War. This provision safeguarded the fund while obviating the necessity for publicity.

The task of the newly organized section was three-fold. It was necessary to cope with the manifold domestic problems arising from the fact of our mixed population, to counter the efforts of the enemy to lower the morale of our army, and to furnish the Expeditionary Forces with whatever information was usable in the conduct of its campaigns.

The small force of April 1917, has increased until now there are over two hundred officers and over seven hundred clerks. The staff is divided between headquarters in Washington and service in the field, with the addition of Intelligence officers stationed in New York, Philadelphia, Pittsburgh, St. Paul, St. Louis, and New Orleans, and at each of the points of this country where offices for mail censorship have been established. In addition there are intelligence officers with troops at each camp, post, cantonment, and field. All Military Attaches also are under the jurisdiction of this Division.

On February 7, 1918, the Secretary of War, by a memorandum issued through The Adjutant General, reorganized the General Staff and with it the Military Intelligence Section. It was placed in the Executive Division of the General Staff, and became the Military Intelligence Branch.

On March 15, 1918, the Military Intelligence Branch was moved from the War College to a new building at Fifteenth and M Streets, the Translation Section and the Map Section remaining at the War College, where there were better facilities for their work. At the end of June, the offices were again moved, this time to 1330 F Street.

On June 1, 1918, Colonel Ralph H. Van Deman, General Staff, to that time Chief, was ordered to service overseas, and Lieutenant Colonel Marlborough Churchill, Field Artillery, was detailed as Chief of the Military Intelligence Branch. In August 1918, Colonel Churchill was promoted to be Brigadier General and shortly after the Branch was raised to a separate Division of the General Staff and its Director given the duties of Assistant Chief of Staff.

Functions

The duties of the Military Intelligence Division consist, in general, in the organization of the intelligence service, positive and negative, including the collection and coordination of military information; the supervision of Military Attaches, Department Intelligence Officers, and Intelligence Officers at posts, stations, camps and with commands in the field, in matters relating to military intelligence; the direction of counterespionage work; the preparation of instruction in military intelligence work for the use of our forces; the consideration of questions of policy promulgated by the General Staff in all matters of military intelligence; the cooperation with intelligence branches of the General Staffs of other countries; the supervision of the training of officers for intelligence duty; the obtaining and issuing of maps; and the disbursement of and accounting for intelligence funds.

One of the important functions of the Director of Military Intelligence is that of coordinating the work of this service with other intelligence agencies. Possible duplications of work and investigation by the State Department, Department of Justice, Navy Department, and the War Department, are avoided or adjusted at weekly conferences held at the Department of Justice and attended by representatives of these departments who consider matters of common interest. For a similar reason the Director of Military Intelligence, is a member of the Fire Prevention Committee, the War Industries Board, the National Research Council, and Censorship Board.

For the purpose of securing close cooperation between the Military Intelligence services of the nations associated in the war, the British and French Governments were requested by the United States to send officers to this country for liaison duty. Because of the knowledge of the details of intelligence work in

Europe, these officers have been of great assistance in accomplishing this end.

The gathering of Military Intelligence requires investigation in practically every field and every country. Hence it is necessary to organize the Military Intelligence Division in such a way as to cover the whole world. A brief description of the problems, and of the ways in which a few of the sub-sections in this Division are organized in order to solve these problems, may not be out of place here.

It is necessary to remember, in the first place, that this war is not one that is being fought by the military forces alone. There are economic, psychologic, social, political and even literary forces engaged, and it is necessary for us in order to defeat the enemy, to understand fully the strength of each. Nor can the investigation stop with the forces of the enemy: it must extend to each country in the world and to every people. The question of winning the war is far too complicated and far too delicate to be answered by a study.

On the other hand it is equally necessary that we throw every possible safeguard about our own preparations for war and discourage enemy agents who may in one way or another attempt to lower our morale, damage our industries, or debauch our soldiers. We must look to the foe within as well as to the foe without.

In brief, it is necessary to know as much about the enemy as possible, and to prevent, if possible, the enemy's knowing anything about us. For this reason the Military Intelligence Division has been divided into two branches; the Positive Branch, which has as its purpose the study of the military, political, economic and social situation abroad, and the Negative Branch, which seeks to uncover and suppress enemy activities at home.

Positive Branch

The scope of the investigations of this Branch includes all nations, but its primary aim is to secure and furnish for the Army prompt and accurate information of every variety about the enemy. It gets what information it can about the enemy's strength; his replacement troops; his new levees; the combat situation at the various fronts. The political situation in enemy countries is also carefully studied, so that an estimate may be made as to the probable military operations by the enemy which depend upon political considerations. In the same way a careful study must be made of the economic situation in enemy countries. We must know what food they have and what raw materials; what manpower; the state of the transportation and lines of communication; their finances; their supplies and munitions.

The economic investigations are not complete if they include only enemy countries; for it is necessary to know the situation in neutral and allied countries as well, so that there may be perfect reciprocity and mutual aid. It is highly interesting and important also to know the enemy's state of mind, his attitude toward the war, toward the leaders, toward the army, and what effect recent operations have had upon the national morale. Material of this kind can be, and is, supplied to the Committee on Public Information, which enables it to institute propaganda by one means or another among enemies and neutrals, sometimes even among allies; for the signs of defeat appear when a country feels that resistance is no longer possible. Then it is that the enemy's morale is broken.

In order to attain the results described above, it is necessary to employ a large number of officers who are experts, who have traveled extensively, and who know where to find the latest information, for this information changes from day to day. With each change a new channel for information may have to be discovered, a search which will require the patience and skill of one who is intimately acquainted with the countries and their inhabitants.

Besides the officers employed in Washington and in other cities of the United States, there are military attaches sent to all neutral and allied capitals for the purpose of gathering information on the countries to which they are accredited. Supervision of these attaches falls directly upon the Military Intelligence Division. By diplomatic means they secure the information desired, and transmit it to Washington where it is collated, edited and then supplied to the agency that desires it.

Furthermore, it is necessary that our Army be supplied with accurate maps of the fields where they are now operating and of fields where they may have to operate in the future; and these maps must be kept up to date. For this purpose an elaborate map-making and map-filing section has been organized. The collection of maps includes a large amount of source material in the form of blueprints, road sketches and the like. From these, new maps are constantly made. For example: before the American Expeditionary Force was sent to Siberia, it was necessary to find source material for new maps of Siberia, to lithograph these maps and furnish them to the troops. The maps are all furnished with indexes and cards of cross-reference, and may be consulted in the Map Room of the War College by anyone entitled to their use. In connection with the Map Section there are also photographic laboratories for the reproduction of maps, and the means of copying by photostat important letters, documents, cables, etc. The photographic laboratories are equipped with cameras taking prints up to 34 x 34 inches, enlarging cameras and blueprint machines. The laboratory is equipped to supply photographic copies of any map on any desired scale.

In order that documents in foreign languages, which come with frequency to the War Department, may be translated, the Military Intelligence Division is compelled to maintain a Translation Section, where books, articles, letters, pamphlets in any foreign language may be immediately translated and forwarded to the office interested. This Section serves not only the Military Intelligence Division but also the entire General Staff.

To show the scope of this work, translations have been made from the following languages: French, Italian, Spanish, Portuguese, German, Dutch, Norwegian, Icelandic, Swedish, Russian, Greek, Rumanian, Ukrainian, Czecho-Slovak, Serbo-Croatian, Slovenian, Albanian, Bulgarian, Polish, Lithuanian, Lettish, Finnish, Ladino, Hebrew, Yiddish, Turkish, Armenian, Assyrian, Syrian, Arabic, Esperanto, Hindustani, Bengali, Chinese, Japanese, Choctaw and other North American Indian dialects, Samoan and the dialects of the Philippines.

Intelligence in the Field

In order that an army may fight effectively, it is absolutely necessary that it know as much as possible about the enemy in front of him; what regiments, brigades, divisions are in his immediate vicinity; what guns he has and their positions; his machine-gun posts, the condition of the wire; the general outline of the trenches; the number and the position of the dugouts; what transport facilities there are; what roads, railway lines, narrow-gauge lines; where snipers' posts are hidden; how much food supplies the enemy has on hand; what divisions are in reserve; who the commander is; who the subordinate commanders are; what is the condition of the enemy's morale; whether he is expecting to attack or to be attacked. All this information, which is called Positive Information in the Field, must be known by an army if the attack it makes is to be successful.

Fundamentally there is nothing new in the principles underlying the duties of the intelligence section of any combat unit engaged in modern warfare. They are the duties that in the past have been performed by cavalry reconnaissance or by infantry patrols, and may be summed up as follows: the acquisition of timely and complete information of enemy strategy, tactics, strength, movements, morale, dispositions, etc. In their application, however, there is a world of difference, and as a direct result an intelligence organization has been provided for each division, on which has been placed the duty of and responsibility for acquiring all necessary positive information of the enemy. This organization is drawn from the functions as a combat unit of the Division. Its principal sources of information are (a) Observation, (b) Reconnaissance and patrols, (c) Prisoners. Intelligence of the enemy gained by such means may be termed Combat Intelligence to distinguish it from information of less immediate value to combat units gained through the employment of either civil or military agents more or less remote from the zone of operations.

Combat intelligence may be stated to be the essential of all strategical operations in modern warfare, and a factor of almost equal importance in all tactical operations, whether offensive or defensive, in open

or trench warfare. The intelligence service is the eye and the ear of an army; and no army can maintain absolute equality with or superiority over the enemy unless both senses are constantly strained and constantly to be depended upon for complete information of the enemy's aims.

Into the front held by one of our Divisions in Lorraine in June last, a "traveling circus" or shock battalion of the enemy was thrown in an effort to terrorize our "amateur soldiers" and "bag" prisoners in large numbers. Its operations were assisted by gas projector attacks, liquid fire, and the other forms of terrorizing warfare dear to Boche ruthlessness. Late one evening, intelligence men on duty in a front line post, picked up some suspicious phrases by means of a "listening in" set. On analysis, and in the light of other information gained by patrols and observers, the Regimental Intelligence Officer decided that it meant an attack at midnight and warned not only the commanders of the units in the line of his own regiment, but through Brigade and Division Headquarters the units in line to right and left. Warning orders were immediately issued and as midnight approached every man in the first line on the entire divisional front was on "the alert," ready for any eventuality.

Promptly at twelve midnight a terrific explosion was heard, and the brilliant flash that illumined the enemy front warned that scores of huge shells filled with gas were speeding toward the sub-sector picked for the raid. Instantly every man within range slapped on his gas mask and prepared for the attack, while outposts, discerning the enemy advancing, gave the alarm. Machine gunners, riflemen, and automatic riflemen, many with their weapons already laid in anticipation, immediately opened fire with terrible effect. In the words of eyewitnesses, the front ranks of the raiding party were literally cut in two; the others broke and fled. Casualties among our men from gas, though scores of big shells exploded within a comparatively small area and in the midst of hundreds of men, were comparatively few. A great many lives had been saved and a raid stopped with heavy losses to the enemy chiefly as the result of one officer's knowing his business.

On the Champagne front prior to the big offensive of July 14, 1918, the allied intelligence service proved conclusively, nearly a fortnight before the attack was launched, that it was in course of preparation. On the afternoon of the 14th reports of scouts and observers all indicated that the "H hour" was rapidly approaching. A raid planned suddenly and as suddenly launched was executed successfully by the French that evening, and an hour before midnight exact information of the enemy's intentions had been secured by the Allied Command. At ten minutes to twelve that night, warning was issued to the battalion in line that the enemy would attack with violent artillery preparation at midnight and attempt to advance at four the next morning. Exactly as announced, the enemy artillery preparation began and at 4 a.m. the enemy infantry attempted to advance. Nine paced divisions, exclusive of the two divisions previously in line which had been moved back to a reserve position, participated in the battle which ensued, and opposing them were only three French divisions and one American division. Yet five days later when German defeat had been definitely conceded, it was found that they had been unable to penetrate beyond our front line of trenches, which had been quietly abandoned before the attack. Captured enemy documents showed later that the Germans had confidently engaged to be in possession of Chalons-sur-Marne, nearly 20 kilometers to the rear of the allied front, on the second day of the action. With the successful issue of this battle Intelligence unquestionably had much to do.

These instances of combat intelligence and its effective working are not rare and isolated instances; they are merely two among many equally distinctive, illustrating the value of such intelligence of the enemy. Numerous instances might be cited, not only of the superb results of the allied intelligence sources as a whole, but of those of our own combat divisions and army corps in recent fighting.

To equip recently formed Divisions with Intelligence organizations so trained as to be able to achieve the same results with precision and skill immediately they enter combat, whether in trench or in open warfare, is the aim of the Divisional system of intelligence instruction and training now in operation.

Negative Intelligence

This phrase, of recent vogue, and of recent importance in America, covers the whole field of activity directed against the enemy's intelligence service. Its magnitude depends upon the enemy's energy and its nature upon the nature of his activity.

General Lewal, an eminent authority on secret service, and one of the unheeded prophets of the disaster that befell France because of her neglect of the German spy system, placed counterespionage among the most important duties of the State: "We cannot employ too much vigilance and activity to pursue adverse spies. It is useful to know the designs of the enemy, it is still more important to prevent him from knowing ours."

The Intelligence Officers attached to our armies abroad are kept busy by the activities of the spies behind the lines, and by the necessity for concealing from them the plans and movements of our troops. Our troops occupy only a portion of the Allied lines and confront only a portion of the hostile army or its spies. At home, however, there are many alien enemies eager to find out our plans, our movements, all the activities of our army, and thwart them or at least report them for the benefit of their cause. The forms which this activity assumes are almost innumerable, and new methods are constantly improvised.

The man or woman of foreign sympathy in the United States, who prevents the enlistment of one soldier, diminishes his loyalty, prevents or delays his arrival in France, hampers the supplies he requires, or in any other of a thousand ways cancels that one man's usefulness to this nation, has done as much for the Kaiser as the German soldier who kills an American in battle. Indeed, he has done more, for he has saved that German soldier's time, strength and ammunition for the killing of other American soldiers.

The importance of counterespionage at home can hardly be questioned, but it is difficult to realize how manifold are the demands upon it. Having met the hostile espionage at one point we must be ready to check it at every other point; must not only prepare for the familiar tactics of the enemy's agents, but must endeavor to foresee and forestall their invention of new attacks. It is not disparaging the problems of our military forces abroad, to emphasize the fact that they are threatened more seriously and more numerously here at home than in France. The activities of the spies in the military zone are circumscribed to a certain extent by conditions, by the network of sentinels, by the restrictions upon movement, and finally by the alertness of the intelligence officers attached to the regiments and divisions.

Military spying, dangerous as it is, cannot, of necessity, employ a very great number of agents, at least in comparison with the domestic supply.

The opportunities for hostile activity in this country are on every hand, and the temptation to take advantage of them is irresistible to the foreign zealot.

As there has never been a country which devoted itself so ruthlessly to espionage as Germany, so there has never been a country which offered so wide and varied a field for it as America. The German attack on the United States began long before this country dreamed of entering the war. Influences were set to work to stifle all legislation looking toward preparedness. Press campaigns of the most elaborate sort were carried on to bias public opinion, to moderate or misdirect the indignation aroused by German methods of conquest, and to persuade the country to inaction.

The immunity of ambassadorial officers was used as a shelter for conspiracies against American life and property, and against the life and property of our neighbor countries.

Efforts to stir up other nations against the United States have been incessant, and are still made. Through neutral channels, often by the most devious courses, American banking and commerce have been and are still employed to the injury of American interests.

Schemes have been practiced for checking the adoption of the principle of conscription and universal service; later, for preventing its success by corrupting members of exemption boards, or by encouraging resistance to the draft and desertion. Supplementary to this activity is the placing of spies or propagandists among the regiments in camp or proceeding to the battleground.

Every true patriot is a believer in peace, provided it is not purchased at the price of freedom or honor. The word "pacifist" is applied generally to a believer in peace at any cost, an immediate peace, though it may in the end grow intolerable and compel another war. Pacifists have been so played upon by German

agents, that they have been more or less unwittingly recruited as active agents of the German cause, and have become a dangerous element of the population, since it is manifest that any activity whatsoever which retards or diminishes the maximum efficiency and enthusiasm of a country at war, is inimical to the success of that country, and gives the enemy aid and comfort.

The function of the military and naval counterespionage services in these matters is less executive or punitive than informational. The constituted civil authorities have full power to act, but they must be kept informed and provided with evidence. This evidence must be gathered with more or less secrecy from various sources; it must be coordinated, corroborated, and referred to the proper destinations.

The province of counterespionage is therefore coterminous with the national field of action. The soldiers in the front line trenches must be guarded against the enemy's spies, not only on the ground, but all the way back to the origin of enemy activity touching upon his welfare.

Officers and men in uniform have been recalled from France or prevented from sailing because of belated discovery of their untrustworthiness. The Red Cross, Y.M.C.A., and other services have been utilized by the enemy. The transports and carriers of supplies have been kept under observation and information of them conveyed to the submarine commanders. The wharves and the railroads and warehouses have been the objects of attack, as have the divisional camps, the officers' training camps, and the centers for training in aviation and motor mechanics. In all the bureaus of administration, investigation, invention, and manufacture, the enemy has sought to plant his agents. As there is hardly a field of human endeavor that is not affected by the war, there is hardly a field which the hostility of the enemy has overlooked.

Besides the actual physical menace to the personnel, the equipment, or the efficiency of our national force, there is what might be called the spiritual invasion. Anything that tends to diminish the ardor, the conviction, the optimism of the people at large, is hardly less destructive of effectiveness than an actual defeat on the battleground. The poisonous gas attack is practiced by the Germans, not only against our soldiers, but also against our citizens.

At a time when the whole nation must bend every energy and make every sacrifice, discouraging rumors gain an incalculable power. It is of the greatest importance to the health of our troops that sweaters, socks, wristlets, and "helmets" should be knitted for them by the devoted women of the land, and an enormous quantity of these articles provided from the countless hand looms. Suddenly a story appeared somewhere that a woman who had knitted a sweater and sewed into it a bank note for the further comfort of the wearer, found that sweater on the back of a Red Cross agent, or on the counter of a department store. This story reappeared with inconceivable frequency in the United States. It was almost always told as the experience of a friend of a friend, and had just transpired in each instance. Questionnaires were sent out concerning rumors of this sort, and disclosed that this particular libel was quoted as of personal knowledge in every community, from the largest cities in the east to the mining towns in the Nevada desert.

Every woman who hears and believes this circumstantial story is inclined to give up her work. The sum total of such a diminution of output cannot be computed. In times of peace such examples of wireless gossip are merely amusing encouragements to satire. In a time of war, they constitute a serious danger.

In many cases it is impossible to trace such stories directly to German sources, but they are no less dangerous for being of American origin. The misbehavior, disloyalty, or indifference of native Americans is as important a material of military intelligence as any other. The activities of many elements in the pacifist movements, the extremists among the socialists and the IWW, are as proper subjects for investigation and repression as mutinous soldiers, deserters or traitors in the ranks.

Stories of naval disasters to our fleet, quotations from eye-witnesses, once-removed, of hundreds of wounded sailors seen being smuggled into hospitals; tales of hardships and cruelties and immoralities—all these tend, not only to distress the families of our soldiers and sailors, but to diminish enlistment, to strengthen the pacifists and the aliens, to encourage resistance to the draft. Statements that Liberty Bonds and Thrift Stamps are worthless and will be repudiated have a direct financial menace.

People and societies of loudly proclaimed sincerity, have promulgated the most outrageous slanders proclaiming the immorality of Red Cross nurses and the drunkenness and viciousness of our troops abroad and at home. Such libels left unpunished, not only reward the noblest patriots with unmerited dishonor, but they discourage sacrifice and instil a paralyzing cynicism.

The running down of such rumors takes time and labor and organization, but it is vital to our efficiency, not only to stamp out such libels, but to bring home to our population, native and foreign, that they manufacture and disseminate such rumors at their peril.

The German military party once regarded America with a frank contempt, and boasted openly that they were prepared for any national activity. They spoke with confidence of the damage that they would do in the United States.

Great damage has indeed been done in innumerable ways, but the malevolent prophecies have not been realized. This is to be credited in a large measure, to the activities of our counterespionage, not so much by virtue of any visible and direct action, as by its services in acting as a clearing house for information; a central bureau which gathers from every quarter, all available intelligence, reduces it and forwards it to the point where it can be translated into action. To speak by metaphor, considering the nation as one man, the Intelligence Service, while it has neither authority to command, nor hands to seize with, nor feet to march with, acts as the eyes, the ears,—and the nose—and as the registering memory.

In computing the earning capacity of a man, the eyes, the ears and memory are usually taken for granted. Their importance is seen when he is deprived of them. His efficiency depends largely on their efficiency, and he may be disabled entirely by their failure. Especially when he is surrounded by enemies, their neglect is nothing short of fatal. The cost of their upkeep is, comparatively, so slight that it ought not to be withheld. Everything that tends to their improvement is a golden investment.

The more successful the Military Intelligence Service is, in its offices of vigilance and record, the less attention will be drawn to it. The ambitious enemy finding himself under constant observation, his movements recorded, and his associates also watched, abstains from evil deeds, professes his peaceful intentions and relapses into a quiet helplessness which is the ideal condition for such of the country's enemies as cannot be converted into good citizens.

As the best watchman is the one whose streets get least often into the newspapers, so the best Intelligence service is the one of which the least is heard or seen. This silent efficiency, however, cannot be attained without a considerable outlay. It involves a far-reaching nervous system of complex ramifications, everywhere in touch with the outer environment, and the inner mechanism of the state. Much of its work is most difficult and must be done in secrecy and preserved in secrecy, and many of its expenditures of time and money must be without visible result. These must be charged off to profit and loss, and the only test of its value is the subtraction of what it has cost, from a fair estimate of what it would have cost the country to do without it. It may be called "spy insurance."

It may not be uninteresting to give with a little more detail some of the measures that are taken by this Division to protect this country and our army from the baleful influence of the German spy system. It is a well known fact that unceasing efforts are made to corrupt our army. Enemy agents have been found at every camp, with the boast that they would put an agent in every regiment, whose duty it would be to lower the morale of the American troops and make them less responsive on the field of battle. In consequence, it has been necessary to safeguard the welfare of our soldiers, not only to protect their health and their moral well-being, but to protect them from the insidious propaganda of the German agents. Every camp, every post, every aviation field has had to be watched; for it must be remembered that it is not the first aim of these agents to destroy property or to send information back to Germany, but to do the much more serious damage of creating dissension, dissatisfaction, and rebellion among our troops. The fact that up to the present, there have been no outbreaks, that there have been no cases of mutiny, nor of sedition, nor even of openly expressed dissatisfaction, proves how successful our efforts have been in guarding our soldiers against the enemy.

To illustrate the minuteness with which the German system of espionage within our army is organized,

it is interesting to recall an order that was not long ago issued by the Commanding General of the American Expeditionary Forces. In effect it was a command to kill on the spot any officer or man who advised surrender during an engagement. This order was not directed against poltroons in our own army, for we do not expect to have our soldiers advising or recommending weakness in the presence of the enemy, and there have been no authenticated cases of this disgrace, but against enemy agents. For it is known that German officers or German spies dressed in American uniforms, have during the thick of battle made their way into the American lines, and at critical moments urged the soldiers to throw down their arms and surrender or retire.

It is vital also that the industries of this country be protected, our factories, our shipyards, our storehouses, elevators, railroads, canals, docks, for destruction of property at this time means loss of energy and the weakening of our offensive. In consequence a constant supervision has to be exercised over our civil population. It is not enough to station a guard at a warehouse, who will arrest the enemy who has thrown the bomb; it is better to catch the enemy before he has manufactured the bomb. Indeed, it is necessary to make it impossible for a man to escape detection if he contemplates a Hunnish career.

There are a number of civilian organizations and government agencies who are appointed to do this work of detecting enemy activities. The Military Intelligence Division cooperates with these to the utmost, furnishes them information upon which they act and receives their suggestions. Such agencies include Naval Intelligence the agents of the Treasury Department and of the Department of Justice, the American Protective League, the War Trade Board and the Alien Property Custodian. Indeed, there is scarcely an agency in the country, whatever its purpose, that, in one way or another, does not come into close relationship with the Military Intelligence Division.

Military Morale

The Military Morale Section was formed in this Division to develop and maintain the morale of the American army. In no previous war has the importance of paying careful attention to the fighting spirit of an army been so generally recognized. Lest we credit this generation with this discovery, however, we might recall that Napoleon once said: "In warfare, morale is to material as three is to one."

By the destruction of her enemies' morale, Germany has conquered more territory than by force of arms, as both Italy and Russia bear witness. The splendid recovery made by Italy was accomplished by reviving the spirit of her troops. A section of her General Staff was charged with this work and there are now five morale officers attached to each Italian division.

We must admit that Germany has maintained the spirit of her armies to a wonderful degree in the face of a world arrayed against her, by characteristically thorough organization, and by careful instruction by special officers under her General Staff.

The Military Morale Section of this Division, in the few months since it was organized, has studied the work done in foreign armies and in our own, with the object of correlating and directing all efforts that seemed in the right direction. It is felt that substantial progress has been made and is being made.

A broad program has been laid out, covering educational work with soldiers and officers, so that both may know why they are fighting and better appreciate the vital importance of morale and know how to develop it. Close cooperation has been established with soldier publications such as "Trench and Camp" and "Going Over."

The French Army supplies its soldiers with Raemaekers' and other cartoons. Similarly this section has planned and has in preparation a complete poster service for company bulletin boards, which will show pictures and cartoons tending to inspire soldiers. A series of advertisements on military subjects, to be distributed by the Committee on Public Information, is in process, similar to "Spies and Lies," which was prepared in this office. Topics tending to upbuild the confidence of the soldier and the public in the American gas mask, the military rifle, the machine gun, etc., will be covered, with the approval of the proper authorities. A recent activity of this Section has been the campaign to reduce the number of

"Absent Without Leave" cases at the Port of Embarkation, Hoboken, by means of a campaign of educational publicity, both within the camp and in the surrounding community.

Upon recommendation of this Section, a morale officer has been authorized at each camp to act as the camp commander's representative in dealing with and coordinating the numerous non-military activities within the camp. At four camps officers of the rank of major are carrying on this work and the organization of the field personnel at other camps is proceeding as rapidly as possible.

Study has been made of some special problems. Particular emphasis may be put upon the work with soldiers of foreign extraction, many of whom cannot speak English, and who were accumulating at camps because they could not understand orders sufficiently to be adequately trained. A sub-section was formed to handle this problem, which was assuming alarming proportions, mutiny actually being threatened. A plan was devised of putting such men under officers of their race and speech. In a few weeks these men, who had been held on kitchen detail and menial labor, because they could not understand orders, were among the best in camp. They were reviewed at one camp by the commander three weeks after morale officers began work, and when asked how many wanted to go to France to fight against Germany, 95 per cent stepped forward. The same work has been put into effect at three other camps, and this office has organized and is developing a group of specially trained officers of the required nationalities to institute similar work wherever necessary. Thus thousands of men have been changed from incipient anarchists, ready for revolt, into splendid soldiers, loyal and eager to fight for this—their country.

Work with men as they arrive from draft boards is receiving special consideration, and has been made the subject of extensive experiment at one camp. The commander of this camp places so great a value on this work that he has stated that it saves one month's training. What these efforts mean in winning the war may be guessed.

Especially fitted officers also have been detailed to study problems connected with Negro soldiers and the means of maintaining their morale. Plans are also studied and developed for the stimulation of camp spirit, by means of songs, slogans, organization names and any other means of promoting enthusiasm, pride of organization and loyalty.

In addition to directing the efforts of these special groups, this section devotes attention to finding means of reducing the causes which depress morale. Many conditions, both local and general, have been allowed to develop in a way that had a distinctly negative influence, and it is the function of this office to remove them.

Port Control and Graft

It is necessary also for the Military Intelligence Division to keep its eyes open to discover if possible, enemy agents who attempt to enter this country to ply their nefarious trade, or to leave this country to be busy elsewhere. For this reason some investigation must be made at the ports of persons who attempt to enter or to leave the United States.

Perhaps one of the most spectacular of the functions of the Military Intelligence Division is the investigation of improper practices in army contracts and army expenditures. To accomplish this, it has been necessary to create a separate section under a competent officer to investigate all cases of alleged graft. Offices have been opened in a good many of the cities of this country where Ordnance, Quartermaster and other supplies are handled, and the accounts of the officers and contractors concerned carefully scrutinized. Since inaugurating this work, there have been reported to this office over 100 arrests, which the Military Intelligence Division either handled itself or in which it assisted other federal agencies. In addition to cases which result in actual prosecution by the Department of Justice, there are a great many cases handled of irregularities not of a criminal nature; these are called to the attention of the chief of the Department in which they occur, so that he may find corrective measures.

Censorship

Finally, to this Division also come such portions of the problem of censorship as the President has delegated to the War Department. In this country, with its tradition of the freedom of the press, it is necessary that practically all censorship be voluntary. It has been indeed one of the most gratifying experiences to note with what hearty cooperation the newspapers have entered into the game of suppressing all information which might directly or indirectly be of aid to the enemy. In addition to this, books, pamphlets, magazine articles are carefully scrutinized in order to detect their possible influence upon the spirit of this country. It is not the object of this censorship to determine what the people shall and what they shall not read. The government has no such paternal ambitions. Its object is to frustrate enemy propaganda which is directly leveled at our free institutions.

In addition to censoring magazines and the like, the Director of Military Intelligence is the War Department representative on the Postal Censorship Board, whose function is to prevent a free correspondence between enemy agents and their organizations. Photographs taken of our troops in action or in training are censored, so that such as are issued during the war may not reveal matters which should not be revealed to the enemy. A great part of our training is of a highly technical and secret nature. Many of the formations used in battle should be as carefully guarded from the enemy as the plays a football team practices before it goes into a game with its rival. It would be the highest folly to permit these to be photographed and revealed to the enemy, and thus to jeopardize the chance of victory. In brief, censorship has as its object frustration of the enemy, with the least possible embarrassment to its friends.

Cost

It would be interesting, if it were possible, to compare funds spent by the Government of the United States for military intelligence with those spent by Germany. Unfortunately, the most careful investigation shows that there are no available data regarding the budget and organization of the German military intelligence system. The proverbial German thoroughness has in this case, as in some others, been clearly illustrated. In general, however, we know that the German government has a very well-established system of military and naval intelligence. It has spent time, money and care in producing accurate staff maps of foreign countries and has at its disposal a vast amount of secret descriptive and statistical material of countries and particularly of those countries with which Germany is now at war. Paid agents have been placed in all important countries with the plan of securing useful information and of being generally of service in case of war. Even a useful commercial house like Baedeker has been employed by the German government for the collection of secret information for purely military purposes. Military and naval attaches have not only been picked men, but have been plentifully supplied with secret service funds. Even fraternal organizations and business houses have been heavily subsidized.

During the present war the economic and psychological factors of intelligence service have been greatly expanded and their activities have become tremendously spectacular. The following outline will show the more striking fields of German intelligence work:

In Germany.

1. Subsidized Press.
   Many daily papers are published in elaborate foreign editions with illustrated supplements and text in a number of languages, including Turkish, and distributed as widely as possible.
   A special paper entitled "*The Continental Times*" is distributed, particularly among prisoners of war, with doctored war articles representing German victories and fearfully costly allied defeats.
   The "*Gazette des Ardennes*" is distributed in Belgium and occupied portions of France. By various means efforts are made to get it into the French trenches.
2. Specially trained officers are kept constantly at work in Germany to give lectures to the troops on subjects tending to strengthen their war spirit.

In Belligerent Countries.

France has been selected as the chief ground for the spread of German propaganda.

1. Attempts have been made to subsidize the press.
2. Funds have been furnished to the Defeatists, Pacifists and Boloists. It is estimated that from ten to twenty-five million dollars are spent yearly in France, in Great Britain and Ireland. German activities associated with the name of Roger Casement indicate very definitely that efforts are constantly being made by Germany to brew trouble, particularly in Ireland.

In the United States.

There are no available statistics as to the actual sums of money spent by German agents before the United States entered the war. The Department of Justice, however, states that Captains Boy-Ed and von Papen and Dr. Albert spent large amounts, probably not less than five million dollars. German activities in neutral countries may be tabulated somewhat as follows:

1. Subsidizing newspapers. Many newspapers in Spain are German-owned.
2. Newspaper advertising.
3. Distribution of millions of leaflets, pamphlets and photographs.
4. Moving pictures.
5. Acquiring interests in financial, educational and industrial enterprises, particularly in Spain and Switzerland.
6. Dissemination of propaganda by means of actors, orchestras and expositions.
7. Sending prominent Germans to make official and non-official visits of ceremony, like the visit of Dr. Dernberg to the United States before we entered the war.
8. Urging neutral army officers to visit the German front.
9. Inviting neutral lecturers and professors to visit Germany.
10. Whispering and bribing.
11. Agents of various kinds. There are nearly 10,000 in Spain under the direction of Prince Ratibor.
12. Spreading propaganda by means of wireless.

It is known, for instance, that $480,000 are spent annually in Denmark alone; $600,000 in Sweden; nearly $300,000 in Norway; $600,000 in the Netherlands; $1,400,000 in Switzerland for artistic and literary propaganda alone; and $350,000 in Spain.

Beside these extravagances—and they represent only a small fraction, doubtless, of the whole sum spent by Germany for propaganda and intelligence work—the money spent by the United States cuts but a sorry figure.

Conclusion

In conclusion, it may not be amiss to call attention to the enthusiastic cooperation which this Division has consistently received from the various other intelligence agencies, civilian and non-civilian. Indeed it is hardly too much to state that its success has in a very large measure been due to the loyal assistance which it has received at all times from the various cooperating agencies whose functions are similar to its own.

The cooperation of the members of Congress also must especially be noted. It has been one of the most gratifying signs of the spirit of the country and of the men who have been selected to guide its destiny, that there has been close and cordial support of the agencies designed by the War Department to bring this war to a successful termination.

Congress has been liberal with its appropriations and the responsibility that rests on the War Department in expending this money wisely, has not been a light one. In an organization like the Military Intelligence Division, it is not always possible, without revealing information which would be of value to the enemy, to publish the precise manner in which the funds appropriated have been spent, but everyone

may be assured that the utmost precaution is taken to insure the greatest economy that is consistent with the successful prosecution of the war.

Members of Congress have frequently visited the office of the Director and often have given valuable advice. The worth of an organization is to be measured solely by what it has accomplished. When the final summary of this war is written, the part played in it by the Military Intelligence Division will, it is hoped, not be a small one; but the full credit will have to be shared, not only by the officers who have devoted their efforts to the task of discovering and frustrating enemy activities, but also by the friends who have so heartily cooperated to make victory doubly sure.

*JAMES P. WALSH * **United States Army Intelligence School, France, 1918***

Southeast of Paris at Langres, near the American General Headquarters at Chaumont, amid a cluster of American and Allied schools for various arms and branches, an American Intelligence School was born, on July 25, 1918.

The decision to create the school came from the intelligence section of the General Staff, AEF Headquarters, and was directly related, if not compelled by, the practical exigencies of combat.

The school staff consisted of company grade officers with the exception of Major Thomas Carton, the Director; and Major J.H. Wheat, the resident expert on aeroplane photography. One British and two French officers rounded out the staff, which averaged eleven instructors per cycle. The average class size was 46.

The success of the school was attested to by the impact graduates had upon the organizations to which they were assigned. Field units at once demanded larger numbers of trained intelligence officers, and applications far exceeded the limited student quotas. The smallness of the school had a distinct advantage though. Each student, his work, his ability, and his promise as an intelligence staff officer became known personally to the faculty. They placed him in an individually appropriate subsequent assignment.

The short (two six-week classes and one eight-week class) but intensive course of studies justified the school's quickly acquired reputation. Each week's schedule listed forty-six and one-half hours of instruction, Monday through Saturday. A typical day started at 0900 hours and ended at 2100 hours, with time out for lunch and a long dinner break. Even on Saturday night, a 2000-hour class appeared on the training schedule, though almost always caveated, "Subject to be announced." On one occasion when a lecture title actually was posted :("Austro-Hungarian Army"), surviving student notes reveal that the Saturday night's lecture was actually delivered on Sunday afternoon.

Lecture time was efficiently used to explain the recent history and organization of the German Army. Recruitment and training patterns were explained, followed by practical work where students created intelligence summaries utilizing concepts developed during lectures. Order of Battle exercises were based on the actual German offensive of that spring. Students took the situation of 1 March based upon the reports received at General Headquarters, developing the disposition of the German units in line and in reserve up to 21 March. Student maintenance of the battle maps familiarized the class with French geography as well as proper intelligence techniques.

Prisoner of war interrogation methods learned in class were also given realistic qualities. Every week, 25 captives, fresh from the battle lines, arrived for interrogation and processing. To practice handling large numbers of internees, the school used 800 prisoners from a nearby prison camp. The American First Army also cooperated, and sent thousands of captured documents for exploitation. Prior to this time, documents simply had not been considered as an exploitable source of intelligence throughout the American command, and the Germans had earlier been allowed to retain their papers.

In addition to the well thought out and very well presented course material, supplementary lectures and demonstrations were presented by available General Staff officers. Many of the formal titles emit aromas characteristic of standardized instruction; however, some such as "Tanks and Tank Tactics," "German Gas Warfare," and "Scouting, Patrolling and Trench Raids," must have been exciting, given the contemporary innovations of war.

If the "Lecture on Corps Intelligence" could have been puffed to life, the visiting speaker - Colonel Joseph Stilwell - should have been able to do the job. During a moment of frivolity as a frustrated G2, Stilwell had created the celebrated Dr. Otto Schmierkase (cottage cheese in German), gas expert extraordinary, and reported his capture. His invention out-ran authentication requests, until it made the papers in Paris, London and New York. No hour with Vinegar Joe, even then, could be dull.

In the half year of the school's existence, intelligence collecting rose from sporadic, ineffectual rumor gathering to an organized, efficient professional discipline. The mission of the first Army Intelligence School met and rivaled the practical nature of the curricular offerings. The two meshed together nicely providing a highly selected student body with interesting and sophisticated contexts drawn from the history and culture of the Central Powers and applied to particular combat intelligence problems.

*JOHN P. FINNEGAN * U.S. Army Counterintelligence in CONUS—The World War I Experience*

The U.S. Army entered World War I in April 1917 without a functioning intelligence organization and with no capabilities for counterintelligence operations. Under the circumstances, these were natural deficiencies. The Army in 1917 was essentially a constabulary of long-service, professional soldiers configured for peace, not for war. Much of its troop strength was dispersed throughout the American West, occupying posts the Army had manned for two generations. The War Department General Staff was deficiently organized, under-manned and too preoccupied with routine administration to give any priority to intelligence. Its lack of interest in the intelligence function reflected the attitudes of the rest of American society.

The Army, however, did possess an intelligence collection mechanism in its military attaches. The task of analyzing and disseminating their reports had originally been assigned to a separate division of the general staff. Successive reorganizations had eliminated this division, and after 1912 the supervision of intelligence gathering by the attaches was perfunctorily carried out by a committee of the War College Division. In practice, the Army operated in an intelligence vacuum. Separate intelligence files were no longer maintained, and when the War College Division drew up its preparedness plans in 1915, it used prewar, open-source materials. If intelligence in general was neglected, counterintelligence was not even thought of as an Army function. The United States, after all, had not had to worry about problems of subversion and internal security since the Civil War.

World War I changed all of this. An Army of four million men was created through the draft. Half of this huge force was deployed in France; the organization of the general staff torn up by the roots; and a large Military Intelligence Division (MID) created. As a part of this process, the Army discovered the need for an active program of counterintelligence.

The Beginnings

The start of the Army's counterintelligence effort was modest. In May 1917 after various bureaucratic maneuverings, Maj. Ralph Van Deman took charge of a newly constituted Military Intelligence Section organized within the War College Division. Van Deman, one of the few active Army officers with intelligence experience, had been pressing for the establishment of such an organization since 1916. His staff was small, just two officers and two clerks. The mission of the section, however, was large. In addition to developing policies and plans for Army intelligence activities, Van Deman's organization would collect intelligence from the attaches and would engage in "the supervision and control of such system of military espionage and counterespionage as shall be established…during the continuance of the present war." From the first, the concept was that, in intelligence matters, the general staff would act as an operating agency, actively exercising a centralized control.

The Military Intelligence Section immediately found itself confronted with major problems. The only asset it controlled was the attache system. There were few precedents, no pool of intelligence-trained personnel available and a complete lack of files. The War Department had never collected any counterintelligence information, and whatever positive intelligence had been gathered in the past had been merged into the central files of the War College Division. Van Deman turned to friendly foreign nations for advice. He borrowed from the British the term "military intelligence," which replaced the old U.S. Army phrase, "military information." He also adopted the British distinction between "positive" intelligence, which attempted to gain information on the enemy and "negative" intelligence, which sought to deny information to the enemy. He borrowed the term "counterespionage" from the French. Along with advice and terminology, the British and French supplied up-to-date intelligence. This included lists of

suspects to be watched. Thus, Van Deman's section began the essential task of compiling the necessary counterintelligence data base.

It was not foreign advice that would ultimately shape the structure of U.S. military intelligence, however, but the imperatives of the times. By the fall of 1917, the section had begun to expand its personnel, develop greater organizational complexity and establish branch offices in major U.S. cities. To a large extent this was brought about by the growth of the section's counterintelligence operations. It concentrated its efforts on meeting the counterintelligence threat posed by the creation of a drafted citizen Army and the mobilization of a divided country.

The Threat

The United States of 1917 confronted the Army with massive problems of internal security. It was still very much a nation of immigrants, many of whom were newly arrived. The small Regular Army contained a substantial number of foreign-born enlisted men, but military intelligence felt that the real problem lay with the vast new citizen forces that were taking shape. The draft act passed by Congress in 1917, granted few exemptions to anyone and impartially swept up both citizens and foreign nationals, including citizens of enemy countries.

Political ideologies as well as ethnic allegiances posed a threat to the Army and to the civilian mobilization program which supported it. The country was not united on the necessity for war. Six senators and 50 representatives had voted against the declaration of war. The American Socialist Party was antiwar on principle. The Industrial Workers of the World (IWW), an organization on the extreme fringe of the labor movement, was vehemently opposed to the war and had a long identification with acts of sabotage. Finally, the country in general had a tradition of hostility to superior authority, especially military authority.

There was also the threat of German intelligence. Even before U.S. entry into the war, substantial evidence of a ruthless and efficient network of German spies and saboteurs existed. A German diplomat had been expelled for espionage. Munitions depots in California, New York and New Jersey had been blown up by saboteurs. A U.S. congressman had been investigated for his connections with a German front organization.

Against these perceived menaces from within, the country seemed almost defenseless. The Treasury Department had a Secret Service, but it was restricted by law to narrowly circumscribed duties. The Justice Department maintained a small Bureau of Investigation, composed of unarmed agents whose main experience had been in investigating cases of fraud against the government. A few major cities had organized police "bomb squads" to counter anarchist threats. The Army would have to deal with the threat of espionage, sabotage, and subversion, both within its own ranks and from outside, almost on its own.

The Counterintelligence Response

One of the first counterintelligence activities undertaken by the Military Intelligence Section was providing coverage to the civilian staff of the War Department. In June 1917, the section opened its first field office in Washington, D.C., using civilian investigators drawn from the ranks of the New York Police Department. They worked under the enigmatic name of the "Personnel Improvement Bureau." The group later expanded to embrace screening military personnel and applicants for government employment. In July another field office was opened in New York City and staffed with former members of the New York Police Department's Neutrality and Bomb Squad. As the war went on, additional offices were opened in major cities and embarkation points.

By October, Van Deman's section had to confront the full impact of the draft upon the Army. The newly forming National Army and National Guard Divisions were, in the judgement of military intelli-

gence, "infested" with German agents and sympathizers. Fortunately, a remedy was at hand. The Army had belatedly come to realize the importance of intelligence work, and the new unit Tables of Organization called for intelligence officers at every level. Such officers had to be found from among the civilian population because hardly any Regular Army officers had any intelligence background. The Adjutant General had already alerted departmental commanders to the need for 160 specially qualified men from the officer training camps to be commissioned and assigned as intelligence officers. It was to these "newly minted" intelligence officers that military intelligence turned.

The counterespionage plan drawn up by the Military Intelligence Section was comprehensive. It envisaged the creation of a clandestine agent network extending to every Army installation and to every level of command from division down to company. Nets in each division would be managed by an assistant to the divisional intelligence officer. He would work through a system of anonymous collection managers known only to himself and to their own immediate superiors and subordinates within the net. At the bottom of this secret pyramid, there would be at least two "operators," mutually unknown to each other, submitting reports on every company. The division intelligence officer would serve as the link between "the secret and the known (intelligence) organization" and collect reports for submission to military intelligence in Washington. As a supplement to this secret intelligence system, all troops were publicly ordered to report on any suspicious activities through the normal chain of command.

Once the Army counterespionage system was in place, it produced a growing stream of incident reports. The Military Intelligence Section began a process of steady expansion. More and more officers were needed to collate reports and to conduct investigations. Van Deman obtained some of them by using an informal "old-boys" network to recommend qualified civilians for direct commissions. Others were found by transferring men with special aptitudes out of other branches and detailing them to intelligence. Finally, enlisted men of the newly formed Corps of Intelligence Police (CIP) were used for the first time to conduct investigations in the continental United States (CONUS).

The Corps of Intelligence Police

Incentive for the creation of a corps of enlisted investigators had initially come from the American Expeditionary Force (AEF). Soon after arriving in Europe, Gen. John J. Pershing's intelligence officer, Maj. Dennis E. Nolan, had become concerned about the counterintelligence problem faced by an American Army operating 3,000 miles from home in the midst of a foreign population. Nolan submitted a request for intelligence personnel to the Adjutant General. He asked not only for 50 company-grade officers fluent in foreign languages, but for "fifty secret service men who had training in police work (and) who speak French fluently" to serve as sergeants. In response, the acting chief of staff authorized the creation of a 50-man Corps of Intelligence Police, whose members would serve with the "rank, pay, and allowances" of sergeants of infantry.

Recruiting the right people proved to be a problem. Van Deman's first thought was to turn to the ranks of the nation's private detective agencies. However, when he asked the heads of the three largest firms to provide him with the names of high-caliber men with both language ability and secret service training, he was told flatly, "There ain't no such animal." The War Department was reduced to placing ads in local papers for French-speaking men willing to volunteer for a secret mission. Fifty men were obtained by this campaign, but the background and language ability of this group was, to put it mildly, mixed. They were given a month's training as infantry and then sent to Europe with no intelligence training. Once in Europe, the group was screened by the French, who were amused by the Louisiana Cajun French of some, suspicious that others were French citizens who may have been evading their own conscription law and distrustful that others might be Belgian. The CIP agents who passed muster were then sent on to be trained by veteran Allied counterintelligence officers.

By the end of 1917, the Military Intelligence Section was finding it increasingly difficult to staff its growing headquarters and field offices with the accustomed mix of freshly commissioned reserve officers

and civilian investigators. It seemed more appropriate for investigations of soldiers to be handled by other soldiers. Civilian investigators continued to be employed and unpaid volunteers rendered important assistance throughout the war, but the introduction of the CIP meant that Army counterintelligence work was now professionalized.

This was a significant development. The bulk of CIP agents in World War I served with the AEF. Pershing found the organization so useful that he requested 750 more agents, and although he was never able to secure this figure, there were 418 CIP men on duty with AEF on Armistice Day. The use of the CIP in CONUS meant that when the expeditionary forces returned and were disbanded, counterintelligence work would not be dismissed as a wartime aberration but would remain as a permanent function of the Army.

MI-3 and MI-4

By the end of 1917, the growing size of the Military Intelligence Section and increasingly diverse nature of its responsibilities dictated a greater degree of specialization within the organization. It was no longer possible for Van Deman and a small circle of assistants to deal interchangeably with both positive and negative intelligence. The whole operation had to be placed under a bureaucratic system. Van Deman divided up the section into eight separate, numbered functional subsections. Two of the subsections were explicitly concerned with counterintelligence: MI-3 which handled "counterespionage in the military service" and MI-4 which dealt with "counterespionage among the civilian population." Four of the other subsections, which performed administration, graphic, translation and cryptographic services, supported the counterintelligence effort in addition to assisting with positive collection.

The origins of MI-3 could be traced back to the implementation of the Army counterespionage program in November 1917. By Armistice Day, this group had expanded to form one of the largest single elements in the whole military intelligence structure. In the process of expansion, MI-3 subdivided into a number of subelements. The largest of these dealt with the problems of sedition and sabotage among the troops. Its officers, CIP agents and civilian detectives worked closely with the division and installation intelligence officers who supervised the clandestine counterespionage system. Other subelements served more specialized needs; dealing with counterintelligence problems presented by the many foreign-born draftees, administering the District of Columbia Field Office and overseeing programs which covered such sensitive arms as the Air Service and the Chemical Corps.

MI-4 handled a more indefinite task than MI-3. Subversion from within the ranks of the service could be detected and countered. The Army, after all, was a controlled population. The threats posed by hostile elements from the outside were less definable. To cope with these menaces, MI-4 also divided itself into a number of specialized subsections. The biggest of these concerned itself with the various types of threat which might arise from the activities of civilians living in the six geographic Army Departments. This element was concerned with the problems of labor unrest in the West, racial disturbances in the South and Southwest and foreign disaffection in the large cities of the East.

At one time or another, elements of MI-4 were involved in dealing with deportation cases, sabotage by elements of organized labor, enemy finance and trade, propaganda, liaison and counterespionage abroad. At times, MI-4 found itself engaging in activities that ventured far-afield from normal Army concerns, as when it helped organize a labor union to combat the efforts of the IWW to unionize the loggers of the Pacific Northwest. The rationale for this was that the IWW was antiwar, and a continued supply of lumber was vital to the nation's aircraft industry.

In fighting subversion among the civilian population, MI-4 depended upon the cooperation of other agencies. It worked closely with the Department of Justice. In all cases of civilian subversion against the military it was the Justice department which had power to arrest and prosecute. In addition, MI-4 found useful auxiliaries in two civilian groups, the Plant Protection Service and the American Protective League.

The Plant Protective Service was an organization of civilian undercover operatives formed at the re-

quest of the chief signal officer to protect the country's new aircraft industry. The service provided intelligence coverage to privately-owned plants working under government contracts. At first, the organization had no connection with military intelligence. The War Department soon realized the impracticality of having the Army run two competing counterintelligence operations and the service was initially transferred to MI-4. By 1918, the service was transferred to a new element of MI-3.

The American Protective League was a nationwide patriotic organization of civilian volunteers that had originally been organized to help the Justice Department catch spies. It soon began to assist local authorities in enforcing the draft act, and its activities brought it into a working relationship with MI-4. The league, which ultimately numbered 250,000 members, extended MI-4 and the Army into the civilian community.

The Formation of MID

The military intelligence organization within the War Department continued to grow in size and importance, ultimately achieving the status of a full division of the general staff. Counterintelligence operations were placed under the centralized control of a newly formed Negative Branch, which then promptly began to assume additional intelligence-related functions.

Military intelligence had originally started out simply as a section of the War College Division. When the old War College Division was abolished, military intelligence attained the status of a branch, becoming part of a new Executive Division of the general staff. The change recognized the growing importance of military intelligence, although it by no means solved all of its problems.

In August 1918, as part of another overall Army reorganization, military intelligence became a division of the general staff. The achievement of divisional status was a goal for which Van Deman had fought all along. By the time the changeover came, however, Van Deman was on his way to a new assignment in France. It was Van Deman's replacement, Brig. Gen. Marlborough Churchill, who became the first chief of the MID.

The Negative Branch

The creation of MID paved the way for an internal reorganization of military intelligence. The division consolidated all of its functions except its Administrative Section under new Positive and Negative Branches in order to achieve more centralized direction. MI-3 and MI-4 were brought together under the Negative Branch. After having secured control over all Army counterintelligence operations in CONUS, the Negative Branch then went on to absorb or create additional functions, some with only a dubious relevance to counterintelligence. In the process, Army counterintelligence became a part of a wider operations security (OPSEC) effort.

The Negative Branch extended the scope of its operations beyond CONUS in September 1918 when supervision of the counterintelligence operations conducted by the military attaches was transferred from the Positive Branch to MI-4. The same month, the Branch assumed control over MI-10, a growing military censorship organization. The assignment of MI-10 to the Negative Branch was in a sense logical. Not only did censorship fulfill the negative function of denying information to the enemy, but military censors were in a good position to acquire information of counterintelligence value.

Certain activities of MI-10 ran far beyond censorship. The War Department had long been concerned about the turbulence of the continuing Mexican Revolution providing Germany with an opening for intrigue in the Western Hemisphere. MI-10 which was tasked with censoring the telegraph lines running across the Mexican border also inherited its own intercept service. The section assumed control over a line of mobile monitoring stations along the border, a fixed station in Maine and an undercover radio listening post in Mexico City. All these positions were targeted against German clandestine links operating between Mexico and the German Empire.

This was only the beginning of the expansion of the Negative Branch. The Branch rapidly acquired three new sections. One of these was MI-11 which was formed to exercise the passport control function previously shared jointly by MI-3 and MI-4. Another new section was MI-13 which was organized to investigate cases of graft and fraud against the Army. Dealing with allegations of bribery was more properly a criminal investigation function than an intelligence function. The Army had no Criminal Investigation Division in World War I however, and the Quartermaster General, to whom the task had originally been assigned, had no trained investigators. Military intelligence stepped into the area by default.

The final addition to the Negative Branch was the Military Morale Section. Since it was the CIP that had initially reported instances of low morale among the troops, it somehow seemed appropriate for authorities to task the Negative Branch with the responsibility of solving the problem. After only two months under the MID, the Military Morale Section became a separate element of the general staff. The signing of the Armistice brought a final halt to the organization and physical expansion of the MID and its Negative Branch.

During the course of World War I, the Army counterintelligence and security organization grew from a zero base to an effort of large proportions. By Armistice Day, half of the officers and civilian employees assigned to MID were working in the Negative Branch. Their activities were supplemented by 250 CIP agents; by intelligence officers at every major cantonment, post, and unit; by the civilian investigators of the Plant Protective Service and the volunteers of the American Protective League. Organizationally, negative intelligence dominated the Army intelligence community.

Criticism and Conclusions

The size and scope of the general staff's involvement in counterintelligence has drawn its share of criticism. It was later charged that the Army's emphasis on counterespionage, its use of informers and civilian vigilantes, helped create an atmosphere of repression and conformity which inevitably led to the excesses of the Red Scare after the war. It was even questioned whether the effort was needed in the first place. As a former Army intelligence officer admitted after the war, the number of German agents at work in the United States was "not nearly so many as was generally supposed."

Given the commitment of most Americans to maintaining civil liberties even in wartime and their aversion to spying, such criticisms are inevitable. However, the Army's counterintelligence effort must be put in the context of the times. In a sense, America's decision to enter World War I was a venture into the unknown. It was questionable as to whether a nation like the United States, with a long tradition of individualism and with large pockets of immigrants, could be successfully committed to a foreign war.

The Army counterintelligence effort in World War I was mounted to confront an unknown but credible domestic threat. The Army was forced to face this challenge in a vacuum. It had no experience in counterintelligence, no established organization and, initially, no support from agencies with expertise in the area. If the Army program ventured far-afield at times and made mistakes, this can be blamed on the unprecedented nature of the whole war experience.

The essential point is that the Army counterintelligence program *worked*. No case of espionage within the ranks of the AEF was ever discovered. At least in part, this reflected the fact that all Army personnel had been screened by counterintelligence before they were allowed to proceed overseas. The United States was not the nest of German agents and sympathizers that some had feared; but enemy agents did exist and some of them were apprehended. The calmness of the home front during the war owed something to the time and effort spent by many people, including the members of MID, in making sure it stayed quiet.

Army counterintelligence in World War I can be more justifiably criticized from the standpoint of organization and training. There was little coordination between the counterintelligence in CONUS and that of the AEF until the summer of 1918. the AEF's intelligence organization differed from its general

staff counterpart both in organization and in priorities. Within CONUS, the final positioning of counterintelligence under the Negative Branch was not completely satisfactory. The branch came to include functions which fell outside counterintelligence or even OPSEC, and it still had to rely on support from the Positive Branch to meet counterintelligence needs in the fields of translation, graphics and cryptanalysis.

The creation of the CIP and its ultimate deployment in CONUS furnished Army counterintelligence with a useful instrument. The manner in which the corps had been set up, however, created problems. Under Army regulations, CIP agents served with the rank and pay of sergeants of infantry. There was no possibility of promotion; a fact which did not set well with a highly educated and competent group of enlisted personnel. The very name of the corps was something of a liability. As the historians of the Army Counter Intelligence Corps would later point out, "It was a 'Corps' which was not a 'Corps.' It was a 'Counterintelligence' organization but called an 'Intelligence' organization and it was called 'Police' when it had no interest in crime, as such, and had no police powers." It would take enlisted counterintelligence personnel 25 more years to get out from under this misnomer.

Training was another problem area. The personnel assets of Army counterintelligence had to be created out of a civilian base within a short period of time. The formal counterintelligence training of reserve officers detailed to intelligence was skimpy. CIP agents were simply trained on the job. It was fortunate that the United States possessed a large enough reservoir of men with the appropriate skills for the Army to accomplish its counterintelligence mission.

As a result of World War I, the Army acquired a counterintelligence function and capability which it had never possessed before. The massive changes the Army faced at the war's end diminished the capability, but did not eliminate the function. The Negative Branch was abolished. But even during the lean years of the '20's and '30's, the Army continued to maintain a small cadre of CIP agents. When World War II broke out, the Army had the experience and the organizational base to meet the counterintelligence demands of this new and greater conflict.

MID and the German Spy in Nogales, Arizona[3]

In the Army's Western Department, counterespionage in the "neutral" countries was put into practice. At the Nogales, Arizona, office, under Captain Joel A. Lipscomb, Special Agent Byron S. Butcher was authorized to recruit an informant (A-1) to report on espionage activities in Mexico, where German agents in the United States had fled when war was declared and were being organized under the German Minister to Mexico, von Eckhardt.

Mexican border activities had been of particular counterintelligence interest since early 1916 when British Intelligence decoded a top secret proposal of German Secretary of State Zimmerman to President Carranza of Mexico that Mexico join the Central Powers and declare war against the United States. At that time, American Immigration Officials at Nogales, Arizona, arrested two men and a woman trying to enter the United States and found coded messages sewn into their garments which, when deciphered, confirmed the British interception. Moreover, it was learned that President Carranza not only received the message but knew of the attempt to get it into the United States.

The case that resulted from the important decision to work in a neutral country is reported here in detail for several reasons. First, the amount of evidence obtained by this method was so conclusive that the German agent apprehended was the only one condemned to death in the United States during World War I. Secondly, because this German agent was considered one of the first and one of the most effective enemy saboteurs, his "modus operandi" deserves study by counterintelligence personnel. Finally, because the selection of the informant and the entire handling of this case by the CIP Special Agent represents exceptionally skillful counterintelligence work, it is worthy of emulation by future agents. Particularly significant is the fact that the counterespionage informant in the neutral country was able, over a period of time and wine, to obtain derogatory admissions to which the suspect would never confess after apprehension even when he realized that the evidence against him was conclusive.

Butcher chose his informant well. Dr. Paul Bernardo Altendorf, a 42-year-old Pole and soldier of fortune, at the time was a Colonel in the Mexican Army on the staff of General Calles, Military governor of Sonora, who was as pro-German as Altendorf was anti-German. Altendorf had studied medicine and surgery at the University of Cracow and was called "Dr." He was an accomplished linguist speaking English, Spanish, German and Polish fluently. Of a roving disposition, he had traveled extensively in South America and in the British colonies, before settling in Mexico. When Butcher sent him to Mexico City it took little time for him to become enrolled in the German Secret Service.

Cooperating with this MID informant was a negro undercover agent of British Naval Intelligence and an undercover agent of the Department of Justice Investigation Unit in Texas. One of their first contacts was Kurt A. Jahnke, who, with Lothar Witzke, had been a saboteur under Franz von Bopp, German Consul General in San Francisco. Jahnke was a naturalized American Citizen and had served some time in the United States Marines.

While in the United States, Jahnke had established cover for himself by becoming a member of the Morse Patrol, a night watchman agency in San Francisco (later identified as a pro-German organization). To display his patriotism and divert suspicion, he had boldly walked into the office of the Secret Service in San Francisco in February 1916 and reported he had overheard a plot to blow up the Navy Yard at Mare Island. Since he claimed the source of his information was a conversation he had overheard between two alleged German agents, whereabouts and identities presently unknown, the authorities paid little attention to his warning until shortly afterwards when a magazine at the yard did blow up. By then Jahnke had disappeared.

With Jahnke in Mexico City was his saboteur companion, Witzke. These two, Captain Henry Landau, formerly of British Intelligence, termed in 1937, "the most deadly sabotage team in history." Witzke was a German Naval Lieutenant who was interned in Valparaiso when the German Cruiser Dresden was captured and sunk off Chili. Witzke, with his fondness for wine, women and song, did not like internment

and soon escaped and as a seaman reached San Francisco under the first of many aliases and reported to von Bopp for duty early in 1916.

Jahnke and Witzke had been two of the saboteurs in the fourteen million dollar Black Tom Island explosion in New York Harbor on 30 July 1916. Two million pounds of munitions blew up in a series of explosions, some of which were heard in Philadelphia and Camden. Jahnke had been linked with the seventeen million dollar Kingsland, New Jersey, sabotage on 11 January 1917, in which a four-hour detonation of half a million three-inch high explosive shells completely wrecked the plant.

An informant report from Mexico City early in 1918 stated "…the present task of promoting a mutiny in the U.S. Army has been entrusted by Berlin to one of their star agents, one K. A. Jahnke of Mexico City. This event is scheduled for Autumn. Jahnke also has taken under his wing the general supervision of sabotage in the U.S., the Panama Canal and American possessions generally, including especially sabotage of ships transporting war material and material for ship construction. His program covering the foregoing ambitions has been approved by the German Government with available credit of 100,000 marks per month and an additional large commission on results accomplished..... He has already had some experience in control of German agitators, defeatists and Industrial Workers of the World agitators in this country and is regarded as the ideal man for the job. Jahnke's official appointment seems to be that of sole naval confidential agent in Mexico.... Intelligence Officers will probably never have the pleasure of meeting Mr. Jahnke personally, but it is not unlikely that he will give them something to think about. Hence this note in advance."

The accuracy of this informant report was revealed during the postwar investigation of the Black Tom and Kingsland explosions when Admiral W. R. Hall, wartime chief of British Naval Intelligence, made available to the investigators copies of 10,000 German cables, radio messages and letters which the British had intercepted and decoded. A German General Staff radio message dated 29 April 1918, sent from Berlin via Madrid to Mexico, stated, "Jahnke has been made sole Naval Confidential Agent in Mexico." Also found in this file was a Berlin telegraph to Madrid, dated 8 December, instructing Madrid Intelligence to transmit to its Mexico courier orders for Jahnke to send an agent from Mexico to the U.S.A. The messenger was ordered to take a wireless-telegraph code as well as Spanish covering addresses for letters to Jahnke. Directly after this, Jahnke sent Witzke on the trip to the United States which was to culminate in his arrest.

Meanwhile, Wizke had made several trips across the border to the United States, but the trip on 16 January 1918 was the vital one. It was less than six months since Altendorf, the agent known to the Military Intelligence Division as A-1, had arrived in Mexico City, but he had completely won the confidence of Jahnke. Consequently Jahnke asked Altendorf to accompany Witzke and introduce him to General Calles at Sonora. Witzke was to ask Calles to forward any coded telegrams he would send from the United States or elsewhere and to supply him with a revolver and a permit to carry it in Mexico.

During the trip Witzke started drinking and growing confidential. He told Altendorf (as A-1 reported it to Special Agent Butcher), "There is something terrible going to happen on the other side of the border when I get there.... I will have saved Germany.... You will see it in the papers.... I do not know whether I will come back alive from this trip or not, as I may be killed...."

Earlier Witzke, who was using the alias of Pablo Waberski and traveling on a Russian passport, had told A-1 that he was going to Nogales to kill someone. Efforts to secure more definite information failed except that A-1 was led to believe that an American officer at Nogales, Arizona, was booked to be assassinated, because the German said that this American, through influence with Mexican officials, had seriously injured German plans in Mexico.

Witzke told A-1 that he had blown up a black powder magazine of 250,000 pounds near San Francisco one morning about five o'clock and that sixteen lives had been lost, including six children. He asserted he was working for the American Government as a mechanic on the "Island" at the time of the explosion and laid wires to accomplish his designs. Obviously, this was the Mare Island explosion Jahnke had warned U.S. Secret Service about. Witzke said he had started fires in Oregon logging camps the previous fall.

Witzke continued, "…I also did work in New Jersey with Yenky (Jahnke) when the munitions barges were blown up and the piers wrecked.… The German Ambassador and Yenky think very highly of me for my work and I am proud to have done it.… I have many lives on my conscience and I have killed many people and will now kill more."

At Mazalan en route where Witzke stopped at a bawdy house, Altendorf had a chance for a covert contact with the American Consul, through whom he sent a message to Special Agent Butcher that he was en route to Hermosillo with two German agents, one (whose name was garbled in the coded transmission and may have been someone else) was called "Nuding," and would stay there one day. He asked to have another American informant (M-2) meet him there at the Cohen Hotel. In the message as sent by Consul Chapman, A-1 said, "Both (agents) are plotting assassination of some officials in Nogales.… Catch Nuding if possible. Use care, he is dangerous.…" Chapman added his own comment at the end of the message. He said, "I have corroborated evidence as to the danger of Nuding.…"

While traveling to Hermosillo, Witzke told Altendorf that he had six men going North with him and that the work was moving "splendidly." One of these men was later identified by the British informant as Dietz, a German who intended crossing the border to the New Mexico coal fields, where the Germans had a large following among miners who belonged to the Industrial Workers of the World. At Hermosillo, Altendorf introduced Witzke to General Calles, who appeared to be expecting him and quickly complied with all the requests. At this point Altendorf had to appear to stay behind to avoid suspicion. The British informant, who had been sent on the trip with Witzke from Mexico City, supposedly to work up a revolt among American soldiers on the border, left for Nogales with Witzke. The following night Altendorf arrived in Nogales secretly by freight train. Meanwhile at the Central Hotel, Nogales, M-2 had located Witzke and from then on kept a close surveillance until his arrest.

Meanwhile, Special Agent Butcher had crossed into Nogales, Mexico, and was posing as an official of the American Consulate the following morning when Witzke came in and, as Paul Waberski, presented Russian passport #435. On his questionnnaire he stated that he was "22 years of age, mechanic and automobile engineer, resident of New York City and San Francisco for the last seventeen years, returning to the United States." In his "Declaration" he stated he was born in Russia, but had lived in San Francisco from January 1905 to November 1917 and in Mexico City since then. His references included the Russian Consul General at Mexico City. He said he would probably go to San Francisco.

All Russian-type passports were regarded with suspicion and "Waberski's" story was unlikely, but Agent Butcher requested the Immigration Office to "pass" him and that day Witzke made two trips across the border. Butcher states, "In view of the fact that he left his baggage on the Mexican side, I did not molest him, awaiting the opportunity to secure his baggage and him together."

When Altendorf arrived at American headquarters that night he reported to Butcher that Witzke always carried his papers on his person; so when M-2 reported that Witzke expected to cross to the American side the next morning to do some banking business, Butcher set the trap.

On 1 February 1918, Witzke stepped over the border into the United States and into the muzzles of revolvers of Special Agent Butcher and Captain Lipscomb. He was handcuffed, handled into an auto and taken to camp and searched. Approximately $1,000 in American currency and Mexican gold was found on him as was a "Selective Draft" registration card issued at San Francisco 9 June 1917; an "Able Seaman" certificate issued in San Francisco 27 June 1917 to Pablo Waberski; and a motor car operator's license issued at San Francisco to Paul Waberski on 17 October 1917. A memorandrum book showed travel expenses; the names of several girls in towns along the way; and an amorous letter addressed to one of his conquests in Berkeley, California. Witzke's U.S. alien Head tax receipt, which Altendorf had seen en route, was not found on him. This had shown Witzke's destination (when he arrived at Laredo, Texas, on 5 June 1917) as Portland, Oregon, the forest fire area.

The most important find on him was a second passport — Mexican passport #396 issued at Laredo, Texas, on 15 November 1917. This was in the name of Pablo Waberski, Russian, age 22, en route to Mexico. He was described as a bachelor, but "accompanied by his wife," an entry representing either

Mexican inefficiency or sense of humor.

The biggest find was still to come. That afternoon, Captain Lipscomb and Agent Butcher crossed the border into Nogales, Sonora, and with a little bluffing and "greasing of palms" managed to take possession of Witzke's baggage in which was found a letter in code and a cipher table of words and phrases for sending telegrams. But unfortunately the cipher did not apply to the letter code and the coded letter was sent to the Military Intelligence Division.

Meanwhile, the negro British informant discovered that Witzke and Altendorf had mysteriously disappeared and after a couple of days in desperation he got in touch with the American Consul at Nogales, Sonora, and was put in touch with Special Agent Butcher. His story confirmed all of Altendorf's reports and, in addition, explained presumably the terrible things that Witzke said were going to happen. They were to meet delegates of the Industrial Workers of the World from New Mexico, Arizona and California and make plans whereby "Hell would break loose in the United States" sometime in April or May with strikes and blowing up of mines, factories, railroads, bridges, telegraph and telephone systems.

The British informant said that the six other German agents who had accompanied Witzke to the border had left in the direction of Naco with the intention of crossing into the United States at some point on the Arizona line. Since all track of them was lost, it is quite possible that with the disappearance of Witzke they abandoned their plans. One thing is certain — none of the planned sabotage occurred. This was an excellent example of the fact that the apprehension of one espionage agent usually neutralizes several others — in this case, at least six others.

Witzke was imprisoned at Fort Sam Houston, Texas. In the several months before his trial he was repeatedly interrogated by MID under the direction of Major Robert L. Barnes but even the knowledge that his coded letter had been decoded and that he was positively identified as a German agent did not shake him, and he would not talk. He once remarked, "You know all the details all right and I think that it was Dr. Altendorf who told you, as I told him a lot of things in conversation."

Many years after the war was over, General Van Deman became acquainted with the pre-war German assistant Military Attache to the United States, who by that time was an American citizen and whose son had become a reserve lieutenant in the United States Army. This ex-German official confirmed the suspicion that had existed that Germany was planning an uprising in the United States, to be handled through German agents and organizations in the United States. It was this suspicion which led to the search for hidden arms which disappeared into the mid-West as previously mentioned. Witzke's drunken boasts to Altendorf that "something terrible is going to happen" had a strong basis in fact.

When, on 16 August 1918, Lothar Witzke was tried before a Military Commission, the surprise witness was Captain John M. Manley of the Cryptographic Bureau of MID. Captain Manley described how he solved the transposition cipher which was written in German and then the letters mixed up by a prearranged diagram, and then read the decoded message: "15-1-18. To the Imperial Consular Authorities in the Republic of Mexico. Strictly Secret! The bearer of this is a subject of the Empire who travels as a Russian under the name of Pablo Waberski. He is a German secret agent. Please furnish him on request protection and assistance, also advance him on demand up to one thousand pesos Mexican gold and send his code telegrams to this embassy as official consular dispatches."

Witzke was the only defense witness. He was prepared with the trained espionage technique of the story-within-a-story, stating that he was born in Russia but had lived in the United States as a child, and then went to sea. He had become a member of a Mexican bandit group, fled to San Francisco where he had registered for the draft and then, on being robbed, returned to Mexico. He said he had refused efforts to work for German agents, but had gone to Sonora to spy on Mexican rebels there and had been given the coded letter and a code as part of the work. En route North he had decided to go to San Francisco as he did not want to be posted as a deserter. Also en route he had met Altendorf who was down and out and as a result Altendorf and a hotel man with whom he had left $2,000 in gold in Mexico City had had him framed.

The Commission sentenced Witzke to be hanged and he was returned to his cell at Fort Sam Houston

waiting its review. Twice he attempted to escape and once got out, but was caught the same day emerging from a Mexican shack. Upon return, a razor blade was found in his cell, and since suicide was feared, his top clothes were removed. On 2 November 1918 his sentence was approved by the Department Commander. On 27 May 1920, President Wilson commuted it to life and Witzke went to Leavenworth Prison. Meanwhile German officials were exerting every possible pressure to have him released. On 30 April 1923, the German Ambassador asked for his release on the grounds that other countries, including Germany, had since released all their prisoners of war including those sentenced for espionage. At the same time a prison report showed Witzke had performed an act of heroism and had prevented a disaster by entering a prison boiler room after an explosion. On the basis of the above, Witzke was released on 26 September 1923. Back in Germany, Naval Lieutenant Witzke was decorated with the Iron Cross, First and Second Class. Six years later, when investigators for the Mixed Claims Commission on the Black Tom and Kingsland explosions interviewed Witzke, he firmly told them that he fully believed in the code of honor of the German Army and Naval Officers of the old regime and intended to stick by it. He spoke in the greatest contempt of those witnesses who, as he termed it, had "squealed" on Germany. His only regret was that once when he had had Altendorf at the point of a pistol he had not pulled the trigger.

Thus, although a dangerous German agent could never be made to confess, the Intelligence Police neutralized his activities for nearly half of World War I and prevented the accomplishment of a major sabotage mission, all by crossing a border and carrying on counterespionage activities in a neutral country. The importance of this is further emphasized by the fact that the transmission route of German Intelligence was through "neutral" Spain to "neutral" Mexico to agents working in the United States.

*JAMES L. GILBERT * U.S. Army COMSEC in World War I*

At the time, the United States entered World War I in April 1917, communications security (COMSEC) in the Army was synonymous with codes and ciphers. However, even by this narrow definition, the function was barely alive. COMSEC was the responsibility of the chief signal officer, but the prewar Signal Corps was more concerned with transmitting messages than with protecting them. The Army possessed no secure codes or ciphers, and according to a 1916 Army survey, there were only eight "cipher experts" in the whole officer corps. The Army Signal School at Fort Leavenworth, Kansas, had begun in 1913 to offer a brief block of instruction on cryptology, using as its text a manual written by Capt. Parker Hitt after he found that there were no books printed on the subject in the United States.

The war changed this situation. In the continental United States, the newly created Military Intelligence Section (MIS) of the War Department General Staff (WDGS) quickly developed a cryptanalytical element for intelligence purposes. Once it was clear how much information could be learned from enemy sources through this means, MIS took over the function of creating codes for its own purposes. Since these could also be used by the Army as a whole, MIS assumed *de facto* control of the entire cryptographic function at the War Department level. In France, however, the Signal Corps continued to direct the effort, and COMSEC acquired a wider dimension, as the American Expeditionary Force (AEF) not only devised sets of field codes on a wide scale, but turned to monitoring and the use of security guidelines to protect its communications.

MI-8 and Army COMSEC

When MIS was set up, one of the first tasks facing Major Ralph Van Deman its creator and first chief, was to find a suitable head for its proposed Cipher Bureau. All three of the Regular Army officers considered qualified for the post had already been assigned to the AEF (only one of them in a cryptologic capacity). Faced with this situation, Van Deman accepted the services of Herbert O. Yardley, a State Department code clerk who had displayed a remarkable "native intelligence" for the solution of codes and ciphers. Yardley and two assistants began the task of solving all enemy or suspected enemy codes collected by MI and other government agencies.

Yardley's Cipher Bureau quickly grew in scope and size. In addition to performing cryptanalysis, the bureau was tasked with solving secret inks and foreign shorthand systems, encoding MIS's own communications and compiling ciphers for use both by MIS and the whole War Department. The last step came about as the result of a minor crisis in U.S. COMSEC.

Van Deman received a paraphrase of a cablegram which stated: "The British government considered the War Department's method of coding cablegrams was unsafe and a menace to secrecy." The British had learned that the Germans were reading classified message traffic that was being passed between Gen John J. Pershing and Maj. Gen. Tasker Bliss in France and War Department headquarters in Washington. The chief of staff requested a prompt investigation of the matter and Yardley was placed in charge.

As Yardley later described the episode: "Upon investigation, I learned that a copy of the War Department code book had been stolen in Mexico during our punitive expedition in 1916 and that a photograph of this was reported to be in the hands of the German government. Furthermore, I discovered from actual tests that because of the technical construction of the code, it could be solved within a short time by the interceptors even though they were not in possession of the book."

The code in question was the War Department Telegraph Code of 1915, a bulky, "one-part" administrative code designed primarily to save telegraph charges, not to safeguard messages. It was open to cryptanalytic attack, although a substitution table of encipherment was available for use with the code in transmitting classified messages.

To remedy the situation, Yardley secured a commission for a former State Department colleague, A.E.

Prince. Prince immediately took charge of a subsection for compiling codes and ciphers. The unit compiled codes for the use of MIS itself as well as making its codes available to the rest of the War Department. Since MIS was the only center of cryptologic expertise in the Army, the chief signal officer tacitly surrendered his formal responsibilities in the area to the new element.

The task of securing the Army's communications through improved cryptography did not go smoothly. The Cipher Bureau was able to produce new encipherment tables for the 1915 Telegraph Code and to furnish replacement tables every two weeks. This provided the Telegraph Code with sufficient security to allow its continued use as a means of sending secret messages. However, it took until July 1918 for MI-8 (as the Cipher Bureau was now called) to produce Military Intelligence Code No. 5, its first effort. MI Code No. 5 was in two parts and its security could be further enhanced by using the super-encipherment tables already developed. Unfortunately, the code was promptly compromised by Army organizations outside of MI. By the time a replacement had been developed, the war was over.

Similar difficulties were encountered in generating special codes for geographic place-names. Maj. Gen. Bliss requested that such a code be prepared in June 1918, but by the time it had been distributed in October the battle lines had shifted and the place-names were no longer applicable. Belatedly, after the Armistice, MI-8 adopted a new method of preparing copy and was able to place a pocket code in the hands of military attaches in only two weeks.

Riverbank and Cryptologic Training

Codes and ciphers alone would not provide the War Department with COMSEC. The department need personnel training in their use. Army facilities for this training were lacking in 1917, and the Army had neither an adequate curriculum nor training instructors. The Allies were not able to spare any of their COMSEC people to help. To fill the gap, Van Deman turned to the private sector. He accepted philanthropist George Fabyan's offer of the staff and facilities of Fabyan's Riverbank Laboratories.

Riverbank Laboratories was a private "think tank" located in the small town of Geneva, Illinois. The facility housed a staff of scholars and scientists who carried out research in a number of diverse fields. As part of the war effort, Riverbank was able to make a significant contribution.

Dr. J.A. Powell, one of the Riverbank staff members, was sent to the Army Signal School where he attended the basic course in military cryptology. As soon as he returned to Riverbank, he and his colleagues implemented a vigorous cryptologic training program under War Department auspices. After completion of their training at Riverbank, officers were assigned to MI-8 or to the Radio Intelligence Section, AEF. In view of the critical shortfall of trained personnel, this was a welcomed contribution to Army COMSEC, even though most of the officers were deployed as cryptanalysts.

The unique relationship between Riverbank Laboratories and MI came to an end in April 1918. By that time, MI-8 had embarked upon its own training program, and the Riverbank connection was seen as less advantageous. Not only were the laboratories far from Washington and not subject to full War Department control, but Riverbank's two primary instructors had received Army commissions and were no longer available. As a substitute, MI-8 gave cryptologic training to a wide variety of intelligence connected personnel. It also provided COMSEC training to military attaches and their assistants.

COMSEC in the AEF

At the War Department level, the COMSEC function was limited almost exclusively to codes and ciphers and was completely controlled by MI. This was not the case at AEF General Headquarters (GHQ) in France. The AEF was confronted with a different set of problems. It not only had to worry about the security of high-level communications, but it had to be concerned with protecting the great amount of tactical communications. As a direct result of these factors, COMSEC came to mean more than just the compilation and use of codes and ciphers. The function itself would be split between the Signal Corps and

the Radio Intelligence Section, G2 in France.

Because of the great distances involved and the wide latitude given Pershing, AEF GHQ was organized along very different lines than the WDGS in Washington. The AEF placed the code and cipher compilation function under its chief signal officer, who organized a small Code Compilation Section. The section's duties were to compile codes for the Army in the field, but there was no American experience or precedent to draw upon. The section had no connection with MI-8 back in Washington; it was entirely dependent upon its own resources and ingenuity.

The U.S. Army had entered the war with three authorized code and cipher systems, all of them unsatisfactory. The Telegraph Code was an insecure, administrative system designed for headquarters communications. The Signal Corps had devised a simple celluloid device called the "Army Cipher Disk," but this was simply a tool for accomplishing mono-alphabetic substitution. It offered essentially the same degree of security as the toy secret message rings found in breakfast cereal boxes. No evidence exists that the AEF ever tried to use it in the field. Finally, the Army had learned from the British how to use the Playfair hand cipher. However, the Playfair offered little security against determined cryptanalytic attack. In addition to these authorized means, unauthorized or locally improvised codes were being used which offered varying degrees of security, mostly none.

The British and the French were at first reluctant to disclose their code systems, but eventually agreed to supply reference copies of obsolete editions. With this meager data base, the section began its work. The initial effort was a failure. The first American Trench Code was a small, single-part code of some 1,600 words and phrases, designed to be used in conjunction with a complex system of super-encipherment. The code was distributed to regimental headquarters, but was never sent forward to the front lines for fear it might be captured. About 3,000 copies of a smaller code were prepared for use on the firing line and distributed down to the company level.

What the AEF needed was a system that was "simple of operation, comprehensive enough to produce a good working vocabulary and changed entirely in its code equivalents at frequent intervals." The section achieved this by moving to a two-part code that could be used without any additional encipherment and by making provisions to replace codes approximately every two weeks. The result was that the burden of detail was shifted from the fighting troops at the front to the Code Compilation Section working in the rear area. In previous wars, it would have been impossible to produce and distribute replacement codes with sufficient speed to guarantee the security of the system, but the AEF had the technical and organizational capacity to satisfy the requirements.

The first Trench Code to be produced after the two-part principle had been adopted was the Potomac Code, a 47-page booklet containing approximately 1,800 words and phrases. It was issued in June 1918. During the next five months, the Code and Compilation Section created no less than 14 replacement codes. The Potomac Code, allotted to the First Army, was periodically replaced by succeeding codes of the "river" series. When the Second Army was fielded, the new formation was provided with a completely separate "lake" series. Beginning in September, all Trench Codes were supplemented with Emergency Codes containing 50 commonly used phrases that could be used on the front line.

In June 1918, the section put out a Staff Code to replace the old Telegraph Code. This code was the largest and most comprehensive codebook every printed in the field. Finally, the section also produced a variety of miscellaneous codes, including the American Radio Service Codes and a telephone code for disguising the names of organizations and commanders. This was an achievement which was most noteworthy in terms of both quality and numbers, especially in comparison with what the other belligerents were accomplishing.

Compiling the codes was only part of the task. There was also the problem of printing a vast amount of material. The Code Compilation Section produced 80,000 numbered codes and pamphlets during the ten months it was active. The actual printing of the codes (in water-soluble ink for easy destruction in case of threatened capture) was carried out by the Adjutant General's Office, under the close supervision of the section. Army regulations stated that code distribution was a function of the Adjutant General's Office,

but that office was not geared to handle the monumental task. As a result, the job of distributing AEF's codes was taken over by the Radio Intelligence Section, G2.

Radio Intelligence Section

The Radio Intelligence Section was one of the five major staff elements within the AEF's G2 organization. Originally set up to handle signals intelligence (SIGINT), the section broadened its role under the pressure of events and ended up bearing large COMSEC responsibilities. It is indicative of the fragmented nature of Army intelligence in World War I that the Radio Intelligence Section, G2, AEF, was not subordinated in any way to MI-8 in Washington. The contacts that grew up between the two organizations were for the most part informal, between officers who were personal acquaintances. Any influence exercised by MI-8 over the operations in France was due to the fact that some of the personnel in the Radio Intelligence Section had served in MI-8 or had been trained by it.

The Radio Intelligence Section rapidly developed an efficient organization for distributing codes to the AEF. The section adjutant receipted for the codes which he received from the Code Compilation Section, and then, with help from an enlisted assistant, carried out distribution. At first, the section attempted to distribute the codes directly to all users and to keep a central accounting of all obsolete or compromised books. The growing size of the AEF made this impracticable. Instead, distribution was made to separate Radio Intelligence Sections that were set up at the Field Army level.

The First, and later, Second Army Radio Intelligence Sections received bulk allotments of code books and then made further distribution to corps, divisions and below. Outdated or compromised books were retrieved in reverse order. This decentralized distribution system meant that there was no way of determining how many codes were in actual use at any one time, when they were put into service or withdrawn, or who had actually issued the codes. The situation was further complicated by the existence of miscellaneous codes apart from the Trench Codes. U.S. troops serving in French sectors were provided with the French bilingual *Carnet Reduit*, and there were also special liaison and aircraft codes. Finally, some units persisted in making up their own codes. The most notable of these was the "baseball code" which used the names of famous ballplayers of the day.

It soon became apparent that compiling, printing and distributing codes was not the final solution to the COMSEC problem. As the head of the Code Compilation Section put it in his final report: "Although it may seem a paradox, the most striking feature of the use of the Trench Codes was the general inclination to avoid them whenever possible." The Citizen Army found the use of codes to be a tedious impediment to easy communication. Indifference to the basic principles of COMSEC was endemic and occasionally was given positive encouragement by high levels of command. The situation was not helped by the fact that, under wartime conditions, officers responsible for encoding messages changed assignments too frequently for all to be familiar with the rules or the absolute necessity of following them.

Security Service

AEF GHQ was all too keenly aware of the deficiencies in American security consciousness. As a result, it issued security guidelines even before the Trench Codes were ready for use. This was a new development in U.S. Army COMSEC. The booklet, which provided simple guidelines on how to prepare messages in regular or enciphered code, the Playfair system and plain language, also contained injunctions on COMSEC. A preliminary note to the "instructions" warned code officers that it was expressly prohibited for them to use plain language in the same message with code or cipher; to repeat a message in any code or cipher other than that in which it was first sent; to repeat a code or cipher message in plain language; or to repeat a plain language message in code or cipher. The AEF also took steps to warn personnel against loose talk on the telephone.

To enforce these guidelines, the Radio Intelligence Section, G2 introduced another innovation in U.S.

Army COMSEC. It created a Security Service, consisting of control officers in the Radio Intelligence Sections of GHQ and each Field Army together with Signal Corps monitoring assets in the field. The Security Service was designed to make sure that the AEF actually made use of the COMSEC tools it had been provided.

The Radio Section of the Signal Corps had already established a network of intercept stations along the front to collect SIGINT for the Radio Intelligence Section. Once the Security Service concept was implemented, the Signal Corps established a number of forward intercept installations with the sole responsibility of monitoring American radio communications for COMSEC violations. These stations intercepted all radio messages sent within the AEF and transmitted them to the control officers. The control officers noted all violations and sent out letters of reprimand to the offenders. In addition to monitoring transmission violations, the control officers looked for weaknesses in the codes themselves and checked to make sure the same code was not used for an extended period of time. This information was fed back to the Code Compilation Section to help it in its work. The operations of the Security Service and the Code Compilation Section thus became complementary.

The control officers also exercised a similar jurisdiction over messages transmitted by telephone and what was known as "T.P.S."—ground telegraph. Here was the real weak point of the AEF's COMSEC. Even as early as 1918, telephoning was the American way of doing business. The intricate network of trenches along the front lines was criss-crossed with extensive field telephone systems, supplemented by ground telegraph installations. The field telephone systems used only a single wire to connect headsets; the other part of the circuit went through the ground. Experience proved that telephone conversations within American lines could be intercepted by the enemy through the use of vacuum tube amplifiers. Since telephone conversations were in plain language, the heavy American reliance on this instrument posed a gigantic COMSEC problem.

In order to find out what the enemy might learn about the AEF's troop movements and logistics by telephone intercept, the Signal Corps' Radio Service established listening stations to pick up all telephone and T.P.S. communications sent in the clear. At least one such post was assigned to every U.S. division in line. The post forwarded daily reports to the division commander and to the control officer. In addition, the control officers had stenographic assistants monitor long-distance calls placed through the switchboards of GHQ and the Field Armies.

Unfortunately, while the Security Service was able to find out about COMSEC violations through these monitoring programs, there was not much it could do to put a halt to them. Letters signed by the appropriate commanding general were forwarded to the commanders of errant units, requesting an investigation of each violation and a report on measures taken. Few of the letters were ever answered. Control officers declined to follow up unanswered letters or unsatisfactory responses. It seemed impolitic to argue with senior officers about code matters when there was a war to be won.

Lessons Learned

World War I was a watershed in the development of U.S. Army COMSEC. For the first time, COMSEC came to mean more than simply the compilation of codes and ciphers. It now involved communications monitoring, both to detect security violations and to correct weaknesses in the codes themselves. Another new COMSEC function created by the war was the creation and use of security guidelines, coupled with published warnings against possible misuse of communications. This was an area that would become of growing importance to the Army. In its final report, the Radio Intelligence Section, G2, stressed that in the future the Army would have to place more emphasis on proper COMSEC education.

In addition to expanding the definition of COMSEC, World War I produced the first joining of communications and intelligence in U.S. Army history. This alliance initially began as a result of the fact that there were not enough officers trained and experienced in cryptology. It was fostered by the knowledge that cryptosecurity could be enhanced by the scrutiny of friendly analysts and by the fact that the Radio

Intelligence Section, G2, was itself dependent upon the Signal Corps in the field of the information it needed to perform its COMSEC function.

If World War I taught the U.S. Army that COMSEC had to be redefined and its organization restructured, it also offered other lessons. The telephone was identified as the principal source of COMSEC violations. While there was no evidence that enemy cryptanalysis ever succeeded in exploiting authorized and properly handled U.S. Army codes, there were indications that improper use of the telephone did provide the enemy with valuable information. Telephone conversations monitored by Signal Corps listening stations revealed information on the AEF's order of battle and gave dates and places of planned attacks.

Another lesson learned was that it was impossible to discipline COMSEC violators from afar. The Radio Intelligence Section recommended in its final report that "security officers" be assigned down to the company level. Such security officers would act as contact points and advisors to the supported commanders.

Finally, it was discovered that some communications needed protection more that others, especially communications involving intelligence. Both the MI Division, WDGS and G2, AEF, found it necessary to establish their own communications centers when it appeared that normal Army channels were insufficiently secure to meet their needs.

The lessons learned in World War I provided the beginning of the Army's education in the field. To the Army's cost, some of these lessons would have to be relearned in the future.

*DIANE L. HAMM * Aerial Reconnaissance—Its Beginnings*

From the earliest times, knowledge of an adversary's location and intentions often spelled the difference between victory and defeat for the military commander. Reconnaissance on foot and on horseback became an integral part of battlefield strategy. However, intelligence derived from reports of scouts and cavalry was often limited by the surrounding physical terrain. If only man had wings!

On November 21, 1783, the dream of manned flight became a reality when two Frenchmen, Ilatre de Rozier and the Marquis D'Arlandes, covered a distance of five miles in about 25 minutes over Paris while using a hot air balloon designed by brothers Jacques and Joseph Montgolfier, local paper manufacturers. From the beginning the possibilities of using the balloon for military purposes were readily apparent. Benjamin Franklin, in Paris at the time of the Montgolfiers' experiments, prophetically wrote: "This method of filling the balloon with hot air is cheap and expeditious, and it may be sufficient for certain purposes, such as elevating an engineer to take a view of an enemy's army, works, etc., conveying intelligence into, or out of a besieged town, giving signals to distant places, or the like."

The use of tethered balloons for observation purposes began in Europe as early as 1794, and pilotless Austrian balloons dropped bombs during the siege of Venice in 1849. In France in 1858, Felix Nadar took the first successful aerial photographs from a hot air balloon. However, the first military deployment of balloons did not take place in the United States until the Civil War when both sides experimented with relaying intelligence reports from captive balloons fastened to the ground by long cables. Although the overall impact of the efforts proved minuscule, one notable exception was the Battle of Fair Oaks near Richmond, Virginia, on May 31, 1862. That was when Professor Thaddeus Lowe, the most noted of the Union aeronauts, successfully telegraphed the direction of enemy advances from his balloon, Intrepid, to waiting battlefield commanders who countered with reinforcements. As a footnote to their reconnaissance efforts, Lowe and other Union balloonists also briefly tried their hand at aerial photography. After the War Between the States, the Army did not make further use of the balloons for intelligence purposes until the Spanish-American War when an observation balloon was successfully raised at the Battle of Santiago. Also, in the 1890's, the Army conducted experiments using cameras attached to huge kites as a possible intelligence gathering mechanism.

The Wright brothers' successfully powered flight at Kitty Hawk, North Carolina, in 1903, enabled man to become a permanent inhabitant of the air. Six years later, the Army purchased its first aircraft and opened the door to modern warfare. By 1916, the Signal Corps Aviation Section had grown large enough to create the 1st Aero Squadron commanded by Major Benjamin Foulois. Army aviation's first test was to provide aerial reconnaissance to John J. Pershing and his troops as they pursued the elusive bandit—Pancho Villa—across Mexico in 1916. However, when the United States entered World War I a year later, the Army and its aviation wing were still nearly three years behind the other combatants in battlefield experience.

World War I witnessed development of new instruments of warfare, such as the submarine and tank. At the same time, advances in existing technologies allowed for their deployment in new modes. Two of these were the airplane and the camera; once combined, they would become inseparably linked in the future.

The story of the beginnings of U.S. Army photo intelligence is not one of a single individual, but rather, of a group of heroes: the pilots, observers, and cameramen who almost daily for a period of six months, between April and October 1918, risked their lives to gather vital information for the Allies. Theirs was a baptism under fire; experiences which are best told in their own words or those of official unit logs.

On April 15, 1918, a plane from the 1st Aero Squadron flew the first reconnaissance mission for the American Expeditionary Force over an enemy-held section of France. Lieutenant Fred E. D'Amour, a photographer with the squadron, describes one of the early flights along with its accompanying hazards.

Protection had been promised by the First Pursuit Group. We landed at Saints where the fighters were based and agreed to meet their patrol over Conluise at 1,000 meters. Rendezvous made. Started for the front. Low clouds blocked our flight path and we lost our fighter protection. Went ahead anyway to get the assigned pictures. The photographs were to be obliques of strong points in the rear of the German lines. The first film magazine was taken of the target area without incident, but after five pictures were exposed on the second magazine the camera jammed. I changed magazines but the camera still refused to operate. On investigating I found that broken glass had worked into the shutter and the camera was definitely out of commission. Since we were already deep behind enemy lines, we decided to make a reconnaissance of the enemy rear in an effort to locate pillboxes in the area and any new construction. After noting the position of these installations, we started home at an altitude of 600 meters with average ground fire being fired at us.

As we neared the front lines on our return flight, however, the ground fire became extremely active. When we were still about 12 kilometers inside the German lines an antiaircraft shell exploded directly underneath the motor, tearing a large piece off the end of the propeller blade and stopping the motor. We started down; emptied our machine guns on the way down because we had incendiary bullets in them. The German guns increased their barrage and our plane took several more hits. Just as Lieutenant Wold was leveling off preparatory to landing, the motor started again. However, the piece torn off the propeller cut down on our power and we flew the rest of the way out which was about ten kilometers at from 10 to 40 meters altitude. Tracers from ground machine guns formed a formation all around the ship, tearing away a flying wire, and another shell tore a large hole in the elevator. Some days later, the chief of the army corps visited the field and stated that the photographs taken that day had given them information of invaluable importance, and that dugouts sheltering an entire regiment of enemy troops had been located and destroyed by our artillery after being detected on one of our pictures.

Three days later, Lieutenant E.G. Wold would again face heavy odds, when he volunteered to go it alone on a dangerous reconnaissance mission. Once over enemy lines, he was immediately engaged by five enemy craft. Through skillful maneuvering and fighting he was able to evade his pursuers and make it to the safety of his own lines; however, his wounds were so sever that he lost consciousness and control of his plane, fatally crashing.

On August 10, another crew of the 1st Aero Squadron took off for a routine photographic mission over the Chateau-Thierry area and enemy held lines. Lieutenant William Erwin, pilot, filed the following report on his return:

We stared out at 7 a.m. for pictures just above Pere-en-Tardenois in the Chateau-Thierry sector. The pictures had to be taken regardless of everything our troops were to advance over that ground the next day, and the camera would save many lives by uncovering new battery positions, machine gun emplacements, and the like. Arrangements were made by telephone for a Spad squadron of a neighboring pursuit group to act as protection since the Germans had an overwhelming concentration of air forces in our sector at the time. It wasn't unusual for as many as 40 to 50 German machines echeloned in three formations to patrol the area.

Attaining our altitude we were met by eight Spads and started out for the front lines. Before reaching the lines two of the Spads developed motor trouble and lost the formation. When we reached the place where we were to photograph we were at an altitude of about 3,000 meters and, the coast seeming clear, Lieutenant Baucom started filming. I was paying strict attention to my course so that the pictures would be the best possible when I suddenly saw the leader of the Spads dive around my wing. This was the prearranged signal that the Huns were in the air and about to attack. I yelled through the speaking tube to Baucom but he was already on the job. I think he could smell a Hun—I know one never caught him napping. Pulling up into a chandelle, I saw the party had already commenced. Eleven Fokkers had dived out of the sun on the seven around us, and a dogfight had commenced in earnest.

One Spad climbed on a Fokker's tail and started down whereupon, apparently from out of nowhere, a Fokker started pouring into this Spad. I whipped my nose around and started my Vickers pumping a stream of tracers into the German. He dropped off into kind of a half spin and disappeared under my wing but my bullets came too late. The chap he was shooting at fell out of control and crashed 1,200 feet below. I learned later that it was Lieutenant Beauchamp, a chap who had come over from the States with me, and we had taken all our training together. Almost at this moment I heard the tracers that seemed to be coming from under my right wing. I dove down into this fellow with my own gun firing. Meanwhile, Baucom was giving the glad hand to the one on our tail. I thought, "good old Lewis gun" when one of the German guns cut out. Suddenly both of Baucom's guns jammed. The Fokker on our tail moved in for the kill, but Captain Vaconcelles, seeing our plight, attacked and shot the enemy plane down. The other retired.

Lieutenant Baucom had only about 16 pictures whereas our strip required at least 36. After landing and refueling, I started out again at 11 a.m. with Lieutenant Earl B. Spenser as observer. We managed to get 12 plates of valuable pictures at 2,500 meters when 10 Fokkers cut us off from returning to our lines. I dove under them at full speed but was caught. In the ensuing flight I shot down one Fokker attacking me head-on. However, our plane was badly damaged. The camera was shot full of holes, several wires were cut, our spar was shot through in two places, and Lieutenant Spenser was wounded in the side.

Six pilots were lost in an attempt to get the pictures, in order that the boys on the ground might advance with less cost of their lives….

The 91st Aero Squadron was a sister unit to the 1st Aero Squadron and was created from a number of aviation detachments from Army posts in Missouri, Kansas, Oklahoma, and Texas. The squadron did not reach France until late 1917. When Major John N. Reynolds took command of the 91st Aero Squadron in February 1918, the unit was far from ready to see combat. The morale of the newly assigned pilots was unbelievably low due to the fact that most of the flyers had been pulled from a possible dream assignment with a pursuit squadron to perform observation duty. But the personality of Major Reynolds worked wonders, and it was only a matter of a few days before the squadron had become welded together into a close association of real friends with a common purpose. Under the leadership of "Major John," as he became known immediately after the first officers meeting, the 91st would be molded into what Major General Benjamin Foulois and Brigadier General Billy Mitchell later termed "the best Army Squadron on the front."

The 30th (September) was a big day for the 91st. In all, the squadron exposed 234 plates over the enemy lines, and fought five combats, during which two enemy ships were brought down. The flying ordnance officer, Tom Jervey, with Vic Strahm, took pictures for the first time, snapping 36 of which 34 were good; while Professor Strahm's boy Victor, not wishing to have his observer get too much credit, shot down an enemy Rumpler which seemed to resent their presence in that locality. Lambert and Pope were acting as protection for Vic and Tom. Soon after the Rumpler had dropped, Lambert dove on a formation of three Pfalzes which were trying to prevent the mission from returning, and in the combat which followed sent one of them down out of control. The enemy plane crashed just south of Stenay.

During nearly five months of combat from May to the November Armistice, the 91st Aero Squadron flew 252 visual reconnaissances and 108 photographic missions, produced nearly 3,700 successful negatives. To accomplish their mission, the pilots and their crewman had to engage the enemy in combat on 139 different occasion. The crew of the 91st were credited with destroying 21 enemy planes although numerous other shoot downs could not be confirmed. All of this was not accomplished without a cost—10 officers of the squadron were killed in action and another 3 were lost in accidents; 9 other comrades-in-arms became prisoners of war and 13 were wounded. Of the 24 officers assigned to the unit in May 1918, 13 received the Distinguished Service Medal and 2 received the Croix de Guerre.

Lieutenant Paul Coles was typical of the officers who served with the 91st Aero Squadron. From the

moment he arrived at the unit, he exhibited a remarkable coolness under fire. His first opportunity to prove himself came when two members of another team had disappeared on an observation mission on the 14th of September. On his first outing, enemy artillery fire had torn off half of both lower wings, making the airship almost unmanageable; but somehow, Coles succeeded in nursing the plane back to the field, making a good landing. Upon his safe return, his first words were a simple' "How long will it take to put on another pair of wings? I like to fly that boat, she handles so well." The next day, however, Coles accompanied by a sister ship piloted by Lieutenant "Bust-em-Up" George Kenney, dubiously named for already having spent two months in the hospital with a broken ankle sustained in a crash, was not as fortunate.

> The first flight started out on a photographic mission from Gorze north, and had barely started taking pictures when the formation of four was attacked by six Pfalz scouts. Two of them dove for Coles's ship which was flying as protection in the rear and at the first burst a machinegun bullet pierced his neck, forcing him to make for the lines, as he wanted to land safely before he fainted from loss of blood. The other three jumped Kenney's machine, but his observer, Bill Badham who was just straightening up in the cockpit from taking pictures, poured a few bursts into one of the enemy machines, sending it down in flames. Kenney's ship was badly shot up, one of the elevators being almost off, and he had to turn back toward the field. In site of losing the rest of the flight, Diek and Hammond (a third camera crew) climbed back to regain altitude lost during the combat and continued on their mission which they accomplished without further attack, although several formations of enemy ships were seen around them.

On November 7, 1918, just a few days before the fighting on the western front ceased, Lieutenant Edward Russel Moore and Lieutenant Gardiner P. Allen, photographic crew of the 8th Aero Squadron, were awarded the Distinguished Service Cross for extraordinary heroism in action near Thaiuourt, France. The order read as follows:

> Lieutenant Moore and Lieutenant Allen, observer, took advantage of a short period of fair weather during generally unfavorable atmospheric conditions to undertake a photographic mission behind German lines. Accompanied by two protecting planes, they had just commenced their mission when they were attacked by eight planes which followed them through their course, firing at the photographic plane. Lieutenant Moore, with both flying wires cut by bullets, and both wings punctured, continued on the prescribed course although it made him an easy target. Lieutenant Allen was thus enabled in the midst of the attack to take pictures of the exact territory assigned. He made no attempt to protect the plane with his machine guns, displaying an entire disregard for personal danger and steadfast devotion to duty. The two officers successfully completed their photographic mission.

The pilots and observers of World War I were pioneers in the truest sense of the word. They risked their lives to bring valuable information back to the tactical commander and proved on countless occasions that photo intelligence was an essential requirement in any war of the future. Theirs was a unique legacy of the finest fighting traditions coupled with the technical skills of military intelligence specialists.

WILLIAM A. MORGAN * ***Invasion of the Ether: Radio Intelligence at the Battle of St. Mihiel September 1918***

March 7, 1917

1. The inclosed cipher messages have been received from the Chief of the War College Division, General Staff.

2. It is requested that you decipher them as they are unable to do it in Washington.

3. The results obtained are desired at the earliest practicable date.[1]

The U.S. Army entered World War I ill-prepared to "decipher" enemy messages. For that matter, because there was little attention paid to so-called secret writing—theirs or ours—one Army unit could not be expected to understand the "secret" correspondence of another unit. Codes and ciphers where used, of course, but each military organization was expected to develop its own. If the Army was in need of specialized assistance, such messages as those cited above would be sent to a military officer who enjoyed a reputation as an amateur cryptanalyst. The most renowned U.S. Army specialist in early 1917 was Captain Parker Hitt. It was Captain Hitt who received the above request one month before he sailed for France with the staff of the newly formed American Expeditionary Force (AEF).[2]

Those earlier days produced a simpler and less precise technical lexicon than that of today. Even specialists usually were not careful to distinguish between "codes" and "ciphers." They often spoke of "decoding ciphers" and "deciphering codes," mongrelizations which modern practitioners would find improper. Now, as then, secret communications take the form of codes and ciphers, even ciphers upon codes. To clarify codes used symbols (e.g., letters, numbers) of equal length to represent meaning (e.g., ideas, words) of differing size. Ciphers, on the other hand, substitute symbols equal in length to their meaning. One, therefore, encodes or decodes a code, and enciphers or deciphers a cipher. Generally speaking, one who makes or uses a code or a cipher is a cryptographer, and one who exploits such is a cryptanalyst.[3]

In the years since 1917, both the technology and the terminology have become sophisticated and precise. Today, we use the term "cryptology" to embrace both cryptography—the creation and usage of secret communications—and signals intelligence, or SIGINT—the exploitation of secret communications. As will be seen, the Army came to realize its naivete in this new form of intelligence production, and formed cryptologic organizations at some of its upper echelons.[4]

As David Kahn has written, cryptanalysts can alter the status quo, while the more passive cryptography can only conserve it. Kahn observed that cryptanalysis can be responsible for the outbreak of wars, can cause beleaguered fortresses to surrender, and can cause the unjustly accused to be found innocent.[5] Before World War I, indeed as far back in recorded history as 4,000 years, man has been developing secret means of communication and has been attempting to discover what his fellow man has been saying in his own private writing. But it was not until the invention of radio, with its diffusive method of transmission, that the opportunities for cryptanalysis underwent a quantum leap. The widespread use of radio in the war, then, presented intelligence producers with an unprecedented occasion to "alter the status quo."

For the first time, warfare demanded that contending forces perfect and put into being a cryptologic enterprise. American unfamiliarity with such needs could not excuse languid implementation of the suddenly crucial science. The French were accomplished cryptologists by 1914, having intercepted German radio messages for several years before the war. The British had carried out cryptanalytic work, but at a scale much smaller than that of their continental ally. By early 1916, however, the British had begun to move ahead rapidly. The Germans, on the other hand, were without cryptanalysis on the Western Front until 1916, when they hastily assembled an organization. This German effort, however, never did reach the level of sophistication attained by the Allies.[6]

Much like the Germans, the Americans were not initially prepared to take advantage of the new intelligence opportunities. Before sending troops to Europe, informal work for the War Department was accomplished at the Riverbank Laboratories in Illinois. Riverbank was an institution noted mostly for its attempts to prove that Francis Bacon had written the plays attributed to William Shakespeare.[7] Unofficial puzzle-solvers such as Parker Hitt also contributed to this ersatz enterprise. When the War Department recognized this deficiency, it created a Radio Intelligence Subsection (RIS or G-2, A-6) when it established the A.E.F. Headquarters following arrival of the first units in France in early 1917. Almost immediately, the Americans set out to learn from their French and British counterparts, including Captain Painvin of the French Cipher Office, Colonel Cartier of France's Ministry of War, as well as Britain's Major M.V. Hay and Captains C.S. Wright and O.T. Hutchings. These men collaborated closely for at least a year.[8] When the subordinate First Army was formed some 13 months later, an integral RIS had already been in operation for two months preparing for the day when American troops would be under American command.[9] This turn of events would occur at the St. Mihiel salient.[10]

The St. Mihiel salient was formed as a result of German operations following the first Battle of the Marne. It was about 24 miles wide along the base, and about 14 miles deep. The salient extended from Les Eparges, through St. Mihiel and Seicheprey, to Pont-a-Mousson, a total distance of about 40 miles. The defensive terrain features provided the salient with an unquestionable natural advantage. The western exposure of the salient followed the rugged, heavily-wooded eastern heights of the Meuse for five miles to the east and then crossed over the Wovre plain. The detached heights of Loupmont and Montsec dominated the plain and furnished the Germans with extraordinary observation facilities.[11]

At St. Mihiel, the American Army, and in a broader sense, the American nation, was involved in a European war on European soil for the first time in its history. While it is true that American troops had been fighting on the continent since they arrived the previous year, those soldiers had served and fought under French or British command. There was no question regarding the ability of the United States to contribute significantly in a military sense, but the Allies were not sure whether American soldiers could carry out independent combat operations.[12] For the commander of the A.E.F., General John Pershing, it would be "first demonstration of the efficiency of the American Army in this war." As far as Pershing was concerned, "a serious hostile reaction must be made impossible."[13]

For the American radio intelligence personnel, the battle at St. Mihiel would provide the first occasion in which the newly formed cryptologic enterprise would operate independently. This new, challenging context was certainly a giant step from Riverbank Laboratories and the search for the Baconian cipher.

The Radio Intelligence Subsection of the First Army was formed at Toul, France on 12 June 1918, and was manned by a contingent of one officer and two field clerks (a rank similar to that of Warrant Officer). By the end of the war, a total of three officers and eight field clerks and enlisted men would serve in the RIS. The section was organized into a "Code" and a "Goniometric" (radio direction finding) section, and supervised interception and direction finding tasks carried out by Signal Corps personnel. The RIS Code Section analyzed and translated communications acquired by the intercept operators, while the Goniometric Section plotted and reported enemy radio station bearings collected by the Signal Corps "gonio" operators. Intercept and direction finding work was new to the Signal Corps, and its men had to be specially trained with the help of the French.

The first contingent of Signal Corps radio intelligence operators arrived in France in December 1917, under the command of Captain Stith G. McCutcheon, and was immediately detailed to Langres, Haute Marne. The operators were split into two groups; those who had previously been introduced to Morse code and those who were qualified in the German language. The former were expected to be able to intercept enemy messages at the rate of 25 words-per-minute, while the latter were considered and trained when they reached a speed of 15 words-per-minute.[14]

After a succession of moves, the Radio Intelligence Subsection settled at Ligny-en-Barrois on 30 August where it would function during the St. Mihiel offensive.[15] First Lieutenant Charles H. Matz was to lead the section throughout the war, assisted at St. Mihiel by Lieutenant Robert W. Gilmore, a New York

Lawyer, and six others. Both Matz and Gilmore, as many others chosen for this new discipline, were competent in French and German.[16] In support of the offensive, Matz established a network of radio interception and direction finding stations opposite the salient, as well as wire-tapping stations along German ground telegraph lines. Two intercept sites were collocated with their French counterparts at Toul, about 20 miles to the southeast of St. Mihiel, while two were installed at Souilly, about 15 miles to the northeast of the salient. The goniometric, or direction finding, stations employed SCR-83 portable radio receiving sets which, along with their six-foot square flat pancake wound-loop antennas, could be moved around the friendly zone. In any case, all sites were connected by wire to the RIS and collected materials and information were telegraphed directly for processing. Wire-tapping, or "listening," stations unable to exploit radio's use of the air, were often necessarily located closer to the front.[17]

The goniometric unit was primarily engaged in developing a daily enemy order-of-battle by measuring the direction from which enemy radio signals would be transmitted. Through the intersection of lines resulting from the efforts of two or more goniometric stations, a "quite accurate" location could be gained. Through traffic analysis—the study of enemy radio procedure, including callsigns and other phenomena external to the actual message text—Matz' men carried out the reconstruction of German radio networks. By the skillful fusion of radio direction finding and traffic analysis, as well as the use of more traditional methods, Matz's cryptologists often were able to determine or confirm the enemy's order-of-battle and to learn the depth of his echelons. As the enemy moved, the cryptologists sought to observe and report on where the enemy was intending to organize resistance.[18]

The RIS found that German forces opposite the First Army used more than one code or cipher in their radio transmissions. The one most frequently used—the Schlusselheft—was trinomic; that is, it was passed in groups of three numbers. Each number represented a letter, a syllable, a phrase, or a code name. If a reasonable number of messages was intercepted during any period of use, the RIS would enjoy considerable success. During periods of heavy hostilities, German cryptographers would exercise less care in using this system, and the American cryptanalysts would be able to derive much useful information.[19] The Germans, as would be expected, were aware of their shortcoming. So much so, that in the Summer of 1918, the German 5th army ordered a Lieutenant Jaeger to discipline communicators. Jaeger's assiduous efforts included writing several messages explaining the problem and offering solutions. For whatever reasons, Jaeger signed each of his instructive communiques. It was that personal touch that enabled the swift recovery of the high frequency letters of the Lieutenant's name—a, e, and r—and, therefore, much of the "speller," or alphabetical section, of the Schlusselheft. After a while, Jaeger was assisted by a Lieutenant Bum who was only of marginal use to the RIS. Ultimately, the Germans learned that their solution was part of their problem. Jaeger was reassigned, and there was genuine regret at Ligny-en-Barrois.[20]

By the end of the first week in September, the RIS had established a baseline as to German communications habits and levels at St. Mihiel. The cryptologists studied enemy communications procedure and volume. Altered levels or methods could mean changes in disposition or intent. At this time, the German headquarters was quite certain that the salient was in danger of being reduced. For their part, American and Allied authorities were sure that the Germans were planning a withdrawal. If the enemy were to evacuate before the Allies were to move in, there would obviously be no need for artillery preparation. Prior to 8 September, activity was reasonable constant. Lieutenant Matz' report for the week ending 6 September noted that

> From ETAIN to ST. MIHIEL radio activity showed a tendency to increase during the first three days of the week… On September 3d, however, the activity dropped again and remained normal…

But, on September 8, Matz reported that

> …unmistakable signs of nervousness on the part of the enemy became noticeable along the southern side of the salient…

On that same day, a captured soldier of the German 332d Regiment of the 77th Reserve Division

informed his interrogators that narrow-gauge tracks in the southern sector were being uprooted systematically and shipped to the rear. Signs of an evacuation mounted.[21]

On 7 September, the day before Lieutenant Matz reported "unmistakable signs of nervousness" along the southern front, the Germans had decided "to shatter the enemy's offensive preparations by an attack…upon the southern front." The Germans, at this point, planned to hold the battle zone. A complete withdrawal would only occur if the Allied attack were to be upon a broad front. German plans were changed, then, when on 9 September it was learned that "the probability of a simultaneous hostile attack against the western front [had increased]." On 10 September even before receiving orders for a total withdrawal, "the work of removal and destruction was ordered to commence" and reinforcements were requested. The Germans anticipated that a full withdrawal could be completed by the morning of 12 September.[22]

On 9 September, as the Germans began to fear a front-wide offensive, listening stations in the Bois d'Apremont reported a flurry of "abnormal" conversations. One listening station reported that German ground communications facilities had already moved somewhat to the rear. A station at Limey, on the southern front, notified the RIS that a number of enemy ground telegraph stations had pulled back from usual frontline positions. On the following day, a nearby listening station at Flirey corroborated the earlier findings.[23] Moreover, Allied aviators stated that they had flown over the trenches and were not fired upon.[24] Based on the available evidence—the statement by the prisoner, the listening station reports, and the aviators' revelation—few believed that a withdrawal had not already been executed.

But, while ground telegraph stations may have moved rearward, Lieut. Matz disclosed that the volume of messages exchanged by units of the 8th Landwehr Division and the 10th Division "rose on 8 September to three times the normal of the past week." On 9 September Matz informed commanders that 8th Landwehr radio activity "decreased considerably," while 10th Division communications remained at a high level and that activity in the sector of the 13th Landwehr Division quadrupled.[25] Over the entire front, radio intercept operators collected an average of 77 messages from 5 through 7 September. For 8 through 11 September, the four days before the attack, operators copied 123 messages.[26]

At four o'clock on the afternoon of 11 September after the pilots had filed their reports, Lieut. Matz and his staff were still not convinced that the Germans had withdrawn. That evening as the day's goniometric information was assembled, it became clear to them that all enemy radio stations had remained at their normal positions and were functioning as before.[27] The analysts noted that there was still a line of stations close to the front trenches, a second line about two and one-half miles to the rear, and a third line even farther back, which corresponded to divisional command posts. Matz showed his charts to the chief of the Enemy Order-of-Battle Subsection, Lieut. William H. Dearden, and explained the RIS conclusions. Dearden concurred. The judgment of the fledgling RIS was reported "to the Chief in the form of a map." An accompanying commentary emphasized that the war had not, to that date, produced any enemy withdrawal in which radio stations had been kept in place and in operations the day before execution.[28]

In the face of much evidence to the contrary, including reports from traditional sources of intelligence, the new and untested RIS of the First Army had remained cautiously objective, After the battle, Matz would write Captain Robert Loghry, the officer directly responsible for radio operator training:

> The location of all enemy radio stations in their proper places by means of gonio bearings on the night before the attack was the determining factor in the decision of the chief of intelligence that the enemy had not already withdrawn from the St Mihiel Salient.[29] Indeed, as the Assistant Chief of Staff for Intelligence of the First Army reported to the A.E.F. Chief of Staff after the armistice: One case in particular deserves notice. Just before the American attack on the St. Mihiel salient there were many indications that the enemy had withdrawn and the advisability of advancing the infantry without artillery preparation was seriously considered. The final decision to make the attack as originally planned was based on the evidence of the goniometric service that enemy radio stations were still active in their old locations.[30]

As an immediate result, then, of the work of Lieutenant Matz and the First Army cryptologists, General

Pershing was made aware of the strength and disposition of the forces facing him, and avoided what could have been a colossal blunder. As the testimony of General von Hingst, Chief of Staff of the German 12th Reserve Corps (Mihiel Group) shows, Pershing was able to avoid the "serious hostile reaction" that he had feared. Von Hingst, in commenting on the four hours of preliminary bombardment ordered by the A.E.F. commander, observed:

> September 11 passed according to plan without interruptions. Work of removal and destruction was in full progress. This was the situation when the hostile attack was launched by surprise on the night of September 11 to 12…At 2 o'clock on the morning of September 12, the Combres and Gorze Groups were subjected to a violent and heavy artillery fire…[31]

The work of the RIS was not ended with the attack. During the operation, Lieut. Matz and his cryptologists delivered a continuing commentary, assisting the attacking forces in understanding the changing enemy situation. A typical report was issued by Matz on 13 September:

> German radio stations appear to a considerable extent disorganized. Only one divisional group can be located which is functioning in an organized manner: this has its main station at GORZE and seems to be serving a division northeast of THIACOURT… The meteorological [station] which was located at Pouilly has moved back to the northeast of METZ, which may mean that the enemy expect to retire on their left flank.[32]

On the following day, Matz disclosed that

> German radio stations…appear in three distinct divisional groups closely bunched just west of the Moselle with a scattering of stations farther to the northwest. From this, it appears that the enemy is holding the line in force on his left flank, with a corresponding weakness on his right flank.

The Radio Intelligence Officer also observed that the radio station at Gorze was supporting the headquarters of the German 123d Division, and had ordered subordinate stations to use the Schlusselheft trinomic code "until further notice." This change, apparently brought about by the enemy's fear that the code in use had been captured, provided no alarm for the RIS. Undaunted, Lieutenant Matz revealed "the Schlusselheft of this division…[is] in our hands and very valuable information was obtained, as all messages could be decoded completely."[33]

On 14 September, a timely report from the RIS indicated that at 2:46 that afternoon, the German 10th Division was located at St. Marcel, and that two subordinate regiments were probably at Rembercourt at a point just south of Preny.[34] By 16 September, Matz was able to notify his headquarters that "German radio stations show signs of a more complete reorganization." One division was added to the "three distinct divisional groups," reported on 14 September as being "closely bunched just west of the Moselle." This new information led Matz to conclude that the concentration had crossed to the eastern bank of the Moselle.[35]

In a narrower, but not less important, sense, the RIS furnished commanders with information of immediate tactical value. One such contribution resulted from a Schlusselheft message intercepted at 7:12 on the evening of 14 September by intercept station No. 4 at Toul. The dispatch notified the intended recipient: "According to report 351 [Regiment], enemy has broken into "Akinie" of the regiment. Twelve noon is time set to drive enemy out again by a counterattack. Brigade."

Later that night, at 9:14, radio station No. 3, also at Toul, picked up this encoded message: "The enemy is pushing forward east of Soulevre Farm on left flank 351 [Regiment] threatens the brigade. Reserve battalion is going to counter attack to the south of the division area. Battery correction observation good."[36]

General Pershing's Field Orders No. 12, written later that night, notified the First Army that "an intercepted message" indicated that the enemy planned a counterattack "near Rembercourt."[37] The work of the cryptologists in warning of the counterattack was cited by the A.E.F. Chief Signal Officer in a report to the War Department:

> Upon several occasions the efficient work of our intercept operators was cited in secret reports. During the St. Mihiel operations, messages picked up by these means enabled the General Staff to

learn of a counterattack, as well as its strength and the time and place at which it would occur, three hours before it took place.[38]

Not only were the intercept operations continuing their "efficient work" during the St. Mihiel hostilities, but the goniometric operators were also contributing to the Allied cause. In what must have been the primeval episode of mobile radio direction finding, Signal Corps personnel fashioned two tractors with "goniometric apparatus and E-3-bis sustained wave transmitting sets," and plunged forward into the salient. No report as to the success or failure of this bold move has been found, but it is unlikely that that accurate azimuthal data could have been obtained through the use of such a primitive platform advancing from "one shell hole to another."[39] In particular, it must be noted that reliable direction finding results are dependent upon knowing precisely where the platform is located. Not only would this have been difficult to accomplish in 1918, but the reliability of the operation is diminished further by the use of only two such platforms.

In his *Report of the First Army*, written after the war, General Pershing observed that "the allies found that they had a formidable army to aid them, and the enemy learned finally that he had one to reckon with."[40] It should be clear that similar such rhetoric might be descriptive of the First Army's Radio Intelligence Subsection and of the Signal Corps operators involved in this crucial, seminal work. Colonel Frank Moorman, the chief of the RIS at AEF General Headquarters and the senior cryptologic official in France, also filed a comprehensive report after the Armistice. In this document, Moorman argued for the retention in the Army of a "code and cipher" cadre. His report is both an extensive compendium of American cryptologic operations and contributions in France, and a well-supported list of recommendations for the postwar Army. Moorman wrote in detail of the kind of personnel needed for radio intelligence work, as well as the kind of training necessary. He called for code and cipher officers at all Army and General Headquarters, ample telegraph facilities, and even provided suggested manning figures.[41]

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1. Kahn, David, *The Codebreakers*: *The Story of Secret Writing*, The Macmillan Company, New York, 1967, p. 326.
2. See Kahn. Hitt became first the Chief Signal Officer for the First Army and later Assistant Chief Signal Officer for the A.E.F. General Headquarters. Hitt did not participate directly in intelligence activities. There were some others considered expert in attacking "secret" communications: Joseph O. Mauborgne, who retired in 1941 as a Major General, and Frank Moorman, who was to lead the effort in France. See Herbert O. Yardley, "A History of the Code and Cipher section during the First World War," 1919, National Archives and Records Administration, Record Group 457, National Security Agency, SRH-030, pp.1-2.
3. The term "cryptanalyst" was coined by William F. Friedman in 1921. Prior to that "cryptographer" was used indiscriminately. See "Historical Background of the Signals Security agency," II 12 April 1946), National Archives and Records Administration, Record Group 457, National Security Agency, SRH-001, p.6.
4. Colonel Ralph H. Van Deman is credited with recognizing the indispensability of creating a specialized unit. See Yardley, 1 and William F. Friedman, "A Brief History of the Signals Intelligence Service" 29 June 1942), National Archives and Records Administration, Record Group 457, National Security Agency, SRH-029, p.1.
5. Kahn, p. 298.
6. Kahn, pp. 299-314.
7. Yardley, p. 4.
8. Frank Moorman, "Final Report of the Radio Intelligence Section, General Headquarters, American Expeditionary Force, 1918-1919," National Archives and Records Administration, Record Group 457, National Security Agency, p. 24.
9. Moorman, p. 21.
10. Pershing, John J., *Report of the First Army: Organization and Operations* The General Service Schools Press, Fort Leavenworth, Kansas, 1923, p. ix.
11. Howland, C. R., *A Military History of the World War*, 1923, p. 362.
12. Liddell Hart, B. H., *The Real War, 1914-1918*, 1964, p. 453.
13. Pershing, p. 11.
14. Moorman, "Final Report," pp. 42-43; "Historical Background of the Signals Security Agency," 177; and "Report of the Chief Signal Officer," in War *Department Annual Reports*, 1919 1923), 1184 and 962. By war's end, 2 officers and 225 enlisted men had graduated from the school at Langres; see also "Report of the CSO," 967.
15. Moorman, "Final Report," p. 21.
16. Security Classified Records of the RIS Relating to the Solution of Enemy Codes and the Decoding of Intercepted Messages,

1917-1918. National Archives and Records Administration, Record Group 120, A.E.F., Box 5767, File 360-75. Matz and Gilmore remained with the RIS until 30 November 1918, when both were transferred to Military Government service at Treves, Germany; see Moorman, "Final Report," pp. 21-23.
17. Moorman, "Final Report," p. 44: Kahn, p. 333; and Report of the Assistant Chief of Staff, G-2, First Army, A.E.F., n.d., Exhibit 4-B, "Decoded German radio messages pertaining to the St. Mihiel Operation," National Archives and Records Administration, Record Group 120, American Expeditionary Forces.
18. Moorman, "Final Report," pp. 43-44.
19. *Ibid*, p. 44, and Kahn, pp. 315 and 334.
20. Moorman, Frank, "Code and Cipher in France," *Infantry Journal*, 16 June 1920), 1040, and Moorman, "Final Report," p. 14. It was about this time that Lieutenant Matz expressed his feelings regarding his work load: "I am so damn busy now I can't spit;" see Lt. Matz to Lt. Ladwig 25 Aug 1918), Security Classified Records of the RIS Relating to the Solution of Enemy Codes and the Decoding of Intercepted Messages, 1917-1918, National Archives and Records Administration. Record Group 120, A.E.F., Box 5768.
21. Moorman, "Final Report," p. 49; Report of Assistant Chief of Staff, G-2, Exhibit 4-A, "Reports of Radio Intelligence Subsection pertaining to the St. Mihiel Operation:" and "Organization of 'Enemy Order of Battle' sub-section."
22. G.H.Q.A.E.F. Second Section, General Staff, "Summary of Information: German Official Reports of the Battle of St. Mihiel" 11 Jan 1919), National Archives and Records Administration, Record Group 120, A.E.F. See also "Report of the Chief Signal Officer," p. 1.
23. Moorman, "Final Report," p. 49.
24. "Organization of 'Enemy Order of Battle' sub-section," p. 12.
25. Report of the Assistant Chief of Staff, G-2, First Army, A.E.F., Exhibit 4-A.]
26. *Ibid*.
27. *Ibid*., see also Moorman, "Final Report," pp. 1 and 26.
28. "Organization of 'Enemy Order of Battle' sub-section," p. 12.
29. Lt. C. Matz to 'Capt. R. Loghry 20 Sep 1918), in "Report of the Chief Signal Officer," 1203.
30. Assistant Chief of Staff, Intelligence, First Army to Chief Signal Officer, A.E.F., 254 Nov 1918, in Ibid., 1212.
31. "German Official Reports of the Battle of St. Mihiel."
32. Report of the Assistant Chief of Staff, G-2, First Army, Exhibit 4-A.
33. *Ibid*.
34. *Ibid*.
35. *Ibid*.
36. *Ibid*.
37. First Army, A..E.F., Field Orders No. 12 14 Sep 1918), in *U.S. Army in the World War, 1917-1919: Military Operations of the A.E.F. - St. Mihiel,* Vol 8, p. 262.
38.. "Report of the Chief Signal Officer," p. 1201.
39. *Ibid*., p. 1202. The E-3-bis was a French device.
40. Pershing, p. 15.
41. Moorman, "Final Report," p. 1-9.

*WILLIAM F. FRIEDMAN * A Brief History of The Signal Intelligence Service*[4]

1. Prior to June 1917 no department of the government conducted cryptanalytic activities whatsoever. From June 1916 to about May 1918 a considerable amount of work along these lines was conducted purely as a patriotic enterprise at his own expense by Mr. George Fabyan, whose Riverbank Laboratories at Geneva, Illinois, organized a small group of fairly well-trained cryptanalysts to work upon such codes and ciphers as were forwarded by the War, Navy, State, and Justice Departments. The undersigned directed the cryptanalytic operations and training at the Riverbank Laboratories from the time of the inception of this work until its close threat in 1919, except for a period of a year when he was 1st Lieutenant, MID, serving at GHQ-AEF in the German code-solving section.

2. In June 1917 the cryptanalytic activities of the War Department were initiated by Colonel Van Deman, G2, with the commissioning of H.O Yardley as 1st Lieutenant, MID. Yardley, who had been a telegrapher at the State Department and had taken some interest in cryptography, was given two civilian employees to assist him. The work grew rapidly and by autumn of 1917 the increased staff was organized as a section designated as MI-8, which was subdivided into six subsections with duties as indicated briefly below:

1) Code and cipher solution subsection—This subsection was what would now be called the cryptanalytic subsection. It was the largest of the subsections of MI-8 and performed the cryptanalytic work not only for the War Department but also for all other government departments, including Navy, State, Justice, and the two censorships—Cable and Postal, which were then separate organizations.

2) Code and cipher complication subsection—Despite the fact that under Army regulations the compilation and revision of codes, was a function of the Chief Signal Officer, compilation activities under the Signal Corps were apparently in a moribund state. Information having been received the Germans possessed copies of the War Department Telegraph Code, MI-8 deemed it advisable to establish a code compilation subsection, and that subsection produced several codes such as Military Intelligence codes No 5 and No 9, small pocket codes for secret agents, and the like.

3) Training subsection—In addition to training its own personnel, MI-8 trained the majority of the personnel sent overseas for cryptanalytic duties with field forces, both AEF and Siberia.

4) Secret inks subsection—A laboratory was established for the preparation of invisible inks for use by our own agents. It also examined letters for secret ink writing and an average of over 2,000 letters per week were examined for the military and postal censorship from July 1, 1918 to February 1, 1919.

5) Shorthand subsection—This subsection was organized to handle texts in various shorthand systems, especially German, which had to be deciphered.

6) Communications subsection—This was established in MI-8 for handling messages to and from military attaches and intelligence officers serving abroad. In a period of nine months it sent and received about 25,000 such messages, practically and in code.

3. At the height of its development, which was reached in November 1918, MI-8 was, for those days, a rather large unit, consisting of 18 officers, 24 civilians cryptographers and cryptanalysts, and 109 typists and stenographers. The time had come for the establishment of a definite policy for the future. Now, the guiding heads of Military Intelligence at that time fully recognized the high importance and value of the services rendered by the cryptanalytic bureau, because there had been instances where the products of the daily activity of the bureau came directly to notice and they could not fail to note the influence and bearing which the work had, not only upon the military and naval but also upon the diplomatic, political, and economic phases of the conduct of war. They therefore had practical experience in the matter and could bring the weight of their position of influences and their actual experience to bear upon those in charge of the purse strings, with the result that they were able to obtain funds sufficient to keep a daily large

organization intact for a year or two. An annual appropriation of $100, 000 was recommended in a G2 study dated May 16, 1919, to be used in the following.

Rent, light, and heat		$3,900
Reference books		100
Personnel: Chief		6,000
10 code and cipher experts @	$3,000	30,000
15 code and cipher experts @	$2,000	30,000
25 clerks @	$1,200	30,000
Total		$100,000

The item for "rent, light, and heat" is explainable when it is noted that the bureau was to be moved from Washington with a view of hiding its existence. Of the $100,000 recommended, the State Department was to provide $48,00 and $50,000 was to be provided for expenditure by the ACofS, G2, on "confidential memoranda" against funds pertaining to "Contingency Military Intelligence Division"—that is, by vouchers not subject to review by the Comptroller General. The paper containing the recommendations made by the ACofS, G2, to the Chief of Staff was "OK-ed" and initialled by Acting Secretary of State Polk on May 17, 1919, and on May 19 it was approved by the Secretary of War over the signature of General March, Chief of Staff. The plan was put into effect, the bureau was installed in a private house at 22 East 38th Street, New York City, and all personnel together with existing records were moved thereto.

4. It is important to note that at that time no provision whatsoever was made for radio intercept as a source of raw material for cryptanalysis. A few words on this subject may not be amiss. Radio intercept of fixed station material in the U.S. by the Army during our active participation in the last war was rather fragmentary. The work was, of course, a responsibility of the Signal Corps, but radio communications could hardly compete with cable and wire communications as a source of raw material because not only did the large governments use cable in preference to radio, but also radio as a means of communication between widely separated fixed stations was then in its infancy. The Signal Corps did, however, have what were called "mobile tractor" units stations on the southern border, and in late 1918 one large intercept station was established at Houlton, Maine, for the purpose of copying trans-Atlantic radio. The large intercept stations maintained by the Signal Corps in the AEF did furnish a large quantity of diplomatic traffic which was forwarded as raw material to G2 in Washington, but as soon as the war was over all these sources of intercept material were abandoned. This was, of course, true to a certain extent but was not by any means the whole truth. At any rate by 1929 the flow of messages furnished G2 had dwindled to a mere trickle. In about the year 1926 the intercept stations of the Coast Guard submitted to me informally a few radio intercepts of what appeared to be Japanese code messages, but these were only sporadic occasional intercepts of transmissions in the Far East. They were usually fragmentary and afforded very poor material. Such as they were, however, these occasional messages were turned over to G2. There were, therefore, clear indications that if a serious attempt were made to obtain this material better copy could be obtained. However, no pressure was brought on the Signal Corps to set up a regular intercept service, and aside from a few relatively weak efforts to establish an intercept station in the Philippine Department there was no real intercept service until after 1929, when responsibility for cryptanalysis was transferred from G2 to the Signal Corps. How this came to pass will soon be detailed.

5. As indicated in paragraph 3 above, the $100,000 appropriation, set up in 1919 took care of the bureau for the FY 1920, that is from July 1, 1919 to June 30, 1920, but when in June 1920 it came time to set up the budget for FY 1921, the purse strings were already beginning to be pulled tighter. Many of the "old-timers" in G2 had gone to other assignments; those remaining and the newcomers in G2 apparently had neither the background nor the influence to press the matter. The appropriation was at once cut in half, that is, to $50,000, of which the State Department share still continued to be $40,000. The theory was, evidently, that since the work done by the bureau was primarily, if not solely, for and of interest to the State Department, all or nearly all of the funds should be provided by that department. The War

Department overlooked some very important points in the situation—points which will be brought up and emphasized later in this summary. In order not to break the continuity of the history at this point, it will be stated merely that year by year the funds provided for the maintenance and operation of the bureau became more and more constricted until by the autumn of 1929 the following tabulation, based upon a letter dated July 17, 1929 from Major O.S. Albright, G2, to the Chief Signal Officer General Gibbs), shows how the bureau had been permitted to deteriorate:

Rent	$3,000
Books, postage, travel, transportation, misc.	2,370
Personnel: 1 Chief (Yardley)	7,500
1 Code & cipher expert	3,660
1 translator (Japanese)	3,750
1 secretary	1,800
1 clerk-typist	1,600
1 clerk-typist	1,320
Total	$25,000

In the foregoing total appropriation of $25,000 the State Department furnished $15,000, the War Department $10,000. The activities of the bureau had by this time become so reduced that it was sending in only occasional translations of a few Japanese diplomatic messages. No research whatsoever was conducted in cryptanalysis; there were no training activities, no intercept, no code compilation, no secret ink work. The personnel consisted of six persons all told and 37½ percent of the total payroll went to one man, who had little interest other than to continue as long as possible to maintain himself in the sinecure into which he had been permitted to establish himself.

6. In the summer of 1929 Major O.S. Albright, Signal Corps, had been assigned to G2 to serve on the staff of the ACofS, G2, to supervise and coordinate such of the cryptographic and cryptanalytic activities of the War Department as remained. After a careful study of the situation and an appraisal of how the existing cryptanalytic bureau was and was not serving the functions for which it has been intended, Major Albright came to the conclusion that the entire picture was wrong. He felt that the product "bulletin" which the bureau was turning out every few days was indeed of primary interest for its own sake to the State Department and while the War Department had only a secondary interest in the "bulletin" for the information it gave, the primary interest of the War Department in cryptanalytic studies in peace time was that it was intended to provide a means for training of personnel for immediate war-time effectiveness. Major Albright found that not only was there very little if any training being conducted but also that all the persons in the bureau, except for one clerk receiving the least pay, were "getting along in years"— their potential usefulness for possible war time service practically nil. Moreover, the bureau was now hidden away in a public office building in New York under cover of the "Code Compilation Company" for alleged purposes of security) and far away from direct supervision of anybody connected with the War Department or G2, so that nobody knew what was going on, how the office was administered, and so forth. Yardley devoted most of his time to two or three private enterprises (commercial code compilation, real estate brokerage, consultant in code matters to commercial firms) and he was having a "field day" at government expense. There were, in addition, several other weighty factors which motivated Major Albright in preparing a G2 study recommending that the bureau be taken out of G2 and its functions transferred to the Signal Corps, chief among which was the desirability, if not necessity, of placing all cryptographic and cryptanalytic work of the War Department under one agency, rather than distributing it among three (the Adjutant General, for printing, storage, issue, and accounting of codes; The Chief Signal Officer, for compiling codes and ciphers; MI for solution of codes and ciphers). A memorandum on the same subject was prepared by Lieutenant Colonel K. Wilson of the War Plans and Training Section of G2, and is also attached hereto. The reasons given in Major Albright's study and in Colonel Wilson's memo-

randum were apparently deemed valid by the Chief of Staff, for Major Albright's recommendations were approved in April 1929 and steps were soon initiated by G2 and the Chief Signal Officer to put them into effect. The recommendations carried with them merely the wording of a change to be made in AR 105-5, specifying the duties of the Chief Signal Officer, these duties being enlarged to include the printing, storage, distribution, and accounting of codes and "in time of war the interception of enemy radio and wire traffic, the goniometric location of enemy radio stations, the solution of intercepted enemy code and cipher messages, and the laboratory arrangements for the employment and detection of secret inks."

7. However, before anything could be done actually to transfer the activity, a new and very disturbing factor entered into the picture. In March 1929 a new administration took office, in which Mr. Stimson became Secretary of State. For a few weeks no "bulletins" from the cryptanalytic bureau in New York were given him, the intention being to "go slow" until he had become sufficiently well oriented in the duties of his office to warrant bringing to his attention the highly secret activities engaged in by War and State Departments by means of funds provided in large part by the latter Department. Early in May 1929, however, the time was deemed ripe for his measure, but it was with some trepidation that a few translations of Japanese code messages were placed on Mr. Stimson's desk. His reaction was violent and his action drastic. Upon learning how the material was obtained, he characterized the activity as being highly unethical and declared that it would cease immediately, so far as the State Department was concerned. To put teeth into his decision he gave instructions that the necessary funds of the State Department would be withdrawn at once. It was only after considerable pressure by the ACofS, G2, that he was dissuaded from the course, which might have had serious consequences by suddenly throwing out of employment the six people concerned, at a time of severe economic depression. For these workers had only special training in a field wholly useless to commercial, industrial, shipping or banking firms, or to other government departments, or to educational institutions. An arrangement was therefore made to close the office immediately so far as active work was concerned but to keep the personnel on the payroll for the time necessary to wind up affairs, and get the files in shape ready to turn over to the Signal Corps. This took a couple of months, and at the end of June 1929 the employees were given three months pay "in advance" in a lump sum, to tide them over the period in which they might be jobless. Since they had been paid out of "confidential funds" they had no civil service status and no retirement benefits; moreover, they were ineligible for transfer to other government positions. The danger was, of course, that their dissatisfaction with what must have appeared to them as high-handed, arbitrary action on the part of a new official, and that their helplessness in the serious personal situation created for them by his drastic action might lead them to indiscretions which might prove most embarrassing to the government and have serious consequences upon national defense. It turned out that whatever their private feelings, all the discharged personnel, except the chief beneficiary to the old regime, remained loyal and did the best they could to find jobs.

8. In October 1929, I was sent to New York to take over the boxed-up records and files and to oversee their transportation to Washington. The cryptanalytic activities, research, and training now being under the Chief Signal Officer, steps were taken to reorganize the bureau and its work. The funds available were, of course, very slim—only what remained of the War Department's contribution of $10,000 for the FY 1930 was available, because the remainder of the State Department's share of $15,000, as indicated above, had already been withdrawn by the State Department. An offer of employment was made to Mrs. Wilson, the Japanese expert with Yardley, but she was unable to accept, since it involved moving to Washington and she had a husband and child in New York. Another employee, Mr. Victor Weisskopf, had a business in New York and refused to move to Washington. The female clerical employees were deemed unsuitable for our purposes and, moreover, having no Civil Service status they could not be taken on by transfer. An offer of temporary employment was made to Yardley but he refused the tender. Instead, he proceeded secretly to prepare a book which first appeared in the form of article in the Saturday Evening Post and which in much expanded form later appeared under the title *The American Black Chamber*. The book and articles were highly sensational and made damaging disclosures concerning the

most secret activities ever conducted by the government. Before the appearance of the articles and book, however, he had taken certain steps to protect himself from possible prosecution for his disclosures, among which was to resign his commission as Major in the MI reserve. Of course, had the authorities understood these real purpose of his resignation they might have prevented it so as to retain some hold on him. But being in ignorance of the real motives and deeming it just an act of pique, the resignation was accepted. The unfortunate consequences attendant upon the publication of the book need no elaboration herein. Suffice it to say that our precarious relations with Japan were brought to a boiling point when about 30,000 copies of the Japanese translation of *The American Black Chamber* were sold in Tokyo in a period of less than a month (perhaps the book was subsidized by the Japanese government itself.). The bad odor into which all cryptanalysts and cryptanalytic activities fell, as a result of the difficulties which the publicity given the matter by Yardley's disclosures occasioned high government officials, had a bad effect upon the attempted reorganization of the cryptanalytic bureau by the Chief Signal Officer. Funds were hard to get, and State Department support was lacking, if not in the other direction altogether. The most serious consequences of Yardley's disclosures, however, came ten years later and their effects can hardly be estimated. I refer here to the jolt which his book gave the Japanese cryptographers, leading them out of their blissful ignorance and causing them to develop really complex methods which are now giving us many difficulties. The same is true probably as regards the German and Italian cryptographers—their education has been entirely at Uncle Sam's expense and the final consequences of Yardley's work can not yet be foreseen. They may well turn out to be disastrous.

9. However, the Chief Signal Officer proceeded, as energetically as possible under the circumstances, to carry out the mission assigned him. The code and cipher solving section was placed under the War Plans and Training Division since the compilation section was already there. A rather detailed directive which was prepared by G2 and approved by the Secretary of War [Exhibit 4], became the guiding plan of the reorganized service, which was now named the Signal Intelligence Service. Its personnel consisting of myself and one or two clerks soon was augmented by a half dozen more employees. Training literature and courses were prepared and put into good usage at once. A great deal was done in expanding our cryptographic work also, by preparing reserve editions of existing codes, compiling new codes and ciphers, developing cipher apparatus, and so on. Cryptanalytic work was put on a firm basis of research and training, the emphasis on the latter, for there existed no intercept service and the raw material could not be obtained. Hence an intercept service now was organized and grew very slowly. All phases of signals intelligence were unified under no service and taken under study and action. Moreover, cooperation with the Navy in the work was also initiated. How the activity was expanded since then requires no comment at this time. However, a few words about relations with the Navy are pertinent.

10. Cryptanalytic activities in our Navy Department were practically nonexistent until after the close of the last war, during which, as was noted above, whatever problems they had in cryptanalysis were referred to MI-8. But in 1921 the Navy, recognizing the important role which cryptanalysis was bound to play in future operations, began building up a large unit in the Navy Department, with echelons afloat. Whereas the Army placed emphasis upon civilian training, the Navy placed emphasis upon officer training; and for each dollar the Army was able to obtain for cryptanalytic and cryptographic work the Navy was able to obtain three to five dollars, until by 1939, as far as concerned numbers of officers and civilian personnel engaged in these activities, amount of equipment on hand, and funds available for research, the Navy had considerably outstripped the Army. However, it may be said, with some justifiable pride perhaps, that while they were ahead of us in quantity we were ahead in quality, for all the important developments in both the cryptographic and cryptanalytic fields must be credited to Army personnel. At first, cooperation between the two services was intermittent and at times very indifferent—the usual mutual suspicious and jealousies pervaded our relationships. But, happily, for the past three to five years cooperation has been much more wholehearted, with the result that it may now be said without reserve that, as regards their cryptographic and cryptanalytic activities, cooperation between the Army and Navy is so close as to be the same as though they were under one head. This, of course, is as it should be and

must be in order to gain the desired result from such activities.

11. It would be of utmost value to the winning of this war if the government were now in a position to read the codes and ciphers of all the foreign powers whose actions and probable intentions are of interest and importance in our prosecution of the war. It could have been in this fortunate position had it given to cryptanalytic studies the attention which they deserved during peace time and had provided funds for their continuity on a scale sufficient for the purpose for which they are intended. The matter can be summarized very succinctly in this statement: Actual or physical warfare is intermittent, but mental, that is, cryptanalytic, warfare is continuous. It is vital that this be understood by those who exercise the control over such studies, and a few words on this point are given in the next paragraph.

12. There are four basic reasons why continuity in cryptanalytic studies is so important. They will be discussed briefly under separate subparagraphs.

1) It must be realized that cryptanalytic activities have no counterpart in civil life. Therefore, on the outbreak of war there is no important sources from which trained, experienced personnel can be drawn for immediate usefulness. Since skill in cryptanalysis can be hardly be developed in a short time and cryptanalytic units capable of producing quick results can not be improvised in a hurry, unless there is a good-sized nucleus of such trained and experienced personnel no good cryptanalytic operations can be conducted in the early phases of a war, that is, just at the time when results can usually be obtained most easily and when such results are extremely important. Moreover, it is in the upper strata of cryptanalytic brains that continuity in studies is most important. It is possible, under pressure, to obtain large numbers of recruits of high intelligence from colleges and universities, but until they have had at least five years actual experience and training they are wholly unprepared to attack the most difficult problems encountered in modern, up-to-date secret communications. Consider the present "purple" system, for example. It required almost two years of concentrated effort to break down this system and it was indeed fortunate that this had been accomplished by September 1939. If we had not been able to start this study until December 1941, it would not have been possible to read those messages short of two year's study, if at all, because the problem is so difficult to begin with and moreover the volume of traffic available for analysis would be so small compared to what it was before December 7, 1941. Moreover, if we did not have two years' experience with the ordinary "purple," the task of reading the special "purple" now occasionally employed would be extremely more difficult, if it could be done at all before too late to be useful. Again, our present difficulties with Japanese military systems are in large part occasioned by our failure to devote sufficient study to these systems over the past few years; but it must be realized that limitations on funds and personnel made such studies impossible because with the small staff of SIS personnel rom 1930 to 1940 it was all that these personnel could do to keep abreast of the Japanese diplomatic systems, for which G2 was clamoring.

2) Continuity in cryptanalytic studies also requires continuity in intercept work, for without the basic raw material no studies at all can be conducted on actual traffic and purely theoretical studies may be far off the real target altogether, no matter how successful. Continuity in intercept work means, of course, that the equipment and personnel of the intercept service have to be maintained so that they are available on the outbreak of war, for immediate, useful work. Unless cryptanalytic studies are pursued the need for the maintenance of adequate intercept stations soon disappears, for it presently begins to look as though the work done by the intercept personnel is useless and funds for this activity are withdrawn.

3) Continuity in cryptanalytic studies is necessary because cryptanalysis is not a static science or art—it must progress as the cryptographic science progresses. In the past few years great strides have been made in the latter, especially as regards the development of complex electrical and mechanical cryptographic devices and machinery. Moreover, the cryptanalytic work done during the last war has been publicized. As alluded to above, *The American Black Chamber* in particular has exercised a wide influence in putting certain nations which had been quite backward in their cryptography on their guard, causing them to engage in studies and developments for the improvement of their codes and ciphers. The result is that the cryptographic systems of these nations have become more and more difficult to analyze.

But it is important to note that improvement in cryptography usually comes in successive small steps, and if the opposing cryptanalyst can keep in step with these progressive increases in complexity, he can, as a rule, be in a position to read the new systems almost as fast as they are put into usage, but if there is much of a lag in the cryptanalysis and cryptography gets too far ahead for the cryptanalyst to catch up quickly.

4) Finally, it may be noted that continuity in cryptanalytic studies brings improvement in our own cryptographic systems and methods, without which we may be lulled into a false sense of security and remain blissfully ignorant of what some foreign cryptanalytic bureau may be doing with our supposedly secret messages. It can be said that the greatest blow that can be dealt to signals intelligence work is loss of continuity in cryptanalytic studies, for it means that a disastrous blow has been delivered to technical efficiency of both the cryptographic and cryptanalytic services for war-time functioning.

World War II Era

If the World War I experience had reformed intelligence as an equal partner with the other general staff sections, World War II would be a time of constant redefinition for the discipline, as its several separate functions sought to organize, reorganize and merge themselves into some kind of meaningful whole best suited to carry out the intelligence mission. Army Deputy Chief of Staff Lt. Gen. Joseph McNarney, himself once assigned to the Military Intelligence Department back in 1926, said that the Army G-2 "was always a headache for the War Department and was reorganized continuously and unsuccessfully throughout the war."

The shortage of trained intelligence officers and enlisted specialists in the American Army prompted General Eisenhower to select British officers as his G2, a practice he continued from the campaign in North Africa to war's end. General Omar N. Bradley expressed the problem this way:

> *The American Army's long neglect of intelligence training was soon reflected by the ineptness of our initial undertakings. For too many years in the preparation of officers for command assignments, we had overlooked the need for specialization in such activities as intelligence…. In some stations, the G2 became the dumping ground for officers ill-suited for command. I recall how scrupulously I avoided the branding that came with an intelligence assignment in my own career. Had it not been for the uniquely qualified reservists who so capably filled so many of our intelligence jobs throughout the war, the Army would have been pressed….*

Talking about both the Army and Navy, Secretary of War Henry L. Stimson concluded at the end of 1943 that the "intelligence services are pretty bum."

The G-2 in the War Department was the largest element of the General Staff. Because of the McNarney reorganization of the Army staff, the G-2 was reduced to 16 officers and 10 others, with 342 officers and 1,005 enlisted and civilian personnel moved to a newly created Military Intelligence Service. The Military Intelligence Service was formed in March 1942 as part of a general Army reorganization that relegated general staff sections to just planning functions. This created the need for an operating agency of G2 that could control intelligence work in the Zone of the Interior, such as training for combat-bound soldiers in escape and evasion and the interrogation of high-level enemy prisoners in U.S. prison camps. The Military Intelligence Service coordinated the activities of intelligence production both overseas and in the United States. It was made up of men who were specialists in a variety of fields, including language students and language experts, scholars in areas like history, geography and economics, world travelers, journalists, and professional investigators.

At first, the transfer of MID's operational functions to MIS was largely a paper exercise, since the G-2, Maj. Gen. George V. Strong, wished to maintain control over all intelligence assets so as to be in the best position to advise the Chief of Staff on intelligence matters.

Months after the creation of the Military Intelligence Service, a new Special Branch was formed to process communications intelligence, an outgrowth of the Army's inability to put MAGIC intercepts in the hands of the proper commanders before the Pearl Harbor tragedy. It was headed by Brig. Gen. Carter W. Clarke.

Other added missions to affect the MIS were some inherited field offices in New York, San Francisco and New Orleans. In April 1942 a fourth branch office was set up in Miami to counter Axis operations in Latin America, which grew to become a semi-independent intelligence agency with extensive operations in Central and South America. It was known successively as the American Hemisphere Intelligence Command, the American Intelligence Command, and the American Intelligence Service.

The MIS opened offices in London and Washington to analyze captured documents under its Military Intelligence Research Section. The Psychological Warfare Branch assumed the duties its name implies until the Office of Strategic Services picked up this mission in December 1942.

In April 1943 the Military Information Division was given the task of managing the Army's World War

II history program. The Historical Branch was formed in August 1943 with Lt. Col. John M. Kemper as its first chief. It was removed from G-2 responsibility in 1945.

Under G2 was the Corps of Intelligence Police, which was renamed the Counter Intelligence Corps (CIC) in 1942. With the mission of recruiting, training and administering Army counterintelligence personnel, the Corps performed security investigations in the United States and sent 17-man detachments to combat divisions overseas. One of its first and most influential chiefs was Colonel H. Gordon Sheen.

When the CIC was established in 1942, it had an authorized strength of 1,026. When Germany surrendered in May 1945, that figure had risen to 7,500. In Washington, D.C., the headquarters would be located in a single room in the Munitions Building until they were evicted to a series of other accommodations in the city. They eventually settled into a private home on North Charles Street in Baltimore. Their activities were far-ranging and diverse, calling upon a resourcefulness that would characterize their efforts in all theaters.

In the United States during the war, over 13,000 members of the CIC "pushed nearly a billion doorbells, making more than two and a quarter million background investigations and running down leads for thousands of complaint cases [against suspected subversives]." In the U.S. the CIC was responsible for the security of the Manhattan Project, the secret scientific work on the atomic bomb, and performed censorship duties for all mail arriving from overseas. Counter Intelligence Corps detachments were assigned to each Army division in the North African, European and Pacific theaters, with a total of 241 CIC detachments operating during the war.

The CIC detachment in Tunisia conducted psychological warfare operations in the prolonged fighting at El Guettar. In North Africa and Italy, CIC agents accounted for hundreds of prisoners from whom they extracted valuable information. In Sicily they captured enemy radio transmitters and maps of enemy minefields. In Italy between October 1944 and April 1945, the CIC captured 200 German agents in the Fifth U.S. Army area, including Dr. Kora, the commander of a German intelligence unit known as Abwehr Kommando 190. CIC agents were airdropped into Normandy on D-Day. They played an important part in the Battle of the Bulge and the counteroffensive that followed, blunting the subversion campaign of Col. Otto Skorzeny who had infiltrated English-speaking Germans in U.S. Army uniforms to disrupt operations.

In Europe teams of CIC men followed U.S. forces into combat with the mission of scouting out and capturing German work on the atomic bomb and rocketry, and taking into custody German scientists. This was known as the "ALSOS" Mission, led by Col. Boris Pash who with daring and imagination personally led his teams into enemy-held territory. In addition to German and Italian scientists, they seized over 70 tons of uranium and radium products that were shipped to the U.S. for use in American nuclear projects.

CIC units played an even more important role in the postwar occupation of both Germany and Japan, investigating and apprehending war criminals, rounding up Nazis, and countering Communist subversion. For instance, the 970th CIC Detachment in the American Zone of Occupation in Germany, picked up over 120,000 Nazis after the war.

In the European theater, many of the CIC's counterespionage duties were usurped by the OSS. But in the Pacific that was prevented by a command directive from General MacArthur's headquarters, proscribing the OSS from operating in the Southwest Pacific Area. There was another important difference in CIC operations in the Pacific. With fewer urban areas to secure or captured soldiers to interrogate, the CIC was able to devote more of their time assisting with combat intelligence and in working on captured documents. In the Leyte campaign, CIC took into custody officials working for the Japanese and in Luzon in January 1945, 30 CIC detachments came ashore with the invasion force.

The CIC secured and captured enemy headquarters, interrogated prisoners, and impounded enemy documents. They arrested or surveilled any suspected enemy agents. They surveyed and protected public utilities, supply depots or any other potential targets of sabotage. They seized radio stations and tele-

phone switchboards, halting all communications and turning over any communications data to Signal Corps personnel. They shut down presses and seized mail for censorship teams. They cooperated with local provost marshals on matters of law and order. CIC operatives familiarized themselves with local economic, political and social conditions, and cultivated well-placed informants.

In the first two months of 1944 the CIC headquarters was abolished, its school transferred, and its staging area closed down, perhaps the victim of enemies in the Army bureaucracy. It was combined with the Provost Marshal General, briefly called the Security Intelligence Corps, and its Zone of Interior missions were turned over to the Army Service Forces. The overseas CIC detachments continued to function as before. The Counter Intelligence Corps would reemerge as a separate entity before the war was over. A new CIC center and school were opened at Fort Meade, then Camp Holabird, in July 1945, and the office of the Chief, Counter Intelligence Corps was reestablished under the Intelligence Division of the Army Service Forces in July 1945, with the Security Intelligence Corps being reassigned from the Provost Marshal General.

The World War II infantry divisions incorporated a cavalry reconnaissance troop. Each of their regiments also had an Intelligence and Reconnaissance (I&R) Platoon which provided patrols, observation posts, and performed other tactical intelligence collecting missions on behalf of the S2 or regimental intelligence officer. This was typical of the tactical intelligence organization of World War II and reflected a growing appreciation of an organized military intelligence effort. Teams of interpreters, interrogators, Order-of-Battle specialists and photo interpreters were allocated to each division by theater-level military intelligence services. Corps and armies were also supported by intelligence detachments.

While the Army Air Forces did the aerial reconnaissance, the Army retained a small recon capability by using their L-4 "Grasshoppers" when they were not flying their normal artillery observation missions.

In the allied invasion of Sicily in July 1943, deception operations convinced Hitler that the blow was going to fall in the Balkans and that is where he moved his reinforcements, allowing the allies to avoid massive casualties. Deception operations were carried out by what was called the "A" Force, a forerunner of Eisenhower's Ops "B" deception unit before the Normandy landings. The operations included a body washed up on the coast of Spain with documents showing that the allies would next move on Greece and Sardinia. The ruse suggested Sicily was just the cover target for the invasion of Sardinia. Other techniques included an inflated allied Order of Battle fed to the Germans by radio traffic, double agents and rumor. The enlarged OB led the Germans to believe the allies had the capabilities to carry out these ambitious assaults around the Mediterranean. Rumors were spread about troop movements to the areas of the notional assaults. Radar reflectors and jamming devices were used at the time of the actual landings in Sicily to cloak the invasion, while feints and phoney radio communications diverted German attention to other landing sites.

Deception operations took the art to new levels before the Normandy invasion when small deception units imitated larger tactical formations by fielding mock equipment like inflatable tanks. To complete the picture for German analysts, the Signal Security Agency's Protective Security Branch broadcast elaborate signals to simulate the communications network of a large unit. Large German formations were pinned down at Pas de Calais by what they thought was a U.S. Army Group across the channel from them, thereby preventing their reinforcement of the defenses around the Normandy beachheads.

A World War II forerunner of the unattended ground sensor was the microphone that, according to a 1940 field manual on observation, was connected by wire to a "sound-ranging" station manned by observation personnel of a field artillery battalion. "When conditions are favorable, sound-ranging can locate hostile batteries with considerable accuracy and may even be used to adjust fire on the batteries' location."

The Japanese used for their highest codes a machine cipher that was extremely difficult to break. William Friedman solved some of the Japanese coded dispatches and then went on to painstakingly duplicate the machine that produced the codes. These machines and the codes they created were called PURPLE by the Americans and the flow of information intercepted from the Japanese was code-named

MAGIC. Access to the Japanese codes gave the Americans a tremendous advantage but it was largely wasted when a series of missteps led to the failure to warn in time the commander in Hawaii of the attack on Pearl Harbor. This failure would lead to a congressional investigation and a major shakeup of intelligence activities and organizations after the war.

Turning to the area of electronic warfare, the U.S. Radiation Laboratory was established in October 1940 at the Massachusetts Institute of Technology by the National Defense Research Committee. Its mission was to further microwave radar research and to investigate ways to counter enemy radars.

The National Defense Research Committee formed the Radio Research Laboratory in December 1941, using a name designed to conceal its real purpose, within the Radiation Lab at Massachusetts Institute of Technology. Its job was to work on electronic countermeasures. Scientists working out of the Camp Evans Signals Laboratories, Camp Coles Signal Laboratories, the aircraft radio research laboratories, and the Radio Research Laboratories (RRL) at Harvard University developed van-mounted direction finding and intercept systems; portable direction finding equipment like the SCR 206; a jammer deployed by parachute called the CHICK (AN/CRT-2), and the RADAR CHICK (AN/CPT-1) which was an expendable radar jammer. Improvements included multi-scanners jammers that would eliminate friendly frequencies from the jamming spectrum.

The first U.S. Army radar, the SCR-268 coastal and anti-aircraft gun control set, went into production in 1941. S-27 Receivers, built by Hallicrafters in Chicago, became in 1941 the standard receivers used by the British and U.S. Ferrets (modified B-17 bombers) for ELINT missions in World War II. General Radio made the P-540 Receiver and Tuning Unit in 1941 which would become the basis for the ELINT receivers used during World War II.

Production of "jammers" was started at the Delco Radio plant in Kokomo, Indiana, in April 1943. Known as "Anti-Radar Devices," the APT-2 Carpet and APT-1 DINA (Direct Noise Amplifier) were the first models. The requirements for ECM equipment rose drastically in the European theater. The Normandy invasion called for 30,000 high frequency transceivers, 10,000 VHF radios, 3,000 radars and 100 radar ECM devices. At the end of the war, 4,100 jammers along with other various intercept receivers were being used by Supreme Headquarters, Allied Expeditionary Force. The headquarters had asked for 10,000 ground and airborne jammers and for 1,500 tons of chaff.

The U.S. Army Signal Intelligence Service in the European Theater of Operations was responsible for providing ULTRA. At the theater level, Signal Security Detachments disseminated ULTRA intelligence furnished from England down to Army level, and integrated the ULTRA intelligence with Army and Army Group SIGINT passed up to them. The contributions of SIGINT to allied operations was made possible only through unprecedented cooperation between the intelligence agencies of Britain and the United States.

Communications intelligence was collected in the field by signals intelligence platoons at the division level until November 1943 when signal service companies at the corps level were assigned that task. They had organic intercept, direction-finding, and analysis capabilities. At the Army level medium grade enemy communications were exploited by a radio intelligence company made up of eight officers and 150 men. They operated from 12 to 15 intercept positions and as many as three direction-finding stations. At the Corps headquarters, the mission was direction-finding and the intercept of low-grade enemy communications, plain text and low-grade field ciphers. This was accomplished by four officers and 100 men in a Radio Intelligence Company, working under the supervision of the corps G-2. They manned eight to ten intercept positions and one direction-finding position.

At the end of the war, every corps and army headquarters had an organic Radio Intelligence company, while an Army Group had a battalion. But it wasn't until the 113th Signal Radio Intelligence Company landed at Normandy in June 1944 that the first tactical radio intelligence unit was fielded. It was estimated that 26,000 U.S. soldiers were involved in working with communications intelligence by the end of the war.

In the Battle of the Bulge in December 1944 and January 1945, Third U.S. Army received airborne

jamming support, but jamming was infrequent because the Army Air Force was reluctant to fly into heavy antiaircraft and fighter concentrations and intelligence officers did not want to deny themselves the good information they could get from signal intercepts.

The second world war saw the emergence of Electronic Warfare and Electronic Intelligence with the introduction of a range of electronic breakthroughs, foremost among them the use of long-range radio signals, or radar, to guide planes and ships to their target. The U.S. Army Signal Intelligence Service was able to exploit radio communications by intercepting them and passing them along to the code-breakers who would apply carefully gathered information about the enemy's encrypting machines and mathematical theory to decipher the codes. Using high frequency direction-finding receivers, the source of the message could be determined and the quantity of the message traffic could be analyzed to detect enemy buildups and deployment. A definite military advantage was handed to the allies by signals intelligence.

The SIS was renamed the Signal Security Service in 1942, and again changed to the Signal Security Agency in 1943. There were 935 people working for the agency at the beginning of the year and 3,455 at the end of 1943. By June 1944 the effort grew to employ over 5,100 civilians at its Arlington Hall headquarters. In December 1944 the operational control of SSA was transferred from the Signal Corps to the War Department G2, its chief customer, and renamed the Army Security Agency on 15 September 1945. It opened a training school at Vint Hill Farms, Virginia, which later would be moved to Carlisle Barracks, Pa., and then to Fort Devens, Mass.

For secure communications, the Wehrmacht confidently depended on their electromechanical code machine which allowed for each encoded character to have 1.5 million permutations. Called the "Enigma," the machine was thought to be impregnable. But British cryptanalysts solved the workings of Enigma. The information gleaned from Enigma intercepts was codenamed ULTRA and gave allied forces a decided intelligence advantage.

Signals intelligence was carried out in the Pacific by a joint American-Australian agency known as the Central Bureau organized on 15 April 1942. Radio intercepts were handled by the U.S. Signal Intelligence Service and the Australian Special Wireless Group.

During World War II, the Army Air Corps assumed the mission of aerial reconnaissance, mostly using P-38s, also known as F-5As, configured without guns or ammo but with their distinctive long-range fuel tanks under the wings. On some occasions armed F-6s were also used so that pilots could attack targets of opportunity. So large had the number of photo recce planes grown by 1943, that the Air Corps flew as many as 200 missions in one month in 1943 and delivered over half a million prints. The photo planes were assigned to tactical reconnaissance squadrons in 1944.

Training in the several intelligence disciplines was carried out in a range of schools across the country. The Signal Corps operated its SIGINT school for officers and civilians at Arlington Hall, its headquarters and a former junior college for girls, while enlisted personnel were trained at Vint Hill Farms in Warrenton, Virginia. The Counter Intelligence Corps conducted CI training at its U.S. Army Investigative Training School in Chicago. The Military Intelligence Service Language School gave language training to second generation Japanese-Americans at Fort Snelling, Minnesota. For most intelligence personnel, the Military Intelligence Training Center at Camp Ritchie, Maryland, was the training site. There, in an old National Guard Armory, 19,669 combat intelligence specialists were graduated during the war.

In the Pacific theater, General Douglas MacArthur developed his own intelligence apparatus, combining several different joint and combined organizations under his G-2, Maj. Gen. Charles Willoughby.

Working out of Australia, the Central Bureau performed code work and the Allied Intelligence Bureau did clandestine operations. In the Southwest Pacific Area, the AIB replaced the Office of Strategic Services which was prohibited from operating in the theater by MacArthur's policies. It used Australian coast watchers, many of them stay-behind agents, to report on Japanese fleet movements. In the Philippines, native agents and guerilla forces were used to good advantage.

An important arm of MacArthur's reconnaissance capabilities was a commando organization known as the ALAMO Scouts, who were trained for patrolling behind enemy lines.

The Allied Translator and Interpreter Section (ATIS) used as many as 2,000 American Nisei soldiers to provide interrogation and translation services from headquarters level down to the front lines. During the war the ATIS language teams translated 350,000 captured documents and debriefed 10,000 prisoners. The unit's duties carried over into the postwar disarming of Japan and her colonies. The section was headed by Colonel Sidney F. Mashbir, himself a student of Japanese and former undercover agent in Tokyo.

Technical intelligence (TI) teams began to be deployed to the Pacific in December 1942 to speedily examine captured enemy equipment in order to make use of its technical characteristics.

The Office of the Coordinator of Information was established on 11 July 1941 to conduct covert operations and supply information necessary to the national security. At its head was William J. Donovan, a New York lawyer and World War I Medal of Honor winner. Exactly one year later President Roosevelt ordered that the office be renamed the Office of Strategic Services (OSS) and placed under control of the Joint Chiefs of Staff. According to Allen Dulles, the agency recruited some of the nation's best historians and scholars to man its research and analysis desks. The OSS was given a charge "to collect and analyze strategic information and to plan and operate special services." Some of its special services included dropping teams behind enemy lines to support resistance movements, gather intelligence, spread disinformation, carry out sabotage missions, and undertake counterespionage work. OSS conducted espionage and partisan operations which captured the public's imagination, largely because of the descriptions of their colorful exploits published by their literary members after the war. The ranks of the OSS were filled with some 8,000 Army personnel. One of the most notable of these special operatives was Col. Carl Eifler who commanded the famed Detachment 101 in Burma and secured the vital Stilwell Road.

Maj. Gen. George V. Strong was chief of the Military Information Division in 1942 when the OSS came along and was determined to have his own foreign intelligence unit. He created what became known as the Grombach Organization, named after its head, Colonel John V. "Frenchy" Grombach, to run highly secret operations in Europe from 1942 to about 1947. Little is known about this shadowy Army unit and its competition with the OSS.

The Army Security Agency was formed under the command of the Director of Intelligence, U.S. Army, on 15 September 1945. It absorbed the missions of the former Signal Security Agency and its operating arm, the 2d Signal Service Battalion. It was also responsible for signals intelligence and communications security of all Army assets in the field. The first head of the Army Security Agency was Brig. Gen. W. Preston Corderman who, as a first lieutenant, was the sole instructor at the Signal Intelligence Service's first formal school in 1934. Its all-encompassing mission was diminished toward the end of the decade as some of its functions were turned over to the Air Force Security Service and the joint-service Armed Forces Security Agency, which would become the National Security Agency in 1952.

Acting on a proposal of William Donovan of the old OSS, President Truman called for the establishment of a permanent central intelligence agency that would operate as an arm of the executive branch of government to counteract Communist tactics of "coercion, subterfuge, and political infiltration." Congress passed the National Security Act of 1947. It created the Central Intelligence Agency which would be responsible for coordinating the intelligence activities of the various government departments and make evaluations and recommendations to the National Security Council. In 1947 the CIA vowed "Bigger Than State by '48," and it would succeed, receiving a larger budget allocation than the State Department a year later.

While Donovan succeeded in winning over the administration to his recommendations concerning the need for a national intelligence apparatus, the CIA did not do away with the Military Intelligence Division. But recommendations from within the Army for a Military Intelligence Corps failed to convince the War Department of its need in peacetime and intelligence functions would continue to be performed by officers drawn from other branches. A Strategic Intelligence School was opened in 1947 as part of the Army's school system.

With the formation of the Defense Department and the Central Intelligence Agency by the National Defense Act of 1947, Army intelligence became subordinated to the larger intelligence role played by these organizations. Further, most of its aerial capabilities were sheared away by the new U.S. Air Force.

U.S. Army intelligence emerged from World War II with an outstanding record, not only in SIGINT, but in all areas of combat intelligence as well. It was a heady time for the Army intelligence officers, former wartime S2s and G2s, who assembled at Fort Riley, Kansas, in 1946 to open the Intelligence School. They felt they had a lot of lessons to pass along and some wrote books on how to perform the intelligence function. But postwar demobilization would decimate their ranks and reduce the American Army to its customary peacetime shell. Few realized that America's next war was only a few years away.

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*JOHN P. FINNEGAN * U.S. Army Signals Intelligence in World War II: An Overview*

The United States Army entered World War II with an effective, functioning organization for the production of communications intelligence—COMINT. This was the Signal Intelligence Service (SIS) of the Army Signal Corps. The SIS had been formed in 1930 to consolidate all Army cryptologic functions under the Signal Corps. It was a unified organization responsible for producing the Army's own codes and cipher devices and for attempting to decrypt the communications of America's potential adversaries. Previously, the cryptanalytic function had been carried out by the War Department's Military Intelligence Division (MID) through a clandestine element based in New York, headed by Herbert O. Yardley, and funded with State Department support. However, this had been discontinued in 1929, partially because of Secretary of State Henry L. Stimson's conviction that "Gentlemen do not read each other's mail."[1]

The SIS was an organization shaped by its first chief, the legendary William F. Friedman. Friedman, who had previously served as the Signal Corps' code and cipher consultant, quickly recruited a small but extremely talented civilian staff. Even after a military officer was placed in charge of the SIS in 1935, Friedman continued to exercise a wide influence. During the period before World War II, the SIS published a series of influential studies on cryptology and pioneered the development of machine ciphers of unparalleled sophistication and security to safeguard Army communications. It also implemented training courses to educate reserve officers in cryptology, thus setting up a limited mobilization base of wartime expansion. Another accomplishment was the establishment of a network of radio intercept stations, something which the Army had never attempted in peacetime; Yardley's earlier cryptanalytic efforts had depended on the cooperation of friendly cable companies to provide the raw material.[2]

The greatest prewar accomplishment of SIS, however, was its success in deciphering the machine cipher used by the Japanese Foreign Office for its most secret messages. Through purely cryptanalytic methods, the SIS was able to build an analog of this machine and read Japanese dispatches as quickly as the intended recipients. As a result, the Army became privy to the thought process that guided Japanese diplomacy. The secret breakthrough was shared with SIS's Navy counterpart, OP-20-G, and later with the British. Otherwise, it was closely held. Decrypts of enciphered Japanese messages, code-named MAGIC, were passed on to a tightly restricted group of individuals of the War and Navy Departments and further disseminated to top policymakers (the Secretaries of War, Navy, and State, the President's military adviser, and the President himself).[3]

Unfortunately, MAGIC could not ward off Pearl Harbor. The high-level communications of the Japanese Foreign Office did not carry the details of Japanese military planning. Consular traffic that did contain military intelligence indicators traveled in less secure systems, but it could not be translated in a timely fashion because of other priorities. Moreover, the very secrecy with which MAGIC was handled impaired its utility. A few upper-level officials received tantalizing snippets of information from critical messages, but the material itself was never subject to detailed exploitation and analysis over the long haul. As Friedman would later put it, "each message represented only a single frame, so to speak, in a long motion picture film."[4] But no one had ever been in a position to watch the whole movie.

The shock of the Pearl Harbor attack immediately led to the adoption of a more systematic approach to handling diplomatic intercepts. A first step was taken when the Secretary of War, Henry L. Stimson, directed that a special section be formed within the MI Division's Far Eastern Section. (The head of the Far Eastern Section had previously functioned as the sole conduit of MAGIC.) Following an outside study conducted at Stimson's direction by a Chicago attorney, Alfred McCormack, the section was expanded to the status of a Special Branch within the MI Service that was created as the operating arm of the MI Division in March 1942. The Special Branch was headed by Colonel (later Brigadier General) Carter Clarke; McCormack himself accepted a colonel's commission and became Clarke's deputy. This organi-

zational innovation for the first time allowed sufficient numbers of analysts access to COMINT in ways that would allow them to use it in its entirety to build up an intelligence picture.[5]

Meanwhile, the Signal Intelligence Service was conducting rapid expansion. In March 1942 the MID recommended to the Chief Signal Officer that SIS move from its existing quarters in the Munitions Building in downtown Washington to new quarters that would provide greater security. MID also suggested that primary monitoring stations be established, one on each coast. At the time, the seven small existing stations manned by the 2d Signal Service Company—the SIS collection unit—were not well positioned for wartime needs; the station nearest to the scene of action, Fort McKinley in the Philippines, had already been overrun by the Japanese Army.[6]

Under wartime conditions, these steps were taken with alacrity. In June 1942 the first Army elements took possession of Arlington Hall, a former women's junior college just outside Washington. That same month, personnel from the 2d Signal Service Battalion (as the intercept arm of the SIS was now designated) began operations at Vint Hill Farms in Warrenton, Virginia, which had been selected as the site for Monitoring Station Number 1. A second major field station was soon set up at Two Rock Ranch near Petaluma, California. Meanwhile, SIS itself was redesignated. The term "Signals intelligence" was thought to be too provocative. SIS first became the Signal Security Division, then the Signal Security Service; and achieved its final wartime designation as the Signal Security Agency (SSA) in the summer of 1943.[7]

The Signal Corps' cryptologic organization recruited a largely civilian work force and began a process of rapid expansion. The original buildings at Arlington Hall were quickly outgrown. In the winter of 1942 and the spring of 1943, two large temporary buildings were hastily constructed at Arlington Hall to handle the overflow. Meanwhile, the agency moved in new directions even as it grew. In the Spring of 1942 liaison with the British introduced it to the new and promising art of traffic analysis, through which intelligence could be derived from the externals of a message even if the message itself could not be decrypted. In June 1942 the agency was given exclusive responsibility for exploiting foreign diplomatic communications, a mission previously shared with the Navy. It also dispatched a small detachment to Australia and sent one of Friedman's top cryptologists, Colonel Abraham Sinkov, to command it. This would become the American nucleus of a completely independent COMINT effort conducted in support of General Douglas MacArthur's Southwest Pacific Area by Central Bureau Brisbane, a combined US Australian operation headed by Brigadier General Spencer Akin, MacArthur's signal officer and a former chief of SIS.[8]

However, there were still large deficiencies in the Army's COMINT effort. The effort remained fragmented with intelligence production and collection in separate compartments. The Special Branch of the MI Service, responsible for COMINT evaluation, had no association with the cryptanalysts at Arlington Hall. The latter group worked for the Signal Corps, which itself was only one component of the Army Service Forces. As a result, McCormack commented, a situation existed in which the MI Service was "simply taking in what the Signal Corps catches and turns in, leaving the Signal Corps the responsibility for determining how much it will catch and turn in, and from the sources." And the SSA itself did not monopolize COMINT collection, since tactical signals intelligence units in the field worked for the supported commanders, not SSA."[11]

Moreover, the Army's COMINT effort was hampered by a severe shortage of personnel throughout the system. This created bottlenecks within the Special Branch and the SSA. Part of the problem resulted from military regulations. The Secretary of War had decreed that no officer under 28 years old could be in Washington after 31 January 1942. Additionally, the Army was reluctant to offer direct commissions to qualified civilians. The Civil Service Commission was equally obstructive. McCormack noted rather sourly that it seemed unable to distinguish an intelligence organization from an office that routes and stamps papers, and therefore forces on us an organization chart that calls for quotas of morons and semimorons…." The SSA, with much larger personnel requirements, was even more vulnerable to such practices, and it was hampered by the low priority given to it as a component of Army Service Forces.

Paradoxically, the importance of its work, which might have been used to justify a higher personnel priority, was too secret to divulge.[11]

Even more frustrating was the slow progress made by SSA in actually breaking any military codes. As previously noted, Japanese cryptosystems worked on principles entirely different from those used in Japanese diplomatic communications. The Japanese Army used bulky reenciphered codes, not a cipher machine. Crypotanalytic continuity was lacking. The Navy had been able to monitor traffic produced by Japanese naval exercises in the 1930s, but the Army had never encountered Japanese military nets until Bataan. As a result, SSA analysts at Arlington Hall were not able to make an entry into a single Japanese Army system until April 1943, when SSA and MacArthur's Central Bureau Brisbane made an almost simultaneous breakthrough. The first usable intelligence was not derived from exploitation of this Japanese Water Transport code until June 1943.[12]

The Army was equally frustrated in its attempt to work on German military systems. In April 1942, SSA had suggested to the British that it be allowed to work on the Enigma cipher machine used in high-level communications of the German armed forces. It was generally understood that the Government Code and Cipher School (the main British cryptanalytic center at Bletchley Park) has achieved some success in this field. However, the British rebuffed the Army's efforts either to secure Enigma decrypts or to work on the Enigma problem. This studied lack of cooperation—justified by the British on grounds of security and economy of effort—became even more grating when the Army became aware that the British were willing to share high-level COMINT with the US Navy to meet the operational needs of fighting the U-boat war.[13]

Finally, America's first exposure to actual land combat in the Tunisia campaign that followed Operation TORCH revealed major deficiencies in the structure of the Army's tactical signals intelligence organization. When the Army entered World War II, it was envisaged that only two types of tactical COMINT units would be needed. Radio intelligence platoons organic to the divisional signal companies and signal radio intelligence companies assigned on a basis of one per field army. Since it was assumed that analysis and translation would be accomplished by small radio intelligence staffs at theater or field army level, as had been the case in World War I, no analytic personnel were included in these units.[14]

The test of combat quickly demonstrated the unsuitability of this structure. The divisional platoons, in exposed positions near the front, were in too great a danger of being overrun to practice effectively their specialty; the signal radio intelligence companies, as organized, were too large and unwieldy to be used to support a corps, which had no dedicated communications intelligence support but which seemed to be the level of command most in need of it. Central processing proved to be impracticable, and the staffs at army level were too limited to handle the volume of exploitable COMINT. At the same time, the communications practices of the European members of the Axis (but not the Japanese) presented large volumes of material sent in clear or in low-level codes susceptible to timely forward exploitation. The Army was initially forced to turn to the British to bolster its units with analytic personnel. Later, a numbered theater intelligence service, the 849th Signal Intelligence Service, was formed to support American COMINT units in the North African Theater or Operations.[15]

In short, the Army's successes in the COMINT field up to the midpoint of the war were limited. Its continuing triumphs in the field of diplomatic communications had not been matched by corresponding success against the military systems in use by its major adversaries. The Army's COMINT effort had been hampered by its own organizational deficiencies and lack of priorities. The Army had been rebuffed by the British in its attempt to obtain access to German COMINT; it has been largely baffled by the Japanese military systems. Commenting on the situation in early January 1944, McCormack concluded morosely that "except for whatever the Navy had been able to do, we have achieved no corresponding victory over the Japanese. To date, in the field of radio intelligence, we have met largely with failure."[16]

McCormack's dissatisfaction at the beginning of 1944 was understandable. A resistive personnel system had created bottlenecks with both Arlington Hall and the Special Branch. Arlington Hall's initial breakthrough against Japanese codes in the summer of 1943 had created "a critical need for at least 2,000

[additional] persons. . .", but it had taken six months to begin "the lengthy and difficult job of recruiting such personnel . . ." In the meantime, 200,000 unread Japanese messages had piled up.[17]

But McCormack drew too dark a picture. Already the situation was becoming brighter. Mid-1943 had been a watershed in the Army's final successful exploitation of communications intelligence. Two major developments took place at this time. The first was Arlington Hall's success in breaking and exploiting the Japanese Water Transport codes. This proved to be a springboard for the exploitation of other Japanese military systems. The SSA, now steadily expanding, was able to thrown masses of personnel and batteries of IBM machines against the Japanese military cryptosystems. The capture of codes by troops in the field enhanced the ongoing efforts of cryptanalysts. Soon after McCormack's pessimistic evaluation, Arlington Hall had thus mastered the main Japanese Army code, a breakthrough that produced a wealth of intelligence."[18]

The second development was of equal importance. In mid-1943 the British finally decided to take the US Army into their confidence and reveal the full story of their success against the Enigma and other high-grade German systems. This was accomplished by a liaison visit to London by a joint Special Branch—SSA team: McCormack, Friedman, and Lieutenant Colonel Telford Taylor of the Special Branch. All barriers to free exchange suddenly fell. American cryptanalysts were allowed to work at Bletchley Park, a Special Branch liaison officer in London supervised the dispatch of pertinent traffic to MID in Washington, and Arlington Hall was given a share of research on the Enigma problem. In turn, the US agreed to adopt and implement British security practices on the transmission of COMINT to the field.[19]

The new availability of COMINT from both American and British sources created for the first time the problem of dissemination to the field. The problem was solved by the creation of a system of Special Security Officers (SSOs) along the pattern already established by the British. The SSOs would serve as representatives of Special Branch to the major American commands in the field, functioning as transmitters, guardians, and interpreters of ULTRA, as high-level COMINT was now called. The first three SSOs were sent to the Pacific in December 1943. Shortly thereafter, the British agreed to allow American SSOs to support the American commanders in the European and North African-Mediterranean-Middle East Theaters. (Previously, the British Special Liaison Unit system had handled all such dissemination of COMINT.) A subsequent decision to release ULTRA down to the field army and numbered air force level resulted in an even greater expansion of the SSO system. By August 1944 the SSO system had been allotted 172 officers and 65 enlisted communications personnel.[20]

The new importance and availability of COMINT led to changes in the organizational structure that produced it. By mid-1944 Special Branch was as large as all other branches in the MI Service's Intelligence Group combined. But this created a situation in which a large portion of the War Department's intelligence organization labored blindfolded, producing estimates without access to what was now the Army's single most important intelligence source. This was an obviously less than desirable situation, and it led to a reorganization of MID and its operating arm. Rather awkwardly, this took place just at the time of the Normandy invasion. Special Branch, as such, was broken up; its members dispersed through the rest of the MI Service. (A smaller Special Branch entity continued to supervise dissemination of COMINT to the field.)[21]

A few months later, the artificial barriers that had separated collectors of COMINT from evaluators also fell. The fact that the SSA was just a small part of the Signal Corps had distributed War Department intelligence officers ever since 1942. By 1944 the SSA had become the MIDs most important single source, furnishing it with 70 percent of its diplomatic intelligence and 80 percent of its information on the Japanese military. This made the existing situation even more unsatisfactory. In August 1944 Assistant Secretary of War John J. McCloy wrote pointedly to Lieutenant General Joseph McNarney, the Army Deputy Chief of Staff, that "I do not believe it is good practice to have the MIS by general directive and the establishment of general policies to attempt to create a workable intelligence organization in the low echelons of Army Service Forces as they are not attempting to do."[22] The Signal Corps clung tenaciously to SSA, but in the end of it was forced to back down. On 15 December 1944, the MID was given

operational control over the SSA, leaving the Chief Signal Officer responsible for the agency's administration.[23]

Meanwhile SSA continued to expand. By the summer of 1944, 5,100 civilians and 2,000 military personnel were on duty at Arlington Hall. The intercept facilities of the 2d Signal Service Battalion, SSA's collection arm, were also built up. In the spring of 1944 new fixed stations were established at New Delhi, India; Asmara, Eritera; Fairbanks and Amchitka, Alaska, and Fort Shafter, Hawaii. In the Fall the steady advances of American forces allowed another field station to be established on the island of Guam. The battalion also took over "listening posts" at Bellmore, New York, and Resada, California, that had been previously operated by the Office of Strategic Services (OSS). The OSS has used the facilities to track Axis propaganda broadcasts; SSA converted them to security monitoring stations.[24]

At the tactical level Army signals intelligence was strengthened by the creation of new types of units. As previously noted, the Army's experience in conducting the COMINT war in North Africa and later in the Mediterranean had demonstrated deficiencies in the existing organization of field assets. Divisional signal radio platoons had proven unsatisfactory. The existing signal radio intelligence companies were cumbersome and could function effectively only when supplemented by analytic and linguist personnel from a theater-level signals intelligence service. The War Department's initial reaction had been to move radio intelligence platoons up to the corp signal battalion. However, this measure only jammed a small number of intelligence personnel into a larger unit performing an unrelated function, resulting in obvious security and operational disadvantages. In the northern European theater, a happier solution was found. Small signal service companies, numbered in a sequence beginning with 3250, were formed from existing resources in theater to provide COMINT support to each corps. These units contained their own analytical personnel. The large signal radio intelligence companies continued to operate at army, army group, and theater level.[25]

In the Far East, because of the nature of the target and the tactical circumstance, the structure of the army's tactical signals intelligence organization followed a different pattern. The Japanese target array offered little opportunity for local exploitation, and large army formations were not fielded until the Philippine campaign of late 1944. Consequently, the four signal radio intelligence companies in the Southwest Pacific Area operated as collection arms for MacArthur's Central Bureau Brisbane rather than supporting the army commanders. In the Pacific Ocean Area two signal radio intelligence companies worked in similar fashion on high-level codes for Arlington Hall.[26]

In addition, the Army Air Force (AAF) created its own specialized intercept units to carry out a mission previously performed by signals intelligence units of the ground Army. In 1944 the AAF organized radio squadrons, mobile, to support each numbered air force. These large, battalion-size units, which included AAF intelligence analysts, were capable of operating in separate detachments and conducting intercept against both continuous-wave (Morse) and voice transmissions.[27]

By 1945, then, the Army had largely perfected its structure for collecting, evaluating, and disseminating communications intelligence. In this field, however, the Army never acted as an autonomous player. MIS and SSA were partners in a vast combined effort in which responsibilities were largely divided along theater and target lines, with the British focusing on the German problem, and the Americans on the Japanese. However, the US Army was deeply involved in all theaters: American SSOs furnished intelligence derived by Bletchley Park to the American commanders they supported in Europe, and Army personnel were at three of the four great Allied production centers. The Army controlled Arlington Hall; Central Bureau Brisbane continued as a combined US-Australian effort; and the Army had a foothold at Bletchley Park. Only the Wireless Experimental Center at Bombay, India, remained a purely British operation.[29]

Despite these steady improvements, the Army's COMINT arrangements were still less than satisfactory in three areas. SSA was still under the administrative, control of the Chief Signal Officer, and this took its toll on any claims for resources. The fact that Colonel W. Preston Corderman, who commanded 10,000 men and women in his dual capacity as chief of SSA and commander of the 2d Signal Service

Battalion, did not receive a brigadier general's star until June 1945 reveals something of the dimensions of the problem.[29]

Second, the Army strategic and tactical signals intelligence assets were still not coordinated properly. Tactical COMINT units were trained by Army Ground Forces, not SSA, and they functioned under the direction of theater and numbered air force commanders, not SSA, despite the fact that this division of labor did not reflect the reality that the communications intelligence process was a seamless web. As one contemporary evaluation put it, "radio intelligence operations, their availability for interception, the cryptographic systems used, and the usefulness of the results derived therefrom, all have no relation to the considerations which are determinative to assigning command responsibility for combat operations against enemy forces."[30]

Finally, cooperation between Army and Navy COMINT operations had been slow to arrive, despite the fact that OP-20-G, the Navy equivalent of SSA, was headquartered in another requisitioned junior college just a few miles away from Arlington Hall. An Army-Navy Communications Coordinating Committee (ANCICC) had been set up in early 1944, but had not been able to effect coordination all that well. The Navy had different uses for COMINT than the Army, and its security practices were more stringent. Navy hesitancy at sharing naval COMINT had been so great that McCormack at one time had toyed with the idea of terminating all cooperation between the two services. In February 1945, however, the two service chiefs (Army Chief of Staff General George C. Marshall and Navy Commander in Chief and Chief of Naval Operations Admiral Ernest W. King) had agreed to set up a high-level Army-Navy Communications Intelligence Board to finally coordinate a joint effort.[31]

The new head of MID, Major General Clayton Bissell, took the Navy initiative as an opportunity to resolve what he perceived as the remaining difficulties of Army signals intelligence organization. He protested that "the Army cannot participate on an inter-service project of this sort as long as its own signals intelligence activities remain as decentralized as they now are."[32]

This bureaucratic ploy spurred the War Department to thoughts of reorganization. After consulting theater commanders in the Far East, the Army created a single unified signals intelligence organization on 15 September 1945. The Army Security Agency established that day was to control "all signals intelligence and security establishments, units, and personnel" and to function under direct control of the MI Division. The US Army thus attained the integrated COMINT organization its intelligence chiefs had so long desired—thirteen days after the world war that had called it into being had finally come to an end.

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*GARY M. BATEMAN * **The Enigma Cipher Machine***

This article is not to attempt complete coverage of the Enigma cipher machine and the events surrounding it. Such an effort would be well beyond its scope. Rather, it will be an overview which will briefly highlight and explain Enigma and its subsequent use by the Germans. It will illuminate the valiant efforts of the Allies in solving the German Enigma Codes and demonstrate how the intelligence derived from discovering Enigma's secret contributed to the Allies' war effort. The conclusion will depict Enigma's legacy to modern day cryptology and cryptanalysis. Similarly, the intent of the article is to present a logical and an orderly picture of Enigma, its relationship to World War II, and its historical place in the field of military intelligence.

Enigma was given birth in 1923 by its inventor, Dr. Arthur Scherbius, an engineer, who resided in Berlin suburb of Wilmersdorf. Scherbius' company in Berlin, called Cipher Machines Corporation, tried unsuccessfully for several years to market its new cryptologic product to interested commercial buyers. Scherbius' original Enigma model was not patented until 1928. By this time Scherbius was dead and his company was floundering, yet the company attempted to create a viable commercial market for Enigma.

Despite initial setbacks for Enigma on the commercial market, in 1926 the German navy showed an interest and developed its own adaptation of the commercial cipher machine. (It was called Funkshlussel C[1], literally meaning "radio key"). By 1928 the German army introduced its own version as well: Enigma G[2]. Both Enigma C and Enigma G used three changeable cipher rotors which, because they offered too few permutations in their daily key settings, were considered to be unsecure.[1]

Regarding the G version of Enigma, British Naval Intelligence veteran and author, Patrick Beesly, makes the following observations: The general principles of this type of machine were fairly widely known and more than one make was on the market in Europe and America. Though a number of improvements were introduced in successive models in the interest of security, the basic machine had a typewriter-like keyboard, was about the size of an office typewriter, was powered by electric batteries, and contained in a wooden box. The enciphering mechanism consisted of a number of rotatable drums or rotors [in the case of Enigmas C and G: three rotors] about half an inch wide, around the circumference of which were engraved the letters of the alphabet. These rotors were mechanically geared together so that, when one was moved by depressing a typewriter key, the movements of the others were irregular. Electric impulses, passing through the rotors successively and reflected back from the end one through different mazes determined by the relative positions of the rotors, effected the encipherment of each individual letter and the result was indicated by a lamp lighting up the appropriate letter. This cipher key for a particular period, say twenty-four hours, was determined by the starting position of each of the rotors and was of course easily changed. More drastic changes could be introduced by the replacement of one or more rotors.[2]

Since cryptanalysts look for cipher repetition in intercepted message traffic in order to develop clues on how to break a given code or code system, one can certainly appreciate, in historical retrospect, the vast challenges that Enigma posed for cryptanalysts during the twenties, thirties, and forties, as the cipher machine developed into a series of different models—each one being distinctly more sophisticated than the other. By 1934, the German army adopted another improved version of Enigma called Enigma I;[3] and likewise the German navy introduced the Enigma M, also known as Funkshlussel M.[4] Enigma I used three cipher rotors at a time out of a possible group of five in order to encrypt message traffic. Enigma M also used three cipher rotors at a time—but selected them from a group of eight, rather than the customary group of five.

On Enigma I each of its three rotors had 26 letters, meaning that the basic number of possible encoding positions equalled 26x26x26 or 17,576.[5] Enigma M, with its five rotor capability, had 26x26x26x26x26 or 11,881,376 possible encoding positions (or different alphabetic variables to go through before the encoder would start to repeat his cipher groups, and therefore, leave his message code open to detection

by a skilled enemy cryptanalyst who would be looking for such cipher repetition in daily intercepted traffic).[6] To further complicate matters, the German navy by the forties had introduced the M-3 or M-4 versions of the Enigma M which, utilizing four rotors out of a stock of eight, vastly increased the total number of cipher permutations and combinations possible.[7]

Near the outset of World War II, the Germans, in their relentless quest for the ultimate secrecy and security of their military plans and operations (as well as their diplomatic interactions and intentions), believed Enigma to be the answer to their pursuit of the perfect encipherment device. With so many cipher permutations and combinations possible, it appeared, at least initially, that the Germans did indeed possess a foolproof enciphering device. The command and intelligence efforts of Hitler's war machine would be firmly grounded in this seemingly unshakable crypto-security system known as Enigma. As history bears out, Enigma and its code did have weaknesses (after all, both were products of the human mind) which, if properly exploited, would yield valuable contributions to the Allies' struggle against the Third Reich.

The beginning of the effort to break the German Enigma Codes which eventually culminated in Project ULTRA at Bletchley Park, England, found its roots in the masterful work of the Polish Intelligence Service. Throughout the twenties and thirties the Polish were acutely aware of what the Germans were doing with Enigma, and they used their cryptanalytic skills to develop what came to be known as "the bomb," a machine composed of six reproductions of German Enigmas, powered by electricity, which worked out daily Enigma settings, Professor Harold C. Deutsch of the U.S. Army War College describes it as "…something of a scientific miracle that in time much transcended Enigma itself. It was at first an electro-mechanical and later an electronic computer that was aimed to adjust itself to whatever alterations the Germans might make in the arrangement of the three (later five) rotors and ten pairs of plugs of the Enigma mechanism. By 1937, its Polish inventors had improved it to a point where, for a time, they read three-fourths of all Enigma messages."[8]

The collapse of Poland in September 1939 made it imperative that the Poles transfer their knowledge of Enigma to the French and the British. Both Britain and France would each receive from the Poles a copy of a German Enigma, built in Poland, along with design plans for the construction of a "Bomb." The British version of the Polish Bomb was housed at the center of Allied code breaking operations in Bletchley Park, England. It was here that a rather unusual amalgamation of dedicated American and British scientists, intellectuals, mathematicians, linguists, cryptanalysts, and military intelligence specialists pondered the seemingly endless and daily problems presented by the German Enigma Codes.[9] By 1944, the term 'ULTRA' became the general code designation for all top secret work done at Bletchley Park having to do with the exploitation of Enigma.

Throughout World War II, although Bletchley Park was the focal point for the decoding of daily Enigma settings, it must be reemphasized that all of this marvelous cryptologic work would have not been possible, if not for the original pioneering efforts of the Polish cryptanalysts in the twenties and thirties, who, by using mathematics and cryptanalysis, managed to solve Enigma's secret. Regarding Enigma and the Polish efforts to discover its secret, Professor Jozef Garlinski in his book *The Enigma War* has observed that the Germans believed that this cipher system (Enigma), if correctly used, ensured complete security; they did, however, realize that in a war both the machine and its keys could fall into enemy hands. They did not anticipate that the application of new cryptanalytical methods exploiting some of the machine's own characteristics, and weak points of operating instructions as well as mistakes by the cipher clerks, would enable the cipher to be broken using only intercepted transmissions. Polish cryptanalysts made use of all these circumstances relatively early on and solved the Enigma cipher by the end of 1932.[10]

The original work of the Poles in solving Enigma, along with the collective efforts of the Allies at Bletchley Park made the intelligence exploitation of Enigma data possible. Since we could read the German's secret mail—so to speak—without them suspecting it, we had first-hand knowledge of their intentions and plans. If this ability did not give the allies a decisive advantage over the Axis powers in the successful prosecution of the war, it at least gave them a distinct and competitive cutting edge in their favor.

There can be no historical doubt that the decryption of the German Enigma codes by the Allies aided them in their struggle with Hitler's Germany. Tactical and strategic revelations derived from Enigma contributed to the West's struggle with the Axis in three notable fights-to-the-finish: the Battles of Britain and the Atlantic, as well as the tremendous challenge of evicting Field Marshal Erwin Rommel and his Afrika Korps from North Africa.[11] Similarly, in U-Boat warfare, Enigma-derived intelligence enabled the American and British navies to break the death grip that the German navy held on Allied military and merchant shipping in the Atlantic. By learning the meaning of such principal German naval ciphers as HYDRA, TRITON, TETIS, MEDUSA, AEGIR, and NEPTUNE, the British and American navies were able to maintain close surveillance on the locations of U-Boat Wolf Packs and German military shipping in general.[12]

Enigma data helped the British to focus clearly on a problem that vexed them dearly during the twilight years of the war, to wit: Hitler's infamous Vergeltungswaffen (retaliation or vengeance weapons), succinctly known in two versions as the V-1 (flying bomb) and V-2 (rocket). Intelligence from Enigma, in addition to aerial photography confirmed for the British that Peenemunde on the Baltic Coast was Germany's major development and testing center for its V-series weapons, and that certain geographical areas in Belgium and France and had been selected as launch sites for the V-1s and V-2s.[13]

Enigma also had a direct relationship to the war effort in the Pacific. Japan had purchased German Enigma machines before the war and adapted them for its own intelligence and communications uses. Japan's so-called Purple cipher machine was nothing more than a variation of the German Enigma (via Bletchley Park) which played a significant role in breaking the Japanese Code. It was also to the Allies' benefit that the Japanese were not the best cryptanalysts in the world, and that America fortunately had its greatest cryptologist, William Friedman, diligently working to master the Japanese Purple cipher.[14]

Enigma-deciphered messages aided the Allies in their D-day invasion effort. Regarding the Normandy operation, Harold C. Deutsch writes: "There is much that offers high drama in the tale of how the Allies listened in on high-level German debates on where the landing should be expected; how the Allies, through a rich variety of devices, nurtured those illusions which were most serviceable to them; and how, in the end, they achieved complete tactical surprise."[15]

By reading the German Armed Forces Intelligence communications via Enigma, the Western powers were able to accurately gauge Hitler's intentions and plans, and to exploit his numerous mistakes as well. Enigma was the security blanket of German military intelligence—it was also its Achilles' heel.

Enigma-derived intelligence under the guise of ULTRA was, however, misused on certain occasions by Allied military leaders. Sometimes it was not heeded at all. Proper utilization and understanding of ULTRA intercepts would have reversed such Allied disasters as the 'American defeats at the Kasserine Pass, Anzio, the Battle of the Bulge, and the Allied defeat at Arnhem.[16]

Enigma was the focal point of the Allies' ULTRA operation. Essential elements of information, other intelligence requirements and many notable intelligence indicators passed into Allied hands because of the successful exploitation of deciphered Enigma data. This information which the Allies so skillfully acquired proved to be the weak link in the alleged German intelligence chain of invincibility. Reading the German's secret mail did not solely win World War II for the Allies—it could not be expected to do that—but it was an advantage which was certainly in their best interests to have and to use effectively.

For its time, in the twenties, thirties, and forties, the Enigma cipher machine was the most advanced cryptologic marvel that the world had ever known. Nevertheless, Professor Jozef Garlinski in *The Enigma War* has observed "…that all its (Enigma's) intricacies, which taxed the brains of the experts at the time, could now be solved by a computer within minutes."[17]

For its time, however, Enigma was the most advanced enciphering device ever conceived by the human brain. The rapid technological and scientific progress that has been made in the world since World War II, progress which all of us take for granted and view as commonplace in the eighties, was a direct result of the Allied-Axis struggle for superiority over one another.

It is only because of Enigma and the ominous security challenge it posed to the Allies to solve its riddle, that the science of cryptology and the art of cryptanalysis have truly reached the heights of unparalleled intellectual achievement and overwhelming complexity in today's modern age of the computer. The Third Reich met its demise in 1945, but the scientific ferment of ideas and concepts that its scientists and technologists created have lived on only to further evolve to fruition. Enigma was only a small part of this German scientific ferment of ideas, but a very significant small part.

In the brilliant, yet troubled age we live in today, the need for security in high-level communications and intelligence work certainly has not diminished. Rather, it has magnified itself several times over. Today many codes and ciphers that are created by the different governments of the world in an effort to mask their respective plans, intentions and military-scientific secrets are so complex in nature that only a high speed computer would ever have a chance of breaking them—if at all.

This computer-like portrait of achievement, complexity and finesse is the legacy that Enigma has left to modern day cryptology and cryptanalysis. Undoubtedly, solving Enigma's secret helped the Allies to win the war and contributed to advancements in cryptology and cryptanalysis; nevertheless, even at our current level of sophistication in the study of secret communications and encipherment processes, there truly exist more questions than we have answers for.

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1. Jurgen Rohwer, "ULTRA and the Battle of the Atlantic," (The German View), *Cryptologic Spectrum*, (Reprint)(Vol. 8, No, 1) Winter 1978, p.9.
2. Patrick Beesly, *Very Special Intelligence: The Story of the Admiralty's Operational Intelligence Centre 1939-1945*, Doubleday & Company, Inc., New York, 1978, p. 64.
3. Rohwer, p.9.
4. Ibid.
5. Peter Way, *Codes and Ciphers*, Crescent Books, United Kingdom, 1977, p. 89.
6. Ibid. Information note: Enigma's rotors gave it possible basic encoding positions equal to 26^3 or 26^5, depending on the type of machine used. But note that all possible permutations did not end with the rotors and their respective sequences—they were only one major aspect of Enigma's sophisticated encipherment system. As the Germans added and changed rotors and rotor sequences in their various modifications of the original Enigma model, they did likewise to the number and assortment of plugs that would be fitted into the plug jacks in a variety of combinations, in order to significantly increase the total theoretically possible number of code permutations. The Germans also changed the Umkehrwalze (i.e., in English: a reflector or a reversing, static drum, which caused the letters in an Enigma machine to go through all of the rotors again while enciphering a new message), in 1937, and replaced it was a new and even more complicated model called Umkehrwalze B. (See Jozef Garlinski, *The Enigma War*, Charles Scribner's Sons, New York, 1980, p. xii, pp. 32-33.) All of these variable factors constantly being modified and improved upon by the Germans over the pre-war and war-years, managed to keep the cryptanalysts at Bletchley Park in a continual state of flux and turmoil as they struggled to solve Enigma's secret. One more thing: The (naval) Enigma M-3 (with eight rotors) introduced at the beginning of the war in German U-Boats, fully incorporated all of the aforementioned nuts and bolts of Enigma's encipherment process, i.e., when multiplying all of its permutation factors together one would end up with a theoretically possible total number of cipher combinations in the area of 150 trillion! (See Rohwer, p.9.)
7. Regarding the German navy's different versions of Enigma M: See Garlinski, p. 32; Rohwer, p.9; Beesly, pp. 66-67, Between pp. 188-189 (picture of M-4 naval Enigma machine with four rotors which was put into service on 1 March 1943); and Ronald Lewin, *ULTRA Goes to War*, McGraw-Hill, New York, 1978, pp. 26, 32, 217.
8. Harold C. Deutsch, *ULTRA and the Battle of the Atlantic*, (The Historical Impact of Revealing the ULTRA Secret), *Cryptologic Spectrum*, (Reprint) (Vol. 8, No. 1) Winter 1978, pp. 17-18. Information note: In any discussion about Enigma and the Polish Bomb devised to tap its secrets, it would be superficial not to also mention two very important, directly related terms: Geheimschreiber and Colossus. Geheimschreiber (British code-word: Fish) was an on-line radio-teletype system employed by the Germans in late 1943 to pass high-level Enigma traffic, in the hope of achieving, wrote Ronald Lewin,"…additional speed and security for top priority signals by the extremely high rate of its transmissions," i.e., 62 words per minute. Geheimschreiber (also known as private secretary or secret writer) was a definite threat to the progress made by the cryptanalysts at Bletchely Park in their daily endeavors to break out and to understand the everchanging, always complicated Enigma settings. The use of a one-time pad by this German radio-teletype system appeared, at first, to be insoluble. The British answer to Fish was: Colossus—the first computer which worked out the Geheimschreiber settings, and thus allowed the exploitation of high-level Enigma traffic to continue at Bletchley Park. (This exploitation was still unknown to the Germans.) In a technological sense, Geheimschreiber and Colossus as respective evolutionary offspring of the German Enigma and the British Bomb at Bletchley Park, most assuredly outpaced and transcended the level of sophistication already attained by their forerunners in the closing years of World War II. With the introduction of Geheimschreiber and Colossus into the opposing crypto-intelligence systems during the latter stages of the war, the Computer Age, as it is known today, was just around the corner. (See Lewin, pp.

130-133, and Garlinski, pp. 129-146-150.)
9. Lewin, p. 136, aptly describes Bletchley Park's image and purpose: A honeycomb—this must be the final and dominating image of Bletchley Park: a honeycomb of cells, some of which may appear to have functioned independently of the main structure. But distance and perspective allow the significant patterns to emerge. It is now clear that huts and sections, individuals and teams, the Wren (Wrens-WRNS: Women's Royal Naval Service) at her bombe, the cryptanalysts at their ciphers, the calculations of the mathematicians and the creative ingenuity of the technologists were all parts of a whole—of an organism which, like honeycomb, had evolved to secrete a single product: in Bletchley's case, intelligence about the enemy.
10. Garlinski, p. 192.
11. See Lewin, passim; and Deutsch, pp. 19-22.
12. See Beesly, passim (esp. pp. 63-75) and Garlinski, pp. 65-99 and pp. 135-139, passim.
13. See R.V. Jones. *The Wizard War: British Scientific Intelligence 1939-1945*, Coward, McCann & Geoghegan, Inc., New York, 1978, pp. 332-464, passim. Also, for a detailed account of German's V-series weapons consult: Jozef Garlinski, *Hitler's Last Weapons*, Friedmann, London, 1978.
14. See Garlinski pp. 121-134, passim (esp. pp. 122-127); Lewin, pp. 29, 59, 67, 114, 134, 234, 238, 354; and William Stevenson, *A Man Called Intrepid: The Secret War*, Harcourt, Brace & Jovanovich, New York, 1976, p. 146.
15. Deutsch, p.22.
16. Lewin, pp. 272-274, 284-288, 290, 310, 346-351, 355, 357, passim.
17. Garlinski, p. 190.

WARRACK WALLACE * ***Report on Assignment with Third United States Army, 15 August-18 September 1944, Special Research History-108***

Mission

The writer was assigned to duty with Third United States Army on 15 August to assist [Major Melvin C.] Helfers in the duties of ULTRA recipient. He travelled by plane from Heston Field, London, to a temporary landing strip South of Cherbourg, and from there by plane to the Headquarters of 12th Army Group Southeast of Coutances, arriving 15 August. After spending the evening and the following morning with recipients Majors Murnane and Orr, studying the maps, files and procedure, and attending a briefing, he travelled by jeep to HQ Third United States Army, then about ten miles North of Le Mans, arriving 16 August in the evening and reporting forthwith to Major Helfers, recipient, and Colonel [Oscar W.] Koch, G-2 of Third Army.

Third Army Headquarters

Headquarters was then under canvas, all tents being camouflaged and cover sought by hugging the hedge-rows. Major Helfers' tent lay across a field from Colonel Koch's tent and three hundred yards from the SLU [Special Liaison Unit, the British equivalent of the Special Security Officer] installation. One CP tent served as quarters and office for Major Helfers and the writer. The SLU unit, consisting of Captain Hutchinson (British), Lts. Hull and Brown (United States), and British enlisted men, was nicely fixed in caravans, wall tents and CP tents.

At this time, Major Helfers was confronted with many difficulties. There was no telephone, no electric light, and no transportation except what could be begged from a not-too-willing SLU unit or from overburdened G-2 transportation. The one CP tent was inadequate for living quarters and office space for two officers. The necessity for frequent trips to the SLU unit, to Colonel Koch, and to the engineering section, each requiring a locking up of ULTRA maps and information, was a time-killer, and the traffic was then at its peak, amounting to about ninety messages per diem. SLU was not entirely aware of its proper function and needed a little enlightenment, which it thereafter received and accepted with good grace. Moreover, the night was as busy as the day.

Division of Duties

Upon the writer's arrival, duties were divided equally, Major Helfers being responsible for the mapping, digesting and briefing for one 24-hour period and the writer for the next period. This procedure was adhered to throughout. The officer not responsible for the briefing used the day to acquire equipment and new maps, to iron out the many physical and routine difficulties, to acquire information from other G-2 personnel and from the G-3 section, and to assist in the briefing and work as circumstances demanded.

At this time ULTRA had a bare toe-hold on the thoughts of the Commanding General and G-2 of Third Army and was struggling for a permanent grip. It had proven its operational value at least once in a large way when a division, on the strength of information supplied by our service alone, had been kept in place to meet a Panzer attack designed to cut the Third's life-line at Avranches, but it was not fully established as yet. The position of ULTRA in an Army intelligence section depends largely upon what the CG, Chief of Staff, and G-2 think of its value and every effort was made by the recipients to sap the last ounce of intelligence from the messages and to present each day at the briefing a carefully digested, logically-ordered statement, tied in to a careful and readable situation and information map.

Briefing at Headquarters, Third Army

Each morning at 0900 o'clock, a briefing was had in the War Tent at which General Patton and about forty officers, representing the key personnel of Headquarters Staff, were present. The briefing was based upon a carefully maintained situation map covering one end of the tent and consisted of ten-minute presentations by one or more of the G-3 staff, covering our own past, present and future operations, and similar presentations by two of the G-2 personnel, covering enemy identifications and information. When the situation demanded, Colonel Koch presented a summary of enemy intentions and capabilities. Other officers were called upon for impromptu remarks when additional information was desired. A general news report, garnered from public radio broadcasts, ended the meeting.

At the conclusion of the general conference, General Gaffey would direct that all officers retire except those who should remain for the "special briefing." All officers in the picture remained, as follows:

Lieutenant General Patton, CG, Third Army
Major General Gaffey, CofS
Brigadier General Gay, DCofS
Colonel Harkins, Aide to CG
Colonel Maddox, G-3
Colonel Koch, G-2
Lt. Colonel Allen, Assistant to G-2

On occasions General Weyland, in command of the 19th TAC, was present but his Headquarters was at some distance behind Army Headquarters during the entire drive across France and he usually was briefed by Captain Grove at his own Headquarters. Captain Grove received his messages from SLU at Third Army Headquarters, 12th Army Group Headquarters or at a pad station, as the various situations seemed to require.

Either Major Helfers or the writer then proceeded, spreading the ULTRA map over the regular war map, and presenting the information orally, from notes and with all possible references to the map which had been carefully prepared up to the minute. The map was an awkward chore in that it was in large scale (1 to 25000) for trundling around through rain and brambles and at one time it had to cover most of France, with Belgium and Holland thrown in, as the entire situation was pertinent to Third Army operations and of interest to General Patton. When the traffic was heavy, the preparation of the statement and map frequently required a nearly all-night vigil for the briefer of the following day but it was worth every possible effort as it made the intelligence shout out loud as no mere reading of the messages or desultory pencil sketch could have done.

At the conclusion of the special briefing, General Patton frequently discussed poignant situations with his officers, requested enemy strength estimates and other information, and gave orders for troop dispositions.

Position of ULTRA in Third Army Intelligence

It is not an overstatement to say that, from the recipient's stand-point, the position of ULTRA in Third Army intelligence could hardly be improved. It was not received enthusiastically at the outset, its value then being regarded as insufficient to warrant any use of regular G-2 facilities, but it was given regular hearings and allowed to prove itself. Skepticism gradually wore away, the first item of moment being information of the impending drive by five Panzer divisions to cut the Third Army life-line at Avranches. There was no other information than ULTRA on this vital operation and the 35th Division was kept in place to meet this drive on the sole basis of ULTRA messages. It was a very good thing that it was. The Division stood its ground against a terrible assault and this defeated or discouraged the whole effort. General Gaffey at a later date mentioned the Avranches incident to the writer as one of the cases in which

the service had been invaluable.

Colonel Koch gave the service every opportunity to prove itself but did not express himself as completely convinced of its merit and accuracy until the end of the Le Mans sojourn. Thereafter, he saw to it that every facility was extended to recipients. Priorities were given to the recipients for telephone and electric light installations at each new Headquarters; arrangements were made for their transportation; and, most important, recipients were never diverted from their own work and were permitted to present it directly to General Patton in their own way and with the active assistance and encouragement of Colonel Koch. All 4Z and 5Z messages, and any others which the recipients regarded as urgent, were taken to Colonel Koch at once. Usually, he directed the recipient, alone or with him, to take such messages to Colonel Maddox, Colonel Harkens, General Gaffey or General Patton. The recipients thus were given the satisfaction of knowing that every item of information was considered by G-2 and passed on to the proper officer. The work was regarded as highly important and the recipients as responsible officers capable of presentation, thus giving every incentive for a maximum effort and an interest in the performance.

Tactical Use of ULTRA by Third Army

The service often is said to be primarily of strategic value and only useful tactically in a static situation. Perhaps its prime value is strategic, but General Patton's use of ULTRA in his historic drive across France is a fitting thesis for a tactical epic. It is a pity that the thousands who contribute in one mechanical way or another to the finished product cannot share in the drama attending its final use in the field. One message, as at Avranches, may turn the spear-points of a German Army and save an entire campaign from disaster. Each day brings some item of value and interest and in many cases the item is the motive force behind whole divisions. The service is so incredibly valuable that it requires time for an intelligent person to believe that it is really reliable. The first impression by other than the gullible is that it is too good to be true.

The writer moved with Third Army Headquarters from the hedge-rows of Le Mans to successive positions in the forests near Brou, near Chalons-sur-Marne and Southeast of Verdun. During this period the armor, infantry divisions, and combat teams of the Third Army were spread over the Brest peninsula, driving South towards Nantes and Tours, flanking Argentan at the South of the Falaise pocket, battering out bridge-heads on the Seine both North and South of Paris, throwing out spearheads East and North of Paris towards Chateau Thierry and East and South towards Neufchateau. With its elements thus all over France, the main body was plunging East to the Moselle and Metz. The idea that ULTRA is useful tactically only in a static situation became ridiculous as an Army has never moved as fast and as far as the Third Army in its drive across France and ULTRA was invaluable every mile of the way. Some of its particular uses in this period were:

When Headquarters was near Chalons, a 5Z message arrived at 0100 o'clock, containing an Army order for an attack at 0300 o'clock by the 15 Pz Gr [Panzer Grenadier] and the 17 SSPz [Schutzstaffel Panzer]. The message was taken at once to Colonel Koch who went with the recipient to General Gaffey. Means were devised to warn the Division concerned without jeopardizing security. The German attack was planned upon an exposed flank and at a time when the Army was spread out as "thin as the skin on an egg," in General Patton's language. No other form of intelligence could possibly give such advance warnings.

The regular G-2 sections by dint of painstaking and intelligent piecing together of scraps gleaned from PW's, captured documents and other sources, identified one morning at the regular meeting five enemy divisions in the line opposing the Third Army. This was good G-2 work. Yet, after the special briefing session following the regular meeting, Colonel Koch called to General Patton's attention that these five divisions had been identified by recipients and placed on the ULTRA map as follows: two divisions a week before, two divisions three days before and one the preceding day. It was a common occurrence at

the regular meeting for a G-2 man to identify a German division which had been spotted days before by ULTRA and announced at the special briefing. On two occasions the regular G-2 staff placed German divisions in the line which were actually in Italy, according to the last ULTRA report. At the special briefings following these occasions, it was stated that there had been no ULTRA message showing a movement from Italy. In each case, the divisions remained in Italy and the G-2 section, a week or so thereafter, corrected the mistakes which were due to PW's who had strayed to France from their former units in Italy.

When enemy strength estimates were desired, Colonel Koch requested the information by map and figures from the recipients. These were prepared, delivered to him and then discussed. Colonel Koch then made his own overall estimates. Considering the fact that ULTRA often had exact figures to the man and the gun, as in the cases of 15 Pz Gr and 3 Pz Gr, or the number of trains required to unload the unit concerned, as in the cases of the 27, 29 and 30 Pz Bde, there was very little that regular G-2 information could add to these estimates.

The operational value of the service was so impressive that General Patton never passed a special briefing. If he was unable to attend the regular meeting, he always saw to it that some time during the day the recipients came over to his caravan to make their showing. In fact, the only Third Army party who did not give ULTRA its just due was Willie, the General's pink-eyed pit bull, who was too busy with operations against French dogs to collect information and showed his contempt for intelligence by raising his leg on one of the recipient's best maps.

Security

The cover for recipients at Third Army was plausible and effective. Instead of furtive efforts to conceal the briefings there was a frank announcement at the regular meeting that the "special briefing" would follow. The recipients thus were known by everyone to conduct a daily briefing for General Patton and a few high officers and were known, also, to have frequent dealings with SLU. It made sense, therefore, to explain their silence as to their own activities by their tie-in with British Intelligence which, presumably, imposed unusual, and perhaps arbitrary, requirements. This explanation seemed to satisfy though the unaccountable impression nevertheless prevailed with some officers that recipients were a special means of communication between general officers. At first the personnel of the G-2 section were not overfriendly, but they gradually became accustomed to the situation, resentment abated, and it became possible to meet on a cordial basis.

A small safe was kept in recipients' tent and the maps, messages of the day and ULTRA papers were locked therein except when in use. All messages were receipted for to SLU and turned back under counter-receipt within 24 hours. Colonel Koch made it a principle to have no ULTRA papers in his hands at any time, choosing to fix an unvarying responsibility for safe custody upon the recipients. An incendiary bomb was kept in the safe for emergency use.

Extreme care was employed by Colonel Koch in transmitting information to Corps or Division Headquarters, both as to the ostensible source and means of transmission and as to the items which could be communicated without security risk. This is a delicate link in the chain and one which the recipient can forge only by suggestion as it is a G-2 matter and not one over which the recipient has control. However, Colonel Koch invariably discussed with recipients what he proposed to do before taking action and invited suggestions as he was thoroughly conscious of security necessities.

Completion of Mission

During the first three weeks of duty with the Third Army, both Major Helfers and the writer were extremely busy. Headquarters moved frequently, message traffic was at its peak, and there were many difficulties to iron out. The load gradually lessened, however, until it could be handled satisfactorily by

one officer. This fact was reported to Lieutenant Colonel McKee when he visited Third Army Headquarters and the writer was ordered back to London. This period of duty terminated in cordial expressions by General Patton, General Gaffey and Colonel Koch, and the writer left the Third Army on 17 September with the conviction that it had been an honor to serve with it in the choicest assignment of the War.

Comments

General Patton and Colonel Koch expressed themselves as entirely satisfied with the service, but their interest in items of general significance, which were sent to, and collected from, Army Group, was so ardent that it suggested a broadening of the scope of Army messages. Messages of general policy and strategy for all Europe often came to Army Group but not to Army and, though excerpts filtered down, the whole message usually was of real interest, though it might not directly concern Third Army operations. Sending such messages direct to Army would serve two purposes in that it would supply general and useful information quickly and it would vividly emphasize the value of the service. The last point is important as it is always an essential part of recipient's work to display the full value of this intelligence miracle so that it will be relied upon and used to the maximum degree. If doubts exist as to its veracity or importance, it is easy for it to slip into a minor role. This comment was duly reported to the proper officers upon the writer's return to England.

The role of ULTRA in a G-2 organization is determined by G-2. It is not a part of the G-2 section, as originally organized, and the G-2 must be convinced thoroughly of its high value before the necessary adjustments will be made. Its high standing in Third Army intelligence is due in no small measure to Major Helfers' persistence and unflagging zeal in the face of many initial discouragements and to Lieutenant Colonel McKee's visits to Third Army and his conversations with Colonel Koch. The example set by 12th Army Group Headquarters also had its influence.

The difficulties of the recipient in keeping his top secret papers secure and in preparing and maintaining his maps would be alleviated largely if he had a caravan instead of a tent. A tent requires a complete packing-up on each move, cannot be locked, is far from rain or wind-proof, and is less secure for conversations. SLU always has caravans, and the recipient at Army level should enjoy the same aid in his work.

*DINO A. BRUGIONI * **Auschwitz - Birkenau***

During World War II, photographic interpretation was a much used and essential tool of the Allied military intelligence effort. Literally millions of aerial photographs were taken of enemy areas, including heavy coverage of Germany and German-occupied lands. The many thousands of photo interpretation reports based on those photographs have been preserved in the archives, along with the prints and negatives.

I was a member of a bomber crew during World War II, but I have devoted practically all the rest of my professional career to the field of photographic interpretation. In the course of my work, I frequently had occasion to do research in the World War II photographic intelligence files. In 1978, while researching the files with a colleague, Mr. Robert Poirier, we discovered aerial photos of the Auschwitz-Birkenau Extermination Complex that had been overlooked during and after the war period.

As part of my official duties, I frequently lectured on various aspects of photographic interpretation, using photographs to illustrate my subjects. Whenever I have shown the photographs of the extermination complex, the most frequently asked questions have been: Why did not, or why could not, the World War II photo interpreters identify the horrifying activities perpetrated at this complex? How could something so hideous have been overlooked? Why did not the photo interpreters note the unusually large size and unique configuration of Birkenau and know that it was not a conventional "prison camp?" Why were the large number of boxcars on the Birkenau sidings never questioned, considering the obvious lack of industrial installations within the camp? Most importantly, why did not the photo interpreters spot the four separately secured extermination areas, each of which contained unique facilities—an undressing room, a gas chamber and a crematorium?

I have gone back and searched the records and reports produced by the concerned reconnaissance units and interpretation organizations. I have also analyzed the interpretation practices and priorities of the time and have concluded that five major factors influenced these shortcomings:

1. **Tasking**. This is a military intelligence term meaning requirements imposed—on a photo interpreter, for instance, to procure specific information needed to formulate intelligence about a specific enemy target or targets. During World War II, photo interpreters operated under an elaborate tasking and priority system to produce intelligence from aerial photography. Searching for or doing detailed analysis on concentration camps was not a specific task. Photographs were searched to find any indication of enemy build-up or military movements. This was called first-phase exploitation. Of prime concern were concentrations or movements of troops which posed threats to Allied operations, either current or planned. In addition, the photographs were scanned for evidence of reprisal weapons (V-1 and V-2 rocket sites), flak and searchlights, coastal defenses, material dumps and depots, camps and barracks, fieldwork and defense lines, construction work or demolition activity, and road, rail, port and inland waterway transport activity. As D-day approached, coastal shipping, beach obstacles, mine fields, and strong points were added to the watch list.

Photo interpreters were also tasked to perform detailed analysis on a variety of significant tactical and strategic targets. Concentration and extermination camps were not considered significant targets. A target folder was created for each significant target and was described at the time as being the interpreters' "most important aid." The target folder contained the target.

The target chart for the Auschwitz area was centered on the I.G. Farben "Buna" Synthetic Fuel and Rubber Plant and did not include either the Auschwitz I or Birkenau camps. The specific detailed interpretation tasking was to report on the progress of the construction of the plant. Later, an added requirement was to report on the extent and effect of Allied bombing. A review of all the photo interpretation reports created on the Farben plant reveals the interpreters' principal concern was the bomb damage and production stoppages at the synthetic fuel plant. There is not a single reference to either the Auschwitz or Birkenau camps, which were covered on the same photographic runs. The Monowice camp, next to the

Farben Plant, was correctly identified as a concentration camp.

2.. **Priority Projects**. The principal units performing interpretation of the photographs taken over Germany and German-occupied territories were the Allied Central Interpretation Unit at the Royal Air Force Station Medmenham in England and the Mediterranean Allied Photo Reconnaissance Wing in Italy. These organizations worked on a 24-hour-a-day basis and in 1943 and 1944 were heavily involved in the planning of the Normandy and Southern France landings. Support to the Normandy landings alone required an estimated half-million photo interpretation man-hours. The stepped-up Allied bombing offensive of German strategic industries in 1944, which included synthetic fuel plants, also involved extensive photographic analysis and assessments. Other high priority projects included the searching for and destruction of V-1 and V-2 rocket sites, jet aircraft plants, and submarine production facilities. Photo interpreters were also employed in the planning and execution of special bombing missions against critical targets. The volume of materials being received for photo interpretation must also be considered.. The daily intake for the Allied Central Interpretation Unit averaged 25,000 negatives and 60,000 prints. By V-E Day, over five million prints were in storage. More than 40,000 reports had been prepared from these prints.

3. **Training**. Interpreter trainees were normally sent to a four-to-six-week course which explained the identification of military equipment—airplanes, tanks, artillery, ships, and the like. Senior photo interpreters, organized in sections, worked on more specific subjects such as strike photography, bomb damage assessments, rail and road transportation, ports and shipping, military installations, inland waterway transportation, aircraft plants and airfield, radar and electronics, underground installations, V-1 and V-2 installations, enemy defenses, armor and artillery and petroleum refineries. No photo interpreters were assigned to do detailed interpretation on concentration or extermination camps. As nearly as I can determine, no tasking was ever imposed to conduct aerial reconnaissance of such camps. Photography that was acquired of these camps was a by-product of the reconnaissance of nearby strategic installations.

Since photo interpreters were not directed to locate or interpret such camps, they did not try to determine which camps were unique or different, that is, those which contained gas chambers and crematoriums.

Photo interpreters were provided with hundreds of so-called photographic keys to aid them in identification of newly photographed targets. These keys were manuals, each containing photographs of a previously identified target. Annotations and text provided guidance on the unique characteristics (called "indicators" or "signatures") of targets which could be used to identify a newly photographed target. No such keys were prepared about any of the various types of installations involved in what is now known as the Holocaust. For that matter, no photo interpreters experienced in identifying such installations were available to compile such keys.

There was a key prepared on a typical labor or construction camp. The existence of such a camp was often an indication or "signature" of a nearby underground production installation or of nearby construction of coastal defenses along the French coast. Therefore, during the latter part of the war, photo interpreters were tasked to look for such labor and construction camps.

No detailed photo intelligence study was ever done on any of the major concentration camps; in truth, no distinctions were ever made among the various types of camps. A variety of descriptive terms were used indiscriminately, although some of the camps were much larger and more complex than others. The following terms were used to describe these camps: slave labor camps, labor camps, construction camps, forced labor camps, prisons, concentration camps and internment camps. The most frequent and descriptive term used, however, was "hutted camp." This term, of British derivation, was originally used to describe a series of prefabricated buildings similar in appearance to British Nissen huts or the later American quonset huts, and was carried over into the interpretation field. The term "extermination camp" was never used in any of this reporting.

In searching the aerial photography, the photo interpreters would have had little difficulty spotting the hundreds of concentration camps in Germany and German-occupied lands. They were usually set in

forested areas or valleys, apart from towns and cities. The camps were surrounded with barbed wire and watch towers. The barracks buildings did not conform to known forms of architecture. They were, for the most part, of wooden construction, mostly one story and of several standard sizes. Most were prefabricated. Frequently, the administrative buildings and guards' quarters were in a separate enclosure, often near the main gate of the camp.

The main effort in World War II, with respect to camps, was to locate those which contained Allied prisoners of war. In this effort, the photo interpreters were provided pertinent data and the locations of specific camps. In addition to the barracks and security features, other indicators were provided which the interpreters could use in making identification. No associated industrial plants were near POW camps in most cases. Most of the POW camps had an exercise area. The barracks were usually arranged on both sides of a central street and a cleared area separated the barracks from the enclosure wall. The extensive open area between the barracks and enclosure was intended to prevent escapes.

4. **Precedence**. Photo interpreters depend heavily on precedence or existing knowledge about a subject or installation. I did not find a single reference in which interpreters were told to look for the gas chambers and crematoriums that were killing thousands each day. There simply was no historical or intelligence precedence for genocide on such a scale. Most World War II interpreters I have spoken to found the concept unbelievable, unimaginable, and completely incongruous. For that matter, most of the general public of Allied countries were unaware of the genocide activities during the war.

It must be quickly added, however, that during World War II information from human sources and communication intelligence was not available to most interpreters. Photo interpreters, for the most part, worked in a vacuum while interpreting and reported only what they saw on the photography. My research also confirms that the information about Auschwitz provided by two escapees, Rudolf Vrba and Alfred Wetzler, was never made available to those interpreting the I.G. Farben Plant photos. It is my professional opinion that had such information been provided to the photo interpreters, they would have quickly located the gas chambers and crematoriums.

5. **Photo Interpretation Equipment**. By modern standards, the photo interpretation equipment used in World War II can only be classified as primitive. Photo interpreters used stereoscopes with lenses capable of magnification four times the original imagery (about like that of a magnifying glass). In addition, tube magnifiers with a seven-time magnification capability were also used in scanning the aerial photos. Photo interpreters performed the interpretation from contact paper prints rather than film duplicates. We know today that the negatives from which some of the Auschwitz contract prints were made in World War II could have been enlarged up to 35 times.

Concomitant with the tragic failure of photo interpreters to identify the Auschwitz-Birkenau Extermination Complex was the equally tragic failure of major Allied air commands to be aware that aerial photography of the complex existed. There had been numerous appeals from many sources to bomb the complex, the railyards, the rail bridges and rail lines leading to Auschwitz. Those appeals reached the highest levels, including Prime Minister Winston Churchill and President Franklin D. Roosevelt. When the bombing specialists were ordered to formulate plans for bombing the Auschwitz-Birkenau Extermination Complex, officials of the Air Ministry, the Royal Air Force Bomber Command and the U.S. 8th Air Force bemoaned the lack of aerial photographic coverage of the complex. In fact, such photos were readily available at the Allied Central Interpretation Unit at Royal Air Force Station Medmenham, 50 miles outside of London and at the Mediterranean Allied Photo Reconnaissance Wing in Italy. The ultimate irony was that no search for the aerial photos was ever instituted by either organization. In retrospect, it is a fact that by the time the Soviet Army reached Auschwitz on January 27, 1945, the Allies had photographed the Auschwitz-Birkenau Extermination Complex at least 30 times.

*MICHAEL E. BIGELOW * **Eisenhower and Intelligence***

On October 14, 1990, Dwight D. Eisenhower's birth centennial was marked by a host of articles and books on his generalship, leadership, and presidency. Few, if any, of these, however, focused on Eisenhower as a user of intelligence. Yet as commander of Allied forces, he appreciated and used intelligence throughout his campaigns in Europe during World War II.

A study of Eisenhower as an intelligence consumer and director can be instructive to the modern officer. As a consumer, his experience shows the limitations of the intelligence community, even when correct, to affect decision makers. Nevertheless, the intelligence officer must present his commander with the capabilities of the enemy, not just his most probable courses of action. Without knowing the full capabilities of the enemy, the commander can't make provisions to meet whatever the enemy does.

As a director, Eisenhower shows that a commander can't rely on one source of intelligence, no matter how good. It must be amplified and confirmed with other, perhaps more mundane, sources. Also, a study of Eisenhower shows the importance of a good relationship between the commander and the G2.

Inexperience with Intelligence

Remarkably, Eisenhower had little experience with intelligence before World War II. Graduating from West Point in 1915, he spent World War I in stateside training assignments. Over the next two decades, he held a variety of staff positions. But he never filled an intelligence position, or none that required him to grapple with the problems of gathering and using information on the enemy.

Eisenhower's military schooling didn't compensate for his lack of practical experience. The inter-war Army schools emphasized operations, not intelligence. While they gave some instruction in tactical reconnaissance, they overlooked the broader fields of collecting and using intelligence. So he received no formal training in how a commander should control intelligence operations. In short, his pre-war training and experience did little to prepare him for his future duties in regard to intelligence. The lack of pre-war preparation forced Eisenhower to learn from his own personal experience. Fortunately, he was a quick learner. His first lessons came almost as soon as America entered the war.

Early Lessons

In December 1941, General George C. Marshall, the Army Chief of Staff, brought Eisenhower to Washington as his chief planner. Under Marshall's guidance, Eisenhower mapped out America's basic strategy. Soon he discovered that scanty intelligence was "a shocking deficiency that impeded all constructive planning."[1]

His next lesson broadened Eisenhower's view of intelligence sources. It came after his appointment as the commander of American troops in England in June 1942. Winston Churchill introduced Eisenhower to spy networks and, more importantly, to ULTRA. The latter was the supersecret British system for breaking the highest German military radio codes. No longer was Eisenhower's view of intelligence gathering limited to battlefield reconnaissance.

Eisenhower learned these two lessons easily. However, during the North African campaign he made the mistake of relying on only one source of intelligence. It would be a much more expensive lesson.

Lesson of Kasserine Pass

In November 1942, Eisenhower commanded Operation TORCH, the Anglo-American invasion of French North Africa. By January, his forces—the British First Army and the American II Corps—were in Tunisia. The Allied forces faced General Jurgen von Arnim's Fifth Panzer Army and Field Marshal

Erwin Rommel's Afrika Korps.

In February 1943, British Brigadier Eric E. Mockler-Ferryman, Eisenhower's G2, reported that Arnim, with reinforcements from Rommel, would attack through Fondouk Pass with the aim of enveloping the British First Army. Unfortunately, the G2 was wrong. Instead of Fondouk Pass in the north, the Germans attacked through Faid Pass in the south.

On February 14th, a powerful German panzer attack slammed into the inexperienced American II Corps. In a series of engagements known as the battle of Kasserine Pass, they badly mauled the II Corps. Fortunately for the Americans, bickering between Arnim and Rommel stalled the attack. After pushing the Americans back over 30 miles, the Germans withdrew gaining only a tactical victory.

The Battle of Kasserine Pass gave Eisenhower much needed command experience and convinced him that a commander can't rely on a single source of intelligence. Mockler-Ferryman had based his estimate of German intentions solely on ULTRA intercepts, overlooking more traditional methods like patrolling. The ULTRA intercepts had clearly indicated a German attack through Fondouk Pass, causing a faulty Allied disposition. Eisenhower relieved Mockler-Ferryman and asked the British for a replacement. From the replacement, Eisenhower demanded "a little more inquisitiveness and greater attention to checking and cross-checking reports from various sources."[2]

Eisenhower's G2

The British replaced Mockler-Ferryman with Brigadier Kenneth W.D. Strong. An unpretentious Scot, Strong had a natural affinity with Americans.[3] Unlike his commander, he had a great deal of experience in intelligence work; in fact, it would be hard to think of a more qualified officer. Prior to the war, he was the British assistant military attache in Berlin, and for the first year and a half of the war, he was the head of the German Section in the War Office. Later, he became the intelligence chief for the Home Forces.

Strong shared Eisenhower's belief in the use of multiple sources. "It is quite wrong," he wrote, "to think of any one source as affording a solution in isolation. Each greatly enhanced the value of the others by corroboration, elimination, and amplification."[4] But, whatever Strong and his boss believed, ULTRA remained the most useful form of intelligence for the Allies.

Both Strong and ULTRA served Eisenhower well during the rest of the Mediterranean campaign. Before the invasion of Sicily in July 1943, the Allies knew the complete German and Italian order of battle in Sicily and Italy. Strong accurately predicted the German reaction to the Salerno landings in September 1943. It was small wonder that when Eisenhower took command of the Anglo-American forces for the invasion of France, he made Strong the G2, Supreme Headquarters Allied Expeditionary Force (SHAEF).

The Normandy Campaign

When Eisenhower arrived in England, the planning for the invasion of France had been going on for almost a year. Intelligence collection to support this planning was also well underway. Nevertheless, Eisenhower played a large role in the final intelligence operations before the invasion, especially the highly successful deception plan, Operation FORTITUDE. FORTITUDE fooled the Germans into believing that the Allied invasion would begin with an assault on Norway, followed by the main attack against the Pas de Calais. Strong's reports showed just how completely the Germans were fooled. Strong also supplied Eisenhower and his commanders with accurate and detailed information on enemy order of battle, capabilities and courses of action.

Eisenhower had much to do with Strong's ability to construct this accurate picture, especially after the invasion itself. Because the security-minded Germans relied heavily on land lines, ULTRA lost some of its value as a source. In part, aerial reconnaissance and Allied agents in France compensated for the limited ULTRA, but an invaluable source of information was the French Resistance. Unwilling to rely on one or even two sources of intelligence, Eisenhower increased support to and liaison with the French

Resistance.

G2, Supreme Headquarters Allied Expeditionary Forces (SHAEF)

To support Eisenhower, Strong's section was the apex of intelligence efforts against the Germans in Western Europe. The section was organized along British lines with two main subsections: Intelligence and Counterintelligence. It operated in a manner similar to FM 34-1's Intelligence Cycle: directing, collecting, processing, and disseminating intelligence.[5]

SHAEF's G2 directed intelligence efforts at the operational level. Strong and his staff kept regular contact with the intelligence officers of the army groups and air forces who gave general guidance on requirements and determined priorities. Through this direction, Strong received his information. Armies and army groups sent him intelligence summaries based on a wide variety of sources, including units in contact with the enemy, tactical radio intercepts, and aerial reconnaissance. This was in addition to the ULTRA intercepts, reports from the Office of Strategic Services, and information from the French Resistance.

To process this information, Strong had a staff of over 1,000. These analysts collated and cross-checked, and then synthesized the incoming intelligence into reports for Eisenhower. Strong later noted that one sentence to Eisenhower may have been developed from over 200 intelligence reports.

Once processed, SHAEF's intelligence was issued to lower headquarters in the form of weekly summaries, periodic estimates and ULTRA digests. Because these written summaries, estimates and digests suffered from a time lag, Strong preferred briefings. "Intelligence information and judgments," he believed, "are best delivered orally to those who need them. Most people have too much to read."[6] Strong always briefed Eisenhower and the SHAEF staff.

Strong started the daily morning staff meeting with a detailed briefing on the enemy situation. Lieutenant General Walter Bedell Smith, the SHAEF chief of staff, required "more information about them (the enemy) than we had of our own forces" Then, the primary staff met with Eisenhower, who also preferred oral reporting.[7]

Eisenhower treated Strong as a commander at the head of a staff section. Strong had the authority to sack anyone who was ineffective. More importantly, he wasn't to present intelligence estimates based on consensus view. Instead, his assessments were to be his beliefs. As Smith told Strong: "We've hired you for your knowledge and advice. If you are wrong too often we'll find and hire someone else in your place."[8] Fortunately, Strong wasn't wrong that often.

Breakout and MARKET-GARDEN

In late July 1944, the Allied forces broke out of their Normandy beachhead. Throughout August and into September, the American and British armies dashed across France. The Allied command was confident that the war was nearing an end. At the end of August, Strong reported "The August battles have done it and the enemy in the West has had it." A week later, he noted that the disorganized and demoralized German Army was "no longer a cohesive force…." If the attack could be pressed, the end of the war was in sight.[9]

In an effort to press the attack, Eisenhower accepted Field Marshal Bernard Montgomery's plan for gaining a bridgehead across the Rhine. This plan was Operation MARKET-GARDEN. By using three airborne divisions, Montgomery hoped to leap across the Rhine near Arnhem in the Netherlands before the Germans could organize their defenses. It was a calculated risk fueled by optimism.

At first the optimism seemed justified. Strong continued to report an enemy in a dismal state. But, on the eve of the operation, he found indicators of two panzer divisions near Arnhem. When the G2 brought these findings to Eisenhower, he told Strong to show the indicators to Montgomery. Unfortunately, the British commander waved the objections aside. MARKET-GARDEN was launched as planned but failed

to achieve its objective of a bridgehead across the Rhine.

Eisenhower's failure to heed the warnings of his G2 showed the limited influence that the intelligence community has on the decision makers. Eisenhower didn't feel he should call off the operations after giving it the green light. Moreover, he had no clear reason to do so. The Germans had not stood and fought for over a month and there was no definite proof that they would now. Like all operations, MARKET-GARDEN bore the risk of failure, but with that risk came the potential of success—a bridgehead over the Rhine and the continued pursuit of the German Army.[10]

Autumn War of Attrition

The failure of MARKET-GARDEN marked the end of the Allied pursuit of the German armies. The front stabilized and settled into a war of attrition. In October and November, the Allies' armies maintained pressure on the entire front. By constant pressure, Eisenhower hoped to drain German manpower and prevent German movement to a better position.

Although the Allies' armies could only advance slowly, there was room for optimism. Strong estimated that the Allies were causing 4,000 German casualties a day. Likewise, they were destroying German armored forces and he believed "the dwindling fire brigade is switched with increasing rapidity…from one fire to another." Although Hitler hoped to launch a counterattack, his power to do so seemed to be sharply decreasing.[11]

In early October, Strong reported that the Germans were strengthening their Army Group B around Aachen. He noted that the German Seventh Army had withdrawn its armor and predicted that it would reappear as a panzer army so that Army Group B could have an armored force like Army Group G's Fifth Panzer Army. Later in the month, Strong estimated that the Germans would have a panzer reserve strong enough to attack the Allies. This force could be used in November for a counterattack or spoiling attack. In November, the puzzle remained—how would Field Marshal Gerd von Rundstedt, commander of the German forces, use his new panzer reserve? Strong believed that Rundstedt would use this force for "a final showdown before winter." Logically, this showdown would come to counter the Allied thrusts toward the Ruhr industrial region.[12]

Many of these estimations were guesswork. Sources for Eisenhower and his G2 were drying up. With the Germans backed into their own country, the intelligence from resistance groups was no longer available. Bad weather restricted aerial reconnaissance. And while ULTRA intercepts were plentiful, they gave no conclusive evidence of German intentions.

The Battle of the Bulge

War always entails risk. To concentrate forces at one point, commanders often have to weaken another. It was no different for Eisenhower in December 1944. He took the calculated risk to weaken the Ardennes front to concentrate forces to the north and south for the drive to the Rhine. It seemed like a wise decision. The Ardennes, with its poor road network, wasn't suited for mobile operations, especially in the winter.[13]

Strong became increasingly concerned over this risk in the first weeks of December. While he was aware of nine panzer divisions, he was unable to locate them. At daily staff meetings, he called Eisenhower's and Smith's attention to three possible uses of these reserves:

1. Deploy to Russia.
2. Counterattack against a successful Allied penetration.
3. Stage a relieving attack on the Ardennes.

Strong believed the second option was the most likely, but Smith was so impressed by the third that he told the G2 to brief General Omar Bradley, the commander of the 12th Army Group which controlled the Ardennes, of the possibility. Bradley was confident that his forces could contain any German counterat-

tack before the penetration became dangerous.[14]

The Germans proved Bradley wrong. On December 16th, Strong interrupted a meeting between Eisenhower and Bradley and told them that the Germans had launched an attack through the Ardennes. Bradley dismissed it as a spoiling attack to draw off Lieutenant General George Patton's Third Army. But Eisenhower sensed it was much more than that and ordered Bradley to send two armored divisions to the Ardennes. Later, he would send his only strategic reserves, the 82d and 101st Airborne Divisions, into the area.

Eisenhower's quick reaction to the threat, aided by the tenacity of the American GI and the ability of Patton's Third Army to shift directions, sealed the doom of the Germans' last offensive in the West. By Christmas, Patton relieved the besieged garrison of Bastogne, the critical road junction, driving a salient into the Germans' southern flank. By the end of January 1945, the Americans had retaken all of the lost ground.

As with Arnhem, the Battle of the Bulge shows the limitation of an intelligence officer in changing a course of action. Strong made clear to his commander the possible threat of attack. Although hampered by a lack of information and a German deception plan, he correctly analyzed the German dispositions. In the weeks before the attack, Strong even specifically mentioned the possibility of a counterattack through the Ardennes. But Eisenhower was unwilling to change his plans.

Forrest Pogue, SHAEF's official historian, gave an excellent analysis of why Eisenhower and his commanders failed to listen to their G2's warnings. Foremost, Eisenhower's strategy was clearly offensive. By switching to the defensive and trying to react to the various threats would not only disrupt his offensives, but it would be impractical. A German attack, if it did come, would probably come against the Allied thrusts toward the Ruhr, and would be limited by shortages in gasoline. And lastly, von Rundstedt, who was thought to be in control of the German forces (in reality Hitler was), would not commit what amounted to military suicide.[15]

But if Strong's intelligence buildup didn't convince Eisenhower to change his courses of action, it did give him the insight to react quickly to the situation. Eisenhower was the first of the senior American leaders to realize the attack was a general offensive. And he was the first to realize the opportunity that Hitler had presented to the Americans.

The Ardennes counterattack was the last gasp in the West for the Germans. Eisenhower had little trouble in his Rhineland campaigns, the crossing of the Rhine, and the subsequent overrunning of Germany. On May 8, 1945, Germany surrendered unconditionally.

Assessments

Although he had little pre-war experience with intelligence, Eisenhower quickly realized its value to the commander. In the painful lesson of Kasserine, he learned that commanders must avoid over-reliance on a single source of intelligence. He never made that mistake again. In fact, he found new approaches, like the French Resistance, to avoid it. Even when ULTRA was limited, he and his intelligence community were able to piece together an accurate picture of enemy capabilities and intentions through the use of all available sources.

The belief in the use of all sources was the basis for the effective partnership of Eisenhower and Strong, he G2. But that belief was only the starting point. Both men had much in common and worked together extremely well. As time progressed, their rapport only got better. Eisenhower learned from his British subordinate, and Strong was part of his inner circle, helping him make many of his critical decisions. Strong's presence made Eisenhower more confident.

However, despite the close relationship and professional respect between Strong and Eisenhower, the G2 was often unable to change his commander' plans. Before both MARKET-GARDEN and the Battle of the Bulge, Strong issued warnings of possible unfavorable enemy actions. But in neither case did Eisenhower change his plans. He felt that neither the situation nor the information definitely demanded it.

As Strong noted about the Arnhem operation, "Our information was sufficient for me to utter a warning—intelligence can seldom do much more than that—of the potential danger from armored troops. After that it is up to the decision makers and there is no guarantee that they will heed the intelligence people."[16] Clearly there are limits to what the intelligence officer can do in the decision-making process.

But this limitation should not deter the intelligence officer from giving his commander the full range of enemy capabilities. Neither Eisenhower nor Strong believed that the Germans would launch a full-scale offensive through the Ardennes. It simply didn't make sense. But it was a German capability and Strong presented it as such. When it did occur, Eisenhower wasn't shocked into inaction. If Strong had only given the most probable German course of action, Eisenhower may not have reacted so quickly and the war could have dragged on longer.

This, then, is the greatest lesson of Eisenhower's World War II experiences with intelligence: An intelligence officer must present his commander with the total picture of enemy capabilities. Otherwise, the commander won't be able to anticipate events on the battlefield and may be caught unprepared.

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1. Dwight D. Eisenhower, *Crusade in Europe*, Doubleday & Co., Garden City, New York, 1948, p. 32.
2. *Ibid.*, pp. 143 & 147. Stephen E. Ambrose, *Ike's Spies: Eisenhower and the Espionage Establishment*, Doubleday & Co., 1981, Garden City, New York, p. 61.
3. Strong wrote "the best time in a man's life is when he gets to like Americans." See Sir Kenneth Strong, *Intelligence at the Top: The Recollections of a British Intelligence Officer*, Doubleday & Co., Garden City, New York, 1969, p. 112.
4. *Ibid.*, p. 118.
5. For information on SHAEF G2 see Strong, p. 178-182. Forest Pogue, *The Supreme Command in U.S. Army in World War II: European Theater of Operations*, Office of the Chief of Military History, Department of the Army, Washington, D.C., 1954, pp. 70-73.
6. Strong, p. 118.
7. *Ibid.*, pp. 118 & 249-250.
8. *Ibid.*, pp. 116-117.
9. Pogue, pp. 244-245.
10. Ambrose, pp. 130-135.
11. Pogue, pp. 306.
12. *Ibid.*, pp. 363-364.
13. *Ibid.*, p. 361.
14. *Ibid.*, p. 365; Strong, pp. 210-211.
15. Pogue, p. 372.
16. Strong quoted in Ambrose, p. 135.

*MICHAEL E. BIGELOW * **Intelligence in the Philippines***

During World War II, General of the Army Douglas MacArthur and his Allied forces fought a series of grueling campaigns in the Southwest Pacific Area (SWPA). These campaigns culminated with the January 1945 invasion of Luzon in the Philippine Islands. Landing along Luzon's northern coast, General Walter Krueger's Sixth Army fought the largest American ground campaign of the Pacific War. Although Sixth Army liberated Manila after two months, the campaign continued until the end of the war. By the time the Luzon campaign ended, it had cost 200,000 Japanese lives and 47,000 American casualties.

In this hard-fought campaign, the performance of Army intelligence was inconsistent. Although the Sixth Army's initial intelligence estimate was remarkably accurate, the theater G2 seriously underestimated the Japanese strength on Luzon. During subsequent fighting, American intelligence tended to misjudge Japanese numbers and intentions. This occurred partly because the American collection effort was unbalanced. Human intelligence (HUMINT) took center stage, while signals intelligence (SIGINT) and imagery intelligence (IMINT) stood in the wings. Additionally, as the campaign dragged on, a gap developed between operational and tactical level intelligence. Consequently, American tactical commanders often had to discover for themselves what enemy forces were over the next hill.

The G2s

In early 1942, intelligence equipment or agencies did not exist in the SWPA. However, by the Luzon campaign, theater and army level G2 sections had evolved into mature staffs. With two years of combat experience, both G2 sections had parallel organizations. Both theater and army had a section to conduct day-to-day intelligence operations. These sections prepared daily and weekly reports, posted situation maps, and worked closely with order of battle teams. Meanwhile, plans groups developed estimates and studies for operational plans. Both the theater and army G2 sections had photographic, topographic, and language specialists. At corps and division level, the G2 sections had a similar, although austere, structure.

To help prepare for the return to the Philippines, the SWPA G2 established the Philippine Section. After February 1944, this section acted as a miniature G2 for intelligence specifically on the Philippines. By spring 1944, it prepared monthly, weekly, and daily intelligence reports. The G2, Sixth Army, did not develop a Luzon planning cell until September 1944. That fall the cell performed many of the same functions as its theater counterpart.[1]

Major General Charles Willoughby was MacArthur's G2. Physically imposing with a hot temper, Willoughby had served with MacArthur since the beginning of the war. Although talented and intelligent, Willoughby was also egotistical and resented any interference in his domain. Willoughby's resentment was "the Achilles' heel of the SWPA intelligence structure." It led to quarrels between Willoughby and his subordinates when he thought they were encroaching or working against his plans. As a G2, Willoughby was always either impressively correct or hopelessly incorrect. Unfortunately, he was hopelessly incorrect during the Luzon campaign.

Colonel Horton White was Major General Willoughby's counterpart at Sixth Army. Like Willoughby, Colonel White was a big man, easily identified at Sixth Army headquarters. However, White was a quiet and good-natured staff officer, unlike Willoughby. He had a reputation for competence and ability. In January 1945, White orchestrated the highly successful rescue of prisoners of war from the Japanese compound at Cabanatuan. During the Luzon campaign, the Sixth Army G2 presented his commander a much more accurate enemy situation than Willoughby gave MacArthur.[2]

The Sources

During the Luzon campaign, intelligence from a variety of sources flooded MacArthur's forces. Intelligence staffs, especially at lower levels, relied overwhelmingly on information from captured documents and prisoners. SIGINT, IMINT, and other HUMINT supplemented this information. So much data reached the G2s, that they faced a mind-numbing task to collate and evaluate it all. Worse, most of the information was contradictory and confusing.

At theater level, the SWPA G2 controlled three collection and analytical agencies:

1. The Allied Translator and Interpreter Section (ATIS). This agency was the most important of the three agencies. During the war, ATIS linguists translated over 20 million pages of captured documents and interrogated 14,000 prisoners. The ATIS attached many of its linguists to army, corps, and division G2s, where they provided invaluable combat information to frontline commanders.
2. The Central Bureau. Sometimes called MacArthur's greatest intelligence asset, the Central Bureau was the SWPA's SIGINT agency. By 1943, the bureau usually provided MacArthur detailed intelligence of enemy strength and intentions—this was especially true after January 1944. This allowed MacArthur to bypass strongly defended areas and destroy reinforcement convoys—isolating his enemy. On Luzon, However, SIGINT would make a poor showing.
3. The Allied Intelligence Bureau (AIB). The AIB collected intelligence through clandestine and special operations and supported guerrilla movements in the Philippines. These guerrilla groups provided vast, if sometimes unreliable, amounts of information during the planning and execution of the Luzon campaign.[3]

At army, corps, and division levels, captured documents and prisoners were the primary sources of information. Lieutenant Colonel Downey, G2, 33d Infantry Division, estimated, "About 75% of our enemy information is obtained from captured documents and PWs." The G2, I Corps added: "Our knowledge of enemy strength and disposition, his ability to reinforce, and the extent of his casualties came principally from the systematic study of information from these sources." Colonel White's staff echoed these comments.

Other HUMINT sources also played an important role in operations on Luzon. Corps and divisions had ground reconnaissance troops, while Sixth Army had its effective Alamo Scouts. General Krueger formed this all-volunteer reconnaissance group to provide long-range ground intelligence. This specially trained unit worked directly for Colonel White and proved of "inestimable value to Sixth Army." Almost half of the scouts' missions were in support of the Luzon campaign.

Neither IMINT nor SIGINT proved as useful as HUMINT to the G2s in Sixth Army. Compared to the European Theater, use of aerial photography in the SWPA developed slowly. It was not until the Philippines campaigns that photo interpreters provided direct support to ground troops. As a result, Sixth Army's IMINT system experienced growing pains on Luzon. Even so, more than 700,000 photographs provided helpful intelligence on fixed Japanese emplacements.

In 1944, the Central Bureau was intercepting and solving an impressive array of Japanese codes. However, it never broke the regimental codes and thus could not reveal enemy tactical disposition. As one corps G2 noted, "Radio monitoring…was not particularly successful from the Corps point of view." Even at army level, SIGINT was not beneficial. Colonel Clyde Eddleman, Krueger's G3, stated that SIGINT was "of little value to the Sixth Army directly. It gave some indication of Japanese morale but little else."[4]

Intelligence Estimates

The G2s began detailed planning for the Luzon operation in October 1944. They collected information and translated it into intelligence; and disseminated it as estimates, studies, and situation maps. The most important deficiency was the void concerning the strength and composition of the Japanese garrison. This involved determining what portion of the reinforcing units had reached the island, since virtually every convoy was subjected to air or submarine attacks. Neither aerial reconnaissance nor radio intelligence

(normally the best long-range intelligence source) provided many pieces of the puzzle.

The Central Bureau's SIGINT often included convoy information, but did not include cargo estimates or casualty estimates from Allied attacks. Sometimes SIGINT would miss a division's movement altogether. The theater's IMINT system often failed to disseminate photographs to the lower units. As a result, the G2s had to rely on the vast amounts of often undependable information from the Filipino guerrillas. These uneven sources led to two divergent estimates of the situation.[5]

In mid-October 1944, Willoughby estimated that 121,000 Japanese defended Luzon. Acknowledging that the Japanese would reinforce the island, he believed they would defend along Lingayen Gulf, then in succeeding positions down Luzon's Central Plain (the main approach to Manila). Throughout November and December, Willoughby increased his estimate of the garrison's strength. On 1 December, SIGINT told him at least 153,500 Japanese defended the island. Increasing that estimate to 172,400, Willoughby continued to believe that the Japanese would defend Lingayen Gulf and the Central Plain. He also predicted that a large force to the east and southeast of the Lingayen Gulf would try to threaten the beachhead and Sixth Army's left flank as it advanced to Manila.[6]

Willoughby's estimate woefully underestimated the number of Japanese defenders. General Yamashita Tomoyuki, the capable commander of the Japanese 14th Army Area on Luzon, had more than 275,000 troops. Many of his units had only recently been turned into combat units; they were inadequately trained and poorly equipped. Yamashita also faced supply and transportation problems. Yet the Japanese general had "a respectable force," as the official American historian noted, "and one that was far stronger than General Willoughby…had estimated."

Willoughby also failed to correctly predict Yamashita's intentions. Recognizing his transportation problems, Yamashita never planned to fight a battle of maneuver on the Central Plain. Instead, he planned to fight a static defense that would tie down as many American troops as possible. To accomplish this delaying action, he divided his army into three groups and withdrew them to mountain strongholds. The KEMBU Group (about 30,000 troops) defended west of the Central Plain. The SHIMBU Group (80,000 troops) defended the mountains to the east of Manila. The largest concentration, the SHOBU Group (152,000) defended the mountains of northern Luzon. With these three groups, Yamashita would fight an effective seven-and-a-half-month delaying action.[7]

Colonel White's estimate of early December 1944 was significantly more accurate than Willoughby's. White estimated that Yamashita had 234,500 troops on Luzon (as opposed to Willoughby's low estimate of 172,400). White also estimated that almost 160,000 of these troops were north of Manila in a large concentration—50,000 more than Willoughby's reckoning—on the American left flank. Although White noted the lack of experience and training among the Japanese units, he (like the SWPA G2) erred by predicting that Yamashita would try to defend the Central Plain.[8]

The numerical disparity in Willoughby's and White's estimates came from differing evaluation of the data rather than the data itself. Willoughby had taken fragmented information at face value; as a result, he overlooked large numbers of unattached and service troops. Counting only the larger units, the SWPA G2 missed over 230 separate Imperial Army units. White, on the other hand, accounted for both unidentified and service troops.

The Japanese had successfully moved several divisions from Manchuria to the Philippines undetected. White wisely believed that the Luzon garrison had more units than just the identified divisions and brigades. Using reliable HUMINT reports of large troop concentrations and movement, he estimated that Central Luzon had 51,000 Japanese combat troops. To factor in base defense and service personnel, the Sixth Army G2 multiplied the number of combat soldiers by 1.5, giving him a total of 76,500 soldiers. The result was a reasonably accurate count of Japanese on Luzon.[9]

The Drive Toward Manila

White's and Willoughby's fears of strongly defended beaches quickly ended when Sixth Army landed

virtually unopposed. On the army's right, XIV Corps drove south toward Clark Field and Manila; on the left, I Corps protected the eastern flank. At first, both corps made good progress. Then resistance from the SHOBU group stalled I Corps. This meant that as XIV Corps advanced, it exposed its flank.

As the corps pushed east and south, Sixth Army intelligence began to determine the enemy situation. The Americans could not depend on SIGINT to outline the Japanese tactical situation. They did, however, receive good data from IMINT, after some initial problems. Information from prisoners and captured documents still remained the most useful source of information. From this information, the G2 staffs thought the Japanese had withdrawn as a ruse to cause XIV Corps to overextend its flank—making it vulnerable to counterattack. Fearing this scenario, General Krueger stopped XIV Corps until he could strengthen I Corps and clear the Japanese from their threatened areas.[10]

But General MacArthur had his own plans. He wanted to take Manila quickly. MacArthur also wanted the all-weather runways of Clark Field. During mid-January, Willoughby only strengthened his commander's resolve. The G2 estimated that at most there was only about 130,000 troops left on Luzon. He also ruled out a last-ditch defense of Manila. With his G2's low estimate of enemy strength, it is not surprising that the SWPA commander brushed aside Krueger's fear of a Japanese counterattack. MacArthur tried to bully Krueger into pushing XIV Corps to seize Manila. Krueger resisted the pressure.

Meanwhile, Colonel White revised his earlier estimate. With weak resistance on I Corps' right flank and in front of XIV Corps, White figured out the true pattern of Japanese defenses. He was convinced that Yamashita would not defend the Central Plain. The only strong enemy force now on the plain was the 2d Tank Division, which he correctly analyzed was retreating northward. On 18 January, Krueger ordered the XIV Corps south toward Clark Field.[11]

Central Luzon

As the XIV Corps raced south, the Sixth Army G2 developed a more accurate picture of the Japanese who faced them. In a captured operations order, they learned of the SHIMBU Group and its area of responsibility. To the four previously identified enemy divisions (2d Tank, 8th, 103d, and 105th), the G2 added the three remaining divisions (10th, 19th, and 23d); general locations for five of the seven divisions. But the situation became vague as XIV Corps approached Clark Field.

It was obvious that the Japanese would defend Clark Field on some way. But neither Willoughby nor White had much information on Japanese strength or intentions. Intelligence staffs estimated that between 4,000 and 8,000 troops, mostly service personnel, defended the area. The XIV Corps G2 believed the Japanese would only offer a minor delaying action. In fact, the Americans faced 30,000 troops from the KEMBU Group. While this group lacked combat training and heavy weapons, it fought a stubborn, week-long defense of the field. Unfortunately for the American infantrymen, their corps and divisional G2s could not outline the enemy's defenses until after they launched their attacks. Once the Allies secured Clark Field on 2 February, Krueger could continue his dash towards Manila.[12]

Similar to the KEMBU Group's defense of Clark Field, the determined defense of Manila also caught the American forces off guard. Intelligence sources did not help. Reports were so contradictory that they were useless for tactical planning. MacArthur and Krueger even disagreed on whether the Japanese would defend Manila. As late as 15 January, Willoughby, like his commander, did not think the Japanese would defend the city. Although the Sixth Army G2 disagreed, his intelligence on the enemy's disposition and size was meager. Instead of an easy operation like MacArthur envisioned, the battle for Manila became a month-long, house-to-house ordeal that ended on 4 March 1945.[13]

But the liberation of Manila didn't mark the end of the Luzon campaign. Krueger turned his forces to face the SHIMBU Group, and they fought in the mountains east of Manila for the next three months. During these operations, faulty intelligence sent one of Krueger's corps on a "wild goose chase." The SHIMBU Group controlled some vital facilities for Manila's water supplies. MacArthur concluded, based on G2 data, that the Wawa and Ipo Dams were critical, and ordered Krueger to take them. Since Wawa

Dam was closer, Krueger ordered its seizure first.

Unfortunately, the population of Luzon had not used these dams as a source of water since 1938. The XIV Corps (then later the XI Corps) plunged into the extremely rugged jungles of the Sierra Madre Mountains and fought a very slow and costly campaign. To make matters much worse, all of the estimates continually underestimated the strength of the Japanese. By the end of May, the Americans had secured both dams and broken the back of the SHIMBU Group.[14]

Northern Luzon

As the fighting began to subside in central and southern Luzon, Krueger's I Corps prepared to move against the SHOBU Group. By mid-February, it had gained footholds on the three highways running into the mountains of northern Luzon. There, Yamashita waited with a force that outnumbered I Corps two-to-one. He deployed his force in a triangular redoubt with its apexes at Bambank, Bagiouo, and Bontoc. Krueger knew time was on the enemy's side. The longer he waited to attack, the more time the Japanese would have to dig into already superb defensive terrain.

Good intelligence partly compensated for I Corps' unfavorable troop ratio. Although underestimating the SHOBU Group's strength, the Sixth Army G2 presented a sound estimate of enemy dispositions. Using guerrilla reports, captured documents, and aerial reconnaissance, Colonel White and his staff defined Yamashita's triangular defensive disposition with a rough composition. They also uncovered an important supply line that linked the Japanese defenses. But discovering enemy positions and taking advantage of that knowledge were two different things. Krueger's soldiers still had to fight a determined and well-positioned enemy with a capable leader. It wasn't until the war's end that Yamashita finally surrendered.[15]

Conclusion

One of MacArthur's greatest advantages over the Japanese was his intelligence system. In 1943 and 1944, it helped him seize and maintain the initiative with relatively weak forces. With superior intelligence, he could bypass strong defenses, hit the Japanese at their weakest points, and achieve overwhelming local superiority. But if intelligence served him so well in prior campaigns, why did it perform so inconsistently on Luzon?

Part of the answer obviously involves the SWPA G2. MacArthur believed Willoughby's greatest asset was his unquestioning loyalty. With MacArthur's obsessive desire to return to the Philippines, one has to wonder if Willoughby let this loyalty cloud his judgment and analysis. Did he make the intelligence prove his commander's estimates?

While Colonel White put seemingly discordant pieces of information together into a coherent whole, Willoughby did not. Willoughby's failure caused inaccurate and fragmented estimates. Lacking flexibility, Willoughby never acknowledged that his original enemy strength estimate was too low. Therefore, he consistently underestimated the Japanese strength. While the theater G2-s estimates cast long, dark shadows, he was not the largest problem the intelligence community faced on Luzon.

On Luzon, the SWPA intelligence system lacked consistent long-range collection assets. In World War II, these were aerial reconnaissance and radio intelligence. Yet, in early 1945, the intelligence staffs had only started perfecting IMINT in the SWPA. Worse, SIGINT, which had provided much operational intelligence in past campaigns, performed unsatisfactorily on Luzon.

With little or no SIGINT and limited IMINT, intelligence staffs enthusiastically embraced HUMINT sources. Captured documents and prisoners gave them excellent information. But most of it was tactical in nature. Of the operational level HUMINT sources, the guerrilla reports were often confusing and unreliable, and there were too few Alamo Scouts. As a result, American soldiers had to bump into the Japanese to develop an accurate enemy picture all too often. The inconsistent performance of American

intelligence on Luzon, illustrates the need for a balanced collection effort. We need all-source intelligence at the strategic, operational, as well as tactical levels. Only then can one intelligence discipline's strength compensate for another's limitations. With a balanced and flexible system, there is no need to send soldiers out to "check the intelligence arithmetic."[16]

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*KEVIN R. AUSTRA * The Battle of the Bulge: The Secret Offensive*

On December 16, 1944, the Germans attacked American forces in the Ardennes Forest in Belgium. That offensive, now known as the Battle of the Bulge, took the Allies by surprise. The Allied intelligence "failure" to discover the German preparations for the attack is a subject explored in almost every winter issue of one military journal or another. However, unlike the 1965 Warner Brothers film "The Battle of the Bulge," which portrayed Army staff officers as refusing to accept the probability of a German offensive, the German success in 1944 was due not so much to U.S. Army intelligence shortcomings as it was to effective German operations security (OPSEC) measures.

The German Plan

In Autumn 1944 Germany remained the lone European Axis nation fighting what many Germans believed was a hopeless struggle. Italy, Romania, Bulgaria, and Finland, cornerstones of defense in the east and south, surrendered or broke with Germany.[1] Hungary remained faithful but secretly negotiated with Moscow to end hostilities. Surprisingly, the loss of these allies did not significantly decrease German combat power. Since the Stalingrad disaster in 1942-43, Adolf Hitler no longer counted on his allies to field effective front line forces and relegated them to rear area security. The Axis defections did, however, stretch the Wehrmacht defensive line from Finland to the Black Sea. Meanwhile, the Red Army front was reduced as Romania and Bulgaria declared war on Germany.

The combined German losses on the east and west fronts during June, July, and August totaled 1,200,000 dead, wounded and missing.[2] Total German losses in Normandy after D-day alone exceeded over half a million men.[3] Despite the heavy losses suffered by the Wehrmacht, Hitler was certain that replacements could be found and new divisions formed to bring the war to a more successful conclusion. German military industrial output was promising. In 1944 Germany produced more tanks, guns, and aircraft than any previous war year. An average of 1,500 tanks and assault guns were shipped to the front every 30 days.

By the second week of September 1944, the German high command was encouraged by signs that German troops were beginning to get a toe-hold here and there, and the enemy advance was slowing. The collective German ground forces at the beginning of September numbered 327 divisions and brigades, of which 31 divisions and 13 brigades were armored. These forces were pitiful compared to the armies available for the 1940 and 1941 invasions. However, the amount of military frontage that the Germans had to contend with in the west shrunk considerably.

Hitler knew that he could not win the war in the conventional sense. What Germany needed in 1944 was a quick victory capable of bearing immediate diplomatic fruit. A fanatical believer in the Clausewitzian doctrine of the offensive as the purest and only decisive form of war, Hitler had to decide whether his projected counteroffensive should be made in the east or the west.[4] Territorially, the German Reich of December 1944 was larger than it was in 1939. German garrisons continued to occupy Crete, Rhodes and other Dedecanese Islands, as well as several French ports and the Channel Islands. The remainder of the German army was conducting an orderly withdrawal from the Balkans despite heavy Yugoslav partisan activity. In Italy, Field Marshal Albert Kesselring halted the Allied advance along the Po River.

In September the Soviets entered East Prussia, but German counterattacks drove them from all but a few kilometers of the territory. "Greater Germany's" Eastern Frontier was secure—at least for the time being. To most of Hitler's planners, the eastern front was more deserving of immediate action. Developments on the western front decided the issue.

In the autumn of 1944, Allied operations took place primarily along the Dutch-German border. After

seizing the German city of Aachen and securing the area around the city, the U.S. 2d and 28th Infantry Divisions struggled southeast of Aachen in the Huertgen Forest.[5] The Ninth Army pushed to the Roer River east of Aachen but was unable to go further due to the heavy German resistance.

Along the Ardennes-Eifel front, Americans pierced the German West Wall defenses in several places. The West Wall, designed and built in 1937-1939, was unoccupied and badly neglected in mid-1944. In addition, the fortification's defenses were designed to defeat troops, tanks, and tactics of 1939. In 1944 U.S. tanks had little trouble traversing its obstacles and Army engineers made short work of German pillboxes. Regardless, German resistance stiffened along the frontier and what remained of the West Wall was quickly fortified.

As Hitler began more detailed planning for his offensive, one factor remained constant—the goal of destroying the British and Canadian armies.[6] The attack was intended to tear a 100-mile gap in the front of the First U.S. Army. Not only would this capture a major Allied logistics center, but it would also isolate British and Canadian forces in Holland. Additionally, the attack would also relieve pressure on the German Saar Basin as it was believed that the Americans would quickly shift forces to the north to deal with the German offensive.

Most of Hitler's generals objected to the established objectives of the offensive. Most felt it had little chance of success; that the carefully hoarded panzer and mechanized divisions would be quickly swallowed up in the Belgian terrain. Sparsely populated, hilly, heavily forested and cut by deep gorges, the Ardennes had few roads capable of supporting heavy tanks and vehicles.[7] Worse, the bulk of the armored forces was to be in the north, with only paratroop divisions and mechanized infantry holding the southern shoulder. If the offensive did get close to Antwerp, the left flank would be dangerously exposed.

Efforts to persuade Hitler to alter the attack to a limited operation against the U.S. forces around Aachen fell on deaf ears. Antwerp was to be the target, and secret German weather teams in Greenland and Spitzbergen guaranteed that bad weather would limit Allied air power. Hitler told his minister of armaments, Albert Speer:

"A single breakthrough on the western front…will lead to collapse and panic among the Americans. We'll drive right through their middle and take Antwerp… And a tremendous pocket will encircle the entire English army, with hundreds of thousands of prisoners (just) like we used to do in Russia."[8]

On October 22, an initial version of the plan, named Wacht am Rhein (Watch on the Rhine), was briefed to a limited number of generals. The name, deceptive in itself, indicated an operation along the Rhine River. Another name for the operation was *Abwehrschlact im Westen* (Defensive Battle in the West) which reinforced the notion that the Germans would fight a defensive battle. The deception passed to both German commanders and allied agents painted a scenario where "Germany feared the U.S. First and Ninth Armies would achieve a real breakthrough and drive to the Rhine in the sector between Cologne and Bonn; in preparation for this event, the Fuehrer was amassing a major counterattack force northwest of Cologne; a secondary and relatively small force of burned-out divisions was being gathered in the Eifel to contain the right flank of the expected allied penetration."

So strict was the limitation of knowledge that only those in the headquarters charged with the command of the counteroffensive, including Field Marshals Gerd von Rundstedt and Walter Model were aware of the plan.[9] It was not until December 1 that division commanders were briefed on the operation.[10] Until the last hours before the attack, western front German commanders accepted the idea that the massing of materiel and the progressive withdrawal of divisions from the line was intended to provide fresh troops for the defense of the Ruhr and the Palatinate.[11]

The American Intelligence Estimate

The United States command was aware that German armored forces, specifically the Fifth and Sixth Panzer Armies, were moving into the vicinity of Cologne. They believed these units would counterattack the American Forces west of the Roer River.[12] This was the accepted German plan for several reasons.

First, the land between the Roer and Rhine Rivers is level and is ideal for tank warfare. It made a great deal of sense for the Germans to use their superior tanks to good effect in this area. Also, a counterattack there would thwart the American advance into Germany's industrial Ruhr Valley.

Another reason was the appointment of Field Marshal Gerd von Rundstedt as the German Commander in Chief of the Western Theater. The Allied appraisal of von Rundstedt was that he was an excellent soldier. His stubborn defense in the Fall of 1944 earned him the reputation of being rational and effective. For the defense of Germany, the Allies expected he would adeptly use his dwindling assets, counterattack at the opportune time, then fall back to the Rhine for a major defensive battle.[13] While the American press would later label the attack the "Rundstedt Offensive," at the time, the 70-year-old field marshal sulked in his headquarters and left the planning to Hitler, and the work to Model.[14]

Concealing the Buildup

German movement to assembly areas was mostly by rail. The trains, hidden in tunnels or forests by day, moved by night to appointed areas.[15] Railroads fed into the Eifel from Koblenz, Cologne, and lesser Rhine bridgeheads between the two.[16] Even though the German railway system suffered air attack for years, it was still able to shuttle troops from one front to another with only moderate delays. On 10 and 11 December, daylight raids on the Koblenz rail yards left over 100- craters, and yet 24 hours later they were back in full operation.[17] By December 11, most of the buildup was complete, thanks to the efforts of the German railroad system.[18] Between 16 September and 16 December, 1,500 troop trains and 500 supply trains brought forward 12 armored and 29 infantry divisions with 1,420 tank and assault guns, together with 15,000 tons of ammunition[19] and 3.8 million gallons of fuel.[20]

In all, the Germans refitted 35 divisions and created 15 *Volksgrenedier* divisions. In doing so, the Germans unwittingly deceived allied intelligence. Allied intelligence only recently became aware of the raising of *Volksturm* units and somehow tied the two together. *Volksturm* were local militia intended for the defense of Germany. *Volksgrenediers* were regular army mechanized infantry. The mistaken Allied fusion of the two organizations only reinforced the notion that the Germans were going to fight a defensive battle.

Though the Germans were able to assemble a considerable amount of combat power against the U.S. forces, German divisions were still considerably smaller than their American counterparts. For example, the 9th Armored Division had almost 220 tanks of all types (including M-10 tank destroyers) in contrast to the 9th Panzer Division's 100 tanks and assault guns. The average panzer division could at best field 130 tanks.

The heavy drain of the long war forced the German Army to reduce the strength of its infantry divisions from 17,000 to just under 13,000 men and to cut one of the battalions from each of three infantry regiments. At slightly over 14,000 men, the American division had a thousand more men than the German division. The attachment of artillery and a tank destroyer battalion to almost every U.S. infantry division made the American division considerably stronger in firepower than the German *Volksgrenedier* division and at least equal to the Panzer *Grenadier* (armored infantry) division.[21] Additionally, the dissected nature of the terrain limited the number of German divisions that could be committed at one time.

One of the main participants in the coming battle was the sixth Panzer Army, which maintained its headquarters in Cologne with one of its armored divisions. Its position indicated operations in the north, possibly against U.S. forces in Aachen. With the aid of false radio traffic, a ghost army known as the 25th with a notional order of ten divisions was identified in the vicinity of Cologne.[22]

The success of the Germans in concealing the presence of this great force for so long was due to a combination of rigid discipline and limiting their reconnaissance to a few high-ranking officers.[23] Activity was kept to a minimum. Assault formations were forbidden to make reconnaissances in the zone of attack.[24] Combat patrols were limited to nighttime searches for American patrols and artillery registration was permitted only by guns in the line, and then only to a few rounds per day.[25]

Terrain gave the attackers a distinct advantage. As the most extensive stands of forest are close to the German frontier, so too is the most forbidding terrain. For almost the entire length of the frontier, the terrain posed a major obstacle to military movement.[26] but it was well adapted to concealment.

The Germans used the forest cover to good advantage. Camouflage officers in the villages in the rear were responsible for getting new units under cover; all military road signs were strictly forbidden and no one except the reinforced detachments of traffic police were allowed to guide the units.[27] To prevent detection, most units were held at least 12 miles from the front until Hitler gave the order for the final assembly.[28] Supplied with prime movers, winches and sand, a special roads service was organized to assist tanks and vehicles in distress and move them from the roads and trails before daylight.[29] Tanks moved up to their final attack positions under the cover of noise of low-flying aircraft.[30] Wheels were wrapped in straw and roads covered with hay to muffle the sound of movement.[31]

To conserve gasoline and hold down the sound of motors, ammunition for the opening barrage was moved up by hand, one round at a time.[32] Some of the needed supplies, such as fuel, were moved forward only sparingly. As a result, the armored formations would start the attack with meager fuel reserves. Hitler counted on their ability to resupply themselves with captured American stocks.[33] The planned dependence on captured fuel stocks significantly reduced the amount of traffic in the rear.

Imagery Intelligence

The U.S. Air Force's 67th Tactical Reconnaissance Group assigned a low-priority to flights over the troop buildup area in the Eifel region. However, on the few flights they did make, they observed trains carrying tanks and ambulances. In addition, they reported truck convoys and supplies positioned in the tree lines alongside roads. These sightings were regarded as movements of personnel and equipment through the Eifel enroute from the south to the north to form the expected counterattack.[34]

In support of the offensive, the Germans were unable to disguise the fact that 90 ground attack planes and nearly 1,500 fighter aircraft were forward based.[35] Many of the squadrons now included the two new jet aircraft, the Messerschmitt 262 fighter-bomber and the Arado 234 reconnaissance bomber. These aircraft, in particular, required longer runways and special support. It is unknown why allied intelligence failed to pick up this fact.[36]

Communication Security

Communications security was a vital part of the deception. To prevent communications intercept, Hitler forbade transmissions by telephone, telegraph or wireless of any information that could in any way be connected with the offensive.[37] To enforce these measures, special security detachments roamed the Eifel to ensure that only those units actually facing the enemy were using radios.[38]

The use of the commercial telephone was a significant threat to German operations. Throughout the Autumn and Winter of 1944, commercial telephone lines between Germany, Luxembourg, and Belgium were still operational. It was possible for a German-speaking American to telephone into the Reich from American occupied territory.[39] Indeed, during the actual attack, German-speaking residents in the American occupied Belgian town of Malmedy were telephoning intelligence to their German army relatives a few miles away.[40]

Likewise, German military telephone lines were subject to intercept. Much of the phone system had been installed in 1938 in the West Wall fortifications. Portions of the line were captured by the Americans in September, and not knowing how much of the system was functional, the German army was discouraged from using it. Much to the dismay of allied commanders, the German army stubbornly refused to reveal what it was up to.[41]

Signals Intelligence

ULTRA was not as revealing as one might expect in informing the allies of the German offensive. Although Hitler did not consider the German code to have been compromised, he wanted communications concerning this key operation kept to a minimum. ULTRA did, however, intercept some traffic of value. One such message requested fighter air cover over rail terminals in the Eifel. Interestingly enough, high priority requests for air reconnaissance of Meuse River bridges were intercepted but had no significance placed on them. It is possible that the Allies believed the emphasis on German air operations was linked solely to assessing the V-1 and V-2 terror attacks on Antwerp.

In summary, ULTRA was ineffective because it was not specific. In the past, ULTRA information was reliable and clear. Messages intercepted prior to the 'battle of the Bulge did not specifically mention an offensive, so their significance was questioned.[42]

Human Intelligence

The Ardennes-Eifel frontier is predominantly a German area so the German intelligence service had no difficulty infiltrating agents. Some of the German agents infiltrated into the Ardennes had lived there during the Nazi occupation. One Gestapo agent actually moved back into his old apartment having kept the key when he fled the previous September.[43] The relationship between the residents of this area and their German relations was heavily exploited. Indeed, many of the families in the region had sons serving in the German army. German spymaster Lieutenant Colonel Hermann Giskes used this to his advantage. Giskes was tasked with spreading deception to the inner workings of allied agencies. To do this, he spread false information to labor camp internees who were allowed to "escape." When the Luxembourgians and Belgians reached allied lines, they told their tales to American officers.[44]

The possibility of deserters remained a big problem during the preparation for the attack, especially among those known as *Volksdeutch* (individuals of German ancestry serving in the German Army). The Ardennes made an ideal location to go AWOL.[45] To minimize the risk of deserters, soldiers from Alsace, Belgium, and Luxembourg were transferred to the interior, and a strict schedule of roll calls was begun.[46] In addition, Heinrich Himmler issued an edict that stated that the family of any man who defected would automatically be sent to a concentration camp.[47]

General von Manteuffel himself contributed to the deception. As soon as his army was in place, Manteuffel went to a cafe on the border of Germany and Luxembourg and boasted loudly about a coming German offensive in the north. He even went so far as to disguise himself as an army colonel prior to making a reconnaissance of the front lines so that his presence would not attract attention.[48]

Despite the German OPSEC measures, the American forces had HUMINT indicators of a coming attack. In late November 1944, a German order requesting volunteers who could speak the American dialect of English was obtained.[49] This order stated that a special reconnaissance unit using American equipment would be formed. Hitler personally organized the panzer brigade led by SS Lieutenant Colonel Otto Skorzeny. Skorzeny's 150th Panzer Brigade was dressed in American uniforms and equipped with captured American tanks, jeeps, arms, and identification.[50] During the battle, the 150th Panzer Brigade attempted to masquerade as an American unit behind American lines and seize bridges over the Meuse River, with a secondary mission of cutting phone lines and spreading panic.

On 14 December, two German prisoners disclosed that an offensive was to begin between 17 and 25 December and that all soldiers were to report back to their units by December 11th. Other indicators, including the capture of unit movement orders and a copy of von Rundstedt's attack order were pigeon-holed in a maze of administrative channels.[51]

The Offensive Fails

Military accounts differ, but the German offensive reached its peak between 25 and 27 December. In

the north of the Bulge, the German First SS Panzer Division attempted to make its way to the Meuse River by a route north of St. Vith. This attack was blunted and forced back into the Bulge. To the south, the German Seventh Army and Fifth Panzer Army were unable to take the road center of Bastogne, and by 26 December, Patton's Third Army broke through to the encircled town.

At its western tip, German armor reached within six miles of the Meuse before halting for lack of fuel, then dueled for two days with British and American tanks. Most German commanders knew that the offensive was finished. Generals, like the famed panzer expert Heinz Guderian, petitioned Hitler to halt the offensive and release the remaining force for service on the east front. These requests were refused until late January 1945. By then the Russian offensive was bearing down on Warsaw and moving to cut off East Prussia.

The Germans inflicted severe damage on the U.S. First Army during the Ardennes battle. This was compounded by Allied losses in the south from Nordwind (a two-pronged attack in France that almost forced the allies to abandon Strasburg) and a New Year's day raid by a thousand Luftwaffe planes. However, the U.S. Army could make good its losses in three weeks where the Germans could never replace lost soldiers and equipment. At best, the Germans delayed the Allied advance into the Saar and set back General Eisenhower's planned offensive to seize the Roer dams. Worse for the German, they threw away their chance to strike a devastating blow against the Soviet forces and delay their advance into Germany.

Analysis of Indicators

The Allies were so firmly convinced the Germans were preparing for a counterattack between the Roer and Rhine Rivers that it affected their analysis of indicators . The analysis was twisted to support the expected counterattack.[52] So complete was the deception that on 15 December, von Rundstedt's intelligence staff could find no sign that the Americans discovered anything. Communications intelligence detachments reported that continued American carelessness in the use of radio and commercial telephone indicated that no U.S. reinforcements were moving to the Ardennes area.[53]

Conclusion

Did the indicators warn of an attack? There were some indicators that by themselves would lead one to believe a German offensive through the Ardennes was imminent. However, when all available indicators were analyzed, the attack in the Ardennes was not so obvious. The greatest Allied delusion was that they believed it was von Rundstedt who controlled events in the West.[54] Other factors which must be considered are good deception by the Germans, von Rundstedt's past conduct of defensive warfare, and ULTRA's failure to provide the information that commanders had come to expect. Intelligence officers, who were supposed to be born pessimists, were vying with each other for the honor of devastating the German war machine by underestimating its strength and capabilities.[55]

Finally, the German attack was a lost gamble. They did not seize their primary objectives of Liege and Namur on the Meuse River, much less the final objective of Antwerp. Hitler underestimated Eisenhower's authority and ability to quickly move divisions to the threatened area.[56] It is easier to predict an enemy's course of action if it is rational. But it is much more difficult to predict a course of action which has reduced chances of success and actually diminishes the country's defense posture.

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*MICHAEL E. BIGELOW * **Big Business: Intelligence in Patton's Third Army***

Unlike its World War I predecessor, the American Army of 1944 had a mature intelligence system. Built on foundations laid in 1918, the system had intelligence staffs at all levels from army to battalion. Organizations and procedures were standardized. Doctrinal publications had grown from four in 1939 to over two dozen. More importantly, the staffs were trained. Some were trained in maneuvers in the U.S., while others had valuable combat experience from North Africa and the Mediterranean. One of the most effective and successful of these staffs was the Third Army's G2.

The success of the Third Army's G2 was based on the relationship between Lieutenant General George S. Patton, Third Army Commander, and Colonel Oscar W. Koch, his G2. These two men respected and trusted each other. Koch earned respect by providing Patton with an accurate picture of enemy capabilities. He and his section used every source available to collect information, and then remained objective in their assessment of the enemy.

Patton and his G2

Although the flamboyant and gregarious Patton and the modest and soft-spoken Koch offered a dramatic contrast, they made an effective team. Bespectacled, balding, and heavy-set, Koch looked more like a kindly old college professor than one of Patton's closest advisors. But his appearance belied a perceptive mind and a keen understanding of intelligence. These qualities, combined with deep loyalty to Patton, made Koch almost indispensable. So valuable was Koch to Patton, that whenever the general assumed a new command, he brought Koch along as his G2.

The Patton-Koch relationship began in the late thirties, when both served as Army Cavalry School Instructors. In August 1940, when Patton took command of the 2d Armored Division, he placed Koch on the divisional staff. Later, Koch became the division's G2. When Patton took command of II Corps in March 1943, Koch accompanied him to Tunisia.

Koch was Patton's G2 during the planning of the Sicilian invasion. during this month-long campaign, Koch gained invaluable experience as an Army G2. In January 1944, Patton took command of the Third Army in England. A month later, Koch assumed the G2 position. By August 1944, when the Third Army became operational, Koch had almost two years' experience as Patton's G2.

Patton knew the value of intelligence. Willing to take risks and exploit unexpected openings, he was the kind of commander who wanted to know everything about the enemy. As a result, he never let the G2 fade into the background. He included Koch in his inner planning group, which often consisted of only two other officers. Koch always had his say.

Perhaps because of Koch's tutoring, Patton knew it wasn't easy to get information on the enemy. Intelligence was more than guesswork supported by "occult powers." Patton understood that good intelligence took time and hard work. So "in Patton's commands," Koch wrote, "intelligence was always viewed as big business and treated accordingly."[1]

The two officers worked well together, developing a mutual understanding. After awhile, Koch could anticipate his commander's requirements. Only once did Patton personally express his intelligence requirements.[2] Yet Patton never complained that Koch wasn't giving him the right information instead, he praised Koch for giving him what he needed.

G2, Third U.S. Army

Koch used his North African and Sicilian experience to reorganize the Third Army's G2. His section

consisted of five functional branches: Administration, Combat Intelligence, G2 Air, Security, and Auxiliary Agencies. Although the G2 itself was relatively small, with only 19 officers and 25 enlisted men, it ballooned to over 400 officers and men with attachments. Most of these attachments came from the theater's Military Intelligence Service. Koch and Colonel Robert S. Allen, his assistant G2, formed a small executive group to coordinate and supervise the intelligence staff.[3]

Administration Branch. This branch handled the G2's routine personnel and logistic matters. It also served as a clearing house for intelligence products. It received and distributed reports from higher headquarters, and disseminated G2 products. In short, it allowed the other branches to concentrate on intelligence collection and production.

Combat Intelligence Branch. This was the hub of the G2. It collected, processed, and produced intelligence for the Third Army. The branch maintained G2 situation maps and charts, conducted briefings, and exchanged tactical information with subordinate and higher headquarters. It also prepared intelligence estimates, periodic reports, and other studies. An order of battle team from the MI, specially trained on the German Army, augmented the branch.

G2 Air. While in the Mediterranean, intelligence staffs found aerial reconnaissance so valuable that it required a separate coordinating section. G2 Air, under Colonel Harold M. Forde, was the result. It produced and disseminated intelligence from visual and photographic aerial reconnaissance. With only a small planning group at army headquarters, the rest of the branch was with the XIX Tactical Army Command (TAC), the Third Army's air component. At the XIX Tactical Army command post, the air reconnaissance coordinating officer consolidated corps and army air reconnaissance requests. At the airfields, ground liaison officers briefed and debriefed pilots and disseminated the results. At the photo squadron's airfield MI teams manned the photo center, interpreting photographs and preparing reports.

Security Branch. Like G2 Air, the Security Branch benefitted from previous combat experience, where CI had a direct relationship with combat operations. This branch's task was to deny information about the Third Army to the enemy. It published CI directives, arranged security training, and issued passwords and replies. Counterintelligence Corps attachments helped the branch maintain security.

Auxiliary Agencies. The Auxiliary Agencies Branch was small, but important. It supervised and coordinated the use of intelligence attachments to the G2. It received and disseminated these teams' reports.

Two other staff elements coordinated signals intelligence for the G2. Although part of the Third Army's signal section, the Signal Intelligence Service worked with the G2 to coordinate all radio intelligence within the army. It controlled tasking and reporting of the army's 118th Radio Intelligence Company and the corps' signal service companies. The British Special Liaison Unit received and distributed ULTRA intelligence, the system for breaking the highest German radio codes.

While each G2 branch was specialized, Koch believed "the concept of a G2 team was of critical importance."[4] This team moved to France in early July and became operational in August 1944. Over the next nine months, the G2 became more and more efficient as it gained experience.

Collecting Information

A 1945 study claims army-level G2s rated POWs and aerial reconnaissance as the most profitable intelligence sources, followed by radio intelligence and agent reports. While Koch favored aerial reconnaissance, he believed no source should be left unused. As a result, the G2 used human, imagery, and signals intelligence.[5]

Troops in Contact. Third Army soldiers in contact with the enemy were invaluable G2 information sources. Koch believed the divisions were "best equipped to provide intelligence information gained through physical contact with the enemy." Divisional troops captured prisoners, observed the enemy, and sent patrols. Koch noted, divisions were "the keystone to combat intelligence."[6]

Besides divisional troops, Koch relied on corps and army cavalry groups to gather information. Fulfill-

ing the traditional cavalry roles, these groups provided information on enemy strength and terrain conditions. The 6th Cavalry Group, under Colonel Edward M. Fickett, played a unique role. Converted into an information service, Fickett's group followed closely behind frontline units, visited headquarters, and monitored radio nets. They reported their G2 and G3 information to Third Army's advanced command post. Fickett's service gave both Patton and Koch a rapid and reliable information source.

Prisoners of War. POWs were by far the most important single intelligence source. By one estimate, over one-third of all combat intelligence came from POWs during World War II. This success stemmed from the great number of German prisoners: Four army interrogator teams could handle over 5,000 prisoners a day. An incident in December 1944 proved the value of prisoner interrogation.[7]

As Patton prepared to assault the Siegfried Line, the G2 learned a captured German general knew of the defensive line facing the Third Army. After Koch found out the German was cooperative, he arranged to have the G2 question him. As it turned out, not only did the general know about the defenses, but he had helped build them. Working on maps and aerial photograph supplied by Koch's section, the German pinpointed enemy defenses and weak spots. Once verified, the G2 placed this data on overprinted maps and prepared to distribute them to all units. Unfortunately, the Battle of the Bulge interrupted the Third Army's use of this intelligence; instead, the G2 gave it to the Seventh Army, which used it to great advantage.[8]

The Office of Strategic Services. By 1944 each army had a special intelligence detachment from the OSS. At Third Army, the G2 and the detachment had an excellent relationship. The OSS detachment recruited agents and inserted them behind German lines to gather information. The detachment successfully sent over 100 missions behind enemy lines and provided invaluable information to the G2. After the war, the G2 praised the detachment's "wide versatility and great value."[9]

Aerial Reconnaissance. The Third Army's deep collection asset was the XIX TAC's 10th Reconnaissance Group, and Koch was adept at using it. Through his G2 Air, he sent planes out to 150 miles in front of the army. Aerial observation brought in information on enemy movements and troop concentrations. During the Third Army's dash across France, this observation was so effective that the Germans were never able to mass forces to threaten the army's exposed flank. Aerial photography, the other part of aerial reconnaissance, provided more detailed information on terrain and enemy defenses. Photography was especially useful in locating artillery positions. In one case, before a XII Corps attack in November 1944, photo intelligence was so accurate it pinpointed 221 enemy artillery positions, allowing Third Army preparatory fire to obliterate them.

Perhaps Koch's greatest use of aerial reconnaissance came on the eve of the Battle of the Bulge. Concerned about the constant withdrawal of German armor forces from the front lines since October, Koch wanted to fly reconnaissance missions in the Eifel region, directly in front of the First Army. After getting permission, the G2 requested aerial surveillance of Eifel's railroad marshalling yards and highway intersections. In November, despite poor flying weather, photo interpreters traced the progress of hundreds of railroad trains carrying armor and vehicles. This buildup so concerned Koch that, on December 9, he briefed Patton that the Germans had the capability to launch a spoiling offensive. This capability became reality a week later as the Germans smashed through thin American lines in the Ardennes.[10]

Radio Intelligence. Radio intelligence was the most profitable collection source, after POWs and aerial reconnaissance. Working with smaller corps companies, the 300-man 118th Radio Intelligence Company intercepted German radio traffic, located outstations, and conducted traffic analysis and cryptanalysis. The 118th also coordinated the work of the corps companies and disseminated combat information to the G2. As the campaign progressed, the G2 got better at integrating this information into the general intelligence picture.

Radio intelligence proved useful in fluid situations like the breakout across France in August 1944. Using information from panzer and panzer grenadier divisions, the Third Army's radio intelligence companies pieced together their order of battle and followed their movements. On August 5, they found the 2d SS Panzer and 2d Panzer divisions in the Mountain area before the German counterattack. A week

later, radio intelligence provided locations of several divisions in the Falaise pocket. It also showed German unit movement east through the Falaise-Argentan Gap. The 118th continued to produce useful intelligence until early October.[11]

ULTRA. The third Army's window into strategic signals intelligence was Major Melvin C. Helfers, its ULTRA representative. He evaluated the intelligence, presented it to Patton and Koch, and helped fuse it with other intelligence. Although ULTRA gave several dramatic warnings of German counterattacks, it mainly acted as a guide and critic to the mass of information from other sources. It fit in well with Koch's concept of all-source intelligence.

Major Helfers presented the ULTRA intelligence in daily 0900 briefings. Besides Patton and Koch, only six other officers were authorized to receive the briefing. Using a special situation map, Helfers gave the information from notes using frequent map references. Except for strength estimates, he used information from other G2 sources to develop the most complete intelligence picture possible. Patton was so impressed by the value of ULTRA that he never passed up a special briefing.

Koch also showed interest in ULTRA intelligence. In making his estimates, he asked Helfers to prepare enemy strength maps and figures. The major could bring an urgent ULTRA message to Koch at any time. If necessary, Koch called it to the attention of the G3 or the chief of staff.[12]

For the Third Army G2, no one source of information dominated--all were important. One asset's limitation was compensated for by another's strength. If poor weather grounded 10th Reconnaissance Group planes, the G2 could gather information from prisoners, OSS agents, ULTRA, and troops in contact. Besides complementing each other, sources supplemented each other. For example, the Signal Intelligence Service got frequencies and call signs through interrogation and captured document teams. The result of this all-source effort was a balanced and flexible Third Army collection system.

Remaining Objective

A balanced collection effort helped Koch accurately estimate the enemy situation. But, more important, his thinking was always clear and detached. In late July 1944, the Allies broke out of the Normandy beachhead. In August and September, the American First and Third Armies raced across France. The Allies were optimistic the war would soon end.

Yet Koch remained cautious. On August 28, 1944, he issued G2 Estimate Number 9, in which he reported that despite huge losses, the Germans maintained a cohesive front and had not been routed. Koch reported they were still bringing new units into the battle, although this didn't give them new offensive power. With weather and terrain on their side, Koch believed the Germans would play for time and wage a last-ditch struggle. For Koch, the war wasn't over yet.[13]

As the Allies approached the German border, German resistance stiffened and the Allied advance slowed to a crawl. Yet, optimism remained. Intelligence officers believed the heavy fighting was sapping the Germans' strength, and they would not have the force left for an offensive action.

However, Koch watched throughout the Autumn. By the end of October, he noticed the Germans were withdrawing panzer forces from the front and were building up forces in Eifel opposite the First Army. Because the forces in Eifel could threaten the Third Army projected offensive toward Frankfurt, Koch paid close attention to them. During November, he kept a close aerial eye on Eifel. In mid-December, Koch warned Patton of a German counteroffensive.[14]

During the heady days of August and September and into the Autumn of 1944, Koch was objective in his assessments of German capabilities. He relied on his collected information, not the prevailing optimism, to make his estimates. Equally important, he didn't get careless in his collection effort toward potential Third Army threats. While not directly facing Patton's army, German forces in Eifel would threaten it as it advanced east. So Koch gathered information on them.

Assessing Capabilities

Koch believed intelligence estimates should consider enemy capabilities, not intentions. "No matter what the intentions of the enemy might be," Koch stated, "he must have the capabilities to execute them; the converse is not true. He may have the capabilities and yet not execute them for reasons of his own." To determine enemy capabilities, Koch looked at weather, terrain, and enemy strength and disposition. By using all-source information and keeping a clear mind, Koch was remarkably accurate in judging German capabilities.[15]

During the December 9 briefing, Koch briefed German force capabilities in Eifel. By Koch's reckoning, the Germans had nine divisions (four in contact) facing the First Army's VIII Corps. That was two and a half more divisions in equivalent strength than stood against the entire Third Army. Koch concluded the German divisions could either meet threats from the First or Third Armies, divert Allied reinforcements to the Eifel, or launch a spoiling or diversionary attack.

Several factors favored the last capability. The Germans had a tactical reserve of 105 tanks in two panzer divisions in Eifel. Of the nine divisions, the five in reserve were rested and refitted. To support ground forces, the Germans had marshalled 1,000 fighters. And while the terrain was unfavorable for Allied winter operations, it was favorable to a German offensive.

Koch's briefing was followed by a short silence, and then discussion. Plans were already underway for the Third Army operation toward Frankfurt. Nothing would interfere with that. But "limited outline planning" would begin to meet the potential German spoiling attack. Patton wanted to "be in a position to meet whatever happens." Later, Patton would use the outline planning to counter a German threat bigger than even Koch calculated.[16]

In ten days, Patton had his army shift the attack's direction and rip into the southern flank of a 20-division German counteroffensive. By Christmas, the Third Army relieved the besieged Bastogne, a critical road junction, and had driven a salient into the German's exposed flank. With the relief, the tide had swung against the Germans.

It is true, Patton did not change his offensive plans because Koch briefed him on a potential threat to the north. However, by telling Patton of a potential threat's capabilities, Koch started his commander and staff thinking about how to react to such a situation. And it was the Third Army's rapid shift of direction that broke the back of the German's counteroffensive in the south.

Conclusions

Although the Battle of the Bulge provides the most specific examples, the Third Army G2 was successful throughout its nine-month campaign across Europe. Through the G2's all-source collection and objective assessments of the enemy's capabilities, the Third Army was never shocked into inaction and could take advantage of vulnerable sectors in the enemy's lines.

Patton gave the credit for this success to Colonel Koch. "I ought to know what I'm doing," he once commented, "I have the best damned intelligence officer in any United States command."[17] With this attitude, it's not surprising that whenever Patton assumed a new command, Koch shortly followed as his G2.

Koch, in turn, gave much credit to his commander for the G2's effectiveness. According to Koch, Patton gave his G2 support, both in terms of interest in intelligence and knowledge of its complexities. Armed with this support, Koch knew that Patton would use, or at least listen to, the intelligence that he and his section had so painstakingly produced. "What the intelligence officer needs most to help him through his day-to-day chores," Koch noted, "is command support."[18]

Perhaps in this mutual admiration is the most important lesson from the Third Army's G2. The foundation of a successful intelligence system is a close relationship between the commander and G2/S2 built on mutual respect and trust. On one hand, the intelligence officer must know his commander will respect his efforts. The commander, on the other hand, must be able to trust his intelligence officer to give

him products that are accurate and complete enough to merit such respect. Without this mutual respect, both the officers and their unit are the losers.

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*JOHN DELLA-GIUSTINA * The Heroic Stand of an Intelligence Platoon: A Symbol of the Combat Ability of MI Soldiers*

On 16 December 1944, Nazi Germany commenced its last great offensive of World War II against the thin line of U.S. Army defenders in the Ardennes forest. The crucial Battle of the Bulge lasted until 28 January 1945, but the majority of the heavy fighting occurred during December and was among the most ferocious of the entire war. This campaign produced many acts of bravery and demonstrated the courageous character of the American fighting spirit.

One of the most gallant combat actions was the defense near Lanzerath, Belgium, by the Intelligence and Reconnaissance (I&R) Platoon of the 394th Infantry Regiment, 99th Infantry Division, on the first day of the battle. For their exploits the I&R Platoon later became "the most heavily decorated platoon for a single action in World War II."[1] Their incredible story is a prime example of how tactical intelligence leaders and soldiers should respond to accomplish any mission required in combat.

An I&R Platoon was organic to each infantry regiment during the war. The 25-soldier platoon consisted of two-nine man reconnaissance squads and a seven-man headquarters section that worked in the regimental S-2 section.[2] Their primary mission was:

> to serve as the special intelligence agency of the regimental commander for the collection of information under the supervision of the regimental intelligence officer (S-2)…. To accomplish this mission and to provide the regimental commander with vital information of the enemy, the platoon must operate patrols, man observation posts, and coordinate the intelligence activities of the regiment.[3]

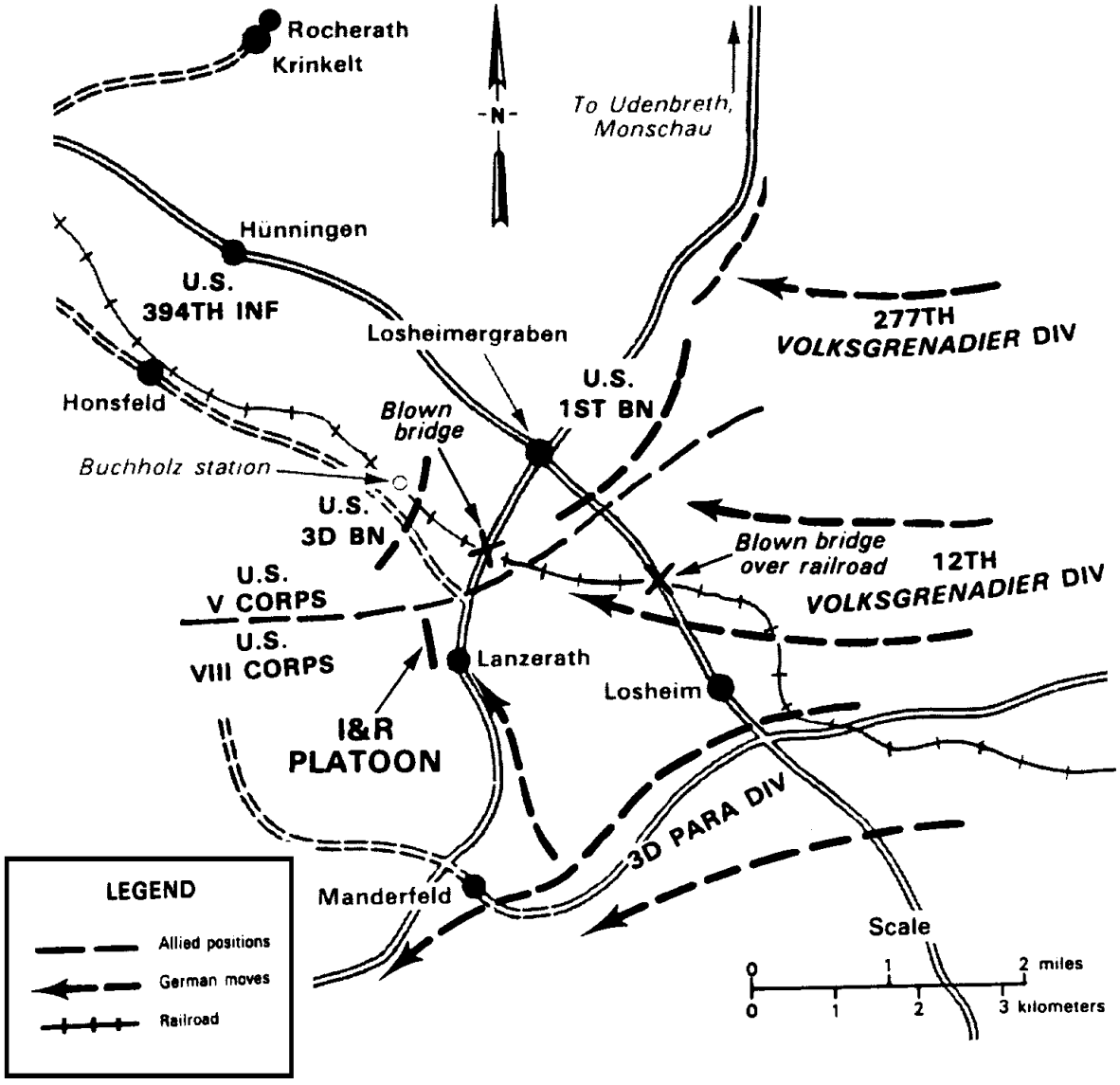
In simpler terms they were the "eyes and ears" for the regiment. But on the first day of the Battle of the Bulge, the 394th's I&R Platoon faced the entirely different mission of direct combat.

The untested 99th Infantry Division and its three subordinate regiments entered the front line in the quiet Ardennes sector in mid-November 1944. The 394th's I&R Platoon Leader, 20-year-old 1st Lt. Lyle J. Bouck, Jr., and several of his men were among the first group in the regiment to receive the Combat Infantryman's Badge for events during one of their initial patrols.[4] Until early December, the Regimental Commander, Colonel Don Riley, sent the entire 18-man platoon to the vicinity of Lanzerath to observe the area and provide warning of enemy movement on the regiment's right flank.

The position also coincided with the 99th Division's and V Corps' right boundary. To the south was the 14th Cavalry Group of VIII Corps. The location Lieutenant Bouck chose was in the woodline northwest of the small village of Lanzerath. This was actually south of the Corps boundary, but Bouck was unaware of this. It offered good observation to the highway which ran north through Lanzerath to the main defensive positions of the regiment and to the east towards the town of Losheim just inside the German border.

In the tree line Bouck's soldiers found well dug foxholes left by another American unit. Over the next five days the platoon improved their positions, developed a strong defensive plan, sent out patrols, and ran communications line to the regimental command post. However, they conducted little coordination with a tank destroyer section from the 14th Cavalry Group which had set up in Lanzerath about two hundred yards to the southeast.

The I&R Platoon also gathered many weapons to supplement their authorized Ml rifles, including Browning automatic rifles, a .30 caliber light machine gun, and a great amount of ammunition and hand grenades. In addition, the platoon brought their one organic heavy weapon, a .50 caliber Browning machine gun mounted on one of their seven jeeps. The platoon thus had "a sustained firepower capability" which was essential to their defense on 16 December.[5]



Position of the I&R Platoon on 16 December 1944.

In the early morning of 16 December, the German army commenced their attack with a huge rolling artillery barrage which lasted about two hours. The I&R Platoon suffered minimal damage in their heavily protected foxholes but the shelling cut their landline communications to regiment. Several minutes after the artillery stopped the two exposed tank destroyers in Lanzerath withdrew to the rear. Thus, the I&R Platoon was the sole front-line unit remaining along the corps boundary guarding an important avenue of approach into the sector. By SCR-300 radio the regiment ordered them to maintain their position and to

send a patrol down to Lanzerath.

The patrol went to the upstairs of one of the houses in Lanzerath to observe any movement out of the German held town of Losheim to the east. Soon they saw a large German formation emerge out of the fog marching to the southwest. If this German unit turned north they would march through Lanzerath on the road directly in front of the I&R position and into the unprotected flank of the regiment.

After observing the size of the German force, those returning from the patrol to the platoon position wanted to withdraw to the rear knowing they were greatly outnumbered. But Lieutenant Bouck ordered the soldiers to their foxholes believing their strong defensive arrangement might be able to delay the Germans. He also called for artillery fire on the marching column as it turned north but the regiment failed to respond to his request due to the German attack throughout the division sector.

As the column marched through the tiny town of Lanzerath, Bouck's platoon waited. Bouck allowed a small group of soldiers to pass through the town and march off to the north. He recognized the German's uniform as belonging to a paratrooper unit. He delayed hoping to ambush the main part of the column. As the main body arrived and halted, Bouck noticed three men, one of whom appeared to be the commander. But before the I&R Platoon was able to commence firing on the German force, a teenage girl ran out of a house to the command group and stated something to them, pointing in the general direction of the I&R position. A German then quickly barked an order to the column and they dove into roadside ditches. The Americans had held their fire only because of the presence of the girl and thus lost an excellent opportunity to ambush the column. Fire erupted almost immediately from both positions.[6] The engagement of Lanzerath had begun.

The German force attempted to frontally assault the I&R defensive position. But they had to attack across a snow-covered, gently rising field that was over a hundred yards long with a fence that bisected it. The snow superbly camouflaged Bouck's foxholes along the woodline. Each position provided interlocking fields of fire with the others. Also the I&R soldiers had zeroed their automatic weapons on the fence line which ran parallel to their location. Furthermore, the .50 caliber machine gun was in a defilade position and could easily interdict reinforcements coming from the south. Despite the advantages of the I&R position, the Germans continued to attack across the open field with devastating results for the paratroopers.

The fighting between the 18 men of the I&R Platoon and a battalion of the 9th Regiment from the 3rd Parachute Division raged all day. The Germans attempted three separate concerted assaults at Lieutenant Bouck's positions and the Americans repulsed them each time.

After the initial attack in the morning, the Germans raised a white flag so they might recover their many wounded. The I&R Platoon accommodated by raising and shifting their fires. Soon after another attack started. Lieutenant Bouck again radioed for artillery support but was not given any because of other priorities. When Bouck asked what he should do without artillery he was told to "Hold at all costs." A few minutes later a German bullet ripped through the I&R radio making it inoperable and knocking Lieutenant Bouck to the ground unhurt.[7]

Despite heavy fighting the I&R Platoon's status was good. Only one soldier had been wounded. He was hit in the face by a rifle grenade which miraculously failed to explode. The second attack again decimated the German unit. The paratroopers managed to bring in some mortar support but the I&R Platoon was safe in their covered foxholes. The third attack by the Germans in the afternoon yielded the same outcome. Hundreds of German soldiers laid dead in the snow especially along the barbed wire fence. The German's had been unable to approach the I&R position. Several U.S. soldiers exhibited extreme boldness to prevent attempted penetrations of their perimeter.

As the afternoon continued the I&R Platoon's energy started to wane. Many soldiers had been up most of the night and the day's fighting had exhausted them. Some were running low on ammunition. Somehow a U.S field artillery forward observer had shown up. But helped the situation little due to the confusion caused by the German attack throughout the Ardennes sector. Lieutenant Bouck sent two soldiers to regimental headquarters for reinforcements or orders to withdraw. Both failed to make it, and were

eventually captured by the Germans.

Lieutenant Bouck planned to withdraw his platoon when they had expended all ammunition. However, as dusk arrived on 16 December, about fifty paratroopers flanked the I&R position and were quickly inside the perimeter. The Germans moved to each foxhole clearing them out as they went. A German soldier fired into Bouck's position hitting the lieutenant in the leg and seriously wounding his foxhole mate in the face. Every platoon member became a prisoner except one who was killed in action.

The engagement of Lanzerath was over but its effect was astounding. The 18 men of the I&R Platoon had inflicted between 400 and 500 casualties, decimating an entire battalion of the 3rd Parachute Division. The paratroopers' mission to rapidly breakthrough the American front to allow armored units of the German main effort, the Sixth Panzer Army, immediate access to open roads to the Meuse River had been halted. On the night of 16 December, the 9th Parachute Regiment in Lanzerath failed to continue to the west. The Germans feared heavy resistance from American defenses such as they had encountered from the I&R Platoon.

Just after midnight, German Lieutenant Colonel Joachim Peiper, commander of the 1st SS Panzer Regiment, 1st SS Panzer Division, the spearhead of Sixth Panzer Army's drive for Antwerp, arrived in Lanzerath. He had been delayed by horrendous road traffic, blown bridges and the tenacious defenses by the units of the 394th, including the I&R Platoon. Irate at the lack of progress, Peiper ordered his force forward at about 0400, some 18 hours behind schedule. The delay altered the crucial timetable for Peiper and other panzer units. This allowed the U.S. Army valuable time to react and counter the German main thrust in the north. Although Peiper's unit progressed the furthest of any Sixth Panzer element, the Americans defeated the remainder of the German divisions in what became the critical northern shoulder of the bulge. The Germans shifted their main effort to their Fifth Army to the south for the remainder of the campaign.[8]

The tiny I&R Platoon had been the anchor of the 394th Regimental and 99th Division's front-line defense on 16 December. Without their heroic stand, the battalion of paratroopers they defeated would have flanked the 394th's First Battalion defending the vital road junction at Losheimergraben, or they would have turned northwest against the understrength Third Battalion of the 394th (see map). This would have reinforced the 12th Volksgrenadier Division offensive against these positions and probably overwhelmed the southern flank of the 99th Division on the first day. Panzer exploitations of this opening in a drive to the Meuse River thus would have been possible.

Due to the capture of the I&R soldiers and the blur of events during the first week of this huge battle, the U.S. Army did not recognize the platoon for its courageous deeds for 37 years. In 1969 John S.D. Eisenhower, a participant in the campaign and son of the Supreme Allied Commander, published *The Bitter Woods* which detailed the I&R's bravery. In the late 1970s, congressional and presidential interest, and an article by columnist Jack Anderson, focused on the Army's oversight of the platoon's actions. Finally, in October 1981, the Army awarded the Presidential Citation For Extraordinary Heroism to the I&R Platoon. Bouck and three other men received the Distinguished Service Cross, five others the Silver Star, and the nine remaining platoon members that fought at Lanzerath received the Bronze Star with Valor Device. The platoon thus became World War II's most decorated for a single enemy engagement.[9]

One historian succinctly summarized the I&R's exploits stating, "The I&R Platoon's action exemplifies the determination of the American soldier and what he can do when properly prepared, motivated, and led." Their conduct offers MI soldiers and leaders a superb example of the determination, initiative, and bravery necessary when faced with any combat situation.[10]

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General Board, 1945, p. 5. Because of their unit name, primary mission, subordination under the regimental S-2, and focused training in reconnaissance and surveillance, World War II officers considered I&R platoon members as intelligence soldiers. Although most were basic infantrymen, they went through rigorous tactical intelligence scouting, patrolling, and observation training. Some units sent their I&R platoons through the Division Intelligence course at the Military Intelligence Training Center, Camp Ritchie, Maryland. The platoon often consisted of the brightest and most physically fit soldiers in the regiment. In 1944, many soldiers from the Army Specialized Training Program (ASTP) filled the ranks of I&R platoons throughout the Army.

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Preface to Second Volume

The volumes, collectively known as *U.S. Army Intelligence History: A Sourcebook*, have been published with the objective of bringing together a collection of articles which, when taken together, form an outline of the U.S. Army's military intelligence experience. These sourcebooks will introduce the reader to a wide range of intelligence over some 220 years of American military operations, as seen by both historians and professional soldiers.

Volume II, *From the Korean War through the Persian Gulf War, Along with Some General History*, has the advantage of modernity, covering more contemporary events that are part of our lifetimes. It is generally thought that, because something happened within our life span, it is more relevant. This may be true in terms of weapons systems and matching tactics, but the general principles of intelligence that guided George Washington on the battlefield undergirded the decision-making process of H. Norman Schwarzkopf. That is why the sourcebook volumes are intended to be taken as a whole so that certain themes could be developed and MI could be seen as an organic, growing process—ever changing, yet maintaining a thread of continuity with the past.

Like all orchestral efforts, many individuals were involved and acknowledgements are in order. The following articles appeared in *Military Intelligence*.

"Disaster Along the Ch'ongch'on: Intelligence Breakdown in Korea," by Michael E. Bigelow [Jul-Sep 92]; "Operation URGENT FURY: The 525th MI Group Perspective," by John F. Stewart [Jan-Mar 85]; "JUST CAUSE: Intelligence Support to Special Operations Aviation," by Joseph W. Preston [Jul-Sep 90]; "Operation JUST CAUSE: The Divisional MI Battalion, The Nonlinear Battlefield, and Air Land Operations-Future, by Victor M. Rosello [Jul-Sep 90]; "DESERT STORM: A Third U.S. Army Perspective," John F. Stewart, Jr. [Oct-Dec 91]; "Deep Attack: A Military Intelligence Task Force in DESERT STORM," by Daniel F. Baker [Oct-Dec 91]; "XVIII Airborne Corps Desert Deception," by Gary P. Melton [Oct-Dec 91]; and "UAVs: Where We Have Been," by Donald W. Cairns [Jan-Mar 87]; "Battlefield TECHINT: Support of Operations DESERT SHIELD/STORM," by Brian Fredericks and Richard Wiersema, *Military Intelligence*, April-June 1992.

Some U.S. Government publications were:

"Aerial Reconnaissance: Its Beginnings," by Diane L. Hamm [*Military Intelligence: Its Heroes and Legends*, U.S. Army Intelligence and Security Command, Deputy Chief of Staff, Operations, History Office, Arlington Hall Station, VA, 22212-5000]; "A Summary of Intelligence Operations in Vietnam," by Joseph A. McChristian [Concluding chapter of *The Role of Military Intelligence, 1965-67*, U.S. Government Printing Office, Washington, DC, 1974]; "The Electronic Battlefield," by John D. Bergen [Chapter 17 of *Military Communications: A Test for Technology: The U.S. Army in Vietnam*, Center of Military History, United States Army, Washington, DC, 1986]; "The History of Security Monitoring," unknown author; *Intelligence for the Division: A G2 Perspective*, by Richard J. Quirk, III, Defense Technical Information Center, Cameron Station, VA, 22304-6145; and U.S. House Armed Services Committee, Oversight and Investigations Subcommittee, "Intelligence Successes and Failures in Operations DESERT SHIELD/STORM," U.S. Government Printing Office, Washington, 1993.

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I want to thank the very same people that were mentioned in Volume I, in the event the volumes become separated. They are: B. J. Hayes, who loves to type; Tom Daly, we need more like him; Barbara Tuttle, resident gadfly of the Fort Huachuca Museum; Tim Phillips, the museum's aesthetic conscience;

Dan Francis, there is no better administrator; Jim Chambers, the doorman at the Military Intelligence Hall of Fame; Dr. John Finnegan, his work sets the standard; James Gilbert, the INSCOM connection; John Della-Giustina, who has covered more terrain in the interest of history instruction than the original U.S. cavalry; Roseanne Finley, who excels in keeping her pappy happy; Jeanne Reilly, for putting the beaux in beaux arts; that bibliopolical trio Chris Hurd, Anita Lewis and Jerry Hawkins; and the staff of the U.S. Army Art Collection for their connoisseurship.

There is a trend nowadays for editors in their prefaces, after they have thanked everybody who contributed, to nobly step forward with shoulders squared and accept full responsibility for any and all errors that appear in their work. I am not going to follow suit. If there are any typos in these books, don't look at me. They are Roseanne's fault. She proofread the drafts.

English landowners would take their sons out to those markers that circumscribed the boundaries of their estates and drive their heads into them. Banging their heads on these landmarks was intended to make their location unforgettable. The history program at the U.S. Army Intelligence Center and Fort Huachuca wants to do the same thing, but in a gentler, more metaphorical way. Through books and museums, we want to introduce our clients to the traditions that belong to them. We want to knock their heads against the outer reaches of their patrimony, bump their noggins against the hard facts of history, show them in an unforgettable way the values they have inherited. We want them to carry away with them a knob of greater historical understanding. We hope these volumes in the *Sourcebook* series will act as conspicuous markers and contribute to that end.

JAMES P. FINLEY
Fort Huachuca, Arizona
September 1995

Korean War Era

When North Korean forces rolled across the 38th parallel with its Soviet-made armor in June 1950, the Republic of Korea and its sponsor, the United States, were taken by surprise. A desperate perimeter set up around the southernmost city of Pusan just barely prevented the peninsula from being completely overrun. General Douglas MacArthur's brilliantly conceived left hook, landing United Nations forces at Inchon behind the enemy lines, succeeded in pushing the now disorganized North Korean Army to the northernmost reaches of their country. But the UN allies were surprised a second time by the Chinese intervention which drove UN/US forces, now under Gen. Matthew Ridgway, back south of Seoul. A UN offensive would regain a line roughly approximating the old 38th parallel border. Bitter fighting marked the stalemate over the next two years before a truce was concluded in July 1953.

In August 1950, Colonel T.F. Van Natta, an Instructor at the Command and General Staff College, was writing in Military Review that the intelligence system had been substantially improved and sound doctrine established. He urged commanders to learn how to use intelligence and to realize that it was their responsibility. He cautioned them not to expect the G-2 to know what the enemy intended to do, but to concentrate on capabilities. He said the results a commander gets from intelligence will depend on the "quality of the people he uses and the amount of personal attention he gives."

Korea was another crisis for Army intelligence, as it was in fact for the entire post-World War II U.S. Army. General James Van Fleet, who commanded the Eighth U.S. Army from 1951 to 1953, remarked that since World War II "we have lost through neglect, disinterest, and possible jealousy, much of the effectiveness in intelligence work that we acquired so painfully in World War II." In his opinion, the Army had not "yet approached the standards we reached in the final year of the last war."

With the dismantling of almost all of the Army's intelligence specialist training following World War II, the Korean War found the U.S. Army without order of battle specialists, photo interpreters, technical intelligence analysts, or even language-trained interrogators. The Intelligence Department, opened in 1947 at Fort Riley's Army Ground School was not graduating anywhere the numbers needed. It took over three months to get the 60th Signal Service Company, an ASA unit, to Korea to support the Eighth U.S. Army with communications intelligence. By war's end the ASA's 501st Communication Reconnaissance Group was providing support with three battalions and five companies.

Detachments of MI specialists, CIC, and ASA personnel were attached to each division. As they were in World War II, 17-man CIC detachments were assigned to each division and they largely succeeded in protecting rear areas against enemy intelligence actions. As intelligence specialists were graduated from the Intelligence Department, they were shipped to Korea to MI units like the 500th MI Service Group and the 163d MI Service detachment which supported tactical units.

The commander's tools in the Korea fighting were limited to prisoner interrogation and aerial reconnaissance. There was little in the way of SIGINT. Allied commanders were also hamstrung by the prohibition of overflights or agent penetrations beyond the Yalu, into Chinese territory. This blinded them to the size and imminence of the Chinese intervention.

Aerial reconnaissance played an important role in Korea, such as delivering photos of the Inchon area prior to the landing there. The Air Force effort was hampered by the initial lack of Army photo interpreters.

For military intelligence, the Korean War was fought in World War II terms. Little had changed in the intelligence arena in either technology or organization. But the war would provoke postwar appraisals and result in some important changes in intelligence organization and professionalism. The changes took hold just in time for another war in Asia.

The National Security Agency was created in 1952 to eavesdrop on the enemy. Its mission was to pull radio transmissions out of the ether and decode them. The agency's emphasis on closely guarded secrecy among its employees caused some to interpret its acronym as "Never Say Anything." NSA's establishment

marked a shift in intelligence gathering away from the infiltrated or recruited agents that had provided information from time immemorial to electronic surveillance. Russian penetration of British intelligence services had compromised spy networks and, to some minds, made the use of human agents too untrustworthy.

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*MICHAEL E. BIGELOW * **Disaster Along the Ch'ongch'on: Intelligence Breakdown in Korea***

"No more Task Force Smiths" has become the watchword for the Army of the nineties. The phrase refers to an inexperienced, ill-prepared, and badly equipped American force that made a desperate effort to block the North Korean invasion into South Korea in June 1950. "Task Force Smith" has become synonymous with valiant men in an impossible situation: Untrained and unprepared, facing a determined foe. Likewise, the Korean War provides a prime example of an intelligence system that was unprepared when the Chinese surprised and defeated the Eighth U.S. Army along the Ch'ongch'on River in November 1950.

Before November, however, American intelligence gathered large amounts of information on a potential Chinese intervention, but estimates of Chinese intentions were inconclusive and often contradictory. Preconceived notions, and perhaps arrogance, got in the way of clear analysis. In addition, the Army had to rely on ill-prepared collection assets, and it understood little of the enemy. When the Chinese army attacked, it caught senior American and U.N. leaders by surprise.

G2s and Their Sources

In 1950, the principal actors in evaluating Chinese intentions were the Far East Command (FEC) and Eighth U.S. Army G2s. Major General Charles A. Willoughby, the FEC G2, had been General Douglas MacArthur's G2 since 1941. He had done a creditable, if uneven, job during the Pacific campaign. Physically imposing with a fierce temper, he ran his section with an iron fist. Unquestioningly loyal to his commander, Willoughby was among MacArthur's inner circle of advisors. To challenge the G2's views was the same as challenging MacArthur's. As a result, Willoughby's estimates had a strong influence on Korea's intelligence community.

Lieutenant Colonel James C. Tarkenton, the Eighth Army G2, especially felt this influence. As a 34-year-old lieutenant colonel, Tarkenton was both junior and young for his position. Unlike Willoughby, he had little high-level intelligence experience. Instead, he had been a regimental S2 during World War II. Still, Willoughby made him the Eighth Army G2 when the war broke out. In return, Tarkenton performed well in the fighting around Pusan in the summer of 1950. But despite his ability, the Army G2 never was able to escape the sway of the FEC G2.[1]

Unfortunately, Willoughby and Tarkenton had no sure way to collect intelligence on Chinese intentions. At that time, America didn't have Chinese linguists to intercept and read Chinese radio traffic. Nor were there any high-level spies in Peking. Without either HUMINT or SIGINT sources to judge Chinese intentions, the G2s relied on outward signs of intent, such as movement of troops and supplies. However, even this was difficult, since four days after the war began, the Joint Chiefs of Staff wanted MacArthur to stay clear of the Soviet and Chinese borders. With limited organic sources, the G2s had to rely on outside sources.[2]

The most important outside source was Chiang Kai-Shek's government on the island of Formosa. There, Chinese Nationalists got information from their agents in mainland China, and were able to provide a steady stream of reports to MacArthur's headquarters. These reports told of a massive Chinese troop buildup in Manchuria and North China throughout September and into October. Although the reports contained a lot of wild and inaccurate information, they did provide Willoughby and the FEC useful intelligence on Chinese capabilities.

As in World War II, G2s got their most significant information from POWs and aerial photography. At least one Army-level intelligence officer rated prisoner interrogation as his best source. In October and November, POWs furnished direct indications of a Chinese intervention. On the other hand, aerial

reconnaissance did not. Early in the war, Army intelligence depended heavily on imagery. But its inability to look into China, coupled with technological and resource limitations, made it difficult for aerial reconnaissance to track indications of a Chinese Communist Forces (CCF) intervention.[3]

During the critical three-month period before the intervention, the collection resources available to Willoughby and Tarkenton were uneven at best. With no SIGINT and little IMINT, they depended on HUMINT from Nationalist China and POW interrogation. Nevertheless, these two sources gave a clear picture of China's capability to intervene, and interrogation yielded ample indication of China's intention to do so. Unfortunately, Tarkenton followed the lead of the FEC G2 and largely dismissed these sources.

Too Late to Intervene

Three days after the war started, Willoughby began to consider the possibility that China might enter the war. On June 28, 1950, he reported that the Chinese might reinforce the North Koreans. Throughout the summer, as American and Republic of Korea (ROK) forces retreated south toward the port of Pusan, Willoughby reported a steady movement of CCF troops to northern China. By the end of August, FEC intelligence estimated Chinese strength at almost a quarter of a million men in Manchuria. Chinese reinforcements would have spelled disaster for the already hard-pressed and outnumbered allies in the Pusan Perimeter.

When the Americans landed at Inchon, however, the situation changed dramatically. This bold, deep envelopment, along with a drive by U.N. forces in the south, shattered the overextended North Korean units and sent them retreating northward. The allies were confident and triumphant, and the threat of Chinese intervention seemed more remote than ever. In September, neither MacArthur nor Willoughby believed the CCF would get into the conflict. Down-playing this possibility, the G2 told a visiting officer the Chinese would be sensible and stay out of Korea. Likewise, his commander told the Joint Chiefs of Staff there were no indications of CCF entry into Korea.[4]

However, in Peking a week later, China's Foreign Minister Chou En-Lai told the Indian ambassador that China would send troops to defend North Korea if the Americans crossed the 38th Parallel. Nevertheless, MacArthur, with U.S. and U.N. backing, sent troops into North Korea. Willoughby did not warn his commander that China might intervene. In fact, the G2 totally dismissed the likelihood.

On October 14, in the FEC's daily intelligence summary, Willoughby estimated the CCF had nine armies (each the size of an American corps) of 38 divisions in Manchuria. He pointed out that 24 of those divisions were disposed along Yalu River crossing sites. But, while he acknowledged Chinese capability to reinforce North Korea, he discounted their threats to send troops across the Yalu as "diplomatic blackmail." He added the Chinese "have decided against further expensive investment in a lost cause."[5]

MacArthur echoed these comments when he met with President Truman on Wake Island on October 15. Asked what the chances were of Chinese interference, MacArthur said, "Very little." The general explained it was too late for them to intervene now and if they did, U.S. air forces would make it "the greatest slaughter."[6] Both MacArthur and his G2 shared the view that intervention now would be too costly for China. It would not come in the nearly finished war.

The Chinese Strike

While MacArthur and his G2 were rejecting the intervention notion, China began to send troops south into Korea. During the last two weeks of October, the CCF sent between 180,000 and 228,000 men across the Yalu River. From October 25 to November 5, these Chinese forces would attack the Eighth U.S. Army and bring its progress to a halt.

As the Eighth Army continued its pursuit of the shattered North Korean Army, Tarkenton looked for evidence of a substantial enemy buildup. On October 25, that evidence materialized when three captured Chinese soldiers admitted they were part of a large Chinese force that had entered the war. This was

seconded by Major General Paik Sun Yup, an ROK divisional commander, who told his American corps commander that he faced "many, many Chinese"—at least a division. By this time, three Chinese armies began to maul the center and the right flank of the Eighth Army's lines. However, when Colonel Percy Thompson, the I Corps G2, briefed the 1st Cavalry Division's advance party that they would face Chinese forces, his conclusions were met with "disbelief and indifference."

It wasn't only 1st Cavalry Division officers who were skeptical. In an October 26 report, Tarkenton said Chinese POWs reported CCF reinforcements were helping to defend the border's approaches; but he said, there was no open intervention by China. Still, little by little, as new prisoners were taken, Tarkenton raised his estimates of Chinese involvement. On November 5, he reported three Chinese divisions, about 27,000 men, in Korea. Unfortunately, the G2 greatly underestimated the numbers of Chinese. By November, the CCF had 180,000 men in six armies in Korea.

There were several reasons why Tarkenton erred in his estimate. He was inexperienced and possibly overwhelmed by the task of trying to sift through over 2,500 intelligence items a week. He also depended on aerial reconnaissance to detect massive movements of troops, which it didn't. More likely, however, the FEC G2's estimate of the situation "unduly influenced" and "colored" Tarkenton's analysis.

During the last week of October, Willoughby continued to dismiss any notion of a Chinese intervention. From October 25 until the end of the month, when U.S. forces were actually fighting the Chinese, the G2 still listed guerrilla operations above intervention in his list of predicted enemy courses of action. On October 27, he commented that reports of China's entrance into the war were "based on POW reports and [were] unconfirmed and thereby unaccepted." He discounted the prisoners as insignificant volunteers or stragglers. The next day, he returned to the position that it was too late for the Chinese to intervene and that tactically "it would appear that the auspicious time for such intervention has long passed."[7]

November Lull

By November 2, Chinese soldiers smashed the II ROK Corps and stopped the Eighth Army's advance. Then, on November 6, they abruptly broke contact. This sudden withdrawal left American intelligence guessing. Had the Chinese simply made a face-saving attempt to stop U.N. forces? Were they falling back to protect the Yalu River power plants? Or did they intend to fully attack MacArthur's forces and defeat them? Unfortunately, over the next three weeks, intelligence would greatly underestimate CCF strength in Korea and tragically misread Chinese intentions.

Before the Chinese broke off their attacks, Willoughby pointed out the potential for a large-scale Chinese offensive, but concluded there were only between 16,000 and 34,000 CCF troops in Korea. On the day the Chinese broke off their attacks, the FEC G2 raised his estimate of CCF troops in Korea to between 30,000 and 40,000. He calculated another 350,000 ground troops in Manchuria that could force the U.N. into defensive positions to the south. Three days later, Willoughby again raised his estimate to 77,000 Chinese in 12 divisions. In mid-November, he reported a potential threat to the X Corps on the eastern side of Korea, but made little comment on the Eighth Army's front. Willoughby still did not have a clear picture of China's strength and intentions.[8]

Nor did Tarkenton have a clear picture of the enemy he faced; he continued to believe China wouldn't enter the war. Instead, after their attacks in late October, he believed the Chinese troops had fallen back to defensive positions to protect power plants along the Yalu. By later November, Tarkenton considerably raised his estimate of CCF soldiers in Korea to 60,000. However, once the Chinese had broken contact in early November, the impact of their attack wore off. Despite daily references to a Chinese offensive potential from November 10 to 24, concern over a full Chinese intervention tapered off. "In this connection," Roy E. Appleman, an official historian of the Korean War, noted, "that the controlling Eighth Army viewpoint cold scarcely avoid being influenced somewhat by that of the Far East Command, which seems to have been that China would not intervene with major forces."[9]

An Entirely New War

On November 24, MacArthur launched his "home-by-Christmas" offensive which was intended to unify Korea and end the war. On the eve of the new push, Willoughby still discounted the danger of a full-scale Chinese intervention. In fact, he actually lowered his estimate of Chinese strength to a maximum of l70,000 and a minimum of 45,000. The G2 believed these troops were short of rations and that constant pressure from U.S. air and ground forces had depleted their ammunition. If the Chinese tried to stop the Eighth Army, they would be at a severe disadvantage.[10]

Unfortunately, Willoughby couldn't have been more wrong. He underestimated Chinese strength by three-quarters; instead, of 70,000, there were almost 300,000 men. Although U.S. forces initially met little resistance on November 25, the 180,000-man Chinese XIII Field Army unleashed a surprise attack on the Eighth Army's right flank, smashing the II ROK Corps. Outnumbered, the Eighth Army soon was overwhelmed by Chinese troops on its exposed flank and rear. The defeat became a rout and by the end of December, China's army pushed the Eighth Army south of the 38th Parallel. As MacArthur said to the Joint Chiefs of Staff, "We face an entirely new war…."[11]

What Went Wrong?

There were many reasons for this defeat. Chinese military skill and prowess played a large role, as did tactical problems in the American Army. But, surely, the shock of an attack by an unexpectedly large body of troops was a significant factor in the rout.

As with the defeat itself, no one cause produced the surprise. Certainly, the evidence was there. Tarkenton at Eighth Army and especially Willoughby at FEC had plenty of information on Chinese capabilities, as well as intentions. Unfortunately, both G2s discredited much of it for two reasons. They had to rely on a flawed intelligence collection system and they did not understand their enemy. Worse, Willoughby let preconceived ideas color his analysis.

The intelligence community's lack of understanding about the CCF's operational art was the foundation of misreading China's intentions. The Far East Command didn't recognize that the Chinese army was very different from the North Korean army, which was equipped by and fought like its Soviet suppliers. The CCF was an infantry army armed with mortars and light machine guns. Moving at night with superb march discipline, the CCF relied on infiltrations, feints, and withdrawals to lure the enemy deep into its trap. But instead of looking for these tactics, the Americans looked for a Soviet-style unremitting offensive. When the Chinese withdrew on November 6, Army intelligence misread the movements as a retreat. So the first Chinese offensive did exactly what it was meant to do: Test enemy reaction, gain information, and most of all, bewilder its opponents.

Besides tactical confusion, our ignorance of the enemy hurt the collection effort. When, in late October and early November, Chinese prisoners spoke of the intervention, the G2s didn't accept the information because they didn't think the Chinese enlisted soldier could possibly know about overall strategy. In the CCF, however, the men were told the details of the operation. Regrettably, the Americans were unable to confirm the POWs' stories.[12]

In truth, our collection means were ill-prepared. With limited to no SIGINT, we had only HUMINT and IMINT. Both of these assets were unprepared to handle anything like the Korean War. Unfortunately, after World War II, the United States dismantled what had been a superb IMINT system. For economic reasons, the Air Force had stopped developing reconnaissance systems. As a result, neither the aircraft nor the cameras were able to support the mission. The Air Force didn't have the capability to conduct night photo missions against an enemy that moved mostly at night. Moreover, the Far East Air Force never had sufficient assets to adequately support the Eighth Army. The situation was so bad that S.L.A. Marshall, the noted combat historian, found that in November 1950 there would often be a 10-day delay between the time the Eighth Army requested aerial photography until they actually got the photo-

graphs. Even if the collection assets were available, both the Army and Air Force suffered from a severe shortage of photo interpreters.[13]

Although POW interrogation was a lucrative intelligence source, it, too, suffered from lack of pre-hostility training. In June 1950, there were less than 20 Korean linguists in the entire Army. The situation worsened when the Chinese got involved. Colonel James H. Polk, an FEC intelligence officer, noted that the FEC had no Mandarin Chinese linguists. In one case, a Chinese POW was interrogated using a Korean-speaking Japanese American and a Korean-Chinese linguist.[14]

However, an improved collection effort might not have made the difference in divining Chinese intentions, since Willoughby often evaluated information in light of his preconceived notions. Throughout World War II, Willoughby had the bad habit of superimposing his view of the situation onto the Japanese. Rather than trying to understand the enemy he allowed his first impressions to shape his estimates.

In 1950, Willoughby believed that since the Chinese hadn't intervened by late summer, when a few CCF divisions could have forced an American Dunkirk, they certainly wouldn't come in when the war was almost over, especially in the face of U.N. air power. This notion colored Willoughby's estimates. In late October, when captured Chinese soldiers told of a full-scale intervention, the FEC G2 dismissed these reports as unconfirmed. Not even the first Chinese offensive changed Willoughby's assessment of the situation. In fact, as late as November 15, he doubted that "if intending to intervene in Korea, [the Chinese] would wait until this late in the war." This analysis no doubt, heavily influenced Tarkenton at Eighth Army.[15]

All of this resulted in puzzling intelligence estimates. Taken as a whole, the estimates indicated China's capability and growing preparation to attack the Eighth Army, but were inconclusive as to China's intentions. For example, on November 15, Willoughby prioritized four courses of action the Chinese might pursue:

1. Conduct offensive operations.
2. Reinforce North Korea with communist forces from outside Korea.
3. Conduct guerrilla operations.
4. Conduct defensive operations.

Yet, on November 25, the same day the Chinese began their offensive, Willoughby changed his priority of predicted enemy courses of action. He now placed enemy reinforcement from outside Korea first and the conduct of offensive operations second. However, in the same estimate, the G2 told MacArthur that there were "some indications" the CF were withdrawing, "many indications" they will defend reservoirs and power installations along the Yalu River, and "many reports" they plan to strengthen their forces now in Korea. Throughout October and December, intelligence estimates were too ambiguous to give a positive forecast. With vague readings from the intelligence community, surprise was not far behind.[16]

In November 1950, the intelligence system of the Far East Command couldn't do what it was supposed to do: Warn MacArthur and his senior commanders of a Chinese offensive. The breakdown of our intelligence system serves as a grim reminder to today's intelligence professionals of what happens when we do not understand the enemy, and do not have well-trained and well-equipped collection means. Moreover, it shows the folly of allowing pre-existing images to shape intelligence analysis. So, next time we hear "No More Task Force Smiths," we might do well to remember that five months after that unprepared task force was defeated, an army was defeated when its unprepared intelligence system broke down.

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16. For more examples see Schnabel, pp. 275-276.

The Vietnam Era

In the period following the Korean War, intelligence became a growth industry as it began to garner new respect. New agencies and professional forums flourished. In 1955 the Signal Corps transferred its proponency for electronic intelligence and warfare to the Army Security Agency which became a field operating agency under the Army Chief of Staff instead of being subordinate to the Acofs, G-2. The U.S. Army Security Agency was made a major Army command in 1964.

In 1956 the G2 in the Department of the Army was redesignated the Assistant Chief of Staff, Intelligence (ACSI), a two-star billet. Thus intelligence was once again relegated to a secondary position as Personnel, Operations, and Logistics were all reorganized as Deputy Chief of Staff positions filled by Lieutenant Generals.

To complement communications intelligence, the CIA initiated a program of imagery intelligence over the Soviet Union in 1956, using a plane called the U-2, designed by Kelly Johnson at Lockheed Corporation. Able to fly at 70,000 feet, the U-2 could stay above enemy missile ceilings. In 1960, however, a new high altitude defense missile brought down a U-2 and its pilot, Gary Powers, was captured. The incident caused President Eisenhower to cancel U-2 flights. The aerial surveillance mission was continued by satellite reconnaissance employing high-resolution cameras developed by Polaroid. The satellite program had been receiving high priority funding since 1955 and in 1959 the National Reconnaissance Office was formed under Air Force auspices to control the satellite systems which began operating in 1960.

When the Department of Defense was reorganized in 1958, an Intelligence Directorate, J2, was set up under the Joint Chiefs of Staff. The JCS J2 would be disestablished five years later as a result of the Defense Intelligence Agency's assumption of many of its roles. Concurrently, a United States Intelligence Board was created with the Army's Assistant Chief of Staff for Intelligence as one of the voting members.

Lessons from the Korean War and "Operation Sagebrush," a 1954 maneuver held in Louisiana, prompted a new tactical intelligence organization known as Military Intelligence Organization (MIO). Adopted in 1958, MIO tailored the intelligence support to Army theaters of operation by assigning military intelligence personnel to an MI Battalion, rather than assigning them individually to tactical units. Subordinate elements of the battalion would perform specialized tasks for the tactical commander like collection, interrogation, technical intelligence and counterintelligence. The MI battalion was usually assigned to a field army, while divisions were supported by MI detachments.

First established as the U.S. Army Intelligence Center in September 1954, the U.S. Army Intelligence School was opened at Fort Holabird, Md, on 1 May 1955 to teach counterintelligence, combat intelligence and area studies. It replaced the old Intelligence Department at Fort Riley's Army Ground School.

The Defense Intelligence Agency (DIA) was created in 1961 by Defense Secretary Robert McNamara so that all defense intelligence operations would be coordinated at a single and central high-level agency rather than be handled separately by the intelligence services of the Army, Navy and Air Force. Collection requirements and estimates now were prepared at DIA. The agency assumed operations of the U.S. Army Strategic Intelligence School and in 1965 became responsible for the military attache system. The move was seen by many in the separate services as an effort to strip them of their autonomy. Allen Dulles disagreed. "DIA was not a merger of the intelligence branches of the armed services, but primarily an attempt to achieve maximum coordination and efficiency in the intelligence processes of the three services."

The Counter Intelligence Corps was renamed in 1961 as the U.S. Army Intelligence Corps, and in 1965 it became a major field command of the Army known as the Intelligence Corps Command. It had subordinate Military Intelligence Groups supporting each Army area in the United States with a network of regional and field offices. Their primary work was counterintelligence: Performing security investigations of personnel needing clearances and supporting operational security.

The Army Intelligence and Security Branch was created on 1 July 1962 to meet the need for a career

field for the increasing number of officers performing intelligence missions. It was made up of strategic and combat intelligence officers from both the Intelligence Corps and the Army Security Agency. It was the Regular Army's first MI branch. An organization for Military Intelligence Reserve officers had existed in one form or another since 1921, the latest being the Army Intelligence and Army Security Branches formed for reserve officers in 1952. The Regular Army's Army Intelligence and Security Branch was redesignated the Military Intelligence Branch in 1967.

American involvement in Vietnam steadily increased as the instability of the South Vietnamese government led to greater possibilities of a Communist insurgent victory in the South. Escalating from a small advisory role in 1961, the U.S. committed air power and ground forces in 1965. While the military fought on the often ill-defined battlefields of Vietnam, the politicians found themselves faced with growing antiwar sentiment at home. Army intelligence would be asked to contribute its know-how on both fronts until the withdrawal of U.S. forces in 1973. Following the peace agreement in January 1973, the last intelligence unit pulled out by March, ending for them what had been a mixed experience.

The unpopularity of the war gave rise to the myth that the Army was "managing" its intelligence in relation to enemy strength figures, keeping the numbers low so that the war would not be seen in defeatist terms by politicians back in Washington. The myth was fueled by some Army officers and a CIA analyst named Sam Adams, whose own calculations arrived at much higher numbers. The problem lay in interpretation. If you counted irregular forces who were sympathizers to the Communist cause and would be expected to provide logistic and service support from time to time, but were unarmed and not part of a trained fighting organization, the numbers would be high. However, if you discounted these Self Defense and Secret Self Defense forces, as MACV J-2 did in their monthly Order of Battle Summary, because they did not consider them to constitute a significant threat to allied combat forces, the numbers would be lower.

Army intelligence received another undeserved blow when the press criticized it for failing to warn of the Tet Offensive when in fact intelligence correctly predicted the attack to the day and pinpointed what forces would be involved. If intelligence was to be faulted, it would only be for failing to appreciate the scale of the Tet Offensive.

Maj. Gen. Joseph A. McChristian became the first Army MACV J-2 on 13 July 1965. His first move was to organize the Combined Intelligence Center-Vietnam (CICV), a centralized intelligence analysis and research facility in Saigon. Every kind of intelligence data being collected flowed into this center for analysis and storage in an IBM computer. Captured documents, Order of Battle information, terrain studies, POW interrogation reports, technical intelligence reports, information from covert agents, and photo interpretation was brought together from both U.S. and RVN sources. McChristian considered the CICV "one of the finest supports of combat intelligence that was ever deployed in support of our forces in wartime."

The U.S. and the South Vietnamese operated four intelligence centers in 1967. They were the Combined Intelligence Center, Vietnam; Combined Military Interrogation Center; Combined Document Exploitation Center, and Combined Materiel Exploitation Center. The CICV employed about 500 American and 100 South Vietnamese. The American staffing for these centers came from the 519th MI Battalion which also supplied the manpower for the MI detachments serving with ARVN corps, divisions and provincial headquarters. They not only trained the ARVN counterparts but provided intelligence of U.S. field intelligence advisors and the U.S. intelligence community. Lt. Gen. William E. Potts, Gen. Creighton Abrams' J-2, would gradually between 1969 and 1972 turn these centers over to the Vietnamese.

On 1 June 1967, McChristian was replaced by Army Maj. Gen. Philip Davidson who reorganized the Army intelligence units to more efficiently support the units in the field.

The U.S. Army Intelligence Command (USAINTC) was established in 1965 as a major Army command (MACOM) to handle counterintelligence functions in the United States, collecting domestic intelligence in the event federal troops were called out to intervene in riots. It operated with seven Army counterintelligence groups. With the widespread antiwar feeling and unrest, the FBI was hard pressed to meet the

demands of preparing domestic intelligence and the U.S. Army Intelligence Command filled the void. This involvement with civilian intelligence brought criticism and recriminations for the Army which ended its domestic collection in 1970. The Defense Investigative Service came into being to perform the background investigations necessary to grant security clearances, a job that had made up 90 percent of USAINTC's mission. Significantly cut back in mission and personnel, USAINTC was closed down in 1974. It was replaced by the U.S. Army Intelligence Agency (USAINTA), a field operating agency of ACSI.

The U.S. Army Security Agency (USASA) became a major army field command in 1964 and then became known as the U.S. Army Intelligence and Security Command (INSCOM) in 1977.

Army Chief of Staff Harold K. Johnson approved on 1 July 1967 the recommendations of the Norris Board, a body specially created to look at the Army's intelligence programs and organization. As a result, the old Army Intelligence and Security Branch, which had included the Army Security Agency (ASA), now became the Military Intelligence Branch. The MI mission changed from one of combat service support to combat support. And now the Army began studying the possibility of moving the Intelligence School from Fort Holabird and centralizing the training for the many intelligence specialties.

The early years of the war found military intelligence assets inadequate and unsophisticated, a situation which had become the pattern in every American war. In 1965 there were 200 U.S. army officers serving as intelligence advisers with Republic of Vietnam troops. When U.S. combat troops were committed in that year, the 704th Intelligence Corps Detachment, a detachment of the 500th Intelligence Corps Group, and the 3d Radio Research Unit were on duty in Vietnam. But there were shortages of specialists, especially linguists.

Lieut. Gen. Harry W. O. Kinnard, commanding the 1st Cavalry Division in 1965, commented on the early problems with identifying the enemy:

> *When I took the 1st Cavalry Division to Vietnam in 1965, I knew that finding the enemy would be one of our toughest jobs. It occurred to me that perhaps we would be able to identify the guerrilla, a farmer by day and a fighter by night, by the dark circles under his eyes…. As it turned out, our surveillance was just about that unsophisticated.*

But improvements were on the way. By the 1968 Tet Offensive, there were 2,500 intelligence specialists in country under the supervision of the U.S. Military Assistance Command, Vietnam (MACV), J-2. In Saigon the 525th Military Intelligence Group exercised command and control over the 135th MI Group, a counterintelligence unit; the 149th MI Group, which engaged in positive collection; the 1st MI Battalion (Aerial Reconnaissance); and the 519th MI Battalion, which operated the joint US/RVN intelligence centers. The combined intelligence centers shared jointly gathered intelligence, translated captured documents and interrogated prisoners. There was a center at MACV and at each of the four corps areas in which the Republic of Vietnam Army (ARVN) operated. There were over 600 intelligence advisers on the ground now with the RVN Army. The 509th Radio Research Group ran a field station and provided support through its tactical units to units down to brigade level. Combat troops had their own organic intelligence assets.

The first unit of six OV-1 Mohawks, the Army's new surveillance plane, was deployed to Vietnam in September 1962. Initially the 23d Special Warfare Aviation Detachment, the unit was stationed at Nha Trang and supported U.S. Army and Republic of Vietnam Army divisions throughout the country.

Another unique type of unit to be introduced in the Vietnam War was the Long-Range Reconnaissance Patrol (LRRP) which consisted of four to six-man teams inserted into enemy territory to gather intelligence or submit battle-damage assessments. The Military Assistance Command, Vietnam, Studies and Observation Group (MACV-SOG) was a joint service unit under the command of the Commander-in-Chief, Pacific (CINCPAC), which inserted intelligence teams into enemy territory by land, sea or air.

It was during the Vietnam War that military intelligence reached a potential unparalleled in history. Using the latest electronic gear to detect the enemy, both from the air and the ground, hostile concentrations were pinpointed and enemy traps were avoided or surprised. Ground surveillance radars were employed, side-looking airborne radar (SLAR) was deployed and a variety of night observation devices

were used which took advantage of infrared and image-intensification.

The first use of Unattended Ground Sensors (UGS) was made by the Marines at Khe Sanh in 1968. They were credited with contributing to the successful defense of the Marine base and would evolve in both sophistication and numbers deployed. The UGS could detect the presence of the enemy by acoustic, seismic, or magnetic indicators which were sent back to monitoring stations.

The combat intelligence battalion that was assigned to a division during the Vietnam War was organized as follows: A headquarters and headquarters company was responsible for command and control, communications, radar, remote sensor and vehicle maintenance, and supply services. Ground surveillance radars and remote sensors were deployed by a materiel exploitation platoon of the HHC. An intelligence operations company furnished counterintelligence and interrogation support for the division and manned the battlefield information control centers (BICC) and battlefield information centers (BIC). Long-range reconnaissance for the division was provided by the ground reconnaissance and surveillance company. An aerial target acquisition and combat surveillance company had the job of providing both aerial electronic surveillance and imagery interpretation through the use of utility and attack helicopters.

Some concepts growing out of the Vietnam experience were the Surveillance, Target Acquisition, Night Observation (STANO) program, an intensive management system for surveillance operations and products; and the Integrated Battlefield Control System (IBCS), a program designed to aid the commander's decision-making process by combining all of the technological tools.

Perhaps the single greatest reason for the improved intelligence apparatus in the Vietnam War was the sense of professionalism instilled by an MI branch. During the war in Vietnam, the Military Intelligence Branch grew to 7,000 officers and became the fifth largest branch. Colonel William F. Strobridge, the G2 in the 4th Infantry Division operating along the Cambodian border in 1970, expressed his feelings on being in the Military Intelligence Branch, created only three years earlier:

> *…possibly unlike the non-MI Branch officer, I felt as an MI officer working as a combat division G2 that I was at the zenith of my professional and personal satisfaction. I was playing first fiddle for a varied and skilled assemblage of intelligence players that were part of my chosen career field. I felt, as an MI officer, I had greater command of the multiple types of intelligence support I could get for the division. As an MI officer, I could talk nose-to-nose with other MI people on the quality and timeliness of their support, and as an MI officer I could eradicate any hangups MI personnel might have about supporting an infantry division. There is no question in my mind that the MI specialists, sergeants, warrant officers, lieutenants, captains, and majors that I worked with each day passed the test in the 4th Infantry Division, because when the division commander received a richly deserved promotion, he specified he wanted another MI officer for his G2.*

Despite all of the acknowledged success of intelligence support in Vietnam, there were still deficiencies, most of which could be categorized under "untimely response." It was General Patton who remarked that he liked intelligence, "like eggs, the fresher the better." The appetite for intelligence is and always will be insatiable. The result is often an information overload that strains the ability of the system to process and disseminate the analyzed information in a timely manner.

In Vietnam, depending on the source, the time elapsed from the occurrence of an event to the time the report reached the hands of the user could range from 15 minutes in the case of a triggered ground surveillance radar to 72 hours in the case of an agent report. In between were elapsed times of 20 minutes for an airborne personnel detector, 50 minutes for an unattended ground sensor, an hour and a half for a usually reliable intelligence report, known as "special intelligence," four hours for SLAR and airborne infrared, five and one-half hours for prisoner interrogation, and six hours for intelligence civic action program. These processing times were too long to be useful to the commander who was dealing with a fast-moving, guerilla force which depended a great deal on deception.

After Vietnam, the U.S. Army was determined to find a better way to organize and focus its intelligence assets to more efficiently serve the combat commander.

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*DONALD G. BENNETT * **Spot Report: Intelligence, Vietnam***

During the past five years, the Viet Cong (VC) have acquired a reputation for elusiveness bordering on a mystique. It has been said that old intelligence collection methods were ineffective against this enemy. Despite the psychological advantage which the Viet Cong may have gained by this reputation, the Army Republic of Vietnam (ARVN) has achieved frequent success by following commonly accepted intelligence principles.

Intelligence operations vary with the level of command, and the techniques which I discuss are those used at division level, specifically the 9th Infantry Division of the South Vietnamese Army in 1965.

From the initial stages of the Vietnamese insurgency, the intelligence problem has been one of locating VC bases so that the ARVN can concentrate its available combat force at a place and time to its advantage. Unlike other aspects of military operations, intelligence requirements remain basically the same as those of World War II—enemy, weather, and terrain. Combat intelligence organizations at sector, division, and corps reflect the US organization of a division G2 section. The question is whether the G2 section organized for a conventional war is effective in meeting the intelligence requirements of an insurgency.

Intelligence Tasks

The task of the Vietnamese intelligence officer has been to determine what part of each province was under such degree of VC control that they were able to hide company and battalion-sized units. After the base area itself was defined, each base's security, internal organization, and escape routes had to be studied before a successful attack of the base could be launched. the Viet Cong seldom decided to stay and risk defeat within their own bases if escape from engagement with ARVN forces was possible.

More recently, VC units, their combat effectiveness increased with infiltrated weapons, have often established temporary bases from which either to ambush or lure ARVN units into an entrapment. Regardless of VC tactics, the ARVN commander depended on his G2 organization to provide him the necessary intelligence.

At sector and division intelligence centers, interrogation reports had accumulated for two to four years. Many of those reports were very brief—information obtained from low-level guerrillas who had defected or had been captured. In many cases, the interrogation was not conducted by skilled interrogators, but by a district chief or the individual who had final custody of the guerrilla. The information was spotty, but contained elements of the guerrilla squad organization, its hiding places, and its weekly schedule.

Graphic Portrayal

Occasionally, a province or district-level VC cadre defected or was captured. By carefully reading the interrogation reports and plotting the information, a graphic portrayal of the VC organization in a given area or province developed. Previously gained knowledge of VC doctrine, such as lower echelon protection of the higher echelon, was applied. This depicted the base areas, locations of communications routes, and the security outposts manned by the guerrillas.

Naturally, the picture was never complete. Therefore, future interrogations were directed toward those voids. A review of daily interrogation progress normally helped formulate new questions for the next day. The reviews were conducted by the Order of Battle officer or the G2. A fresh mind, with access to more information than the interrogators, was essential if the review was to achieve the desired results.

Information obtained from interrogation was checked against existing information and recorded. Daily records contained such data as attacks, harassments, kidnapping, sabotage, propaganda, ambushes, and subversive demonstrations. Each recorded incident was placed in one of these categories and became a history of given insurgent action including the results.

Maintaining the extensive detailed records and research consumed a tremendous number of man-hours, but this was the only satisfactory method of producing accurate current intelligence. Spot reports from outpost and hamlet to district, district to sector, and sector to division made up most of the daily information which went into the VC activity files.

If the captive or defector had been involved in one of the incidents recorded in the files, his information was compared with that already known. When the two coincided, the interrogator felt he could proceed with some assurance of getting accurate information. In actual practice, the proper steps frequently were not taken to determine the accuracy of information obtained by interrogation.

Recorded information was only as useful as the ability of the intelligence officer to interpret it. To process the raw data into intelligence, all information of VC activity was plotted on a situation map and the frequency of similar incidents in one area displayed on a graph. The graph allowed an analyst to determine which types of units or cells were responsible for various actions, thereby producing an estimate of guerrilla capabilities in a given area. By combining the situation map and the graph, VC trends, objectives, strengths, timetables, and patterns of activity were developed.

Reliable Collection Agency

Debriefing proved to be an effective method of collecting information about base areas. The search and destroy operation of the Vietnamese war provided an excellent opportunity to obtain information from advisors and key counterpart personnel on their return. An example occurred when an ARVN regiment with an armored carrier troop received the mission of attacking a VC provincial base. This base contained a mobile battalion, the VC provincial commissar, and other elements of the commissariat. The Viet Cong controlled the area administratively, and no agent had effectively penetrated the VC security.

The scheme of maneuver involved a direct penetration of the base. As a result of past operations against the same base, changes in the position of blocking forces were included so that the VC battalion would be forced into a pocket to permit more effective use of artillery and air support. The preparation included a briefing of commanders and advisors by US Air Force and intelligence personnel on recent activity by the target VC unit, locations of antiaircraft weapons observed during the last airstrike, the arrangement of fortifications photographed by an *OV-1 Mohawk* reconnaissance team, and the pilot's report from the previous day's *Mohawk* visual reconnaissance.

The informal briefing gave key personnel everything available about the enemy force. In addition to an intelligence preparation for the individuals concerned, it served as a springboard for the debriefing which would follow in the operation.

Contact was made with the VC provincial battalion in the afternoon of D-day. Information which came from the operational units in contact was brief. Only essential details were reported.

The operation continued with two ARVN battalions and their advisors splitting up into search elements throughout the VC base as much as security and tactical integrity permitted.

Four days after the operation had begun, the units returned, and key personnel were debriefed. Along with the information obtained through observation, there was the bonus of material gathered up in the process of the search—flags, documents, and shell casings; all this in addition to the captured material taken during and shortly after the period of heavy contact on the first day of the operation. The most important information consisted of VC tactics, firepower, organization of terrain, efforts to neutralize the effect of artillery and airstrikes, and administrative organization of the combat hamlets.

To preserve the information obtained from debriefing, detailed overlays and annotated aerial photographs were the most expedient and effective means. For the less tangible information, a narrative report was the only answer, particularly when the information was to be transmitted to higher headquarters.

Captured documents were even more important than debriefing as a source of information. Types of documents which reflected unusual value to the intelligence efforts were VC situation reports, estimates, plans, intelligence directives, personal notebooks, and records of VC military units. A document's true

value often depended upon the manner in which it was exploited.

At the sector and division intelligence section, the Military Security Service frequently was able to obtain leads from personal notebooks. In addition to names and unit designations, notebooks may yield notes made by the owner during meetings, such as the concept of operations when receiving an operations order. One entry in a personal notebook, made by the commander of a VC provincial mobile company, helped clear up the mystery of a new VC unit's place in the organizational structure of VC regional forces. The interrogator achieves a quick psychological advantage when captured documents have enabled him to speak with assurance on concepts, organizations, and other details concerning the enemy.

Source of Supply Reflected

The tactical exploitation of captured materiel generally complements information obtained from documents. The type of weapon identifies the unit using the weapon almost as positively as if a sign had been left behind by the Viet Cong when they withdrew. In one situation, disputed VC operational boundaries were determined by the VC unit's use of old US 57-millimeter recoilless rifle ammunition rather than Chinese Communist ammunition of the same type consistently found in another battle area less than five kilometers away.

Systematic aerial reconnaissance over a VC-controlled area provided excellent results. The US Air Force *RF-101 Voodoo* is ideally suited as a high-performance jet photoreconnaissance plane. The US Army *Mohawk* operating at low level achieved needed surprise. Its photo capability, coupled with an experienced observer-pilot team, approached the optimum in aerial reconnaissance. Equipped with electronic surveillance gear, such as sidelooking airborne radar (SLAR), the *Mohawk* detected VC night movement. Followed up with daylight reconnaissance and, if warranted, an immediate airstrike, the night surveillance program enabled ARVN units to react before the Viet Cong knew they had been discovered.

Light Reconnaissance Aircraft

Full credit should also be given to the *L-19 (O-1F) Bird Dog* light reconnaissance aircraft. With an average flying time of four hours, the O-1F pilot and observer can hang like a blimp over a VC area and observe movement that goes on below. One US Air Force pilot reported that, after three months of watching one area, he could even detect the VC soldiers leaving home for their military base in the morning. A point to remember here, however, is that when the pilot was reassigned, the information he had so carefully collected from hours in the air would have been lost forever had it not been recorded in daily journals and on a master situation map.

Probably the most used and least reliable means of collecting information was the secret agent. In theory, the secret agent was basically a line crosser. Realistically, the agent became a substitute for reconnaissance patrols, without the military control of a patrol. Reliability of information varied widely with the agent.

The ideologically motivated agent might deliver information he sincerely believed to be completely accurate. However, his sources of information within the VC-controlled area, usually his family, were almost always under VC influence. For the agent to claim that he had actually entered the area, collected the information through observation, and successfully returned was usually unbelievable because of VC travel controls. It took time to determine the agent's accuracy by other means so that reliability could be established.

As a result, all agent information usually received a middle-of-the-road evaluation for reliability and accuracy—fairly reliable and possibly true. This evaluation was so uniformly applied that no intelligence officer above the handling agency could determine if the agent was actually reliable.

The intelligence officer in Vietnam has the responsibility of application and continual assessment. While individual collection techniques remain unchanged from their general war application, the sequence

or introduction of each technique requires centralized planning and control.

Since there are never enough resources to satisfy every demand, the intelligence officer has to arrange his resource commitments daily. He cannot afford the luxury of a routine surveillance plan. The nature of insurgent warfare virtually preempts complete intelligence success, but it does not excuse the lack of daily program assessment.

GEORGE D. LIVINGSTON, JR. * ***PERSHING II: Success Amid Chaos***

"Seize Phu My District Headquarters and town, destroy all committed revolutionary development teams, and render the 41st Army Republic of Vietnam (ARVN) Regiment combat ineffective."

This was the mission assigned to the 3d North Vietnamese Army Division (less one regiment committed in another area) for the enemy's 1968 Tet offensive in northeast Binh Dinh Province, Republic of Vietnam.

Pershing II—a 40-day operation that happened to coincide with the enemy's preparation for the Tet offensive and his actual attacks and aftermath—was conducted by a reinforced brigade task force made up of one mechanized and two airmobile infantry battalions of the 1st Cavalry Division (Airmobile). The task force and its commander were familiar with the area, and close, continuous liaison had long been established with all Vietnamese military and political headquarters in the large area of responsibility.

By mid-January 1968, the closely coordinated and integrated intelligence system established by the task force and local Vietnamese commanders had determined from numerous sources the outlines and general timing of the enemy's immediate intentions in the *Pershing* air operation. However, there were few indications that the impending local offensive was to be part of a countrywide, coordinated enemy effort.

Intelligence Effort Increased

The task force commander, in close coordination with Vietnamese commanders and US advisors of the 41st and 42d ARVN Regiments, Vinh Thanh and Ha Tay Special Forces Camps, and Phu My, Hoa An, and Hoai Nhon districts, ordered that an increased intelligence collection effort be directed at further refining his knowledge of the enemy's intentions.

Continuous communications were established between United States and Vietnamese headquarters. US battalions were told to be prepared for the relief of known and probable enemy objectives; troops were redistributed in the area of operations to provide a higher density in the areas directly threatened; and patrolling by day and night was increased on the periphery of the government-controlled areas and between those areas and likely enemy forward bases. Agents were positioned, and casual informants were recruited along likely routes of enemy movement toward probable objectives. Units designated as reaction forces conducted actual reconnaissance and partial rehearsal for their counterattack plans.

Spoiling Operations

Fixed-wing and air cavalry reconnaissance were increased, especially in those areas which the enemy was likely to use as staging areas. These aerial scouts were particularly successful in detecting and engaging North Vietnamese Army liaison parties and command and reconnaissance elements. Many of the enemy dead from these contacts were confirmed to be commanders or political cadre.

Spoiling operations were stepped up in an attempt to keep the enemy off balance and to deny him the use of forward staging areas. Light to moderate contact, with highly successful results, was gained on numerous occasions, thereby forcing those engaged enemy units to disperse. Enemy stragglers were killed or captured, underlying the success of these spoiling attacks and the enemy's difficulty in reassembling.

Artillery and air interdiction were coordinated and integrated with all available means in range of the area of operations. Ammunition expenditures for interdiction were increased, and targets were selected by the brigade provisional targeting section in the most likely areas to be used by the enemy for preparation of his impending attack.

Although weakened and partly disorganized by the spoiling operations and interdiction program, the enemy initiated his offensive by attacking a Popular Forces outpost just inside the pacified area of Phu My District. This was the first of a series of attacks. Apparently, the enemy's main purpose in this instance was to ambush the relief force he was sure would be made up of ARVN infantry and Regional and Popular Forces. However, the decision by the US task force commander and the Vietnamese district chief was to reinforce the Vietnamese force with a mechanized rifle company.

A civilian halted the column as it was en route to the engaged outpost and pointed out the enemy ambush positions to the Vietnamese and United States commanders of the relief forces. The ambushers were immediately attacked from the flank and rear. In the ensuing engagement, the enemy lost 143 killed and two North Vietnamese soldiers and 32 weapons captured.

Unsuccessful in their ambush attempt, the enemy initiated a series of three apparently uncoordinated battalion-size attacks against Phu My District Headquarters and town. In the first attack, initiated by a Popular Force platoon reacting to an intelligence report from a casual informant, the enemy was stopped short of his objective and suffered 88 killed and 37 weapons and three soldiers captured by a combined United States-Vietnamese reaction force.

Three days later, reacting to an intelligence report that had been confirmed by a friendly civilian, a US mechanized rifle company late in the day intercepted an enemy battalion. In a running engagement, the company killed 28 enemy and captured 26 weapons and 15 North Vietnamese soldiers. The next day, 88 of the withdrawing enemy force were killed.

In the enemy's last attack of their offensive, the remaining uncommitted battalion of the 2d Regiment was detected and engaged by a battalion of the 41st ARVN Regiment. The engaged government battalion was quickly reinforced by one US mechanized rifle company. The combined force attacked the entrenched enemy unit killing 90 and dispersing the remainder of the enemy battalion. In addition to these major engagements, there were numerous small contacts fought with telling results between independent and combined United States-Vietnamese forces and enemy units and small groups of stragglers attempting to withdraw to their base and rally areas.

In *Pershing II*, the attacking enemy was harassed during his preparation phase, engaged short of the objective of his attacks, held and defeated in place, and relentlessly pursued as the survivors attempted to escape. Three of the five major engagements were initiated by Regional and Popular Forces or ARVN infantry reacting to intelligence reports.

All battalions of the US task force contributed to the success by exploiting air mobility, effectively controlling their respective areas of responsibility, interdicting enemy routes of movement by ambushing enemy units and capturing stragglers, and providing reinforcing forces for engaged United States and Vietnamese units. However, the attached mechanized infantry battalion was a decisive factor in all five of the major engagements.

The results of the enemy's Tet offensive in the *Pershing II* area of operations were more than satisfactory for the allies. The enemy's 2d Regiment, used for his main effort, had all three organic battalions severely battered and was rendered combat ineffective while failing to accomplish, even in part, any assigned mission; Phu My district Headquarters was not penetrated; the 41st ARVN Regiment was more combat effective; and no revolutionary development team member was captured or killed.

During *Pershing II*, the enemy lost 230 weapons and more than 1,270 killed or captured. The 2d Brigade Task Force, 1st Cavalry Division (Airmobile), alone killed or captured 760 enemy and maintained a 29 to one kill ratio. Later, intelligence indicated that the committed enemy units lost 50 percent of all weapons, 80 percent of unit equipment, and nearly 100 percent of personal equipment.

The key to this clear-cut but unpublicized victory was a responsive and integrated intelligence system. This provided the needed early warning that permitted the harassment, weakening, and disorganizing of the enemy as he prepared for the offensive and the interception of maneuvering enemy units before they accomplished their assigned task. Relentless pursuit of withdrawing enemy survivors increased his losses and precluded his reorganization. A population loyal to the legal Vietnamese government and the close

coordination, cooperation, and respect built on mutual trust and understanding between the US task force and the Republic of Vietnam officials, commanders, soldiers, and citizens made this operation possible.

*MARC B. POWE * **Which Way for Tactical Intelligence After Vietnam?***

* * *

What made Vietnam any different [from all of America's previous wars in which a tactical intelligence system had to be built "from scratch, under fire"]? …First of all, a body of experience was carried forward by both Active duty soldiers and Reservists from World War II through Korea and into the post-Korean years. Next, some of the intelligence men who had experienced tactical intelligence problems in Korea made determined efforts to ensure that those problems would not be repeated. Out of their efforts came the Military Intelligence Organization (MIO) concept. Promulgated in 1958, the MIO was a milestone. It provided for the tailoring of intelligence specialists into units to support tactical units on a full-time basis. From separate regiment or brigade on up, it was intended that each tactical formation would have a dedicated Military Intelligence (MI) unit. The MI unit would contain at a minimum specialists in counterintelligence, imagery intelligence, interrogation and order of battle analysis.

The U.S. Army Intelligence School was established in 1954 at Fort Holabird, Maryland, (where the CIC school had existed separately since 1945), and personnel were trained for all the specialties from that time forward. While the school did not produce enough trained personnel at first, it was certainly a nucleus for tactical support.[1]

ASA, while not a part of the MIO concept, developed a parallel approach to tactical support. It was intended that every tactical unit would be supported by an ASA unit. The ASA Training Center and School at Fort Devens, Massachusetts, provided a steady flow of personnel for both tactical and strategic missions.

Another critical event was the establishment of the Army Intelligence and Security (AIS) branch in 1962, providing for the first time a Regular Army home for individuals who wished to be intelligence professionals. At one stroke, this provided the basis to develop experts in combat (and strategic) intelligence, and it did away with the unpleasant requirement of forcing officers to serve intelligence tours away from their assigned branch.

It was the combination of wartime experience, the MIO doctrine, the creation of a training base, and the birth of the AIS branch that prepared Army intelligence for Vietnam.

Perhaps it is not too surprising that the first American killed in the Vietnam War (in 1961), Specialist 4 James Davis, was an intelligence man. A member of the 3d Radio Research Unit, an ASA organization, he was assigned to advisory duty at the time of his death. In fact, American intelligence advisors had been working with the Vietnamese since about 1959. As the pace of assistance quickened, more soldiers were sent over to intelligence assignments like province intelligence advisors. The first *Mohawk* airplane unit went in 1962. In 1964, district advisory teams were established throughout Vietnam with a mission that included providing intelligence advice.[2]

As the American buildup began in 1965, MI units were deployed in significant numbers. Each separate tactical unit which deployed had with it an MI Detachment. If a supporting ASA organization did not deploy with the division, then it came right behind it. G2 and S2 shops had the full complement of MI specialists available to them from the outset.

Theater-level intelligence was handled by J2, MACV (Military Assistance Command, Vietnam), which was manned by a large number of both MI specialist personnel, and officers with necessary skills from other branches. By the end of 1966, the J2, Major General Joseph A. McChristian, had created a group of combined intelligence centers in Saigon to specialize in document exploitation, interrogation of prisoners of war, technical intelligence, and intelligence analysis. Of significance to this discussion, the creation of these centers was a direct outgrowth of the cellular TOE concepts written into the MIO in 1958.[3]

From the foregoing, it can be seen that Army intelligence was clearly better prepared for this war than

had been the case in any previous conflict. Organizationally speaking, Army intelligence appears to have been a success in the Vietnam War. Based on a study of the history of the intelligence art, this writer concludes that Army intelligence was qualitatively better in Vietnam than in previous wars because there was a better intelligence system in support of the tactical forces. This by no means ignores the fact that there were some serious shortcomings in the system. What it says is that improvements in both technology and intelligence concepts created a system more responsive to the tactical commander's needs than in any previous war. Thus, for the future, we should concentrate on exploiting the success of the Vietnam-proven system and correcting the shortcomings.

To take a typical division as an example, we can see that there was an impressive number of intelligence resources available. First of all, the division had an organic Military Intelligence Detachment (later an MI company) which provided the majority of the collectors and analysts working full time for the division G2. Intelligence came immediately from the direct support ASA unit; this unit supported theater and national requirements, too, and was not a full-time dedicated asset to the division. Information was provided also by Americans advising Vietnamese intelligence units and Vietnamese tactical units, provincial and district advisors, and the theater combined intelligence centers and J2, MACV. Frequently, information from nondivisional collectors was of background, rather than immediate, tactical value because of delay in its production and transmission, but this intelligence, too, has its place.

A variety of surveillance systems, including radar, unattended ground sensors, *Mohawks*, and long-range reconnaissance patrols reported to G2 and S2 with relatively timely information. Photography flown by the Air Force was provided by supporting Army MIBARS (MI battalion, air reconnaissance support) detachments.[4]

The key in Vietnam was response. By having dedicated intelligence specialists organic to the division from the outset, the divisional intelligence system was immediately capable of greater response to the commander. The creation of the MI branch had also provided by the late 1960s ample numbers of officers who wanted to do intelligence work; it was no longer necessary to depend exclusively on impressed combat arms officers for G2 and S2 positions. Beginning in 1968, most divisions had an MI officer as the G2. Furthermore, the ability to make a career in intelligence had made available a large body of NCOs who were both highly motivated and qualified to perform at division or brigade or battalion, as advisors to the Vietnamese or at J2, MACV.

What then, of the shortcomings mentioned above? They existed, as anyone who used intelligence or helped produce it in Vietnam knows. The problems were largely a factor of time—and that bugaboo, response. Communications had not kept pace with the ability to gather intelligence, so information was too often unreasonably delayed in reaching the consumer. Centralization of capabilities in Saigon, while helpful in conserving manpower, slowed down the handling of information. And the hierarchy of headquarters through which information flowed upward and intelligence flowed downward also slowed the process.

Credibility was also a problem at times. Some intelligence units and individuals persisted in the outmoded "cloak-and-dagger" approach to their service. Instead of saying simply to the commanders involved, "I believe the 273d VC Regiment is moving from here to there because I received this information from such and such a source which has been pretty reliable in the past…", they tried to be mysterious. While this kind of secrecy was sometimes required because of the sensitivity of the intelligence-gathering method, more often than not it could have been avoided.

Commanders who moved their units in response to these mysterious intelligence reports, but failed to find the enemy, sometimes became quite skeptical about both the source and the intelligence men who provided the data. A more straightforward description of the information and its origin might have prevented ill will.

Another problem was caused by some intelligence officers forgetting the basic lessons of their trade. They did not take the time to analyze. They did not try to put together a composite picture from multiple sources. Instead, they let their affection for a particular agency or type of information trap them in the

"single source syndrome." Even worse, some few tried to achieve a daily "scoop" for the commander by handing him raw and possibly untrue information under the guise of vital intelligence.

On the other hand, a few commanders became too concerned about the exact details of where intelligence was obtained. Instead of hiring an intelligence officer they trusted explicitly, they tried to run G2 operations too. While this may have worked occasionally, it more often led to unproductive animosity among the personalities involved.

Related to the credibility problem was the fact that relatively few MI officers served as brigade or battalion S2s. In part, this was because initially there were not enough qualified individuals to go around. Perhaps the more important factor was that many combat arms commanders did not want an "unknown quantity" for their intelligence officer; they preferred to use infantrymen (or artillerymen or tankers) because of their presumably superior knowledge of tactics and field operations. A few MI officers who did have the opportunity to serve as S2s at that level failed because they did not understand their units, their commanders, or both. In short, the mere creation of a Regular Army branch for intelligence did not automatically put MI officers into the S2 billets at maneuver unit level.

While the battalion or brigade S2 might still have been a combat arms officer, he was glad to have the services of the intelligence system of the division and to employ MI sergeants and specialists. Typically, the S2 was assisted by a sergeant and an analyst trained at Fort Holabird; he received information from radars and unattended ground sensors; he got readouts from *Mohawks* or Air Force photography; he received ASA reports; and he worked harmoniously with an MI officer as division G2.

In short, if intelligence results were better in Vietnam, it was because of better integration of the component parts into a more responsive intelligence system. Where intelligence failed in Vietnam, it was often because of a lack of timeliness and responsiveness.

Without making excuses, it should also be noted that Vietnam presented particularly difficult problems for intelligence—the fluid situation that normally existed, the fleeting nature of engagements, and the fact that neither side was particularly concerned about physically holding terrain. By the time that an intelligence officer had come to understand some of what was going on, his 12 months were usually about over. In retrospect, perhaps it would have been better if at least a nucleus of intelligence personnel had been required to serve longer tours.

The war ended before some of the important questions about intelligence support to the tactical Army could be resolved. They must be addressed now. For example, what should be the relationship between the divisional MI unit and the division? (In Vietnam, they were organic, but the MIO had conceived of them as attached.) In a related area, should the new surveillance devices like unattended ground sensors and radar be incorporated into the divisional MI unit? (This was often done in the case of the ground sensors in Vietnam.) What should be the basis of issue for the new surveillance devices? What about ASA? What should be its relationship to the tactical units it supports?

How are we to improve the management and dissemination of the highly perishable intelligence we can foresee in future wars? Should additional MI personnel be attached to maneuver battalions and brigades to aid in handling information and intelligence? Testing of this idea was done in Vietnam by the 1st Infantry Division in 1968, and the results indicated that there was much merit in having a battlefield information center (BIC) attached to each intelligence shop from division to battalion. The BIC was able to handle more data more rapidly because of additional personnel and dedicated communications—that is, a BIC net. It helped the commanders involved because it made possible centralized management of intelligence with rapid transmission of intelligence throughout the system from the decentralized collectors. Further testing of the BIC concept at Fort Hood, Texas, has validated the success it had in The Big Red One.[5]

In short, there are plenty of questions to be answered. The proof that they need to be addressed immediately is all around us—as American military forces decrease in size, they must depend on better intelligence to meet situations before they reach crisis proportions. In fact, on any battlefield where we are likely to engage in the near future, we are likely to be outmanned; intelligence will be the key to survival

in such circumstances. Furthermore, in the competition for manpower spaces and dollars…, it would be all too easy to shunt off intelligence as being "something we can pick up if we have to go to war." Such an attitude could be completely wrong, as Pearl Harbor and the North Korean attack against the South in 1950 would seem to prove. To reiterate, these questions must be addressed now.

We are fortunate in that American military experience offers some sharp contrasts in "good" and "bad" intelligence work. From an analysis of this history, particularly in light of the Vietnam experience, some conclusions about what Army intelligence should do in the future seem obvious and are offered below. While they are oversimplified for brevity, it is hoped, nonetheless, that they will suffice to stimulate thought and discussion on this vital topic.

First, it is clear that the tactical intelligence system must remain viable in peacetime, both as a hedge against sudden war and to play a part in peacetime training of tactical units. We can all agree that "simulating" an attack on a hill is no substitute for actually doing the job; "simulating" tactical intelligence by having a handful of "canned" messages is no better. If our soldiers are to ever become intelligence conscious—if our G3s are to write realistic plans that are subject to being smashed by an uncooperative enemy—then we must play tactical intelligence in peacetime exercises. Furthermore, if our G2s, S2s and their assistants are to be able to support their units effectively when the balloon goes up, they must practice with the unit beforehand. In short, each division's intelligence team must support it in peacetime as nearly as possible as the way it will in war. Without that intelligence team, the division simply cannot be combat ready.

Next, intelligence officers—G2s and S2s—in our tactical units should be MI officers, just as the intelligence NCOs and specialists are already MI. There is sufficient evidence that the motivated MI officer can overcome any initial problems he may experience when assigned to a combat arms unit; what he lacks in knowledge of, for example, infantry operations should be more than overcome by his superior knowledge of intelligence work that is needed by the commander. Because he is MI, he will want to be in the S2 shop and will not seek constantly to get a company. Because he is trained in intelligence management, he can take a burden off the entire staff by anticipating their requirements for information about the enemy, the weather, lines of communication, landing zones and the like. This does not overlook the fact that some MI officers will do better than others—but that is a training and/or a personnel management problem. At present, about 70 percent of the Army's combat arms brigades and maneuver battalions have MI officers as S2s. All of the division G2s are MI. Thus, it appears that the intelligence professional can do the job.[6]

Next, since there is no substitute for integrated intelligence, the Army of the 70s must plan to accept nothing less. This means that the BIC system (by whatever name) should be implemented throughout the Army. With the vast array of collection agencies and systems made available during and after the Vietnam War, (unattended ground sensors, radar, night vision devices) added to the long-established systems (signals intelligence, prisoner interrogation, photo intelligence), it should be apparent that improvements in the traditional G2/S2 system of managing and disseminating intelligence are required. The division's intelligence/operations communications net, for example, will be completely overloaded by the data from ground sensors and radar alone. Furthermore, Vietnam demonstrated the need for collection management to be centralized at division, with tasking going to higher, adjacent and especially lower units who are collecting. The BIC concept can help solve these problems.

Finally, we must define the organization to provide intelligence support for the EAD [echelons above division]. The MIO concept, as good as it was, was based on the field army and will not readily adapt to corps support. Fortunately, we have already identified in the preceding paragraphs some of the characteristics the EAD intelligence organization must have. It must provide at least semipermanent relationships between each tactical unit and its intelligence unit; it must provide for integrated intelligence, centralized management, and response to command; and it must take into account the full range of collection systems.

The EAD-MI organization should be based on corps (rather than theater) because it is tactical. It should provide an umbrella over the existing specialist units as a means to eliminating redundant claims for personnel. Since these specialist units are of company and battalion size, it would appear that an MI

group at corps would be logical. This group would then be the parent organization for the aerial surveillance company, ASA battalion, MI company (which contains the traditional counterintelligence, interrogation, and analysis personnel), any corps ground surveillance devices, and the Ranger company. Linking these units under the administration of a single group will give the corps commander (through the G2) better control and will result in improved intelligence.

At division, responsiveness to command must also dominate. Therefore, an organic MI battalion should be given to each division, incorporating the existing intelligence and surveillance organization of the division: the MI company, the ASA company, radars and ground sensors, and, if provided, any Ranger unit. The MI battalion would be well-suited to provide for the BICs, linking all intelligence collectors into the management and dissemination system. Additionally, the MI battalion could effectively administer any intelligence units attached to the division for a particular mission.

The proposed MI organizations for the EAD, providing an umbrella over the somewhat splintered intelligence support now existing, offers significant advantages over the MIO. It would improve intelligence management, improve the integration of the various kinds of information, and support the new concepts and systems developed in Vietnam. At the same time, it will reduce overhead by consolidating common functions like personnel administration, mess and maintenance.

The disadvantages of creating an umbrella-style MI group at corps and MI battalion at division are primarily technical in nature; for example, ASA units have unique reporting requirements and channels. It appears, however, that the problems associated with grouping these units are more tolerable than having several units, all collecting information, but not associated except in the G2 office.

In conclusion, the importance of the question of preparing our tactical intelligence system for the future cannot be overstated. Our experience has been that war comes like lightning; we cannot wait until it begins to determine how intelligence support will be rendered. The situation was prophesied by General Pershing's World I intelligence officer, Major General Dennis E. Nolan in 1921:

My fear is that in the pressure of many things, claiming time for training, our Army may lapse into the pre-war days in its attitude toward the whole question of combat intelligence and that information regarding the enemy for our tactical problems and in our maneuvers will be based on the old and easy assumption that all information needed of the enemy is obtained from an enemy inhabitant.[7]

Let us move now to create a streamlined, effective system which will, as far as possible, ensure that the commander has the intelligence he needs to survive a first blow and go on to mission accomplishment.

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*JOSEPH A. MC CHRISTIAN * **Lessons Learned in Vietnam***

The intelligence challenge in Vietnam was more than finding the enemy. The challenge was providing timely, accurate, adequate, and usable intelligence in support of decision makers from the Military Assistance Command commander and his battlefield commanders to the Commander in Chief in Washington. An organization designed to meet that challenge was created. It established for the first time in history a combined military intelligence system. It took longer to establish that system than it should have because, once again, we were not prepared. A few of the many lessons…follow.

Unity of Command. One of the long-accepted principles of war—unity of command—was violated in Vietnam because of the nature of the insurgency. In this conflict, all U.S. intelligence organizations were not centralized under the MACV commander.

Combined Intelligence. Contingency plans should include draft agreements; standing operating procedures; organizational, functional, and manning concepts; and logistical support plans to establish a combined intelligence system, preferably including all military and civilian agencies.

Combat-Ready Intelligence Force Structure. The force structure of the services must include the combat-ready intelligence structure to support contingency plans. Such forces should be engaged in collection and production activities during peacetime as well as wartime. They should be capable of deployment on very short notice and should arrive in the area of operations with all equipment and facilities required. Time is precious.

Order of Battle. Order of battle is the foundation of combat intelligence. Order of battle training in the U.S. Army has been deplorable for many years. Military intelligence officers should have been trained on enemy units, weapons, and tactics, as well as on the Viet Cong infrastructure.

Human Intelligence. Among the best sources of combat intelligence are knowledgeable informants and captured documents. The drastic cutback in resources and training devoted to human intelligence since World War II has seriously reduced our capacity in this field. Officers slated for key command and staff positions should be educated on the advantages and limitations of this aspect of military intelligence.

Tactical Training. Our forces must know the tactics of the enemy on the battlefield where the war will be fought. We did not have that knowledge when we were committed. Our combat units were not properly trained to maintain contact with the enemy once it was made. Consequently, we did not fix the enemy so that he could be destroyed on the ground.

Reconnaissance. Reconnaissance provides eyes and ears for the commander. The intelligence officer should have staff supervision over all reconnaissance, including ground reconnaissance.

Communications. Intelligence requires the timely movement of extremely large volumes of words and pictures. Dedicated communications in support of intelligence are a necessity. Automated systems designed to display elements of intelligence in a format are good if capable of reflecting the human analysis essential to valid intelligence. The human needs a data base. The data base required communications.

Initiative. Intelligence officers should be imbued with the necessity to provide intelligence and appropriate recommendations upon which plans and actions are initiated rather than just to respond to requests for intelligence.

"Scouts Out." When I enlisted in the Army I was trained as a scout of a rifle squad. When the command "Scouts Out" was given I ran forward with my rifle at port arms to an area from which I supposedly could observe the enemy. When I saw the enemy I faced my leader and signaled information on the enemy. I believe that whenever a contingency plan is approved that identifies a potential enemy our senior military authority should issue the order "Scouts Out," implying that a few military intelligence "scouts" be dispatched to or near the future potential area of operations to observe, report, and plan for our next war, hoping that such scouts will be listened to and actions will be taken to avoid another case of too little too late and inadequate training. I know from experience that such an effort will be opposed strongly. I also know from experience that such can and must be done.

*JOHN D. BERGEN * The Electronic Battlefield*

Throughout war, communicators from both sides were engaged in a conflict on an electronic battlefield that ultimately affected the outcome of battled fought by ground combat troops. Monitoring an adversary's plans, tracking his movements, deceiving and manipulating him, and disrupting his communications—all were elements of a deadly contest of electronic warfare.[1]

The principal contenders on the electronic battlefield were, on the one side, the men of the U.S. Army Security Agency (ASA) and the South Vietnamese Special Security Technical Branch and, on the other, teams of Communist intercept operators, called technical reconnaissance agents. Handpicked for loyalty and intelligence, the men of both sides were deadly proficient, continuously perfecting the art of electronic warfare. To counter that effectiveness, communicators of the opposing armies developed elaborate procedures and sophisticated equipment in a defense against electronic warfare called communications security.

Traditionally, offensive electronic warfare ranged from disrupting an enemy's communications to covertly monitoring them for intelligence. During the conflict in South Vietnam both sides restricted more overt forms of electronic warfare so as not to interfere with or compromise their collection of intelligence. Electronic warfare in South Vietnam thus was waged largely in its most covert form. Motivating, training, and equipping communicators to defend against that hidden threat tasked the ingenuity of cryptographers and the leadership of signal officers on both sides throughout the course of the war.

Foundations of the U.S. Electronic Warfare Program

Although the South Vietnamese had some American radio intercept equipment left behind by the French Army, they had little success with it. Thus, in 1958, President Diem requested electronic warfare assistance from the United States to locate clandestine Communist radio stations in South Vietnam. The U.S. Intelligence Board resisted hazarding the loss of highly classified electronic warfare equipment to the Communists until President Kennedy, responding to an increasingly urgent need to penetrate a burgeoning Viet Cong insurgency, directed the Army Security Agency on 29 April 1961 to send men to assist and train the South Vietnamese in conducting radio direction-finding. On 13 May the first contingent of American electronic warfare specialists arrived in South Vietnam.[2]

During General Maxwell D. Taylor's visit to South Vietnam in the fall of 1961, he noted problems with collection and reporting of signals intelligence. Responding to Taylor's troubling news, Assistant Secretary of Defense (International Security Affairs) John H. Rubel directed the Secretary of the Army and the Director of the National Security Agency to improve American electronic warfare operations in South Vietnam. Before tackling that job, the Army re-equipped the teams in South Vietnam with more reliable radios and established advisers. The paucity of signals intelligence was less easily remedied. Signal Corps engineers dispatched from the U.S. Army Electronics Command at Fort Monmouth found that equipment assigned to the teams, although the best available, was designed for operations in Europe and was ill-suited for the peculiar propagational characteristics of Southeast Asia.[3]

Since it was impossible reliably to track the extremely high angle sky waves produced by Viet Cong high-frequency radios in the tropic atmosphere over South Vietnam, monitoring teams were limited to intercepting transmissions located in the range of a ground wave—about five miles, or some five percent of the available targets. After modifying the antennas of the intercept equipment, the engineers returned to the Electronics Command laboratories at Fort Monmouth to develop better equipment. Working with engineers from the Army Security Agency, they experimented with completely new approaches to radio intercept. They discovered that by taking direction-finding equipment aloft in an aircraft, they not only eliminated terrain and vegetation barriers, but they also raised their receiving antennas into the path of the radio waves from enemy transmitters and gained additional mobility. In March 1962 three specially modified L-20 airplanes flew the first operational missions against Viet Cong transmitters in the II Corps

sector, and within a month airborne direction-finding teams had located the transmitters of six major Viet Cong headquarters.[4]

The several coups, attempted coups, and countercoups during the first half of the 1960s interfered with the development of South Vietnamese intelligence organizations and the conduct of clandestine activities against the Viet Cong. The party in power always suspected that those operations might be turned against it rather than against the Viet Cong. Because of that suspicion, it was not until 1964 that the position of communications intelligence officer (J-7) was established on the Joint General Staff to supervise clandestine operations carried out by the military. Even then, assignment of electronic warfare teams and equipment to field units where their use could be most effective came slowly. Not until 1968 were the first three South Vietnamese divisions provided with small electronic warfare units, called technical detachments. Another year passed before the rest of the divisions received detachments and each corps was assigned a fixed radio direction-finding station.[5]

The dramatic evolution and success of the U.S. Army's electronic warfare program stunted the development of South Vietnam's program during the 1960's. Within a short time after arriving in South Vietnam, the U.S. Army Security Agency took control of all electronic warfare activities. The Army's efforts were supplemented in January 1962 by the arrival of forty-three marines from the 1st Composite Radio Company (USMC).

Conducting both offensive and defensive electronic warfare programs, and tasked with a training and advisory mission as well, the Army Security Agency's 3d Radio Research Unit was stretched thin. In early 1963 the Army Security Agency assigned the 7th Radio Research Unit the defensive communications security mission for U.S. units in South Vietnam. Thereafter, the 3d Radio Research Unit concentrated on offensive electronic warfare, while providing direction and staff supervision to the 7th Radio Research Unit. Assigned to the U.S. Army Security Agency, Pacific, the two radio research units operated under the staff supervision of the MACV deputy chief of staff for intelligence and received logistical support from the U.S. Army Support Command, Vietnam, and the U.S. Army Security Agency Materiel Support Command in Virginia.

With the American troop buildup of 1965 came a requirement to improve the organization for electronic warfare. As each division and separate brigade arrived with its own direct-support unit of the Army Security Agency, it became more difficult to control the American electronic warfare effort from the agency's Pacific headquarters in Hawaii. In mid-1966 the Army Security Agency deactivated the 3d Radio Research Unit and formed a new headquarters, the 509th Radio Research Group, to manage all Army electronic warfare operations in South Vietnam. Under the operational tasking of the Military Assistance Command, the 509th Group received command direction and technical support from headquarters of the Army Security Agency, Pacific, in Hawaii and logistical support from the U.S. Army, Vietnam.[6]

Designed to give cryptologic support to a field army, the 509th Group had four major radio research components: The 303d Battalion, the 313th Battalion, the 8th Field Station, and the 224th Aviation Battalion. It also had responsibility for the 101st Radio Research Company (formerly the 7th Radio Research Unit) which had a countrywide communications security mission and provided direct support to the two major U.S. headquarters in South Vietnam, the Military Assistance Command and the U.S. Army, Vietnam. The 303d Battalion provided similar support to the II Field Force headquarters at Long Binh and controlled the Army Security Agency's companies and detachments supporting the combat divisions and separate brigades assigned to the II Field Force; and the 313th Battalion, located at Nha Trang, performed a corresponding role in support of the I Field Force.

Allied Offensive Electronic Warfare

To the envy of many—especially communicators in the 1st Signal Brigade—and to the aggravation of a few, the Army Security Agency's units in South Vietnam enjoyed an unrivaled independence. ASA

battalion commanders were serving and reporting to so many different headquarters that they never had to submit entirely to one authority. Avoiding domination by field combat commanders and retaining strong ties with their parent organization, the Army Security Agency in Washington, the agency's field commanders could speak out more freely concerning their own areas of expertise and could experiment with new techniques without fear of interference.

Through continued trial and error, field technicians improved airborne direction-finding techniques. By the spring of 1966 the Joint Chiefs of Staff had approved a fleet of 57 Army and 47 Air Force aircraft to support the program begun by the 3d Radio Research Unit. The old L-20's, redesignated U-6's, were supplemented by Army U-8's and Air Force C-47's, all carrying direction-finding equipment. To coordinate the tasking and scheduling of missions between Army and Air Force airborne radio direction-finding units located throughout South Vietnam, in June 1966 the MACV intelligence staff established a coordination center, jointly manned by representatives of the 509th Radio Research Group and the 6994th Security Squadron, the Air Force unit responsible for electronic warfare in South Vietnam.[7]

Although South Vietnamese Army pilots had begin flying direction-finding missions with American instructors in 1963, the South Vietnamese program was ineffective until the early 1970s, when the Vietnamization program afforded them more sophisticated aircraft and more opportunity. The rapid growth of the South Vietnamese program, matched by the equally rapid decline of the American role, enabled the South Vietnamese eventually to provide 95 percent of the intelligence gained from airborne electronic warfare. After the 1973 cease-fire, with aircraft losses increasing from improved enemy air defenses and deteriorating logistical support within the South Vietnamese armed forces, South Vietnam's airborne program took a precipitous decline.[8]

Although American airborne direction-finding efforts overshadowed the ground program, the Army Security Agency's direct-support units were essential to American electronic warfare. Operating against a variety of enemy units, they identified targets for further exploitation by airborne teams. Since they worked against the same Communist targets every day, they acquired the best understanding of local Communist communications. Building an informal enemy communications order of battle, the commander of every detachment knew which enemy units provided the most important information and which had the worst security discipline.

Analysts familiar with local communications patterns could garner important information. Realignment of radio nets and relocation of terminals often indicated changes in the enemy order of battle or forecast an impending operation. Disappearance of an enemy station after an allied attack obviously suggested success. American intelligence officers attempted to confirm the observations of astute electronic warfare analysts with information from collateral intelligence—captured documents or prisoners of war.[9]

The commander of the direct-support electronic warfare units on the ground had the responsibility of maintaining the vital link between the entire electronic warfare community and the tactical commander and his staff. He had to bridge the chasm between the esoteric science of cryptology and the practical concerns of the battlefield command post. Detachment chiefs of direct support units advised tactical commanders of the enemy order of battle and of the electronic warfare resources, both ground and airborne, that were available to support particular operations.

Even after equipment and techniques improved, American electronic warfare efforts remained limited against short-range enemy communications, both telephones and low-powered radios. Teams were unable to move close enough to wiretap enemy lines or monitor short-range radio without jeopardizing the security of men and equipment.[10]

The Americans increasingly turned to unattended equipment to fill that role. In 1966 the United States began to build an electronic barrier of acoustic, seismic, and radio sensors across the northern border of South Vietnam, the panhandle of Laos, and the eastern regions of Thailand to detect North Vietnamese infiltration. A group of American scientists, who had assembled secretly in the summer of 1966 to consider means for harnessing American technology for the war, had conceived of the ambitious approach. To implement it, Secretary of Defense McNamara formed the Defense Communications Plan-

ning Group on 15 September 1965 under Lt. Gen Alfred D. Starbird, the director of the Defense Communications Agency.[11]

Using the technical resources of the Electronics Command and several other governmental laboratories and commercial manufacturers, the Defense Communications Planning Group spent $670 million to develop and produce large stocks of sensors camouflaged as pieces of vegetation to use in the barrier, which had come to be called the McNamara Line. Seeded from the air throughout the Laotian panhandle in the fall of 1967, the sensors transmitted the sounds of enemy activity to aircraft orbiting the region. At an Infiltration Surveillance Center at Nakhon Phanom in northeastern Thailand, the Seventh Air Force plotted the recorded detections and launched air strikes against the most promising targets.[12]

In South Vietnam the sensors were being installed in conjunction with fortifications and barriers along the Demilitarized Zone when Khe Sanh came under siege in early 1968. General Westmoreland diverted the sensors to ring the Marine base. They were so successful in warning of enemy movements and identifying targets for artillery and air support that General Westmoreland obtained permission to postpone the completion of the McNamara Line to use the sensors in tactical operations. By 1969 the Military Assistance Command had installed sensors on perimeters of military installations, along main convoy routes, and across principal enemy avenues of approach in the border areas of South Vietnam. Tactical units and Special Forces teams monitored the sensors. To aid in the communication of readings from remote areas, a radio relay aircraft orbited the tri-border area west of Pleiku and a ground relay operated from the top of Nui Ba Den.

Although the NcNamara Line had only limited success in halting infiltration or in strategic interdiction, the sensors were used effectively by tactical units. While it was impossible to know whether the source of a sensing in a remote area was enemy activity, the sensors pinpointed the area of a sensing. Local units could then investigate the cause.[13]

Although offensive American electronic warfare activities in South Vietnam were devoted primarily to finding the enemy and collecting intelligence, occasionally other approaches were tried. A few attempts were made at manipulative communications deception, a technique in which false transmissions were deliberately made on one's own communications nets to mislead an eavesdropping enemy. For example, the Americans would transmit false strength reports to indicate the weakening of a base's defenses, thereby enticing the enemy into a trap. On several occasions following manipulative communications deception, the enemy did attack and suffered heavy casualties. Imitative deception, involving a more difficult procedure of entering the enemy's communications network to transmit false or misleading information, was never attempted by Americans in South Vietnam.

Jamming or interfering with enemy communications was infrequently used. Secretary McNamara in mid-1966 suggested that the military jam enemy communications to disrupt operations. Pointing out that the enemy used his radios seldom and that combat operations were brief, General Westmoreland responded that except for the Ia Drang battle there had been little opportunity for jamming enemy communications. The Army attempted ground-based jamming only twice, once at Pleiku and Nha Trang to override the broadcast of Viet Cong propaganda intended to incite a Montagnard revolt. The only formal jamming program was that employed by the Navy against enemy communications and radar signals in North Vietnam to suppress antiaircraft defenses.[14]

It was not easy to overcome the enemy's communications defenses. American electronic warfare operators were always looking for intelligence on enemy communications procedures and equipment. A special detachment from the 509th Radio Research Group reviewed every captured document and report of interrogation of prisoners and defectors for clues to the operation of enemy communications. If an interrogation report indicated that a prisoner or defector might be a source of additional communications information, specially trained interrogators from the Radio Research Unit continued questioning him. Often those special interrogation reports elicited requests for additional questioning on particular points. Another special unit, the 18th Signal Detachment, which was assigned to an operating branch of the MACV intelligence staff called the Combined Materiel Exploitation Center, studied captured communica-

tions equipment and provided intercept operators with a valuable guide to the operational range and characteristics of Viet Cong communications.[15]

The Communist Defenses

The enemy's security did not crack easily. A wary people by nature, the North Vietnamese had cloaked the insurgency in South Vietnam in a pervasive secrecy. Captured communications security directives indicated that as early as 1962 the Communists were taking a serious and sophisticated approach to protecting their communications. For example, they permitted unencrypted transmissions only on news broadcasts.[16]

Besides the Communists' natural predilection for secrecy, an unswerving adherence to directives and plans within the ranks enhanced the security of Communist communications. Communist radio operators were more likely to follow rigid security directives than their more highly educated American contemporaries, who tended to interpret rather than follow directions and to look for shortcuts which sometimes compromised communications security. Because the Communists maintained tight discipline over their troops, they also could plan and rehearse operations in precise detail with the confidence that each step would be carried out exactly as directed, a factor that lessened the need for communications for command and control during those operations. Less communications, in turn, meant fewer opportunities for Americans or South Vietnamese to use electronic warfare against Communist communications.

In addition to strictly regulating communicators, the Communists educated other staff officers to maintain communications security. They enjoined them to avoid using electrical transmission whenever courier service was available. Any information transmitted by radio had to be protected even after it was no longer classified, lest an enemy discover it in an unencrypted form and break signal codes by comparing the text of encrypted and unencrypted communications. Perhaps the greatest impetus to enemy communications security was the universal belief throughout the ranks that the Army Security Agency was practicing electronic warfare against Communist communications.[17]

The Central Office for South Vietnam distributed codes, call signs, and frequency assignments to the signal staffs at each military region headquarters, where signal representatives from units and provinces picked up extracts of the information pertaining to their own operations. From those extracts each radio operator copied into a notebook only that information that applied to him. Although much less efficient than the American practice of mimeographing an entire package of communications information, called Signal Operating Instructions, and giving it wide distribution, the enemy methods were far safer. By strictly controlling distribution, signal officers not only limited the amount of signal information vulnerable to capture but also made it impossible for radio operators to enter any nets in which they did not belong, a practice that could cause breakdowns in net discipline and security.

The Viet Cong assigned professional cryptographers to every regiment and every province. Since radio operators were kept physically separated from the cryptographers and were even forbidden to associate with them during off-duty time, radio operators had little opportunity to handle or have knowledge of any annunciated classified information. Besides restricting access to important cryptographic material, the compartmentalization of communicators and cryptographers precluded the inadvertent transmission of classified information in the clear by a careless radio operator. Because of the sensitive nature of cryptographers' work, they were usually handpicked Communist Party members who had received intensive training at a special school in Hanoi.[18]

Even in low-level units without cryptographers, radio operators followed precise operational procedures that made communications more secure. The Communist practice of communicating with each station on a net only at a scheduled time and on a prescribed frequency—and of varying those times and frequencies periodically—made it difficult for an enemy to intercept a particular station by continually monitoring a signal frequency. The enemy made mandatory the use of international procedural words, called prosigns, to communicate signal information. Using these shortcuts meant that transmitters were

on the air a shorter time and were thus less exposed to enemy intercept. How diligently the various procedures were followed depended to a great extent on the quality of the supervision rendered by local signal staff officers. Most were quite harsh in enforcing communications discipline. In their reprimands of violators they even equated laxity with disloyalty to the Communist cause.

When voice radio came into wide use on enemy nets during the late 1960s, it became more difficult to control those speaking directly, usually extemporaneously, on communications channels. Signal officers issued voice codes, but operators frequently neglected to use them or developed their own unsecure brevity codes. Because voice radio operators usually received less training than Morse code radiomen, quality of communications and net discipline were also lower on voice nets.

As the Americans improved their airborne direction-finding techniques, net discipline and operational procedures became as important as cryptography to the Communists. They knew that even if the Americans could not read the text of a station's traffic, they could still home in on the signal emitter of the transmitter. Suspecting that American radio direction finders guided B-52 bombers that were dropping their large bombs with deadly accuracy on the transmitters serving major Communist headquarters, in 1965 commanders began ordering their signal officers to set up transmitters as far away from supporting headquarters as possible. In addition enemy radiomen learned to recognize by sight and sound the types of aircraft used for airborne radio direction-finding and to shut off their transmitters when they were in the area.[19]

U.S. Communications Defense

Americans had greater difficulty enforcing communications security. In South Vietnam some Americans were lulled into a false sense of security by believing that encoding was unnecessary because the enemy was unable to understand English. While the Viet Cong planned operations in great detail to minimize communications during actual execution, Americans, valuing flexibility and spontaneity, relied heavily on radio and telephone communications to make last-minute adjustments to plans and to control fast-moving airmobile operations. Perhaps from a sense of isolation in a strange land, American radio operators chattered incessantly on their nets. Most felt it their job to make frequent communications checks and to notify higher headquarters concerning even the most unimportant happenings in the field. Coupled with American disdain for secrecy, the heavy use of communications made Americans lucrative targets for electronic warfare unless cryptographers found means to protect their communications.[20]

During the 1950s American advisers made virtually no attempt to protect their communications. Only cumbersome manual coding procedures were available to them. Nor was there any check to determine whether South Vietnamese or American communications were being compromised. Not until late 1960, after a disturbing report by an Army Security Agency inspection team from Hawaii illuminated communications security deficiencies in South Vietnam, were the first steps taken to assign responsibility for improving communications security in Southeast Asia. The Military Assistance Advisory Group assigned to the chief signal adviser staff supervision for communications security matters, and the Joint Chiefs of Staff directed the Army Security Agency to provide cryptologic support to the advisory group. In the spring of 1961 the Army Security Agency sent a team to monitor telephone circuits on the combined South Vietnamese-American switchboard in Saigon. In November of the same year, a mobile team set up monitoring operations in support of the advisory detachment at the I Corps headquarters in Da Nang. By March 1963, when the 7th Radio Research Unit became responsible for communications security in South Vietnam, ten teams were monitoring wire and radio circuits throughout the country.[21]

The monitoring program revealed compromises of classified information. Alerted to the vulnerability of communications, General Paul D. Harkins directed the MACV Assistant Chief of Staff for Communications-Electronics, Lt. Col. Philip S. Pomeroy, to establish a position on his staff for an assistant for communications security. Colonel Pomeroy made the newly arrived 39th Signal Battalion the cryptographic distribution authority for all American cryptographic equipment, a formidable mission involving

distributing, repairing, and accounting for all cryptographic machines and documents in South Vietnam. During the next two years the battalion handled three generations of communications security equipment. Off-line cipher machines, installed with the Operations and Intelligence Net in 1962, were replaced the following year by on-line machines.[22] They, in turn, were replaced in 1964 by a more rugged and reliable on-line machine. Although many American units in South Vietnam continued to use older sets on low-level nets for several years, the on-line system eventually became standard for U.S. tactical teletype communications. As the off-line system was replaced, it was turned over to the South Vietnamese.[23]

From a concern to help South Vietnamese communicators as well as from a desire to protect American communications over South Vietnamese channels, signal advisers of the Military Assistance Advisory Group pressed for American cryptographic support for the South Vietnamese. In addition to the compromise of classified information, nonsecure South Vietnamese communications offered the enemy an excellent start in breaking codes that protected secure American systems transmitting identical information.

With the assistance of the 39th Signal Battalion, the signal staff of the Military Assistance Command conducted classes for the South Vietnamese in the use of cryptographic equipment. Officers from the 3d Radio Research Unit inspected the facilities in which the devices were to be installed and assisted the South Vietnamese in meeting stringent physical security requirements. In September 1962 the first secure South Vietnamese nets came on the air. By the spring of 1964 all high-level communications of the Joint General Staff and the corps headquarters were secured by an on-line teletype system, and every division and regiment had received off-line devices for use on tactical Morse code nets.[24]

As voice radio and telephone replaced teletype and Morse code as the primary modes of American communications, officers of the Army Security Agency could take little consolation in improvements to the cryptographic equipment for teletype of Morse code nets. Although devices existed for on-line protection of telephone conversations, they were not widely available in South Vietnam because they were still being tested and were extremely expensive. Only a constant awareness of the vulnerability of voice communications and careful use of operations codes could defend against breaches of telephone security. In the absence of proof that the Viet Cong were intercepting American transmissions, advisers were unconvinced of a real threat and rarely used operations codes. While the security experts of the 7th Radio Research Unit could provide communications security training for operators of teletype and Morse code nets, who were professional communicators, they were unable to reach everyone with access to a telephone or voice radio.

The problem was destined to get worse. As American combat units began deploying to South Vietnam during 1965, every combat leader from squad to division would have the battlefield replacement for the ubiquitous American telephone: An FM voice radio. Simple to operate, the radios were conveniently at hand to maintain constant command and control, to request air and artillery fire support, and to seek logistical support. With the high power setting habitually used by Americans, the FM voice radio had tremendous range and transmitted its signal in all directions. Those qualities—reliability, convenience, and range—made the FM voice radio a lucrative target for Viet Cong electronic warfare technicians. The proliferation of these radios throughout South Vietnam, moreover, made it simple for the Viet Cong to capture or steal them to use in electronic warfare operations.

As new U.S. units arrived in South Vietnam during the mid-1960s, the 7th Radio Research Unit warned them of the dangers of relaxing communications security. They planned recordings of security breaches detected in the monitoring program and taught classes to radio operators on security precautions to be taken to protect American communications. But continued monitoring of American radios and telephones demonstrated the futility of those efforts.

Since the 7th Radio Research Unit could monitor only about six percent of all American communications in South Vietnam, the Army Security Agency studied the security of tactical communications in one unit, the 1st Cavalry Division, to assess the seriousness of the situation. For the last three months of 1965, soon after the division arrived in South Vietnam, the 7th Radio Research Unit provided a contingent of monitoring teams to augment the division's own 371st Radio Research Company. Selection of the 1st

Cavalry Division for the study was fateful, for the teams were soon to find themselves monitoring the communications of units engaged in the most savage fighting yet experienced in the war—the first American engagement with North Vietnamese troops in the Ia Drang valley.

Monitoring 10,902 voice, teletype, and Morse code transmissions during the three weeks before the battle, the team noted little concern for fundamental communications security precautions. The air cavalrymen rarely used available authentication systems to protect against imitative deception.[25] Even though many net frequencies and call signs had been compromised by transmission in the clear, signal officers seldom changed Signal Operating Instructions, which assigned frequencies and call signs to divisional units.

Although the commander of the 371st Radio Research Company reported the findings and made remedial suggestions, the division's signal officers had no time to tighten communications security before the division became hotly engaged in battle. Then the monitoring team found that American communications security in areas near the enemy not only failed to improve, but sometimes worsened. Restricting the program to voice communications, the teams monitored 28,023 voice transmissions during the month-long fight. They found that once the battle was joined, communications security was completely ignored. Sensitive information was broadcast in the clear and critical messages accepted without any authentication challenge. The only attempt to protect information was the occasional use of an unauthorized, homemade code and easily compromised point-of-origin systems.[26] Neither approved operations codes nor off-line security devices were ever used during the battle. Officials in the Army Security Agency and the National Security Agency were most alarmed that communicators in front-line combat units had failed to use the security measures available to them: Off-line coding machines and authorized authentication and operations codes. Communicators and commanders throughout South Vietnam were less surprised by the findings. They saw in them a reflection of practices prevalent throughout tactical units. Off-line encryption methods took time, and on the battlefield American commanders felt that time was more crucial than security.

The Ia Drang findings provided new impetus to a prior request by the commander in chief, Pacific, for the National Security Agency to develop speech security equipment for tactical units in South Vietnam. Initially reluctant to produce a cryptographic device for the combat infantryman that would undoubtedly be captured, the National Security Agency in January 1966 nevertheless agreed to develop a security device for portable radios. The National Security Agency and the U.S. Army Electronics Command designed the PRC-77, a modified PRC-25 that could be connected to the speech security gear. The findings from the Ia Drang also influenced a decision by the Defense Communications Agency to expand the Automatic Secure Voice Communications System (AUTOSEVOCOM) to include narrowband terminals for tactical units.[27]

While awaiting the development of new equipment, officers of the Army Security Agency in Southeast Asia turned their attention to ways of supplementing conventional monitoring for security violations with more preventive approaches. They advised units about techniques to protect communications. Through selective monitoring they next tested, and reported to the commanders, how well specific recommended security practices worked. The results of monitoring were then applied in future plans.

When the United States began installing the infiltration detection system, the McNamara Line, the U.S. Army, Pacific, sent a five-man team to the Infiltration Surveillance Center in Thailand to determine how to keep the highly classified project secret. After two months of monitoring telephone circuits and voice radio nets, the team obtained names, locations, organizations, and security and communications plans for the entire operation. To avoid further compromises, they recommended that communications concerning the project be restricted to secure teletype as much as possible. They even advised discontinuing the use of the code names for the project.. Improvements were gradual and subtle. Although the new preventive approach did not offer any dramatic solution to communications security problems, it did give electronic warfare specialists the opportunity to influence operational planning.

Even though the 1st Cavalry Division's experience in the Ia Drang made commanders aware of the

deplorable state of communications security, they still felt that most communications security measures were unnecessary and restrictive. They were not convinced that the enemy was monitoring their communications. They felt that practicing communications security meant sacrificing the tactical flexibility and control provided by extensive open communications. While more sympathetic to the importance of communications security, division signal officers agreed with their commanders that the conflict between operational efficiency and fundamental signal security measures appeared irreconcilable. Cross-attachment of units and daily interaction with support aircraft based hundreds of miles away made it virtually impossible to issue compatible codes to all forces participating in an action or to change frequencies and call signals often. After changing the call signs on all the radio nets in the 1st Cavalry Division during the la Drang battle, the division signal officer, Lt. Col. Tom M. Nicholson, discovered that he had caused so much confusion that he had to return to former call signs to reestablish basic command and control. The revision of a division's Signal Operation Instructions were sometimes compromised by loss or capture even before they could be fully distributed.

Rather than limiting access to communications to improve security, signal officers were under pressure to keep open as many channels as possible to ensure that warnings and emergency requests were quickly received and disseminated. Since the Americans passed information about planned air and artillery bombardments to South Vietnamese troops and civilian authorities to preclude accidents and civilian casualties, any attempt to encode those warnings by using unfamiliar call signs might cause confusion that could lead to casualties. Similarly, the American medical evacuation system relied on rapid clear communications. Even such vital battle information as unit location and numbers of casualties was transmitted in the clear on medical evacuation nets. No signal officer dared change the standard frequency or call sign—DUSTOFF—used to summon medical evacuation helicopters throughout South Vietnam.[28]

Powerless to change many of the routine procedures and practices that contributed to a lack of communications security, the men of the 7th Radio Research Unit concentrated on warning commanders of violations which, if monitored by the enemy, would jeopardize lives or give advance warning of an operation. Although some warnings were heeded and compromised plans changed, many were ignored. Even when enemy ambushes followed unheeded warnings, few commanders would admit that the Communists were reacting to intercepted American communications.

Enemy Offensive Electronic Warfare

Aside from isolated intelligence reports, usually based on the claims of enemy prisoners, there was little conclusive evidence that the Viet Cong and North Vietnamese were exploiting American communications. Credit for finally producing confirmation of the effectiveness of the enemy's communications intelligence efforts rested with a platoon of infantrymen from the 1st Brigade, 1st Infantry Division, and an investigation team from the 509th Radio Research Group. On 20 December 1969 the infantrymen overran the camp of a technical reconnaissance unit, known as A3, assigned to the Viet Cong's Subregion 1 on the outskirts of Saigon and captured twelve members of the team with their equipment and logs. Four days later the target exploitation team briefed the MACV commander, General Creighton W. Abrams, Jr., on the startling results of the interrogations of the enemy radio interceptors.[29]

Captured during the last days of 1969, the A3 technical reconnaissance unit was living proof of the spectacular evolution of the Viet Cong's technical reconnaissance during the preceding decade. Although relatively low in the organizational hierarchy, the little unit was manned by a well-equipped team of experienced professionals guided in their work by doctrinal publications and procedural manuals evincing a keen insight into the weaknesses of American and South Vietnamese communicators and into the means of exploiting those weaknesses. Working with the attention to detail and ingenuity that had become trademarks of the Viet Cong's technical reconnaissance operation, the A3 team was found with over 1,400 handwritten copies of voice transmissions.

The team had been monitoring voice and Morse code traffic of American and South Vietnamese units

operating in Subregion 1 for several years. Their equipment was simple and well maintained: Two captured PRC-25's and one captured PRC-77 for monitoring FM voice traffic, and one Chinese Communist R-139 receiver and several small commercial transistor radios for monitoring AM Morse traffic. With precisely engineered antennas the intercept operators were employing the equipment at far beyond its normal range limitations.

Study of the logs kept by the A3 team chief indicated that members of the team knew more about the communications of local American and South Vietnamese units than did most allied communicators. They even knew the voice characteristics and communications habits of many of the radio operators working in the area. After following the American nets for several years—a continuity no U.S. signal officer on a one-year tour enjoyed—the Viet Cong intercept operators had discerned various exploitable patterns. Having heard the confusion on American and South Vietnamese nets when frequencies and call signs were changed, they learned to adjust to new Signal Operating Instructions more quickly than the communicators in the nets. Knowing that each unit had a limited block of frequencies for switching among its nets, when Signal Operating Instructions were changed the intercept operators would simply monitor each frequency and a division's assignment lock for recognizable voices and then begin reconstructing the nets. Sometimes their American adversaries, in attempting to reorganize the nets quickly, would make the intercept team's adjustments even easier by giving the frequencies and call signs in the clear to confused radio operators.

Since radios were used extensively to coordinate the planning and conduct of joint ground and air operations, the A3 unit focused on air nets both as lucrative sources of operational intelligence and as keys to reconstructing other nets. Working against the 1st Cavalry Division, for example, the Viet Cong listened each evening to transmissions of the 11th Aviation Group, the division's helicopter support unit, to learn which units would be airlifted into battle the following day and what their destinations would be. During those nightly warning orders to the pilots, even the command frequencies of the supported ground units were passed by a simple frequency designation code which the Viet Cong broke in the first week of its use. Undoubtedly many air assault landings were ambushed using intelligence gathered from the nightly reports.

When the distribution of secure-voice equipment to the 11th Aviation Group put an end to that source of intelligence in the summer of 1969, the Viet Cong merely turned their attention to other divisional nets. The Air Liaison Net, on which medical and special aviation support was arranged, still operated in the clear to give stations without security equipment an opportunity to request assistance. The most fertile source of all was the Air Warning Net. It broadcast information concerning air strikes, artillery barrages, and impending enemy attacks to every fire base and to all aircraft flying through the area. Besides receiving prior warning of maneuver and fire support plans, the Viet Cong also learned from the Air Warning Net whether their own attack plans had been compromised and whether American and South Vietnamese units were being alerted. Even more important was advance warning of pending strikes by B-52's. After monitoring a B-52 warning, the Viet Cong knew that they had between ten and twenty minutes in which to dispatch a courier to a nearby radio station and send warnings to other Viet Cong units in the area before huge, 750-pound bombs rained from the sky.

Although the phenomenal success of the A3 team came as a great surprise to most American tactical commanders, the very preoccupation of the Viet Cong with the defense of their own communications had long before convinced the men of the 509th Radio Research Group of the value that the Viet Cong placed on electronic warfare and led them to conclude that they needed to develop a strong offensive capability. Apparently recognizing the increased effectiveness of electronic warfare when applied covertly, the Viet Cong went to great lengths to conceal the fact that they had any capability at all. Carefully shielded by security forces, technical reconnaissance soldiers were segregated from other View Cong troops and forbidden to acknowledge the nature of their work. Technical reconnaissance information was transmitted only by courier or else encrypted in a high-level code for radio transmission.[30]

The capture of the A3 unit finally gave substance to a threat that officials of the Army Security Agency

had previously been able to define only vaguely. More than simply exposing the activities of one unit, the revelations illuminated the whole obscure history of Viet Cong electronic warfare and corroborated previously unsubstantiated evidence. Logs containing entire texts of American messages copied by the A3 unit made credible the capabilities and successes that commanders had once dismissed as unfounded pessimism by advocates of communications security. The cool professionalism of the intercept operators on the A3 team, if universal throughout the technical reconnaissance forces, would explain both the success and secrecy of Viet Cong electronic warfare. The documents captured with the team contained doctrinal principles and instructions reflecting a refinement in the art of electronic warfare that could have developed only over many years.

The French had suspected as early as 1952 that a Viet Minh radio intercept unit was listening to their communications from a site just east of Hanoi. By the early 1960s the Viet Cong had organized small strategic intelligence cells to conduct radio interception against high-level South Vietnamese communications. In 1963 those cells were organized into the *47th Technical Reconnaissance Battalion*, which operated under the direction of the Intelligence Section of the Military Staff communicators using captured radios were experimenting with various forms of electronic warfare on their own. Monitoring of South Vietnamese logistical communications nets became an important source of information for Viet Cong units planning to ambush convoys. During attacks they monitored South Vietnamese communicators to determine where the defenses were weakening and if reinforcements were being summoned. Some Viet Cong provincial units kept captured GRC-9's on the command frequency of local South Vietnamese units to learn of proposed attacks and bombing missions. After learning the operating procedures of the South Vietnamese nets, emboldened Viet Cong communicators even practiced jamming and imitative deception against the South Vietnamese. News of electronic warfare successes spread throughout the Viet Cong's ranks, and by 1964 some province committees were even conducting informal training programs in electronic warfare for their communicators.[31]

Encouraged by that success, but also worried lest the activities in the field units alert the South Vietnamese and disrupt the flow of high-level communications intelligence being collected by the technical reconnaissance battalion, the Central Office for South Vietnam decided in 1965 that the entire electronic warfare effort needed direction and organization and convened a special intelligence conference to discuss the topic. The conferees called for a combined tactical and strategic technical reconnaissance organization reaching down to provincial and regimental levels. In addition to giving direct tactical support to local units, technical reconnaissance squads with the regiments and provinces were to send intelligence to a technical reconnaissance platoon stationed at the military region headquarters. There, it would be analyzed for strategic intelligence to be sent to the Central Office for South Vietnam. The technical reconnaissance battalion was to manage the entire operation and to provide communications for the clandestine network.[32]

By mid-1966 most of the technical reconnaissance organizations planned during the conference were in operation, and the original plan was being broadened to include cells at district level. Viet Cong communications officials scoured the ranks for the most intelligent and reliable soldiers to be sent to technical reconnaissance schools established at the Central Office for South Vietnam and the regional headquarters. Numerous informal training programs took place at the unit level, and many Viet Cong radio operators became part-time intercept operators. In response to a dramatic increase in targets resulting from the arrival of American units, the entire Viet Cong electronic warfare program continued to expand.[33]

Technical reconnaissance grew so quickly—from 179 men in 1964 to over 1,500 men in early 1967 that Viet Cong leaders worried that the high performance and secrecy of the program might be decreasing. The battalion at the Central Office for South Vietnam, which had been the nucleus of the whole effort, had been drained of its most experienced men to serve as cadres in the field and instructors at the school. Since the quality of the battalion's management of the entire technical reconnaissance operation seemed to be suffering, the chief of the Military Intelligence Bureau at the Central Office for South Vietnam in February 1967 ordered the unit deactivated and its mission and personnel transferred to a newly formed staff section

of the Central Office for South Vietnam, the Technical Reconnaissance and Intelligence Department. Thereafter technical reconnaissance developed an organizational structure involving over 4,000 elite troops enjoying the highest priority of support and protection.[34]

With the additional authority implicit in that arrangement, the new technical reconnaissance organization was able to get more English linguists to use against the Americans. Rather than simply adding to the total body of communications intelligence, the intercept of American communications dramatically improved the quality of the effort against the South Vietnamese. Information monitored on American nets supplemented and confirmed information obtained from South Vietnamese nets. To pit American and South Vietnamese communicators against each other, Viet Cong cryptologists also caused suspicions between the two allied forces. Exploiting parallel nets of U.S. advisers and their South Vietnamese counterparts, where one net might be encrypted and the other insecure, technical reconnaissance agents reconstructed entire coding systems by comparing encrypted and plain text traffic. Although high-level operations codes were never broken, the two-front attack on communications aided the Viet Cong in breaking the low-level codes used by the South Vietnamese prior to 1969 and in more easily understanding the simplistic, unauthorized codes often used by ingenious, but naive, Americans who thought that they could fool their adversary by cloaking sensitive information in uniquely American references.[35]

Although the Communists had decided to forsake more overt electronic warfare techniques, such as jamming, so as not to interfere with the monitoring program or to put targeted communicators on guard, Viet Cong communicators sometimes employed jamming and communications deception. The jamming usually consisted of whistling, humming, or playing music while an American station was attempting to communicate. More common than jamming were attempts at communications deception, a variation of which was commonly practiced during unit movements to cover the displacement of headquarters, a period of extreme vulnerability to attack, and to make it more difficult to find units in their new positions. While a headquarters moved, its radio station would remain behind and continue passing traffic as if nothing had changed. When the relocation was completed, a new station would come on the air at the new location, but to confuse any intercept, the old station would continue transmitting for several weeks. There were no documented cases of the Viet Cong's attempting more direct manipulative deception by deliberately passing information on their own nets with the intention that it be intercepted. There were, however, numerous examples of imitative deception, where the Viet Cong entered an American or South Vietnamese radio net posing as an authentic station. Success or failure in the deception usually depended on whether the receiver of the message used authentication codes to challenge the validity of the person transmitting the message.[36]

Viet Cong deceptions were most successful when rapid response by the receiving station was required. Entering fire control or air support nets, they would request a halt to fire that was hitting their positions or even call in fire on American or South Vietnamese positions. Helicopter pilots, who rarely employed authentication codes, sometimes found themselves drawn into traps by false radio messages or smoke grenades, the latter a means by which ground troops marked their location for helicopters. The Viet Cong used smoke grenades both to ambush helicopters and to divert American and South Vietnamese fire. For the Viet Cong, visual signals had the additional virtue that using them required no fluency in English.[37]

The Viet Cong also tapped telephone lines stretched between guard bunkers on the perimeters of American and South Vietnamese camps and fire support bases to garner intelligence and conduct deception operations. In several cases they successfully learned the nature of perimeter defenses by calling outposts for strength reports. In the most successful imitative deception operation, a Viet Cong killed an American perimeter guard at the Da Nang Air Base and used his telephone to direct the base defense unit to the north side of the base just as a large Viet Cong force was about to attack from the south. Meeting little resistance, the force caused $15 million in damage to the base and its planes.[38]

Convinced of the success of Viet Cong electronic warfare by the revelations made in the wake of the capture of the technical reconnaissance team, American commanders began to take communications security more seriously. Rejecting former misconceptions concerning the adverse effects of communications

security measures on operations, Maj. Gen. Elvy B. Roberts, the commander of the 1st Cavalry Division, admitted, "The fear has always been that airmobile operations would get so tied up it would not be worth the sacrifice one would have to make in effectiveness of airmobile operations…I find the fear of it to be like many other fears—more imagined than real."[39]

With the support of commanders, signal officers were able to enforce previously disregarded communications directives. Once signal officers were given the authority to instruct net control stations to prohibit stations from entering nets unless they used authorized operations codes and authentication tables, the use of point-of-origin systems and informal codes ended. A pocket-size wheel device made of laminated plastic containing operations and authentication codes developed in 1969 by the National Security Agency specifically for use in South Vietnam also gained wide acceptance once radio operators and staff officers were forced to use it.[40]

Speech security equipment, developed as a cooperative venture of the National Security Agency and the Army and introduced in mid-1968, was less readily accepted. Fragile connecting cords and insufficient spare parts caused some initial logistical problems. The Electronic Command sent teams to South Vietnam to train radiomen to operate the new sets, but commanders found that operators experienced problems in communicating between secure and nonsecure stations. Those using nonsecure radios, unable to monitor communications between secure radios, sometimes unknowingly interfered with secure communications. When signal officers established separate secure and nonsecure nets, operators, incorrectly believing that the secure devices significantly reduced range, would use only the nonsecure net. Until the introduction of secure retransmission devices in 1970, secure nets were unable to take advantage of the added range provided by airborne retransmission. Perhaps the greatest disadvantage of the secure devices was the 24 pounds they added to the burden of the radio-telephone operator. Only the heightened awareness of the enemy's threat to communications instilled by the capture of the technical reconnaissance team and pressures by signal officers overcame those objections. Within six months of the team's capture, the percentage of radios using portable security devices increased from 53 to 83 percent, and those using vehicular security devices increased from 52 to 90 percent. Use of voice and teletype security equipment and the new operations codes effectively ended the Viet Cong threat to American communications. Even though the Communists captured some devices, they were unable to use them due to the daily rekeying of devices on American nets.[41]

In retrospect it is difficult to determine which side was most successful in waging the electronic war. During the early 1960s the enemy clearly monitored South Vietnamese communications with impunity, and from the arrival of U.S. combat units until the introduction of voice security equipment, Viet Cong technical reconnaissance agents enjoyed similar success against American voice radio nets. Because the Communists' principal electronic warfare weapons were small commercial transistor receivers and stolen or captured radios rather than special electronic intercept equipment, their success appeared in some measure more noteworthy than that achieved by the Americans with their sophisticated eavesdropping devices.

American largesse was one source of American weakness. An abundance of easily operated voice radios in the hands of operators indifferent to proper security precautions gave the Viet Cong's technical reconnaissance agents more and easier targets. Undoubtedly many American operations were compromised and lives lost due to Communist exploitation of loose radio procedures. American operators, on the other hand, not only had the handicap of fewer targets but also faced an enemy whose habit of making detailed plans and executing them without deviation reduced his reliance on electronic communications. When the Communists did communicate, they did so with an appreciation for their adversary's electronic warfare capability and a corresponding adherence to stringent communications procedure and safeguards.

In the final balance, technological superiority gave the Americans the edge in both the offensive and defensive aspects of the electronic warfare struggle. Airborne direction-finding, for example, provided American operators an ability to locate and track enemy units and afforded a means of determining enemy order of battle and locating targets to be attacked. Rather than automatically homing on radio emissions to

pinpoint a unit's radio, as the Americans could do with their direction-finding equipment, the Communists had to look for clues to an American unit's location in the text of the message traffic. From the defensive standpoint, once the Americans finally improved the security of their voice communications, Viet Cong technical reconnaissance agents lost their targets. By then, however, Viet Cong technical reconnaissance teams had done their damage during the years of the most critical fighting. And American plans to withdraw from South Vietnam denied the opportunity for the United States to exploit fully its technological superiority in the electronic war.

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1. Although U.S. intelligence agencies restrict the definition of electronic warfare to activities involving electronic countermeasures, electronic counter-countermeasures, and electronic support measures in this volume the term is used more broadly to embrace operations involved in maintaining communications security and conducting electronic surveillance.
2. Memos, JCS for Asst Secy of Defense (ISA), 5 Dec 61 and 12 Dec 61, sub: Beef-up Status Report, file I-17639/61, 413.44 VN, 64A2382/43, WNRC; USARPAC, 892d USASA Special Operations Unit in SVN, 26 Nov 63, pp. 7-8; Trip Rpt, Army Chief of Staff, 10-17 Jun 62, p.7, file 1541189, 656A3138/82, WNRC.
3. Memos, JCS for Asst Secy of Defense (ISA), 5 Dec 61 and 12 Dec 61, sub: Beef-up Status Report, file I-17639/61, 413.44 VN, 64A2382/43, WNRC; USARPAC, 82d USASA Special Operations Unit in SVN, 26 Nov 63, pp. 7-8; Trip Rpt, Army Chief of Staff, 10-17 Jun 62, p. 7, file 154189, 66A3138/82, WNRC.
4. USARPAC, 892d USASA Special Operations Unit in SVN, 26 Nov 63, pp. 7-8; MACV, Briefing for Maj Gen Joseph A. McChristian, Airborne Radio Direction-Finding, J2/D004167/67, 319-75-054/20, CHECO, 10 Feb 69, K717.f0413-93, OAFH.
5. Lung, *Intelligence*, Indochina Monograph Series, U.S. Army Center of Military History, Washington, D.C., 1982, pp. 61-62, 125-26.
6. 3d Radio Research Unit, Annual Historical Rpt, Jan-Mar 64, 73A3330/11, WNRC. For its accomplishments during the period 13 May 1961 to 31 December 1962, the 3d Radio Research Unit won the first Meritorious Unit Commendation awarded to an Army unit since the Korean War.
7. Memo, Asst Secy of Air Force (R&D) for Vice Chief of Staff, USAF, 10 Jul 62, sub: Direction-Finding in Counterinsurgency Operations, 66A3138/86; Memo, DA, ACSI-CI, for Col Thomas W. Riley, Jr., USA, JCS Project Officer, 19 Sep 62, sub: Improvement of High Frequency Radio Direction-Finding Capabilities, South Vietnam, 66A3138/89p; Ltr, ASA to ACSI, DA, 10 Nov 64, sub: Formal Programming for Airborne Platform, file 373.1, 66A3201/64. All in WNRC.
8. Lung, *Intelligence*, pp. 126-27, 141-42.
9. Lewy, *America in Vietnam,* p. 35; Memo, Gen W.C. Westmoreland for Chief of Staff, U.S. Army, 30 Mar 65, sub: Evaluation of the Memorandum Prepared by DA Concerning the Situation in the Northern Provinces of RVN, CSD-091VN (30 Mar 65), 68A3305/1, WNRC.
10. MFR, Special Activities Section, Thailand, Operations Branch, 8 May 62, sub: Thailand Operations, ACSI file 6-2412, 66A3201/155, WNRC; MACV Directive 381-45, 5 Apr 69, sub: Exploitation of Enemy Landline Communications Systems, CMH.
11. For an account of the work of the Defense Communications Planning Group and the use of sensors in Southeast Asia, see Dickson, Paul, *The Electronic Battlefield,* Indiana University Press, Bloomington, 1976.
12. MACV History, 1968, pp. 911-34, CMH.
13. *Ibid.*, 1969, ch. 7, pp. 1-15, CMH.
14. Rpts, JCS 222/994, 6 Sep 66, through JCS 222/994-6, 22 Nov 66, sub: Jamming VC/PAVN Field Communications, JACO (1966), DA/6,NARS; Price, Alfred, *Instruments of Darkness: The History of Electronic Warfare*, Charles Scribner's Sons, New York, 1978, pp. 265-68.
15. "C-E Technical Intelligence,," *Command Communications,* September 1967, pp. 72-76, CMH.
16. CICV Rpt, ST 67-006, pp. 6-8; Cap Doc, 24 Aug 67, TIR RVN 114-67, file 516-02(77) TIR VN 2, A69-21/2, ASA.
17. Cap Doc, 28 Jun 67, TIR RVN 908-67, file 516-02(77) TIR VN 67, A69-21/2, ASA.
18. Intel Rpt, 25 Dec 67, TTIR 31-67, file 516-02(77) TTIR VN 67, A69-21/2, ASA; IFFV, PERINTREP 43-67, 22-28 Oct 67, an. C, 70A499/8, WNRC.
19. Cap Doc, 28 Sep 68, TIR RVN 245-68, file 516-02(77) TIR VN 5 (68), A70-7/3; Cap Doc, 22 Aug 67, TIR RVN 112-67, file 516-02(77) TIR VN 2, A69-21/2. Both in ASA.
20. Memo, DA, Asst Secy of Army (R&D) for Chief of Staff, 15 Apr 61, sub: Communications Effectiveness in Future Combat; Ltr, 3d Bde to 4th Div, 18 Apr 69, sub: Combat Operations AAR-Operation GREENE THUNDER II, VNI 181. Both in CMH.
21. USARPAC, 82d USASA Special Operations Unit in SVN, 26 Nov 63, pp. 12-13.
22. Off-line encryption and decryption take place independent of the communications process; on-line encryption and decryption occur while a message is being transmitted and received. The off-line system uses a typewriter that produces an encrypted tape for transmission over a teletype or Morse code circuit, while an on-line system automatically encodes and decodes regular teletype pulses as they are being processed by transmitting and receiving equipment.

23. USARPAC, 82d USASA Special Operations Unit in SVN, 26 Nov 63, pp. 5-14; MACV J-6 History, FY 1962-63, pp. 2-3, file GF-3, 338-75-1009/63, WNRC.
24. MS, HQ, USARPAC, History of the U.S. Army Build-up and Operations in the Republic of Vietnam (RVN), 1 Jan 61 - 31 Jan 63, pp. 166-67, and ibid., 1 Feb 63 - 31 Dec 63, pp. 231-35, both in CMH; MACV J-6 History, FY 1962-63, p. 5; Msg, MAAG, Saigon, DAIN 136493, to CINCPAC, 2 Aug 61, sub: Communications Security Assistance to Vietnam, CMH.
25. Authentication codes, the radio operator's password system, were used to challenge the legitimacy of stations passing traffic in a net.
26. Point-of-origin systems were based on the use of encoded reference points from which locations could be identified. For example, "CP located 600 meters northeast of point *Alpha*."
27. Chief of Staff of the Army Memorandum 94-66, Chief of Staff of the Army to JCS, 289 Feb 66, sub: Tactical Voice Security, Incl to JCS 222/934; Memo, Dir, NSA, for Dep Secy of Defense, 19 May 66, sub: Secure Tactical Voice Communications, Incl to JCS 222/953-1; Memo, DA for Dep Secy of Defense, 29 Jun 66, sub: Secure Tactical Voice Communications, JCS 222/953-2. All in JACO (1966), DA/4, NARS.
28. Whimer, Capt. Dennis K., "Aviation Communications Security," *Aviation Digest*, May 1968, pp. 10-13.
29. Ltr, 509th Radio Research Gp to ASA, 26 Mar 70, sub: Historical Monograph on Project Touchdown, w/1 Incl and 16 Tabs, CMH, contains the complete study of Project Touchdown on which this account is based. The tabs contain transcripts of the interrogations and translations of the documents. A short, but thorough, discussion of Project Touchdown is contained in MACV, Lessons Learned No. 79: Enemy Exploitation of Allied Tactical Communications, 8 Mar 70, AD 508351, DDC.
30. Ltr, USARV to 1st Sig Bde et al., 20 Nov 69, sub: Operations Security, w/Incl, l72A6443/26, WNRC.
31. MACV J-2,Log entry 8-99-65, 30 Aug 654, Cap Docc dtd 7 Jul 64, p. 8, A76-332/15, NSA; CICV Rpt, ST 67-006, pp. 8-9.
32. Ltr, USARV to 1st Sig Bde et al., 20 Nov 69, sub: Operations Security, an. A, pp. 1-5; CICV Rpt, VC/NVA Electronic Warfare Capability (ST 67-061), 1 Jul 67 (hereafter cited as CICV Rpt, ST 67-061), pp. 10-11, 71A4237/12, WNRC.
33. Ltr, USARV to 1st Sig Bde et al., 20 Nov 69, sub: Operations Security, p. 2; CICV Rpt, ST 67-061, pp. 12-14.
34. Ltr, USARV to 1st Sig Bde et al., 20 Nov 69, sub: Operations Security, an. A, p. 2; MACV, Counterinsurgency Lessons Learned No. 64: Imitative Communications Deception (hereafter cited as Lessons Learned No. 64.
35. The number thirty-nine, for example, was routinely expressed as Jack Benny's age and became a much-used numerical reference point. NSA, Deadly Transmissions, Dec 70, pp. 12-13, K370.04-5, OAFH.
36. CICV Rpt, ST 67-061, pp. 2-6; MACV, Lessons Learned No. 64.
37. CICV Rpt, ST 67-061, p. 6; MACV, Lessons Learned No. 64, p. 5.
38. MACV, Lessons Learned No. 64, pp. 3-4; NSA, Deadly Transmissions, p. 10.
39. Quote from MS, Lt Col Normal E. Archibald, Tactical Communications, 1st Cavalry Division (Airmobile), Vietnam, October 1969 - July 1970, 14 Mar 75, pp. 8-9, CMH.
40. Maj Gen Thomas M. Rienzi, Debriefing Rpt, 4 Jun 70, pp. 46-68, file HRC 314-82, CMH; I FFV Daily Staff Journal, 24 Oct 67, item 5, 70A478/33, WNRC.
41. Memo, JCS for Asst Secy of Defense (I&L), 25 Nov 67,, sub: Secure Tactical Voice Communications, JCS 222/953-44, JACO (1965), DA/2, NARS; ORLL, 1st Sig Bde, 31 Jul 70, p. 9, 72A7128/5, WNRC; Rienzi Debriefing Rpt, p. 45.

Post-Vietnam Growth

In the final years of the Vietnam War, and over the decades that followed, Army intelligence faced a thicket of challenges and alternating bouts of contraction and growth. The last quarter of the 20th century would be a time of self-definition and reemergence as an equal partner with operations, personnel, and logistics.

With the war in Southeast Asia over, the emphasis pivoted to the European theater where intelligence was expected to counter the superior numbers of the Warsaw Pact forces with the celerity of its early warning information.

The MI community would be transformed, not only by its own frenzy of reorganization, but by changes taking place in the U.S. Army as a whole. In 1972 the draft was discontinued, drying up a reservoir of college-trained manpower; by 1973 the strength was cut by half, causing some leaders to refer to it as "a hollow Army;" and in 1976 women soldiers were assimilated across the Army rather than segregated in the now defunct Women's Army Corps.

In 1970 a former MI officer, Christopher Pyle, wrote an article detailing Army surveillance of legitimate political organizations like the National Association for the Advancement of Colored People, supervised by the U.S. Army Intelligence Command at Fort Holabird, Maryland. It triggered congressional investigations and resulted in the June 1970 Adjutant General directive which halted all Army involvement in domestic intelligence. Recriminations lingered in the public mind over the next decade about the part played by Army counterintelligence in reinforcing the FBI at times when domestic intelligence was collected on anti-war activities. The Army was a reminder to many of the divisions over the Vietnam War that tore the fabric of American society.

The special problems that faced Army intelligence in those uncertain postwar years included the lack of any central organization. The pieces that made up the MI mosaic were often scattered, isolated and uncoordinated. They needed to be cemented together in some more practical organization. This fusion did not happen all at once, but incrementally and tentatively.

Since 1945 the Army Security Agency (ASA) controlled the Army's code and signals intelligence through a vertical organizational structure in which all its units reported directly upward. In 1955 it took over all Electronic Warfare responsibilities and in 1964 it became one of the Army's major field commands. The ASA ran its own training schools and undertook its own research and development. It encompassed a network of listening posts around the world called field stations, and operated aloft in specially configured U-21s called Special Electronic Mission Aircraft. This vast effort was indicative of the predominant role that SIGINT had assumed in the Cold War. Because of its self-sustaining command structure and the cloak of secrecy that shrouded its operations, it was thought to be separated from the Army main stream by a metaphorical "green door."

Since 1965 the U.S. Army Intelligence Command performed the HUMINT and counterintelligence missions for the Army. With seven subordinate groups in the continental United States, it conducted background investigations on Army personnel and became involved in domestic intelligence work during the height of the anti-Vietnam War movement. This latter role was the subject of much civilian criticism of the government and was dropped in the early 1970s. At the same time the Intelligence Command was whittled away to two subordinate groups, and its mission of performing background checks was turned over the Defense Investigative Service specifically created for that purpose. Eventually, it was discontinued entirely in 1974 and succeeded by the U.S. Army Intelligence Agency which assumed the HUMINT missions for the Army.

One of the most far-reaching changes to the MI structure was the establishment of a home for military intelligence training at Fort Huachuca. Heretofore, ASA did its training at the U.S. Army Security Agency Training Center and School at Fort Devens, Massachusetts, while the U.S. Army Intelligence School at Fort Holabird, Maryland, carried out schooling in general military intelligence. In 1966, Maj. Gen.

Joseph A. McChristian, the Assistant Chief of Staff for Intelligence, asked that the Army's intelligence training be examined for the purpose of consolidating the fragmented training that was spread over several commands and conducted at different schools. The Army Chief of Staff, Gen. Harold K. Johnson, responded by forming the Norris Board to evaluate intelligence programs. He approved the Norris Board recommendations on 1 July 1967.

As a result of the initiative of Maj. Gen. Joseph A. McChristian, the Norris Board deliberations, and the overcrowded conditions at Fort Holabird, it was determined to consolidate MI training at a single new location. In 1971 the concept became a reality when the Intelligence School was moved from the banks of Colgate Creek to the foothills of the Huachuca Mountains.

From its inception in 1971, the U.S. Army Intelligence Center and School contributed a host of innovations and programs that would revamp the MI community. For more on the accomplishments of the Intelligence Center and School, see the Brief History of MI Training in the "General" section.

The Commanding General of the Intelligence Center and School was made the proponent for the Military Intelligence Branch in 1983. As such, he became concurrently the Chief, Military Intelligence. In October 1989, the CG of the Intelligence Center and School became Fort Huachuca's installation commander, making Army intelligence the lead agency at that historic site.

In 1974 the Chief of Staff directed a study to determine the best organization to carry out intelligence and electronic warfare missions. Called the Intelligence Organization and Stationing Study (IOSS), its chairman Maj. Gen. Joseph J. Ursano announced its recommendations in 1975. It resulted in a basic restructuring of military intelligence assets, one that would completely revamp the intelligence organization and how they did business. The Ursano Board found that intelligence production was compartmentalized, especially within ASA which did not share its product with the tactical commander or make the electronic warfare weaponry available to the Army as a whole. Likewise, it determined that intelligence was inefficiently organized in vertical lines which did not intersect.

The U.S. Army Security Agency was merged with the U.S. Army Intelligence Agency and its intelligence production components formed a new major Army command on 1 January 1977 called the U.S. Army Intelligence and Security Command (INSCOM). The "green door" of ASA had been unhinged. Now INSCOM had the mission of accomplishing multi-discipline intelligence, security, and electronic warfare functions at the echelon above corps. It pooled a number of its newly acquired production functions into an Intelligence and Threat Analysis Center in 1977. In 1978 it took over the U.S. Army Russian Institute and in 1980 it gained the Special Security Group which disseminated Sensitive Compartmented Information (SCI) to the entire army.

The former Foreign Science and Technology Center of the Army Materiel Command and its Missile and Space Intelligence Center both came over to INSCOM in 1983 and were combined with the Intelligence and Threat Analysis Center to form the short-lived Army Intelligence Agency, a field operating agency of ACSI.

It was INSCOM, the Army's Service Cryptologic Element (SCE), that supported operations of both the NSA and Defense Intelligence Agency (DIA). INSCOM's 704th MI Brigade, formerly the CONUS MI Group, exercised command and control over many of INSCOM's subordinate agencies and provided staff personnel for the National Security Agency, at Fort Meade, MD.

When INSCOM took over the Army Security Agency's mission and assets, it assumed control of a network of fixed installations called field stations at Berlin and Augsburg, Germany; Sinop, Turkey; Okinawa and Misawa, Japan; Pyongtaek, Korea; Key West, Florida; and San Antonio, Texas. In 1986 the station at Okinawa was shut down, but others came on line during that decade at Kunia, Hawaii, and Panama. These stations housed sophisticated SIGINT equipment and were recognizable by their large antenna arrays. In 1987 MI brigades and battalions were organized to provide the Army personnel at these field stations units with which to identify.

INSCOM also fielded multidiscipline MI groups to support theater-level Army operations around the world. The original four groups were the 66th (the largest in Munich, Germany), 501st (at Yongsan, a

neighborhood of Seoul, Korea), 500th (located at Camp Zama in the suburbs of Toyko, Japan), and 470th (at Camp Clayton, Panama). A fifth, the 513th MI Group, was added in 1982 at Fort Monmouth, NJ, to support contingency operations for the Army's Central Command.

During the 1980s, INSCOM also operated a number of specialized intelligence, counterintelligence, and support organizations. They were the 902d MI Group which was responsible for the Army's counter-intelligence throughout CONUS; the Special Security Group, the agency that controlled the Sensitive Compartmented Information traffic to the major Army commands and accredited the facilities; the Central Security Facility which oversaw the work of the Investigative Records Repository and the Freedom of Information and Privacy Office; the U.S. Army Russian Institute at Sheridan Barracks in Garmisch, Germany; and the Foreign Language Training Center, Europe. INSCOM moved into its new headquarters at Fort Belvoir, VA, in 1989.

Field intelligence units, following the Ursano report, were no longer controlled by the Assistant Chief of Staff for Intelligence, but integrated into the normal Army command structure, making them responsive to the tactical commander. The old ASA units were absorbed into combat electronic warfare and intelligence (CEWI) units which combined Army intelligence and security disciplines. The Yom Kippur War of 1973 validated the theories of many Army thinkers who saw an increasing role for electronic warfare.

The new multi-disciplined CEWI units supported divisions with CEWI battalions and corps with CEWI groups and later brigades. This gave the tactical commander better control over electronic warfare, signals intelligence, operational security, and ground surveillance radar which were now integrated into one unit. They eliminated the old isolation of the various components of the intelligence picture and enabled electronic warfare to assume a more useful place in the commander's arsenal. In October 1976 the first CEWI battalion, the 522d MI (CEWI) Battalion, was activated. After a series of field tests, it was decided to activate CEWI units Armywide during 1983. In the words of one observer, "the intelligence community had gone all out tactical."

The line companies performed the functions of collection and jamming, ground surveillance through radars and sensors, and service support, while the headquarters company handled collection management, counterintelligence, interrogation, and aviation personnel. Airborne collection battalions were redesignated as Military Intelligence Battalions (Aerial Exploitation) as part of the 1985 reorganization and they combined aerial surveillance with imagery interpretation. CEWI groups became brigades in 1985.

A test for the tactical capabilities of MI and its organization arose with the launching of an invasion of Grenada in the Carribean, thought necessary by President Ronald Reagan to protect American citizens and interests.

Operation URGENT FURY, the code name for the U.S. invasion of politically torn Grenada, involved Joint Task Force 120, commanded by Vice Admiral Joseph Metcalf III. Army Major General H. Norman Schwarzkopf was his deputy. The island of Grenada had been divided into two zones of responsibility, the northern part to be occupied by the Navy and Marines, and the southern portion belonging to the Army and Air Force. Navy SEALs landed on 24 October 1983 at 2200 hours on the northeast coast to reconnoiter what would be Marine landing beaches. On the southern tip of the island, an Air Force AC-130 Spectre, armed with infrared sensors and low-light TV cameras was taking a look at the Point Salines airfield in preparation for the 1st and 2d battalions of the 75th Rangers to jump in.

The Marines landed on 25 October, took the defenders by surprise, and secured the Pearls airport by 0630. The Rangers encountered stiffer resistance from Cuban forces, but by mid-morning of the 25th the runway at Port Salines was open and the lead elements of the 82d Airborne Division began arriving at 1405 hours. The U.S. citizens attending medical schools on the island were rescued, the dictator General Austin and his bodyguards were taken into custody, and the island was cleared of all resistance by D+5. Eleven soldiers, three Marines and four Navy SEALs died in Operation URGENT FURY and 116 U.S. personnel were wounded. The loss of Grenada was a severe setback for Cuban prestige and a signal that U.S. interests in the Caribbean would be upheld by force, if necessary. Most of the 82d Airborne was

withdrawn in November and all U.S. combat forces were out by December.

The 525th Military Intelligence Group of the XVIII Airborne Corps supported the 82d Airborne Division with tactical intelligence collected and produced in its Intelligence Operations Center. It was a windfall for military intelligence as tons of captured documents gave important information about Cuban and Soviet intelligence activities in the Western hemisphere. Captured Soviet-manufactured military equipment kept technical intelligence specialists busy.

Did MI's tactical CEWI units meet the test of the URGENT FURY operations? According to John F. Stewart, Jr., the commander of the 525th MI Group, "CEWI works." He found intelligence and electronic warfare units under his command to be responsive to the tactical commander.

The United States Military Liaison Mission (USMLM) to the Commander-in-Chief, Group of Soviet Forces in Germany (GSFG), was an outgrowth of the 1947 Potsdam Agreement, dividing Berlin into zones of occupation. Housed in a building designed by Albert Speer, Hitler's chief architect and Minister of Munitions, the liaison mission's job was to insure that terms of the Potsdam agreement were met by the Soviets in their zone. This involved unrestricted travel for the members of the mission and presented a unique window into East Germany. A casualty of the Cold War, Lt. Col. Arthur D. Nicholson, was a military intelligence officer serving with the U.S. Military Liaison Mission at Potsdam, East Germany, when he was gunned down by a Soviet sentry in 1985. He was on a mission to observe Soviet facilities, as provided for in a long-standing international agreement, when he was killed.

Since 1956 the two-star Assistant Chief of Staff for Intelligence occupied a lesser niche in the Department of the Army hierarchy, symbolic for some of the back seat to which Army intelligence had been relegated. In 1987 the Assistant Chief of Staff for Intelligence on the Army staff was upgraded from a two-star position to a three-star job and renamed the Deputy Chief of Staff for Intelligence or DCSINT. Now Army intelligence had been reestablished at the Army staff level on an equal footing with the other Deputy Chiefs. Lt. Gen. Sidney T. Weinstein was the first to assume the new position of DCSINT in the Pentagon.

The Military Intelligence Corps was founded on 1 July 1987, the 25th anniversary of the establishment of the first Regular Army intelligence branch. The MI Corps would embrace all Army intelligence personnel, including civilians, in the tradition of the Army regimental system. Maj. Gen. Julius Parker, Commanding General of the Intelligence Center and School, became the first head of the Corps in activation ceremonies at Fort Huachuca. It was a milestone that General Parker, called "a recognition and celebration of our evolution from a plethora of diverse and separate intelligence agencies into the cohesive MI community we enjoy today. In short, it symbolizes the fact that Military Intelligence has truly arrived."

In late 1989 MI would have another test of its ability to support the combat commander when President George Bush decided intervention in Panama was necessary to stop the drug trafficking of Panamanian dictator Manuel Noriega.

Operation JUST CAUSE, 20 December 1989 to 31 January 1990, depended on meticulous planning, rapid force projection, the element of surprise, and a versatile, professional joint force. On D-Day simultaneous attacks took place across the isthmus of Panama. Nine separate task forces each were given specific objectives, which were largely accomplished during the first day of the operation. On D+1 the Panama Canal was reopened to traffic, the Marriott Hotel was taken and hostages there protected, and Task Force Bayonet began civil-military operations in Panama City to handle the growing flow of refugees. On the second day the Panamanian Police Force was formed and the U.S. Army began civil-military operations in earnest. Penonome Prison was surrendered without a fight and mopping-up of hold-out Panamanian Defense Forces began. Joint patrolling was undertaken with the Panamanians. Dictator Manuel Noriega, after taking sanctuary in the Vatican embassy, surrendered to U.S. forces on 3 January.

Intelligence support for military operations was provided by the 470th MI Brigade stationed in Panama and its 29th MI Battalion, along with the intelligence assets of the organizations making up the joint task force. MI doctrine proved itself flexible enough to support contingency operations like JUST CAUSE. One participant credited a large part of the U.S. Army's success in Operation JUST CAUSE to Intelli-

gence Preparation of the Battlefield.

One of the most shaping developments in recent years for Army intelligence was the 1987 publication of the Army Intelligence, Electronic Warfare, Target Acquisition Master Plan, or AIMP. It was a coherent plan for guiding intelligence systems and organizations into the age of high-tech warfare. It evaluated future threats, determined requirements, and prepared a response that addressed all of the systems that would need to be developed and procured in order to modernize Army intelligence for a range of contingencies. It was the genesis for the Intelligence Revolution and would stock the Army intelligence arsenal with electronic weaponry. This singular, visionary plan would be reassessed by the 1991 MI Relook and revised in 1993 to take into account the lessons of the Gulf War.

In 1989 all of the traditional threats to the security of the United States and her allies and all of the anticipated scenarios were overturned and made unlikely by the dissolution of the Soviet Union and the Warsaw Pact alliance. The Berlin Wall that had stood for so many years at the symbolic divide of East and West came down in an exuberant celebration of the demise of the cold war. Germany was reunited in October 1990 and there seemed little need of the large American Army presence in eastern Europe. The U.S. Army underwent a major retrenchment, shrinking in manpower and money to a much more compact contingency force. Doctrine began to redefine the military services as a force-projection team, a small but mobile force relying upon technology to overcome its stripped down combat formations.

Army intelligence, because of the AIMP, was well positioned to reevaluate its role in the new order. Following the Desert Storm experience, an MI Relook panel was reinstituted with Brig. Gen. John F. Stewart, Jr., the G2 for Army forces in Gulf War, as its head. In view of the new U.S. Army structure, and the reorientation of the mission to force projection, the panel made a number of recommendations. It called for giving the combat commanders a complete picture of the battlefield and targets by using the array of interacting systems envisioned in the AIMP to relay the best and most current information from the national and theater levels, while at the same time allowing them to share their own information with those at comparable and higher levels. This would allow for a smaller MI force structure, but one that was still responsive to commanders. There would also be a greater reliance on reserves, like the Utah National Guard's 300th MI Brigade, to provide linguists in times of crisis.

The MI Corps took its share of cuts in the Army downsizing of the 1980's and 1990's. In Europe where the Soviet threat had all but disappeared, three field stations were closed down. Field Station Berlin atop Teufelsberg, a cold war landmark, closed its gates in 1992. Field Station Augsburg was closed in 1993, as was Field Station Sinop, which had a commanding view of the Black Sea from that Turkish port since 1951. The 66th MI Brigade moved its headquarters from Munich to Augsburg in 1992. With the inactivation of the VII Corps, the 207th MI Brigade and a number of MI battalions assigned to the divisions had their flags cased.

The Army Intelligence Agency was organized in 1985 as the field operating agency for ACSI, coordinating all intelligence production. It picked up remaining pieces of intelligence production that had been assigned to the Army Materiel Command and the Office of the Surgeon General. As part of Army streamlining in the post-cold-war era, it was disestablished in 1992, its functions being divided up by INSCOM and DIA.

In a January 1993 ceremony at Fort Devens, the colors of the 112th MI Brigade were cased. Its functions were absorbed by Fort Huachuca units as part of the Army's reconsolidation. It was one of four MI brigades to be deactivated out of a total of eighteen.

Atop the U.S. Army intelligence organization in 1993 was the Deputy Chief of Staff for Intelligence (DCSINT), who controlled INSCOM, as well as four directorates within the ODCSINT. The Intelligence Systems Directorate was responsible for the major collection systems, such as SIGINT, PHOTINT and HUMINT. The Counterintelligence Directorate made policy for security and counterintelligence activities. The Foreign Intelligence Directorate was involved in the production of intelligence, determining collection requirements, and preparing technical intelligence. The Foreign Liaison Directorate coordinated intelligence matters with allies.

INSCOM was the operating intelligence arm for the U.S. Army, directly subordinated to DCSINT. It was not only involved in collection, analysis, and counterintelligence, but performed SIGINT/COMSEC missions on behalf of the National Security Agency.

As the turn of the century drew closer, MI soldiers found themselves engaged in a wide array of operations other than war, from peace keeping in Somalia to drug interdiction operations in the American hemisphere.

What would be the role of Army intelligence without the traditional Soviet adversary? A dangerous but miscalculating Iraqi strongman would help the U.S. Army provide some of the answers to that question.

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*JOHN F. STEWART, JR. * Operation URGENT FURY: The 525th MI Group Perspective*

The 525th MI Group deployed initially in support of the 82d Airborne Division and, upon the division's redeployment, took responsibility for the island-wide tactical intelligence collection mission. The 519th MI Battalion (Tactical Exploitation) and the 319th MI Battalion (Operations) were cross-attached to form Task Force 525, with Headquarters and Headquarters Detachment, 525th MI Group providing overall command and control.

From the 519th came the collectors: interrogation, counterintelligence (CI) and signals intelligence (SIGINT) personnel. The 319th provided the analysis and production personnel that comprised the corps tactical operations center support element and the technical control and analysis element, along with the communications that linked the structure together. The superb efforts of all involved proved that the tenacity, expertise, and professional pride of the soldiers in MI today are as high as they have ever been. Similarly, the selfless efforts of Air Force personnel and Marines assigned to the task force contributed immeasurably to the unit's success.

Initially a joint operation, the 525th intelligence structure evolved with the transition from hostilities to the countersubversion phase of the operation. The objectives during this phase were threefold. First, identify and locate hard-core members of the political/military machinery responsible for the October 19, 1983, massacre of Prime Minister Bishop and six others. These extremists represented the most volatile threat to the re-establishment of stability on the island. The second objective was to prevent the resurgence of the People's Revolutionary Army and its potentially subversive militia elements. The third objective was to seek out any possible presence of Cubans on the island.

One constant requirement was to provide immediate indication and warning of any possible terrorist attack on friendly forces—a low probability in Grenada, but a priority intelligence function nonetheless. To provide adequate indicators and warning, both timeliness and accuracy were critical. This was accomplished through centralizing the collection management and intelligence production functions and decentralizing the collection functions. Each function was combined with allied counterparts in the Caribbean Peacekeeping Force. This formalized an exchange of information and solidified lines of coordination between parallel collection efforts. The combined intelligence operations center (CIOC) included mission management, a separate technical control and analysis element/corps tactical operations center support element (special intelligence), an automation section, and the document exploitation center. The CIOC served as the coordination point for island-wide intelligence production. The combined interrogation center and the combined CI center were highly successful at integrating day-to-day operations with the Caribbean Peacekeeping Force. U.S. CI teams and the Caribbean Peacekeeping Force worked side-by-side to ensure coordinated detainee access in the interrogation center through the exploitation of all sources. In the HUMINT-intense environment on Grenada, the meshing of these parallel collection efforts was crucial to mission success.

The intelligence structure paralleled MI doctrine, and evolved through transitions which occurred during the operation. Initially the mission dictated a traditional tactical intelligence role during Phase I (Hostilities). The requirements of the intelligence system were to provide the ground commander information on enemy capabilities, vulnerabilities, dispositions, and intentions.

By November 2, 1983, hostilities had subsided to a point that allowed the redeployment of most of the combat troops. Phase II (Countersubversion) required different tactics, since the objective was to re-establish stability throughout the island. During this phase, which lasted until November 15, the island's civil government granted authority to U.S. forces, in conjunction with the Caribbean Peacekeeping Force, to detain suspected subversives. The mission of ground troops quickly transitioned from a combat role to one of security. This necessitated extremely close coordination between infantry units, military police,

intelligence elements, and psychological operations/civil affairs. A hand and glove relationship developed with intelligence elements and psychological operations/civil affairs.

A hand and glove relationship developed with intelligence keying infantry and military police with information concerning identification and location of subversive elements, and the degree of threat posed and those units responding with operations. Thus, during this phase, island-wide operations were largely in support of intelligence objectives.

The benchmark for this HUMINT-intensive effort was November 15. On that day the authority to detain potential subversives was shifted back to civil authority. The combined interrogation center was closed and radical elements responsible for the October 19 massacre were detained under civil control.

Phase III (Stability) pushed CI operations to the forefront and lasted until the withdrawal of major corps elements in mid-December. Working in combined teams with the Caribbean Peacekeeping Force, CI agents assisted the government in establishing information sources to support security requirements throughout the island.

During all three phases the intelligence system provided support to, and coordinated closely with psychological operations/civil affairs elements. In a low intensity conflict, the mission of these elements parallels the importance of the intelligence mission. The latter was responsible for identifying the subversive threat while the former promotes stability through informational programs and reconstruction assistance. The rapid transitions of URGENT FURY added importance to maintaining close coordination between intelligence and psychological operations/civil affairs elements.

There were many tactical intelligence lessons learned (and relearned) in the Grenada operation. First, CEWI works. Intelligence and electronic warfare units responsive to tactical commanders proved themselves in URGENT FURY. However, while the tactical MI "stove-pipe" has been eliminated and the "green door" opened, the vertical connectivity so crucial to technical operations was weak. As with artillery fire direction, MI operations required vertical links to coordinate action from division, to corps, to echelons above corps. This was vital in all intelligence operations, and the lack of SIGINT connectivity resulted in diminished support during crucial early stages of the operation.

Another lesson was that MI needed light, rugged, deployable record communications equipment. This lesson was linked with the problems of intelligence dissemination and vertical interconnectivity mentioned earlier. Collection systems and commander needs have outstripped radio teletype, which at the same time formed a communications bottleneck and competed unfavorably for limited airlift space.

HUMINT played a vital role as it would in any conflict, particularly at the lower end of the spectrum. CI operations, for example, were almost exclusively counter-HUMINT as opposed to operations security, which has received major emphasis at the tactical level in recent years. This lesson underscored recent doctrinal and training emphasis from the U.S. Army Intelligence Center and School on counter-HUMINT in tactical intelligence operations. Moreover, the importance of language capabilities was demonstrated in every intelligence area: interrogation, communications intelligence, and CI. The importance of tactical HUMINT has direct implications for Army of Excellence structures at division and corps.

Automation proved to be a combat multiplier in URGENT FURY. Once the People's Revolutionary Army faded into the population, finding the extremists was a primary objective. Using microcomputers and commercial software modified by soldiers on site, it took only 72 hours to identify the key 60 or so alleged extremists.

MI soldiers must be technically and tactically proficient. Language, land navigation, position defense, and Morse Code intercept, for example, meld into required skills. Team leaders and soldiers often found themselves at isolated collection sites "doing it all." Training programs, therefore, must provide a technical/tactical balance.

Low intensity conflict posed unique challenges for operations and physical security of the force. In MI, this means lowering profiles through downsizing equipment and remoting operations, where possible.

Imagery intelligence played a key role prior to the operation, and potentially could have served the commander during hostilities and immediately thereafter. Corps organic side-looking airborne radar and

infrared aircraft from the 224th MI Battalion (Aerial Exploitation), operating from off-island bases, could have provided near-real-time imagery, especially of enemy defensive positions during hostilities and potential exfiltration.

A final lesson involved the nature of likely conflict in the next decade or so. While we must be ready to fight in mid-to-high-intensity environments, probably scenarios will be at the lower end of the spectrum, and more often the Army will find itself on a conflict scale between peace and war. Thus, command, intelligence, and other functions will often be ad hoc, only vaguely resembling plans practiced in exercises. We must face this ad hoc reality. MI units must be capable of tailoring to the mission and deploying on short notice. Corps CEWI units will be required to command and control elements from other services and operate in a joint environment. They must be capable of carrying out functional tasks like technical intelligence, that are by doctrine echelons-above-corps responsibilities. This means that, as the Army of Excellence concept has recognized, corps CEWI was an integral element of the Army's brigade concept. In addition to the need for brigade flexibility, it is crucial to see through the ad hoc nature of the non-war and peace environment and to overlay doctrine upon operational requirements.

In the final analysis, URGENT FURY was a successful operation. The story told here is a small part of that success, but one from which much has been learned.

*JOSEPH W. PRESTON * **JUST CAUSE: Intelligence Support to Special Operations Aviation***

During Operation "Just Cause," the 160th Special Operations Aviation Group led most of the major attacks throughout Panama. The key ingredient to their success was a bold plan, good reconnaissance and a highly detailed target analysis. Aviation assets, more than any other combat forces, are highly susceptible to weather and terrain conditions in an area of operation. We could control the enemy forces by superior speed and fire power. The environment was the main factor to which we had to adapt.

Early Planning Stages

Our S2 section began its Intelligence Preparation of the Battlefield (IPB) process with an evaluation of the area of operation and a mission assessment. The urban environment in Panama City compounded our need for a good, comprehensive terrain analysis. To accomplish what turned out to be a major undertaking, we began months before the actual operation.

In early stages of planning, the section became increasingly frustrated by the consolidation of our requirements at higher headquarters. This consolidation caused us some unique problems. All units require IPB, including weather and terrain analysis. Unfortunately, not all units require the same data. The needs of armor units are not the same as those of light infantry. Light infantry's needs are not the same as those of aviation. Moreover, conventional aviation requirements are often not the same as special operations aviation requirements.

During the planning stage we found our efforts impeded by well-intentioned collection managers trying to streamline the system. Instead, the collection managers created an aviation information gap. This consolidation of requirements with the ground units almost always caused our aviation- specific needs to become misrepresented.

Upper echelon collection managers questioned and rejected many of our requests. Unfortunately, they did not understand the level of detail required for a special operations aviation unit. Nor did they understand the level of detail we needed for the mission. In a precision assault environment, inches can mean lives and the difference between success or failure. We never received the imagery and schematics to the level of detail we requested. Yet, under the lead of our Order of Battle Warrant, we were still able to develop fairly sophisticated target folders.

As time and numerous rehearsals progressed, we slowly convinced our supporting collection managers of our unique needs. However, time had run out. When we launched the operation on December 20, 1989, we primarily used our own target soldiers. I believe that many of these products were vital to the success of the operation.

During the planning stage we tried to consider every environmental factor that we could conceive. Our S2 section developed as thorough an IPB product as possible with the information available. As always, we considered location, surrounding terrain, and the enemy. Then we got down to the real detail: Development of a target folder using imagery and hand-drawn schematics. This latter portion became a very time-consuming process.

For the target schematics we measured everything we could find. First, we focused on measurements of buildings and their obstructions. We needed to know their height, length, and width. We measured everything from elevator shafts to individual TV antennas and cloths lines crossing alleys. We calculated surrounding buildings to determine if helicopters could climb out of an attack run in time. We checked surrounding slopes for the impact they had on the total building elevation. A 16-story building on a rising slope presents a formidable obstacle to light helicopters flying at 35 feet!

We measured individual street corners: width, distances, spacing between buildings, and the size of

any obstacles in the intersection. We marked telephone and light poles and every wire. We even identified the most common locations of parked vehicles. The location and the angle of street and security lights were important as well. Key terrain became those features that afforded our aircraft protection from fire while in a holding pattern. Many also consisted of features that acted as key reference points for the pilots (water towers, concrete reservoirs, and high-rise apartment buildings). Prominent hills were ideal.

Weather was the other critical aspect of the planning process. As good as the special operation helicopters are, they and their crews are highly susceptible to the effects of weather. We studied generic weather summaries and input from pilots that had flown in Panama. However, the real issue was to ensure we had timely and exact information on each target. We also considered sea state, lights, and wind.

Due to the amount of time the aircraft spent over water, the sea state was important. In case an aircraft went down at sea, we had to know more than just water temperatures for survival rates. Sea swell, current direction and speed were equally important. Wind direction and speed played a significant part in assault operations for aircraft stability.

Lighting, not the absence of light, was key for visibility. At H-Hour, the 160th assaulted under night vision goggles (NVG). The presence of city lights reduced the effectiveness of the NVGs. Moon elevation and direction can cause problems to NVGs if approached from the wrong angle.

Finally, we checked the entire flight route to the targets. During this evaluation we studied similar weather and terrain data. We looked for anything that could become an obstacle or interfere with the mission.

Thanks to previous training conducted in Panama, we were able to greatly improve the target folders. We ran a reconnaissance program enabling us to gain both still photographs and videos of most of the targets. Our higher headquarters also came through with a computer-enhanced tape showing the flight path of our attack runs. This gave the pilots a chance to rehearse their assaults visually. For our primary target, we used schematics, still imagery, video and the computer enhanced video tape. This showed every aspect of the impending operation.

D-Day

At 0045 on December 20th, the 160th Special Operations Aviation Group started its assault on *La Commandancia* (Panamanian Defense Force's headquarters) in Panama City. Simultaneously or shortly after, we attacked almost every target in Panama as the lead element. As the aircraft approached *La Commandancia*, we knew the location of almost every gun and Panamanian soldier. We planned for the environment as best we could. We evaluated most items correctly. Some, we missed.

The lights of Panama were, for the most part, as expected. However, we had not fully anticipated the effect caused by fire and smoke from nearby burning buildings. Both reduced visibility. Bright light from fires hampered the NVGs operations. Billowing smoke obscured everything. We lost one AH-6 to a blistering hail of fire. A second helicopter took hits and lost power. It was unable to pull above obstacles in the city street because of rising terrain. It fell to the street, but averted a crash. The pilot flew along the street under wires. He came to an intersection, made a sharp left turn and flew half a city block trying to regain power. As he tried to gain altitude, the helicopter hit a power line and crashed. Fortunately, all personnel survived.

In other locations, the unit set up forward area rearm/refuel points (FARP). Two of the FARPs jumped in with the Ranger assault forces. All four FARPs came under fire from Panamanian troops. At Tocumen/Torrijos Airfield, the Air Force, dropping the heavy FARP support equipment, missed the drop zone. This caused all the transportation vehicles to land in a shallow swamp. Therefore, we lost the vehicles for the entire operation. This mishap prevented the FARP from moving to its assigned location. Fortunately, the Rangers quickly secured the area and the FARP set up operations where it had landed.

During follow-on operations we encountered another obstacle that had never occurred to us during the planning phase. That unexpected obstacle consisted of hundreds of silk parachutes left on the ground by

the Rangers and the 82d Airborne Division after they had jumped to secure the Panamanian airfields. Helicopters flying support found themselves in danger of sucking the parachutes into their rotor blades. This could quickly bring a helicopter to a halt and a death-defying fall.

Operation JUST CAUSE was a huge success for the 160th. While Intelligence Preparation of the Battlefield played a major part in this success, some of it had to do with luck. We of the intelligence community cannot afford to rely on chance to supplement good IPB. We must learn how to do effective IPB at every level, in every environment and for every type of unit.

Our unit's only fatality came during a mission where the aviators relied on the ground team to support them for intelligence. The ground team didn't think the information was important. That failure caused several aircraft to fly into unexpected gunfire. Aviation units can no longer rely on the ground unit they are supporting to provide them their intelligence. Aviation intelligence needs have grown far too complex to be handled by part-time help.

Today we are in a period where the Army is facing significant financial cuts. Yet, the aviation community is rapidly growing in its importance to the future Army force structure. The intelligence community must keep up with this changing trend. Aviation units today require their own dedicated support. This support must be as sophisticated as the aircraft that fly the missions.

VICTOR M. ROSELLO * *Operation JUST CAUSE: The Divisional MI Battalion, The Nonlinear Battlefield, and AirLand Operations-Future*

"Farewell, the plumed troop, and the big wars,
That make ambition virtue!"
—Shakespeare's *Othello*

The Army is shifting its doctrinal focus from a European linear battlefield orientation to a global combination of both linear and nonlinear confrontation, to include contingency operations. However, Operations DESERT STORM reinforced the fact that the Army's view of future conflict can't totally disregard any of the various levels of conflict.

Before DESERT SHIELD, Army involvement in contingency operations fell into the broad category of Low-Intensity Conflict (LIC). LIC involves operations at all levels—tactical, operational, and strategic. LIC operations don't follow a standard pattern. The only constants are that they vary in character and involve the population. Although it's difficult to establish doctrine applicable to all LIC operations, the Army has attempted to do this in FM 100-20, *Low-Intensity Conflict*. Nevertheless, gray areas remain, and we need to accomplish the difficult task of closing this gap of understanding.

The shift in focus has a major impact on the Army's tactical MI organization in airborne and light contingency forces. By studying the 82d Airborne Division operations during Operation JUST CAUSE in Panama, we can better understand this impact. Although some experts dismiss this campaign as an anomaly rather than a representation of future warfare, I believe certain aspects can give us insights into the nature of nonlinear conflicts and the new role of MI. This article is neither a validation of current MI doctrine nor a lessons learned analysis. Even though our division successfully completed its JUST CAUSE mission in less than 30 days, I believe the operation uncovered serious flaws in the organization of divisional MI battalions. Hopefully, this discussion will stimulate thought.

How We Organized

Our MI battalion provided intelligence support to the division by sending three equally divided company teams to each of the division's three infantry brigades/brigade task forces. On each company team, we sent three CI/IPW soldiers and four EW/SIGINT voice-intercept operators per battalion task force in each brigade. Two EW/SIGINT analysts supported the transcription and analysis (TA) cell located with the brigade command post (CP). The HUMINT/SIGINT teams provided direct support (DS) to each battalion task force. Total participation was 11 or 12 intelligence personnel per battalion task force.

We didn't deploy remotely monitored battlefield sensor systems (REMBASS) nor ground surveillance radars (GSR). In retrospect, these assets would have contributed to airport security after the initial airborne assault. Snipers and infiltrators were a minor distraction at the airport, but they could have presented a greater threat had the Panamanian Defense Forces (PDF) been better organized.

In addition to the DS teams, we created a HUMINT cell to provide general intelligence support to the division. Personnel in the remaining companies and two augmentees from the corps Tactical Exploitation Battalion made up this team. Additionally, the division G2 sent the CI officer from the G2 CI section. After five days, the team was augmented with three additional Spanish linguists. We established MP support before the team deployed, with a link-up occurring during initial manifest. The entire package deployed as part of division troops. This relatively large section provided considerable support to the division's CI/IPW effort.

The MI battalion's assault technical control and analysis element (TCAE) deployed as part of the

division assault CP. This element jumped in with three PRC-77 radios, three KY-57 speech security sets, and a three-day supply of batteries. Two radio teletypewriter (RATT) rig operators also jumped in to operate the battalion's RATT rig that had been heavy dropped. In our battalion, the S3 heads the assault TCAE during emergency deployments. The S3 and everyone else on the team had previously trained together during division and corps emergency deployment readiness exercises (EDRE). The prior training went a long way toward forging a combat ready team.

Communications Problems

The nonlinear battlefield is characterized by increased distances between elements. Such was the case during Operation JUST CAUSE. Inherent problems we faced were reduced communications capabilities and a more decentralized intelligence reporting system. Current FM VHF manpacked radio systems used by airborne and light tactical units don't provide enough power and range for dispersed operations. Tactical communications were normally handled by low wattage PRC-77 radios. The one exception was a few high mobility multipurpose wheeled vehicles (HMMWV) that were heavy dropped. These were later mounted with higher powered VRC series radios that had been manpacked and dropped.

By doctrine, the TCAE controls and tasks all communications intercept equipment, and it synthesizes reports from the TA cells. What happened with our maneuver brigade at the Torrijos Airport illustrated the weaknesses of current MI communications. During the first 72 hours, the TCAE was in contact with the brigade TA cell and was well within radio range. However, once the battalion task forces deployed, the brigade TA cell was out of VHF range of its PRD-10 and PRD-11 low level voice intercept (LLVI) teams. Later, the TA cell moved "forward" with the brigade CP and assumed its mission at Panama Viejo. Although in contact with two of the three teams, the TA cell could no longer communicate with the division TCAE still at Torrijos. We finally solved the problem by adding multichannel secure voice communications.

Because of the distances between elements, TCAE tasking and transmission suffered. The centralized SIGINT tasking and reporting system was decentralized since the TCAE was sometimes out of range of its TA cell. This didn't hinder intelligence reporting to the task forces, but it did slow down SIGINT-derived reporting from the TCAE to the G2. Consequently, tasking and transmission to and from the battalion was sporadic and, at times, nonexistent.

HUMINT reporting to and from the MI battalion CP also suffered. We gave the battalion command frequency to the HUMINT net to laterally pass information among the HUMINT teams. This net wasn't an intelligence reporting net, but a working net which gave the teams access to each other's sources and allowed the comparison of black, white, and gray lists. This "information sharing net" had been sorely lacking during previous exercises. Although a sound concept, it was plagued by problems similar to those that prevented the TA cell and LLVI teams from communicating at great distances. But when this net was fully operational, it provided a stream of HUMINT information, which proved to be invaluable to our success.

If tactical intelligence in support of light contingency units is to have a greater role on the nonlinear battlefield, we need a reliable tactical manpacked radio system that can range out to 20 or 30 kilometers, distances envisioned by the AirLand Operations-Future concept.

Temporary Solution

We tried many field expedient solutions, but they had their limitations. Normally, teams jump and deploy with the antenna heads of RC-292 antennas, transmission cable, and some communications wire. This provides an increased range of VHF communications over the standard long whip antennas, as long as a building or other structure is available to support the antenna head. Precut long wire antennas also provide some advantage, but still limit the teams' mobility.

A solution would be to deploy retransmission teams to bridge the communications gaps. However, current airborne modified table of organization and equipment afford only vehicle-mounted VRC series radios. These are often unavailable during the first hours of conflict because of competing divisional priority vehicle lists. Additionally, retransmission teams would have to deploy between the operational and security perimeters of the various task forces, exposing them to interdiction or capture. Even so, the battalion often conducts helicopter swing load exercises to simulate the need to insert retransmission teams to link critical communications nodes.

Realistically, it's unlikely helicopters would be dedicated to support the MI effort during an actual conflict. For longer distances, the organic RATT rigs are quite reliable, but also may not be available during the initial hours of combat. Once again, the solution is a better high-powered tactical and manpacked radio system. If we're serious about the nonlinear battlefield, we must devote more money and effort to the tactical communications system of MI contingency organizations.

A related issue for airborne and light units is the airborne low-level, voice-intercept (LLVI) equipment's weight. A popular expression in the battalion rings true: "You haven't lived until you've jumped out of an aircraft with a 150-pound rucksack strapped to your body." Jumping this bulky equipment is only half the problem. Having to carry it in rucksacks for extended periods is the other half, especially when LLVI teams have to keep up with foot soldiers carrying lighter loads. Airborne and light forces need lighter LLVI equipment. Commercial lightweight scanner equipment is a good alternative for units that can purchase locally. Although these products don't have the direction-finding accuracy of military LLVI equipment, some provide line-of-bearing accuracy, which is responsive and often preferred.

How Much HUMINT?

The big money-maker during Operation JUST CAUSE was HUMINT. The qualifier was the willingness of the Panamanian people to provide information about PDF personnel and arms cache sites. HUMINT teams provided the bulk of intelligence produced by all the supporting direct support and general support (GS) elements. At times, the sheer numbers of captured enemy soldiers and displaced personnel were overwhelming.

Within six to eight hours after the airborne assault into Torrijos, a HUMINT team began screening and interrogation operations at the main airport terminal. Approximately 350 captured or detained personnel were in a makeshift assembly area outside the main entrance to the terminal. For 72 hours, the interrogation and CI team screened these people. Some proved to be PDF personnel in disguise. Others were airline passengers waiting to board flights. Many were airport officials and employees whose loyalties were questionable. The volume and complexity of the operation proved very challenging indeed to the small team.

The questions we never answered are: How long could this element have functioned if these numbers had continued? At what point would the effort begin to decrease in returns? Luckily, after the initial large group of detainees, the numbers were more manageable: Twenty arrived one day, 40 more another day, and so on. It was still a challenge, though, as black listed and other PDF personnel were weeded out and evacuated to the Joint Intelligence Task Force (JINTF) EPW compound for further interrogation.

The example also highlights another problem. Current MI organizations have a much higher ratio of SIGINT to HUMINT personnel. With the exclusion of GSR/REMBASS and long-range surveillance detachment (LRSD) personnel, this ratio is four to one. Only when you include GSR/REMBASS and long-range surveillance personnel does the ratio balance out. But still, it doesn't alleviate the shortage of counterintelligence personnel and interrogators. One obvious solution is to increase manning levels for those specialities. Then, a more effective and viable 24-hour operational capability could be maintained at direct support and general support levels.

The other solution depends on a larger augmentation from the corps MI Tactical Exploitation Battalion. However, competing priorities often divert many assets that otherwise could support this mission. The

whole issue of ownership of tactical MI assets plays a big part in the capability of the divisional MI unit to conduct its share of battlefield interrogations efficiently enough to sustain itself over the long haul.

Thus far, this discussion has focused on screening and interrogating EPWs and displaced persons. However, a much larger problem HUMINT teams faced was the inability to rapidly exploit captured documents. The effort put into this task was equally monumental, but couldn't be done nearly as well as this most important source of information warranted. Again, the limiting factors were personnel shortages and the priority given to screening and interrogations. To solve this, we relegated document exploitation almost exclusively to SIGINT linguists in the battalion task forces. Qualified stateside linguists with area expertise were air-landed and pressed into service, but were subsequently committed to the CI/IPW effort or used as interpreters by ground commanders. The stacks of captured documents continued to grow, and we eventually shipped them out to the Joint Intelligence Task Force document exploitation facility.

Conclusions

The AirLand Operations-Future concept is accurate in assessing that future conflict will demand a highly trained Army. We must be ready to deploy while keeping the flexibility needed to tailor a combat force to meet global challenges. Flexibility will be maintained by ensuring a force mix that includes airborne, light, special forces, and armor/mechanized units. The vary nature of global warfare requires a close working relationship and a joint mind-set with sister services. MI will have to support them all. Despite some minor operational problems, MI is a sound and proven concept that only needs occasional retooling and refining.

This last year has produced extreme swings through the operational continuum. This is a clear indicator that the next conflict will probably be as different from the previous one as JUST CAUSE was from DESERT SHIELD/STORM. A careful study of this kind of contingency operation and an analysis within the context of the type and level of conflict it represents is a surefire way to ensure MI doctrine and concepts maintain the adaptability and flexibility needed to support a changing Army.

Operations JUST CAUSE was a glimpse of what MI doctrine and concepts are up against in light and airborne units. Chances are the observations extracted from this operation may fall into the proverbial "lessons learned" category which often characterizes our endless search for reinvention. However, if simply repeating those experiences and lessons of past conflicts serves to drive a point home, then the point should be it's time to relook our MI formula for success and apply those small, but important, ideas toward ensuring that our tactical intelligence organization remains the finest support organization in the profession of arms.

Operation DESERT SHIELD/STORM

On 2 August 1990, Iraq invaded its oil-rich and defenseless neighbor Kuwait. The United Nations Security Council condemned the attack and four days later invoked economic sanctions against Iraq. Operation DESERT SHIELD officially began on 7 August and by 9 November President George Bush was announcing that as many as 400,000 U.S. troops were slated to be deployed to the Persian Gulf. The U.N. resolved on 29 November to use "all necessary means" to oust Iraqi forces from Kuwait and gave them a deadline of 15 January 1991 to do so. Three days before the deadline, the U.S. Congress granted President Bush the authority to employ military force. The day after the deadline for Iraqi withdrawal passed, on 16 January, the U.S. and coalition forces launched a massive air strike against strategic targets in Kuwait and Iraq that opened the DESERT STORM phase of the operation. The ground attack began on 24 February. One hundred hours later, on 28 February, Iraq agreed to a temporary cease-fire and it became permanent on 3 March when they accepted conditions for a permanent end to the shooting.

A key to the quick and overwhelming victory was the rapid and efficient mobilization of logistic forces to support the campaign. The 22d Support Command marshaled 300,000 soldiers, 12,000 tracked combat vehicles, and over 100,000 wheeled vehicles in support of the U.S. Army Central Command's combat forces.

In the Army's history of the Gulf War called Certain Victory, Brig. Gen. Robert H. Scales, Jr., gave an idea of some of the problems Army intelligence faced in that conflict. There was the lack of Arab linguists, notably those familiar with the Iraqi dialect; a paucity of HUMINT from the closed, tightly supervised Iraqi society; the limited use of radio or radar by the Iraqis to deny SIGINT; and the absence of good maps of the Kuwaiti theater.

One of the advantages for the U.S. forces was its familiarity with the Soviet equipment it would encounter, the fruit of years of technical intelligence directed at the Soviet Union.

Some units, like the 101st Airborne Division, enjoyed good linguist support. The 132 linguists of the 101st were instrumental in debriefing some 400 Kuwaiti refugees before the DESERT STORM phase.

Another difficulty was the scope of the operations themselves. The land area was large and intelligence had the early mission of enforcing the blockade of Iraq, one that required all air, sea, and ground traffic to be monitored 24 hours a day. As the crisis worsened and military action became a possibility, thousands of targets within Iraq and Kuwait had to be identified and photographed and the deployments and movements of enemy forces had to be plotted. Overhead reconnaissance had to be deployed in a map-making effort for the theater of operations.

The aerial recon effort was hampered by the deletion from the inventory the previous year of the SR-71 Blackbird. This aircraft's high-altitude and high-speed allowed it to photograph 30-mile swaths of enemy territory at 2,000 miles per hour and do so outside the range of air defense weapons.

Because of the requirement for a rapid buildup of large numbers of troops in the theater, the combat units were sent in first, followed by their supporting units. So in the first months of the crisis, the troops on the ground were blinded by the lack of their own tactical intelligence which arrived over the next five months. Assigned to XVIII Airborne Corps, the 15th MI Battalion did not arrive until mid-October to provide the Army's only aerial collection. To reinforce INSCOM signals intelligence in the theater, the 204th MI Battalion was deployed from Europe.

Tactical intelligence, or information on the specific enemy formations expected to be engaged, was produced at Corps level and below. It flowed upward from battalion, brigade, division and corps "2" shops, eventually coming together at the 513th MI Brigade, a unit under the operational control of ARCENT, where it was fused with strategic intelligence pulled down from national levels of intelligence gathering. This information was intended to give the theater commander a broad overview of the developing situation. The Foreign Materiel Intelligence Battalion of the 513th MI Brigade was kept busy exploiting an unprecedented windfall of captured equipment. They were assisted by members of the U.S. Army

Foreign Science and Technology Center. Upon its return to the U.S. after Desert Storm, the 513th would relocate to Fort Gordon, GA, where it would collocate with a new Regional SIGINT Operations Center (RSOC).

The commander in the field had much more technology to deploy and many more decisions to make than any of his predecessors in history. But with all the added complexities, he had little tactical information to go on, either because his organic intelligence units had not yet become operational in the theater, or if they had deployed they were positioned far to the rear to avoid tipping off the enemy of allied intentions. It was not until 19 January when the intelligence units moved into to their forward positions that they could begin to work on those enemy units to their front. The strategic intelligence collected by national-level agencies was of little use to the commander, except in those cases where imagery located enemy emplacements to his front. The Defense Intelligence Agency was not staffed or trained to provide the kind of tactical intelligence a field commander needs. Scales cited an example of a national analyst who saw Iraqi troops movements as training maneuvers while an experienced Army officer "familiar with the last-minute starts and stops of tactical maneuver saw the moves as a final shift to attack positions."

At the Department of Defense, a Joint Intelligence Center was set up in August to combine the service-specific tactical intelligence. The DOD Joint Intelligence Center was the work of Brig. Gen. John Stewart, Jr., who drew heavily upon the Army personnel in the Intelligence and Threat Analysis Center. The Army's Intelligence and Threat Analysis Center produced templates showing every Iraqi division in and around Kuwait on 1:50,000 scale maps. They depicted Iraqi obstacle defenses, tanks, armored vehicles, artillery tubes, vehicles, command posts, and supply dumps, and were updated daily right up to the end of the war. General Stewart was transferred to the theater in December to function full time as the ARCENT, or Third Army, G2. The CENTCOM J2 was Brig. Gen. John Leide.

High above the cradle of land between the Tigris and Euphrates Rivers in February 1991 was amassed the most impressive array of intelligence-gathering esoterica ever assembled in one place. It was as if civilization, now in the prime of life, had returned to its birthplace to show off what it had learned over the intervening years.

The intelligence arsenal was not only hovering dome-like over the nation of Iraq, but encircling it on the ground. It contained a little galaxy of satellites like the Keyhole, which was said to be able to see things as small as a compact disc, or the cloud-piercing Lacrosse designed to keep its eye on the movements of the Warsaw Pact forces. In addition to the picture-taking satellites, there were the listening kind, like the Magnum and Vortex.

In the earth's atmosphere cruised 23 different kinds of aircraft, adding their imagery, electronic and eavesdropping capabilities to the fray. The U2s alone took more than one million feet of film. Enemy airspace was cross-hatched with allied aircraft, mostly American, bristling with antennae. Rivet Joint and Senior Span platforms locked on enemy communications frequencies. Notably missing was the SR-71 Blackbird which had been mothballed a year earlier.

Imagery piled up in Saudi Arabia by the truckload. By one author's estimate, "there were 200 tons of intelligence 'product'" by war's end. This unprecedented volume caused problems for the hundreds of analysts stretched in a chain from the Joint Imagery Production Complex at Riyadh Air Base, to CENTCOM's Joint Intelligence Center, to the Pentagon's own JIC, to the National Photographic Interpretation Center in the Navy Yard in D.C. The workload was too overwhelming and the process could not meet the demand for timely answers, especially in the realm of Battlefield Damage Assessment.

The question of just how degraded the enemy units actually were would be a point of contention between the military on the ground in the theater who were able to factor in gun camera footage, defector reports and other close-in sources of intelligence, and the more cautious CIA which relied mainly on satellite pictures. From the point of view of the ground commander, it was better to err on the side of lower damage than be surprised by an enemy stronger than expected.

With as many as 3,000 sorties per day, BDA was a tough picture to bring into focus. There were subjective factors like the characteristically optimistic pilots' reports, sometimes called "ego BDAs," and

natural obstacles like cloud cover and imprecise wide-angle photos. To arrive at some kind of consistent baseline, different formulas were used and then discarded if they proved flawed. Eventually, by early February Brig. Gen. Stewart, put in charge of BDA by the CINC, arrived at a formula that seemed to give a reasonable basis for estimating the enemy's losses and effective strength. He assigned his highest confidence to high-resolution U2 photos, gave a 50 percent weight to the F-111 and F-15E gun-camera footage, and reduced A-10 pilot reports to one-third. SIGINT was of little use since the Iraqis were all but off the air. He proofed his resulting figures by concentrating a second time on a few enemy units and comparing the results with his initial estimates. If they were the same, he could confirm that his formula was consistent. Stewart had to justify his methods and his assessments to Defense Secretary Richard Cheney and JCS Chairman Gen. Colin Powell on 9 February when those officials spent a day in Riyadh being briefed by Gen. Schwarzkopf and his staff.

Satellite coverage produced vast amounts of photos, but never enough to satisfy tactical commanders who were desperate for detailed photography of targets in their area of responsibility. There were not always processes in place to disseminate satellite imagery at the national level down to the tactical users. An exception was the XVIII Corps which, as the nation's contingency force, had their own satellite transmission capability, the Tactical Exploitation of National Capabilities (TENCAP) Imagery Exploitation System, back at Fort Bragg. The Army force structure had eliminated the aerial exploitation units at division and corps level, choosing to depend on imagery produced at higher levels and transmitted to them via digital bandwidths. The communications systems for this imagery was still in development and not ready for the battlefield. The gap was filled with off-the-shelf software and prototype equipment.

Two battlefield surveillance systems were deployed in Operation DESERT SHIELD/STORM with remarkable success. These were the Joint Surveillance Target Attack Radar System (JSTARS) and the unmanned aerial vehicle (UAV). The JSTARS was in developmental stages. It consisted of a synthetic aperture radar mounted in an Air Force Boeing 707 that could operate in a targeting mode or as a surveillance system, or in both modes simultaneously. The near-real-time information passed back to air or artillery weapons systems was detailed enough to target attacks while the surveillance field of vision was 25x20 kilometers, large enough to watch movement in the entire Kuwaiti theater of operations. The system allowed the commander to see to a depth of 150 kilometers in all kinds of weather.

A JSTARS package was deployed to Saudi Arabia in mid-January. It consisted of two E-8A aircraft (specially modified Boeing 707s), and six ground station modules. Each ground station was manned by a sergeant and two specialists. They were located at CENTAF Tactical Air Command Center, ARCENT Main, ARCENT Forward, XVIII Corps, VII Corps, and with the Marine headquarters. Special modifications were made to the two aircraft to enhance datalink connectivity to the Riyadh-based headquarters. Self-defense systems were added to the planes to increase their survivability in the event air superiority was not achieved. The range of the JSTARS was also doubled for the Gulf War deployment. The JSTARS increased the limited coverage that was provided by Side-Looking Airborne Radar (SLAR) missions flown by the Mohawk battalions assigned to VII and XVIII Corps.

On one occasion when B-52s arrived on station and cloud cover prevented them from finding targets, the CENTCOM Air Force commander, Lt. Gen. Charles A. Horner, turned to JSTARS. Pfc. Timothy Reagan on duty in the ground station pointed out an Iraqi convoy that he had on his screen and Horner directed the air strike against it, destroying the convoy and demonstrating the value of both JSTARS and its operators.

When the ground war began, JSTARS provided the ARCENT G2 the capability of tracking all Iraqi movements and determine what their plan of action was. These situational assessments were extremely important to the corps commanders who could readjust their attack plans at various points in the decision-making process.

To give the commander a better close-in picture, the Pioneer Unmanned Aerial Vehicles (UAV) were called upon. There were six Pioneer UAV systems deployed to Operation DESERT STORM—One each on the battleships Wisconsin and Missouri, three with the Marine Corps, and one system deployed with an

Army task force. The latter was a 36-man platoon of five UAVs sent from Fort Huachuca on 10 January. It arrived in the theater on 26 January and launched its first mission on 1 February in the VII Corps. The soldiers from Company E, 304th MI Battalion, 111th MI Brigade, operated a 400-pound, prop-driven airplane mounted with a television camera that was capable of day or night monitoring of the battlefield. The UAV had two ground pilots, one to make takeoffs and landings and another to fly it down range. It had a payload operator to monitor the onboard camera, a mechanic to perform maintenance, and an electronic technician. The Pioneer, with its 100-mile range, 24-hour capability, and near-real-time data link, could provide targeting information and act in a reconnaissance role.

TROJAN SPIRIT, a satellite that transmitted secure voice and digital imagery to trailer-mounted terminals, was another system that was rushed to the battlefield from the testing labs. It arrived in February, was fielded and its operators trained.

Despite the admirable efforts to rush the means of disseminating imagery intelligence to the field, it was a case of too little too late, and most of the mountain of imagery was moved by old fashioned courier. "Throughout January and February, daily couriers carried 200 pounds of annotated photos, maps overprinted with Iraqi templates, and other intelligence documents, moving 27 tons of material from one end of the theater to the other." The commanders were often frustrated in their efforts to get up-to-date intelligence.

To fill the void of qualified linguists, Lt. Gen. Charles B. Eichelberger, Deputy Chief of Staff for Intelligence, paved the way to recruit and train young Kuwaitis in the United States, most of them attending college, and ship them to the theater as sergeants in the Kuwaiti Army to act as linguists in intelligence units.

The DIA formed support teams at the various corps and ARCENT to access the national military intelligence data and imagery base.

A four-day target development effort, focused the national collection systems, the theater U-2 and RF-4C Phantom II reconnaissance aircraft, corps aerial exploitation battalions, and the airborne radars they employed against a host of possible key targets like command and control facilities, artillery, armored formations and logistics bases. Enemy deserters were also questioned about targets. A priority list was developed by the ARCENT G2 and revalidated right up until they were attacked.

A high-profile job for Army intelligence was locating the Scud launchers that played such havoc with the coalition. The long-range, high-frequency signals used to control the Scud missiles were vulnerable to jamming by the TLQ-17 Sandcrab, manned by a platoon from the 201st MI Battalion. The jamming forced the Iraqis to resort to less secure communications which could be intercepted. But the effort expended to direct intelligence assets at the Scud sites slowed the targeting missions for the ground war.

The Sandcrab jammer was positioned in northern Saudi Arabia, with its 5,000 watts of power and a massive transmitter. It was ready to go to work jamming enemy transmissions, raising the old electronic warfare debate of whether it was better to forego jamming in favor of intercepting the enemy signals. A compromise was reached whereby Sandcrab jammed only the encoded beginnings of Iraqi transmissions, causing the enemy to become confused and send in the clear.

The Iraqi COMSEC would have to be rated as good however, but this was achieved by not talking on the radio at all or using secure land lines that had not been severed by the bombing, a measure that crippled the ability of units to communicate readily. Despite their prolonged silence, just before the ground war allied intelligence targeted for destruction what were believed to be signal nodes, but left four intact in the hopes that the enemy would resume radio contact in the heat of battle. And they did, leading to valuable NSA intercepts which, in conjunction with JSTARS, brought into view a vivid picture of their movements and intentions.

The commander of allied forces in the Gulf War, Gen. H. Norman Schwarzkopf, gave military intelligence top marks during Congressional testimony on 12 June. Overall, he said, "it was excellent. We had very, very good intelligence support. We had terrific people. We had a lot of capabilities." But he did find areas, like battlefield damage assessment, real-time imagery, interoperability, and overly caveated

intelligence estimates, that could use improvement. His experience was incorporated into the findings of the House Armed Services Committee's report on Intelligence Successes and Failures in Operations DESERT SHIELD/STORM issued on 16 August 1993. The Oversight and Investigations Subcommittee concluded that:

> *Intelligence collection…was generally very good and deserving of praise.*
>
> *Intelligence distribution overall was very poor, particularly when it came to serving air fighting units. Both the hardware and the people failed.*
>
> *Intelligence analysis was mixed. The concept was brilliant. but the count of dead Iraqi tanks, APCs and artillery pieces exposed a major systemic failure in the ability to accurately make battlefield damage assessment.*

Overall, DESERT STORM could be adjudged as an overwhelming success for U.S. Army intelligence. In addition to the above-stated opinion of the commander of the coalition effort, this conclusion was expressed by a captured Iraqi officer who noted:

> *We had a great appreciation of your intelligence system; we knew from our experience in the Iranian War that at all times you could see us during day and night and knew where we were on the ground. If we communicated, you could both hear us and target us, and if we talked too long, you would target us and destroy us with your ordnance. On the other hand, as we looked at our intelligence system, we had no idea where you were on the ground, we had no intelligence system capabilities to see what your dispositions were, and we had no way to monitor your communications. We knew you were going to attack only when you overran our front line positions…."*

Ironically, when talking about his own Army's lack of sophisticated intelligence, he could have been describing the U.S. Army in the early stages of the Korean War just 40 years earlier.

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*JOHN F. STEWART, JR. * DESERT STORM: A Third U.S. Army Perspective*

DESERT STORM made history for Army Intelligence. In certain ways, it set the foundation for the future conduct of tactical intelligence operations. While it is not yet clear just how well MI did, I believe MI's contribution will eventually be recognized as a major factor in the complete success of this operation and in the unprecedented low casualties that were incurred. The bottom line is, MI succeeded in DESERT STORM.

MI Firsts

DESERT STORM marked many firsts for MI. We fielded seven divisional MI battalions and three MI brigades. For the first time, an unmanned aerial vehicle (UAV) flew in support of Army forces in combat. The Joint Surveillance Target Attack Radar System (Joint STARS) also supported combat operations. Still prototypes, these systems 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.

This article is written from the view of the G2, Army Forces Central Command (ARCENT) (or 3d U.S. Army). There are many other viewpoints, and we have and will read and hear about them as well. This article covers two broad areas: Challenges of Army MI from the field, and broad MI issues as developed by the division, corps, and ARCENT commanders and their G2s.

Organizational Challenges

Initially, our biggest challenge was to establish the Intelligence and Electronic Warfare (IEW) team and system for the war that loomed in early 1991. Before December, the ARCENT IEW G2 team was small, tailored to support a one-corps field army. In December, however, the President (and the Coalition) gave U.S. Army Central Command (CENTCOM) an offensive mission. As a result, Army forces in Saudi Arabia received reinforcement from the VII Corps. This placed new demands on ARCENT IEW, and a significant metamorphosis occurred. The focal point of intelligence operations shifted from the XVIII Airborne Corps to ARCENT.

Under CG, ARCENT, guidance, G2 attacked several major tasks at once. We focused on building trust with corps and division commanders. We learned they were not satisfied with intelligence. They felt they were not getting appropriate support or attention from intelligence, and they wanted imagery photographs. We also had to provide linguists to the corps and the 513th MI Brigade so they could accomplish their intelligence missions.

To enhance intelligence communications, computer, and collection capabilities, we needed to develop an IEW architecture which would link ARCENT with CENTCOM and the Army Intelligence Agency (AIA), and would link ARCENT and corps and divisions together. We expected the arrival of several major systems, such as the UAV, Joint STARS, and TROJAN, which we had to integrate into the overall architecture. Finally, we had to build an ARCENT G2 team.

In late December, ARCENT G2 and the echelons above corps intelligence center (EACIC), 513th MI Brigade, had few people. ARCENT G2 simply could not support 3d U.S. Army in combat with the capabilities on hand. So, we integrated G2 staff sections into the EACIC. This fostered unity of effort. We also brought in other experienced people, nearly doubling our size but, more importantly, maturing our staff significantly.

We at ARCENT G2 worked hard to ensure we were part of the overall CENTCOM intelligence team

and responded to the coach—the CENTCOM J2. I met with the J2, Brigadier General Jack Leide, almost daily during January and February before G-Day. He, in turn, gave us a superb liaison officer and provided leadership and support. CENTCOM and ARCENT coordinated all intelligence judgments fully, and published no estimate that was not fully agreed upon.

Liaison was another crucial aspect of this joint operation. Our liaison elements and individuals performed innumerable, invaluable functions, especially identifying problems, exchanging intelligence, and keeping communication open between higher and lower headquarters as well as laterally.

Intelligence Focused Downwardly

One key task in DESERT STORM was to focus all intelligence endeavors downwardly. From the ARCENT view, that was on the corps, and through it to the captains, lieutenants, and sergeants who fought the war.

In exercises, intelligence often supports training objectives which 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 ARCENT and corps commanders wanted and what intelligence provided did not come about automatically or easily. Building a system that would provide specific intelligence for specific purposes was a very complex task. In completing the task, we faced many challenges.

Building the System—The Challenges

Following is a discussion of some of the challenges we faced.

Finite Collection Systems. First, intelligence collection assets were finite. The enemy limited them even more by only infrequently using their radios. Until just before G-Day, we had very limited HUMINT. Thus, we relied on imagery, which, in turn, was limited by weather and capability shortfalls. We could take wide angle, blurry photos or spot, clear photos. The former severely hampered accuracy. The latter provided clear pictures 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 linebacker through a high-powered, stationary telescope. There was not much in between.

Competing Requirements. Second, we had competing requirements, many of them from the corps themselves. 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, we were just building the intelligence team at ARCENT level during the December-January period, at the very time when the corps demanded increasing volumes and levels of intelligence detail. By early February, we could respond to corps needs. Then, the ARCENT G2 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 to rapidly transmit intelligence requirements and responses (including imagery). We built 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 DIA. With DODIIS, we could transmit a relatively high volume of imagery from AIA to ARCENT. Next, we established communications, computer, and imagery links with corps and divisions.

With outside help, we deployed 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 Corps and its divisions. XVIII Airborne Corps used its Tactical Exploitation of National Capabilities (TENCAP) Tactical High Mobility Terminals and other

systems to link with downlinks at Fort Bragg for its digital imagery support. This communications system connected Army tactical commanders from remote areas in Saudi Arabia and Iraq with ARCENT and AIA in Riyadh and Washington, respectively.

IEW Synchronization. Fifth, we developed the IEW Synchronization Matrix. Using backwards planning we looked at what intelligence corps commanders needed and when they needed it, and then planned how to get it to them. The matrix took into account how we would collect, how we would disseminate, and what obstacles we would have to work around.

The 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 with the S2/G2. The S2 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, because tactical units were held back at depths which exceeded their organic assets' capabilities for collection. And until units closed with the enemy, that is how it was. It was imperative that national collection and departmental production (read AIA) focus on tactical intelligence.

AIA provided key support to ground units deploying. They produced an unclassified "How They Fight" pamphlet, 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, weapon systems, medical intelligence, and chemical and biological warfare capabilities.

Another aspect of the challenge of providing top-down tactical intelligence was the need to define what the corps wanted. The system the corps should have used was broken. Of over 400 requests for information (RFIs) we received, only 20 applied to the corps commanders' stated campaign needs. The others were extraneous. Perhaps they held some importance at one time, but they largely fell into the category of academic curiosity. Nevertheless, ARCENT was busily directing limited collection platforms and scarce analytical efforts toward answering these less-than-useful RFI. We changed that by mid-January.

Dissemination. Seventh, a little known or understood task in intelligence is dissemination. Clearly, any basic course lieutenant knows that if a commander does not receive intelligence in time, it is worthless. Dissemination was the Achilles heel of MI. The normal intelligence digital communications system (AUTODIN) was overloaded, and it stayed that way throughout the operation. Immediate reports arrived in 12 hours. Too many bogus requests for information helped cause that, but there were other reasons. In short, the established communications system could not support intelligence requirements. To answer that, we developed the communications capabilities described below, which worked superbly to division level. Dissemination remained a problem below division.

As we produced hard copy material, we had to develop a courier dissemination system, out-of-hide. "Of course, the Army always has done this kind of creative, innovative work, 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 great distances.

We fielded ASPO-SIDS to help disseminate digital imagery, 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's forward headquarters, or "Lucky TAC," as it was called from General Patton's days, provided an invaluable service. We used it to communicate face-to-face with corps and division commanders and staffs and to solve problems quickly "on the ground." Lucky TAC's G2 operations focused on solving intelligence problems. The ARCENT deputy G2 forward visited the corps personally almost daily to facilitate this. Lucky TAC's problem solving focus was vital to the success of ARCENT's IEW operations.

Operational Challenges

ARCENT G2 had two missions during the air campaign: Develop and validate high-value targets in support of the ARCENT commander's and CINCCENT's priorities; and provide timely, accurate BDA on Iraqi ground forces in the Kuwaiti Theater of Operations (KTO). Both posed major challenges for us.

Targeting. In close, continuous teamwork with ARCENT G3, 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.

We planned the targeting cycle four days in advance, to give us time to direct imagery and signals collection assets and to develop accurate target descriptions and locations. 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 intelligence collection and the resultant target development were sometimes out of synchronization. On those occasions, we often had limited targets. Later in the air campaign, we built a more complete data base of targets, which 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, because early on in the air campaign, Iraqi missile air defense still posed a threat to theater imagery aircraft. 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.

Battlefield Damage Assessment. ARCENT was responsible for assessing battle damage in the KTO and providing our assessment to CENTCOM. The reasoning went like this: If the start of the ground campaign would occur when air attacks had reduced Iraqi armor and artillery by 50 percent, then ARCENT should make that call, since the Army was to conduct the main attack. The G2 was ARCENT's agent for battle damage assessment (BDA).

BDA 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 immediately imaged. It does not happen that way. Bad weather, enemy air defense, competition for imagery elsewhere, and numerous other factors absolutely preclude following 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 analyst with clear overhead photography often has a hard time telling which tanks are broken and which are not.

Thus, we had to develop a formula and methodology for estimating BDA. We counted two factors: 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 and loiter longer, and A-10 pilots train in the close air support role. Because of weather, altitude, 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.

Emotion arose from two disparate sectors. On one hand, the Air Force believed our BDA was too conservative. On the other hand, national intelligence agencies, using national imagery largely, claimed our BDA was too liberal. They estimated enemy strengths at 80 to 90 percent a few days before G-Day, when we assessed them to be approaching 50 percent. No one really liked the ARCENT BDA, but it was the best we had, and as it turned out, it was about right.

Arabic Linguists. Another significant challenge for ARCENT involved linguists. Arabic is one of the most difficult languages for Americans to learn. Moreover, Army requirements for Arabic are significantly less than other languages. These two factors added up to less Arabic linguists available than we needed for intelligence, let alone for civil affairs and basic interpretation purposes.

One answer to this problem 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 signals intelligence (SIGINT) interceptors and transcribers, interrogators, and interpreters, and they served superbly. This is an outstanding example of Reserve Component MI capabilities and support.

A major response to linguist shortages, organized by DA, DCSINT, was to arrange for Kuwaitis to reinforce U.S. Army intelligence units. They served mainly as SIGINT intercept operators but also helped with document exploitation and interpreter work. The phrase, "We couldn't have done it without 'em," comes to mind.

Maps. As usual, maps 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. 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.

IEW Emerging Issues

After DESERT STORM, we set about to capture the emerging lessons, large and small, from the battlefield operating system called IEW. 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 G2 staffs and MI units. On the last day, we conducted an executive session with the corps and division G2s, and we came to a consensus on the major issues which emerged for IEW.

We tried to separate those things which were unique to this conflict from those which were worth full consideration because of their universal application. 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 that prescribed how intelligence succeeded or failed to support. With these assessments as a baseline, we began to formulate lessons learned.

There were many common themes among the Grenada, Panama, and Gulf operations that impacted intelligence. U.S. forces deployed from numerous bases, over 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.

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 myriad sudden and urgent wartime requirements. In DESERT STORM, 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 lower priority areas caused other problems as well. In Grenada and the Gulf, 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, commanders demanded photographs and the Army had only a limited capability to provide them. Other important intelligence areas common to each operation were 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, and large numbers of defectors and other captives. SIGINT operations also had consistent commonality in Grenada, Panama, and the Gulf. For disparate reasons, there was almost no tactical SIGINT collection.

Deployment of MI units is also similar in the three operations. Intelligence units tended to deploy well

after combat elements. In the Gulf War, echelons above corps (EAC) intelligence units and capabilities arrived virtually after the corps required intelligence products. This was due to command decisions based on risks and trade-offs.

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 these three experiences of the last ten years portend more about what the Army will face than what it will not.

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 over-match potential foes in strategy, deployment, tactics, and technology. 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 U.S., 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.

What follows are MI issues, from the 3d U.S. Army perspective, that emerged and were agreed upon by corps and division senior intelligence officers.

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. Commanders at all levels have said they were consistently pleased with the performance of their G2s and S2s. Notably, captains filled over 90 percent of battalion-level S2 positions. Their experience, professionalism, and high degree of technical competence paid great dividends. Not surprisingly, MI women soldiers and officers performed superbly throughout the battle. G2s and MI commanders unanimously recommend opening more MI positions in divisional units to women.

IEW Communications. Army IEW requires better communication and dissemination systems. Those systems, need, of course, to be based on the three Rs: Rugged, reliable, and redundant. They also must include embedded communications in every system in which we can do that. Intelligence must arrive on time, or it is useless.

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 readouts. They want photography. We need to consider improving:

—Electronic dissemination capabilities in clarity and in reproduction ability.

—Methods to provide wide-area, high resolution imagery.

—The means to disseminate hard copy imagery.

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, we did not know whether the Republican Guards had moved. This was because national imagery was serving higher priorities, and, in any case, national imagery does not have the capability we recommend here.

One final point on 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 their command level. In sum, the single weakest MI capability in terms of getting product into the hands of tactical commanders is imagery intelligence (IMINT). We need to make short-term as well as long-term fixes.

Joint STARS. Joint STARS was the single most valuable intelligence and targeting collection system in DESERT STORM. Joint STARS contributed to every "key read" during the ground war. It showed the lack of enemy movement just before the attack. It gave the first and continuous signs of Iraqi withdrawal from Kuwait and was the target development instrument we used for the air attack on fleeing Iraqi convoys on the main road north of Al Jahra. Joint STARS showed the Republican Guards heavy divisions establishing their defense of Basrah. Although, there was other intelligence on all of this, Joint STARS was absolutely instrumental.

As we understand it, current doctrine calls for Joint STARS ground station modules (GSMs) at corps and division. We suggest field army should also have GSM capability. In a multiple corps operation, Joint STARS supports the commanders' need to synchronize the field army battle.

One issue brought up in the use of Joint STARS and the UAV concerned whether these are targeting or intelligence (read situational development) assets. Joint STARS provided a full view of the enemy situation. It told us whether or not enemy units were moving, and if so, in what strength. Then 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 cannot always attack all targets, the situational development function is crucial to target selection. We need to ensure this message is clearly read and understood.

The overall question of targeting versus 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 Joint STARS and the UAV depend on the commander's priorities and the METT-T factors—mission, enemy, terrain, troops, and time. We simply do not have enough collection systems to relegate them to one specific function.

Balanced Collection Capability. We need to balance intelligence collection capabilities at corps and divisions, and current TRADOC plans call for just that. The MI battalion (CEWI) idea at division is a good one, but CEWI's contributions to URGENT FURY, JUST CAUSE, and now DESERT STORM were significantly less than expected. Currently, the units are too heavy in SIGINT, too light in HUMINT, and lack an IMINT capability. We must make sure there is a good mix of capabilities that are designed to maintain technological over-match and to give CEWI more collection flexibility.

IEW Doctrine and Training. The basics of IEW doctrine are sound, but some areas need refinement. We developed a means to focus all intelligence efforts on specific commander requirements which emanated from the ground campaign plan. The IEW Synchronization Matrix satisfied this requirement. It goes beyond a simple chart that matches requirements with collection assets, and it is much more than a collection plan. The IEW Synchronization Matrix is, in fact, a methodology that links all intelligence functions of the cycle to an end result: Intelligence specifically tailored to a commander's requirement and delivered at the time of his choosing.

The IEW Synchronization Matrix served our purpose in DESERT STORM because of the inherent nature of the operation. DESERT STORM was a fast tempo offensive operation, characterized by—

—Units being held well back from the enemy before the attack.

—Deception.

—Quick and continuous movement.

—A need for highly detailed knowledge of the enemy.

Tactical intelligence needed to flow downwardly. Under normal doctrinal circumstances, G2s support their own commander. 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 be organized to provide tactical intelligence to echelons well below their own.

The IEW Synchronization Matrix, 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 its intelligence support characteristics should have on overall doctrine; however, we are convinced that the offensive conducted here caused us to use 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 intelligence from their own staffs and from higher tended to be historic or specific facts without a predictive element describing what it all meant and what the enemy would do. We should review how we train S2s and analysts to emphasize the assessment and estimative aspects of their work. Moreover, we should move away from periodic intelligence summaries and toward tailored graphic intelligence reports. This would reduce pressure on communications and focus intelligence on value added to the commander's scheme of maneuver.

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 requests for information (as described above) and especially on linking collection with production. The IEW Synchronization Matrix 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 in peacetime, to throw assets over an area and vacuum everything up, leaving it to the analyst to sort out the answers to 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 (TCAE) within the intelligence center (IC) served intelligence well. The XVIII Airborne Corps did this as well, and their operation benefited greatly from it. We suggest that a review be made to determine whether TCAE/IC collocation is appropriate at division level and whether integration (vice collocation) should be done. We lean in the latter direction, but this issue 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 a SIGINT traffic analyst could do each other's work. Moreover, there is potential for an interrogator and a SIGINT intercept operator to perform each other's roles.

EAC Intelligence Support. Theater field army intelligence played a crucial role in DESERT STORM. The 513th MI 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 STORM. That aside, its operations were the glue that cemented 3d Army's MI efforts. The 513th proved the EAC MI Brigade concept fully. Their SIGINT and interrogation operations were superb.

Finally, it is clear that having an MI unit with commander and staff working in support of a G2 is a doctrinal tenet that MI must hold. Before and during DESERT STORM, we in 3d Army G2 (like everyone else) had myriad requirements. We met them largely because of the 513th MI Brigade's capabilities and responsiveness.

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.

Army Operations Require Army Intelligence. Another major lesson is that to support Army operations, Army intelligence was absolutely required. 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 G2s, MI unit commanders, and their subordinates understood ground combat operations and the intelligence requirements thereof.

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 know 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 versus tactical and operational intelligence in support of commanders who have to make decisions that affect soldier's 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. Intelligence must be complementary for each commander.

MI Reserve Forces. One last comment on MI Reserves deserves mention here. With the exception of a CI unit that served a short period during DESERT STORM, the 142d MI Battalion, and the 24th MIBARS from New York, MI Reserve units largely played no role in DESERT STORM. There are many reasons for this, lack of readiness being the main one. Nevertheless, we conclude from this operation that MI Reservists contributed the most as individual with special skills: Language, regional experience, special interrogation capabilities, to name a few. Individual augmentation by Reservists gave us flexibility to reinforce units with the special skills required for evolving missions. We suggest, therefore, that as our MI strategy for the Reserve Component.

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. More than any other, three key elements contributed to the success of Army MI:

—A constant, urgent intelligence focus on tactical support downwardly.

—Superbly training MI soldiers.

—An IEW communications and computer system.

Aside from technology, our efforts to focus and draw from all levels of intelligence to serve the needs of war fighters 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 Ml 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 for combat battalion S2 positions. The years of developing doctrine, techniques, and procedures, and, most importantly, well prepared people, paid off clearly in the Gulf. That trend, more than any other, is our legacy and our future. For in the final analysis, it was the MI soldier and leader who made this MI operation a success.

*RICHARD J. QUIRK, III * A Division G-2's Perspective of Operation DESERT STORM*[5]

[Between 24 January and 23 February 1991] the division concealed itself in its tactical assembly areas just south of the Iraqi border. We finalized our plans and conducted one more map exercise on 13 February. We also gathered the vital information which is available only at the eleventh hour. And then, on the afternoon of 24 February, this phase ended with a bang as we began our ground attack.

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The AH-64 Apache as a Collector

From the early months of 1989, we had been discussing the use of the Apache gun camera as a source of aerial photography. Unlike the camera on the OH-58D observation helicopter, the Apache's was equipped with a videotape unit. I had discussed the possibilities with Maj. Gen. Barry R. McCaffrey soon after his arrival, and he directed that we obtain videotape playback units for ourselves, the maneuver brigades and the cavalry. We received these tape drives after our arrival in Saudi Arabia, but we did not train on them until this phase. By early February, division surveillance elements had located a military facility, which we identified as an air defense early warning radar site, several kilometers north of the border. As part of the division Reconnaissance and Surveillance (R&S) operation, the Aviation Brigade used its Apaches to make a videotape of the site, and the tape came to us for interpretation.

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The Apache Helicopter is a superb tool for photographic reconnaissance. The OH-58D should be given a similar video recording capability. Although additional imagery interpreters are needed in the division, the enterprising G2 can make a major contribution to the division by establishing a complete intelligence discipline built around this new collector. …I am convinced that we lost valuable information because of our inability to interpret and use information which sat latent on videotapes in the Aviation Brigade.

* * *

Cavalry Border Operations

The CG's stated goal was to accomplish Reconnaissance and Surveillance without announcing that we had a major force in the area. The division cavalry squadron therefore performed its screen mission as much for counter-reconnaissance as for reconnaissance and surveillance purposes. In order to operate in a non-alerting way, no tactical vehicles were permitted within sight of the border. The cavalry conducted its patrols in civilian jeeps. We attempted to obtain Saudi border guard vehicles, but without success. Later, on 16 February, the CG authorized the squadron to use U.S. wheeled vehicles along the border, but tracked vehicles remained hidden from view until a few days prior to the attack. The cavalry made good use of hand-held, commercial video cameras in their border guard role, giving us a chance to get familiar with the border without sending large parties forward.

The Continued Value of Higher Level Intelligence

Although the division began to provide some of its own information during this period, national level intelligence continued to dominate, for several reasons. First, our area of major concern was deep in the zone, generally more than one hundred kilometers from our positions. This limited the effectiveness of

most of our systems. Second, because of the open desert terrain and the relative sparseness of enemy signal communications, imagery was the most productive type of intelligence before the battle was joined. Most imagery came from the national level.

During this phase, the national intelligence system supported us well. The only difficulty which we had with using that information was the same one that we had always had; national level reports do not provide many of the desirable information qualifiers (source, reliability, time, precision, and validity), which can transform a piece of unevaluated data into a negotiable instrument. We were forced, as we had always been, to incorporate higher level information into our files and our analyses indiscriminately, evaluating its accuracy based only on what we could surmise of its method of collection. We continued to run into discrepancies, disagreements, and inaccuracies in higher level intelligence, and we could only bear up under the inevitable criticism which we received from our own commanders in these circumstances. Hard copy photographs continued to be the only higher level intelligence items which we could evaluate with some certainty, and those photos therefore continued to be vital.

Surprisingly, one of the most valuable sources of intelligence during this period came from several rolls of high level aircraft-derived duplicate-positive (a positive duplicate on film rather than paper) imagery which had been taken back in November of 1990. One of our aggressive imagery interpreter sergeants hopped a ride on a C12 aircraft to Riyadh, and came back with these rolls, which she then catalogued and interpreted for the division. Their beautiful, high-resolution imagery covered virtually the entire division zone. We were able to look at any area of concern to any of our consumers. This was truly a database, holding a wealth of information, which we could query based on our needs. Having that raw imagery in the division saved the entire intelligence community a great deal of time and effort. We didn't have to wait for high level analysts to read the imagery or to write time consuming reports. We didn't have to wait in line for a high level collector to image an area just so that we could have a look at terrain, which had changed little in the past two months. The single roll served many purposes, especially in terrain analysis support. With it, we surveyed each potential Long-Range Surveillance (LRS) Detachment position. We wrote detailed estimates on each objective. We finalized the division routes and acquainted the engineers with the terrain that they would mark. This roll imagery did not replace the large-scale, high-resolution, current imagery of our objectives which commanders needed in order to visualize those objectives and enemy positions there. It did, however, meet many other pressing needs, and did so very economically. We should have been given such a roll of basic coverage as soon as our attack zone was assigned. We should have been given a similar roll depicting the port of entry while we were still in the United States. Given such imagery, and a capability to reproduce portions of it as large prints, we could have satisfied 50 to 60 percent of all pressing requirements from our division consumers. The remaining requirements would have required current imagery.

* * *

An Intelligence Gap between Army and Air Force

During Phase 6, as the air war rumbled on, an armada of allied aircraft overflew enemy territory. Hundreds of pilots, who would never walk on the ground which we would later fight on, were becoming much more familiar with that terrain than we were. Each day, the Air Force rolled up the substance of its pilot debriefings and produced several invaluable intelligence summaries. We learned, however, that we were just scratching the surface of the information which the pilots had in their heads. One particular instance stands out. On approximately 19 February, five days prior to the beginning of the ground attack, the division's Air Liaison Officer (ALO) briefed that Air Force pilots had sighted enemy elements in defensive positions just outside of our left boundary and about fifteen kilometers north of the border. After the brief, I prodded him for more information, and, within a few hours, he had traced the name and organization of the pilot who had made the report. I immediately contacted that pilot, and spent an hour on

the phone learning far more than I had ever known about the area to our front. The pilot had seen what he estimated to be a company dug in, backed up by a section of AAA guns. His information was so detailed that I was able to build a clear picture of the position over the phone. The area was in the 101st Airborne Division zone, so I forwarded a report to the G2 of the 101st. Two days later a helicopter from the 101st Airborne Division (AASSLT) found the position, and took an entire battalion of prisoners from that site. The information had been accurate.

I realized then that there was a treasure of detailed intelligence available from the pilots of the Air Force, but that the information was not being distributed by the summary cables sent by ARCENT. Somehow, we needed to tap that resource. The commanding general had recognized this potential more than a month earlier, and had directed that we find a way to monitor the traffic from the Airborne Command and Control Center (ABCCC) which orbited above us and controlled the air war. However, neither the ALO nor I had made that happen. Whether the ABCCC or some other center was the answer to our needs we were never able to discover, and this valuable source of intelligence was not tapped by us. I presented our needs to the Corps G2 on several occasions, and he worked to open better channels of communication, but we never saw any evidence at the division level that the wealth of information available in our Air Force pilots was provided to those who could use it on the ground.

* * *

Somehow, Army and Air Force elements at operator levels, pilots and G2s, must be able to access each other and to share detailed information which they need, but which higher echelons do not. The challenge in this case is to isolate information of value.

* * *

The Challenge of "Giving Intelligence" Comes to a Head

As ground combat operations became imminent, the full weight of our responsibility came to rest upon our shoulders. In the G2 Staff, even the young soldiers who identified best with their own buddies seemed to gain immeasurably in dedication and vision. Section animosities and personal incompatibilities seemed to dissolve. Each person appeared to be living a vow that he or she would not be the cause of misinformation or failure. It was a very positive environment, one of selflessness and virtue. I recall on many occasions observing the dynamics and behaviors of all soldiers with wonder. These were truly men and women at their best; perhaps the best that they would ever be….

Yet, although we were under great self-imposed pressures, we were also under even greater pressures than ever from our own leaders. The commanding general pushed us toward our limits, but, thankfully, also refined the direction of our efforts. He reinforced his call to become output, not process-oriented. In the week since our jump forward to the Division Tactical Analysis Center (DTAC), the previous confidence and feeling of accomplishment had ceased. This was a different mission, and we had much learn. His dissatisfaction with our inability to portray the facts and to focus collection on his uncertainties became more intense and more obvious to all. He became more and more precise in his questioning at major briefings, and less patient with anything except direct, factual answers. I now gave most briefings myself; the pressure was by then too great to impose upon any junior officer in the G2 staff. Nevertheless, the CG's concerns about our intelligence products continued to grow. By early February, I believed that our reputation with the CG had hit bottom. He was so critical during formal briefings that maneuver brigade commanders sometimes stopped by afterward to pat me on the back and offer words of encouragement. On one occasion, just after a particularly tough briefing, an officer passed me a note from my driver, PFC Mattie, telling me to keep up a good spirit. He had heard the critique from outside the tent.

The CG's pressure also came in the form of direct and specific guidance. We spent many hours together, with him describing his need for fact or at least for qualified assumptions, and his need for answers to his questions. He was driving me toward becoming responsive to his clearly stated needs, not to an

idealistic list of staff-generated Priority Intelligence Requirements (PIR). My inability to provide the information did not reduce its importance. I had to find a way to account for information and to present it in a form that he could understand and accept with confidence.

On several occasions, he told me that I was a very effective intelligence officer, but that my organization was not. I believed then and still do now that such a statement was incongruous. The G2 must succeed or fail with the organization which he has built. After almost two years in that job, I knew, and I think that he knew, that I could not be any more effective than my staff was. This was a tough time, when I leaned on Lt. Col. Bob Reuss, the MI Battalion Commander, and Col. Burckhardt, the Corps G2, who helped me to find a way to overcome the problem.

By early February, the CG had apparently concluded that I was too much a part of the system, and the problem, to be able to clearly see the solution. At a point of frustration, he did three things which helped to refocus our efforts and to unite the entire division in its intelligence process. First, he directed that I reorganize the G2 Staff. Second, he reoriented the senior commanders and staff officers of the division toward a clear intelligence purpose and process. Third, he sat with the Chief of Staff, my senior officers and myself, and clarified our direction and purpose by describing the role of intelligence in the command.

Reorganizing G2 at the Top

Early in February, only three weeks before the scheduled attack, he told me that a part of the G2 problem was organization. I needed a deputy who could serve as the G2 in my absence, and who could remove some of the process-related responsibility from my shoulders, freeing me to become the chief analyst. I had previously favored assigning the most tactically experienced major as the G2 Operations Officer and making him the kingpin of daily G2 activities. My Deputy was an administrator, but not an experienced tactical intelligence officer. I had placed myself in the position of systems manager, rather than analyst, and the CG had correctly identified this as a problem. He believed that the G2 Operations position could now be filled by a bright, aggressive captain, provided that I was personally involved in the intelligence product.

I was concerned about reorganizing at this late date, but clearly something had to be done. My former Operations Officer became the Deputy. For a new operations Officer, I chose a strong captain who enjoyed the CG's confidence, (realizing how important this was) who had succeeded in getting information across to the CG in previous briefings. I transferred my former Deputy to supervise G2 Operations at the Division Rear Command Post.

This reassignment of personnel was an important step in aligning ourselves with the CG's needs. The new Deputy quickly became the daily supervisor of the division intelligence system, solving many organizational and procedural issues without involving me. The new Operations Officer did very well, and was fully supported by her well-established section. The former deputy effectively trained himself to take a brigade S2 position at a later time.

* * *

Fixing the Analysis Problem: A Fusion Process At Last

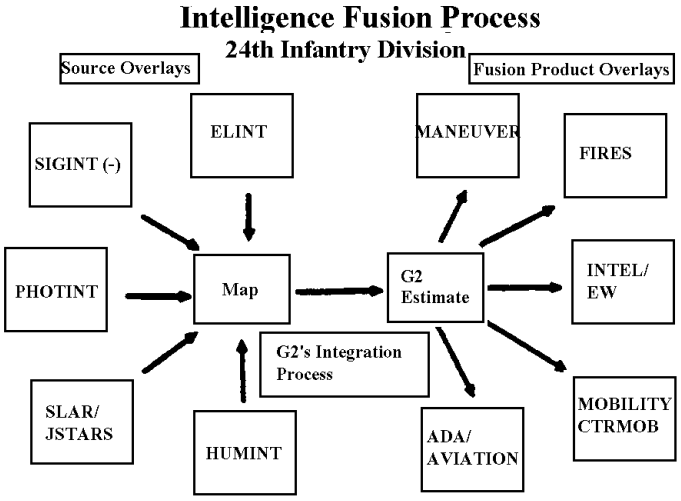

Figure 1. February 1991

With the duties of managing the process turned over to the Deputy G2, and with the senior members of the G2 Staff able to share the CG's vision a bit more clearly, I turned my focus at last to the business of analysis. We instituted an all-source fusion process which served the division very well in its ground battles (Figure 1).

The focal point and target for all decision-oriented analysis became my brain. The G2 Staff's objective became one of working together to help me develop a coherent intelligence picture, so that I could present that picture to the commander. I would serve as the integrator of our intelligence product, just as the commanding general would be the final integrator of information from all functions.

The process which we developed was cyclic, culminating at 1400 hours daily, when we held a "G2 Skunkworks Meeting" at the All-Source Intelligence Center (ASIC). At that meeting, all analytical sections briefed me and other senior G2 officers on the intelligence developed within their disciplines. The Skunkworks Meeting began with the senior Order of Battle Technician presenting the major events of the last twenty-four hours as he saw them. This briefing served merely as a backdrop for the working effort to follow. In sequence, each of the chief analysts then stood up at the briefing map and attached an overlay representing the material developed by a single intelligence source. He or she briefed the reports received and his or her analysis of the picture from a single-source point of view.

Referring to his ELINT overlay, our senior ELINT analyst briefed the current radar situation and discussed the validity, reliability, precision, and time of information for each report. New information was presented in a different color than old.

The chief imagery interpreter presented two overlays. The first was the result of the previous day's Joint Surveillance Target Attack Radar System (JSTARS), Side-Looking Airborne Radar (SLAR), and photo missions. The second was a compiled overlay showing as many as 30 days worth of enemy locations from PHOTINT, taken from higher level photo reports and from our own readouts of imagery. As the days went by, these overlays became extremely cluttered, but clear patterns developed. With the enemy in the defense, much of the old information could still be accurate, and we erased the old only when the overlays became unreadable. The area was so large and we had such spotty coverage of it (Perhaps because we were the theater's secondary effort) that only this kind of a compiled picture could contain all enemy locations. At the same time, we examined the most recent sightings, in order to understand the

current activity.

Next, a senior representative of the MI Battalion's TCAE (Technical Control and Analysis Element) added his one-day Communications Intercept/Direction Finding overlay over the others, and briefed the technical specifications of the communications observed during the period. He then combined daily coverage with an overlay which recorded all intercepts for a longer period, up to two weeks, in order to highlight patterns.

On some occasions, there were other overlays to add to these, but normally at this point, we would cover the overlays with a clean piece of acetate, and then it would be my turn. I sought patterns, as well as confirmed information, and built what I believed to be the tactical situation, using standard graphics symbols, and qualifying the information based on the sources and the qualities of the contributing reports. I developed my observations and conclusions aloud and on the overlay, enabling the analysts to correct my words, offer advice, or take exception as I developed this staff officer's perception. When we were all satisfied, or at least assured that our voices had been heard, the analysts of the ASIC finalized the overlay, and the G2 Operations NCO made a copy, taking it back to the Main CP for distribution there. I normally stayed at the ASIC for some time after to look at the evidence, particularly the photography received.

This was a difficult process, a real learning process, especially for the analysts, who found themselves called to defend each piece of information and to reason their own way through discrepancies. I got a good sense for the sophistication of the analysts, and came to realize that I had really been asking too much to expect them to understand friendly tactical issues and priorities or even the complexities of intelligence reports which came from disciplines other than their own. It became obvious in time that I had to take the center role in the fusion process if I were to explain or defend the product to the commanding general. Fusion cannot take place without a point of focus, a single mind as to the target. Otherwise, we are dealing with consensus building, groupthink, and a lack of unity in the product. This fusion effort was my duty.

The process worked extremely well. We were able to generate our requirements for future collection right from the fusion overlay. The G2 Operations Officer, the person who most often had to brief and answer concerning the current situation, was fully in line with the ASIC and myself. The G2 Plans Officer also attended, giving her a daily midcourse correction to assist in her planning efforts. The G2 Targeting Officer obtained many of her target nominations at this meeting. Meanwhile, the analytical section of the ASIC came to understand my perception of the enemy situation. They had direct input in the process, and were encouraged to argue over points of contention. Discrepancies and unknowns caused by differing sources of information became visible, and the analysts returned to their sections with questions they wanted to answer. This was the first time that I had seen a fusion process work at the tactical level. I strongly recommend its adoption and further development by other G2s. Fusion must be trained in peacetime, and the mechanics of this process are simple enough to develop even in a training environment.

The quality of our intelligence appeared to improve immediately. At his first briefing, the commanding general seemed very satisfied that we had cracked the code at last. Although each of us had to perfect our roles in the process, this new ability to fuse information turned us around, and resulted in a daily product which the CG believed in and used.

The ASIC-TCAE Link

As we began using the new fusion process, we discovered the lack of coordination between the ASIC and the MI Battalion's TCAE. Our skunkworks meetings provided the battalion with its first feedback, and quickly oriented its internal analysis efforts toward the division's needs. Nevertheless, we only scraped the surface in analyzing and integrating SIGINT, just as with the other disciplines. Two or three months of this experience against live targets would have made us a very sound and mature analysis and management system. This is a challenge that will require innovative training programs in peacetime divisions.

Producing Intelligence from a Standing Start

Our inability to begin collecting in September, or even November, took a very heavy toll on the division's intelligence structure. I know now that we did not fight hard enough for the right to begin collection months before. Training this system is unbelievably challenging. We should never have permitted our hands to be tied so tightly. Unfortunately I didn't realize the cost of this inactivity. I do not believe that any of us understood how much readiness we had lost by our lack of a long train-up period. This need for train-up and the development of target familiarity should become a major lesson from Desert Storm.

We did not do a good job in helping our leaders to appreciate the amount of work which must be done before the battle if intelligence is to be produced when it is needed. Our current peacetime training practices may not enable us to jump immediately into combat in an unfamiliar place. I suspect that we must somehow increase the intensity of our peacetime intelligence training programs, supplementing our sound, maneuver-oriented events, such as the National Training Center, with extended team and unit immersions into potential target areas. Our collectors and analysts must be technically proficient as well as tactically proficient. All elements of the division intelligence system, from G2 Operations and the Collection Management and Dissemination Section, through the TCAE, and to the collectors must train together as a team on real targets, producing intelligence for our commanders. TROJAN and a schedule of real-world deployments promise to be the best such training devices.

Unit Reporting

The lack of intelligence collection prior to this time had led to another weakness in our divisional system; our subordinate commands did not report information regularly. Although, even before we deployed, we had devised a two-hour reporting requirement using the PERINTREP (Periodic Intelligence Report)/INTREP (Intelligence Report)/SITREP (Situation Report) form, we did not put the regimen into force until Phase 4. During the first six months of the deployment, there simply was not enough activity across the division to justify such frequent reporting. Our use of the report forms had been sloppy, and we therefore became sloppy in our reporting. We had to struggle with this problem in February, trying to get all elements back on a solid reporting schedule. At that time our multichannel telephone system served as our only link, because we were under strict EMCON (emission control). Reporting was spotty at best. It was only at the very last of this phase, when EMCON was lifted on 17 February, that we were able to fully implement our reporting procedure. We had not instilled the discipline in this reporting system that I had hoped to achieve through continued use. Reporting downward from division, we kept to the schedule. Units received their reports from us regularly. However, many subordinate units did not report to us nearly as often.

It was during this phase, on 9 February, that the commanding general visited ARCENT headquarters in Riyadh, and reviewed the intelligence holdings there. He saw photography of our objective areas, photography which we had not been able to obtain. He personally requested the help of the ARCENT G2 in obtaining copies of the photos. They began arriving in the middle of the month. Combining the photos with information from divisional and other sources, we began to construct an extremely detailed picture of the enormous enemy logistics base located just south of the Euphrates river and east of the city of An Nasiriyah, directly on our axis of advance. The destruction of that materiel and the enemy units guarding it would be a major part of our mission. In these last few days before the attack, however, the focus of our analysis was on our immediate objectives along those first two hundred kilometers of the attack. Only after the attack commenced did we have the opportunity to fully exploit the imagery of the logistics base.

Our First Critical Intelligence Report

On 21 February, we gained the first important product from our new intelligence fusion process. Bringing together the division's reconnaissance reporting and the information provided by all higher systems, we produced an accurate assessment of enemy forces located along those first two hundred kilometers of our route. We estimated the total forces to be a brigade or less across the entire division front. We did not expect to find any sizable enemy units south of objectives Gray and Brown, although there appeared to be some small mobile security units and perhaps a few platoon strong-points in the zone. We saw no evidence of organized enemy defenses. The commanding general agreed with this staff perception, and decided to run an air reconnaissance by UH-60 to objectives Brown and Gray on the 21st, the day prior to LRS team insertions, to check the chosen hide-site locations. The recon confirmed the work of our planners, imagery interpreters, and terrain analysts. The LRS sites were satisfactory. Perhaps more significant, the flight detected practically no enemy presence out to one hundred kilometers in depth. Our first substantial product was a success; it had integrated a wide range of information into a clear and accurate set of tactically relevant conclusions. The accuracy of these conclusions increased our confidence and our motivation to continue developing the process.

The Operational Security (OPSEC) Program Bears Fruit

As stated above, the division departed from its former defensive positions under strict Emission Control (EMCON) conditions. We used few radios until EMCON was lifted on 17 February, however, the CG redefined the EMCON requirement as necessary to meet minimum operational needs. By 27 January, he had specified that division-to-brigade communications would continue on multichannel systems as the primary means; while brigade-to-battalion communications should rely on messengers, but could use FM sparingly. Battalion and below would basically be on radio listening silence, the commanders could make exceptions for emergencies. As stated earlier, his intent was to prevent the enemy from recognizing that a large force had moved into the area. He told his commanders that, "Out of three thousand radios (in the division), keep twenty-nine hundred off the air." Within a day or two, he instructed the commanders to rotate the radio usage on a daily basis to ensure that all equipment was operational. He also required the use of low power and directional antennas to the greatest extent possible.

After 1 February, there was a strong sense of aggressiveness developing in the Corps. Major commands began pushing for opportunities to conduct obtrusive reconnaissance. Although the CG was prepared to step up such measures on order, he was against tipping our hand. His guidance to the division when it arrived on the border was to "Hunker down, work on your equipment and rest your people." Our OPSEC program was important, because it was protecting our force and keeping sharp our tool of surprise. Although he demanded good information on the enemy and terrain, the CG balanced those demands with his concern for OPSEC. It was gratifying to see that, from almost a standing start, a command could implement a moderately good OPSEC program based only upon a recognition of its importance and given only a little time. The key, as always, was a commander who supported OPSEC, and integrated it into his overall concept of operation.

The CG directed a wide range of deception activities, to include a demonstration focused at making our attack appear to be aimed at the center of our sector. Additionally, he required that the MI battalion prepare a number of harassing imitative communications deception measures that could be used by jammer operators as the opportunities arose.

Counterintelligence Operations

Our counterintelligence agents were extremely busy throughout this period. The CG's initial guidance for counterintelligence was simply to find enemy collectors and check unit OPSEC measures. I believed strongly that we should focus our few agents on denying enemy HUMINT from uncovering our most precious secrets, which the CG had identified as "When and where we would attack." To me, directing

the CI effort was a surgical procedure. I was sure that there existed a lucrative objective against which the agents should be directed. However, I was far too engrossed in other actions at this late date to determine what that ideal mission and target might be. As was so often the case, the generally accurate intuition of a combat commander hit upon a 70 percent solution which was far superior to my uncertainty. He directed a modus operandi for the agents; to work with the MP's and Civil Affairs specialists in the towns and among the refugees. Make use of low level informants and casual contacts to identify the enemy agents in the area. The CG was convinced that there were a few intelligence agents, saboteurs, and even terrorist teams in the area, and he believed that placing the CI agents into the right circumstances would be the best way to uncover those few threats. On approximately 1 February, he further expanded their mission, directing them to perform liaison with Saudi Border Guard authorities in order to estimate the amount of general enemy activity occurring along the border. He also used the teams to visit each of the Saudi posts along our front, posts which had been abandoned by the Saudis several days before, to observe the opposing Iraqi border posts and report on activity there.

The CI agents did most of their work as members of CI/CA/MP teams (Counterintelligence/Civil Affairs/Military Police) stationed in the local towns. These teams, each with their own linguist, performed liaison with the local government officials. They based their operations at local refugee clearance facilities, where they sought to identify enemy agents, and to provide assistance to U.S. units bringing in detainees and refugees. The CI team's lack of communications was somewhat aided by the MP's. This use of CI was extremely effective; the few CI agents were able to magnify their efforts through the action of the CA teams, the MP's and local agencies, often gaining access to groups of people or officials with valuable CI information.

In retrospect, I am convinced that the CG had it right. His simple approach placed the CI agents in proximity to the enemy HUMINT threat, and provided them with support from other agencies which dealt with the local people. The CI teams did make a difference in the outcome of the battle. I am equally convinced that the division commander must have his own CI capability, just so that he can direct it toward his specific needs. Although there is a school of thought that advocates centralizing counterintelligence assets at echelons above division, there is no doubt in my mind that the division must have its own, responsive, anti-HUMINT capability in any crisis.

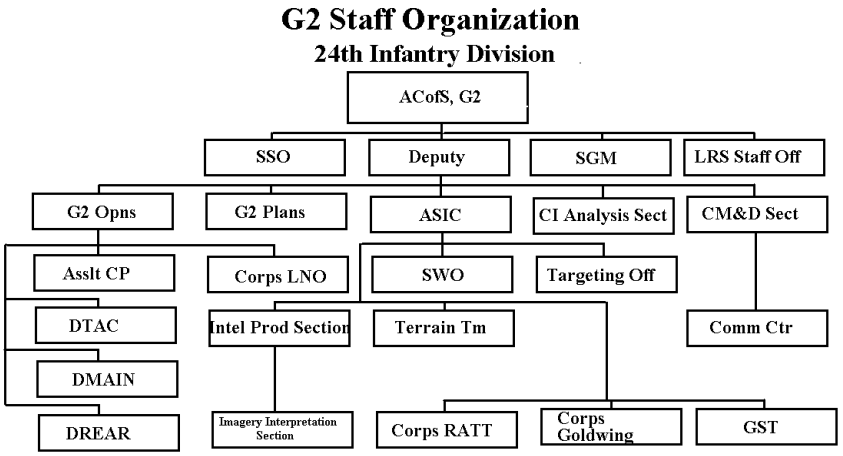

Figure 2. Organization in DESERT STORM

Figure 2 reflects the formal organization established within the G2 Staff just prior to the Ground War. This chart depicts the breakdown of the Current Operations Section at all division CP's. Current informa-

tion was unified by the G2 operations officer. Also shown are the G2 Targeting Officer, LRS Staff Officer, and Liaison Officer positions, which we had gradually established since the deployment had begun. Note that many of these sections were brought together by this time inside the ASIC fence and worked at the Sensitive Compartmentalized Information (SCI) level. Several of them had little need for access to compartmented information, but they all had need of access to each other. By collocating them in the ASIC, by giving them large working areas, such as our GP Medium Fusion tent, and by establishing a process which brought their efforts together as well, we created the right atmosphere for intelligence fusion.

By this time, my most tactically experienced major was positioned as the deputy. The major who had the most analytical experience as well as Command and General Staff College training served as the ASIC Chief. I had placed extremely bright and capable captains in charge of operations, Plans, CI Analysis, and Collection Management and Dissemination (CM&D). The combat arms major who had formerly commanded the LRSD was the LRS Staff Officer. The Corps Liaison Officer (LNO) was a senior MI captain assisted by one of our best NCOS. The Targeting Officer was an aggressive MI lieutenant. Many of these officers were serving in positions demanding more grade and experience. However, they had proven themselves in the difficult days past. What they may have lacked in formal training they would now make up in on-the-job experience and energy. It was an outstanding team, and one which had finally come to grips with most of its responsibilities. In the same way, our NCOs and soldiers, almost all working in more senior positions, had become a functioning unit, with fairly well-defined duties and products.

Through tough experience, I had placed our few senior leaders in what I thought to be the key jobs. Speaking only from this experience, I would recommend to future G2s that Deputy G2 and ASIC chief be filled with the most competent field grade officers available. Reduced to its simplest definition, I believe that the G2's job is both chief analyst and manager of the intelligence system. If the G2 must operate with only two or three of his six authorized majors, it seems to make good sense to place one major over each of those two duties. The Deputy G2 is in a good position to manage the intelligence system on a day-to-day basis. The ASIC Chief is in the best position to provide the analytical support which the G2 needs to accomplish his duty as chief analyst. It is possible, though less than optimal, to fill the other duties with the bright and dedicated captains who grace our ranks today.

Figure 2 is misleading in one respect. The Deputy G2 did not become supervisor or rater for any of the section heads. He did gain considerable responsibility for managing the division intelligence system as a whole and for supervising the operation of the G2 Staff on a day-to-day basis. He also became the "Duty G2" when I slept or left the Division Main Command Post (DMAIN). However, because I had become the chief analyst, I found myself working more closely than ever with the G2 section chiefs, and I retained rating authority over them. I continue to believe that these section chiefs should be rated by the G2, in order that he can make his mark directly on their priorities and methods of operation.

The Kuwaiti Linguists

Our ten Kuwaiti linguists arrived around 17 February. At the division headquarters, we made a big fanfare out of their arrival, giving them a formal welcome by the division commander and the staff, with briefings to make them feel that they belonged to the organization. The CG personally determined their distribution, placing two with each MI company team, one with each of the four IPW teams, and two with the civil affairs teams. Because the national intelligence community had given special dispensations regarding their clearances, these few volunteers were able to play a disproportionately important role as leavening agents throughout the organization. They helped improve the language skills of our intelligence collectors, and they collected valuable information themselves.

G2 Equipment and Procedures

Our only significant shortcoming as the ground war neared was in communications. The S2s and I were nervous about the ability of the multichannel system to serve as our primary communications channel between DMAIN, DTAC, and the maneuver brigades. The signal battalion had as good a plan as could be developed. The multichannel nodes were to be carried with the various headquarters on HEMTT trucks, which were certainly dependable enough to get them to each site. The battalion had planned what seemed to be enough intermediate nodes to permit relatively reliable communications whenever the headquarters was halted for an hour or more. However, the plan involved a lot of movement. When a headquarters was moving, we would depend mostly on a thin network of single channel satellite radios linked into a division command and operations net. I could not expect to carry on routine intelligence interchanges on such an austere net. Furthermore, the distances would make FM communications difficult. We looked toward the Assault CP and the DTAC as the two elements which should be able to communicate with the forward maneuver elements. To get information to those maneuver elements, we would have to be in communication with the DTAC by multichannel. Again I placed the THMT at the DTAC where it collocated with the MI Battalion Tactical Command Post as a source of ELINT and a backup channel of communications for the DTAC G2. It could terminate the DTAC teletype circuit as long as the multichannel worked. Finally, we had Gold Wing communications from DMAIN to the MI Battalion Tactical Command Post. This was a tenuous communications system, especially considering our need to continuously report new information and to exchange current estimates. However, we would have to make this system work; there were no more communications available.

Relationships with the MI Battalion Commander

Because this phase was such a pressure-filled period, this may be the most appropriate spot to describe my relationship with the MI Battalion Commander. For several years before this assignment, I had witnessed and heard of conflicts between MI commanders and G2s. I was determined to prevent such a problem at the 24th Infantry Division. My first Division Commander, Maj. Gen. Taylor, was apparently concerned about this kind of a problem as well, because, in my first briefing he stated very clearly that he would not tolerate conflicts, and that G2 and MI Commander would sink or swim together. It was perhaps good fortune that the two battalion commanders with whom I would work, Lt. Col. Ken Allred and Lt. Col. Bobby Reuss, were total professionals in every way. I believe that we all entered into our relationships aware of past problems within the community, and equally determined that no conflict would arise. From my perspective, the situation could not have been better. Far from a pattern of disagreement, it was a pattern of mutual support that developed. If we succeeded as a military intelligence community in the division, I have their support and patience to thank for it. The three of us used several techniques which may be worth mentioning.

It was the very successful team of Colonels Bob Covalucci (G2) and Bernie Gately (Brigade Commander) at VIIth Corps who set the example for me. One of their great pieces of advice was to be careful never to allow our subordinates to draw up sides and pull us apart. There is a natural tendency at the major level and below to cast stones at “the battalion” or at “those guys at G2.” The G2 and the Battalion Commander had to establish a strong relationship, clearly intolerant of any “we-they” expressions in our subordinates. I often found it necessary to stamp out negative remarks as I heard them in the G2 staff. There could never be a question that the battalion was trying its best. At the same time, I had to be honest and forthright with the battalion commander concerning budding problems, so that the two of us could resolve them before a crisis could occur.

* * *

I believe that there are very few areas in which our duties overlapped to the point of providing a potential for conflict. He was fully employed as an executor of orders. He worked for the ADC-M and the

CG, conducting a very specialized part of the intelligence, electronic warfare, and OPSEC mission. My only connection with his effort was in drafting intelligence collection missions for G3 and commanding general approval, and as a consumer, integrating his information with the information supplied by tens of other intelligence providers. Our command group was clearly in charge of that battalion, and the battalion's successes and failures, strengths and weaknesses were subjects of discussion between commanders. I was never asked by the CG, nor did I ever offer any evaluation of the MI battalion's product. As far as I know, the MI battalion commander never had occasion to comment on the G2's work either. Our relationship, then, was similar to that between a maneuver brigade commander and the chief of staff. There was no need for conflict. We were both blessed by a division hierarchy which understood and separated command and staff issues.

It was important as a G2 to command nothing. It has been the practice in various divisions to place CI teams, the LRSD, and even Interrogation teams under the "Operational Control" of the G2. Although this approach can work, I do not believe that it can work well in combat. The G2 Staff was always overwhelmed throughout the period of our deployment. After six months of preparation in the desert, we still went to war with many of my priority tasks undone. I had no time, talent, or resources to direct the efforts of a single platoon or team other than my own. Having been a battalion commander, on the other side of the picture, I had never wanted the G2 to take away my resources or my mission. Therefore, in this division, all of these resources remained under the command and operational control of the MI battalion commander. He and his staff proved very capable of accomplishing sensitive CI missions, commanding and controlling MI company teams and attachments, and supervising the efforts of the LRSD as well as the aviation brigade's Quick Fix helicopters. Although we issued "taskings" directly to the MI Battalion or, for that matter to any other divisional unit, a tasking was a call to collect information within the guidance of current orders. To reorient any collector outside the provisions of current orders required a new order from G3. We drafted such orders and submitted them to G3 for approval. This step negated even the appearance that I somehow controlled the MI battalion or any of its assets. All orders to the battalion were integrated completely with the overall operation by the G3 and the commanding general. In reality, the G3 probably had more direct business with the MI Battalion Commander than I did.

* * *

PHASE 7. 24 FEBRUARY - 8 MARCH 91: COMBAT INTELLIGENCE SUPPORTING THE ATTACK

Our cross-border reconnaissance missions and those of adjacent commands became progressively more intrusive after 19 February, but were uncovering very little organized enemy resistance. By the dawn of 24 February, G-Day, we were all sitting on the edges of our seats waiting for the final word to begin the attack. Some ground forces would attack on this date, but our division was scheduled to hold until the 25th.

Apparently, the lack of enemy resistance encouraged more immediate action, because we received word early in the day to be ready to launch our attack by 1500 hours. At 1000 hrs the G3 issued an order advancing the Line of Departure (LD) to our Phase Line OPUS, about twenty kilometers north of the border, and requiring our units to be at the LD and in attack positions no later than 1200 hours. We began our attack at 1500 hours on the 24th.

The Command, Control and Communications Scheme

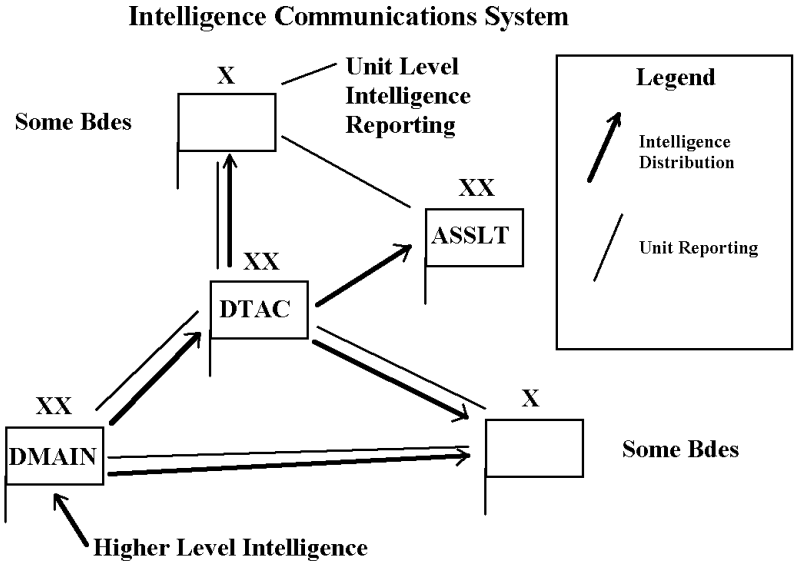

Figure 3. Planned Communications for the Attack

As the attack bounded forward, the command, control and communications structure unfolded according to a complex plan. The Division Assault CP would travel with the lead maneuver brigades. The DTAC would be the base of intelligence communications for the advancing forces, but the Assault CP would stop at intervals and establish multichannel communications with the DMAIN (Figure 3) in order for the DTAC to leapfrog forward. Between the two forward CP's, the staff should be able to communicate with most forward elements by FM radio, and with the DMAIN by multichannel. CM&D at the DMAIN would communicate directly with several of the brigades, using either FM or multichannel.

The commanding general would command from the Assault CP, which carried a full range of communications, but a very austere staff. Its only G2 representative was Capt. Jim Morris, an outstanding young captain with a great deal of battalion S2 experience. He would rely heavily on the DTAC to bring in higher level intelligence and to integrate it with the information provided by front-line units and the MI Battalion.

The DTAC G2 section was organized a bit lighter than a brigade S2 staff, with only nine personnel. Although it had the THMT (Tactical High Mobility Terminal) to provide some high level intelligence and communications, it would rely on the DMAIN for the overall division intelligence estimate, all-source analysis, weather, and the assessment of uncommitted enemy forces. It would depend upon the brigades, the separate battalions, and the MI Battalion for information on the enemy's committed forces. The DTAC had no ability to manage intelligence collection activities, counterintelligence, or LRS operations. It was fully occupied in trying to share incoming information with other division, brigade, and separate battalion command posts. It would rely on CM&D at the DMAIN to communicate directly with brigades and to carry out these functions. The DTAC's priority consumer was the commanding general, and, therefore, the Assault CP. In order to obtain and provide information, the DTAC G2 staff required good communications with the brigades, the Assault CP, and the DMAIN. Short outages in any of these paths were acceptable as long as the Assault CP remained in contact with the brigades and the DMAIN.

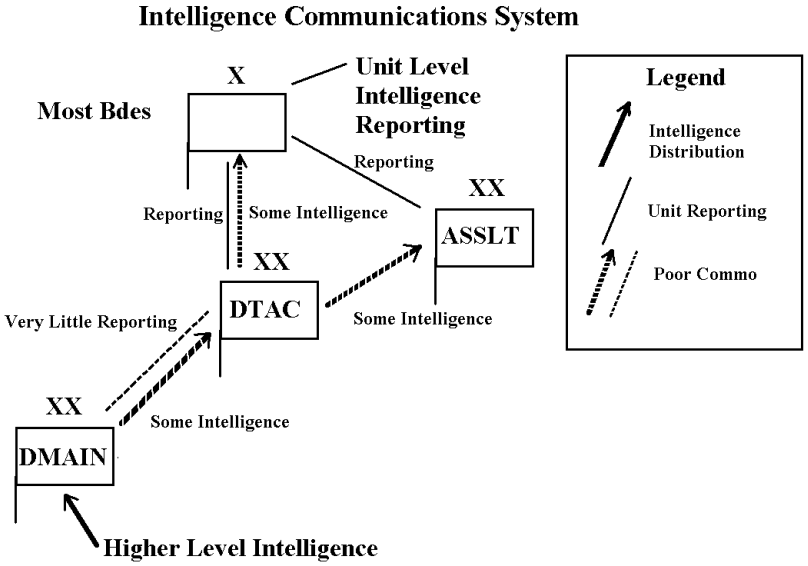

Figure 4. Communications by 26 February

During the first days of the battle, the Assault CP and the DTAC leapfrogged their way forward. The DMAIN and DTAC G2 staffs provided the analysis for the Assault CP, and the Assault CP provided continuity when the DTAC was moving. As they advanced, these two forward command posts stretched their linkage to the DMAIN and its valuable products (Figure 4). The DMAIN Collection Management and Dissemination Section soon lost FM radio contact with most of the functional brigades and separate battalions that it was supposed to service on the second FM Intelligence Net. Multichannel from DMAIN to the brigades also became undependable. The Assault CP and DTAC were therefore forced to add all advancing brigades to the already crowded primary Operations and Intelligence FM Net. The DTAC became responsible for relaying reports from virtually all of the division's brigades and battalions back to the DMAIN, and for passing all higher level intelligence down to units whenever multichannel links were disrupted between DMAIN and any subordinate command. Fortunately, at least until late on 26 February, the DTAC and the Assault CP posts were able to mutually support each other. One of the two could almost always communicate with almost any brigade or battalion via FM radio.

Supporting the Attack from the Rear

For the first two days of the battle, I remained at the DMAIN, in accordance with our divisional plan and with doctrine. From the DMAIN, I expected to integrate all available information and to develop a clear intelligence picture. From the DMAIN, I should be able to distill the needed information into its simplest form and force it through our limited communications systems. However, as the attacking force moved further and further north, I found it increasingly difficult to accomplish the intelligence function.

The Second Critical Fusion Report

After we had issued our first fusion report, covering the initial two hundred kilometers of the zone, we turned our attention to the newly arrived, high-resolution imagery of the enemy logistics base east of Tallil, the division objective for 26 and 27 February. With the help of our new fusion process, we put

together a second all-source report. It included a detailed overlay, showing the locations and dispositions of artillery, infantry, and armor units down to individual fighting positions, and a detailed description of the forty kilometer by seventy kilometer theater logistics base. Up forward, communications were limited by bad weather, range, and the constant displacement of our attacking forces. We were unable to get the information to the DTAC. Thus, I was haunted by one of the "G2's Three Burning Questions, "How do I give the commander the intelligence he needs?"

The other two burning questions were also unanswered. I was having trouble determining "What intelligence does the commander need?" My only communication with the CG was over the division command TACSAT net. Although I could talk to him over this net, I was extremely reticent to use it often. There was a battle taking place up forward and the brigade commanders there were relying on that same net. The G4 had to depend upon it, too, in order to know of emerging logistics problems. In short, we in G2 probably did not make more than six calls on the net during the first 24 hours of the attack. The CG passed a few questions back to me at the DMAIN, but he was now preoccupied with many command matters. I could not talk to him, my G2 personnel at the DTAC, or the senior S2s often enough to understand what was needed from us. In effect, the DTAC had become the G2 Operations staff for the division, and it was attempting to perform that task with relatively few people, and little higher-level intelligence. Too often, it was isolated from the DMAIN, which meant that the captain in charge there had effectively become the Division G2 in many respects.

It was also difficult to answer the remaining "burning question," "How do I get the intelligence that the commander needs?" I was out of touch with the brigades and battalions, the cavalry, and to a large extent, with the elements of the MI battalion. I had lost the ability to direct these collectors and to make use of their information.

By the afternoon of 25 February, I realized that I was in the wrong spot. I advised the Chief of Staff that I needed to travel to the DTAC; that we had an important intelligence fusion report to carry forward, and that we had not been able to track details of the intelligence situation up front by listening to the command TACSAT net. The Deputy G2 and ASIC chief would be able to run the fusion process in my absence. He approved the trip forward, and I departed for the DTAC by helicopter on the morning of 26 February, with an armload of fusion disposition overlays, and an update of message traffic on paper and diskette.

The DTAC was displacing forward, so we flew to the Assault CP, which was located at the DTAC's destination in the vicinity of Division Support Area 13 (DSA 13). Conditions there were grim. The "Operations Center" consisted of four or five M577 command tracks and M113 armored personnel carriers pulled together with a fifteen by fifteen foot open area in the middle. Two of the M577's were backed into the formation, and their rear ramps were down. There was a large tarp suspended from the tracks and covering the open area, which served as a workspace. It was cold, and the wind was blowing at perhaps twenty-five knots, bringing the sandstorm from the outside right into the command post. It seemed that everything was covered with sand. The commanding general alternated between speaking to brigade commanders on the radio, and working over the table-top situation map, pausing on each return to blow and brush off the sand which had obliterated the map surface within only a few minutes. The officers and NCOs had become inured to the conditions, but it was clear to me that the Assault CP was too spartan to permit careful reading of incoming messages and assembly of an intelligence product. It became obvious, too, that these officers would have little time for complex speculations and academic discussions. They had enough trouble marking unit symbols on the map. They needed simple, clear, and accurate information. Even from that forward location, it was difficult for me to understand the situation, and to distribute information to the brigades. We did manage to distribute the fusion report to most of the major subordinate commands. After a few hours there, I was convinced that going back to the DMAIN would put divisional intelligence further and further out of the battle. I decided to stay, and to pull intelligence forward from the DTAC, rather than to attempt to push it from the DMAIN. The CG agreed. I joined the DTAC when it arrived at the Assault CP site on the afternoon of 26 February. Being at the DTAC did not fully solve the dilemma, but it was a far better alternative than returning to the DMAIN.

Getting Information

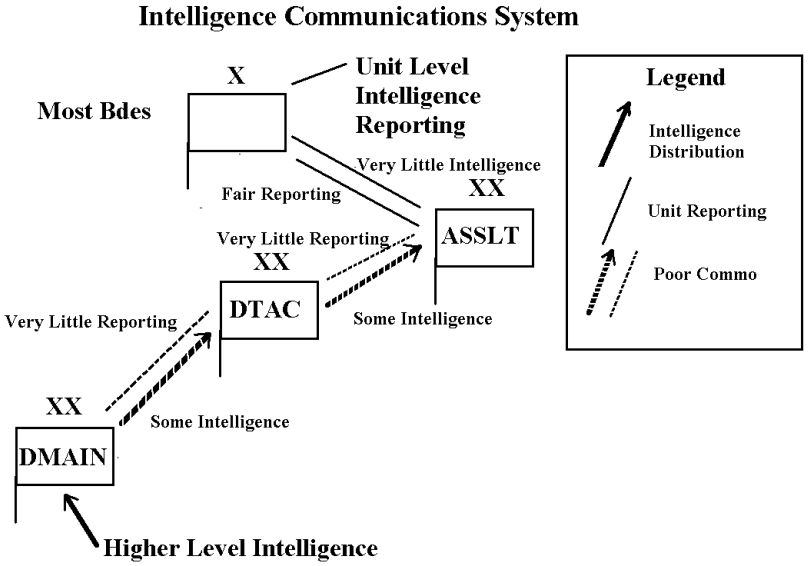

Figure 5. Communications on 26-27 February

When the maneuver forces and the Assault CP continued the attack north on the afternoon of 26 February, the DTAC remained in its new position at DSA #3. For the first time, however, it could not assist the Assault CP in communicating via FM radio to forward units, or in communicating via multichannel to the DMAIN. The communications tether was continuing to stretch. By the morning of 27 February, the maneuver forces were one hundred kilometers beyond the DTAC, and the intelligence "Network" was straining to pass needed information (Figure 5). Our ability to get information, and to consolidate it at any one point had greatly diminished. Information was now concentrating at two analytical nodes, but not moving well between them. One of the nodes, the DMAIN, had remained in its prebattle location just south of the border in Saudi Arabia. It was the concentration point for higher level intelligence, but it had lost much of its access to combat information from the division units. Its analysis was therefore less complete than previously, and it was forced to analyze only the deep and rear situations, without balancing them against the close situation. The Assault CP was the other concentration node. It had access to the combat information from the brigades. It had the best view of the ongoing close battle, but with only one G2 representative, it had little opportunity to develop that view or to consider its implication on the entire operation. The Assault CP was not capable of forwarding much of its enemy information to the DTAC or DMAIN; nor was it able to integrate much of the deep battle information produced by the DMAIN.

We at the DTAC were quite frustrated by our inability to receive information and to understand either key situation, close or deep. We were unable to perform the necessary linking and smoothing function. Communications were intermittent in either direction. Despite the difficulties, however, information did flow down during the period. We worked hard, with some success, to send division SITREPS, PERINTREPS, and INTREPS from the DTAC to those units that were within FM range and to the Assault CP. From the DMAIN, we received the third in our series of key fusion reports on the afternoon of 27 February. By this time, the attacking force had arrived in the Euphrates River Valley at objectives just east

of Tallil, had turned east, and had successfully attacked an additional sixty kilometers to Jalibah Airfield. The third fusion report, put together by G2 staff at the DMAIN, located over thirty enemy battalions and remnants of battalions which could influence the next day's objectives, the oil fields at Rumaila, another seventy kilometers to the east. After many attempts to pass this lengthy report over multichannel telephone, and as the DTAC itself was tearing down to move forward, I finally interrupted activities on the command TACSAT net to send the report. Despite the difficulty, critical information like this made its way through the communications system in time. What we could not do was share noteworthy pieces of information collected by subordinate units, unit situation reports (which expressed the intelligence estimates of those commands), and elements of evidence underlying those situation reports. There was very little grist for our analysis mill. We undoubtedly lost many valuable items of information. We had to make the best of the situation until our Assault CP and DTAC could again mutually support each other.

I realized only after the war was over that both the Assault CP and the DTAC were too light in G2 personnel to do the job. I had inadvertently organized them to be mutually dependent instead of redundant. The Assault CP depended too heavily upon others for analysis support. Although it became the concentration node for division collection, it had no ability to steer that effort, to forward the information gained, or to assemble an analyzed product. Likewise, the DTAC did not have enough personnel to perform much analysis, steerage, or management. Although the THMT and the MI battalion tactical command post were located at the DTAC, the G2 staff there was too light to coordinate among the three elements and to capitalize on the potential synergy. Considering the length of the planned attack, many DMAIN functions could have been best performed from the front. We should have weighted these forward command posts with personnel. The DTAC was probably the right location for me in the attack, but I should have added a field grade officer and one or two analysts to the Assault CP, in order to give them a two-shift, two-person capability. We tied ourselves to standard command post organizations, and failed to recognize the need to change them based upon the mission and situation at hand. Despite these shortcomings, critical intelligence did get through. As the Corps G2 often said, the glass was half full, not half empty.

Communications is the absolute lifeblood of intelligence. In fact, intelligence is little more than meaningful information communicated from person to person. Just as I had learned to respect the importance of presentation, I had also learned anew the importance of communications. Our intelligence communications system was unsatisfactory. Any such system must allow us to share small pieces of information as well as large. On the other hand, our reporting SOP was a good one, and it helped us to reduce the communications requirement.

Long Range Surveillance Operations

Our first three LRS teams were inserted during the evening of 22 February into sites from which they could observe enemy reinforcement into, or withdrawal from, our initial division objectives, Brown, Gray, and Red. The insertions were timed to coincide with planned EF-111 and F-4G Suppression of Enemy Air Defense (SEAD) missions. Their operations were successful. The helicopters placed them at the planned landing zones without incident. The teams moved into hide sites and remained there for two to four days undetected. They observed and reported on enemy forces moving into and out of the zone. They were extracted as planned by UH-60 after our maneuver brigades passed over their dug-in positions. The brigades were fully aware of all team locations, and they were able to contact the teams in their zone by FM radio once in range. Team reports were timely and accurate, and provided the CG and staff with assurance as to the situation along these major lateral routes. The HF (high frequency) communications system worked very well, with all reports passing through base radio stations at the DMAIN and Area Walnut, the corps base radio area for all LRS units southeast of the division rear. Because of the pace of the attack, we deployed only three teams. By the 25th, the date of the next planned insertions, the division's forward elements were already passing through the programmed LRS targets. We waited for an opportu-

nity for the teams to provide intelligence not already available through forward or flank security units. The opportunity never materialized.

Brigade Collection and Reporting during the Attack

Because of communications limitations on 26 and 27 February, the brigade and battalion S2 staffs became centers of tactical analysis for information which they or their MI company teams had generated, and for the higher level information that they received from the division CP's. I believe that Maj. Gen. Taylor's long term investment in highly qualified battalion S2s paid off at this time. These officers, who were National Trailing Center (NTC) and Desert Shield experienced, and veteran members of their units, provided the intelligence which their commanders required. The decentralized network of intelligence analysis which we had envisioned more than a year before did work, particularly at the bottom.

Unfortunately, we at the DTAC received too little reporting from the brigades. A number of factors worked against us. First, as stated previously, communications were very limited during those two days. Until we arrived in the forward area and the situation stabilized on the 28th, we rarely maintained contact with any brigade for very long, and we almost never attained FM communications with all subordinate units simultaneously. Second, although the brigade S2s had become valuable collectors of information, they were fully employed trying to displace forward, determine what was needed, get the needed information, and provide it to their own commanders. Our intermittent communications discouraged frequent reporting, and made it difficult to discipline the system. Too often, we at the DMAIN and DTAC had to aggressively extract information from the subordinate commands which should have been forthcoming. Our units would have overcome more of the obstacles if a solid intelligence reporting discipline had been ingrained in them earlier. On the other hand, their reporting did improve significantly when the DTAC arrived in their area on 28 February. I am confident that, given a few more days of combat, or somewhat less unit dispersion, unit reporting would have become satisfactory.

* * *

The SWO in Combat

The Staff Weather Officer was able to provide some important information based upon his access to long range forecasts, but, because he had lost the brigade weather teams several months before, he had no formal means to obtain accurate observation from the forward units, or to provide knowledgeable advice to forward commanders. I believe that this was a significant problem.

On the afternoon of 25 February, as we at the DMAIN scurried about, trying to envision the battlefield some 150 kilometers to our north, and to provide commanders of advancing units with needed information, I was surprised when the commanding general told me over the radio that the Assault CP was undergoing hurricane-like weather conditions. Without the Staff Weather infrastructure in place, it seemed that we discovered changes in the weather as they occurred, and we were forced then to make decisions that could have been made earlier. On 26 February, I flew out of the DMAIN, not realizing that the winds were very strong up forward. By the time that we landed at the Assault CP, the winds were threatening to aviation operations. The ADC-M had put his helicopter down in the middle of the desert after recommending to the CG that we ground aviation assets. The CG immediately did so. Weather teams forward could have given us warning of that impending weather problem as well.

It was also partially due to weather that the division cavalry squadron and elements of the 197th Brigade found themselves caught in the "Great Dismal Bog," the miry sand south of Tallil, on the night of 27 February . It was no surprise to us that this would be a soft area. However, what we didn't fully realize or account for was the fact that it had rained heavily in that area for over 24 hours prior to our arrival, evidently expanding the size of the inundated area. The division's lack of weather observation forward

caused us to miss that cue, and to make no warning to the forward units. The consequences could have been extremely serious if the enemy had been able to exploit our misfortune.

Probably the most risky effect of poor weather data forward was that our aviators flew all over an extended battlefield, hundreds of kilometers in every direction, without sufficient observer support in the forward area. Weather conditions varied so greatly across the desert that the pilots often ran into unexpected conditions. We needed our weather teams, not just in the Aviation Brigade, but also at each of the brigades which occupied separate pieces of desert. I believe that aviation safety would have been enhanced if observer teams had remained with each brigade.

FINAL OBSERVATIONS AND CONCLUSIONS

For the most part, I have presented my observations and conclusions within the body of this paper. I came away from the G2 experience filled with more questions than answers, more projects unfinished than problems solved. This writing and research experience has served to clarify my view of many G2 issues which were previously unclear, but it has not brought me to "final" conclusions on all of them….

How Did We Do?

If it is true that the G2 has no standing of his own, and that he serves as an extension of the commander, then it must also be true that he can evaluate his performance based only upon his commander's evaluation of it. In this respect, our intelligence staff did its job well. The commander was very complimentary of the intelligence produced, not only by the G2 staff, but by the Division Intelligence System as a whole. This paper has concentrated on pointing out the imperfections in our system, but we were not expected to be perfect. Within a realistic context, we did well. We all saw room for improvement and this paper has gone to some length pointing out areas to be improved.

The Division After Action Review

Our Division After Action Review took place on 18 March, at "Victory Station" our rear base near the port of Ad Dammam. For a very long day and most of that night, all battalion and higher commanders again gathered around a large scale map board and reenacted the battle, attempting to piece together the action and the roles played by all. Comments on intelligence were generally favorable. They are summarized below.

Our terrain intelligence and our mapping of potential combat trails was fairly accurate and beneficial. The CG felt that our G2 NCOs were the "best thing we had on terrain."

The CG was fully satisfied with the training and performance of the Long Range Surveillance Detachment.

The brigades stated that they usually found enemy or evidence of enemy where we had placed them, but that the numbers were considerably reduced from our estimates. Our national level intelligence was not always timely enough to track the migrations of enemy forces from their early defensive positions as the battle progressed. The 2d Brigade Commander stated that, based on good intelligence, his force destroyed four or five enemy artillery battalions during its attack on Jalibah Airfield. He also stated that he used aerial photographs of the airfield to brief his forces for their assault. The 1st Brigade Commander stated that he had a good intelligence picture of enemy artillery during the same battle, because, they were exactly as located in division reports. The commander of the 212th Field Artillery Brigade, which supported the division, likewise stated that G2 provided accurate intelligence on enemy forces east of Jalibah and in the objective areas.

There were also some shortcomings noted:

Commanders were almost unanimously dissatisfied with the quality of the imagery given to them for the operation. There were enemy soldiers on Objective Brown, where they were not expected.

The "Great Dismal Bog" was larger than expected, and its possible crossing points were impassible.

Overall, however, the G2 Staff, the MI Battalion, and the entire Division Intelligence System received high marks from the subordinate commands of the division.

The S2 After Action Review

Our S2s presented more detailed evaluations during the After Action Review (AAR) which we conducted with them in April at Fort Stewart. On the positive side:

They appreciated our Open-Door Policy (Similar to the Corps G2 policy), which permitted brigade and battalion S2s and subordinates to come to the ASIC at any time and work through our files or talk with our specialists.

They appreciated the flow of higher level intelligence down to them prior to the battle, as well as all of the automation aids which we provided.

They sensed a team spirit within the intelligence elements of the division which had resulted in cross-talk among S2s of unrelated units, and they recognized that we had earnestly attempted to push intelligence to them.

On the other hand, there had been problems.

Communications was the universally accepted shortfall. Although we had usually been able to get critical intelligence reports down the chain, we had not been able to share the details, the evidence, and the assessments which were all so important to the S2 when he had to evaluate our information for his commander.

They were dissatisfied with the scarcity of imagery and with the fact that much of the intelligence they received during the attack was outdated.

They recognized that, in this fast moving battle, higher level collectors could not report the situation along the front as quickly as their own systems could.

They believed that the Enemy Prisoner of War (EPW) plan had not worked.

The Internal G2 After Action Review

In April, we also conducted a series of section-level After Action Reviews and a G2-wide review for senior-officers and NCOs. I was unable to attend these sessions, and it is only now, in producing these conclusions, that I have read the results carefully. Their findings are very similar to mine, which, of course, may indicate only that we developed a strong corporate identity through this experience.

How did we do? I believe that the Division Intelligence System and the Intelligence Community above the division acquitted themselves well, probably better than at the start of any previous American war. However, I also believe that, as a professional in the intelligence corps, there is much we can do to improve. In other words, we can take pride in our accomplishments, but we must also recognize the challenge before us to align our efforts with the needs of our commanders.

Our officers, non-commissioned officers, and soldiers within the division's intelligence elements did the job they had been trained to do, and much more. They continuously innovated, they dedicated great thought and energy to their work and to their fellow soldiers, they came to know the enemy, weather, and terrain, and they succeeded in passing that information on to the soldiers who needed it. They did indeed become "Output oriented," as directed. Their efforts made a difference in the outcome of the battle by saving friendly lives and resources, and by continuously placing the enemy at a disadvantage.

OVERSIGHT AND INVESTIGATIONS SUBCOMMITTEE Intelligence Successes and Failures in Operations DESERT SHIELD/STORM

Introduction

Professionals commonly divide intelligence into three broad categories--collection, distribution and analysis. Using those divisions, one can draw some broad overall conclusions:

—Intelligence *collection* in Operation Desert Storm was generally very good and deserving of praise, although there were some major problems. Intelligence distribution within the theater was very poor from the standpoint of many Air Force units.

—Intelligence *analysis* was mixed. On the most prominent analytical challenge of Operation Desert Storm, the count of dead Iraqi tanks, APCs and artillery pieces, the intelligence community had no generally accepted doctrine or methodology. The resulting problems of assessing battlefield damage revealed the true intelligence failure of Operation Desert Storm.

This report looks separately at intelligence collection, distribution and analysis, focusing on the core successes and failures in each of those categories. This report is the intelligence supplement to *Defense for a New Era: Lessons of the Persian Gulf War*, released in April 1992 by the House Armed Services Committee.

FINDINGS

Collection

—In general, the national intelligence community mobilized in support of Operation Desert Storm. Still, some national intelligence agencies appeared unfamiliar with or unresponsive to the intelligence needs of the warfighting commanders.

—Some senior CENTCOM commanders were unfamiliar with the capabilities and limitations of U.S. intelligence systems. There is a need for more extensive training.

--At the time of the invasion, CENTCOM intelligence was a shell, with few trained personnel, no collection assets under its direct control and no joint intelligence architecture of substance to guide the buildup of in-theater intelligence capabilities. Prior to the war, joint intelligence doctrine, architecture and training was lacking. While it is impractical to fully staff every combat command in peacetime, it is not unreasonable to demand that the chief function of the shell should be to know how it will expand to meet the demands of a crisis or conflict.

—ARCENT intelligence officers devised an imaginative system, called key reads from the football quarterback analogy, for matching intelligence collection resources to battle plans and against time constraints.

—While there were substantial shortcomings in tactical intelligence collection, particularly in the area of imagery, three new collection platforms--JSTARS, ASARS and the UAV proved outstanding.

—The extensive campaign to trackdown Iraqi Scud missiles was unsuccessful from a military standpoint. It didn't get the Scuds before they were launched. The Scud campaign did, however, achieve important political goals.

Distribution

—The inability to reliably disseminate intelligence, particularly imagery within the theater, was one of the major intelligence failures[6] in Operations Desert Shield/Desert Storm. One aspect of the problem was the lack of interoperable hardware: Out of 12 secondary imagery dissemination systems (SIDS) deployed in-theater, only four could communicate with one another.
—The component headquarters staff often failed to pass available intelligence downward to the air wings and ground units. CENTAFs was the worst offender in this regard.

Analysis

—The intelligence agencies had an excellent handle on the units, locations and equipment of Iraqi troops (but not the numbers of troops) deployed to face coalition forces, despite Iraq's outstanding communications security and despite the U.S.-imposed ban on overflying Kuwait before the air war began.[7]
—From among millions of structures within Iraq, the intelligence agencies pinpointed hundreds of military significance with few, if any, errors.
—The most serious failure of U.S. intelligence was in producing accurate battlefield damage assessment (BDA). The body count given General Schwarzkopf on Iraqi tanks destroyed during the air campaign was, in all likelihood, exaggerated. A careful analysis of units involving 22 percent of the claimed kills shows an overestimation of tanks killed by 100 percent and, perhaps, as much as 134 percent.
—More attention needs to be given to displaying intelligence data in digestible form telling commanders, for example, that a bridge is unusable by military vehicles rather than communicating an engineer's calculation that the bridge is 52 percent destroyed.
--The intelligence community had a good handle on Iraq's chemical capabilities, but a poor knowledge of its nuclear capabilities.

Miscellaneous

—The efforts of the psychological war planners in the leafleting campaign were a major contributor to the collapse of Iraqi morale that made an overwhelming victory also swift and relatively bloodless for the Coalition forces.
—Gulf war intelligence shortcomings suggest the need for improving the ability of the assistant secretary of defense for command, control, communications and intelligence to integrate DoD intelligence resources into a coherent defense intelligence community, with interoperable capabilities tailored to meet the needs of both warfighting commanders and national intelligence consumers.

COLLECTION OF INTELLIGENCE

A diverse array of sophisticated intelligence collection systems was called upon to provide intelligence in Operation Desert Storm. Such collection means included national assets (i.e., those dedicated to supporting high-level policy makers as well as military commanders) and tactical systems (i.e., those systems organic to the military services that provide support directly to tactical commanders).

NATIONAL SYSTEMS

In general, the national intelligence community, which is responsible both for developing and operating national collection systems and analyzing or exploiting the information they have gathered, responded helpfully to the challenges posed by the Iraqi invasion and occupation of Kuwait. Clearly, a great deal of progress has been made since the Vietnam war in the ability of the national intelligence community to shift

its focus from peacetime assessments for senior U.S. government policy makers to timely and effective intelligence support in wartime to the combat commanders-in-chief (CINCs). Yet, despite the measurable progress, there were still performance gaps.

Normally, a CINC could expect to have both national and tactical assets in hand. But early in Operation Desert Shield, the build-up of in-theater intelligence capabilities was intentionally and rationally restricted by the commander-in-chief of the Central Command, General H. Norman Schwarzkopf. He was concerned that the Iraqis might drive southward into Saudi Arabia and perhaps as far as the United Arab Emirates before sufficient U.S. forces were in place to deter or defeat such an attack. Therefore, early on, the priority of the Central Command (CENTCOM)[8] was on the rapid build-up of combat forces rather than intelligence resources. Only when it became clear that enough force was in place to perform the defensive mission did the basic in-theater Intelligence structure haltingly begin to take shape.

A key problem was that intelligence (and other support functions) had to compete with fighting forces for transportation to Saudi Arabia. Yet the fighting forces, to be effective, must have intelligence support. This argues for a plan in which early deploying forces would be integrated with self-deploying, i.e, airborne, intelligence collectors such as Rivet Joint (an RC-135 aircraft that supports tactical signals intelligence operations), U-2/TR-1 reconnaissance aircraft and the new Joint Surveillance and Target Attack Radar System (JSTARS) aircraft.

In Operation Desert Shield, the absence of early deploying tactical intelligence collectors meant that theater commanders were initially forced to rely heavily on national intelligence systems, such as satellites, as the primary intelligence collectors. In response to the invasion, much of the national intelligence community mobilized to provide CENTCOM commanders with an unprecedented view of Iraqi forces. Once Watch Condition (Watchcon) One was reached on August 1, indicating a strong likelihood of a major conflict, virtually every national intelligence collection system, including satellite and airborne platforms for gathering imagery (photographs of activities on the ground) and electronic emissions (e.g., radio traffic and radar signals) that could collect against targets in Iraq and Kuwait did so although (in some instances) this caused a concomitant loss of coverage of other important targets of collection.

Transmission of imagery demands significant communications capacity, so providing imagery isn't cost-free. In fact, U.S. communications were so stressed during Operations Desert Shield/Desert Storm that U.S. forces seriously considered leasing time on Soviet communications satellites. This option was never acted upon, however.

In late July, anticipating a major conflict, the Defense Intelligence Agency (DIA), on behalf of CENTCOM, took over from the Central Intelligence Agency (CIA) the responsibility for coordinating the tasking of national collection assets, with CENTCOM's collection requirements taking priority over other potential users. (CENTCOM would itself take on that control over national assets several weeks later.) At the height of the war, close to one-third of DIA's several thousand employees were involved in assisting the war effort. For the first time, the Soviet Union took a back seat to another part of the world as an intelligence collection target.

Although national collection systems were poised to respond to Iraq's aggression by providing a large volume of data, CENTCOM/J-2 was unprepared for the magnitude of the task because the Defense Department had never assigned it the people and equipment needed to fight a war. This was a conscious decision. Logistics, intelligence and most support functions were intentionally not fully staffed during peacetime to handle major crises at the five combat commands around the world.[9] Thus, at the time of the Iraqi invasion, the CENTCOM/J-2 organization was a mere shell:

—CENTCOM/J-2 had no collection assets under its direct control. In fact, a senior CENTCOM/J-2 officer said the J2 staff had never exercised with any particular collection systems.

—CENTCOM/J-2 did not possess the types or numbers of staff positions required to fulfill its wartime mission. The CENTCOM/J-2 first deployed to the theater on August 7 with a staff that numbered less than 10.

The intelligence capabilities were to be assembled at the time of crisis. The key to this process was

missing, however. There was no meaningful intelligence architecture, or structure, to guide the build-up of in-theater intelligence resources. In other words, there was no adequate road map for constituting intelligence operations in the event of war.

Contributing to the low state of CENTCOM/J-2 readiness was the federated concept on which CENTCOM/J-2 was based. This meant CENTCOM had to rely upon the goodwill of the services and national intelligence agencies to loan or chop intelligence collection systems as well as personnel to it. Thus, CENTCOM/J-2 was an empty shell to which people and collection systems were to be attached in the event of conflict. According to a senior Washington-based military intelligence official, CINCCENT[10] never matured an intelligence capability as mature as other CINCs in other theaters had. Of course, CENTCOM differs from all other unified commands in that it is the only one without a permanent headquarters in its region.

It would be unreasonable to suggest that every CINC's staff should be fully manned for war in peacetime. The expense would be enormous and the staff members would have little to do. Full staffing would be a waste. However, it is not unreasonable to demand that the CINC's peacetime staff devote more time and effort to planning how it will expand in order to meet the demands of a crisis. The intelligence staff of CENTCOM and of all other CINCs must:

> —Plan the expansion of the core peacetime staff into a full-fledged theater joint staff, identifying structures, hardware and primary personnel who will be mobilized to fulfill wartime functions;
>
> —Identify the intelligence assets that will be needed for each anticipated contingency and how they will be mobilized and integrated; and
>
> —Work with the services and intelligence agencies to assure that component intelligence functions exist and are readily integratable with the command in time of crisis.

Over time, the CENTCOM and component commands' intelligence organizations grew in size (at the height of the war, the number of staff reporting to the CENTCOM/J-2 totaled almost 700) and were better able to perform their missions, but progress was painfully slow. After the war ended, a CENTCOM intelligence staff officer said:

> In the final analysis, no theater-wide intelligence architecture was developed; J-2 mainly focused on meeting the day-to-day, minute-by-minute requests of the CINC. We understand the need for and are now working to develop a theater-wide intelligence architecture.

Clearly, priority needs to be placed on improving joint intelligence architecture, training and doctrine--for all the CINCs.

Two problems served to limit the degree of support to combat commanders from the national intelligence community. First, some national intelligence organizations appeared unfamiliar with, or unresponsive to the intelligence needs of the wartime commander. The case of the CIA is instructive. Although individual CIA analysts were in regular contact with their counterparts in-theater and provided a substantial amount of useful intelligence data to Operation Desert Storm planners, the CIA as a whole adopted a hands-off attitude toward the concept of joining in the organized support given combat commanders. It refused to join the Joint Intelligence Center (JIC) located in the Pentagon, sending only liaison officers. When queried about this action, agency officials asserted that a) they lacked the staff to join the JIC and b) they needed to remain outside the JIC so they could provide independent assessments for senior policy makers. However, the CIA asserted that it a) answered 1,000 information queries from CENTCOM, and b) works on joint intelligence assessments every day with the other agencies represented in the JIC. The principal distinguishing characteristic found was that the JIC was run by the military while other joint assessments are normally chaired by the CIA. The CIA in the future ought to be part of the JIC.

Second, some combat commanders had little appreciation for the capabilities and limitations of U.S. intelligence systems; this lack of understanding limited the extent to which the vast amount of intelligence data being provided by national systems was exploited. Early on, senior CENTCOM commanders often refused offers of additional manpower and other intelligence resources. As one Washington-based senior military intelligence official put it, Schwarzkopf was a very strong CINC. He said nobody comes in [the

theater] without my permission. That made it hard to get [intelligence] specialists in. You had to do a kabuki dance.

CENTCOM refused for several months to approve the Pentagon's recommendation that a certain piece of intelligence hardware designed to facilitate the timely receipt and processing of satellite imagery be shipped into the theater. In order to impress upon senior CENTCOM officers the critical need to expand in-theater intelligence capabilities, senior military intelligence officials in Washington who constituted the Military Intelligence Board directed a tour of the theater in November 1990 and made recommendations to improve in-theater intelligence collection, distribution and analysis capabilities, including a recommendation that CENTCOM accept the piece of hardware mentioned above. It also identified key personnel with specialized skills, such as experts in the tasking/management of various collection systems that were available to beef up CENTCOM's intelligence staff. Finally, CENTCOM acceded and the device mentioned above was deployed to the theater in early December just in time to assist in the preparations for the air campaign. The result, unfortunately, was a delay in improving the quality and quantity of intelligence available to theater commanders.

Possible cures for the lack of understanding or interest in satisfying the wartime commanders' intelligence needs include:

—Frequent peacetime exercises of the theater Joint Intelligence Center (JIC), including the active participation of analysts from the national intelligence agencies and the use of actual collection assets;

—Periodic briefings for senior theater commanders regarding the capabilities and limitations of national collection systems;

—Establishment of permanent CIA liaison positions on the J-2 intelligence staffs of the various theater CINCs;

--Development by each wartime commander of detailed plans for an integrated wartime theater intelligence capability, to include evaluation of the plans in joint exercises, and

—Creation of a single, national, deployable JIC that would augment the staff of the relevant CINC in time of crisis.

TACTICAL SYSTEMS

It has long been recognized that a mix of collection assets to support our military commanders is vital. While national collection systems overall performed well during Operation Desert Storm, tactical collection systems, particularly tactical imagery and signals intelligence (SIGINT) collection systems were unable to provide the same degree of support to field commanders. It is clear from Operation Desert Storm that the investment in tactical collection assets has not kept pace with the mobilization of the military force structure. For example, some tactical SIGINT collection systems that move with the troops take a lot of time to set up in the field. With the speed at which Operation Desert Storm unfolded, these systems were often not set up and running until the battle had pushed the Iraqis beyond collection range.[11] On-going programs in the Department of Defense will redress most of these deficiencies; Congress has directed that several of these programs be accelerated.

There were, however, three stars in the tactical intelligence show: JSTARS, ASARS and the Pioneer UAV.

JSTARS

The Air Force-Army Joint Surveillance and Target Attack Radar System (JSTARS) proved its worth beyond the shadow of a doubt during Operation Desert Storm, despite the fact that the system was still in development and was therefore deployed with entire components left out. The airborne JSTARS provided combat commanders with near real-time information on various targets, including moving targets, in all weather conditions. As one CENTCOM intelligence officer stated, JSTARS turned out to be our most

valuable platform.

CENTAF didn't want JSTARS in theater at first. A senior Air Force officer said he understood the system was new and fragile and feared it would break down, siphoning off key support personnel as the command tried to maintain JSTARS. But the VII Corps, which had worked with JSTARS experimentally in Europe pushed hard for it. CENTAF relented, responding to VII Corps' urging after deciding that the builder, Grumman, was going to make sure the system worked even if it meant the CEO himself had to come over with a screwdriver.

JSTARS and other moving target indicator (MTI) platforms, such as the Army's OV-1D Mohawk, tracked the movement of Iraqi logistics/supply units throughout the war and tracked other mobile tactical targets. This information was passed, sometimes in near real-time, to strike aircraft for targeting and destroying these Iraqi forces. That was the benefit for the Air Force. For the Army, JSTARS showed that the Iraqi forces arrayed on the front lines were not dug in and about to attack. The Army liked the downlink which showed in real time what was in front of it, while the Air Force used it for target acquisition, chiefly of moving targets.

ASARS

The Air Force also used the U-2 reconnaissance aircraft with its Advanced Synthetic Aperture Radar System (ASARS) in conjunction with JSTARS. JSTARS used its MTI to track the movement of vehicles and then, acting as a battle management platform, cued the U-2 with its higher resolution ASARS sensor.

The U-2 ASARS provided continuous coverage all-weather, day and night for targeting during the ground war. In the future, the U-2 with ASARS is expected to act as an off-board sensor for JSTARS, providing higher resolution mapping and imagery of fixed targets, while concurrently collecting signals intelligence and its own moving target indicators from a higher altitude-and different orbit, thus giving another perspective of the battlefield by looking into areas masked by terrain from the view of JSTARS.

UAV'S

The Pioneer unmanned aerial vehicle (UAV) provided substantial imagery support to Marine, Army and Navy units during Operation Desert Storm. They were so good many more could have been used.

These systems were employed for battlefield damage assessment (BDA), targeting (e.g., adjusting the accuracy of the battleships' 16- inch guns, which were used extensively against Iraqi fortifications along the Kuwaiti coastline) and surveillance missions, particularly in high-threat airspace.

The intelligence officer for a Marine Division which was blessed with more UAVs than any other unit in-theater commented, UAVs were great for target validation and BDA, but we could have used three times as many as we had. The Army took its solitary set of UAVs into the war and is now looking for many more. In one instance, Iraqi troops actually attempted to surrender to a UAV loitering over their position.

OTHER SYSTEMS

As noted by one CENTCOM intelligence officer, tactical intelligence collection systems were not permitted to overfly Kuwait or Iraq before D-Day. And that was a real limit. That decision was made to avoid losing aircraft and possibly setting off a fighting war before CENTCOM was prepared to fight it. Beginning on D-Day, the first day of the air war, several platforms were employed to collect tactical imagery of key Iraqi targets. U-2 imagery was used extensively for Battlefield Damage Assessments (BDA) and discerning the disposition of key Iraqi units, including the three heavy Republican Guard divisions. Air Force RF-4Cs provided targeting and tactical BDA imagery. In addition, the Navy F-14 Tactical Airborne Reconnaissance Pod System (TARPS) proved useful in a variety of support missions for

the Navy. Each of these systems has shortcomings, however.

Some systems like the RF-4Cs were available only in limited numbers because they were being phased out of the inventory. Other systems like the SR-71 had already been dropped from the inventory. Some intelligence officers complained that the services had retired intelligence platforms purely for budgetary reasons without providing sufficient means to fill in the holes in coverage that would otherwise open up. Without addressing those particulars, we believe decisions to retire intelligence assets, or otherwise curtail intelligence capabilities, should only be made after the impact on intelligence has been fully considered. Such decisions should not be made on a system-by-system or even service-by-service basis. Within the Defense Department, decision-making authority should lie with an official whose purview embraces the entire department, including intelligence purveyors and consumers, such as the assistant secretary for command, control, communications and intelligence. The director of central intelligence ought normally to be consulted as well when national systems are involved.

A clear lesson learned from Operation Desert Storm is the requirement for synoptic (wide-area) imagery of three types: (1) information for making maps and for providing terrain data to our most modern weapon systems such as the F-117, Tomahawk land attack missile and the F-15E strike fighter; (2) photographic coverage to allow analysts to locate and count an opponent's weapons systems and to assist in BDA; and (3) tactical targeting information that will allow the battlefield commander to locate and target key enemy forces, such as mobile missile launchers, troop units and supply convoys. As a senior CENTCOM intelligence officer stated:

> There is a need for wide-area synoptic coverage. The area occupied by Iraqi forces was on the order of 27,000 to 30,000 square miles, the size of four New England states. …In hindsight, getting rid of both the SR-71 (high-altitude photographic reconnaissance aircraft) and [a wide-area satellite imagery system] at the same time was shortsighted. The CINC lacked synoptic coverage.

The absence of wide-area coverage has been compared to "searching New York City by looking through a soda straw."

Many operational units complained loudly about the lack of timely and accurate tactical intelligence. Some such units created their own tactical intelligence sources to support operational planning needs. Some resorted to enhanced use of their own in-house capabilities, such as the 101st Airborne Division which, prior to the start of the ground war, used its AH-64 Apache attack helicopters as reconnaissance aircraft to map out the battlefield in front of the division. After the air war began, one Apache pilot said:

> We flew these missions deeper and deeper into Iraq, sometimes as far as 120 kilometers from the border. The purpose was to locate and catalogue Iraqi outposts along the anticipated route of advance and for future use in targeting. This seemed to be our division commander's best if not only accurate and timely source of "what-is-out-in-front-of-me" intelligence.

"KEY READS"

CENTCOM intelligence officers did show real ingenuity. For example, in an imaginative initiative, Operation Desert Storm planners recognized that the ground war likely would unfold at a very fast pace, much like a football play. Like a quarterback, headquarters wouldn't have a lot of time to absorb data on the rapidly unfolding battlefield situation.

So ARCENT G2 devised a system of 27 intelligence targets essential at a particular time to provide the information the combat commander would need to make decision on the next step in the campaign. Collection resources were then assigned in advance to fit the combat plan. This was done by planning backward from the battle plan. For example, the battle plan called for the 101st Airborne Division to launch the second phase of its assault at an assigned hour. To pull that off, General Schwarzkopf would have to make the go or no-go decision two hours before the scheduled kickoff time. To make that decision, the principal information he would need on the Iraqis was the disposition or movement of four Iraqi divisions in front of the 101st and any activity around three geographic objectives. These were the

key reads that needed to be made. Intelligence then went through its portfolio of collection resources and assigned two airborne platforms to check those targets in the hours before the go or no-go decision. National assets were also tasked to those targets, and signals intelligence was told to make those targets a priority in the hours beforehand.

While this rendition makes it sound like a simple process, it was actually much more complicated. For example, if one air asset was used for a Key Read in the morning, it couldn't be used in the afternoon because of the need for crew rest and maintenance. Some assets were only useful in daylight hours. All this required a great deal of juggling until a workable matrix was produced that balanced a) the battle plan with b) the CINC's decision points with c) the required intelligence with d) the available collection assets. The "key reads" intelligence collection/decision matrix was fundamental in determining when to launch the main ground attack and when it was safe for the VII Corps to wheel to its right and meet the Iraqi Republican Guard divisions. While the speed with which the war evolved overtook much of the planning that went into the concept, it was nonetheless an imaginative and professional initiative for linking intelligence collection resources to a commander's war plans, and at the same time realistically coping with the demands and strictures of time and limited collection resources. The concept was one of the high points of the contributions of intelligence to Operation Desert Storm.

THE GREAT SCUD CHASE

Locating and destroying mobile Scud missile launchers on the ground in Iraq proved to be a vexing problem. This was the first time the U.S Armed Forces chased after mobile ballistic missile targets, and the results were very poor despite the fact that operations were conducted in more open terrain than found in most parts of the world. Continuous Combat Air Patrols (CAPS) involving various sensor platforms (including JSTARS) and F-15Es were considered the best hope for locating and destroying the Scuds. The huge effort contributed greatly to the political goal of discouraging Israel from entering the war. But the Great Scud Chase proved to be a double loser in military terms.

First, it diverted resources. One notable example of the diversion came while JSTARS was reporting the continuing ground battle at Khafji, the first of the war; despite the ongoing land battle, the plane was suddenly diverted to the West to look for Scuds.

It should be noted that the argument that the senior political leadership in Washington never micromanaged CENTCOM's operations is not entirely true. It was firm guidance from the Washington political leadership that the Scud hunt should take priority over other missions that led to the JSTARS aircraft being redirected from watching the on-going battle at Khafji to patrolling western Iraq in search of mobile Scud missile launchers. In addition, national systems were diverted from focusing on the battlefield to covering the politically sensitive oil spill at one point.

Second, there is no hard evidence that the Great Scud Chase destroyed even a single Scud missile or mobile launcher. (Several fixed Scud launch sites were destroyed, however.) During the war CENTCOM aired a film billed as showing the destruction of mobile Scud missile launchers, but Washington analysts determined within days that it actually showed fuel frocks and not Scud trucks. In fairness, while the Great Scud Chase failed to kill Scuds and diverted valuable resources from other targets, it likely accomplished one military result by retarding the Iraqi Scud effort. To avoid detection, Scud teams adopted a shoot 'n' scoot policy. This meant they dropped the normal multi-hour set-up routines, including the lofting of weather balloons to obtain wind speed and direction data. As a result, the Scuds fired were most likely less accurate than otherwise. Also, the weekly volume of Scuds fired trailed off, suggesting that the overhead threat might have discouraged the Iraqi Scud teams from firing as often as they could.

The Scud problem was certainly not exclusively an intelligence problem. Even if intelligence could pinpoint the site from which a Scud had just been launched, the Iraqi crews could scoot away within minutes. In some instances, U.S. aircraft crews actually witnessed Scud launchings, but were still unable

to locate and destroy the launcher on the next pass. Prewar exercises showed that even when pilots knew the precise locations of parked Scud launchers it was difficult for their electronic sensors to pinpoint the launcher on the ground.

UNLIKELY SOURCES

There is a popular notion that intelligence comes exclusively from listening in on communications, purloining documents and the like. But often intelligence information comes from unlikely sources right under one's nose. For example, in the preparation for the left hook, the intelligence agencies were tasked for all the information they could get on trafficability through the wastelands of southern Iraq. CENTCOM needed to know where the sands would be too soft to support tanks and where defiles would stop vehicles and require bridging equipment.

A great hunt was launched for data. One very helpful source turned out to be the Library of Congress. A crew of intelligence officers spent three days there pouring over old archaeological manuscripts and found trafficability data. Archaeologists early in this century had recorded minutiae on the countryside in their diaries as they slowly made their way across the sands on camelback.

INTELLIGENCE SUPPORT FROM OTHER NATIONS

The United States received incalculable assistance from its friends and allies who would prefer to remain anonymous. Suffice it to say that while the United States haggled with other countries over their contributions of men and money, the U.S. government rarely had to haggle over intelligence assistance.

There were complaints from U.S. intelligence officers about the Saudi military intelligence system. It was the epitome of the stereotypical intelligence service; it didn't want to share anything. Frustrated U.S. intelligence officials later found, however, that this was not an anti-American bias; Saudi intelligence was loathe to share its data with the Saudi military, too.

DISSEMINATION OF INTELLIGENCE

One of the clearest examples of an intelligence failure during Operations Desert Shield/Desert Storm was the inability to provide intelligence quickly and reliably to warfighters throughout the theater of operations. This failure was the result of two factors:

—First, only a third of the dozen secondary imagery dissemination systems (SIDS) deployed in-theater could transmit to one another, especially down at the operating unit level. These systems can be thought of simply as ruggedized, high-resolution, high-volume, photo-transmission or fax machines that encode material being sent here, pictures taken by satellites or aircraft--so as to prevent its unauthorized disclosure; and

—Second, key intelligence staff, failed to pass much useful information down to the air wings and ground units.

MOST SIDS COULDN'T TALK TO OTHER SIDS

Just as there was no adequate intelligence collection architecture on August 2 to guide the build-up of in-theater collection systems, neither was there an architecture or structure to ensure that combat commanders received intelligence in a timely, efficient manner. The greatest problems were associated with disseminating imagery, essentially photographs taken by reconnaissance platforms such as satellites and aircraft.

As one intelligence officer put it, imagery was the intel of choice of the combat commanders at all levels. During Operation Desert Shield, not less than 12 different secondary imagery dissemination

systems were delivered in-theater. Each of the service component commands had brought with it one or more of its own SID systems. Individual pieces of hardware treated in isolation often appeared to function properly. For example, CENTCOM intelligence officers were bullish about the capabilities of the Digital Video Imagery Transmission System (DVITS), which was purchased by DIA for CENTCOM during the war. Only a few DVITS units were actually shipped into the theater before the war ended, however. On the other hand, the Air Force's Tactical Digital Facsimile (TDF) machines were slow in transmitting, had relatively poor resolution and did not possess an automatic error correction capability, which meant that when problems in the communications line were encountered, the entire fax had to be retransmitted. The TDF was subject to much criticism before the war because of its expense about $688,000 each. Senior Air Force officers were almost unanimous in praising the TDF after Operation Desert Storm. Junior Officers, who were at the receiving end, were almost unanimous in panning the TDF as an imagery transmitter. It was used chiefly to transmit typewritten material, which could have been accomplished with a much cheaper system.

The bottom line is that only 4 of 12 SID systems deployed in-theater were interoperable, i.e., only four could send pictures to one another. According to one CENTCOM intelligence officer:

> Intel data could be passed in real-time or near real-time (from Washington) to J-2 in-theater, but because of a lack of common imagery data dissemination systems, the component commands as well as forward-deployed units could not always gain timely access to such imagery. The Navy had their own systems, which could not interface with the Army's systems, which could not interface with the Marines', which could not always receive data from J-2….

This was a failure of considerable magnitude. SID systems first entered the military in the early 1980s, a decade before Operation Desert Storm. Intelligence officers knew immediately that they would face an interoperability problem if they ever had to operate with another service. Professionals periodically discussed this potential problem throughout the 1980s, but little was done about it. First, no service was willing to give up its hardware and adopt hardware from another service. Second, there was no one powerful enough above the service structure to crack the whip and require the services to solve the interoperability problem. It wasn't until the end of the decade that the Defense Department strengthened the assistant secretary of defense for command, control, communications and intelligence [ASD(C3I)], giving the position the clout needed to enforce interoperability. But then, a dozen SID systems were in the field. Nothing could be done in time for Operation Desert Storm. It would still be years before fully interoperable SID systems could be deployed in quantity.

In Operation Desert Storm, this meant much imagery had to be delivered by courier. In turn, this resulted in delays in the dissemination of images that were critical in determining the level of damage to particular targets during the air campaign and to planning follow-up attacks. The first three days of the air campaign benefited from months of careful planning and preparation, including full sets of target intelligence detailed packages of photos and maps showing targets plus anti-aircraft guns and missiles around the countryside. After three days, however, target imagery and current intelligence on mission performance decreased dramatically, and what did arrive was often late, unsatisfactory or unusable.

One wing intelligence officer said:

> There were actual times when we sent guys out with no imagery at all. They only got a map and coordinates to find a target at night. We did continue to get targeting materials, but the coverage was spotty and almost always dated. We put in our requests, but they got swallowed by a black hole. Of the over 1,000 missions flown by [one of the squadrons], we only got back four imagery responses, and all four were of such poor quality that we couldn't even read the date to check [their] currency.

The lack of interoperable secondary imagery dissemination systems was one cause of the restricted flow of intelligence to frontline ground units, which complained repeatedly about the lack of timely and accurate tactical intelligence on battlefield conditions. For instance, one brigade of the 82d Airborne Division stated that it did not have a clear idea of what Iraqi forces were over the next hill because intelligence was so poor. In fact, the brigade felt it operated in the dark for the first two to three days of the ground

offensive until it received fresh information from the French. The Marines were just as dissatisfied as the Army. Lieutenant General Walter Boomer, the senior Marine commander in theater said, I remember being in Vietnam for two tours and never getting a single piece of useful intelligence. It has gotten better, but we still can't get to the company level what they need to do the job.

This failure is largely the result of individual service initiatives with little or no oversight by responsible officials within the Office of the Secretary of Defense (OSD). Passage of the Goldwater-Nichols Department of Defense Reorganization Act in 1986 was intended to signal to the services that the old days of fighting separate Army wars, Air Force wars and Navy wars were over and that they would have to plan and operate jointly. The message got through to the warfighters, as Operation Desert Storm proved, but the deployment of non-interoperable secondary imagery dissemination equipment demonstrates that the Goldwater-Nichols message bears repeating.

As previously noted, Defense Secretary Cheney recognized the problem and strengthened the position of assistant secretary of defense for command, control, communications and intelligence. The committee's review of the Gulf war provides ample evidence of the need for a strong ASD(C3I). In addition to enforcing interoperability, the Operation Desert Storm experience suggests the ASD(C3I) should be responsible for:

—The overall integration of DoD intelligence resources into a coherent defense intelligence community;

—Assessing and policing the overall responsiveness of the DoD intelligence community to its operational clients;

—Reviewing CINC operations and deployment plans for the adequacy of the planned theater intelligence architecture and deployment timing;

—Ensuring that the intelligence capabilities needed to support CINC plans do exist; and

—Advising the defense secretary on decisions involving the retirement of intelligence assets and the fielding of follow-on capabilities.

The fact that virtually everyone interviewed agreed that secondary imagery dissemination was a major problem has helped in developing and implementing a solution. The solution, in this instance, need not be a single piece of hardware. More importantly, the Office of the Secretary of Defense needs to proceed with promulgation of a single set of imagery transmission/dissemination standards and protocols to guide the development of future SID systems and the necessary modification of existing systems to ensure interoperability.

A final note: Imagery was the intel of choice in this war. That does not mean the next war will be an imagery war. Operation Desert Storm was fought over fairly open terrain with little cloud cover. That was not true of World War I, World War II (except for the North African campaign), Korea or Vietnam. And it will not necessarily be true of the next war. While imagery fixes are clearly essential, the prominence of imagery in Operation Desert Storm should not lead us to neglect signals intelligence and other sources of useful intelligence information.

SOME OFFICERS WOULDN'T TALK TO OTHER OFFICERS

The timely dissemination of intelligence throughout the theater of operations was hindered also by bottlenecks within the component commands. In seeking to explain how or why these bottlenecks emerged, it is important to keep in mind that never before in the history of the U.S. military had this volume of intelligence (particularly imagery) been sent into a theater of operations. As discussed above, intelligence collection systems that in the last war had been considered purely national (i.e., those developed and deployed by national intelligence agencies and dedicated to supporting Washington policy makers and senior military commanders) were now providing massive quantities of data to the tactical combat commanders. So to some degree simply the amount of intelligence flowing into the theater may have overwhelmed CENTCOM and the component commands' intelligence staffs.

But this explanation fails to take note of a worrisome trend that emerged during the course of the war, namely the hoarding of intelligence by the component command staffs who failed to pass a variety of useful intelligence reports and analyses downward to the ground units and air wings. There was a tendency to sit on information rather than disseminate it. Senior officers repeatedly denied that there was any hoarding whatsoever. In fact, this conclusion was clearly offensive to many senior officers who staffed the intelligence operation in Riyadh. They insisted that some junior officers simply had an insatiable appetite for intelligence they didn't need. This is a generally recognized historical phenomenon. Senior officers also argued that it was Riyadh's job to prioritize data for dissemination, and that all units did not have an equal need to know.

Finally, they argued that capacity limitations on communications transmissions meant Riyadh could not distribute all that it might otherwise have distributed. It is true that unreasonable demands were levied on CENTAF. Moreover, the demand for imagery in this war far exceeded what anyone had anticipated, thus placing an immense load on the intelligence officers in Riyadh. Finally, there is certainly no evidence of any plot or conspiracy to deprive operating units of needed data.

That said, unreasonable demands from junior officers with insatiable appetites for imagery by no means explains away all these complaints. The sheer volume of complaints received from junior officers from the air wings was disturbing. Similarly, numerous Air Force wing intelligence officers reported the amount of intelligence they received actually declined once the CENTAF intelligence operation in Riyadh was operating, an observation that conflicts with the assertion that transmission capacity limited what could be sent.

In Operation Desert Storm, the ground units and air wings clearly did not receive the volume of intelligence support they had come to expect and that could have been provided. In one instance, 50 overlays were shipped from Washington to Riyadh to be distributed among the air wings, but the warrant officer responsible for their distribution only got five copies; the rest simply disappeared within the headquarters staffs where the displays were found attractive. Repeatedly, CENTAF target planners complained that CENTAF intelligence officers had to be forced into even talking to them and sharing information.

One squadron told of receiving a visit from a Riyadh-based general, not assigned to intelligence, who wanted to see if the unit was ready to fight. When the squadron intelligence officer spread out the limited materials he had received, the general said that his office was packed with data that would improve the squadron's work. The next day the general dispatched a C-21 loaded with imagery of the target areas the squadron had been assigned. In another instance, an officer from a unit that was flying daily patrols over Scud areas bumped into a friend who flew RF-4 photo reconnaissance planes. The reconnaissance pilot said he was flying photo flights that covered Scud areas virtually every day. But the unit flying the Scud CAPs (Combat Air Patrols) had never received RF-4 imagery taken by that or any other unit. Officers from the 480th Tactical Intelligence Group at Langley Air Force Base, Virginia, whose wartime tasking is to feed target data down the chain to fighting units, described intelligence materials they prepared for the air units in theater materials air unit intelligence officers said they never received.

While there was no scheme to withhold necessary data, the Riyadh intelligence staffs shared a mind-set that they were better placed than the operators to determine what the operators needed. Adding to the mind-set problem was the limitation mentioned earlier: CENTAF/Intel, like CENTCOM/J-2, was essentially a facade before the war. It didn't adequately exercise with the operating units or support their intelligence needs in peacetime. As one officer in a flying unit commented:

> When we go into combat, everyone is doing it for the first time. This is why so many units like ours got used to going to TAC [Tactical Air Command] for intel over the years and developed a good relationship with the 480th [which is part of TAC and services tactical flying units in peacetime]. They knew what our needs were, were familiar with the weapon systems and had an appreciation for the support we would need.

CENTAF/Intel, in other words, was a largely unknown entity to the operators just as the flying units were

largely unknown to CENTAF/Intel.

The communications problems that permeated CENTAF/Intel were found in other CENTAF elements as well. The cell responsible for planning the air campaign, known as the Black Hole for its secrecy, was unable to establish a satisfactory liaison with the intelligence staff during the crucial planning period prior to hostilities. Even after very senior officers in CENTAF headquarters intervened, cooperation in the planning effort was marginal at best.

Although this intelligence hoarding was primarily an Air Force problem, there were some similar complaints from Army units, chiefly concentrated in the XVIII Airborne Corps. Senior Army intelligence officers said XVIII Airborne did indeed get less data than VII Corps units. The Army concentrated its resources on aiding those units expected to see the most combat. Thus, there was a conscious bias toward VII Corps over XVIII Airborne. And within the VII Corps, there was a bias toward units breaching Iraqi lines. XVIII Airborne Corps told of getting more help from the French forces attached to the XVIII. The French combat units had deployed with their own tactical intelligence collectors.

Because the operators believed that the CENTAF intelligence staff could not be relied upon to provide timely and accurate intelligence, some units, as mentioned above, cultivated backchannel intelligence conduits, many times across traditional theater and service boundaries. One officer from an Air Force wing said:

> My best sources of intelligence came from outside of CENTAF channels. I knew some people at the Army Intelligence Threat and Analysis Center (ITAC) in Washington and they became an invaluable resource in supporting the wing. I also tried to tap into the 544th at the Strategic Air Command in Omaha, but struck out. I was able to link up with the 480th at Langley AFB, but CENTAF would continually try to cut off this channel.

Examples of this sort of enterprise brought mixed reaction from organizations in the intelligence community. One school objected to the violation of procedures while another thought such an all-source approach was appropriate.

ANALYSIS OF INTELLIGENCE

Tactical Battlefield Damage Assessment

The core analysis problem of Operation Desert Storm centers on tactical battlefield damage assessment (BDA)—the count of Iraqi tanks, armored personnel carriers (APCS) and artillery pieces knocked out by the air campaign before the ground offensive kicked off. This was the greatest challenge and the greatest failure of the intelligence community in Operation Desert Storm.

The Army (ARCENT G-2) rather than the air units was given the authority to rule on the damage done by the tactical air campaign. General Norman Schwarzkopf sensibly chose to have the Army, which would have to face any surviving tanks, APCs and artillery pieces, rule on how many pieces of equipment air power was knocking out.

It turned out, however, that the Army had little idea of how to do this. There simply was--and is--no book, no doctrine on how to conduct tactical BDA.

In Operation Desert Storm, the ARCENT G-2 wrote the formula decreeing what proportion of pilot claims and alleged gun camera kills would be recorded as real kills. This was extremely important because the kick-off of the ground war was keyed chiefly to this objective of diminishing enemy combat capability—one goal being to destroy 50 percent of Iraqi equipment (tanks, APCs and artillery pieces) in frontline units before launching the ground attack. To formulate these statistics, the ARCENT G-2 determined, for example, that he would count 75 percent of all the kills reported by A-10 crews. The A-10 does not have a gun camera. But A-10s normally operated in pairs and ARCENT decided the trailing pilot had a good enough view of what the lead pilot accomplished to accept three-fourths of all claims. Other percentages were adopted for other pieces of equipment.

In Washington multiple intelligence agencies expressed strong reservations about the rapidly mounting count of kills. The agencies believed senior commanders and Washington policy makers were being given inaccurate and optimistic counts. Washington analysts objected, for example, to accepting 75 percent of A-10 claimed kills. The analysts said this was unreasonable and without scientific basis. Pilots are historically much too optimistic about their accomplishments. Moreover, Operation Desert Storm pilots didn't have the leavening experience of months of war. Even if pilots were right that they'd hit X number of tanks that day, who's to say those same tanks hadn't been hit the day before. The resulting double, triple, and quadruple counting--all done innocently—could amount to an immense portion of the claimed kills, the Washington agencies argued.

This dispute came into public view when it was leaked and appeared *New York Times* and *The Washington Post* early in February. General Schwarzkopf was vocal in objecting that people outside the theater had no business interfering with the work being done in-theater by people who had access to more hard data, that is, the pilot reports and gun camera film than the people in Washington who saw only satellite and U-2 photography.

The leaks and loud argument over who had access to what data tended to obscure a very important factual development. After the Washington agencies expressed their strong reservations, ARCENT changed its standards and accepted fewer pilot claims and fewer alleged kills from gun camera film. For example, where at first ARCENT tallied 75 percent of the claimed A-10 kills, after the Washington agencies raised their objections ARCENT decided to accept only one-third of the A-10 claimed kills.

Clearly, despite General Schwarzkopf's complaint of interference from Washington, his Army component G-2 eventually agreed to a substantial degree with the reservations coming from Washington.

There is a widespread belief within the intelligence community that General Schwarzkopf's anger against the Washington intelligence community stemmed from his view of the Washington community's objective in airing its reservations. This school of thought holds that Schwarzkopf believed the Washington community did not speak up in order to be helpful, but to distance itself from General Schwarzkopf's anticipated decision to launch the ground attack. This interpretation sees Schwarzkopf irate that people in Washington were plotting to blame him if the attack went poorly by positioning themselves to claim that he acted on data they knew to be wrong. Hints to support that view are contained in the general's testimony on Capitol Hill. For example, he said there was some distancing on the part of some agencies from the position of the Central Command. And later he said the national intelligence agencies were all distancing themselves from Schwarzkopf.…[12]

These episodes offered a rare glimpse into the unsettled world of battlefield intelligence. But the key questions remained unanswered: Who was right about the numbers and what did it mean? As it happens, a unique post-war assessment is available to suggest some answers.

The day after the war ended, a solitary U-2 flew back and forth over large parts of the battlefield clicking off thousands of photographs of the destruction below. Alone among the parties, one Washington agency, admittedly not an impartial observer in the intelligence disputes, assigned its photographic interpreters to count the damage. The results are extremely important, for they show that even Washington's more conservative estimates of preground war damage were high.

The Washington analysts focused their post-war review exclusively on counting tanks within the three Republican Guard heavy divisions. These three divisions possessed almost all of the Iraqi inventory of T-72 tanks, which photo analysts can easily identify.

CENTCOM reported that 388 of the approximately 846 tanks in the three divisions were destroyed from the air prior to the start of ground fighting. If true, that would have represented 22 per cent of all Iraqi tanks from all the divisions in the Kuwaiti theater killed during the air war.

What made these divisions particularly good subjects for a post-war study was that they had remained bunkered down in their positions for most of the air war and moved out to fight or flee once the ground war began. This opened the way to the creation of an unusually clear-cut standard for the usually subjec-

tive nature of interpretation of aerial photography, or imagery in the current terminology.

The analysis first made the generous assumption that any tank found in the deployment areas of these three divisions at the end of the ground war had been disabled by the air campaign that preceded the coalition ground attack. The reasoning went this way: if the tank hadn't been disabled when the ground war started, it would have moved either to join the fight or flee. This is a generous assumption that actually favors defenders of the air campaign's success because some tanks untouched by the air campaign were abandoned either because their crews had deserted earlier or they were unusable due to poor maintenance and lack of spare parts.

When the post-war U-2 imagery was examined, if revealed that 215 of the tanks of the three-divisions remained in their deployment areas. This meant that the CENTCOM count of tanks destroyed prior to the start of the ground war in the Tawakalna, Medina and Hammurabi Republican Guard divisions was exaggerated on the order 100 percent.

The analysis then went a step further. One of the divisions, it was known, had fought near and in its deployment area. So interpreters applied finer grain but more subjective analysis to the tanks left in this area, looking at such things as which way the tank was facing and the pattern of tank tracks in the sand.

By this analysis, 166 of the tanks in the three divisions had been killed, versus the CENTCOM estimate. Thus the CENTCOM margin of error would be upwards of 134 percent.

No comparable studies were done elsewhere, so no reliable analysis exists to gauge the accuracy of BDA for the 40 other Iraqi divisions in the theater. However, it is reasonable to conclude that many of the same methodological problems that led to an inflated BDA count for the three Republican Guard divisions would have similarly skewed the accuracy of the air war BDA estimates used throughout the Kuwaiti theater of operations.

The sheer size of the numerical disparity revealed by the postwar analysis suggests a fundamental methodological failing in the manner BDA was conducted by CENTCOM that exceeds the normal margin of error expected of any such exercise. The absence of a book or doctrine on tactical BDA is the biggest and most significant intelligence failure of Operation Desert Storm. It is, therefore, essential that the intelligence community, at all levels, develop accepted, rational and precise doctrine for conducting tactical BDA in the future.

It should be noted that this post-war analysis generated some controversy within the intelligence community. However, an examination of the objections raised during the course of preparing this report tended to reinforce rather than weaken the judgment that there are fundamental problems in bomb damage assessment.

This analysis would not be complete without pointing out the obvious: Despite the faults found with the counting, the ground attack sliced through the Iraqi Army effortlessly. The numerical errors noted here indicate an intelligence failure, but they did not precipitate an offensive failure. CENTCOMs threshold of destruction for launching the ground attack was probably higher than needed. Even the Superbowl victor would likely go down to defeat at the hands of any other NFL team if a quarter of its players were removed before a game. Similarly, an Iraqi unit that wasn't a real match for an American unit to begin with may well have crumbled into ineffectiveness long before General Schwarzkopf's attrition goal was even approached.

In fact, that's what the numbers would indicate. The Hammurabi Armored Division was only hit lightly during the air campaign. It fled the field without joining the ground battle. The Tawakalna Mechanized Division and the Medina Armored Division both left their revetments when they learned the weight of the coalition ground attack had swung around in the left hook offensive and was about to descend upon them from the west rather than the south. The surviving vehicles in the two divisions moved out to the north and west and formed new battlelines facing west. The postwar overhead photography showed that 93 Tawakalna and 99 Medina tanks were knocked out on those battlelines. Yet, throughout the entire theater of operations, only 18 Abrams tanks suffered significant combat damage including seven from friendly fire.[13] Theater wide, the U.S. Army only lost two tanks to enemy fire while these two Iraqi

divisions alone lost 192 tanks to the Coalition's ground campaign.

It is important to note that the issue here is not the efficacy of air power. As the committee noted in its earlier report, *Defense for a New Era: Lessons of the Persian Gulf War,* published in April 1992, The decisive factor in the war with Iraq was the air campaign. It would be wrong to conclude that the analysis presented here belittles the air campaign. This analysis does, however, belittle the bomb damage assessment performed by CENTCOM.

The air campaign achieved its goal of breaking the Iraqi Army even though the BDA methodology exaggerated the actual toll of dead tanks. In the next war, however, such an intelligence miscount may not be so benign. CENTCOM thought a 50 percent attrition rate was required to break the Iraqi Army. It appears, in retrospect, that a much lower threshold was sufficient. If U.S. forces enter the next war considering that 25 percent attrition is adequate while the BDA figures exaggerate the damage by 100 percent, we could be in for some nasty surprises. Thus a more accurate counting methodology is a requirement. BDA is now neither art nor science.

The intelligence community will undoubtedly bicker for years over these post-factum calculations. The arguments will be useful if they help the community devise a doctrine for tactical BDA so that commanders in the future can be better served.

A further note: This counting problem was not unique to the high visibility topic of Iraqi Army hardware. It happened elsewhere. One general officer observed that the number of Iraqi naval vessels reported sunk eventually totaled three times the number of naval vessels Iraq possessed. And, while the intelligence agencies never knew for certain how many Scuds Iraq possessed, the total number of claimed Scud kills was four times greater than the upper end of the intelligence estimates for Iraq's total Scud inventory. A postwar review of photographs cannot produce even a single confirmed kill of a Scud missile.

DISPLAYING ANALYSIS IN DIGESTIBLE FORM

A key part of intelligence analysis is displaying the material for commanders in a digestible form. Some intelligence analysts tend to get carried away and like to show off the volume of material they have collected. But volume is meaningless to commanders. They need to know: What does it all mean? General Schwarzkopf has publicly discussed a few aspects of this synthesis aspect of analysis that irked him.

One of his complaints was the propensity of technically trained analysts to produce technical analyses that were militarily obtuse. The classic example from Operation Desert Storm was the report given to General Schwarzkopf of a bridge that was 52 percent destroyed. He wanted to know what that meant. Could tanks cross the bridge? No. Could trucks cross the bridge? No. Then, from an operational military standpoint, the bridge was 100 percent unusable. The formalized analysis done from an engineer's standpoint was misleading and unhelpful to the military professionals.

General Schwarzkopf also complained about analyses from Washington that were heavily caveated. In testimony on Capitol Hill, the general testified:

> The analysis we received was unhelpful. And it was unhelpful because it ended up being so caveated. There were so many disclaimers that by the time you got done reading many of the intelligence estimates you received, no matter what happened, they would have been right. And that's not helpful to the guy in the field.

There is, indeed, a well-known and frustrating tendency among intelligence analysts to compose their words so carefully they can claim perfect insight no matter what the outcome of events. But General Schwarzkopf did not just strike out against this tendency. He specifically attacked the numerous caveats that appear in intelligence estimates and predictive analyses. While the general complains that this is not helpful, the opposite would be even less helpful. One cannot remove caveats from predictive analysis without projecting a false certitude. Still, what an analyst can and ought to do is present his predictive

analyses with notations on probability or confidence rates. Is it predicted that Saddam will react that way given this military circumstance because he always did so during the Iran-Iraq war and, therefore, there is high confidence in the predicted reaction? Or is the prediction based on surmises and vague parallels and therefore the prediction warrants only a low probability?

TRACKING SADDAM's NBC CAPABILITY

The U.S. intelligence agencies had been closely watching Iraq's nuclear, biological and chemical warfare capabilities for many years before Kuwait was invaded. This had nothing to do with political relations with Baghdad. A major target of U.S. intelligence has long been NBC capabilities, whether they be in friendly or hostile nations.

Although NBC has long been a major focus of all U.S. intelligence agencies, it is clear from the postwar revelations extracted by the United Nations that the U.S. intelligence agencies did not know the entire picture. Based on what is known now, the U.S. intelligence community:

—Had good intelligence on Iraqi chemical capabilities.

—Had poorer intelligence on Iraq's nuclear capabilities, in fact, based on the data gleaned from detectors and other sources since the end of the war, it is now known that we were totally unaware of more than 50 percent of all the major nuclear weapons installations in Iraq.

—Had an indeterminate record on Iraq's biological capabilities given that the UN has extracted very little additional information on Iraqi biological capabilities, there is no new data base against which to judge the performance of the U.S. intelligence agencies against Iraqi BW before the war.

There was clearly inadequate data on Iraq's nuclear operations. However, it is only fair to point out that before Operation Desert Storm, the U.S. intelligence agencies knew full well that they had inadequate information. Estimates from individual analysts of the time it would take Baghdad to build a nuclear device ranged from six months to 10 years, reflecting the sizable holes the analysts knew made Swiss cheese of their data base.

Unfortunately, during the war, U.S. military and civilian officials painted an overly optimistic picture of the extent of the damage caused by the Coalition's strategic bombing offensive. For example, on January 23, 1991, President Bush said, Our pinpoint attacks have put Saddam out of the nuclear bomb-building business for a long-time to come.

That this claim was overstated is clear.

—First, analysts knew they lacked the full picture of Saddam's nuclear bomb-building business.

—Second, the United States knew that while it had 5-1/2 months to prepare the bombing plan Saddam had the same 5-1/2 months to evade its effects by moving equipment out of sites that had been identified for Saddam's benefit in hundreds of newspaper and magazine articles.

—Third, it is entirely likely that scientists and technicians were evacuated from facilities when the war started, leaving Saddam with the two elements more important than hardware: trained minds and a corporate-memory that would allow renewed NBC efforts to compress the learning curve.

Still, since the intelligence agencies knew so little about Iraq's nuclear plans, it is easy to slap the label of intelligence failure on their performance. As noted earlier, that term lacks precision; and it would appear inappropriate to apply that term when intelligence officials acknowledged to the House Armed Services Committee long before Operation Desert Storm that they lacked enough information to feel confident they knew the status of Iraq's nuclear program.

What is clear is that inadequate resources were applied to gather data on the Iraqi nuclear effort. Two elements might be isolated for note. First, in July 1990, the Defense Intelligence Agency (DIA) had 42 persons in its Washington headquarters assigned exclusively to the POW/MIA issue and two assigned to Iraq. The former reflects the political sensitivity of the POW/MIA issue. And given recent developments, the numbers assigned to this topic are now rising rapidly. The relative insignificance of the numbers assigned to Iraq reflects the higher priority given to POW/MIA matters and, of course, the communist

world.

Second, the use of human intelligence (HUMINT) from potentially recruitable Iraqis has been downplayed generally by the United States. When it came to Iraq, there simply wasn't very much HUMINT. This reinforces a long-standing criticism of the American intelligence community: that it is technology-smitten at the price of shortchanging the human collection aspect. We would do well to recognize that in the Third World, human collectors are relatively easy to find. HUMINT has its limitations. It is but one facet of intelligence collection. But it is a facet that has been downgraded to our harm, as has been demonstrated by the relative paucity of data from the ground--as opposed to overhead--that was available about Iraqi nuclear capabilities.

This should not imply, however, that anything less than great care went into the selection of bombing targets. In that regard, it is useful to review the record on one target, the Baghdad baby milk factory, one of the most controversial of the war.

That particular plant was first pinpointed as a potential biological site in 1983. It was watched for more than eight years as data on it grew in files in Washington.

A baby formula plant is very similar to a plant for making some types of biologicals. The main difference would be the need to provide much better security at a biological plant, for example, containment systems to protect against leaks from the driers, which would otherwise be the same in a baby milk plant as in a biological warfare plant. While the Baghdad plant had no secure containment system, that is not proof the plant was an innocent site. UN inspectors who have visited admitted chemical sites in Iraq have remarked on the absence of even fundamental safety measures there. Furthermore, the Baghdad milk plant did have another kind of security. It was viewed as odd that a milk plant would have a manned security gate and be surrounded by a nine-foot fence. The milk plant also adjoined a major military installation—an installation long at the center of Iraqi unconventional warfare operations. Still, it was treated only as a *potential* biological site.

Over the years, data on the milk plant mounted. Some evidence pointed to the plant as a biological site. But other evidence, which remains classified because it involves sensitive sources and methods, was contradictory. Long into Operation Desert Shield it was still listed simply as a potential biological manufacturing plant.

Then, in December 1990, the Iraqi authorities began applying a mottled camouflage scheme to the roofs of two confirmed sites. At the same time, the same camouflage scheme was applied to the roof of the milk plant. The site was immediately shifted from the potential list to the confirmed list and made a target for the air campaign that was to begin in just two weeks.

Today, almost two years after the end of Operation Desert Storm, we still do not know with absolute certainty whether the plant that was bombed was a biological site or a legitimate baby milk plant. That would probably require a look at the paper documentation that exists only in Iraqi government files. But it can be said that the U.S. intelligence community devoted considerable effort to deciphering the nature of the plant and did not offer it for the target list willy-nilly. General Schwarzkopf disliked caveats. When intelligence proposed structures for the target list, there were no caveats, no nuances, no footnotes. A building was either on the list or off it. It would be naive to suggest that 100 percent of the structures put on the target list were appropriate military targets. Such accuracy is unachievable. And if it is demanded that no building be placed on the list without unimpeachable and unqualified evidence, then target lists would be very short indeed and, in this case, even more of Saddam's military structure and weapons of mass destruction would have emerged from the war unscathed.

There are literally millions of buildings in Iraq. To pinpoint a few thousand central to Iraqi military operations was a daunting challenge. Yet even the Iraqi government contends that only a few structures like the baby milk plant and a shelter in Baghdad were wrongly targeted. The Iraqi government thus provides the best evidence available to date of the accuracy of the target list.

DETERMINING IRAQI MORALE

In the end, the total collapse of Iraqi morale was central to the huge victory won with minimal casualties, but the extent of the collapse was not understood by intelligence. How could it have been assessed?

Morale can't be seen in photographs, where the United States has.placed so much of its resources. Morale can't be heard directly in Signals intercepts. Hints were picked up in those intercepts, but they were hints and not conclusive. And the principal human intelligence came from defectors. They did report exceedingly poor morale.

Defectors, however, are historically a notoriously poor source of information on morale; they clearly have poor morale themselves or they wouldn't have defected and traditionally they project their attitudes on their fellow troops. But the number of defectors was so small (only about 800 during the air campaign out of hundreds of thousands) that the volume itself was evidence against theories of plummeting morale. The first solid evidence that Operation Desert Storm might be a rapid success came only days before the ground campaign was launched when reconnaissance teams crossing the border reported coming across empty bunkers. Only then did it sink in that massive numbers of Iraqi troops had fled homeward. From an analysis standpoint, therefore, U.S. intelligence did not get a full picture of Iraqi morale until late in the air war.

Psychological warfare is not an intelligence function, but from an operational standpoint, U.S. intelligence contributed to the psychological war campaign that was a key factor in the collapse of Iraqi morale.

Psychological warfare plans homed in from the very beginning on a major effort to attack the Iraqi willingness to fight. A key component of this was the leaflet campaign. Throughout the air campaign, a total of about 27 million leaflets were dropped in the Kuwaiti Theater of Operations (KTO). They fell into three categories:

SURRENDER DIRECTIONS. This category told Iraqi soldiers how they should surrender, such as positioning their rifles over their shoulders muzzle down and holding the surrender leaflets above their heads. These leaflets were widely described in the media, but were the least significant of those dropped.

B-52 WARNINGS. One day an aircraft would fly over an Iraqi division dropping leaflets that said, "Tomorrow we will bomb the 21st Division. To save yourself, leave this area." The next day, the B-52s would come and drop thousands of tons of bombs on the division deployment area. The third day another plane would drop leaflets saying. "We told you we would bomb here. We bombed when we said. We will be coming back. Leave this area." These leaflets showed Iraqi soldiers that their own forces could not protect them from a pre-announced attack.

VEHICLE WARNINGS. Where the B-52s were not operating, other aircraft were busily targeting tanks, APCs and artillery pieces. In these areas, aircraft-dropped leaflets that told the troops the Coalition was targeting vehicles and warning the soldiers to stay away from the vehicles if they wanted to be safe. Interviews with Iraqi POWs later showed that the Iraqi soldiers saw that the American pilots were in fact attacking vehicles and not personnel bunkers. Iraqi officers had told their troops that the Americans would shoot them if they were captured. The Iraqi soldiers, however, putting together the warning leaflets and their observation that U.S. aircraft were not targeting personnel, reasoned that the Americans would not shoot them if they surrendered. As a result, when the ground campaign began, many Iraqi soldiers were eager to surrender and felt safe in doing so.

After the war, captured Iraqi officers were interviewed at length. They believed that the greatest damage to troop morale came from the B-52s. This same point was made by many captured Viet Cong and North Vietnamese soldiers a quarter-century ago. In both instances, troops were stunned psychologically by the B-52 bombing because, unlike other aircraft, the B-52s a) fly too high to be heard coming and b) carry an immense tonnage. As a result, a B-52 raid begins without warning when whole acres of the earth simply erupt in flame, noise and smoke.

But in Vietnam, the B-52s couldn't pull off the destruction of enemy morale. In Operation Desert

Storm, the synergism of a) the bombing campaign, b) the psychological war leaflets and c) the lack of commitment of Iraqi soldiers to Saddam Hussein's cause were the triptych of elements that led to the total demolition of Iraqi morale. And the destruction of Iraqi morale was key to the swift victory with few casualties.

CONCLUSION

In conclusion, the performance of the U.S. intelligence services in Operation Desert Storm was mixed.

The three most serious shortcomings that came to light are:

—The absence of any book or doctrine on assessing battlefield damage.

—The Services' deployment over the years prior to Operation Desert Storm of Secondary Imagery Dissemination Systems that couldn't communicate with one another.

—The institutional failures, especially in CENTAF, that reduced the volume of intelligence disseminated to the operating units as the headquarters charged with that dissemination grew larger and more capable.

The three most successful accomplishments of intelligence in Operation Desert Storm were:

—The imaginative creation of the concept, in which intelligence resources were tailored in advance to produce the data the commander needed when he needed it, rather than just a flood of unassimilated facts.

—The apparently accurate breadth and depth of detail accumulated on the Iraqi chemical warfare program, the Iraqi Order of Battle, and a multitude of structures scattered throughout Iraq identified as having military significance, without which the air war would never have been the success it was.

—The contribution of three new pieces of collection hardware JSTARS, ASARS and the Pioneer UAV.

Referring back to the three categories of intelligence activity with which this paper began, the conclusions are:

—Intelligence collection in Operation Desert Storm was generally very good and deserving of praise.

—Intelligence distribution overall was very poor, particularly when it came to serving air fighting units. Both the hardware and the people failed.

—Intelligence analysis was mixed. The concept was brilliant. But the count of dead Iraqi tanks, APCs and artillery pieces exposed a major systemic failure in the ability to accurately make battlefield damage assessment.

SCHWARZKOPF CRITIQUES OF INTELLIGENCE
(Congressional Testimony of June 12, 1991)

OVERALL

I think that as far as the intelligence support and the war as a whole, it was excellent. We had very, very good intelligence support We had terrific people. We had a lot of capabilities.

(1) ESTIMATES OF ENEMY STRENGTH

I don't feel that we overestimated at all. …The ground success occurred after a very, very carefully calculated campaign plan that was designed to reduce the will and capability of the Iraqi military to fight. That's why we succeeded so quickly. It had nothing to do with an overestimation of the number of people who were there.

(2) BATTLEFIELD DAMAGE ASSESSMENTS

(BDA)…was one of the major areas of confusion. And I feel that was because there were many people who felt they were in a better position to judge battlefield damage assessment from a pure analysis of things like photography, and that sort of thing, alone, rather than allowing the theater commander, who is the person that really, in the final analysis, has to make the ultimate assessment to apply good military judgment to what he is seeing. That led to some reports that were confusing. It led to some disagreements. As a matter of fact, it led to some distancing on the part of some agencies from the position of Central Command at the time, as to what the battle damage assessment really was…. There were certain very specific trigger points, to use the term, that we felt that we had to arrive at before we could successfully launch the ground campaign. And it was important that we had good analysis of how we were coming, how we were progressing towards those trigger points before we were in a position to recommend to the president of the United States that we do launch a ground campaign. I would tell you very candidly that based upon some of the analysis that we were getting, we'd still be sitting over there waiting if we were dependent upon that analysis because unless it could be seen on a photo as absolutely 106 percent being destroyed, no credit was given for it being destroyed. Pilot reports that came back--no credit was given to them. Sure, they're going to be inflated. We know that. But you don't go out and conduct a complete bombing raid and come back with no results…. About a week before the ground attack, I made a statement that the Iraqi military was about to fall apart. And I think the very next day in all the press it said the national intelligence agencies were all distancing themselves from Schwarzkopf's comment that the Iraqi military is about to collapse…. I'm not sure we need that… I also facetiously used to kid my J-2 all the time and say, this is really great, you got a four-span bridge, you knock out two complete spans and you're only told that the bridge is 50 percent destroyed. Nothing can go across that bridge, but its only 50 percent destroyed. I think it's something we need to look at.

(3) RESPONSIVENESS

One of the shortcomings we found is that we just don't have an immediately responsive intelligence capability that will give the theater commander near-real-time information that he personally needs to make a decision. I guess one of the best examples of that was when General Chuck Horner said to me…in every other war when our pilots were to go out and hit a target, they generally have an aerial photograph in their laps that was no more than 24 hours old of exactly what it was they were going to hit…. We didn't have that capability. And that's what we mean by tactical intelligence. That's real-time intelligence that's available to the theater commander or the subordinate commanders for their use…. I think that the intelligence community should be asked to come up with a system that will, in fact, be capable of delivering a real-time product to a theater commander when he requests that. It could be aircraft. It could be other capabilities…. I just think that's a void because we focus too much on what might be called national systems which respond more to national directive out of Washington.

(4) INTEROPERABILITY

There is a need to standardize the intelligence connectivity and interoperability between the services. The Air Force and the Navy built their air and electronic orders of battle from different data bases. When you want to transfer the order of battle from one data base to another, it was extremely difficult to do and many times had to be by hand…. I think that the passage of intelligence between all the services and also between a headquarters like mine down to the components, and to make sure that we all have the same kind of equipment out there, to both develop it and receive it, is a very important area of interoperability that the services have to work on in the future.

(5) CAVEATIZATION

I personally feel that there's a serious need to develop a standardized methodology within the intelligence community for making estimates and predictive analysis…. The analysis we received was unhelpful. And it was unhelpful because it ended up being so caveated…. There were so many disclaimers that by the time you got done reading many of the intelligence estimates you received, no matter what happened, they would have been right. And that's not helpful to the guy in the field.

*MARTIN S. KLEINER * **Joint STARS Goes to War***

Immediately following the Iraqi invasion of Kuwait on 2 August 1990, the Army considered deploying the joint surveillance and target attack radar system (Joint STARS) to Southwest Asia. As part of the system's full-scale development program, it was scheduled to deploy to Europe for a six-week operational field demonstration (OFD) in the fall of 1990. While many of the people closely associated with the program felt Joint STARS should deploy to Saudi Arabia for its OFD, others were concerned about its immaturity and questioned its supportability. In late August, a decision was made to continue with the European plan and evaluate the system's performance.

As a part of this OFD, Joint STARS participated in a VII Corps deep-strike exercise, which occurred during the system's third flight in theater. It involved locating three 25-vehicle convoys moving out of the Hohenfels Training Area at night and targeting them for the corps' Apache brigade.

The corps commander, Lieutenant General Frederick Franks, oversaw the operation. After observing the convoys on the radar screen in the ground station module (GSM) and closely questioning the operator, General Franks ordered the launch of the AH-64 Apache helicopters. Based upon analysis performed in the GSM, the AH-64s were directed to one of six preplanned attack areas.

The first of the convoys arrived within one minute of the predicted time of arrival. (More accurate arrival times could have been passed to the AH-64s, but due to European flying restrictions, the E8 aircraft departed its station approximately 15 minutes before the engagement. The analysis was made from "real-time" data, but the convoy's arrival time in the engagement area was extrapolated from historical data.)

Based upon this engagement and Joint STARS' continued success throughout the rest of the OFD, a briefing team was dispatched to Saudi Arabia in early December 1990. This team consisted of Army and Air Force program managers, the U.S. Army Training and Doctrine Command (TRADOC) systems manager and the Tactical Air Command's deputy director for requirements. After a series of joint and component staff briefings, a decision briefing was presented to General Norman Schwarzkopf, Commander of Central Command, on 16 December. On 17 December, he requested the system be deployed to Saudi Arabia and directed it be operational no later than 15 January 1991.

During the ensuing weeks, the Army formed the Joint STARS Operational Detachment (JSOD), and the Air Force formed the 4411 Joint STARS Squadron (JSS), both activating at the contractor's facility in Melbourne, Florida. During this time, flight and GSM crews were formed, training was conducted, final hardware and software changes were made to the prototype aircraft and the GSMs and employment concepts were developed. On 8 January, the first GSM and crew were deployed, followed incrementally by the other five.

On 11 January, the two E8 aircraft departed Melbourne and flew 17 hours nonstop to Riyadh Air Base in Saudi Arabia. During this flight, the airborne mission crews concluded their final 12 hours of integrated training.

Final Preparation

On 6 January, the commander of the Army's JSOD arrived in Riyadh to plan operations and coordinate Joint STARS support of the ground forces. Because there weren't enough GSMs and aircraft to provide dedicated support to the three corps equivalents—VII Corps, XVIII Airborne Corps (ABC), I Marine Expeditionary Force (I MEF)—a theater support concept was devised. This placed one GSM at each of the corps and I MEF, one at the tactical air control center (TACC) and one at Riyadh Air Base where the JOSD and the 4411 JSS established a joint operations center. The Riyadh GSM provided direct support to both the Army Central Command (ARCENT) G2 and Central Command CENTCOM) J2.

When the sixth GSM arrived in theater, it required significant upgrading. (It had been in England

participating in a cooperative research and development program.) Eventually, it was dispatched to ARCENT Forward at King Khalid Military City.

Because the first four phases of the campaign were to consist primarily of offensive air operations (mistakenly referred to as the air campaign), it was decided that the air component would receive priority Joint STARS support during this time. This priority then would shift to the ground components during phases five and six, which constituted the major land warfare.

Coordination was conducted at each of the corps and I MEF to inform the command and staff elements of what they could expect from the system and to arrange for the integration of the GSMs. Each combat headquarters chose a slightly different approach to employing its GSM, but this didn't seem to affect Joint STARS' ability to support the unit. Its overall utility tended to be a function of the unit's mission, its area of responsibility, and, naturally, the amount of coverage the unit received.

Because the Joint STARS' operational capabilities were not fully known, the initial concept for support of the air component called for it to validate the preplanned targets of attack aircraft just before their final penetration. This type of operation would use the synthetic aperture radar (SAR) imaging mode for fixed targets intensively. Its purpose was to preclude attack aircraft from attempting to engage target areas that had lost their value.

Because of the length of the preplanning and air tasking order (ATO) processes, this concept held great promise of increasing the efficiency of air attacks. However, it didn't exploit Joint STARS tremendous offensive capability against moving targets. Luckily, we rapidly evolved concepts and procedures and, by the final phases of the campaign, much more fully exploited the system. During the time of priority support for the air component, the land components also were receiving all the radar data as they were being produced and were able to exploit it for targeting and intelligence purposes.

Joint STARS

The joint surveillance and target attack radar system (Joint STARS) is the world's most advanced tactical radar. It's designed to allow both ground and air commanders to see and, in conjunction with our most modern weapons systems, destroy the enemy before he can employ his forces.

Joint STARS is comprised of an E8 aircraft (Modified Boeing 707) containing a multi-mode radar, various communication and data link systems with operations and control (O&C) consoles and an array of ground station modules (GSMs). It enables commanders to detect, locate, track, and attack the enemy.

Operations. The Joint STARS concept of operations calls for it to provide dedicated support to U.S. Army corps on an around-the-clock basis. In this role, the radar's primary mode was *moving target indicator* (MTI). It would continually sweep the corps commander's area of interest and detect, locate, and display moving targets from individual vehicles to brigade- or larger-sized units. The radar would revisit the area rapidly enough to cohesively track these elements and provide location accuracies sufficient for targeting for Army and Air Force weapons systems. Additionally, upon operator request, the system could shift to a synthetic aperture radar (SAR) *imaging mode* to provide information on fixed targets.

Distribution. The radar information was simultaneously distributed to both the O&C consoles in the rear of the aircraft and the GSMs in its area. At each of the processing locations (the aircraft has 15 workstations; each GSM has two), the operator displays radar data on a screen overlaid on map and terrain data bases. As the detected vehicles and units move about the battlefield, this information was displayed and recorded. The operator then can use a variety of software tools and techniques to analyze the information and develop intelligence and targeting data. This information was continuously fed in near-real-time to commanders, staff elements and fire control systems to support planning, decision-making, and execution.

Current Army concepts call for assigning 15 GSMs to a notional three-division corps. These GSMs will be allocated as follows: One per division artillery, two per division tactical operations center (DTOC),

one per corps artillery, two per corps tactical operations center (CTOC), and one in each of the three Army tactical missile system (Army TACHS) battalions. Approximately 43 percent of the GSMs will be operating in the Field Artillery arena. Specially trained intelligence analysts organic to the units they support will man the GSMs. The Army concept of operations for Joint STARS was being refined. It's likely the number of GSMs will be increased to provide them to maneuver brigades, armored cavalry regiments (ACRs) and corps aviation units.

Because each GSM would receive all the radar data produced by the E8 aircraft and would be located with its supported unit, it would produce real-time products tailored to the needs of each commander. Eventually, the GSMs would be able to simultaneously receive and process unmanned aerial vehicle (UAV) data, creating an unprecedented view of the battlefield.

When Joint STARS was still in its development phase, and only two prototype aircraft and a limited number of GSMs existed, the system demonstrated excellent capabilities during a European operational field demonstration (OFD) in the fall of 1990. For that reason, General Norman Schwarzkopf requested it be deployed to Southwest Asia in January 1991.

Execution

Joint STARS performed its first mission on 14 January 1991. It began as an engineering test flight to determine what the system could produce. After establishing connectivity with the GSM at Riyadh (the other GSMs were still in transit), the system began surveillance of friendly occupied areas inside Saudi Arabia. After a short time, the product looked like what was expected, and we shifted coverage to Kuwait and Iraq. Again, a very clear picture of what the system could do began to emerge, and this flight turned into an eight-hour intelligence-gathering mission. This was to be the first of 535 flying hours logged in 49 consecutive, successful missions.

Because of the availability of other daylight monitoring systems, Joint STARS was to fly missions primarily at night. This was done in the belief the enemy would use the hours of darkness for the majority of his moves. During the night and early morning hours of 15 to 16 January and again on 16 to 17 January, Joint STARS went airborne and produced a variety of moving target indicator (MTI) and SAR imagery products for situation and target development. Although the offensive began during the early hours of 17 January, Joint STARS didn't play an active role in it as the targets were primarily strategic; they tended to be (semi-) fixed.

After the first night of the war, Joint STARS began validating targets in the Kuwaiti Theater of Operations (KTO) and also began developing real-time targets through a combination of MTI and SAR products. This occurred in both the E8 aircraft and those Ground Support Modules receiving data.

Initially, these real-time targets were handed off to the TACC, airborne warning and control system (AWACS), airborne battlefield command and control center (ABCCC) or, in the case of the I Marine Expeditionary Force, through its targeting channels. In several instances, these targeting efforts weren't successful because attack aircraft were unable to respond to real-time data and because Joint STARS was unable to maintain continuous surveillance of those targets. Quite often, because of the tactical situation or standing requests, Joint STARS shifted its coverage from one area of the battlefield to another. Also, because the systems are engineering prototypes, there were frequent periods of down or "reboot" time. (The airborne portion of the system always flew with a complement of civilian contractors on board, including the Phd's who developed the hardware and software.)

Often Joint STARS developed a moving target, say a convoy, reported at a certain grid coordinate with a given velocity (i.e., southwest bound at 25 kilometers per hour). In some instances, the target was passed to alert aircraft, which responded within one to two hours. But because there was no procedure for the aircraft to contact Joint STARS for an update and Joint STARS might not have been covering the target recently, they flew to the original grid and found nothing. It was obvious we needed to develop more responsive procedures.

At about this time, Saddam Hussein launched his Scud campaign against Israel, and Joint STARS was sent to the west to help target fixed and mobile Scud launchers. These targets were important and could be of fleeting value (a launch could occur at any time), so strike aircraft were placed on combat air patrol (CAP) to respond immediately to Joint STARS-derived real-time targets. This methodology proved so successful it was carried over to the operational air offensive in the Kuwaiti Theater of Operations.

One early example of the system's great capability occurred during the Battle of Khafji. When this engagement began, there was some concern that it might be an Iraqi preemptive attack aimed at drawing the allies into a premature land battle, disrupting our campaign plan. As Joint STARS provided surveillance of Khafji and the area to its north, it became clear there were no second-echelon forces en route poised to exploit any early successes. This strongly indicated the attack was limited in nature and could be dealt with without major alterations to the ongoing campaign.

Additionally, when the Iraqis tried to resupply and relieve the engaged units, this was detected early-on, and an AC-130 gunship and two A-10 aircraft were employed against the target. These aircraft destroyed approximately 70 percent of the vehicles and caused the others to disperse and flee the area.

By then, the daily air tasking order began tasking numerous sets of strike aircraft to respond primarily to Joint STARS-derived targets. If none were available, the aircraft proceeded to preplanned targets or preassigned "kill boxes." This dictated that the Joint STARS airborne crew begin organized and consistent target generation. In this generation process, the Army airborne crew members came strongly into play.

On board the aircraft was an airborne coordination element (ACE) that consisted of the mission crew commander (an Air Force colonel) and an Air Force intelligence officer. In addition, there was a radar management officer; several Air Force targeting officers, primarily with backgrounds in AWACS; and an Army element that consisted of a field-grade intelligence officer and a target development officer.

Because the Army crew members thoroughly understood the enemy order of battle and our targeting process, they provided tremendous insight to the Air Force crew members, many of whom had no experience with land warfare. Additionally, the Army members brought the ground commander's perspective to the aircraft and advised the ACE so that targets generated were high-value for both the air and land components. (Several of the Air Force crew commanders also had extensive experience working with land forces, which proved invaluable to the system's performance.)

In one successful procedure, one of the Army field-grade officers attended the daily ARCENT G2/G3 targeting meeting. During this meeting, he absorbed the commander's intent and his priority for target attacks. Additionally, the Joint STARS Army officer received from the targeting cell a prioritized, updated list of Army targets and sorted them by geo-reference. The officer then provided the Joint STARS flight crew the list and commander's priority just before take-off. This information became the basis for much of the night's targeting.

A strong indication of the effectiveness of these procedures came from the F-15E (Strike Eagle) wing commander. He stated that when his aircraft were targeted against preassigned kill-boxes, they usually ran low on fuel before they expended all of their ordnance. Conversely, when they received real-time targets from Joint STARS, they always ran out of ordnance before they ran low on fuel.

During this same time, the Army began employing the Army tactical missile system (Army TACMS), and Joint STARS was called upon to support these engagements. Frequently, Army TACMS targets were generated by other means. But because of the time it took to analyze and develop the targets, there was concern they may have lost their value. In many instances, Joint STARS was called upon by the VII Corps deep-strike cell to validate a target just before missile launch, and when this could be effected, it proved very successful. There was at least one instance of an Army TACMS being launched against a very lucrative target derived solely from Joint STARS real-time data.

One of the biggest disappointments for the system was our inability to coordinate and execute the support of an AH-64 deep strike, as had been accomplished during the European OFD. Although this type of operation was attempted on several occasions, our low density of assets and consequent inability to

provide dedicated support precluded our accomplishing that mission. Examples of factors eroding our dedicated support were Joint STARS diversions to Scud hunting or conflicts with other preassigned missions that resulted from the variance in mission planning cycles.

As the ground phases of the campaign began, the system focused primarily on the enemy's reinforcing-capable, second-echelon units and the Republican Guards forces in the northern KTO. This kept the Iraqis from catching our forces in the breaching operations or, in the case of VII Corps, from impeding our forces' high-speed approach up the Wadi al Batin. The success of this concept proved itself repeatedly.

At H-Hour, G-Day and for the next several hours, Joint STARS supported Marine Corps operations. It confirmed the Iraqis weren't going to oppose their breaching operations with reinforcing armored or mechanized elements and the amphibious feint being conducted in the Gulf was drawing forces to the coastline. This intelligence was of significant value to the attacking commanders.

After VII Corps and the Joint Forces Northern Command had initiated their attacks, Joint STARS concentrated on the western border of Kuwait and Iraq. Shortly after arriving on station, the E8 aircraft detected the movement of what appeared to be reconnaissance or lead elements moving out of the Tawakalna Republican Guards Division area into the Wadi al Batin. This movement was simultaneously observed at ARCENT and VII Headquarters. Having tactical aircraft available, the airborne mission crew commander immediately targeted the elements, and in a brief time the movement ceased. Shortly thereafter, Joint STARS detected the surviving vehicles dispersing.

Later, a large enemy formation moved down the Ipsa Pipeline Road to the southwest. The E8 aircraft also targeted these elements, but in accordance with preestablished procedures, Joint STARS did not control strikes within 20 kilometers beyond the fire support coordination line (FSCL). In this area, targets were passed on to the airborne battlefield command and control center.

Although the air attacks had damaged the moving element, it continued to just within Phase Line Smash, which was the fire support coordination line. The element then proceeded northwest along the FSCL and, at what appeared to be a release point, broke up into company-to-battalion-sized-units.

Again, all locations observed these actions, and the VII Corps Tactical Operations Center passed the information to the 2d Armored Cavalry Regiment (ACR). The 2d ACR then adjusted its axis of advance and closed with the elements seven hours later.

As Joint STARS began its third mission in support of the ground offensive, it detected an extremely heavy and continuous flow of traffic north out of Kuwait City on the major highway and the coast road both leading into Iraq. The E8 aircraft and the Marines targeted this movement, including on the major highway, which became known as the "Highway of Death." The results of this targeting were featured on CNN and the cover of *Time* magazine.

Later in the night, Joint STARS detected a massive withdrawal of forces from the southern and eastern areas of Kuwait. It detected little or no movement from the major forces in western Kuwait.

As the battle which annihilated the Iraqi Army began, Joint STARS information supported decision making and targeting at all echelons. At least one brigade commander of the 24th Infantry Division (Mechanized) used Joint STARS reports to target his artillery and adjust his maneuver. Joint STARS' ability to detect movement across the Euphrates River and support the interdiction of bridges and river crossings proved invaluable in keeping the Iraqi forces bottled up in the Basrah basket. The visual depiction that the system provided in near real time continued through the final victory and the consolidation phase.

After-Action Analysis

Much of Joint STARS set up and operation occurred in a dispersed manner with rapid change. While there's no doubt Joint STARS contributed significantly to the war effort and the quick victory, we must recognize there was some dissatisfaction with the system. Most of this dissatisfaction was due to Joint STARS' inability to provide dedicated support and any given commander's inability to plan for and count

on the system being available when he needed it. Most of this dissatisfaction will be alleviated when we achieve our objective number of systems, but we've learned there are some underlying operational issues we must resolve to fully exploit Joint STARS' unique capabilities.

*DANIEL F. BAKER * **Deep Attack: A Military Intelligence Task Force in DESERT STORM***

During DESERT STORM's ground campaign, the 2d Armored Cavalry Regiment led the VII Corps on a fast-paced end sweep of Iraqi defenses. The 2d ACR was the first U.S. unit to occupy a portion of Iraq. As the 2d ACR's organic MI unit, the 502d MI Company, formed the nucleus of an intelligence and electronic warfare (IEW) task force that supported 2d ACR operations. As such, our MI task force was the first MI unit to conduct IEW operations conventionally on the offense on a large scale. This was an account of the 502d's experience during Operation DESERT STORM. Hopefully, it will give others insight on planning and conducting IEW operations on the offensive.

For the 502d, Operation DESERT STORM was a curious mixture of success and frustration. The company, with augmentation, met the regiment's tactical IEW needs and was fully successful in its mission. However, the unique aspects of the conflict—or, more precisely, of the enemy—resulted in limited electronic warfare (EW) products and severely strained interrogation resources. This is a reversal of the mission contributions current doctrine and force structure anticipate.

We did a better job of anticipating our regiment's IEW needs, and we formed a task force that could meet them. The IEW task force included the 502d MI Company, B Co/511th MI Bn, a 25-soldier support element from HHS/511th MI Bn, interrogation team from A/511th MI Bn, two radio teletypewriter (RAFT) teams from D/307 MI Bn, a TRQ-32(V) team from Det 101/101 MI Bn/1 Infantry Division, 26 Kuwaiti army officers and soldiers, and one Saudi army NCO. The task force had operational control of the regiment's QUICKFIX platoon and an MP platoon for enemy prisoner-of-war (EPW) security.

For equipment, the task force had six TRQ-32(V)'s, five MLQ-34's, three MSQ-103's, and two TLQ-17A's. Only two of its three authorized QUICKFIX systems were available. The task force didn't have a divisional technical control and analysis center.

Organization

We organized the task force to accommodate distinct 502d MI and B/511th organizations. While the 502d MI had two collection and jamming (C&J) platoons, B/511th had platoons built around individual systems. These two companies had never trained together before and weren't familiar with each other's operational procedures.

We based task organization on the regiment's scheme of maneuver and the 502d MI platoons' familiarity with regimental operations. The regiment planned to maneuver with two squadrons abreast during its operation, so we placed one collection and jamming platoon forward in each zone. This gave the regiment on-call jamming, as well as forward deployed ground-based collection. We assigned the TRQ-32(V) team from Det 101 to one of the two collection and jamming platoons to give the company a direction-finding (DF) fix capability.

Normally, we deployed the B/511th platoons pure, to avoid complicated reorganization just before combat. We gave these platoons a follow and support mission during movement and deployed them in baselines across the regimental front.

We trained and cleared some Arabic linguists and Kuwaiti soldiers for IEW operations and assigned them to TRQ-32(V) and MLQ-34 teams in both companies. Later, we shifted some of them to the interrogation of prisoners of war (IPW) team to meet mission requirements.

We spread interrogators throughout the regiment. To provide intelligence support forward, we gave a team to each squadron consisting of an interrogator, a translator, and an MP squad. Eight interrogators manned the main EPW cage at the regimental support squadron (RSS). Translators and the remaining two squads of the MP platoon supported them. We could have gotten additional interrogation teams from A/

511th and other units, but no one had vehicles to transport them and their gear. This was an area in which current MI unit equipment authorizations didn't support current MI doctrine.

CI teams, augmented with linguists, initially operated from the regimental tactical operations center (TOC), then from the Regimental Support Squadron.

Ground surveillance radar (GSR) squads had three GSR teams each. We detached them to individual maneuver squadrons. However, we strictly controlled GSR use after a test revealed that, to friendly aircraft, the radar's signal made it look like a piece of Soviet equipment the Iraqis were using.

Maintenance and Training

Before Ground Day, the task force emphasized maintenance and training, with EW platoon leaders coordinating face-to-face with maneuver squadron staffs. Maintenance was a major challenge, however, especially for attached equipment.

With training, the task force emphasized land navigation and team or platoon drills. All platoons rehearsed extensively before the task force exercises. Our collection and jamming platoons also took part in squadron maneuver exercises, while the B/511th MSQ-103 platoon worked with the field artillery brigade. Task force training came together with the regiment/corps maneuver exercise, which coincided with the move to the forward assembly area (FAA).

Concept of Operations

The task force's concept of operations paralleled the regiment's, with three principal phases: Defensive covering force for the corps forward assembly area (FAA); offensive covering force for a two-division attack into Iraq; and offensive covering force for the massed corps.

In Phase I, we served as the defensive covering force for the corps FAA. It consisted of static collection with two mutually supporting TRQ-32(V) baselines, and an MSQ-103 electronic intelligence baseline, augmented by QUICKFIX missions. All assets operated under control of the 502d MI technical control and analysis element (TCAE). Since there wasn't much enemy signal traffic, the TRQ-32(V) baselines alternated four-hour schedules, to save wear and tear on the equipment.

Operations security (OPSEC) was very important since the regiment was to lead a surprise flanking attack deep into Iraq. CI personnel apprehended and screened civilians in the FAA and detained possible Iraqi agents or sympathizers. The regiment operated under radio listening silence, so IEW communications were limited to Digital Communication Terminal (AN/PSC-2) links. The TCAE monitored corps TCAE RAFT communications, but didn't transmit.

The MSQ-103's operated in direct support of the VII Corps 210th Field Artillery Brigade which augmented the 2d Armored Cavalry Regiment. Their first priority was to identify and locate enemy counterfire radars. In a nondoctrinal arrangement, the platoon operations center collocated with the 210th FA Brigade TOC. This worked well tactically. Although the enemy didn't activate counterfire radars, the close tie-in of the MSQ-103's to the artillery assured the regiment could respond quickly. This relationship ended when offensive covering force operations began in Phase II.

Each sector's collection and jamming platoon leader coordinated site selections with the squadron staff and served as the task force point of contact to the squadron—a relationship that continued throughout the operation. Having a single point of contact simplified coordination for the squadron and other task force assets as they moved in and out of the squadron sector.

In Phase II, we served as the offensive covering force for a two-division attack into Iraq. At first, collection and jamming platoons moved with their squadrons through the breaches in the border. The 511th TRQ-32(V)'s maintained a baseline and QUICKFIX gave backup coverage. B/511th jammers deployed forward during collection and jamming movement. Once the 502d MI baseline was set on the Iraqi side of the border, B/411 assets moved to a new baseline. We didn't detect any enemy electronic

emissions during the breach, nor did we take any prisoners. Once again, we didn't use GSRs.

Once we got through the border, we shifted our focus to rapid movement. We needed to keep IEW assets ready for immediate use when we contacted the enemy. To maintain continuous IEW coverage while ground elements moved, we used QUICKFIX. The collection and jamming platoons advanced with the squadrons in prearranged positions within their tactical formations. We gave B/511th a follow and support mission and moved it with the task force trains 10 to 15 kilometers behind the collection and jamming platoons. We gave B/511th platoons warning orders and committed them based on the tactical situation as the regiment advanced and engaged the enemy. Platoon and team drills were central to this phase's success with automatic, well-rehearsed actions occurring at every halt.

EPWs flooded into the regiment's area. The first prisoners were Iraq's 48th Infantry Division soldiers retreating north from the 1st U.S. Division attack. The numbers rose quickly, fed by Iraq's 25th and 26th Infantry Divisions, and nearly overwhelmed our limited interrogation and MP assets. Meanwhile, VII Corps took back its guidance which had allowed the regiment to bypass disarmed EPWs. We then pressed cooks, mechanics, and combat soldiers into service as EPW controllers. Interrogators, with their translators, worked around the clock, while the regiment continued its forward movement. By the end of G+1, task force interrogators had processed over 2,000 EPWs.

Enemy communications were extremely limited and all were encrypted. We jammed all communications even though they were from outside the regimental zone. We used GSRs sparingly and only in a security role. During the night of G+1, GSRs performed extremely well, detecting movement at ranges greater than their doctrinal capabilities. GSRs gave early warning and vectored friendly artillery fires and maneuver engagements against enemy counterattacks.

In Phase III, we served as the offensive covering force for the massed corps. The regiment deployed three squadrons abreast. The IEW task force deployed all collection and jamming assets forward to balance capabilities across the front, to provide command and control in all three zones, and to avoid extended frontages for the B/511th platoons. The bulk of two B Company platoons was deployed in a single zone with the senior platoon leader designated the point of contact to the squadron. This ad hoc arrangement was only marginally effective, but caused no significant problems. For us, however, it did reinforce the argument for a third EW platoon in the ACR's MI company and highlighted the advantages of the collection and jamming structure over "pure" system-based platoons.

We still weren't picking up enemy electronic signals. As the regiment advanced, it traveled through a latticework of wires and cables which crisscrossed the desert between bunkers, taking the place of radios for the enemy's command and control. EPWs confirmed radio communications had been forbidden for at least two months. We found many enemy combat vehicles, including tanks, that had no radios.

Apparently, out of regard for allied EW capabilities, the Iraqi army had stopped using its radios and radar systems. Instead, they used an extensive network of wire and cable for communications, and visual observation and deception instead of radars. While this tactic frustrated our EW efforts, it did accomplish our mission to neutralize two thirds of the enemy's command and control. It also freed our linguists to help in the overtaxed interrogation section.

We continued to pick up prisoners in large numbers, now from the Tawakalna (Republican Guards) Division and the 12th and 17th Iraqi Mechanized Divisions. The regiment overran Republican Guards command posts and logistic bases, yielding hundreds of pounds of classified plans, overlays, and documents.

Cease Fire

By the time the cease fire came, on the morning of G+4, task force interrogators had processed over 3,400 EPW and 600 pounds of classified material. EPW interrogation later disclosed the U.S. attack had caught the Iraqi army by surprise. The Tawakalna had hastily shifted to meet the regiment on its flank and had expected contact following the sandstorm on G+3. However, the regiment's attack through the

sandstorm confounded the Tawakalna's defense. Our tanks engaged the Iraqis from beyond the range of their sensors, throwing their defense into disarray. At this point, the 2d ACR reached its limit of advance and the corps main body executed a passage of lines, taking over the fight.

As the regiment shifted into reserve and the cease fire took hold, we scaled down our IEW operations. We still weren't getting electronic intercepts and with friendly units going into base clusters, we didn't need GSR surveillance. Only the interrogators and translators stayed busy processing and forwarding captured enemy documents.

In spite of the complex nature of the operation and the enemy, the IEW task force accomplished its mission. The concept of operations fit both the mission and the available assets and operations proceeded a planned. We consistently had assets at the critical time and place on the battlefield. The IPW teams performed superbly, contributing greatly to the intelligence picture. Counterintelligence and Ground Support Radar operations were effective.

Through the battles and the long, demanding cross-country march, the equipment was operational. And, most importantly, there were no combat losses. By every measure, the task force's DESERT STORM operations were a success. However, this experience highlighted areas where we need to make doctrinal and force structure improvements to make the MI company more self-supporting. Although we lacked the organic assets to be self-supporting, we created an extremely successful task force. Hopefully, this article will instruct others who must provide IEW support to the Army's ACRs.

*GARY P. MELTON * **XVIII Airborne Corps Desert Deception***

The deployment of the XVIII Airborne Corps to DESERT SHIELD and DESERT STORM and the deception operations that followed began in August with a genuine sense of deja vu. We'd just completed CENTCOM Exercise INTERNAL LOOK and the territory and situation were familiar. However, the similarities ended there. The planning and execution challenges we faced now were 7,500 miles away from Fort Bragg.

We deployed our 12-member cell in three sections. On August 27, 1990, a six-member planning and administrative element deployed. This cell continued the corps planning cycle we began back at Fort Bragg and put the first deception equipment package on the ground.

Realizing the scope of our operations and the arduous conditions of the area of operations, the deception equipment office at Fort Belvoir loaned us, on very short notice, additional communication emulators and camouflage decoys. Our forward element used these as well. The remaining corps cell soldiers deployed over the next two months.

As corps G3 planners developed their possible courses of action, the deception planners developed deception courses of action (DCA) to support them. Once we decided the operational course of action (OCA), we briefed the G3 for a decision. Operational and deception planners worked closely together from the start.

This process was critical to the development of a successful deception plan. Unfortunately, too often the process was diluted or disregarded completely, with the deception planner getting involved only at the end. This often resulted in deception for deception's sake, and a deception plan that didn't support operational objectives. Fortunately, our corps leadership was willing to "juggle that extra ball" and to recognize the need for properly planned deception operations as a combat multiplier.

We conducted our first deception operation from October 15 to November 28, 1990, in support of a possible Iraqi offensive. Our operational objectives were to portray our corps establishing a defense in a sector along the Trans-Arabian Pipeline (TAPLine) Road. We tried to portray the sparse Pan-Arab forces as the only covering force forward of TAPLine Road, when, in fact, a large U.S. covering force was there. We knew early on that, on the offensive, the Iraqis considered TAPLine Road to be their first 24-hour strategic objective. Therefore, we could make a credible portrayal of the corps establishing a defense at the TAPLine. If believed, this deception would have confused Iraqi command and control when they ran into a formidable U.S. covering force before they expected.

In addition, when the Iraqis didn't find the FEBA at the TAPLine, their command and control would suffer a second setback. The portrayal of the corps FEBA forward of its actual location would expose Iraqi artillery early, provide a degree of force protection to our command and control, and open up counterfire opportunities against Iraqi artillery.

Initially, we at corps conducted the deception. But after the first week, to enlarge the portrayal, the 24th Infantry Division (Mech) and the 1st Cavalry Division consolidated their people and equipment under the corps.

Three weeks later, the 101st Airborne Division (Air Assault) deception cell began complementary operations. Lasting just over six weeks, these operations portrayed 101st and 24th brigade-level TOCs and forward armor battalions posturing in the defense just south of TAPLine Road. In addition to signal emulations, we used decoy tracked and wheeled vehicles and decoy forward arming the refueling points (FARPs). We used PSYOP teams and real HF RATT traffic in a deception mode. We added many small but important elements, such as unit signs, troop visibility in local towns, and vehicle convoys to enhance the deception's credibility. Additionally, some of the actual covering force units were conducting training that further supported the story that we were establishing a defense along TAPLine Road.

Although the Iraqis never attacked, this first opportunity to plan, coordinate, and conduct deception operations in a desert environment was an invaluable learning experience. The lessons learned during

DESERT SHIELD made us much smarter in the way we supported DESERT STORM. Although ultimately, we couldn't test our operations' success because the Iraqi attack never came, we did get indicators that our operations attracted Iraqi HUMINT and SIGINT collection attention.

The key lessons from these initial deception operations are—

—With proper operator maintenance, both decoy and electronic deception equipment can operate successfully in the desert environment for long periods.

—To get sufficient resources to portray a believable deception story, corps and division deception cells must be consolidated.

When we returned from DESERT SHIELD, we began to plan those deceptions that would support offensive operations. We developed six different deception courses of action to support the operational course of action and its associated objectives. Just two weeks before the air war started, the CENTCOM planning staff set up a theater-level deception conference and published the first deception guidance of the war. ARCENT quickly followed suit with similar guidance. Significantly, our higher headquarters recognized the importance of their participation in and support of deception. ARCENT and CENTCOM were vital players in coordinating the large-scale deception effort needed to support offensive operations.

The CENTCOM plan paralleled our fourth deception course of action. This made our planning role relatively easy. The deception's objective was to reinforce the Iraqi belief that U.S. forces would attack directly into Kuwait and would not go west of the Wadi Al Batin. The deception story was that the two Army corps would attack into western Kuwait with the Marines coming up the eastern coast.

False amphibious and airborne operations also fed the deception. The intent was to distract Iraqi collection efforts and to help conceal the further westward movement of the two corps. Consequently, the Iraqis would present a weakly defended flank that we could take advantage of on G-Day.

The XVIII Airborne Corps' deception operations were very extensive. They required the consolidated effort of corps and all four division deception cells (including the 82d Airborne Division as well as the divisions previously mentioned). On February 13, 1991, the corps and division cells deployed forward. During the next five days we established deception tactical assembly areas (TAAs) south of the western Kuwaiti border. Some 300 people took part in this operation: A signal company, four PSYOP sonic teams, a combat-heavy engineer platoon, a smoke/decontamination platoon, and an infantry platoon which provided vital complementary support. The corps G3 helped make the necessary support happen. Day and night convoys, logistic sites, forward arming and refueling points, air and ground reconnaissance, command posts, tactical assembly areas, airborne and air assault demonstrations, and smoke and decontamination training operations all showed a build-up of corps forces, which supported the deception story.

Counterintelligence teams worked local communities to present the deception story to suspected Iraqi HUMINT collectors. PSYOP air operations dropped more than half a million surrender leaflets north of the notional corps sector. Numerous small deceptions such as falsely marked unit signs and route markings became pieces of the misleading puzzle we wanted the Iraqis to solve.

However, the U.S. air campaign now underway was so successful that the number of Iraqi collection assets was rapidly dwindling. Targeting took into account the theater deception plan, but eventually many systems we wanted to feed no longer existed. Our deception keyed on remaining Iraqi SIGINT collection assets (fixed and mobile) and a credible HUMINT collection asset. Iraqi IMINT was no longer a deception target of opportunity, except possibly what came in from other nations or sources. The unimpeded movement of two Army corps west of the Wadi Al Batin, and the surprise and success of the ground offensive were the best indicators of our deception operations' success. Additionally, intelligence intercepts indicated the Iraqis were confused right up to G-Day about the true disposition of U.S. ground forces. They believed XVIII Airborne Corps units were still located where the deception was conducted.

Our DESERT STORM Phase II operations reinforced our DESERT SHIELD lessons. For example, we learned that to portray a deception of any size and scope, deception operations must be consolidated. On one hand, tactical level deception was usually planned and developed at division and lower levels. Also, tactical level deception can make best use of operational assets. On the other hand, operational and

strategic deception operations require detailed planning, close control, and can best use the more sophisticated decoy and electronic deception equipment.

The weather taught us lessons too. We experienced an unusual amount of rain, and the signal emulators, advertised as being water resistant, did not fare well. In the future, we must make sure that signal emulators are, in fact, waterproof. Also, we would get more flexibility out of air-droppable emulators.

During Phase III (the ground offensive), division deception cells returned to their divisions to conduct tactical deception operations. For Phase III, we got no deception guidance from higher headquarters. The corps opted to execute a deception plan which portrayed a U.S. threat toward Baghdad in the far west vicinity of Ar'Ar, a border town on TAPLine Road. The intent was to fix the Iraqi 54th Infantry Division, which was defending along the main LOC north of Ar'Ar to Baghdad. If we could fix the 54th until G+5, they wouldn't be a threat to the corps left flank. A signal package, a combat heavy engineer platoon, a smoke/decontamination platoon, and two PSYOP sonic teams supplemented the deception element as it conducted Phase III from February 13 to March 1, 1991.

During Phase III, we physically and electronically portrayed an armor brigade TOC. We electronically, and, to a limited extent, physically portrayed a logistic base, a forward arming and refueling point, and two armor battalions. Again, day and night convoys, signs, smoke operations, and PSYOP sonic teams gave credibility to the deception. CI teams supported the deception story through their activities in Ar'Ar. PSYOP surrender leaflet drops north in the 54th Infantry Division area supported the attack to Baghdad scenario. The brigade TOC was located approximately 30 kilometers south of the Iraqi border; but, as 54th elements approached the border, we portrayed an armor battalion moving north to the border just opposite the Iraqi units. We used smoke and signal emulations (both secure and clear) to portray this.

Verification was probably the most difficult aspect of the operation. The reason for this was that U.S. and Iraqi forces were 300 kilometers apart, and collection assets were dedicated to the main corps offensive effort. It was difficult to identify specific indicators that the Iraqis saw and bought the deception story.

Nevertheless, we consider the operation a success because we achieved our main objective—fixing the 54th Infantry Division through G+5. Lessons learned during Phase III were all reflected in the previous phases. An additional challenge during this phase was operating completely independent of U.S. forces. The only friendly forces in our area of operations were Saudi frontier forces and a Pakistani armor brigade.

U.S. involvement in the Persian Gulf was unfortunate, but necessary. However, the experience a relatively new Army deception organization gained was invaluable. Although the support we got from our corps was outstanding, we still have a long way to go before deception was recognized Army-wide as a combat multiplier and was elevated to its proper place in planning and operations.

Additionally, I believe we need only one deception planner at division level and a larger, better resourced deception element at corps (ideally a deception battalion). This would best support the growing need for operational level deception in the Army of today and the future.

Throughout history, warfare experts such as Sun Tzu and Clausewitz contended warfare and deception were inseparable. During this century, Winston Churchill cautioned, "In wartime, truth is so precious that she should always be attended by a bodyguard of lies." We haven't always heeded this advice. Modern warfare technology has provided a level of destruction heretofore unimagined. The modern war planner must conceal his forces and capitalize on surprise. The use of deception can no longer be ignored if we seek an acceptable victory!

*BRIAN FREDERICKS AND RICHARD WIERSEMA **
Battlefield TECHINT: Support of Operations DESERT SHIELD/STORM

Immediately after the VII Corps offensive into Iraq began, the corps TOC received reports on abandoned enemy communications vans and T-72 tanks. The reports were passed to the Corps G2. In the Corps G2 section, the technical intelligence (TECHINT) liaison officer compared them with his enemy equipment collection requirements and determined they were lucrative targets for TECHINT operations. The liaison officer asked the G3 section for a helicopter to transport a few of his analysts to the site as quickly as possible. A harried G3 major attempted to dismiss the request with a terse remark: "We're kicking butt. What do we need TECHINT for? At least the major didn't ask, 'What's TECHINT?

This attitude soon changed, however. By the time DESERT STORM entered the 100-hour ground war phase, TECHINT was integrated into operations at corps and army levels. This article examines the battlefield TECHINT role in the Gulf War. It includes a review of TECHINT doctrine and the evolution of its Southwest Asia mission. It also analyzes the challenges and highlights some of the key successes. Finally, it presents lessons learned and recommends improvements to the process.

Doctrine

Battlefield TECHINT operations consisted of collecting, handling, analyzing, and exploiting captured enemy equipment, related documents, and other materiel. To accomplish these operations, the Army has only one TECHINT battalion: The Foreign Materiel Intelligence Battalion (FMIB) of the 513th MI Brigade. The FMIB consisted of the 11th MI Company (the Army's only active duty TECHINT company), a battalion headquarters company, and two detachments.

Before the conflict, the FMIB had coordinated with Unified Commands and Marine, Navy, and Air Force TECHINT components to work out the principles of battlefield TECHINT operations. The FMIB applied these principles in several exercises. *FM 34-54, Battlefield Technical Intelligence*, plus exercise experiences, provided the framework for planning and conducting TECHINT operations in Southwest Asia.

According to doctrine, the 11th MI Company fields teams of TECHINT analysts to support each corps in theater. Headed by an MI lieutenant, these 11-member teams consist of specialists in armament (tracked and wheeled), NBC, communications, medical logistics, and engineer equipment. Each team is task-organized according to the mission and known enemy capabilities. Team members are staff sergeants or sergeants first class who come to the battalion with no intelligence experience but have strong technical backgrounds. The intent was to train a 63H tracked vehicle mechanic with 6 to 10 years of experience on American tanks to assess the capabilities and limitations of a foreign tank.

A TECHINT team deploys with a corps MI brigade. Its mission is to rapidly assess the capabilities, vulnerabilities, and limitations of enemy equipment, particularly weapon systems captured or overrun during combat. The team also trains friendly forces to safely and expediently operate enemy vehicles and weapons. Our experience in joint exercises soon taught us the need for a TECHINT liaison officer on each supported corps staff. He gives the team collection guidance, helping the team chief focus on leading the team rather than on serving as a staff officer.

The battalion also establishes the Joint Captured Materiel Exploitation Center (JCMEC). This center, which includes other services, supports the theater's joint commander as well as the Army commander and their intelligence staffs. The JCMEC consists of the battalion tactical operations center and an adjacent storage area for captured equipment. The JCMEC--

Provides collection management for all TECHINT operations in theater.

Monitors captured enemy equipment evacuation through collection points.

Receives captured equipment to satisfy collection requirements.

Subject matter experts (either senior NCOs or warrant officers), intelligence analysts, and materiel handlers form the personnel base for the JCMEC. In addition, other services augment the JCMEC, so it can field additional teams to support teams deployed to the corps or in support of the theater J2.

Force Structure

Battlefield TECHINT operations in Southwest Asia began less than a month after President Bush ordered the Army to Saudi Arabia. Then, and throughout the war, the FMIB bore the brunt of both the Army and the theater TECHINT efforts.

When alerted on August 6, 1990, the battalion's strength was just over 200 soldiers. These soldiers were distributed between HHC, the 11th MI Company, and two Opposing Forces training detachments at Aberdeen Proving Ground, the battalion's home station, and Fort Irwin, California.

Initial Deployment

The XVIII Airborne Corps G2 requested the attachment of a TECHINT team to the 525th MI Brigade before the brigade departed for Saudi Arabia. In response, the FMIB formed TECHINT Team 1 and sent it to Fort Bragg. Team 1 was attached to the 519th MI Battalion and deployed to Dhahran August 23, 1990. For six months, until the arrival of the FMIB main body, it was the only theater battlefield TECHINT unit.

Shortly after Team 1 deployed, the FMIB deployed a small liaison cell with the 513th MI Brigade advance party. In the ARCENT Intelligence Center, this cell began to develop plans and requirements for future TECHINT operations. From the outset, however, the lack of a dedicated TECHINT element on the J2 staff hampered TECHINT planning and coordination at the theater level. At CENTCOM, TECHINT planning became an additional responsibility of the J2 operations officer for HUMINT, whose main focus was the handling of potentially thousands of prisoners of war.

By early November 1990, the Army alerted the VII Corps to move from Europe to Saudi. It now was apparent the FMIB main body would have to deploy. Accordingly, ARCENT ordered the FMIB to establish the JCMEC and gave the FMIB commander the mission to conduct battlefield exploitation of captured enemy equipment to determine its capabilities, limitations, and vulnerabilities; and NBC and medical sampling for verification of the first use of chemical or biological weapons to support national level introduction of countermeasures.

The second mission quickly became FMIB's highest priority. Concern over possible lraqi use of chemical weapons grew, and verification of their first use was paramount in gauging any U.S. retaliation. Furthermore, the extent of Iraq's biological weapons capability was of additional concern.

FM 34-54 described the basic procedures for chemical sampling missions, but neither the teams nor the JCMEC had the communications or the transportation to carry out the verification mission. However, the FMIB anticipated what they needed to handle and package samples for shipment to the U.S., and containers made by the Intelligence Materiel Activity at Fort Meade arrived shortly after the FMIB main body.

A Technical Escort Unit from Edgewood Arsenal, Maryland, augmented the JCMEC. This unit handled samples destined for exploitation in the U.S. Unit members had to coordinate extensively to get space on aircraft at corps and theater levels to fly 'first-use' samples from the battlefield to CONUS laboratories. While this arrangement was often frustrating, it gave the JCMEC added visibility that later proved helpful in other TECHINT missions.

JCMEC Established

On January 6, 1991, the FMIB main body arrived in Dhahran and soon moved into a warehouse complex to establish the JCMEC. With the balance of the 11th MI Company on hand, the battalion formed TECHINT Teams 2 and 3 to support the 1st Marine Expeditionary Force (MEF) and VII Corps. The veteran Team 1 stayed with the XVIII Airborne Corps. The JCMEC also got invaluable augmentation in the form of a British army officer and a Royal Air Force officer. These individuals managed collection requirements in support of British forces deployed in the Persian Gulf.

U.S. Navy, Air Force, and Marine Corps TECHINT personnel also became part of the JCMEC, as well as National Scientific and Technical Intelligence (S&TI) Agency representatives. Equipped with experimental biological warfare sampling systems, the 9th Chemical Company was also attached to help with the mission. From its austere skeleton of two companies and two detachments, FMIB had evolved into an organization with teams deployed throughout Saudi Arabia.

DESERT STORM

When the allied bombing offensive began on January 16, 1991, it prompted Iraqi SCUD attacks. The newly formed JCMEC performed its first wartime missions by retrieving debris from missile strikes. A neighboring Patriot battery contributed to this mission by downing one of the first SCUDs fired on Dhahran and dropping the missile parts on the JCMEC compound. Soon SCUD missile parts were enroute back to CONUS for exploitation at the Missile and Space Intelligence Center, Redstone Arsenal, Alabama. The Army used the results from this exploitation to improve the Patriot missile's effectiveness against the SCUD threat *while hostilities were still going on*.

While the JCMEC handled the SCUD mission, the deployed teams got ready for the ground war. As the Iraqi army began to crack under the strain of the bombing campaign, Iraqi soldiers from frontline units defected to allied lines. The TECHINT teams provided valuable technical expertise at the corps prisoner cages. Often the TECHINT analyst sat beside the interrogator during the questioning, asking for information on weapon and equipment capabilities.

During the Battle of Khafji, TECHINT teams and the JCMEC got a chance to prove themselves to commanders at all echelons. During operations around Al Khafji, Marines captured an Iraqi T-55 tank fitted with bulky add-on armor, something that was relatively unknown to friendly forces. Since Team 2 was operating close to the fighting, they were in a position to react quickly. Their analysts retrieved several blocks of the armor for evacuation back to the JCMEC.

The JCMEC determined that, while the armor was effective against some light and medium antitank weapons, it proved no match for the TOW II. The JCMEC, serving as the link between the battlefield and the national intelligence community, sent the samples back to the U.S. for detailed exploitation. The JCMEC then disseminated the results across the entire theater. Commanders not yet in contact could now benefit from the combat experience of others. While a relatively minor incident, the add-on armor exploitation was an excellent example of the support battlefield TECHINT can provide.

Even as Team 2 initiated TECHINT support at Al Khafji, the JCMEC was planning to meet the TECHINT requirements of a full-scale offensive into Kuwait and Iraq. Liaison officers deployed with each corps-level headquarters to help the teams and intelligence staffs plan TECHINT operations. By Ground-day, each corps operations order, as well as the ARCENT order, contained a TECHINT appendix to the intelligence annex.

The JCMEC planned chemical and biological sampling missions in detail. As ARCENT planned for a rapid rate of advance, the JCMEC planned for two forward locations. One was at King Khalid Military City where the 22d Support Command was to establish a Theater Captured Equipment Collection Point. The other was in Kuwait City where the Iraqis had their heaviest force concentration and which would be close to captured equipment after the fighting.

Challenges Encountered

When the ground war began, the JCMEC and its deployed teams faced severe handicaps in accomplishing their mission. They anticipated the rapid pace of the advance, but did not anticipate the lack of transportation to move captured equipment into collection points. It became evident that little, if any, equipment would be evacuated from Iraq back to Saudi Arabia.

As the JCMEC grappled with the logistic problems of getting high priority items evacuated, the teams encountered two new major problems. First, units that had the captured equipment often inaccurately reported on the system or its location. Second, the order was given to destroy all Iraqi equipment in U.S. hands. More than once, liaison officers or team chiefs got reports of equipment on the collection plan which, while its location and type were being verified, was destroyed before confirmation was possible.

To correct this deteriorating situation, the JCMEC and TECHINT teams began a series of stop-gap operations. First, as part of Task Force Freedom, the battalion established JCMEC Forward (already planned for Kuwait City before Ground-day). Because of personnel constraints placed on ARCENT units deploying into Kuwait City, the mission's size and scope were curtailed. Team 2, already in position to exploit equipment in Kuwait, began sending out "Go Teams" to search for and acquire equipment anywhere in Kuwait. Team 3, after a series of helicopter sorties into Iraq, moved into Kuwait City to help Team 2.

Team 1 operated across the longest axis of advance, that of XVIII Airborne Corps. This team capped its seven months of TECHINT operations in Southwest Asia with a series of equipment retrieval missions near the Euphrates River. The JCMEC also organized an extraction mission into Iraq's Tallil and Jalibe Air Bases. This garnered four C-130 loads of valuable avionics and aircraft weapon systems, in spite of the base's ongoing destruction by U.S. forces. Realizing its value, the Air Force quickly evacuated this materiel out of theater.

The JCMEC encountered yet another unforeseen problem when numerous Army agencies inundated it with requirements for enemy equipment beyond what was needed for intelligence purposes. Instead of being an intelligence operation, the JCMEC was becoming a clearing house for all captured materiel requirements, whether for intelligence, R&D, or training. The lack of a dedicated CENTCOM TECHINT planning and coordinating cell to filter these requirements compounded the problem. As the horde of Iraqi prisoners of war poured out of corps sectors, the J2 staff's immediate and proper concern was how to handle the enormous volume of prisoners. Captured equipment had to wait.

Successes

Despite the obstacles, FMIB soldiers overcame the challenges and acquired six of the Defense Intelligence Agency's "Top 10" theater requirements for foreign materiel and 207 of an additional "want list" of 292 items. The battalion also published pamphlets on Iraqi equipment and distributed over 6,000 of them to our soldiers. More importantly, JCMEC soldiers collected, processed, and prepared for shipment back to the U.S. over 200 items. These included tanks and armored personnel carriers valued at over $250 million. They acquired equipment made in China, South Africa, and the Soviet Union. The JCMEC even retrieved a relatively intact SCUD from the waters off Jubayl. This equipment would undergo additional intelligence exploitation by all of the services. The Army would incorporate some of the equipment into its foreign equipment inventory for JRTC and NTC training.

Lessons Learned

The Joint TECHINT Cell. First and foremost, the theater TECHINT architecture must be reconfigured. In coordination with the Defense Intelligence Agency, FMIB was establishing a joint TECHINT

management cell which would augment the theater's J2 upon alert notification. Headed by Defense Intelligence Agency, the cell would have representatives from each service's Science and Technology Intelligence Center. It would provide all taskings to the JCMEC. This association would eliminate the problem of having to manage and validate requirements at the JCMEC and of not having a dedicated TECHINT planning element on the J2 staff. Future exercises would incorporate this concept, the first of which was LANTCOM's OCEAN VENTURE in May 1992.

Equipment Collection Points. The failure of U.S. maneuver units to establish effective collection points during the ground war did not bode well for future battlefield TECHINT operations. The FMIB did not have the resources to evacuate captured equipment. Units must evacuate equipment the same way they evacuate prisoners. Division and corps need to establish collection points to evacuate captured equipment to these centralized locations for screening.

The argument that there wasn't enough time and resources to establish collection points was weak when you compare our performance to that of the British. UK's 1st Armored Division, with two maneuver brigades and a Royal Transport Regiment, established a division collection point of over 400 items while still in Iraq. Its intelligence staff was able to inventory items of intelligence interest, to mark them for evacuation, and to clear the remainder for destruction. In short, the British executed our doctrine expertly. The larger, more logistically robust U.S. divisions could have done the same.

Equipment Identification. It soon became apparent that intelligence staffs below corps often could not identify enemy equipment. In particular, mobile surface-to-air and surface-to-surface missile systems were wrongly identified, not by combat units reporting their capture, but by intelligence staffs making the identification after on-site inspections. These mistakes wasted valuable and limited TECHINT resources, besides confusing analysts trying to determine enemy strength and order of battle. When TECHINT team chiefs or liaison officers found an incorrect identification while investigating a possible item of intelligence interest, it was not uncommon for division or brigade intelligence staffs to tell them, "You guys are the experts. We don't know that stuff."

Total Army Concept. DESERT STORM highlighted some key points regarding the TECHINT force structure. The Reserves hold almost two-thirds of the Army's TECHINT capability. The scope of the TECHINT mission in Southwest Asia required Reserve augmentation, but no TECHINT units were activated. While we can expect the Active force initially to deploy, as they did during DESERT STORM and previously in URGENT FURY and JUST CAUSE, the Army needs Reserve TECHINT units for large-scale sustained operations. Once activated, the Reserve TECHINT units should receive some advanced training before deploying to augment the FMIB. Closer coordination between Active and Reserve TECHINT training programs was critical, and initiatives were ongoing to make this happen.

TECHINT: Not a War Winner. The Gulf War demonstrated that the rapid pace of combat operations and the subsequent rapid redeployment from the Area of Operational Responsibility were probably the model for future operations. If so, battlefield TECHINT risks being a low priority in this model. Unlike other intelligence disciplines, TECHINT will rarely provide the battlefield commander with information of immediate operational value, as in the case of the add-on armor exploitation at Khafji. In a one- or two-battle war, battlefield TECHINT's primary value will be to the commander in the next war, through follow-on exploitation by U.S. intelligence and R&D communities.

Recommendations

The Intelligence community must train its soldiers better on the vital role of TECHINT operations. And it must teach soldiers how to identify equipment. For example, the NTC OPFOR Training Detachment received feedback from Gulf combat soldiers who didn't know what to do with captured equipment. The Intelligence Center at Fort Huachuca should include training on battlefield TECHINT operations in its instruction. Intelligence officers at all levels could then make a conscious effort to integrate captured equipment exploitation into their training exercises. Also, the Intelligence Center needs to give more

extensive training in equipment identification. A picture is great, but with the Army's pool of foreign equipment, Fort Huachuca should maintain a comprehensive static display of threat equipment.

Similarly, TECHINT operations should be incorporated into real world contingency planning at the outset. Intelligence staffs at corps and joint levels should anticipate TECHINT requirements in the early planning stages.

In addition, Quartermaster and Transportation Officer Advanced Courses must incorporate training on processing captured equipment. These branches oversee captured equipment evacuation and establish equipment collection points. We recommend the Intelligence Center coordinate with these schools to begin incorporating into the curriculum the doctrine for processing captured equipment.

Summary

Despite DESERT STORM challenges, the JCMEC and deployed TECHINT teams provided valuable assistance to the supported intelligence staffs and achieved impressive results. JCMEC soldiers scrounged heavy equipment transporters to bring SILKWORM missiles and T-72 tanks out of Kuwait. They organized the helicopter extraction of airborne infantry fighting vehicles from a mine field in Iraq. And they snatched aircraft components and missile systems from Tallil Airfield before the ground had to be returned to Iraq.

The equipment captured in Iraq and Kuwait was expected to save $250 million in foreign materiel acquisition costs. That's how much DOD would have spent to acquire the same equipment for exploitation, testing, and training. Some of the equipment recovered, such as the T-72, not only would provide research materiel for technological exploitation, but also would be available at the National Training Center so that every tank gunner who goes through rotation there could see a real threat tank in his gun sight. Since many potential adversaries have the equipment we acquired in Iraq, we can use the knowledge acquired from its exploitation to better prepare our Army to fight and win the next conflict. In the words of that G3 major in the VII Corps TOC, we need TECHINT to make sure we continue to 'kick butt' the next time.

General Army Intelligence

In this section are gathered articles that do not fit neatly into any of the historic eras that make up the preceding divisions of this volume. Defying chronology, they delve into conceptual subjects or attempt to look at some facet of MI across the larger context of the last century.

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*MARC B. POWE * The History of American Military Intelligence: A Review of Selected Literature*

Military Intelligence—the end product of collection, processing, and interpretation of all available information about one or more military aspects of a foreign nation or area, which is of significant value to military planning or conduct of operations. It is subclassified as

Tactical (or combat) intelligence—that knowledge of the enemy, weather, and terrain needed by a commander in the conduct of combat operations, generally at corps or lower level.

Strategic intelligence—that knowledge of foreign or enemy capabilities and probable actions relating to notional objectives which assists in formulating plans at national level.

The development of American military intelligence is both fascinating and widely misunderstood. To gain perspective, it might be useful to survey briefly the history of military intelligence (MI) in this country in terms of the literature about it. Such an approach soon makes it evident that MI is not just spying, or just tactical intelligence, or only a wartime activity. At the same time, the reader soon discovers that MI goes back a long way in this country, contrary to the notion in some circles that it all began with Pershing and the A.E.F., or Donovan and O.S.S., or Westmoreland in Vietnam.

An initial problem is deciding not only when and where but how to begin an adequate examination of MI. On the theory that to make rabbit stew one must first catch a rabbit, we might begin with an overview of the subject. Allen Dulles provides an excellent primer in *The Craft of Intelligence*, (New York: Harper and Row, 1963). Dulles, a former director of the CIA, himself recommends Richard W. Rowan, *The Story of Secret Service* (New York: Literary Guild, 1937), which is now badly dated but still a very readable and accurate account of intelligence methods since ancient times (the 1937 edition is preferred to the 1967 revision). Dulles wrote his book as a survey of both history and method, but its unique quality is its clarity, perception, and accuracy. For a more detailed history of MI's contributions to American arms since the Revolution, the reader might examine an Army monograph by this writer and Edward E. Wilson, *The Evolution of American Military Intelligence* (Fort Huachuca, AZ: U.S.A. Intelligence Center and School, 1973), which is also fully documented and has a rather complete bibliography.

Narrowing the focus to the American Revolution, one finds a standard and still useful treatment of espionage in George S. Bryan, *The Spy in America* (Philadelphia: Lippincott, 1943); another good work is John Bakeless' *Turncoats, Traitors and Heroes* (Philadelphia: Lippincott, 1959). Tactical aspects are presented in Russell F. Weigley's *The American Way of War: A History of United States Military Strategy and Policy* (New York: Macmillan, 1973), with thought-provoking, generally favorable comment on Washington as an intelligence officer. J. D. Hittle perceptively analyzes staff development in the Revolutionary era (and in fact up through World War II) in *The Military Staff: Its History and Development* (Harrisburg: Stackpole, 1961).

Following the Revolution, the American government engaged in numerous strategic intelligence operations both to protect itself against the European powers and to exploit the vast countryside to the west. In the former instance, Dulles, Bryan, and Weigley are useful; in the latter, the reader might begin a closer examination with William H. Goetzmann, *Army Exploration in the West, 1803-1863* (New Haven: Yale Univ. Press, 1959). As for the War of 1812, which was probably America's poorest showing ever in intelligence, Rowan and Hittle should be consulted.

By the time of the Mexican War, the painful lesson of 1812 had apparently sunk in because Generals Taylor and Scott emphasized tactical intelligence, mostly in the form of reconnaissance. Maj. Gen. Ethan Allen Hitchcock, a subordinate of Scott's, provides insight in his memoirs, *Fifty Years in Camp and Field* (New York: Putnam's, 1909). Russell F. Weigley, *The History of the United States Army* (New York: Macmillan, 1967), is useful here for tactical intelligence aspects. Some effective spying was also done for the Americans by indigenous bandits organized by Hitchcock, however, and this tale is told entertainingly

by Col. Allison Ind in *A Short History of Espionage: From the Trojan Horse to Cuba* (New York: McKay, 1963). It should be pointed out that this volume is typical of many books that focus on the "glamorous" espionage business--e.g., Ladislas Farago, *War of Wits: The Anatomy of Espionage and Intelligence* (New York: Funk and Wagnalls, 1954), Arch Whitehouse, *Espionage and Counterespionage: Adventures in Military Intelligence* (Garden City: Doubleday, 1964)--they tend to be simplistic and not well documented.

The Mexican War also brought forth one of the first thoughtful criticisms of American intelligence. The brilliant Maj. Gen. Emory Upton pointed out serious deficiencies at the War Department--a primary one being that it had no intelligence agency that could provide information on Mexico. In his highly influential *Military Policy of the United States* (Washington: GPO, 1907), Upton called for creation of a national intelligence agency. He called his proposed agency a Bureau of Military Statistics. The book was first published in 1904 after it was discovered in manuscript; Upton had committed suicide in 1881.

Nothing was done to provide for national level coordination of intelligence before the Civil War. Thus, that conflict, which saw many innovations in intelligence gathering, continued to suffer from lack of central direction. Both Union and Confederate commanders made unprecedented use of cavalry, just as both sides extensively employed spies. For these aspects, the reader should examine Philip Stern, *Secret Missions of the Civil War* (Chicago: Rand McNally, 1959), John Bakeless, *Spies of the Confederacy* (Philadelphia: Lippincott, 1970), and Rowan. Francis T. Miller, *Photographic History of the Civil War* (New York, Review of Reviews, 1912), provides a number of interesting pictures of spies, balloons, cavalrymen, and other aspects related to intelligence.

One of the important new developments of the Civil War was the use of aerial surveillance. A good survey of developments is found in Glenn B. Infield, *Unarmed and Unafraid: The First Complete History of Men, Missions, Training and Techniques of Aerial Reconnaissance* (New York: Macmillan, 1970). A more specialized work is the carefully documented and well illustrated USAF monograph *The United States Army Air Force: April 1861-April 1917* (Maxwell AFB, AL: Air University, 1958. USAF Historical Studies: No. 96).

The first complete discussion of Civil War intelligence still awaits an author. Therefore, the reader frequently has to depend on either specific books on spies or random mention of intelligence in general histories of the Civil War to learn more about tactical intelligence.

Another void in MI history occurs after the Civil War. Once again it is a matter of digging out intelligence aspects from works on other topics. Because much of the Army's effort was directed toward the campaigns against the Indians, Robert M. Utley, *Frontier Regulars: The United States Army and the Indian, 1861-1891* (New York: Macmillan, 1973), is a good place to begin. On the Indian scouts, see George B. Grinnell, *Two Great Scouts and their Pawnee Battalion* (Cleveland: Scribner, 1928). For insight into the Army's overseas interests, Walter Millis' *Arms and Men* (New York: G.P. Putnam's Sons, 1956) is excellent.

In 1885, MI history was changed irrevocably by the creation of the long-sought national level intelligence agency. The Secretary of War directed that year the establishment of the Military Information Division in the Adjutant General's Office. From that date until the present, there has always been some provision for a War Department intelligence agency (although the pickings were pretty slim at times). The only general discussion of MID development until World War I is found in the writer's MA thesis, *The Emergence of the War Department Intelligence Agency: 1885-1918* (Manhattan, KS: MA/AH Publishing, 1974); this study relates intelligence development to the general trend towards bureaucratization in America at that time.

The MID played an important role in the Spanish-American War, and one of the key men was the dynamic Col. Arthur L. Wagner. As an instructor at Fort Leavenworth for many years before the war, Wagner preached the need for an "information service" in the field, and he wrote the first American book, *The Service of Security and Information* (Kansas City: Hudson-Kimberly Publishing Co., 1893), on tactical intelligence. Then, as chief of MID when the war began, Wagner and his men provided remark-

ably good intelligence to the War Department. Finally, Wagner attempted to establish a Bureau of Military Information in the field, only to be rejected by General Shafter, which led to another little book by Wagner, *Report of the Santiago Campaign* (Kansas City: Franklin Hudson Publishing Co., 1908). Wagner eventually became one of the first Americans into Santiago.

Another significant void exists in the description of MI development between the War with Spain and World War I. This gap exists in part because progress was slow and undramatic enough to lead many to believe erroneously that America's World War I intelligence apparatus sprang whole from the brow of the War Department staff in Washington and General Pershing in Europe. The author's *Emergence of the War Department Intelligence Agency* seeks to dispel that myth.

The wartime growth of MI, more or less under fire, was in fact phenomenal. In Washington, from a beginning of two officers and a clerk in 1916, MID expanded to more than 1,000 personnel by the end of the war. One MID chief, Brig. Gen. Marlborough Churchill, chronicles this growth in an article in the *Journal of the United States Artillery*, "The Military Intelligence Division General Staff," 52, 4, Apr. 1970, 293-315.

MI in the combat zone expanded in a similarly dramatic way, leading to a number of books and articles by or about Army intelligence men (with minor exceptions, the first time that had happened in American history). Walter C. Sweeney provided one of the best accounts in his *Military Intelligence: New Weapon in War* (New York: Frederick A. Stokes, 1924). As the title indicates, however, Colonel Sweeney helped foster the notion that American MI was invented during the war. A useful secondary account of AEF intelligence is contained in Thomas M. Johnson's *Without Censor* (Indianapolis: Bobbs-Merrill, 1928).

The war brought about the first American intelligence unit--the Corps of Intelligence Police--and developed a new skill in the Army--signals intelligence. The CIP got no publicity to speak of then or later, although its successor organization, the Counterintelligence Corps, became well known, but the signals intelligence men have received some attention. The definitive work on signals intelligence up through World War II is David Kahn's *The Codebreakers: History of Secret Communication* (New York: Macmillan, 1967). This massive book may be supplemented for the World War I period with Barbara Tuchman's *The Zimmerman Telegram* (New York: Viking, 1958).

Postwar developments affected MI both positively and negatively. To the good, the 1920 War Department reorganization accepted Pershing's staff system, meaning that intelligence officers (G2s and S2s) were to be members of staffs at all levels. On the other hand, strength and fiscal reductions hit hard, and intelligence seemed to take more than its share of cuts. Although few writers address the topic at all, Generals Dwight D. Eisenhower in *Crusade in Europe* (New York: Doubleday, 1948) and Omar Bradley in *A Soldier's Story of the Allied Campaigns from Tunis to the Elbe* (New York: Henry Holt, 1951) remarked that the S2s job was a ticket to oblivion, which both men scrupulously had avoided.

One postwar activity that was looked on with favor, for a time, was the American Black Chamber, a signals intelligence operation directed by Herbert O. Yardley. This agency carried forward code-breaking activities begun during World War I; it supported both the War Department and the State Department and received funding from both. Yardley's operations were highly successful during the 1920s and it was funded accordingly. However, a new Secretary of State, Henry L. Stimson, took over in 1929, and he objected to this form of intelligence ("Gentlemen do not read other Gentlemen's mail."). He effectively disenfranchised the unit. Out of work and embittered, Yardley wrote a readable and technically explicit summary of his work, *The American Black Chamber* (New York: Bobs-Merrill, 1931). As a result, some 19 countries are said to have changed their code systems.

Equally important but far less sensational work was done during the interwar years by an Army aviator, George W. Goddard, who was intensely interested in aerial surveillance. By 1940, he had invented most of the gadgetry that made America preeminent in that field during the war. He went on to become an Air Force major general and wrote an interesting and informative memoir of the period in *Overview: A Lifelong Adventure in Aerial Photography* (Garden City: Doubleday, 1969).

Barbara Tuchman illustrates another vital facet of the American intelligence system--the military at-

taches--in *Stilwell and the American Experience in China* (New York: MacMillan, 1970). The years between the wars were particularly demanding of the attaches because they represented almost our entire foreign intelligence collection capability. Yet, as Stilwell makes clear through his biographer, it was not always enough to collect the information and forward it; often the attache had to battle with those in Washington to get them to use it when it arrived. A theoretical and less interesting treatment is offered by Alfred Vagts, *The Military Attache* (Princeton, Princeton Univ. Press, 1967).

The problems facing G2 that Stilwell and others complained about were often organizational. For example, there were nearly 20 substantive changes within War Department G2 between 1920 and 1940. Otto L. Nelson sheds some light on this situation in his meticulously documented *National Security and the General Staff* (Washington: Infantry Journal Press, 1946).

Happily, by the 1930s, tactical intelligence was beginning to make a comeback. One of the important places where intelligence was receiving serious attention was the Command and General Staff College. In 1936, a Fort Leavenworth instructor, Edwin E. Schwien, wrote a useful "how to" book, *Combat Intelligence: Its Acquisition and Transmission* (Washington: Infantry Journal Press, 1936). Shortly thereafter, a former AEF intelligence officer, Shipley Thomas, prepared a highly practical volume, *S2 in Action* (Harrisburg, Military Service Publishing Co., 1940), which began with the memorable words of his one-time commander: "Young man, you are 'Regimental Intelligence Officer,' whatever the Hell that is."

Naval intelligence has played an important part in American MI history, but it has remained largely undocumented. One of the exceptions to this rule is provided by Rear Adm. Ellis M. Zacharias in *Secret Missions: The Story of an Intelligence Officer* (New York: Putnam, 1946). Zacharias narrates his own experiences with the Japanese from the 1920s through World War II.

World War II, as everyone knows, began with the "intelligence failure," which led to the destruction of the Pacific Fleet at Pearl Harbor- But was it really an intelligence failure? Roberta Wohlstetter suggests not. In the excellent *Pearl Harbor: Warning and Decision* (Stanford: Stanford Univ. Press, 1962). Instead, she says, what occurred was a command failure to correctly interpret, disseminate, and use the intelligence that was available.

Even before the Pearl Harbor disaster, FDR had recognized the need (as few of his predecessors had) for an efficient national intelligence system. Accordingly, he directed World War I hero William J. ("Wild Bill") Donovan to create such an agency in mid-1941. It was called the Coordinator of Information. The COI soon split into the Office of Strategic Services and an entirely separate Office of War Information, with General Donovan heading up OSS. Donovan's outfit, like its boss, was colorful and controversial; moreover, its range of authority and mission was unparalleled in American experience until that time. Thus, it was a natural object of many books, articles, and stories. Although it is generally true that OSS was highly successful and that Donovan was something of a genius, OSS did not win the war singlehandedly. In fact, they blundered rather badly at times. Most of the literature, however, has painted a rosy picture of OSS.

A useful but admiring biography of Donovan (and a good description of the organization) is contained in Corey Ford's *Donovan of OSS* (Boston: Little, Brown, 1970). On the other hand, R. Harris Smith wrote a considerably less favorable account based on both extensive research in unclassified publications and about 200 interviews, *OSS, The Secret History of America's First Central Intelligence Agency* (Berkeley: Univ. California Press, 1972). Smith's book, which sheds little new light, is still worthwhile for its admirable bibliography, attention to documentation, and listing of the many famous former OSS operatives.

There are also many first-person accounts of OSS operations. Among the best are Stewart Alsop and Thomas Braden, *Sub Rosa: The OSS and American Espionage* (New York: Reynado Hitchcock. 1946), and Lyman B. Kirkpatrick, Jr.'s *The Real CIA* (New York: Macmillan, 1968). Professor Kirkpatrick's book is especially useful for its description of the transition from OSS to the Central Intelligence Agency, the early days of that agency as seen by a senior CIA officer, and a thoughtful discussion of modern intelligence problems.

An interesting fact about World War II intelligence is that it was practiced quite differently in the various theaters. The only overview remains Powe and Wilson. There are, however, good books dealing with the various kinds of MI work in the several theaters.

For Europe and North Africa, Maj. Gen. Sir Kenneth Strong, Eisenhower's intelligence chief, fulfills the title's promise in *Intelligence at the Top: Recollections of an Intelligence Officer* (New York: Doubleday, 1969). Brig. Gen. Oscar W. Koch gave us probably the best book yet written on tactical intelligence in *G2: Intelligence for Patton* (Philadelphia: Whitmore, 1971). For the diplomatic view, see Robert Murphy's *Diplomat Among Warriors* (Garden City: Doubleday, 1964). Kahn is standard for signals intelligence in all theaters. Constance Babbington Smith describes the job of photo interpretation in *Air Spy: The Story of Photo Intelligence in World War II* (New York: Harper, 1957), and Boris T. Pash provides a personal account of the scientific intelligence teams searching for evidence of German atomic development in *The Alsos Mission* (New York: Award House, 1969). John Schwarzwalder recounts CIC activities in *We Caught Spies* (New York: Duel, Sloan, and Pearce, 1946), a book which is remarkable solely because it is one of a very few about the CIC.

Although primarily a British effort, the deception operations described by J. C. Masterman in *The Double-Cross System in the War of 1939 to 1945* (London: Yale Univ. Press, 1972) makes fascinating reading. This work should be supplemented by Ladislas Farago's *The Game of the Foxes: The Untold Story of German Espionage in the United States and Great Britain During World War II* (New York: McKay, 1971).

Intelligence in General MacArthur's Southwest Pacific theater was more centralized than in Europe. Col. Allison Ind provides a sketchy but readable summary in *Allied Intelligence Bureau: Our Secret Weapon in the War Against Japan* (New York: McKay, 1958), as does Brig. Gen. Elliott R. Thorpe in *East Wind, Rain: The Intimate Account of an Intelligence Officer in the Pacific, 1939-1949* (Boston: Gambit, 1969). An interesting first-person account of one phase in the Pacific is found in Eric A. Feldt's *The Coast Watchers* (New York: Oxford Univ. Press, 1959). For those who can locate it, by far the best record of the G2, SW Pacific Area, is the official one: *A Brief History of the G2 Section, GHQ, SWPA and Affiliated Units* (Far East Command, 1948, 10 volumes). A remarkable if somewhat sensational first-hand account of intelligence activities in the Pacific both before and during the war is given by Col. Sidney F. Mashbir in *I Was An American Spy* (New York: Vantage, 1953).

Relatively little has been written on American intelligence in the China-Burma-India theater. The interested reader should consult Tuchman *(Stilwell),* Smith, and Alsop and Braden. A first-person account of OSS operations there is contained in William R. Peers and Dean Brelis, *Behind the Burma Road, The Story of America's Most Successful Guerrilla Force* (Boston: Little, Brown, 1963).

Following the war, the United States reorganized its intelligence services extensively. OSS's functions were largely transferred to the new CIA (via an intermediate organization, the Central Intelligence Group) by the National Security Act of 1947. Shortly thereafter, the service signals intelligence agencies were subordinated to the Armed Forces Security Agency (forerunner of the National Security Agency). Harry Howe Ransom analyzes these events and later American intelligence developments in an excellent book, *The Intelligence Establishment* (Cambridge: Harvard Univ. Press, 1970).

An early and still standard treatment of the theory of the strategic intelligence many of these agencies sought is Sherman Kent's *Strategic Intelligence for American World Policy* (Princeton: Princeton Univ. Press, 1949, 1951). Introspective and valuable contributions were made by two World War II intelligence men who were concerned about theory, organization, and governmental decision making. George S. Pettee wrote *The Future of American Secret Intelligence* (Washington: Infantry Journal Press, 1946) immediately after the war, whereas ex-OSS man Roger Hilsman waited until mid-Cold War to write *Strategic Intelligence and National Decisions* (Glencoe: The Free Press, 1956). Still later, Young Hum Kim edited a volume of essays, *The Central Intelligence Agency: Problems of Secrecy in a Democracy* (Lexington: D.C. Heath, 1968). Each of these books goes beyond just military intelligence, but this is impossible to avoid. Every nation, including the U.S., treats its intelligence services as a system. Each

part must function properly lest the system fail.

Two good "how to" books on tactical intelligence came out of the war. Phillip B. Davidson and Robert R. Glass, instructors at Fort Leavenworth, wrote *Intelligence is for Commanders* (Harrisburg: Military Service Publishing, 1948), and Stedman Chandler and Robert W. Robb teamed up to produce *Front Line Intelligence* (Washington: Infantry Journal Press, 1946). The former followed Schwein's *Combat Intelligence,* whereas the latter resembles *S2 in Action* in style.

Regrettably, the reorganization of the U.S. intelligence system did not compensate for the shortages of personnel, money, and equipment which afflicted the various agencies. It is not surprising, therefore, that the Korean War seemed to come without warning. Only with great effort and much improvisation was an MI organization recreated for the war. By war's end, the Army intelligence system was performing reasonably well and, best of all, a determined effort was made to preserve and improve it after the Korean Armistice.

No book has been written about Korean intelligence *per se,* but T. R. Fehrenbach provides both analysis and insight into the intelligence problem in *This Kind of War: A Study in Unpreparedness* (New York: Macmillan, 1963). MacArthur's longtime G2, Maj. Gen. Charles A. Willoughby and John Chamberlain justify the faulty assessments made early in the war in *MacArthur, 1941-1951* (New York: McGraw-Hill, 1954). MacArthur's successor, Gen. Matthew B. Ridgway, gives his views of the same failures in the highly readable *The Korean War* (Garden City: Doubleday, 1967). Finally, an excellent general treatment of the war is Robert Leckie's *Conflict: The History of the Korean War* (New York: Putnam, 1962).

For tactical intelligence, it is useful to start with the three existing volumes of the official *U.S. Army in the Korean War* series: Roy E. Appleman, *South to the Naktong, North to the Yalu (June-November 1950)* (Washington: 1961); Walter G. Hermes, *Truce Tent and Fighting Front* (Washington: 1969); James F. Schnabel, *Policy and Direction: The First Year* (Washington: 1972). Aerial surveillance is discussed by Infield in *Unarmed and Unafraid*. And for an overview of the war and subsequent intelligence developments, see Powe and Wilson, *The Evolution of American Military Intelligence*.

In 1958, the Army's concepts for tactical intelligence support were refined to the first real doctrine, entitled the Military Intelligence Organization concept, which provided for tailored MI units to habitually support all tactical units of separate regiment size or larger. The post-Korea views of a professional intelligence officer are provided by Elias C. Townsend in *Risks: The Key to Combat Intelligence* (Harrisburg: Military Service Publishing Co., 1955). In 1960, Irving Heymont summarized the bidding in his *Combat Intelligence in Modern Warfare* (Harrisburg: Stackpole, 1960), a rather bland successor to Schwein *et al*. In 1961, the Defense Intelligence Agency replaced the Joint Staff J2 and became a super-MI agency to parallel the CIA. And, in 1962, MI became a regular Army branch, making it possible at last for active-duty personnel to make a career in intelligence work. Lyman B. Kirkpatrick, Jr., offers an excellent analysis of these events in *The U.S. Intelligence Community: Foreign Policy and Domestic Activities* (New York: Hill and Wang, 1973).

The Cold War era has produced many books by and about intelligence operatives. Among these the reader might examine Christopher Felix's (pseud.) *A Short Course in the Secret War* (New York: Dutton, 1963), Paul W. Blackstock's *The Strategy of Subversion: Manipulating the Politics of Other Nations* (Chicago: Quadrangle, 1964), and Sir Kenneth Strong's *Men of Intelligence* (London: Cassell, 1970). John Barton's *KGB: The Secret World of Soviet Secret Agents* (New York: Reader's Digest Press, 1974) is considered highly accurate, as is Dame Rebecca West's *The New Meaning of Treason* (New York: Viking, 1964). Thomas Whiteside deals with one highly placed spy in the U.S. in *An Agent in Place: The Wennerstrom Affair* (New York: Viking, 1966). In the technological field, *Secret Sentries in Space* (New York: Random House, 1971) by Philip J. Klass seeks to put those new tools into perspective.

In the tactical area, the outbreak of the Vietnam War provided an immediate test of the new MI Branch and its doctrine. The new system worked reasonably well in a different war. Thus far, few books about Vietnam deal with tactical intelligence, but one view from the "rice roots" is John Cook's *The Advisor*

(Philadelphia: Dorrance, 1973), an accurate, readable account of district-level operations against both the uniformed enemy soldiers and the Communist "infrastructure" (political cadres). For comparison, the interested reader might look backwards at the problem of insurgency as it grew in Southeast Asia with Maj. Gen. Edward C. Lansdale's *In the Midst of Wars: An American's Mission to Southeast Asia* (New York: Harper, 1972) and Bernard Fall's *Street Without Joy* (Harrisburg: Stackpole, 1967). Lansdale, a controversial retired Air Force intelligence officer who has been characterized in various novels on the area *(e.g., The Ugly American, The Quiet American),* was an advisor and friend to Magsaysay in the Philippines and Diem in Vietnam. Fall's book, of course, is the standard history of the French Indo-China War, and it identifies many problems which are all too familiar to Americans who served there much later.

As the Vietnam War passes from the front pages, one would hope that some writer will have both the resources and the perspective to draw informed opinions about intelligence in that war. It will be a difficult task, but as we have seen, such books can be written and are highly useful in improving the intelligence system.

This writer also hopes that those who wish to restructure America's intelligence system will take the necessary time to look backwards at its origins. If the system is imperfect--as it surely is--it has come a long way in the short time since 1885. It would be sad to tear down the entire balanced structure because a relative few components proved defective.

*DONALD W. CAIRNS * UAVs—Where We Have Been*

Over the past several years, numerous articles on Unmanned Aerial Vehicles (UAVs) have oriented on the success of Israel's program and on U.S. Remotely Piloted Vehicle (RPV) concepts and developments. Yet, little has been devoted to the history of the UAVs and their use by the U.S. military.

In 1915, the U.S. Army first attempted to design and launch an unmanned, powered aircraft. After three years of research by Charles F. Kettering, later of General Motors fame, the first reciprocating-engine biplane drone, mounted on a rail cart, roared into the air. The Kettering Aerial Torpedo, often referred to as the "Bug," was built for the U.S. Army Signal Corps by the Dayton-Wright company. Carrying 180 pounds of explosives and flying at 55 miles per hour with a range of 40 miles, the Bug was guided to the target area by pre-set flight controls. At the target, the wings would be released, and the fuselage would plunge earthward as a bomb. Recommendations springing from the Kettering plane led to the first successful droning of a commercial Curtiss Robin monoplane in 1928. This radio-controlled, bomb-carrying airplane floundered through the skies for four years before expiring from lack of funds in 1932.

Not until 1938 did the armed forces show serious interest in developing remotely controlled offensive weapons. Again, Kettering came into the picture, joining General H.H. (Hap) Arnold to spearhead a new breed of "special weapons." Among several projects were the development of radio-controlled target planes of the PQ series, a glide bomb (GB-1), a controllable high-angle bomb (AZON), a surface-to-surface "buzz" bomb and a glide bomb known as the "Bat."

The GB-1 probably proved to be the most effective wartime experience. Utilizing a 2,000 pound demolition bomb as a fuselage, the airframe consisted of 12-foot plywood wings and twin plywood rudders. Actually, the GB-1 was the first of our modern "stand-off" weapons. Radio-controlled, they could be dropped by B-17 bombers well out of reach of highly protected areas and visually guided to the target. In 1943, a group of 54 bombers from the 8th Air Force flew a mission against the city of Cologne, carrying 108 GB-1s.

In 1944, a "war weary" program for droning tired B-17 and B-24 bombers was initiated, but soon abandoned due to the prohibitive cost of major overhaul and new configuration requirements. During this same time period, the Germans were also developing and testing reconnaissance drones at the Luftwaffe's Rechlin Flight Test Center.

The U.S. Air Force duplicated the German V-1 "Buzz Bomb" and released it for production in the winter of 1944-45. Original plans were to employ it in the Asiatic theater, since the war in Europe was drawing to a close, but the A-bomb negated its use.

With the conclusion of World War II, the missile program was greatly accelerated, and the Guided Missiles Section of the Air Force was formed in September 1946. From this section came the first pilotless Aircraft Branch, the initial Project office for later target and reconnaissance drone configurations.

In late 1946, the Pilotless Aircraft Branch was assigned the task of developing the requirements and performance characteristics for three separate unmanned aircraft to be utilized by the military as targets for various applications; low, intermediate, and high performance.

While the Air Force and Navy took the responsibility for the intermediate and high performance drones, the U.S. Army contracted with the Radioplane company to satisfy the low performance criteria. This drone was called the radio controlled aerial target or RCAT. It used a McCollock engine, launched by a jet-assisted take-off (JATO) system and was recovered by parachute. It flew nearly 185 miles per hour for almost 30 minutes. The RCAT became the most fired at, low-altitude aerial target for ground-to-air antiaircraft firing exercises during the 1950s. In 1953, Colonel Sam Webster, chief, Battle Area Surveillance Department, U.S. Army Electronic Proving Ground, Fort Huachuca, Arizona, installed a camera on an RCAT, transported it to Camp Irwin, California, and photographed maneuver forces. With these photos, DA was convinced to develop a reconnaissance drone and to establish units. By 1955, the

AN/USD-1 drone (later designated the AN/MQM-57) was developed and the Aerial Surveillance and Target Acquisition platoon was established with each armored and infantry division, separate brigade and ACR. This drone employed the KA 20A camera for day-time operations and was augmented with photo flash cartridges for night operations. Then, the U.S. Army Target Acquisition Training Command, Fort Huachuca, played a leading role in surveillance drone training and employment, while the Air Defense School at Fort Bliss continued to have responsibility for aerial targets.

In 1959, a drone surveillance unit was activated at Fort Rucker, Alabama, to develop tactical uses for the MQM-57A drone system. Each platoon had two launchers and six air vehicles. Fort Rucker was congested with manned aircraft, however, and could not fully accommodate the drone flying. From 1959 to 1962, the platoon traveled one week each month to Fort Stewart, Georgia, for drone operations training. Fort Stewart offered a wide variety of drone ranges and sufficient air space for both aerial target drone and surveillance drone training.

During this same period, the U.S. Army drones were deployed and flown in West Germany; however, severe frequency restrictions and lack of airspace curtailed their training activities.

Drones were never used in conjunction with manned aircraft nor permitted to operate extensively over friendly troops during maneuvers or training exercises for safety reasons. By 1963, the Army had developed the AN/MQM-58A, a more sophisticated drone with greater range, more precise navigational accuracy, extended endurance, and the capability of carrying a variety of sensors. Unfortunately, cost overruns and technical problems soon brought the drone program to a halt.

Meanwhile, the U.S. Air Force and Navy were making substantial progress. To satisfy the intermediate and high performance requirements for target drones, the U.S. Air Force, in 1918, contracted with the Ryan Aeronautical Company to develop the Q-2A. It would be launched from the wing of the B-17 and the B-29 and eventually the B-26C. Ground launch experiments started with a 4,000-foot rail. By 1958, the Q-2A had been improved into the target drone now designated the BQM-34A. In 1959, the U.S. Air Force initiated plans to convert the BQM-34A target drone to carry a camera for photo reconnaissance. The modified BQM-34A would have a range of about 1,200 nautical miles and fly at an altitude of approximately 50,000 feet. The BQM-34 was being considered as an alternative to the U-2 program. The timing was crucial because on May 1, 1960, Gary Powers' U-2 was shot down over Russia.

Within the next two years, the BQM-34As were analyzed, tested for survivability, modified for increased range and self-contained navigation and flight tested. Almost two and a half years after the U-2 incident, drones were available to support the Cuban missile crisis; however, the fledgling drone program was not committed. In early August 1964, the U.S. Air Force with Ryan Aeronautical representatives, was directed to deploy the drone Task Force to Kadena Air Force Base, Okinawa. Surprisingly, this started an operational reconnaissance drone program in Southeast Asia that would last almost 11 years.

Prompted by the loss of a U-2 and pilot, the drone program was tasked to perform the mission of photographing atomic testing in China. Operationally, drones were mounted under the wing of a DC-130A launch plane, which could accommodate up to four drones per flight. The DC-130A would fly as close to its target as possible and launch the drone, which would fly the rest of the mission and return to friendly territory. There, it would deploy a parachute and be recovered by helicopter. By October 1964, the drone unit had been moved to Bien Hoa, South Vietnam. On 15 November, the first drone was shot down over China. With no loss of pilot, there was little notoriety. At the time, the U-2s were operational over North Vietnam (no enemy air defense) while the drones were deployed over China. As soon as Soviet SAMs were deployed in North Vietnam, the drones replaced the U-2s, which assumed a "standoff" mission.

Several variations of the basic reconnaissance drone were developed to take on specialized missions. An ELINT mission, under the project name "United Effort," collected the electronic information on the SA-2 "Guideline" missile. One model carried a prototype ECM payload in "Project Shoehorn" to jam SAM missiles. Over 10 SA-2s were fired before the average drone was hit. To reduce structural weight for increased flight altitude, a series of drones was designed specifically to be recovered by helicopter

during parachute descent. This capability was called the mid-air retrieval system (MARS). Other drones were modified as decoys, and several MIGs ran out of fuel while in pursuit.

By 1967, at an altitude of 75,000 feet with a flight endurance of four and a half hours, the 147T drone was capable of photographing a strip 22 miles wide by nearly 800 miles long. By the end of the Vietnam war, drones had been developed with a TV camera in their nose with a zoom lens to transmit images of the terrain ahead. On the wing of the drone was mounted a HOBO or Maverick elecro-optical seeking missile.

During the Vietnam war era, there were 28 models of drones developed. They collectively flew a total of 3,435 missions. The most flights from a single drone was 68, and the percentage of successful flights grew to 96.8 percent.

During this same period, the U.S. Navy's UAV program was also enjoying success. In addition to designing drones for target practice, the Navy initiated a surveillance and target acquisition effort, using the Teledyne BQM-34 (Firebee). The QH-50C (Dash Program) was developed to deliver torpedoes against barrage traffic from North Vietnam. This helicopter RPV carried a TV and two 250-pound torpedoes. Despite some initial problems, the program was reasonably effective. With the TV alone, the QH-50C served as a spotter for gunfire from the destroyers. However, the helicopter was transformed into a dynamic lethal weapon system when mounted with a machine gun.

In 1972, the U.S. Army Intelligence Center and School, Fort Huachuca, renewed interest for a surveillance and target acquisition unmanned aerial platform. Lockheed was awarded the contract to develop the RPV (Aquila). Due to its short range of 25 to 30 kilometers beyond the forward line of own troops, however, it appeared to be more suited for artillery and target acquisition. Therefore, proponency for development was transferred to the U.S. Army Field Artillery School.

In addition to the extensive development of drones and RPVs by the United States, many other countries, to include the Soviet Union, have similar systems. Their UAVs include numerous capabilities, and several countries have operational systems.

The history of UAVs is a success story. Despite problems, during a period when 90 percent of the Americans who became prisoners of war were downed pilots or crewmen, RPVs returned precision intelligence deep within enemy territory—without risking the lives of those "flying" the drones. They flew their missions at a fraction of the cost of manned reconnaissance aircraft, whether measured in dollars, lives, or political risk. RPVs were used to collect targeting data for numerous bombing campaigns over North Vietnam and to help locate POW camps. Indeed, it was an RPV photo that finally confirmed the existence and location of the Son Tay prison 21 miles west of Hanoi, from which the United States tried to free its prisoners in a dramatic 1970 raid. They provided bomb damage assessments after attacks on heavily defended targets, dropped propaganda leaflets and ferreted out electronic intelligence on the Soviet air defense systems.

During the past few years, there have been numerous studies, plans, and requirements for UAVs to perform virtually every possible military mission. As we confront the future and the development of UAVs, we must remember and learn from the past.

The History of Security Monitoring

World War I

The emergence of radio as a primary means of communication during World War I resulted naturally enough in the development of communication intelligence and communication security as we know them today. Easily intercepted radio messages produced valuable intelligence on enemy operations and, conversely, gave the enemy information on our operations. Since there was no practical way of eliminating enemy intercept, the next best thing was to sample our own communications in order to discover what intelligence was being disclosed, and to take steps to minimize future disclosures. Thus, security monitoring came into existence.

In July 1917, the Radio Intelligence Section, General Staff, GHQ, AEF, was formed in France, primarily for the purpose of attacking German military codes and ciphers. No communication security effort was in evidence during the first year, but an incident has been recorded which might have led indirectly to such an effort. American intercept operators, searching for an enemy station, picked up an unknown station transmitting an unfamiliar code. Sample messages were copied and turned over to the code section. Here they were puzzled over for some time, until finally it was discovered that they were training messages originated by an American station in Belgium.

This was somewhat of a joke on the code experts, but it may have turned their thoughts to communication security. At any rate, a security sub-section was established shortly thereafter in February 1918.

The duties and functions of the security sub-section are best described in an actual report submitted by the sub-section to the General Staff on 5 May 1918. Portions of that report are quoted herewith:

> The Trench Code now in use by our Army is a production based scientifically on the actual solution of enemy Trench Codes, thus giving a practical code that can be used as the best means of wireless communication with absolute security; but it is not 'fool-proof.'
>
> Actual use of our code has shown that after all the care of producing a scientific, practical and secure code, it is used very carelessly and thoughtlessly in the field. This abuse of the Trench Code has in nearly all cases been due to the offenders' lack of knowledge of the use of code as a means of communication. It is, therefore, absolutely essential that before a man uses code, he must be thoroughly familiar with all fundamental principles of code and with the means of communication he is going to use.
>
> While General Orders and instructions given in the code book thoroughly cover the questions regarding the proper use of our Trench Code, it has been found that a strict surveillance of the actual use of the code is necessary to maintain discipline and keep our code reasonably safe from enemy solution.
>
> This surveillance of the actual messages sent by wireless is carried out in the following manner: A number of radio intercept [monitoring] stations are installed along the entire front occupied by our Armies. The duties of these stations are to intercept our Trench Code only. These are known as 'Control Stations,' and their sole purpose is to intercept all American messages which have been sent. The messages thus intercepted are sent into the 'Control Officer.' This officer must be thoroughly familiar with Trench Codes. He must be able to detect all infractions of instructions and General Orders covering the use of code and cipher. He must be able to suggest the best methods for using Trench Code and be so qualified that he can criticize intelligently and thoroughly the manner in which our Trench Code is used in the field. His further duties are to see any weaknesses that make the present form of Trench Code vulnerable to enemy code men, and make recommendations in this way for improvements and corrections. In order to properly detect any faults and weaknesses, the 'Control Officer' must place himself in the position of the enemy code men and study our messages from the enemy viewpoint.

When messages are received by the 'Control Officer,' they are decoded, and if any violations of General Orders or instructions are found in a message which has been encoded, a letter is sent through military channels to the officer commanding the unit in which the message originated over the signature of the Commanding General. The officer commanding the unit concerned is requested to make an investigation and report the action taken in each case to General Headquarters.

Prompt and strict measures are taken when a message in the clear is intercepted. Documentary evidence proves that the enemy gained valuable information concerning our order of battle, etc., due to carelessness in the sending of clear English radio messages by operators and officers. Whether the message is of tactical value or merely irresponsible conversation does not matter. The enemy can make valuable deductions in all cases.

A few months after the submission of the above report, the functions of the Radio Intelligence Section were transferred to the Signal Corps. The security work then being done was expanded to include an examination into faulty call letter assignment and closer supervision over the assignment of organization code names.

Towards the end of the war, the dangers inherent in careless telephone conversations were realized. Wires were tapped near the front lines, and offenders were reported to their commanding officers in an effort to prevent repetitions.

Just as the full value of communications as a source of intelligence had not been realized or exploited during the early World War I period, the need for communication security as a defensive measure had not been fully recognized or developed into a recognizable program. The art of deriving intelligence solely from the external features of messages, including traffic volume and flow, known today generally as traffic analysis, had not been invented as such. The violation of standing radio procedures as a source of intelligence had not been completely realized, hence 'procedure' analysis was non-existent during those early days.

The Peace (1919-1941)

The monitoring of electrical communications for security purposes was initiated in France during World War I with the formation of a security subsection of the Radio Intelligence Section, General Staff, AEF. The work of this sub-section was discussed in detail [earlier. The following paragraphs cover] the development of security monitoring during the period between the two World Wars.

The Code and Cipher Section

Immediately after World War I, the Signal Corps organized a Code and Cipher Section, primarily to compile codes and ciphers that would improve the security of our communications. A part of its work was devoted to the formulation of a program for the maintenance of security. The Army's experience in World War I had amply demonstrated that although technically sound cryptographic systems were provided, errors committed by code clerks might nullify the best efforts of the compilers. There were many examples in military history of defeats or disaster resulting from the interception by the enemy of plain language messages, or of easily solved encrypted messages. The secure transmission of communications in time of war had been proved to be a vital necessity.

In themselves, codes and ciphers, however skillfully compiled, could not afford complete security. All systems had to be practical, and in actual combat where speed was essential, complicated methods could not be employed. The principle requirement for combat systems was to delay the enemy in his endeavors to ascertain tactical movements and the disposition of forces until such time as the information was out-of-date. It was evident, therefore, that systems should be secure enough to delay the solution of messages until such time as the information derived was of no value.

It was incumbent upon the Chief Signal Officer to train Signal Corps officers in the proper use of codes

and ciphers, so that as few hints as possible might be given the enemy in the transmission of the message and the greatest delay possible imposed upon its solution. The Code and Cipher Section therefore prepared rules for the use of codes and ciphers embodying the best cryptographic practices. The rules were incorporated into the training literature to be studied by Signal Corps officers as part of a two-week course of instruction at Camp Vail, New Jersey (later Fort Monmouth).

There was no security monitoring during the Twenties, either planned or extant. The wheels of military progress moved rather slowly during these years, but matters were stepped up during the Thirties with the formation of the Signal Intelligence Service.

The Signal Intelligence Service

The SIS was formed in 1930 in an effort to coordinate all cryptographic activities under the Signal Corps. Heretofore, the Military Intelligence Division had been responsible for the interception of enemy code and cipher messages. This responsibility was now assigned to the Signal Corps. The printing, storage, and handling of cryptographic materials were still the function of the Adjutant General, and remained so until 1934. The old Code and Cipher Section had become defunct the previous year, and its activities were assumed by the SIS.

Base units of the SIS were assigned to the War Department, the Corps areas and departments, GHQ, and the field armies. Communication security activities were restricted to the base units at GHQ and the field armies. The field units of the SIS were radio intelligence companies, which could be assigned to any of the spheres of activity outside of the War Department. The RI companies were responsible for security monitoring and reporting, and cooperated with the base units where assigned.

In discussing SIS unit operation with respect to security monitoring and related activities, it must be realized this work represented only a small segment of the overall SIS mission. The primary SIS function was communication intelligence. The units concerned with security work operated as follows:

1. The SIS base unit at GHQ consisted of four sections, only one of which, in addition to other duties, was concerned with security. Violations of communication security and radio operating regulations that were reported by the RI companies and base units assigned to the field armies were studied, and reports were submitted to GHQ and elsewhere on request.
2. The SIS unit with a field army included a headquarters, with one or more RI companies operating under its direction and supervision. One section of the unit was engaged in monitoring friendly communications to discover violations of cryptosecurity rules and regulations, and in exercising surveillance over important wire lines. Reports were submitted to the SIS unit at GHQ, and to the signal officer of the unit concerned.
3. The RI company contained a headquarters platoon and three operational platoons. The intercept section of the headquarters platoon was made up of two teams operating four intercept stations each. These stations were not only to intercept enemy traffic, but to monitor friendly traffic when called upon to do so.

There was no table of organization for the RI company under this original concept, and none was to be instituted until the company had proved itself in active operation.

The RI Company in Action

The first active radio intelligence unit was the 1st Provisional RI Detachment, organized at Fort Monmouth, New Jersey, in 1933. It operated until 1937, when it was expanded into the 1st Provisional RI Company. These units were primarily experimental, and were used for training and research in radio intelligence.

Three new RI companies were activated as National Guard units in 1939 in the wave of rearmament brought about by the declaration of war in Europe. These companies, along with the 1st Provisional RI

Company, became known as Signal Radio Intelligence Companies, and were organized under T/O 11-77, with a few amendments to the original concept. The headquarters platoon now contained a "security monitoring section," the first organization of its kind so designated. The companies were assigned to field Armies and, in 1941, participated in the Carolina, Louisiana, and Arkansas and Texas maneuvers.

During the maneuver period, the security monitoring section monitored traffic, analyzed violations of operating regulations, and reported these to the signal officer of the unit concerned. In addition, such complete and accurate reports of order of battle, personnel, troop and supply movements, and map coordinates were compiled that, in one instance, when a report was shown to the maneuver commander, the unit was accused of stealing maneuver plans. The state of security in the communications of those pre-war days was pitifully bad and, unfortunately, the reports were for the most part ignored, for the majority of officers were not yet convinced of the importance of communication security in the national defense effort.

After Pearl Harbor, the RI companies continued to operate both in the Zone of Interior and overseas, but security monitoring receded once more into the background. It was not until the European invasion that its importance was realized, and companies with specific monitoring duties were activated. With the employment of total encryption for overseas traffic, new techniques such as traffic analysis and procedure analysis were to be developed, along with cryptoanalysis, as a means of gauging the effectiveness of a security program.

World War II

New Techniques

The greatest advance made during World War II, security-wise, was in the development of techniques for the examination of monitored traffic. Up to this time, violations were handled in a relatively unscientific manner. Consequently, no basis on which to plan an effective counterintelligence program existed. Now, in World War II, security traffic analysis and procedure analysis were developed to the point where each bit of information, no matter how isolated, could be scientifically evaluated, and an estimate made of the standard of communication security that could be attained.

The SIS

The Signal Intelligence Service, formed in 1930, was the backbone of all World War II security monitoring activities. As in pre-war days, base units of the SIS were assigned to the War Department, corps areas and departments, theaters and field armies. At first, the SRI Company was the only SIS unit for field support. Later in the war, the Signal Information and Monitoring (SIAM) Company (at first, Staff Information and Monitoring) was organized under TO&E 11-87S, and SIS field units were reorganized under TO&E 11-500 as Signal Service Companies. In all instances, the base units coordinated the work of the field units, and were responsible for notifying offending units of the violations committed. This was the SIS operation on paper. In reality there were many variations and deviations dictated by the circumstances of war.

The SRI Company

It became evident early in the war that the Signal Radio Intelligence Companies were not to play a major role in communication security activities. When the first companies arrived in England for training, all efforts were made to develop their intelligence potential, and the security mission was performed (if at all) indifferently. Monitoring operators were usually those who had failed to make the grade as intercept operators, and the general attitude among the personnel concerned was that their function was relatively

unimportant. Although this attitude and these circumstances prevailed throughout most of the war, there were isolated instances in North Africa and after the Normandy invasion when SRI Companies performed important security missions, which will be noted in subsequent paragraphs.

The State of Security in 1943

The concept of monitoring in the Spring of 1943 was based on the assumption that signal personnel were aware of the importance of radio security as a counterintelligence means. Headquarters were expected to monitor their own nets to a large extent. Final reports were to be forwarded to the Chief Signal Officer, Washington. Policy and procedure in the theater would be based on these reports and on trips to units by SIS personnel.

The actual situation was quite different. Signal officers were either too busy to give adequate attention to their own nets, or lacked the facilities to do so. Wherever monitoring was attempted, it was received with suspicion and resentment by commanders, who failed to recognize the potentialities of enemy intercept. Radio procedure was in a chaotic state, due largely to the lack of any centrally issued instructions. Attempts to rectify this situation by the issuance of local instructions were unsuccessful, due to inevitable conflicts.

The AFHQ Monitoring Service (NATOUSA)

To achieve some sort of integration in the monitoring mission, and to restore some sort of order in communication channels, the SIS Radio Security Section in North Africa merged with the 123rd SRI Company in September 1943, to form the AFHQ Monitoring Service. They operated with moderate success for one month, until the 123rd was ordered to Italy. The principle accomplishment of the service was in spreading the doctrine of counter-intercept to several of the larger headquarters. The limited size of the section made it impossible to maintain adequate coverage of high level and low level nets.

AFHQ maintained, in addition, a telephone monitoring service, established at the Headquarters switchboard. Lines to be monitored were assigned by G-2. All conversations on these lines were checked, and when anything suspicious was heard, a recorder was turned on, and the rest of the conversation taken down. A report was then typed, including the recorded conversation and whatever collateral information the operator had picked up before turning on the recorder. These reports were turned over to G-2 for action. The fact that violators were not, except in a very few instances, signal personnel, made it impossible to handle these violations through signal channels, and the nature of the information disclosed precluded the use of normal command channels. G-2 action, though rather slow, on the whole proved reasonably effective in reducing subsequent violations for short periods, but new leaks tended to develop as old ones were closed, and it cannot be said that the rule against using telephones for classified information was observed to anything like a desirable degree.

While these activities were at their peak, a new concept of monitoring was being formulated with the activation of the Fifth Army's SIAM Company. With SIAM in operation, AFHQ was able to devote all of its efforts to fixed theater channels and generally higher level communications.

SIAM

In the concept of SIAM operation, security monitoring became, for the first time, separated from intercept. Its new bedfellow was information monitoring, the purpose of which was to keep Army Headquarters informed of the tactical situation and troop disposition in anticipation of requests for reinforcements, supplies, and tactical deployment. SIAM developed in the following way.

In September 1942, during the Battle of El Alamein, a British staff officer tuned in a civilian radio which he found in a house near the scene of a tank battle, and overheard some of the radiotelephone

transmissions emanating from the tanks. All of the messages were sent either in the clear, or in easily understood "double-talk." The officer realized that these transmissions enabled him to follow the course of the battle. He reported the incident to his headquarters, and the idea of a monitoring detachment for both security and information purposes was born. As a result, the British organized the "J" Service, and later supplemented it with the "Phantom" Service, both of which were highly successful in providing higher commanders with tactical information.

When the U.S. forces came into action in North Africa, the commanders became familiar with the value of the "J" and "Phantom" Services, and decided that a similar system would be desirable for themselves. This led to the organization of the Fifth Army's Provisional SIAM Company. For the information mission, SIAM detachments obtained tactical data from the division G-3, and encoded and transmitted messages of tactical importance to higher levels. For the security mission, SIAM detachments monitored, analyzed, and reported security violations to commanders as a function separate from information reporting. The SIAM Service was developed from personnel in the signal units under the control of Fifth Army at that time. Personnel and equipment of the SRI platoons of four divisions were placed under direct control of the Army Signal Officer the Army SIS Officer. These platoons formed the SIAM platoons at division level. In order to form the two corps platoons and one army platoon needed for the SIAM company, personnel were borrowed from two signal companies.

During the first week of the invasion of Italy (9 September 1943), the Fifth Army SIAM Service began to monitor for security and information. The value of the company as a provider of tactical information began to be recognized in the drive from the Garigliano River to link up with the Anzio beachhead, and in the drive to Rome and to the north. In the latter instance, it became evident that a breakthrough had been achieved, and the situation became so fluid that it was impossible to install and maintain wire communications fast enough to keep pace with the progress, so that the bulk of the traffic naturally shifted to radio. SIAM, therefore, provided the divisions most of their early information about the location of flanking elements and progress on other sectors of the front. SIAM situation reports at this time were so accurate, and were received so much more quickly than the information transmitted through regular channels, that they began to be accepted as official.

In May 1944, the Fifth Army's suggested table of organization was approved by the War Department as TO&E 87S. The SIAM company was to consist of one headquarters platoon, one platoon, four corps platoons, eight division platoons, and four armored division platoons. One of the problems encountered in activating such an organization was that of personnel. There simply were not enough trained personnel available to staff the platoons. The four SIAM companies that were formed in the Third, Fifth, and Seventh Armies (two in the Fifth) bore little resemblance to the organization on paper. For the most part, they had to train their own personnel, and since the tactical information required continuous 24-hour monitoring, the required coverage for security analysis was often lacking.

SIAM, although not entirely successful, represented an important milestone in the development of security monitoring. Through the combining of the security mission with the information mission, skeptical commanders were made to realize that monitoring was a weapon to serve their needs rather than the obtrusive nuisance they had imagined it to be.

The Signal Service

Shortly after the SIAM companies were activated in 1944, the Signal Service Companies, with SIS functions, were reorganized under TO&E 11-500. The company operated in two echelons: a company headquarters and two platoon headquarters. The platoons were organized around the radio intelligence intercept team. From a security monitoring standpoint, the Signal Service Company did not make much of a mark during World War II. The intelligence mission occupied most of the company's time (as in the SRI company) and by the time they were able to concentrate on security monitoring, the war was over.

Shortly after V-J Day, when ASA was formed, the SRI and Signal Service companies were transferred

to ASA control, and were generally the initial bases for the present day security monitoring program.

1945 To 1955

The Formation of ASA

At the close of the war in Europe, there were fourteen Signal Service Companies and ten SRI Companies in operation in the ETO. The four SIAM Companies were disbanded when a large percentage of their personnel were returned to the U.S. The SIS Sections remained attached to theater headquarters. In the Far East, four SRI Companies continued to operate in the war against Japan. By August, the machinery had been set into motion to combine all Army COMINT and COMSEC (cryptologic) organizations into a single agency. Our experiences in World War II had demonstrated that the cryptologic problems of all commands throughout the Army were so closely interrelated that the full potentialities of COMINT and COMSEC activities could be realized only by placing them under the control of a single commander who could coordinate them on a world-wide basis. Accordingly, all cryptologic functions, facilities, and personnel of the Army except those which were integral to the signal communication system (e.g., cryptocenters) were combined on 15 September 1945 to form the Army Security Agency. From that date forward, COMINT and COMSEC organizations have been attached rather than assigned to the commands they support. ASA organizations performing security monitoring and analysis executed missions requested by supported commands, while operational control and technical direction of the monitoring and analysis operations were responsibilities of the Agency.

Postwar Development

Security monitoring, like many of the Army's functions, suffered from immediate postwar demobilization. A decisive victory had been won over the Rome-Berlin-Tokyo axis. Yesterday's enemies were powerless to exploit our communications. This, together with the return to peacetime operating conditions, resulted in a rather sharp curtailment of the Army's communication security operations. During the final months of 1945, monitoring was continued, but on a reduced scale. Full-scale security monitoring and analysis were resumed in 1946, subsequent to the formation of ASA, Europe and ASA, Pacific (later ASAFE) as branches of the parent organization in Washington (other ASA overseas headquarters were organized within the next three years.)

In 1948, when the Army and Air Force were separated, the task of monitoring Air Force communications was assumed by the U.S. Air Force Security Service, to which ASA COMSEC organizations supporting the Air Force were transferred.

ASA in Support of a Field Army

By January 1950, plans for a new ASA field army support organization reached the drawing-board stage. A new concept entitled "ASA in Support of a Field Army," outlined the Communication Reconnaissance Organization which was put into effect the following year. The plan, as finally approved, reorganized the ASA support structure for the field army. The COMSEC mission of the agency in support of a field army was to furnish the necessary facilities and supervision to ensure compliance with COMSEC regulations, to distribute and account for cryptomaterial within the command, and to keep the commander advised on the security of his signal communications and of ways in which their security could be improved.

The plan was worked out with the recognition that the ever-increasing use of electrical communications facilities by U.S. forces had compounded the need for communication security support to commanders at all echelons. It was realized that such support was mandatory if we were to deny the enemy access to the

intelligence that would be passing over these facilities.

The Communication Reconnaissance Group (TO&E 32-500) was created to support field armies. ASA units organized under TO&E 11-500 were reorganized under TO&E 32-500 during 1951. The new group organization included communication security personnel and facilities to provide direct support at army, corps, and division levels.

The group headquarters and headquarters company performed cryptomaterial supply and maintenance functions for the field army at large, supervised and coordinated the security support activities of subordinate ASA units, and provided direct monitoring and analysis services to the field headquarters and army troops.

Each corps of the field army was served by a Communication Reconnaissance Battalion which included one security company, the sole function of which was to provide direct security monitoring and analysis support to the corps and its subordinate divisions. Detachments from the security company supported individual divisions. Teams from the detachments operated in regimental and battalion areas when necessary to insure adequate monitoring coverage of division communications.

Facilities were provided to monitor the radiotelegraph, radiotelephone, teletypewriter, and telephone communications. The various nets and circuits were monitored on a rotating basis. Particular attention was devoted to nets and circuits which were most vulnerable to interception and which experience showed would be most likely to carry information of the greatest intelligence value to the enemy.

Spot reports of serious violations found in monitored transmissions were made to the supported commands to assist them in taking immediate corrective action. Periodic communication procedure analysis reports were made to assist commanders in improving the operating and transmission security discipline of their signal communication systems. Security traffic analysis reports were submitted periodically to keep commanders informed of the amount and kinds of military information which could be presumed to have been exposed to interception by the enemy, to assist them in making realistic appraisals of the transmission security of their commands, and to aid them in taking direct, effective action to eliminate correctable weaknesses.

Encrypted traffic was obtained from the supported commands, decrypted, and examined for deviations from crypto-operating instructions. Violations discovered were reported to assist the supported commands in maintaining high standards of cryptosecurity.

Action in Korea proved that the communication reconnaissance organization possessed great flexibility and was capable of providing support to field armies which do not follow the “book” type of organization.

Military operational specialist and equipment requirements, internal and external organizational relationships, missions, functions, work procedures, and reporting systems were closely studied in various overseas commands in a wide variety of situations. A number of adjustments in organization, equipment, and doctrine were made as a result of these studies. TO&E 32-500 was revised, and a series of fixed TO&Es (32-51, 32-55, 32-56, and 32-57) were prepared to reflect these changes. The Communication Reconnaissance Groups were reorganized under the new fixed TO&Es.

The principle modifications that were made in the communication security components of the group underwent no substantial change; however, the cryptomateriel supply and maintenance functions of the group headquarters were transferred to the Signal Corps as a result of a redefinition of ASA functions in AR 10-122, 23 June 1955. This regulation also added to the security support responsibilities of the Agency.

The transmission and cryptographic security analysis functions formerly performed by the headquarters of the security company for the corps at large were performed by the headquarters of the Communication Reconnaissance Battalion (TO&E 32-56). The battalion headquarters was also made responsible for monitoring the communications of corps headquarters and corps troops.

The battalion contained two operations companies (TO&E 32-57), each of which had two division support platoons. These platoons were organized and equipped to provide both COMSEC and COMINT services. The COMSEC section of the platoon consisted of a number of monitoring teams which were

deployed in the division area in a variety of combinations to obtain adequate coverage of division communications.

Monitoring Above Field Army Level

Communication Reconnaissance Detachments (TO&E 32-500A) provided monitoring and analysis services to communication and theater zone organizations. These detachments were organized under a cellular rather than a fixed TO&E, because the composition of the forces they support varied considerably from one overseas command to another. Overseas ASA's supervised and coordinated all security monitoring and analysis activities of the communication reconnaissance organizations in their areas and, in addition, furnished direct monitoring and analysis support to the senior army headquarters in the overseas commands. Direct monitoring and analysis support was furnished to Zone of Interior organizations by Army Security Agency, Washington, and by ASA general reserve units.

The COMSEC activities of ASA at all echelons of command were integrated into a single world-wide program in 1955 administered by ASA, Washington, because the communications of all commands were so closely interrelated that the security of each was dependent to a large degree on the security of the others.

*JAMES P. FINLEY * A Moveable Beast: The Travels of the MI Sphinx*

That fabulous monster called the Sphinx comes to us from Egypt, through the Near East, to Greece where she was known as the Sphinx of Thebes and is remembered for devouring those who could not answer her riddle. "What is it that walks on four legs in the morning, on two at noon, and on three in the evening?" When Oedipus correctly guessed that it was Man who crawls on all fours as an infant, graduates to two legs, and in old age requires the aid of a walking stick, the Sphinx furiously leapt from a rock to her death.

A popular theme of classical art, the Sphinx came to be regarded less as a monster and more of a symbol of mystery and secrecy. In paintings by Ingres and Moreau, the characteristic features of the half lion/half woman were the breasts and outstretched paw. The best written description of the Sphinx is that of W.B. Yeats in *The Double Vision of Michael Robartes*. For the Irish poet, the Sphinx was the embodiment of intellect:

> On the grey rock of Cashel I suddenly saw/A Sphinx with woman breast and lion paw,/A Buddha, hand at rest,/Hand lifted up that blest…/One lashed her tail; her eyes lit by the moon/Gazed upon all things known, all things unknown,/In triumph of intellect/With motionless head erect.

It was probably these virtues of intelligence and secrecy that appealed to the designers at the War Department who, in 1923, chose the mythical beast to represent the recently established Military Intelligence Officers Reserve Corps (MIORC), a group of World War I veterans who had an association with military intelligence.

The symbol was resurrected in 1942 when the Counterintelligence Corps was established. In 1952 she appeared on the flag of the Military Intelligence Reserve Branch established in that year. Reserve Branch officers also wore the "resting cow," as the sphinx *couchant* was called, on their collar brass. When the U.S. Army Counterintelligence School operated at Fort Holabird, Maryland, in 1949, the sphinx was a prominent part of their crest. In 1961 when the U.S. Army Intelligence School succeeded the Counterintelligence School at Holabird, it too incorporated the sphinx as part of its heraldry. The U.S. Army Intelligence Command, organized as a major army command from 1965 to 1974, also featured the symbol on its shoulder patch.

In 1953 two members of the Counterintelligence Corps, an unnamed officer and civilian, found in a salvage yard at Fort George G. Meade, Maryland, a five-foot sphinx cast out of pot metal. They rescued the forlorn symbol from the dump, applied a coat of new gold paint, and installed her on a pedestal in front of the headquarters of the Counterintelligence Corps Center at Fort Holabird, later to become the U.S. Army Intelligence Command.

How the sphinx came to be in the salvage yard and what were its origins were as mysterious as the tradition of the beast itself. Theories abound, but little fact to support them. One holds that the creature once guarded either the 19th or 525th MI Battalions at Fort Meade after World War II, but records fail to substantiate that either unit was at Fort Meade at the time. Some believe that she was one of a matched pair that existed for over 50 years at a famous ranch in California until they disappeared. The most readily accepted story has the sphinx being liberated from a Paris brothel by tradition-minded CIC agents during World War II. The sphinx intended to keep her secret.

Over the next twenty years, the sphinx became a familiar sight at Fort Holabird, representing stability when intelligence units were being reorganized and new commands came into existence. She became a revered symbol for the members of the intelligence community, especially the Counter Intelligence Corps. In a special ceremony, she was rededicated on 5 August 1962 and a bronze plaque attached to her base by the National Counter Intelligence Corps Association. It read: "In memory of those men of the Corps who made the supreme sacrifice while securing the blessings of liberty for the United States of America."

When the U.S. Army Intelligence Command moved from Fort Holabird to Fort Meade in July 1973, the sphinx moved with it, barely surviving the trip through the Baltimore Harbor Tunnel. By October of that year, the sphinx was reinstalled in front of Nathan Hale Hall. But she had little time to get used to her new surroundings. The U.S. Army Intelligence Command was discontinued on 30 June 1974 and the sphinx would now recommence her journey. She would travel to Fort Huachuca, Arizona, where the U.S. Army Intelligence Center and School had been located in 1971. She rested in front of the Intelligence Museum until 1976 when that facility was closed. She took up a new post in the courtyard of Riley Barracks, the headquarters of the U.S. Army Intelligence Center and School. There she became the target for student pranksters who outfitted her in every costume imaginable, once painted her pink, and even affixed a beard and top hat.

In 1993 the command group of the U.S. Army Center and Fort Huachuca moved to Rodney Hall, a historic building in the fort's Old Post district. With them moved the sphinx, but only after extensive repair work was accomplished by the Training Aids shop. Cracks and holes were welded and a new weatherproof gold coating was added. There she continues her mute vigil.

*JAMES P. FINLEY * The Uncertain Oracle: Some Intelligence Failures Revisited*

In an article about "Intelligence and Military History," Keith Jeffery reflects that because of the lack of a historical record about MI operations, "we usually know more about intelligence failures than successes."[1] This observation has the ring of another eternal verity. The time devoted to dissecting intelligence failures is indicative of the human frustration at not being able to predict the future with any consistent success. There is an all too prevalent tendency in American society (the press, the congress) to call anything less than clairvoyance a failure. For many critics, the military intelligence analyst has no more scientific underpinning than the racetrack tout, stock market tipster or the cover-all-bases predictions of Jeanne Dixon. It is not enough to say that this attitude probably arises from growing accustomed to a usually reliable intelligence gathering apparatus, so that exceptions become even more jarring to our sense of safety.

The successes of military intelligence in divining enemy intentions often go to the grave with the operatives or to the shredder with their restrictive security classifications intact. This is felt to be necessary to prevent an enemy from emulating or thwarting those successes. While some important historical lessons are lost in this way, there are enough lessons to be learned from the failures to keep historians occupied for a time.

So yet another catalog of intelligence failure is presented here along with some analysis of where the breakdown may have occurred. I have concentrated on examples that directly affected U.S. military operations.

A nation is facing increasing hostility from its neighbor. Raids across its borders increase until finally a major attack is made on its sovereignty. It comes as a complete surprise to the United States government. The press is agitated by the failure of the government to predict this move. Politicians fume. The situation described could be the 1950 attack on South Korea by the Communist North, the 1968 Soviet invasion of Czechoslovakia, the Arab surprise attack on Israel in 1973, the 1979 Chinese invasion of Vietnam, the Iraqi attack on Iran in 1980, the Argentinean invasion of the Falklands in 1982, or Saddam Hussein's sudden overwhelming of Kuwait in 1990. The scenarios are often the same. In this instance, I am referring to the 1916 attack by Mexican bandit/revolutionary Pancho Villa on the American town of Columbus, New Mexico.

Villa hit the sleeping town on 9 March 1916 with a force of 485 men. The town and the garrison were totally surprised. Having sent men into the town the previous afternoon, he knew that there were only 30 soldiers in the garrison of the 13th Cavalry. He broke off the attack at 6:30 a.m., leaving behind 67 Americans dead and 13 others dying of their wounds.

The day before the attack, the foreman of a ranch reported to Col. Herbert H. Slocum, commanding the 13th Cavalry at Columbus, that he had seen Villa's force just six miles to the south. Other observers contradicted this report and it was not taken seriously. In fact, farmers and ranchers along the border were nervous and sightings of the Mexican bandits were legion.

The threat of raid on American soil was a real one. In the year preceding the Villa attack, there were 38 raids on the U.S. by Mexican bandits, resulting in the death of 37 U.S. citizens, 26 of them soldiers.

Maj. Gen. Frederick Funston, commanding the Southern Department at San Antonio, Texas, responded to the press uproar that followed when he said in his 1916 Annual Report:

> Much has been said about whether or not this attack was a surprise. If there was any person in the country who was not surprised at such an attack by a large body of armed troops coming from a nation with whom we are at peace, that person must have been one of those residents of the immediate vicinity, who were alleged to have known of the plans for the attack, or to have guided Villa's troops in the attack.…[2]

I use this example to show that there are some constants in history, despite the revolutionary advances in technology. In this instance, as in many to come, an intelligence failure was accompanied by an operational lapse. The garrison at Columbus had settled into a routine and despite 38 previous raids, vigilance was lax.

Early in the 20th century intelligence was not recognized as a separate and distinct military discipline. Intelligence gathering was primitive and relied mainly upon spies or reconnaissance. Communications were slow, even if a telegraph was in the vicinity, and headquarters were almost always a long way off. The field commander had to rely upon his own collection system for security. In the case of the garrison at Columbus, usable intelligence was virtually nonexistent. The commander and many of the officers were away attending polo matches at El Paso at the time of the attack. The *villistas* were aware of that fact, having first made a simple reconnaissance.

Pearl Harbor

That well known photograph of the USS *Arizona*, enshrouded in smoke, her superstructure tilting crazily, about to slip into the sizzling shallows of Pearl Harbor, stings the American consciousness. It has become a symbol of "intelligence failure," that too common condition that embarrasses governments, outrages congressmen, energizes the press, and causes servicemen to die. It is the nightmare of every member of the intelligence community. People find the anatomy of a blunder both fascinating and instructive. It is, therefore, a phenomenon that bears periodic reexamination.

Given that the United States could read top secret Japanese codes in 1941, how could it be so completely surprised as it was on the morning of December 7, 1941?

American military and political leaders all had access to information that indicated a Japanese attack. But the information was fragmented, located in different agencies, or slowed in bureaucratic channels. There was no central clearing house for intelligence that could pull together the entire picture. Because there was so much information pouring in on the situation before Pearl Harbor, "no single person or agency ever had at any given moment all the signals existing in this vast information network."[3]

The information could be contradictory. The MAGIC source pointed to a Japanese attack in Southeast Asia. Coast watchers, on the other hand, were sighting Japanese troop movements to Manchuria. In Hawaii there were a number of reports that pointed to a Japanese attack on Soviet Russia as well as alerts against local sabotage. All of these signals were competing at the Washington, D.C. level with intelligence reports flowing from the Atlantic and Europe where the threats were frequent and paramount in the minds of the leaders.

Army and Navy intelligence predicted a Japanese attack on 30 November or 7 December on British (Malaya, Singapore), Dutch (Borneo) or American targets (Guam or the Philippines). There was no shortage of information that a attack was imminent. The question was where would it fall. Wohlstetter puts the question this way: "If we could enumerate accurately the British and Dutch targets and give credence to a Japanese attack against them either on November 30 or December 7, why were we not expecting a specific danger to *ourselves*? And by the word 'expecting,' we mean expecting in the sense of taking specific alert actions to meet the contingencies of attack by land, sea, or air."[4]

It is always easier to pick out of the fog the clear signal after the event.[5] Wohlsetter concludes that "we failed to anticipate Pearl Harbor not for want of the relevant materials, but because of a plethora of irrelevant ones." Then there was the matter of reacting to the danger in time. She added: "There is a difference, then between having a signal available somewhere in the heap of irrelevancies, and perceiving it as a warning; and there is also a difference between perceiving it as a warning, and acting or getting action on it."[6]

It has always been easier for intelligence analysts to measure the enemy's capabilities and determine if they had the means for an attack, than to predict the enemy's intentions or willingness to use those means. So they are understandably reluctant to make these kinds of educated guesses because they will be blamed

for the failure to read minds.

At Pearl Harbor it was not only enemy intentions that were misread, but their capabilities as well. Information on Japanese torpedoes said they needed a depth of about 60 feet and instilled confidence that they would be worthless in the 30-40 foot shallows of Pearl Harbor. Only a week before the attack, the Japanese developed an improved torpedo that could navigate the shallower depths.

Japanese capabilities were seriously misjudged when their aircraft production was underestimated by half, their pilot training pronounced inferior, their Zero fighter remained a mystery, their sonar gear was written off as substandard, and the number of aircraft on their carriers was undercounted.[7]

The question of *where* an attack would fall was wrongly answered just before Pearl Harbor when analysts prepared a list of possible targets which omitted Hawaii altogether. Although U.S. planners had considered Hawaii a potential target in their training exercises for many years, the widespread belief that the islands were an impregnable fortress tended to cause U.S. intelligence to write it off as a possibility.

Warnings were dispatched to Admiral Kimmel by the Chief of Naval Operations and by the War Department. On 27 November the CNO sent this message: "An aggressive move by Japan is expected within the next few days.... The number and equipment of Japanese troops and the organization of naval task forces indicated an amphibious expedition against either the Philippines, Thai or Kra Peninsula, or possibly Borneo. ...Execute an appropriate defensive deployment." On the same day the War Department said, "Negotiations with Japan appear to be terminated...hostile action possible at any moment." On 3 December the CNO warned, "Highly reliable information has been received that categoric and urgent instructions were sent yesterday to Japanese diplomatic and consular posts at Hongkong, Singapore, Batavia, Manila, Washington, and London to destroy most of their codes and ciphers at once and to burn all other important confidential and secret documents."[8] Since none of these messages specifically mentioned Hawaii and because the Japanese were not told to burn *all* of their codes, no special importance was attached to them.

Sometimes even apparent signals are rendered useless by operational inaction. U.S. defense plans anticipated that a single submarine attack would mean that a larger surface force was in the area. Yet when an enemy submarine was confirmed in the area on 7 December at 0640, there was no change in alert status.[9]

When Col. Rufus S. Bratton, the chief of Army Far Eastern Intelligence in Washington was troubled by the implications of the new information intercepted via the "winds" code and wished to relay that information to his counterpart in Hawaii, he was thwarted by the high security classification which could not be sent through normal channels. So instead he sent a message in the clear instructing the Army intelligence man in Hawaii, Lt. Col. Kendall J. Fiedler, to "Contact Commander Rochefort immediately thru Commandant Fourteenth Naval District regarding broadcasts from Tokyo reference weather." Upon receipt, the untrained and inexperienced Fiedler in Hawaii filed the message and did not try to see Commander Rochefort. He simply did not see any urgency in this routine kind of message, especially since he did not expect any Japanese attack.[10]

Likewise, when Admiral Husband E. Kimmel was informed that the Japanese were destroying their codes in London, Washington and Far Eastern consulates, he attached no particular importance to it vis-a-vis his situation. To congressmen and military leaders studying the event after the war, destruction of codes was an "unmistakable tip-off" and put Admiral Kimmel's judgment in question. But while the admiral might assume, as everyone did after the fact, that this meant war, he did not necessarily come to the conclusion that Pearl Harbor would be attacked. And burning of classified documents by the Japanese was a regular occurrence at the consulate in Honolulu.

No one in the Far East U.S. military establishment seriously believed that Pearl Harbor was a serious target to the Japanese. So it became easier to misinterpret those signs that pointed to this possibility. The human tendency to explain events according to their own expectations and beliefs, and the resistance to any information that overturns their opinions were key factors in the Pearl Harbor intelligence failure. Other factors were the mass of conflicting information, the Japanese success at keeping their intentions

quiet, deception operations, sudden changes in military capabilities that caused, for instance, U.S. estimates of the range of the Zero to fall short, and our own communications security which not only denied information to the enemy but to key American officers as well.

After Pearl Harbor, congressional findings made note of the tendency of military men to accept personal responsibility for actions without asking for orders from a superior.

> While there is an understandable disposition of a subordinate to avoid consulting his superior for advice except where absolutely necessary in order that he may demonstrate his self-reliance, the persistent failure without exception of Army and Navy officers…to seek amplifying and clarifying instructions from their superiors is strongly suggestive of just one thing: That the military and naval services failed to instill in their personnel the wholesome disposition to consult freely with their superiors.[11]

Wohlstetter found in her study of Pearl Harbor that there was a general prejudice against intellectuals and intelligence specialists. She said, "[intelligence officers'] efforts were unsuccessful because of the poor repute associated with Intelligence, inferior rank, and the province of the specialist or long-hair."[12]

Analysts receive information piecemeal over a period of time and seldom are able to evaluate the cumulative weight of their information. This was true before Pearl Harbor when Magic intercepts were sent to decision-makers one at a time. A messenger waited outside their offices until the file was read and then carried it to the next person on the list. So the fragments were never considered as a body of evidence.

Expectations have a big part in determining how information will be interpreted. For example, the chief of Army intelligence in Hawaii was not expecting a Japanese attack. As a result, when he received warning of the Japanese destroying their codes, he attached no importance to it and merely filed the message.[13] An Army lieutenant received information from a radar station of a flight of approaching aircraft on morning of December 7th. He readily believed that the flight was friendly and told the radar operators to forget it. The "wishful-thinking" phenomena is closely related to expectations. It projects the desires of an individual into the expected outcome.

It is easy to misjudge the importance of new information in light of strongly held theories. Admiral Kimmel probably did so when he learned in a "for action" warning that the Japanese were destroying their codes. This Japanese action was conveniently taken to mean that an attack would take place in Southeast Asia, the belief of the American leaders in Hawaii all along. So this report was not even passed on to the Army headquarters in Hawaii.

Another example of the tendency to reshape information to fit preconceptions was the October 1941 intercept of a Tokyo request of the Honolulu consulate for information on the exact number and location of U.S. warships in the harbor. No special importance was placed on this request because, said the Chief of Naval Operations Admiral Harold Stark, "We knew the Japanese appetite was almost insatiable for detail in all respects. The dispatch might have been put down as just another example of their great attention to detail."[14]

Of course, it was not entirely a failure of intelligence. Operational planning must be faulted as well. Even if the signs of the imminent attack on Pearl had been correctly interpreted and the warning disseminated, the victims of the attack must have sufficient time to react, to get into their defensive posture. Because the surprise attackers have a definite advantage in timing, seldom is there time to get ready. Placing troops on constant alert is not feasible. That exhausts both soldiers and patience. High levels of readiness cannot be sustained over long periods of time. There are always peaks and valleys.[15]

Wohlstetter concluded her definitive study of the catastrophe at Pearl Harbor with this caution for the future: "We have to accept the fact of uncertainty and learn to live with it. No magic, in code or otherwise, will provide certainty. Our plans must work without it."[16]

Ephraim Kam reached a similar conclusion that surprise attacks were inevitable when he said, "History does not encourage potential victims of surprise attack. One can only hope to reduce the severity—to be only partly surprised, to issue clearer and more timely warnings, to gain a few days for better prepara-

tions—and to be more adequately prepared to minimize the damage once a surprise attack occurs."[17]

The War Department General Staff began its own study of the Joint Congressional Committee on the Investigation of the Pearl Harbor Attack and published its findings in January 1947. The study analyzed the "evidence from the broad intelligence viewpoint" and drew its lessons from the analysis. Many of their findings and recommendations have been overtaken by changes in military intelligence organization and technology. But some of the lessons they surfaced can be valid in any era.

Its first conclusion was there was a lack of appropriations for military intelligence. That is a perennial problem that will stay with American society. A second finding was that "intelligence training was not given sufficient weight in the selection of high-level intelligence staff officers." Emphasis was put on operations and command in Army schools and that meant that more prestige was attached to those positions. "The net result was a tendency to consider the Intelligence Officer in a junior advisory capacity and to usurp his evaluation functions." The study recommended that "through the school system and military intelligence publications, the importance of strategic intelligence and its evaluation by trained personnel be stressed."

A third conclusion was that "at every level there were failures to place sufficient credence in the incomplete intelligence at hand to insure that within existing capabilities no action was omitted which might improve our security against attack."

"Dissemination of intelligence and information from Washington to the field was not adequate…to keep the field…informed. Conversely, the field personnel did not at all times forward all the information collected by their commands which would be of interest to the various intelligence agencies in Washington."

Often security precautions kept information from being disseminated or slowed its flow.

A final finding found fault with the analysis and dissemination of information.

> The principles of the importance of first information and of prompt dissemination of the conditions of first contact were widely overlooked. Japanese intention to attack Pearl Harbor was widely rumored in Japan at about the time we later learned it was first proposed by Yamamoto, but the rumors were disregarded as fantastic and soon forgotten. Later, when the Japanese moved into Indo-China, this was properly interpreted at all levels as indicating a complete break soon. However, no one in a position to act realized that the logical target for initial surprise attack was our fleet at Pearl Harbor, the one means we then had to oppose their further obviously advertised intention to continue south. Finally, when their forces were first contacted at Hawaii, the significance of the contacts was missed until the bombs fell.

The five members of the study commission recommended "that there be required as a part of every course in all service schools a subcourse stressing the importance of rapid dissemination of first information and first contact, not only in a meeting engagement after hostilities have commenced but also at any time the status of foreign relations indicates that there is a possibility of war."[18]

Korea

In the moments before dawn on 25 June 1950, the North Korean Peoples Army moved out of their forward positions and swarmed into the Republic of Korea, supported by armor columns and planes. For the most part, they swept the small, woefully underequipped, US-trained Republic of Korea Army before them. The North Koreans achieved complete tactical surprise and would nearly overwhelm the peninsula before U.S. forces, under United Nations auspices, could land and establish a toehold at Pusan.

The U.S. had a small, but organized intelligence-gathering capability on the ground in Korea in 1950. The U.S. Army's Korean Military Advisory Group (KMAG) had officers working with every echelon of the ROK Army and would compile intelligence on the North Korean Army. Because KMAG was assigned to the State Department rather than to General Douglas MacArthur's Far East Command (FEC) in Japan, that information would bypass his headquarters and be reported to Washington. To collect the

information he needed, Maj. Gen. Charles A. Willoughby, the FEC G-2, organized the Korean Liaison Office in Seoul which was in fact a detachment of intelligence specialists. Additionally, the U.S. Embassy in Seoul had its military attaches and political analysts working on the military situation.

These assets did their work. They picked up plenty of warnings, like the evacuation of civilians north of the 38th parallel, troop buildups along the border, and the positioning of supplies and equipment in these forward areas. And there was a four-year record of border skirmishes and armed North Korean reconnaissance into the South.

So frequently had the North Koreans raided along the border, including two limited invasions of the South, that these kinds of incidents were referred to by Secretary of Defense Louis A. Johnson as "Sunday morning incursions." Even though there was a marked lull in the frequency of the border incursions, another possible indicator of an impending attack, no one thought the indicators of the 25 June Sunday morning attack to be out of the ordinary.

Between June 1949 and June 1950, FEC intelligence dispatched 1,200 warnings to Washington of an impending NK attack.[19] Artillery duels and border incursions were common. Department of Defense was saying that the ROK Army was far superior to its Communist neighbor, leading officials to reject the possibility of a NK attack and to be confident that even if an attack occurred, the ROKs could defeat the North in "two weeks." Analysts failed to evaluate the significance of T-34 tanks amassed at the border and underestimated their capabilities to negotiate flooded rice paddies.[20]

North Korean leader KIM Il Sung issued a proclamation on 7 June 1950 that elections would be held "Korea-wide" on August 15th, the first time that he had ever boldly asserted a deadline. Like all such outpouring from the North, it was dismissed as propaganda.[21]

The pattern took on increasing significance by 1950 and General Willoughby was forwarding reports to Washington from his analysts who believed that a North Korean invasion would take place in the Spring of 1950. Willoughby nonconcurred, saying "such an act is unlikely."[22]

James F. Schnabel reported in to the G-2, FEC, in Tokyo in November 1949 and was briefed on the military situation in Korea. "A major from the G-2 section, quite frankly stated that the feeling in G-2 was that the North Koreans would attack and conquer South Korea in the coming summer. The point was not emphasized particularly and the fact seemed to be accepted as regrettable but inevitable."[23]

So the failure to predict the North Korean invasion of the South in 1950 was not one of failing to target the enemy, nor of failing to pick up the signals. It was one of analyses at the higher echelons. In March 1950, Maj. Gen. Willoughby was reporting:

> It is believed that there will be no civil war in Korea this spring or summer.... South Korea is not expected to seriously consider warfare so long as her precipitating war entails probable discontinuance of United States aid. The most probable course of North Korean action this spring and summer is furtherance of attempts to overthrow South Korean government by creation of chaotic conditions in the Republic of Korea through guerrillas and psychological warfare.[24]

In the same month, the embassy in Seoul told the State Department that there was little possibility of a North Korean invasion. In Washington, attention was focused elsewhere, on Indochina where a communist takeover appeared much more immediate. The Department of the Army G-2, Maj. Gen. Alexander R. Bolling, was saying in a March intelligence report that "Recent reports of expansion of the North Korean People's Army and of major troop movements could be indicative of preparation for aggressive action" but that "Communist military measures in Korea will be held in abeyance pending the outcome of their program in other areas, particularly Southeast Asia." This was at a time when the Air Force's Office of Special Investigations was alerting the Far East Air Forces that the Soviets had definitely ordered the North to launch their attack. It was also at a time when a remarkable number of indicators were piling up. DA G-2 said in May that "The movement of North Korean forces steadily southward toward the 38th parallel during the current period could indicate preparation for offensive action." A second intel summary reported routinely that "the outbreak of hostilities may occur at any time in Korea...."[25] Another routine report, just six days before the invasion, noted the evacuation of civilians from the border area, the

replacement of civilian freight shipments with military supply movement only, large influx of troops, including concentrations of armor, and large stockpiling of weapons and equipment. No analyses accompanied this raw data, but coincidentally, on the same day, General Willoughby wrote: "Apparently Soviet advisors believe that now is the opportune time to attempt to subjugate the South Korean Government by political means, especially since the guerrilla campaign in South Korea recently has met with serious reverses."[26]

Secretary of State Dean Acheson testified in congressional hearings:

> Intelligence was available to the Department prior to the 25th of June, made available by the Far East Command, the CIA, the Department of the Army, and by the State Department representatives here and overseas, and shows that all these agencies were in agreement that the possibility for an attack on the Korean Republic existed at that time, but they were all in agreement that its launching in the summer of 1950 did not appear imminent.[27]

Some of the reasons that highly placed American officials discounted the intelligence indicating an attack were an instinctive distrust of their Korean sources who they felt were overstating the threat for their own purposes, and the fact that North Korean activity around the border was continuous and common. They were also distracted by Soviet-instigated trouble around the globe.

Intelligence is given less validity if the source is rated as unreliable. South Korean officials were doubted when they warned of a North Korean attack because they had said the same thing so many times in the past and it was felt their credibility was doubtful if not self-serving. General Matthew Ridgway wrote that MacArthur's G-2 staff did not rate its Asian agents as reliable because they felt "that South Koreans especially had a tendency to cry 'wolf' when there was no beast in the offing."[28]

A major reason that the leadership was so reluctant to accept the possibility of a North Korean attack could well have been the psychological specter that nothing had been done to prepare for such an eventuality, short of evacuating American citizens. There were no contingency plans on the shelf. In fact, the Republic of Korea had been written out of the U.S. sphere of influence in a public speech given by Secretary of State Dean Acheson, a speech that is thought to have emboldened the Korean communists.

One way to dismiss contradictory information is to question its validity or to simply pretend it doesn't exist. When the American ambassador in Seoul reported a heavy buildup by the North along the 38th parallel, he was thought to be making a case for his recent request for armor for the ROK Army and thus ignored as an unreliable source. It was commonly believed that North Korea did not have the power to attack the South unless equipped by the Soviet Union. But the Soviet equipment was left out of the equation, and reports only said that the North did not have adequate resources for an invasion.

To the Army's credit, it always looks for lessons in failure. In this case, Maj. Gen. Lyman L. Lemnitzer, then the Director of the Office of Military Assistance, summed up those actions that needed to be taken to improve the intelligence process. He said:

> I believe that there are lessons to be learned from this situation which can point the way to better governmental operations and thus avoid costly mistakes in the future.... I recommend that...a clear-cut interagency standing operating procedure be established now to insure that if (in the opinion of any intelligence agency, particularly CIA) an attack, or other noteworthy event, is impending it is made a matter of special handling, to insure that officials vitally concerned...are promptly and personally informed thereof in order that appropriate measures may be taken. This will prevent a repetition of the Korean situation and will insure, if there has been vital intelligence data pointing to an imminent attack, that it will not be buried in a series of routine CIA intelligence reports.

But intelligence was to fail again in Korea and in only four months. The war in Korea looked like it was rolling toward it conclusion. After the Inchon landing, the Eighth U.S. Army in the west and the X US Corps in the East were pushing the decimated and demoralized North Korean Army in front of them, moving quickly toward the Yalu River, North Korea's border with China. On 25 October 1950, U.S. patrols picked up an enemy soldier. He spoke neither Korean nor Japanese. Other prisoners followed. They were interrogated thoroughly, lie detectors being used on three of them. They told stories about

being part of large Chinese Communist armies that had crossed the Yalu into Korea.

Little reliance was placed on this intelligence because Eighth Army could find no other confirmation of large Chinese Communist Forces (CCF) formations in Korea. They believed these Chinese were fillers in North Korean units, helping stiffen the defenses as UN forces approached the Chinese border.[29]

I Corps published an estimate at the end of October which claimed, "There are no indications at this time to confirm the existence of a CCF organization or unit, of any size, on Korean soil."[30]

In late November, 96 Chinese "volunteers" had been taken prisoner. They identified six different Chinese Communist armies to which they belonged.

Eighth Army was beginning to recognize their presence, however, and on 4 November noted that two division-sized Chinese units were in Korea. It upped that estimate to three the next day, but was still underestimating the number of armies now on the peninsula. At this time Peiping radio was broadcasting a communique declaring that China was threatened by the UN forces in Korea and that the Chinese people should come to the aid of North Korea. On 5 November, the daily intelligence summary made clear that the Chinese had the capability to attack UN forces without warning. At the Far East Command, Gen. MacArthur recognized that possibility as well. On 6 November he issued a communique of his own, referring to the massing of troops at the border as an act of "international lawlessness." He continued, "Whether and to what extent these reserves will be moved forward to reinforce units now committed remains to be seen and is a matter of the gravest international significance."[31]

As more prisoners were taken the numbers of Chinese in the theater rose and by the third week of November Eighth Army intelligence reports were putting the figure at about 60,000. The Eighth Army G2, Lt. Col. James C. Tarkenton, believed that the Chinese units in Korea were not organized CCF forces but volunteers and that "China would not enter the war."[32] On the eve of the resumption of the UN offensive on 24 November, estimates from the Department of the Army, FECOM, Eighth Army and X Corps all were in agreement that there were as many as 76,800 CCF troops in Korea, but seemed to downplay the possibility of a full Chinese intervention. Maj. Gen. Willoughby has been quoted as saying that the Chinese would keep out of the Korean War. MacArthur too seemed to share the opinion of his intelligence experts. As the UN offensive got underway on the 24th, the Commander in Chief was declaring that little stood in their way. He believed that the Chinese would not enter the war in full force and, if they did, his airpower would take care of them. Earlier, at the meeting with President Harry Truman at Wake Island, on 15 October, the general was telling the president the same thing.[33]

The CIA believed that the Chinese were interested in only establishing a buffer zone along their border with North Korea. They would change their mind by November 24, just before the Chinese began their major offensive, but their re-estimate was too late to have any effect on UN defenses. The consensus in Washington and the Far East Command was that the communists would not risk direct military action, relying instead on subversion.

Based on the historic record, rarely does the collection effort fail to produce sufficient raw data. Only in the case of the Chinese intervention in Korea is the lack of information raised as a possible source of failure. MacArthur claimed after the Chinese intervention that he did not have enough information upon which to base any reasonable intelligence analysis. He said that his aerial recon planes were prohibited from crossing the Yalu River where enemy troops could be concentrated only a day's march from his theater. Likewise, political intelligence regarding Chinese intentions was hard to come by behind the Iron Curtain. He said, "no intelligence system in the world could have surmounted such handicaps to determine to any substantial degree enemy strength, movements and intentions."[34] Chairman of the Joint Chiefs, General Omar Bradley, backed up that claim when he testified that "we had the intelligence that they were concentrating in Manchuria.... We had the information that they had the capability [to intervene]." But they didn't know, according to Bradley, that they would intervene.

Failure to predict just *when* an attack will take place is common to most strategic surprise attacks since 1939.[35] On 28 October 1950, after the Chinese began infiltrating their forces into the Korean peninsula, U.S. intelligence believed that "with victorious U.S. Divisions in full deployment, it would appear that

the auspicious time for intervention had long since passed."[36]

The reliability of the source came into play in 1950 when the Indian ambassador to China, K.M. Panikkar, informed U.S. officials that the Chinese intended to intervene in Korea if the UN crossed into the North. His impartiality was questioned because he was known to favor Chinese policies over those of the U.S.

A belief in the superiority of one's own military capabilities can often blind decision-makers to bold enemy moves. The very presence of the powerful American fleet at Pearl Harbor was thought to be a deterrent. Instead it was a target. Similarly, an overconfident MacArthur thought that his airpower could take out any Chinese armies attempting to interfere with his victory in Korea. "There would be the greatest slaughter," he predicted. As he said this, the Chinese were already in the war in massive numbers.[37]

In Kam's analysis of surprise attacks from the victim's point of view, he assumed that the "intellectual process at the level of the individual analyst…is consistently biased, and that this bias is the cornerstone of intelligence failures."[38] Information about the enemy is interpreted in a way that conforms to the personal beliefs and hypotheses of the analyst who will then resist and dismiss any information that contradicts his beliefs. At the same time, analysts will give too much weight to evidence that support their conclusions. When aerial reconnaissance failed to find large bodies of Chinese troops in the northernmost reaches of Korea, that information dovetailed perfectly with the earlier conclusion that time for Chinese intervention was past. It did not consider that the aerial photos might not show small groups of the enemy well camouflaged during daylight hours. It is the challenge of professionals to apply rigid tests to their conclusions and overcome the psychology of cultural bias.

In hindsight, it becomes clear that the Chinese had decided in early October to intervene in Korea if the UN forces crossed the 38th parallel. Between 14 and 20 October, they moved four armies across the Yalu River, three of them in front of the Eighth Army and one in the X Corps sector. In the following week two more armies crossed into Korea. By the end of October there were 180,000 CCF troops in the peninsula. Before the UN offensive would begin, in the third week in November, there were 300,000 Chinese soldiers facing the UN.

The Eighth U.S. Army had engaged Chinese forces, taken prisoners, and been informed of Chinese broadcasts that said they intended to intervene if the UN forces crossed the 38th parallel. The Air Force was providing photo recon missions. Still they failed to correctly estimate the number of Chinese, missing by more than 75 percent, and ignoring the signals of intervention. Why?

The Chinese used good operational security. They had made good use of deception, using code names for their units that made them to appear to be small, token units. They avoided detection by aerial observation by moving only at night and their daytime camouflage was excellent. An entire division marched 18 miles a day for 18 days, moving only at night over mountainous terrain. Roy Appleman described the march discipline that kept aerial photography from uncovering their presence:

> …The day's march began after dark at 1900 and ended at 0300 the next morning. Defense measures against aircraft were to be completed before 0530. Every man, animal, and piece of equipment were to be concealed and camouflaged. During daylight only bivouac scouting parties moved ahead to select the next day's bivouac area. When CCF units were compelled for any reason to march by day, they were under standing orders for every man to stop in his tracks and remain motionless if aircraft appeared overhead. Officers were empowered to shoot down immediately any man who violated this order.[39]

Human intelligence, mainly reports from prisoners and Korean civilians, was ignored because they could not be confirmed by imagery intelligence. The Chinese avoided contact with Eighth Army units. U.S. authorities thought the Chinese broadcasts were merely threats.

In Korea, U.S. intelligence has been accused of overemphasizing *capabilities* and neglecting *intentions*. After concluding that the North did not have the capacity to launch a major offensive, some analysts convinced themselves that the enemy would not therefore launch such an ambitious attack.

When it comes to emphasizing intentions or capabilities, there are two schools of thought. One maintains that the main concern should be enemy capabilities since these are more quantifiable, the methods more scientific, the results subject to only partial failure. To divine enemy intentions is a delphic enterprise that involves too much guesswork and can result in total failure and blame. Sometimes even the enemy does not know what he is going to do. The other school has been quoted as saying "the most difficult and most crucial element in the intelligence craft lies in estimating the enemy's *intentions*."[40]

Actually, the analyst must rely on both capabilities and intentions, since they cannot be isolated. This premise is recognized in the evolution of U.S. Army doctrine. In 1951 the field manual on *Combat Intelligence* cautioned commanders to "be certain they base their actions, dispositions, and plans upon estimates of enemy capabilities rather than upon estimates of enemy intentions." Because analysts concluded in 1950 that North Korea had no intention of achieving its goals by an all-out attack, it ignored NK capabilities. Consequently, no measures were taken to strengthen or reinforce the South Korean army.[41] Later editions of the *Operations* field manual called for the consideration of both enemy intentions along with capabilities. The 1976 edition of FM 100-5 advised that "enemy intentions must be considered along with capabilities and probable actions."[42]

Seizure of the U.S.S. Pueblo

On 23 January 1968, the U.S. electronic intelligence ship USS *Pueblo* was captured by North Korean patrol boats and two MiG jets, and its 83-man crew was taken prisoner. The ship was taken by surprise and *Pueblo* offered no resistance. It was boarded in international waters twenty-five miles from the Korean mainland and forced into the North Korean port of Wonsan. It was the first American ship to be seized in 100 years. This was two days after a 31-man team of North Korean lieutenants was intercepted near the Republic of Korea presidential mansion on a mission to assassinate the ROK president, Park Chung-hee, and after a year that saw increasing North Korean infiltration across the Demilitarized Zone.[43]

The intelligence failure in this instance was centered around the "risk assessment" for the *Pueblo* mission. When the Navy headquarters assigned the ship its collection task, it also evaluated the dangers associated with it. A sister ship, the USS *Banner*, had sailed on sixteen missions along the same coasts. She had been harassed by both Chinese and Russian ships. But this had become an accepted part of the game. So the mission proposal was forwarded up the chain of command with a "minimal risk" label.

Rear Admiral Frank L. Johnson, Commander, Naval Forces Japan (COMNAVFORJAPAN), agreed that the risk was minimal and sent the request to Commander in Chief, Pacific Fleet (CINCPACFLT) in Hawaii. One of the many agencies there that had a piece of the action was the Current Intelligence Branch. The North Korean analyst, Ensign Charles B. Hall, Jr., was new on the job. He went along with the minimal risk assessment. He was quoted as saying, "At that time I did not see the North Koreans as a direct threat. I had no reservations because I frankly didn't know enough about it to have any."

Hall's superiors concurred as well. The assistant chief of staff for intelligence at CINCPACFLT, Captain John L. Marocchi, said, "These evaluations were in no sense rubber stamps. The North Koreans were pushing bodies across the DMZ. They continued to seize South Korean ships and accuse them of being spy boats. What we saw and heard didn't seem any different from what we had been seeing and hearing for the past ten years. The Koreans, up to that point, had done nothing to our ships, while the Russians had harassed them. The mission looked like it would be quiet and safe. The logic was in the message. It took me about as long to approve it as it did to read it." The proposal worked its way through succeeding headquarters. From Commander in Chief Pacific (CINCPAC) it went to the Defense Intelligence Agency where it was bundled with several dozen other proposals into 14 to 16 inches of dense paperwork. An overworked staff officer did not have time to ask any questions and he also approved it.

So the mission was launched as planned as a minimal risk with no air support, no escort, and the *Pueblo's* pair of inadequate .50 caliber machine guns useless under frozen tarpaulins. The mission was based on a fatal presumption expressed by Captain George L. Cassell, assistant chief of staff for opera-

tions at CINCPACFLT, who thought "It didn't follow that these people [the North Koreans], although they were attacking our people across the DMZ, would do anything across the water."[44]

Tet Offensive

It was a lousy year for intelligence coups. As 1968 began, a message to the Defense Intelligence Agency from the National Security Agency, alerting them to the possibility that the North Koreans might seize the US intelligence ship *Pueblo* was misplaced on a clipboard and lost. It was located three weeks later. Later in the year, after building up their troops for seven weeks on the border, the Soviet's invaded Czechoslovakia, taking the U.S. by surprise. Then there was the Tet Offensive in Vietnam.

During the Tet holiday in Vietnam, a time of traditional ceasefires during the war, on 31 January 1968, the Communist forces launched a major surprise offensive, attacking cities, military and government targets throughout the country. Simultaneous armed insurrection by South Vietnamese citizens was a key part of the Communist strategy. If this succeeded, tens of thousands of the southern populace would be added to their numbers. But it failed to materialize. As a diversion, the North aimed thrusts along the border with South Vietnam, especially the U.S. firebase at Khe Sanh. These attacks successfully diverted the allies attention away from their planned Tet attacks nationwide, but at the same time strained their resources.

Documents captured in November 1967 included an order to the People's Army which read: "Use very strong military attacks in coordination with the uprisings of the local population to take over towns and cities. Troops should flood the lowlands. They should move toward liberating the capital city."[45]

Concentrated attacks on U.S. facilities at Da Nang, Tan Son Nhut, Bien Hoa Air Base, and the logistical complex at Long Binh, caused initial confusion but were eventually thrown back by quickly responding American combat units. The bloody battle at Hue where U.S. Marines were desperately engaged and the attacks on government offices in Saigon, most dramatically the U.S. Embassy, came as shocks to the already anxious American psyche. There seemed to be fighting and destruction everywhere. Television sets throughout the United States magnified this perception. But the allies rallied to stymie the enemy. American firepower was brought to bear. By 21 February, the Communists were withdrawing everywhere but Hue where they would hold out until the 24th when the Imperial Palace was recaptured.

There were 4,000 Americans killed or wounded, and between 4,000 and 8,000 casualties for the ARVN. The Communists lost between 40,000 and 50,000 killed in action. Their Viet Cong infrastructure was destroyed. Ironically, Tet was the biggest victory the allies ever gained over the Communists during the war, but it was not recognized as such at the time. Instead, Tet was seen by American political leadership and the American people at large as proof that we were not winning in Vietnam and could be surprised and hurt by an offensive by an enemy that most military intelligence experts were counting out.

The Tet Offensive was a turning point in the war. It produced a staggering recoil in the American consciousness. It was a blow to the political will on the homefront from which it would never recover. From that point on the U.S. policies shifted toward a reduction of U.S. involvement in the war. President Lyndon Johnson decided a few months later not to seek reelection. Tet was immensely successful and owed its success to its surprise. This was a result that was not foreseen by the planners of Tet. North Vietnamese General Tran Do said after the war, "We did not achieve our main objective.... As for making an impact in the United States, it had not been our intention—but it turned out to be a fortunate result."[46]

One of the reasons U.S. analysts were surprised was the overreach and irrationality of the enemy plan, as it was based on the faulty assumption that the South's citizens would seize this opportunity to join with the Communists to overthrow their government.

Collection did not fail before Tet. The allies had a captured order for the attack, tape-recorded discussions taken off agents at Qui Nhon, prisoner interrogations, the unprecedented number of high priority messages that were intercepted by SIGINT pointing to the attack, and the strong evidence provided by

premature attacks in I and II Corps Tactical Zones.

Ephraim Kam assigns three levels of reliability to intelligence information: Nonreliable or partly reliable, reliable but controlled [enemy knows we know and can change plans], and reliable noncontrolled [evidence that enemy does not know we know]. The attack order intercepted several weeks before the Tet offensive was deemed as unreliable because it was written by someone outside the highest levels of the Communist leadership, because it was not specific as to the date of the attack, and because it was then easily mistaken for propaganda.[47]

There were at least four accurate reports of enemy intentions. General Phillip Davidson, Military Assistance Command Vietnam (MACV) Assistant Chief of Staff for Intelligence (J-2), briefed General Westmoreland on 13 January that attacks against Saigon were imminent and Westmoreland responded by strengthening the city, a move that probably prevented its complete occupation. But allied attention was drawn to the north by the enemy threat at Khe Sanh. On the morning before the attack, General Davidson predicted that the precipitate attacks against the cities in I and II Corps foreshadowed similar attacks throughout the country within 24 hours.

Westmoreland heeded this warning but it was too late to take any real action to change any defensive dispositions. (The warning itself did not seem extraordinary to most commanders who were used to receiving everyday information from MACV headquarters over the telephone. Since the troops were on alert as often as they were off alert, this one issued at 1125 hours on 30 January seemed not at all unusual.) The North Vietnamese had achieved surprise.

Because U.S. intelligence analysts did not correctly put together all the pieces of the puzzle until hours before the Tet offensive, too late to make a difference, they are credited with an intelligence failure.

James Wirtz analyzes that failure of intelligence analysis in light of six empirical questions. "Were the Americans surprised because they failed to: (1) identify the adversary; (2) estimate the probability of attack; (3) determine the type of action involved; (4) identify the location of the attack; (5) predict the timing of the attack; and (6) determine the motivation behind the initiative?"[48]

Because it was wartime, the question of identifying the adversary becomes moot. When at war, it is also likely that an attack will take place, so analysts assumed that a major offensive was to be expected. And the type of action involved was also easy to figure since the North had no assets to launch an air, amphibious, naval, airborne or nuclear attack. The attack would be undertaken by ground forces. So the clues to the analysis failure lay in the where, when and why.

U.S. leaders had two choices as to where the enemy blow would fall—urban areas or along the DMZ. They chose the DMZ because, among other reasons, it coincided with their analogies to Dien Bien Phu. U.S. commanders were also more inclined to see their troops as the biggest threat to the enemy and to protect their own forces. Because they were dug in around Khe Sanh and well prepared, they would have preferred the attack to strike there. These beliefs were reinforced by SIGINT that indicated a massing of NVA troops along the borders.[49] So the predispositions of U.S. leaders caused them to mistake the diversion for the main attack and the main attack for the diversion.

The tendency of U.S. analysts to think in terms of U.S. troops rather than their ARVN allies contributed to the failure to consider the Tet holidays, a time when half of the ARVN soldiers would be on leave, as being an especially opportune time for an enemy attack in ARVN areas of responsibility. They believed that the South Vietnamese army was protected by the American shield along the DMZ. In the past, the North had taken advantages of truces to resupply and build up their forces. Americans believed the attack would fall sometime after the truce.

The motivation for the Communist offensive, the *why* of the equation, was, more than anything else, to try and reverse their declining combat readiness and morale. U.S. analysts rightly saw such a possible enemy move as a desperate last ditch effort, not unlike the Germans offensive during the Battle of the Bulge. They did not recognize a further objective of Communists—that of playing upon U.S. strengths to deceive them and pouncing upon the vulnerable ARVN units to destroy them.

More than a few historians have suggested that American Army intelligence specialists produced re-

ports that would confirm the views of their leaders and the Johnson administration that the enemy was just about finished.

Wirtz offers this insightful analysis of Tet:

> The story of the intelligence failure also highlights the herculean task faced by officers, analysts, and policy makers as they strove to complete the intelligence cycle. Remarkably, the Americans almost succeeded in anticipating their opponents' moves in time to avoid the military consequences of surprise, despite their underestimation of the weakness in their alliance, the resourcefulness of their opponents, and the handicaps they faced in completing the intelligence cycle. But two factors ultimately slowed them in their race to predict the future: The influence of beliefs that could no longer account for events and their inability to anticipate the mistakes made by their opponents. The failure to anticipate an attack in wartime, when Americans could have assumed that their opponents would do everything in their power to hurt the allies, testifies to the difficulty inherent in avoiding failures of intelligence.[50]

Raid on Son Tay

In a daring raid on 20 November 1970, a 59-man assault force of elite soldiers, led by Col. Arthur D. "Bull" Simon, hit a small compound just 23 miles from Hanoi. It was the Son Tay prison camp that was thought to hold 61 American prisoners of war. Months of planning and rehearsal paid off as the team flawlessly were airlifted to their objective, executed their mission, overwhelmed all their opposition, and escaped without a single American casualty. There was only one problem. They brought out no prisoners. The camp was empty. When the news reached the war room in Washington, D.C. that the prison camp was empty, General William C. Westmoreland, then Army Chief of Staff, exploded "*Another* intelligence failure!"[51] [52]

Son Tay intelligence depended largely on photo recon from SR-71s, RF4s, RF101s, and unmanned Buffalo Hunter drones. Six drone flights were either shot down or malfunctioned. The last and seventh drone mission, after the camp was evacuated, was to take shots from treetop level, but the aircraft banked as the shutter was triggered, producing only a photo of the horizon. SR-71 missions were hampered by cloud and dust cover. Agents were also inserted but with negligible results.

The prisoners had been moved four and one-half months before the raid because of flooding. Speculation centered around whether the flooding had been caused by a covert cloud-seeding operation designed to wash away resupply trails in Laos that was so secret that even the planners of the Son Tay raid could not be informed.[53]

An usually reliable foreign intelligence source provided information that the camp was empty and that information reached decision makers in Washington just hours before the final mission launch. When asked for an unequivocal answer on whether U.S. prisoners were in Son Tay or not, Army Lt. Gen. Donald Bennett, commanding the Defense Intelligence Agency, held out a handful of messages and photos and said, "I've got this much that says 'They've been moved.'" Then he extended the other hand which held a thick folder and added, "And I've got this much that says "They're still there.'"[54]

Defense Secretary Melvin Laird told the president on 20 November that the prisoners had been moved from Son Tay but that the camp had recently been reoccupied by unknown parties. Laird recommended the raid be given the go ahead. The president concurred.[55]

The Son Tay raid had the top priority for electronic intelligence coverage and ELINT was good. It had the North Vietnamese air defense system wired. But the delivery of the product was time-consuming and there was little time at the last minute to revise information. Because of equipment failures or delivery problems, the latest photo imagery taken before the raid could not be examined until the operation had been launched.

The overall commander of the raid, Air Force Brig. Gen. Leroy J. Manor couldn't get crucial weather information at the last minute because he lacked the proper clearances.[56]

When reporters queried Simons at a press conference about who was to blame for the intelligence failure, the colonel replied, "I can't answer that question at all. I am not sure what you mean by 'intelligence failure.'"[57]

Before Senate hearings on the failed raid, Secretary of Defense Melvin Laird testified, "we have made tremendous progress as far as intelligence is concerned." The hearing room erupted in laughter. Laird went on to say, "We have not been able to develop a camera that sees through the roofs of buildings. [Otherwise] the intelligence for their mission was excellent." But since the mission failed to bring home any prisoners, few saw that as being relevant.[58]

There are a lot of ways for intelligence to fail, and things usually go wrong in combination. There are many critical nodes in the process. Likewise, there are many blocks in the minds of the evaluators. There are errors in process. There can be too little data resulting from the omission to target a given area. There can be too much information, sometimes caused by enemy misinformation, that clogs the channels and slows the flow. In these cases it becomes important to assign the correct priority. There can be conflicting data. Often the reliability of the sources comes into question. There can be a misreading of the urgency of the data. Human inaction quite often comes into play, like the lieutenant commander who told the excited clerk that the translation of the Japanese message that gave important indicators of the Sunday attack on Pearl Harbor could wait until Monday. The repetitious occurrence of indicators can cause the "crying wolf" syndrome which causes evaluators to discount signs that have taken on the appearance of the commonplace. Then, there is the pinching off of the information to the decision makers by overzealous executive officers or chiefs of staff who wish to protect their boss from adverse information.

There are errors in judgment. Rarely do military intelligence professionals err on the side of enemy capabilities. The numbers are usually right, or carefully qualified. If they are wrong, it is usually an overestimate resulting from caution. It is in the area of enemy intentions that the possibility of error multiplies. Here we enter that cloudy realm of wishful thinking. We need to understand, as historians and intelligence officers, the psychology of the human response to information that shapes the decision process. The policy makers inevitably sift the information that they receive through the filter of their own preconceptions.

People will believe what they have been conditioned to believe, predicting the future based upon their own vision of it. They see happening what they want to happen, but the course of the future is never so accommodating. Harry Truman was unwilling to believe that the North Koreans would do anything as irrational as cross that line that western diplomats had so conscientiously and sagely drawn. Stubborn adherence to false assumptions is a failing that is common to all of us.

The analyst never acts alone. He is always part of an organization with its own values, expectations, biases, pressures to conform, and political motivations. He works in an environment that does not always reward dissent, discrepant information, or uncertainty.

When dissenting views come from junior officers, they are often suppressed or just ignored by those in higher positions. When Commander Arthur McCollum, Chief of the Far Eastern Section of Naval Intelligence, prepared a message alerting the Pacific fleets, based on what he saw as imminent dangers, he was denied permission to do so by four senior admirals who thought that sufficient warnings had already been sent.[59]

Dissenters can also be senior officials as was the case with Admiral Richmond Turner, the Chief of War Plans in the Navy Department, who believed that Hawaii would be attacked. George Kennan, a State Department Soviet expert, recognized the true reaction of the Chinese to the crossing of the 38th parallel by UN forces, but was not given a hearing by Secretary of State Dean Acheson.[60]

The intelligence analyst works within an organization, often a military one, and institutions themselves are subject to inherent inefficiencies like bureaucracy, compartmentalization, security, faulty communication or rivalry between agencies or services.

Group dynamics, or "Groupthink,"[61] can also affect the decision-making process as it is hard to resist the conclusions of a group of peers. But the group need not be small, or a selected clique of leaders. It can

be as large as the entire American society, a peace-loving group that does not readily accept the possibility of war. An example of "groupthink" is seen in President Kennedy's inner council of advisors prior to the Bay of Pigs invasion. There are few people who would challenge a president's or general's decision.

Intel analysts are sometimes overwhelmed by trivial detail, daily workload, unrealistic expectations, and pressures to be politically correct. It is difficult to sift the relevant from the noise prior to an event. It is understandable that analysts wants to evaluate every scrap of information that comes their way, any clue that might help them reach correct conclusions.

If the military leader is not warned in time, there is little difference from not being warned at all. Because it would have taken almost three weeks to reinforce the Republic of Korea with U.S. forces from Japan, General MacArthur concluded that even a 72-hour warning of an attack would have mattered little to the outcome.

Some failures to provide sufficient warning of an attack can be chalked up to bad luck. A message from Army Chief of Staff George Marshall could not get through to Army headquarters in Hawaii because no one was on duty that Sunday morning. General Marshall had neglected to mark the message urgent so when it did reach Honolulu via Western Union it was too late. A motorbike messenger was delivering the telegram when the bombs started to fall. Many portentous messages intercepted by Magic were simply not translated in time.

In reviewing some of those too many instances where intelligence has failed, we come to some obvious realizations. One is that science can be of little help when dealing with the often irrational and unpredictable human mind.[62] It is little wonder that many of the invaders of our century have been called "madmen." Logic has its limits in plumbing the waters of the human soul. If intelligence analysis is then as much an art as it is a science, future failures are inevitable. That is not to say that we can't improve upon the odds of success by adding to our understanding both of the process of intelligence analysis and of the human behavior.

I have summarized in a Table some of the obvious conclusions that come to mind after reviewing those historic examples of intelligence failures. It is an imperfect list and readers are invited to draw some of their own lessons and offer some of their own remedies. One thing becomes apparent. The key to guarding against intelligence deficiencies lies in the area of education. Many of the problems with communication and dissemination have already been fixed by procedural reforms and reorganizations. Problems residing in the human psyche can only be addressed by training that works at changing attitudes and judgmental weaknesses.

One can readily see how important education is to bringing about change and solutions. It is a daunting responsibility for Army schools. If there is going to be an improvement in intelligence work, there must be a corresponding movement within Army education to encourage open-mindedness, imaginative new approaches to analysis, the encouragement of dissenting opinions, interservice cooperation, and leadership attitudes. This can be accomplished in basic, advanced and pre-command courses.

It would also be useful to inculcate through training a higher tolerance to false alarms. Admittedly this would mean a willingness to accept higher costs in both dollars and up-time, but it would have the benefit of avoiding surprise attacks and perhaps convince an enemy of our preparedness.

It is thought that many of the problems of the past have been overcome by technology. Computers handle and track the masses of information. Mathematical models compile indicators and identify possible crises. Satellites relay voice and pictures in near real time. The President of the United States and the Joint Chiefs of Staff can watch televised battlefield damage assessments minutes after an attack. The decision-makers have never had so much information to aid them so quickly.

While machines serve us well in gathering and quantifying the more voluminous and complex information in today's world, we will still be left with the human fallibilities in analyses and response. The recognition of this fact is the first step toward understanding the process. The next step is understanding where deficiencies are likely to occur in the system. And finally, for those concerned with training the intelligence specialists and for the students themselves, the last step is to resolve that no intel failure should

ever be the result of a lack of skill on the part of the intelligence specialist.

Intelligence Faults	Caused By	Remedied By
Information		
Too much information	—Enemy deception[14]	
—too few analysts	—Adequate staffing	
—Improved analysis (achieved through better systems and better training.)		
Too little information	—Failure to assign target	
—Enemy OPSEC	—Improved analysis	
Conflicting data	—Enemy deception	—Improved analysis
Ambiguous data	—Enemy OPSEC	
—Enemy deception	—Improved analysis	
Unreliable data	—Enemy deception	
—Unreliable source	—Improved analysis	
Process		
Slow distribution of information	—Clogged channels	
—Information overload		
—Misunderstood urgency		
—wrong priority[15]	Organizational and procedural reform	
Not distributed to all who need to know	—Too restrictive security	
—Gatekeepers shield info from boss		
—Interservice/ Interagency rivalries	—Organizational and procedural reform	
—Interservice cooperation		
Piecemeal distribution	Procedural reform	
Over reliance on SIGINT/"ULTRA" Syndrome[16]	—Past successes of SIGINT	
—Better scientific certainty	Education	
Over reliance on IMINT/"Picture's Worth a 1,000 Words" Syndrome	—Past successes of IMINT	
—Better scientific certainty	Education	
Technology breakdown	—Poor maintenance	
—Operator failure		
—Limitations of technology	—Training	
—Improve technology and systems		
Judgment		
Failure to listen to expert advise[17]	—Hubris	
—Conditioning	—The leader should be trained to be open to expert opinions	
—The analyst should remember the advise of Donald McLachlan: "Intelligence is ineffective without showmanship in the presentation and argument."[18]		

Judgment governed by expectations	Psychological conditioning	Rely on objective analysis
Wishful thinking[19]	Psychological conditioning	Good training can alert one to this fault
Adherence to false assumptions	Conditioning	Challenge assumptions[20]
Group dynamics don't allow for dissent —Group pressures —Feeling of belonging threatened		Decision-makers must be reminded to listen to dissenting opinions
Belief in one's invulnerability[21]	Superiority complex	Remember, History is full of upsets
Succumb to "cry wolf" syndrome[22] —Desensitized by repetition —Unwilling to pay the costs in dollars and fatigue for putting troops on continuous alert.		Be willing to accept the costs of more false alerts
Reliance on wrong historical analogy[23]	Reckless, biased or injudicious use of history	Careful study of history
Judging enemy by your own standards[24]	Human nature	Know the mind and culture of the target
Inaction —Laziness —Unawareness		Stress the need for intelligent action in training courses
Bad Luck[25]	The limitations of human knowledge	Be prepared for the unexpected

1. Jeffery, Keith, "Intelligence and Military History: A British Perspective," in Charters, David A., Milner, Marc, and Wilson, J. Brent, editors, *Military History and the Military Profession,* Praeger, Westport, Connecticut, 1992.
2. *Funston's Annual Report*, 1916.
3. Wohlstetter, Roberta, *Pearl Harbor, Warning and Decision,* Stanford University Press, Stanford, California, 1962, p. 385.
4. Wohlstetter, p. 387.
5. Roberta Wohlstetter defines "Signals" as signs or indications. "Noise" is competing and conflicting signs, or disinformation. Most signals are read against a background of noise. It is easier to know which are signals and which are noise after the disaster.
6. Wohlsetter, p. 387.
7. Kam, Ephraim, *Surprise Attack: The Victim's Perspective*, Harvard University Press, Cambridge, 1988, p. 75.
8. U.S. Congress, Senate. 1946, *Report of the Joint Committee on the Investigation of the Pearl Harbor Attack*, 79th Cong., 2d session, Washington, D.C., pp. 65, 102, 105, 126.
9. Kam, pp. 47-8.
10. Wohlstetter, pp. 389-90.
11. U.S. Congress, p. 258.
12. Wohlstetter, p. 312.
13. Wohlstetter, pp. 388-90.
14. Quoted in Kam, p. 102.
15. Wohlstetter, pp. 397-8.
16. Wohlstetter, p. 401.
17. Kam, p. 49.
18. Hunter, Col. W. Hamilton, Chairman, *et al*, "Study of the Pearl Harbor Hearings," War Department, General Staff, 23 January 1947.
19. Knorr, Klaus, and Patrick Morgan, eds., *Strategic Military Surprise*, Transaction Books, New Brunswick, NJ, 1983, 80.
20. *Ibid.,* p. 81.
21. *Ibid*., p. 82.
22. Schnabel, James F., *Policy and Direction: The First Year*, Center of Military History, Department of the Army, Government Printing Office, 1992, p. 63.
23. *Ibid.*, p. 63.
24. *Ibid*., p. 63.
25. *Ibid*., p. 63-4.
26. *Ibid*., p. 64.
27. *Ibid*., p. 62.
28. Ridgway, Matthew, 1967, p. 14.
29. Appleman, Roy E., *South to the Naktong, North to the Yalu*, Center of Military History, Department of the Army, Government Printing Office, Washington, D.C., 1992, p. 752.
30. *Ibid*., p. 753.
31. *Ibid*., p. 762.
32. *Ibid*., p. 755.
33. *Ibid*., p. 760-3.
34. DeWeerd, H.A., "Strategic Surprise in the Korean War," *Orbis*, 6, Fall 1962, pp. 450-1.
35. Kam, p. 14.
36. *Ibid.*, p. 15.
37. *Ibid.*, pp. 80-1.
38. Ibid., p. 85.
39. Appleman, p. 770.
40. Quoted in Kam, p. 57.
41. Quoted in Kam, p. 59.
42. Kam, p. 59.
43. Finley, James P., *The U.S. Military Experience in Korea, 1871-1982*, Command Historian's Office, Secretary Joint Staff, Headquarters, U.S. Forces Korea/Eighth U.S. Army, APO San Francisco 96301, 1983.
44. Armbrister, Trevor, *A Matter of Accountability: The True Story of the Pueblo Affair*, Coward-McCann, New York, 1970, p. 189-90.
45. Arnold, James R., *Tet Offensive 1968: Turning Point in Vietnam*, Osprey Publishing Ltd, London, 1990, p. 36.
46. *Ibid.*, p. 86.
47. Kam, pp. 39, 41-2.
48. Wirtz, James, *The Tet Offensive: Intelligence Failure in War*, Cornell University Press, Ithaca, New York, 1991. 49. James Wirtz makes the point that U.S. analysts have a weakness for SIGINT over other less reliable sources of intelligence and thus fall victim to what he calls the *Ultra syndrome* (p. 274).
50. Wirtz, p. 275.
51. Schemmer, Benjamin F., *The Raid*, Harper and Row, New York, 1976, p. 182.

52. Time was squandered in selling the idea to the military and political hierarchy. The raid at Son Tay contrasted with the Israelis raid on Entebbe on 4 July 1976 which successfully rescued hostages. The difference is in operational realm, not in intelligence.
53. Schemmer, p. 81.
54. *Ibid.,* p. 147.
55. *Ibid.,* p. 148.
56. *Ibid.,* p. 151.
57. *Ibid.,* p. 189.
58. *Ibid.,* p. 192.
59. Kam, p. 161.
60. *Ibid.,* p. 162.
61. Irving Janis defines *groupthink* as "a mode of thinking that people engage in when they are deeply involved in a cohesive in-group, when the members' strivings for unanimity override their motivation to realistically appraise alternative courses of action." The condition can be recognized by these symptoms:

> —An illusion of invulnerability…which creates excessive optimism and encourages taking extreme risks;
>
> —Collective efforts to rationalize in order to discount warnings which might lead the members to reconsider their assumptions…;
>
> —Stereotyped views of enemy leaders…as too weak and stupid to counter whatever risky attempts are made to defeat their purposes;
>
> —Direct pressure on any member who expresses strong arguments against any of the group's stereotypes, illusions, or commitments….

Janis uses the example of Pearl Harbor to show how hard it was to confront a strong leader with dissenting views:

> During the week before the attack it would have been doubly difficult for any of Kimmel's advisers to voice misgivings to other members of the group. It was not simply a matter of taking the risk of being scorned for deviating from the seemingly universal consensus by questioning the cherished invulnerability myth. An even greater risk would be the disdain the dissident might encounter from his colleagues for questioning the wisdom of the group's prior decisions. For a member of the Navy group to become alarmed by the last-minute warning signals and to wonder aloud whether a partial alert was sufficient would be tantamount to asserting that the group all along had been making wrong judgments. *Victims of Groupthink*, Houghton-Mifflin, Boston, 1972, pp. 9, 197-8.

62. Irrationality on the part of the enemy is often the reason analysts give for failing to predict surprise attacks. The enemy cannot succeed in such an endeavor so it won't risk it, goes the reasoning. And the reasoning does not appear to be flawed. In the eleven surprise attacks since 1939, only twice have the attackers achieved victory.

*JAMES P. FINLEY * A Brief History of U.S. Army Military Intelligence Training*

The history of military intelligence began somewhere around the time that warfare began. But training in the intelligence art was largely a 20th century experience, made imperative by the proliferation of science and technology within military science generally. The early history of Military Intelligence training within the U.S. Army was fragmented and incomplete because the training itself was on-the-job, ad hoc and most often non-existent.

Early History

Colonel Arthur L. Wagner is remembered for his contributions as an advocate of Army educational reform, professionalism, and a writer of considerable influence on military organization and tactics. But he also holds another distinction. He wrote the first U.S. Army textbook that dealt extensively with military intelligence. In 1893 he published *The Service of Security and Information*, a pivotal work calling attention to the importance of intelligence-gathering to the American military leader.

Wagner was a believer in the power of history to educate. His approach was didactic and he was convinced that "the experience of the past" could form " guide for the future." He said, "If an officer would prepare himself to be of service to his country, he must attentively consider the recorded experience of those who have learned war from the actual reality, and must accumulate by reading and reflection a fund of military knowledge based upon the experience of others."

To those who opposed his reforms as "mere theory," and there were many, he shot back, "There are officers who pose as practical soldiers, and affect to despise all theory. These…are generally ignorant and obstinate men who know as little of the practice as they do the theory of war…. How can we be sure that they will not some day find themselves compromised on service from want of knowledge, not from want of talent?" He viewed the obstructionists as the "Ireland Army," an unkind reference to the immigrant soldiers who won their commissions on the Civil War battlefields.[1]

As chief of MID from 1896-98, and as an intelligence officer at-large during the Spanish-American War, he sought to impress the importance of MI on an indifferent Army leadership. If he failed to win over his superiors [Maj. Gen. William R. Shafter thought his Bureau of Military Information was intended to spy on him rather than report on the enemy], he did make an impact on at least one of his subordinates. Twenty years later Ralph Van Deman, then a lieutenant, now a major, picked up the MI banner and carried it forward. It was largely through Van Deman's persistent pleadings that a Military Intelligence Division emerged in 1917 and served the U.S. Army well throughout the war in Europe.

One of the early training efforts was the formation in 1917 of the first aerial photography school at Cornell University in Ithaca, New York. One of its first graduates and instructors was 2d Lieutenant George Goddard who pioneered many of the advances in aerial reconnaissance, experimenting with infrared photography, and long-focal length camera lenses. His first job at the new school was to build it. The forty people in the first class were put to work with hammers and saws building the photo labs and dark rooms in Schoellkopf Hall. Using French and British instructors who were familiar with the terrain in the European theater, the course was designed to turn out officers who would command aerial photographic sections so critically needed in France. Every two weeks large shipments of actual photos taken along the front arrived at Ithaca. Goddard gave a picture of one of the teaching methods at the school.

> An up-to-date map of the entire battlefront from the English Channel to the Swiss border was located on a long, high wall in the classroom. The map showed in great detail the first, second, and third German trench systems, no-man's land and the first, second and third English, American and French trench systems. Each day the students would interpret the various pictures with the assistance of the

French and British instructors who were familiar with the particular areas along the battle lines. The students would then revise the map and bring it up to date.[2]

The American Expeditionary Force in France during World War I relied upon its allies for intelligence training, and Americans assigned to intelligence duties like interrogation or creating aerial photo mosaics went to the British Army Intelligence School at Harrow, England. The Americans eventually established their own intelligence school at Langres, France.

Colonel Ralph Van Deman, a believer in intelligence training, organized the first training element, MI-9, as part of his Military Intelligence Division, General Staff, in the summer of 1918. He also recommended that a training facility modeled on the Langres school be set up in the Washington, D.C., area.

In October 1918 the MID published the first Army-wide intelligence training literature titled *Provisional Combat Intelligence Manual*. It was meant for training combat intelligence groups at the infantry division, regimental and battalion levels, after soldiers had received their uniform initial training in Division Intelligence Schools of Application in the United States. This forerunner of the 1940 Field Manual 30 series was also a training supplement to *Intelligence Regulations, A.E.F. 1917*, and other AEF intelligence instructions. It recognized that "originality, inventiveness and adaptability are essential to success in intelligence work," and therefore recommended that the manual be used as a general guide.[3]

Before 1918, there was no technical training for intelligence officers. The American Expeditionary Force in France recognized this deficiency and cabled the War Department to ask that intelligence officers be sent to France ahead of their division's sailing date so that they could attend a special intelligence training course. Initially, the course consisted of a quick visit to the front lines, then enrollment at the AEF General Staff College in Langres, France.

The U.S. Army Intelligence School at Langres began its operation on July 25, 1918, with Major Thomas Carton as director. Its faculty was international in flavor, with one British and two French officers on the staff. With about 11 instructors in all, they taught two six-week classes and one eight-week class, averaging 46 students each, for 46.5 hours a week, Monday through Saturday, and sometimes Sunday. The demand for enrollment far exceeded the number of spaces available because of the demand in the field for trained intelligence officers.

Dennis E. Nolan described in his final report the three main courses of instruction:

1. The detailed study of the enemy army, its organization, recruiting system, strength and location of its units and all matters that would help an Intelligence officer to visualize the enemy's forces.
2. The examination of prisoners and documents. Theoretically, by means of books and lectures; and practically, by means of the actual examination of enemy prisoners and documents.
3. Topography, including the study, interpretation and restitution of airplane photographs.[26]

To give the students a rounded though admittedly superficial grounding in military basics, they were also taught about American and allied organization and tactics.

A student could find himself interrogating actual fresh German prisoners, pouring over real captured documents from the front, or studying the German Order of Battle from the Spring Offensive just completed. His school day lasted from 0900 to 2100 hours, with time out for lunch and dinner. On Saturday or Sunday, he could hear a guest lecturer expound on such subjects as "The Austro-Hungarian Army," "Tanks and Tank Tactics," "German Gas Warfare," or "Scouting, Patrolling and Trench Raids."[4]

This system had the disadvantage of taking the officer out of his division for an average of three months and thereby depriving him of the training and staff work he would have received at the division level.

In an article he wrote after the war for a history teachers' magazine, former Capt. John C. Parish explained the training he got at Langres prior to taking up duties in the G2 shop of the First Army, A.E.F.:

> Late in July, 1918, about fifty officers gathered at the high-walled and historic French town of Langres for six weeks of intensive study. The group had been drawn widely from the American Expeditionary Forces. Some men had been called back from the front line in Northern France and Belgium, the mud of the trenches still on their boots; some had come from less active sectors in the

Vosges region; others were from more recently arrived divisions still undergoing training in the areas back of the lines.

The instructors were American, British and French officers experienced in the recent operations, and the term comprised six weeks of the most concentrated training. Examinations were frequent and casualties often occurred. The amount of information one had to acquire in that brief time seemed appalling. It was necessary to learn all about the German Army—the organization of staff and line, the details of recruiting, and the stages and classes of service from that of the young boy entering active service to that of the comparatively old man in the landsturm, the grades of officers and men, the numbers and arrangements of units of infantry, cavalry, field artillery, foot artillery and mountain artillery, the composition of machine gun organizations, jager battalions, engineers and pioneer groups. The officers diligently learned the origin of every one of the several hundred German divisions. They studied the expansion and reformation of the German Army during the war, and tried to memorize the details of their equipment and uniform, their artillery weapons, shells, fuses, gas projectors and a hundred other details.

Aside from the German Army it was necessary to learn to interpret airplane photographs, to use military maps with readiness, to gain familiarity with the theatre of operations, and to learn the routine of intelligence work in regiments, divisions and higher echelons.

Those who were studying for the interrogation of prisoners had the opportunity of practice by catechising groups of actual German prisoners brought back from the front. These interrogations were carried out against time and were excellent training.[5]

The forerunner of the Counterintelligence Corps, the Corps of Intelligence Police, was created in August 1917 to meet a need of the AEF for investigators with linguistic abilities. They would be tasked with protecting the AEF from enemy espionage activities. The training for the first 50 sergeants, many of them European born, began in France under the tutelage of Commandant Walter of the French Surete. It was an educational experience for all concerned, especially for the several members of the corps who were discovered to be French draft dodgers by their French police instructor and thrown in jail. After that initial screening and thinning of their ranks, ten CIP agents were picked to train with the British at Le Havre. A *Syllabus for Instruction of Intelligence Police* was prepared by a British officer which included subjects like "Recognition of the boundary between Military Police and Intelligence Police work" and "the use of tact in dealing with French officials." About 75 men completed the four- to six-week coursework, as the CIP grew in numbers, and plans were underway in mid-1918 to open a four-week Intelligence School at Bourdeaux. It never materialized, however, and on-the-job training at Bourdeaux had to suffice for most of the CIP men. The British course at Le Havre was the only formal instruction available until the end of the war, and it was considered indispensable.[6]

There was little effort within the War Department to provide any training beyond the unit level, and that training mainly concerned basic counterintelligence. To rectify that situation, Colonel F. L. Dengler was returned from France to establish MI-9, the training section of the Military Intelligence Division, and to coordinate training matters with the AEF G-2. He arranged to have combat experienced veterans sent home from Europe to act as instructors in divisions slated for shipment overseas. MID's creation of its own training section soon ran afoul of War Department turf-guarding, with the War Plans Division objecting that training fell within its boundaries alone. MID should not be conducting its own training program.

To solve this dispute, Colonel Dengler was transferred to the Training Branch of the War Plans Division where he would continue to work out the training for "positive intelligence personnel," and still be responsive to MID requirements.

A few years after the Armistice, Brig. Gen. Marlborough Churchill, now called the Assistant Chief of Staff, Director of Military Intelligence, General Staff, was arguing for the continuance of MI training so that the lessons of the war not be lost. He observed in April 1920 that, "The doctrine and practice of combat intelligence training was evolved in the A.E.F. It is being continued at the present moment in the

intelligence course at the General Staff College under Brigadier General D. E. Nolan, in the Service Schools at Leavenworth under Colonel W. Howell, and by the G-2s of tactical units. It is believed that the proper way to make sure that no useful lessons of the war are lost is to have the general policy concerning intelligence training announced by the Training and Instruction Branch, War Plans Division, after consultation with the Military Intelligence Division, which should be held responsible that nothing is lost that stood the test of actual war in the A.E.F."[7]

In the postwar Army, intelligence training was to take place in the field rather than at any centralized school, with special courses being offered at the service schools and in the General Staff College. Churchill described the status of U.S. Army intelligence training in early 1920:

> *Combat Intelligence and Combat Intelligence Training* has been provided for by the creation of the Troop Subsection of the MI5, issue of the Provisional Intelligence Regulations of the A.E.F., and by the detail of department and division intelligence officers who have had G-2 training in France. Division and Department Commanders are charged with the instruction of their commands. The principle of decentralization demands that the War Department give them a free hand in intelligence training which they, more than anyone in Washington, are competent to initiate and to develop.
>
> The intelligence courses at the Service Schools and at the General Staff College are in charge of officers who distinguished themselves in intelligence work in the A.E.F. M.I.D. furnishes them with data and assistance. This is believed to constitute the proper relationship.[8]

His successor in the job of top MI officer in the Army kept up the drumbeat for peacetime MI training. Major General Dennis E. Nolan, Pershing's G2 in France during the war and now, in 1921, the head of the Military Intelligence Division of the War Department, voiced his concern that training for military intelligence would again be ignored, as it was before the war. He wrote, "My fear is that in the pressure of many things, claiming time for training, our Army may lapse into the pre-war days in its attitude toward the whole question of combat intelligence and that information regarding the enemy for our tactical problems and in our maneuvers will be based on the old and easy assumption that all information needed of the enemy is obtained from an enemy inhabitant."[9]

Lt. Col. Walter C. Sweeney played an important part in setting up the Military Intelligence Division of General John J. Pershing's American Expeditionary Force headquarters in 1917. He served with that headquarters until July 1918 when he joined the V Corps and 28th Infantry Division in the fighting. Before the war, the experienced infantry officer had been active in training officers. Wanting to capture the lessons of his World War I experience, he wrote a book about the emerging importance of military intelligence to further the understanding of that craft and its usefulness to commanders. In *Military Intelligence: A New Weapon in War*, published in 1924, he concluded:

> One of the most important lessons gained…was that a great loss of efficiency in the military machine was caused by failure to maintain good team play between commanders and their staffs and between members of the same staff. Some officers, who saw more Intelligence staff work than any other kind, have gained the impression that this was particularly true with regard to the relation of Intelligence officers to their commanders and to their coordinate brother staff officers. …The natural consequence…was…a higher price in human life.[10]

As a former trainer, he had much to say about the training that would be required for intelligence officers at the various levels of command. At the General Staff level, he called for all staff officers to be trained in intelligence so that they could be familiar with the matters normally handled by the Acofs, G2, and so that they would be able to "make a critical analysis of the situation, plans and intentions of the enemy."

For Intelligence Service personnel, he thought the instruction should be "uniform in its nature and cover a definite specified field." Although specialized training was a necessity, a certain amount of cross-training was desirable. All the intelligence specialists "must all talk the same language or there will be lost motion and wasted effort."

Recognizing that the intelligence skills needed in time of war would have to come from a pool of

experts that were trained in peacetime or that were able to convert civilian skills, he turned to the Reserve and National Guard as a source of intelligence manpower during periods of crisis. Parallels for this element of his thinking can be found in the modern-day dependence on reserve forces for such experts as linguists.

He called for "ingenuity and care in preparing the course of study." His experience told him that the best method for training intelligence personnel was what he called "the applicatory system of instruction." This hands-on approach would require the student to "actually solve his problem or make his report, as he would under service conditions, in accordance with the assumed situation given him in the problem."

In promulgating these ideas, he was undertaking a futile attempt to formalize doctrinal, organizational, and training tenets for military intelligence in the post World War I U.S. Army. That he did not succeed is not surprising in a military establishment that shrank to negligible levels in the interwar years. That he recognized the essential nature of military intelligence, that is its importance to commanders and organizations is revealing in that he foresaw the U.S. Army doctrine of the 1990s, encapsulated in the phrase "Commanders Drive Intelligence."

Despite some training successes in World War I and the advocacy of men like Van Deman, Dengler, Churchill, Nolan and Sweeney, the post-war intelligence training was inhibited by the lack of funds and personnel across the Army as a whole. The hopes of MID leaders to establish their own MI Training School after the war were dashed by the drastic drawdown in manpower and budget allocations.

The clash over training responsibilities lingered after the war and into the next decade. MID organized a Training Section (MI-4) again in February 1922 which attempted to supervise and standardize combat intelligence training and conduct a Military Intelligence Reserve Officers (MIORC) correspondence course. With two officers and two civilian clerks, it was to expand on the work of the former Troop Subsection of MI 5 which had been set up in early 1920. The chief of the new training section had to report after its first fiscal year of operation that "nothing in the way of supervision of combat intelligence training in the Army has been accomplished."[11] But the MI 4 soon began to make headway, recommending that local intelligence schools that were to be organized in the event of mobilization in each Corps Area and Departmental command adopt a standard training outline published by MI 4, a recommendation that most adopted.

In 1924 they published the first *Combat Intelligence Regulations*, and were working on *Tactical Interpretation of Aerial Photographs*, and a *Correspondence Course for MI-ORC Officers*.

The ACofS, G2, War Department General Staff, Col. James H. Reeves, was worried that insufficient attention was being paid by field commanders to military intelligence training and in his annual reports for FY 1925 and 1926 he called for a larger G2 role in writing training regulations and conducting tactical inspections. Those functions, however, would remain firmly in G3. That was the state of affairs in 1931 when one MID staffer wrote, "The state and extent of combat intelligence training in the Army is not known to this branch; as it makes no inspections and receives no training reports."[12]

Meanwhile, the Army Air Corps was conducting its own training in aerial photography. In 1929 George Goddard reported to Chanute Field, Rantoul, Illinois, to be Director of the School of Photography, Air Corps Technical Command. He described the curriculum.

> The course for enlisted students covered a varied curriculum of subjects ranging from mathematics to mosaic making. (The basic photographic course included mathematics involved in photography, the principles of photography, negative making processes, lantern slide making, photographic optics, cameras, practical ground photography, newspaper and commercial photography, copying, filters, the work of the field photographic section and mosaic making.) There was also a nine-month course for a class of officers. Their curriculum was basically the same as that of the enlisted men, but in addition, they studied practical aerial photography, the military use of photographs, photographic interpretation, and aerial intelligence. Included were approximately 150 hours of air time divided equally between piloting and acting as the photographic observer.
>
> In the training of officers to become photographic pilots and observers, the utmost care was taken in selecting men who had an aptitude for navigation, engineering and endurance flying—rather than

the spectacular fighter or attack types. Bomber and transport pilots generally made good photographic aviators, particularly for mapping operations. With our limited number of navigation instruments, it required months of practice and study to become a good photographic pilot.

* * *

Since some of the officer trainees would go on to command photo sections and, both officers and enlisted men alike were required to be proficient in the demanding work involved in every aspect of aerial photography, I stressed innovation in all training. Resourcefulness became the watchword of the school.

For example, in the dead of winter a group of students would be dumped out beside a frozen river. They would have portable laboratory equipment with them. At some point in the next twenty-four hours a plane would fly over and drop rolls of exposed film. Processing the film required cutting a hole in the ice to get fresh water. When the film was developed it was sent back to base by motorcycle. During the exercise the men not only worked under difficult climatic conditions, they also lived under them.[13]

In his book on *Combat Intelligence*, an instructor at the Command and General Staff School at Fort Leavenworth in the 1930s tells us that the U.S. Army doctrine prior to 1932 was based upon determining the "enemy's probable intentions." At the Command and General Staff School the doctrine was modified to present the commander with only hypotheses based upon capabilities alone, thus complicating the process, but eliminating guesswork.[14] The 1951 field manual on *Combat Intelligence* echoed the 1932 thinking when it cautioned commanders to "be certain they base their actions, dispositions and plans upon estimates of enemy capabilities rather than upon estimates of enemy intentions." The 1976 edition of FM 100-5, *Operations*, revised Army doctrine to its pre-1932 stance, advising that "enemy intentions must be considered along with capabilities and probable actions," realizing that capabilities and intentions are mutually compelling.

In 1933 the Military Intelligence Division was busy revamping its extension courses for MI reserve officers. By October of that year they reported that they had revised four courses [Command Staff Functions, Military Intelligence Organization and Functions, Intelligence Documents, and Military Maps] and were working on three more updated courses [Combat Intelligence; Collection, Evaluation and Dissemination of Combat Intelligence; and Map Compilation and Reproduction].

According to the historian of the MID, Bruce Bidwell, the intelligence training activities reached a new low in 1934, when the four officers of the Training Section of the Operations Branch "were chiefly engaged in performing functions connected with mobilization plans, intelligence police, reserve affairs and the domestic subversive situation, rather than those related directly to establishing intelligence training policies or procedures."[15] Training funds were so scarce that only 17 MI reserve officers could be called up for training in all of the Corps Areas in FY 1934. This situation could only improve in FY 1935.

In 1938 a basic field manual for intelligence was envisioned and its three sections were in final draft. They were: Part One—"Combat Intelligence" (to replace TR 210-5); Part Two—"Tactical Interpretation of Aerial Photographs" (to replace TR 210-10); and Part Three—"Examination of Prisoners, Deserters, Inhabitants, Repatriates, Documents and Material."

Also in 1938 exams were written to test the language capabilities of MI Reserve officers speaking Dutch, French, German, Italian, Japanese, Polish, Portuguese, Russian, Spanish or Swedish. A year later the Regular Army started a "certified language officer list."

The Military Intelligence Division issued the first field manuals to be known as the FM-30 series beginning in 1940. They included: FM 30-5 *Combat Intelligence* (17 April 1940); FM 30-10 *Observation* (30 November 1940); FM 30-15 *Examination of Enemy Personnel, Repatriates, Documents and Materials* (22 July 1940); FM 30-20 *Military Maps* (27 May 1940); FM 30-21 *Role of Aerial Photography* (1 November 1940); FM 30-25 *Counterintelligence* (15 February 1940); FM 30-30 *Identification of United States Government Aircraft* (18 September 1940); FM 30-31 *Identification of British Aircraft* (limited edition, 2 December 1940); FM 30-35 *Identification of German Aircraft* (5 July 1940); FM 30-

38 *Identification of Japanese Aircraft* (25 June 1940); FM 30-40 *Identification of United States Armored Vehicles* (21 May 1941); FM 30-41 *Identification of British Armored Vehicles, German, Japanese, Russian, Italian, and French* (20 June 1941); FM 30-50 *Identification of United States Naval Vessels* (11 October 1941); and FM 30-55 *Identification of German Naval Ships* (19 June 1941).

Turning to signals intelligence, all SIGINT intelligence training accomplished in the years before World War II was done by the Army Signal Corps' Signal Intelligence Service which had been founded in 1930 to handle all cryptologic functions for the Army. Under the leadership of William F. Friedman, the SIS published studies on cryptology and developed training courses for reserve officers so that a cryptology manpower pool would be available for wartime mobilization.

William Friedman conducted some short courses in cryptology from 1930 to 1933 despite the absence of funding for any training. He also developed some extension courses for an Officer Reserve Corps program. By 1934 the SIS school was formed with 1st Lt. W. Preston Corderman as the instructor. Nine regular Army officers would receive extensive training in communications intelligence there by 1941. Signals intelligence field work was brought together in the 2d Signal Service Company established at Fort Monmouth, New Jersey, in January 1939.

Shortly after the Training Branch of the Signal Intelligence Service was formed in 1934, it devised a 16-month, inclusive program of instruction that covered elementary and advanced cipher and code solution, code compilation, machine ciphers, secret inks and code solution in the field. Its school opened on 4 September 1934 with two students and Lieut. Corderman acting as instructor. Other members of the agency gave classes. From 1934-1941, William Friedman wrote six text books on Military Cryptanalysis for extension courses conducted by the Army at universities around the country.

Although the coursework was extensive, only two officers were trained each year beginning in 1935 so that only a few Signals intelligence officers were available on the eve of World War II when vastly larger numbers would be needed.

Prior to World War II, Dwight Eisenhower remembered the "shocking deficiency" in intelligence assets that hampered planning. "The fault," he said, "was partly within and partly without the Army. The American public has always viewed with repugnance everything that smacks of the spy." George C. Marshall voiced a similar view of the pre-war situation. "Prior to World War II, our foreign intelligence was little more than what a military attache could learn at dinner, more or less over the coffee cups." Omar Bradley expressed the problem this way: "The American Army's long neglect of intelligence training was soon reflected by the ineptness of our initial undertakings [in World War II]. For too many years in the preparation of officers for command assignments, we had overlooked the need for specialization in such activities as intelligence…."

A centralized intelligence training school was proposed during the Army reorganization that followed World War I. The idea was turned down, but resurfaced just before World War II. An Army conference on training, scheduled for 8-13 December 1941, which would have heard this recommendation for a central Army intelligence school, was cancelled because of the surprise attack on Pearl Harbor.

World War II

World War II was a war in which military intelligence training would come of age. It was a war which saw American intelligence cryptanalysts, like William Friedman with his Signal Intelligence Service, break key enemy codes. It was also the war of aerial photo reconnaissance, and by 1944 over 200 missions were flown and a half-million photos delivered.

Army manuals in 1940 called for specialized intelligence training at the regimental level. It covered a wide spectrum of subjects. Senior NCOs and officers assigned to intelligence duties would first attend a divisional course of instruction which was far-ranging. Intelligence schools at the General Headquarters level were provided for selected personnel who measured up to the "highest standards." They would receive instruction in "various military intelligence activities and detailed instruction on the enemy coun-

try and army."

An interesting sidelight on division-level intelligence training occurred during the fighting in North Africa. Frank B. Sargent was a private in the Combined Commando Unit of the 34th Infantry Division. He felt his combat experience could be useful to his comrades and wrote a training pamphlet for his unit entitled, *The Most Common Shortcomings in the Training of Battalion and Regimental S-2 Personnel, And Some Suggestions to Overcome These*. In this document he wrote: "The main thing in training of intelligence personnel is to keep them training all the time. To make them understand the larger points of their jobs and to teach them not to overlook the smaller ones. They have to be kept interested all the time. They 'have to do it themselves.' …They must know the complexity of the Intelligence system and feel that they are an important cog in it."

Private Sargent's pamphlet came to the attention of Maj. Gen. Charles W. Ryder, his division commander, who passed it on to General Eisenhower. The commander of Allied Forces in North Africa ordered it published and distributed throughout his command. When General George C. Marshall visited Eisenhower's headquarters, he too was impressed by the work and carried a copy back to Washington for distribution throughout the U.S. Army in 1943.

The Military Intelligence Service, formed in March 1942 and newly located in the Pentagon, was an operating agency of G2 that controlled intelligence work in the Zone of Interior, such as training for combat-bound soldiers in escape and evasion, and the interrogation of high-level enemy prisoners in U.S. prison camps.

The battle between G2 and G3, WDGS, over who had staff responsibility for field intelligence training, which had raged throughout the interwar years, again surfaced in 1941. Fearing that combat intelligence training was on the decline in the U.S. Army, the G2 issued a memorandum in September 1941 attributing poor quality of training to: "No intelligence plans; too much dependence on standing operating procedure; and an erroneous conception of Leavenworth's teaching concerning combat intelligence." The Military Intelligence Division gained an undisputed staff responsibility for field intelligence training in July 1942 when newly published AR 10-15 gave the division responsibility for the "preparation of plans and policies, and supervision of…Intelligence Training."[16]

The general supervision of intelligence training during World War II rested with the Training Branch of the War Department's Military Intelligence Service. But the real work of training was accomplished at the various schools which exercised a great deal of autonomy in carrying out the instruction.

Now called the Training Group of the Military Intelligence Service, it exercised staff control of the Military Intelligence Training Center, and the Military Intelligence Service Language School, Chinese Language Schools at Yale and the University of California, and the Japanese Language School at the University of Michigan. It was also the point of contact in Army headquarters for training liaison with the Office of Naval Intelligence, Army Air Forces, Army Ground Forces, and the Army Service Forces.

To meet the growing demand for trained intelligence specialists in the field, the Military Intelligence Training Center (MITC) was authorized in May 1942, but did not begin operations at Camp Ritchie, Maryland, until 19 June 1942. It was staffed largely by MID staff and MI Reserve officers. The center's first commander was Lt. Col. Charles T. Benfill, AC. He served concurrently as Chief of the Training Division of MIS and Commandant of the Military Intelligence Training Center at Camp Ritchie, an arrangement that proved unsatisfactory and was discontinued in January 1944. Operating in an old National Guard armory, the MITC trained combat intelligence specialists, just less than 20,000 of them during World War II.

Initially, a school for interrogators, interpreters and translators, the Military Intelligence Training Center expanded its curriculum in October 1942 to include terrain studies, signal communications, staff duties, counterintelligence, order of battle, photograph interpretation, and familiarity with enemy small arms. In February 1944 the Secretary of War gave the center the added mission of training intelligence personnel of divisions. A month-long course was inaugurated in March which taught foreign maps and equipment, enemy tactics, POW interrogation, photo interpretation, counterintelligence, order of battle,

staff work, and the employment of specialist intelligence teams.

After graduating from the military censorship school at Fort Washington, Md., and the photo interpreter school at the Camp Ritchie Military Intelligence Training Center (MITC), Capt. Henry Hauser was assigned as an instructor and later Assistant Photo Interpretation Department chief at the MITC. He remembered that in 1943 the average class size for both officer and enlisted was 35. They worked seven days, then got the eighth off, a day they called "Benday" after the school's commander Lt. Col. Benfill. They used German and Italian POWs to instill realism in the interrogator training. After eight weeks the men were formed into photo interpreter teams and assigned to divisions, corps, armies and field armies.[17]

Were those MI specialists trained at Camp Ritchie prepared for duty in a combat theater of operations? A poll of 76 European Theater of Operations G2s taken after was unanimous in calling the training recieved at the Military Intelligence Training Center "well planned, but inadequate to prepare intelligence specialists to enter upon their work in the European Theater of Operations."[18] Many of the graduates of the MITC had not received any basic military training and, as a result, were regarded as poor soldiers lacking discipline.

But the school at Ritchie did apparently give them confidence in their intelligence abilities as their morale was reported to be high when arriving in the Europe, and it was reported that "the intensive course offered at the Military Intelligence Training Center…give most of the graduates a great measure of inspiration and enthusiasm for their work." To give them the added knowledge and skills for intelligence work in a combat zone, a training program was set up in the spring of 1943 under the general direction of the Training and Operations Branch, G-2 Section, European Theater of Operations.

The Field Interrogation Detachment took charge of the in-theater training of POW interrogator teams and MI interpreter teams, which would eventually incorporate actual prisoners of war. The Home Forces Intelligence Detachment, later known as the Photo Intelligence Center, based in England took responsibility for training newly arrived photo interpreter teams. Most of the instruction was provided by British and Canadian staff in the early days. Incoming order-of-battle teams got their training from the Order of Battle School, a subsidiary of the Military Intelligence Research Section, G-2, from January to October 1944, and after that from the Order of Battle Center that was relocated to France. They offered a nine-day basic course in German order of battle and a six-day course in the interpretation of enemy documents.[19]

The strength of the U.S. Army in 1939 was 189,839. By the end of 1941 it numbered 1.6 million. The challenge of mobilizing, equipping and training this burgeoning force was met by the Army as a whole and by the Counter Intelligence leadership in particular. The Corps of Intelligence Police saw its circa 40-agent force grow to 1,026 after Pearl Harbor, and reach 7,500 by war's end.

In February 1941 training began at the Corps of Intelligence Police Investigators Training School in a single room at the Army War College located at Fort Leslie J. McNair. The first class of 188 men were taught by five full-time instructors whose mimeographed lectures became the training texts. The school's graduates would be responsible for internal security in the Army. The curriculum, which used the FBI basic courses as a model, was geared to criminal investigation with 61 courses being taught, addressing among other things the principles of observation and description, espionage and counterespionage, bombs, sabotage devices and undercover work.

The CIP school soon outgrew its single room and spilled over to other sites in the Washington area. Permanent quarters for the school were found at the Tower Town Club, a hotel in Chicago's Loop, and training began there in November 1941. With the 1 January 1942 redesignation of the Corps of Intelligence Police as the Counter Intelligence Corps, the school on Michigan Avenue was renamed the CIC Investigators Training School.

Agent William Attwood wrote about that early CIC Training:

> In Chicago, in June of 1942, six months after Pearl Harbor, I was one of a detachment of some 30-odd agents from the Army Counter Intelligence Corps assigned to take an FBI course that, like so much of my subsequent military training, taught me very little that I would ever again put to use, in or out of the service. In Chicago we learned, among other things, how to pick locks, practice judo, lift

fingerprints, make plaster molds of tire tracks, forge documents, and tail suspects. The last of these activities, dubbed surveillance, was the centerpiece of our final exam.…

Although we were all sergeants, our uniforms in Chicago were army-issue civilian clothes, purchased by voucher at government-approved outlets. We were therefore identically attired in tan gabardine suits, button-down white shirts, plain-toed brown shoes, and inconspicuous ties.…

Our Chicago bivouac was a former YMCA building near the Water Tower on North Michigan Avenue. There were classrooms, a cafeteria, a gym, and double-decker bunks in the single rooms. Also, this being a U.S. Army installation, a formation was held early every morning on the sidewalk. Passers-by were naturally puzzled to see a platoon of apparently able-bodied young civilians in gabardine suits being put through close-order drill by a uniformed lieutenant.[20]

Having moved in November 1942 to better accommodations on Chicago's South Side, the school became the CIC Advanced Training School, with basic CI training being accomplished in departments and service commands.

One example of a Service Command preliminary training school was the Third Service Command CIC Training School conducted in the former dormitories of Goucher College in Baltimore, Md. This extract from the *History of the Counterintelligence Corps* explains the scope of the preliminary training:

The theory behind the Third Service Command School curriculum was that CIC training fell into two primary classifications: military and investigative. The military aspects were to be obtained at Basic Training Centers in order that an agent could function properly when assigned a military mission. The investigative aspects were the responsibility of the Counter Intelligence Corps. The Service Command felt that it should provide the basic investigative training and the apprentice training in a field office. Further specialized and advanced training was considered the province of CIC Headquarters and the War Department.

Upon completion of this course, the trainees were sufficiently well educated in investigative procedures to begin work as apprentice agents in Service Command field offices. Under the guidance of a special agent, each newly trained agent was given practical experience for four weeks. After showing himself to advantage during this apprenticeship period, the agent was advanced to the title of special agent and became eligible for further training at the CIC Advanced Training School in Chicago.[21]

In order to ready CIC agents for combat duty, a CIC Staging Area was established, first at Army Air Base, Logan Field, Baltimore, in June 1943, then at Fort Holabird in August. To assist the CIC in performing its overseas mission, officers and a few enlisted men, were enrolled in the General Intelligence Course at the Military Intelligence Training Center at Camp Ritchie, Md. World War II agents also received specialized training in languages, mainly through the Berlitz Language Schools in Chicago, Baltimore, New York, and San Francisco. Some German instruction was given at the University of Pennsylvania in a program set up by Professor Otto Springer.

In April 1942 the first MI Officer's Candidate School opened at the Illinois Women's Athletic Club in Chicago, training and commissioning 30 candidates after an eight-week course. The school was discontinued after that first and last class, it having been determined in Washington that the Military Intelligence Division did not have a sufficient demand for officer personnel to justify a MI Officer Candidate School.

The Fourth Army opened its language school at the Presidio of San Francisco in the Fall of 1941 to teach Japanese. The school was moved in May 1942 to Camp Savage, Minnesota, and placed under the command of the Military Intelligence Service. In August 1944 it moved again to Fort Snelling, Minnesota. The school was credited with graduating 4,800 Japanese linguists during the war. Russian and Chinese language specialists were trained at various universities under MIS supervision. The MIS also trained 1,750 censorship specialists at Fort Washington, Maryland.

With the outbreak of the war, the signals intelligence effort burgeoned and large numbers of trained personnel were needed. The Signal Intelligence Service, which would undergo several wartime name changes and emerge in the summer of 1943 as the Signal Security Agency, began its schooling for officers at the Cryptographic Division, Fort Monmouth, New Jersey, on 10 March 1942. After ten weeks the first

fifteen officers were graduated and transferred to the Army Air Force for cryptographic security duties. The accelerated demand for officers necessitated operating the crowded Fort Monmouth classrooms in two shifts.

Enlisted training in Cryptography and Cryptanalysis began in July of 1940 at Fort Monmouth, with a dozen men attending classes that lasted for less than one week. Technical Sergeant Max Leighty presided. This evolved into an Enlisted Cryptographic School on 1 March 1941, designed to train expert cryptanalysts. Twenty-six regular army students and three draftees were enrolled in April and May. In December the Cryptographic School was redesignated the Cryptographic Division of the Enlisted Men's Department, Signal Corps School. The officer in charge was Leighty, newly commissioned a second lieutenant. By January 1942 the school's student capacity was 150 and the course was cut from 48 to 26 weeks.[22]

On 2 October 1942, the Cryptographic Division of the Eastern Signal Corps School, with its 39 officers and 226 enlisted men, was transferred from Fort Monmouth to Vint Hill Farms. It trained both officers and enlisted. It became known as the Signal Corps Cryptographic School. Here, too, two shifts had to be conducted until the buildings under construction could be completed in May 1943. In 1943 it trained 230 officers and 2,299 enlisted students. After June 1944 it would be known as the Vint Hill Farms School. To one enlisted signals intelligence specialist it would be remembered as the "Third Battle of Manassas."

The scope of the training required increased planning and coordination. A Director of Training was set up in the Signal Security Agency in March 1943 with Maj. Frank B. Rowlett at its head. The Training Branch operated a Civilian Training School at Arlington Hall Station, which had begun in 1939 at the old Munitions Building in Washington. It also ran the Signal Security School, as the extension courses and correspondence courses were called.

Some understanding of the methods and training devices can be gained from a history of the Training Division published in 1945. Using reports from the theaters of operation, the staff attempted to keep courses current and to find strengths and weaknesses of the training.

> The methods of instruction have varied with the different courses. Originally, when adequate time was available, emphasis was placed on individual study. However, as demands for commissioned personnel increased, it was necessary to speed up the courses. Lectures, demonstrations and individual and team solution have been the principal methods of instruction used in cryptanalytic and traffic analytic courses. Lectures and independent study have been the principal methods of instruction used in the cryptographic equipment maintenance courses. …With the exception of the normal field and technical manuals used for general military training, all training has been based on special texts, documents, devices, charts, mock-ups, etc., prepared either by Signal Security Agency or by the instructional overhead of the school.[23]

Tactical signals intelligence training was done under the control of the Signal Security Agency (formerly SIS) at Camp Crowder, Missouri, and Fort Monmouth, New Jersey.

The Army Air Forces conducted their intelligence training at Harrisburg, Pennsylvania.

It is interesting to note that, as the war drew to a close, planners in the Military Intelligence Service were recommending a peacetime organization for MI, based on the principle that "an effective and efficient system cannot be improvised after a war begins." One of the unique concepts to come out of the proposal for a post-war military intelligence organization was the creation of a "Military Intelligence Corps." Quoting from the Military Intelligence Service official history:

> The Corps was designed as a means of securing and maintaining a body of trained intelligence personnel for the various activities of the Military Intelligence Service. It was proposed that it be made up of regular and reserve officers and a component of enlisted men. Wherever expert intelligence personnel were needed, they would be drawn from the Military Intelligence Corps. For their training, they would attend a Corps school…. They would be rotated throughout the various activities of intelligence to gain experience and to maintain their status as professional intelligence officers.[24]

Civilian employees would also be trained and rotated in intelligence assignments to make them an

adjunct to the Corps. The proposal had no chance of being adopted, however, in the postwar climate of demobilization.

The Military Intelligence Training Center at Camp Ritchie was phased out after the war. But training resumed in counterintelligence at Fort Holabird in 1945. A Strategic Intelligence School was opened in Washington, D.C., in 1946 to train the Army's attaches. Overseas, training continued at places like Oberammergau, Germany, a facility run by the 7712th Intelligence School. The school was housed in a former SS barracks.

The closure of the MITC at Fort Ritchie left the Army Ground Forces without any intelligence training. Its commanding general, Gen. Jacob L. Devers, first activated an intelligence school at Fort Benning, Ga. in October 1945 to alleviate that gap and capture the lessons of World War II. The following month it was moved to Fort Riley, Kansas, to operate under the administrative purview of the Commandant, The Cavalry School. There, in the Winter and Spring of 1946, it was organized into three departments: General Subjects, Photo Interpretation, and Order of Battle. Recognizing the close coordination needed in air and ground intelligence operations, it established a Department of Aerial Reconnaissance on 1 July 1946, subsuming the old photo interpretation department as a section and adding a section emphasizing air intelligence. The Department of General Subjects added a special projects section to handle Army extension courses and training literature. A new Department of Order of Battle and Interrogation of Prisoners of War revamped the old Order of Battle section and added a section on interrogation and exploitation of enemy documents.

In January 1946 Lt. Col. Hauser began a 12-year stint as Chief Instructor of the Army Photo Interpreter Department. Along with several other officers with extensive World War II intelligence experience, he first attended the Intelligence Department instruction, graduating in 1946 from the first Officer Intelligence Course.

A program published for the opening of The Intelligence School on 1 July 1946 claimed that it was the "first institution of its kind organized within Army Ground Forces. It grew from the combat experiences of World War II which showed that few officers or men were ready to assume the staggering jobs of intelligence activities in modern war."[25]

A full schedule of intelligence courses officially began in September 1946, but two interim classes were conducted before that and a special short course in photo interpretation. These first classes graduated 70 officers and 78 enlisted men qualified to perform intelligence duties in divisions and smaller units. Eight officers and 16 men were trained to function in order of battle teams, and 16 officers and 27 men were given photo interpretation schooling.

For its faculty, the Intelligence School sought only combat-experienced officers with extensive intelligence experience. Their branch was immaterial. The turnover of new instructors was high due to the army's drawdown and readjustment of its personnel.

The Cavalry School taught a preparatory subcourse in reconnaissance, scouting and patrolling that lasted for six weeks. Upon completion of the subcourse, officers began a 12 1/2-week Officers' Intelligence Course at The Intelligence School. Upon completion the graduates were considered to be able to function as G-2s or S-2s. Three courses were conducted in the school year beginning in September. A seven-week course was instituted to train enlisted photo interpreters and a course of the same length turned out interrogators and analysts. The curriculum assumed that "in future emergencies…there will be an immediate shortage of personnel on the ground for action. …Hence, all instruction is conducted to prepare graduates to act as instructors in their skills in the field."[26]

In 1948 two instructors at the Command and General Staff College, Robert R. Glass and Phillip B. Davidson, published their book *Intelligence is for Commanders*. They wrote it, they said, to make the point that "Intelligence is not an academic exercise nor is it an end in itself. The prime purpose of intelligence is to help the commander make a decision, and thereby to proceed more accurately and more confidently with the accomplishment of his mission. This thought is the keynote of tactical intelligence."[27] The authors planted a doctrinal seed which would germinate 40 years later as the U.S. Army's official

intelligence doctrine.

Korean War

The emergency anticipated by The Intelligence School planners came in June 1950 when the Soviet-backed North Korean Communists attacked the Republic of Korea. As intelligence specialists were graduated from The Intelligence School, they were shipped to Korea to MI units which supported tactical units. Detachments of MI specialists, CIC, and ASA personnel were attached to each division.

If the seeds of MI training can be said to have been planted during World War II, the roots took hold after the Korean War, a war in which intelligence training was woefully inadequate.

Holabird

The first root of the Military Intelligence training network went to ground at a place familiar and dear to three generations of intelligence soldiers, a place called Fort Holabird. Holabird got its start as a Quartermaster Depot on 2 January 1918, when it was given the job of serving the Motor Transport Corps. Since 1945 the Army had been using the Holabird site to teach counterintelligence.

On 1 May 1955 the Combat Intelligence School at Fort Riley merged with the Counter Intelligence School at Fort Holabird. Lt. Col. Henry Hauser moved the Photo Interpretation Department to Maryland. He did not like the new facilities. He said, "Fort Holabird was a very small post adjacent to a cheap factory that had a brewery in it at one time. There were no buildings adequate for classrooms, so when I was moving the photo interpretation department there, we were moved into a building next to the brewery. It wasn't very good. There wasn't any terrain for field problems. You had to go to Camp A.P. Hill, Virginia, to set up installations to photograph and train our students."[28] But, for the first time, the intelligence soldier had a place, such as it was, that he could identify with.

For the Military Intelligence student, the process of identifying with Holabird was not always without trauma. It was a greasy, industrial kind of place. But however modest, Holabird was a beginning. It could be said that MI within the U.S. Army was coming of age. It had pushed up through the topsoil and was enjoying its time in the sun.

One graduate of the MI Officers Basic Course at Fort Holabird in the summer of 1972 left this record of his MI training experience:

> Fort Holabird, located in a bleak industrial neighborhood of Baltimore called Dundalk, was the home of the MI branch in the 1960s. It was there that presumably we would be initiated into the arcane rituals, customs, and operating procedures of military intelligence. The course lasted only about a month, however, and I found too much of it to be disappointingly irrelevant to my assignment to Vietnam.
>
> We sat in closed classroom buildings day after day, watching poorly produced slide shows and listening to lectures intended to familiarize us with the purposes, organizational structures, and techniques of our craft. The first thing we learned was the difference between information and intelligence—and the difference in our branch between those who simply collected information, and those who turned it into intelligence by analyzing it. I could tell right away that I was destined to dwell at the bottom of this figurative food chain. A combat intelligence officer, that is, a graduate of the MI branch Basic Course at Fort Holabird, was by definition only a generalist. He might be qualified to collect data from a variety of human and/or electronic sources, but the transformation of that raw data into assessments of enemy capabilities and intentions would be reserved for higher-ups with either more rank or more extensive training. Fort Holabird was just a boot camp for MI.
>
> As the beautiful autumn days went by outside, we studied the "intelligence cycle"—how the essential elements of information (EEI) a commander needs to know are developed, collected, reported, disseminated, analyzed, and finally applied. From a progression of seemingly endless line-of-block

charts, we learned the basic organization of both civilian and military intelligence agencies in the U.S. and around the world, especially those in the Communist bloc.

We were introduced, but only sketchily, to the functions of various component parts of our branch—counterintelligence, image interpretation, electronic surveillance, and technical intelligence (examining foreign equipment and material). We were issued copies of the basic MI bible, the FM 30-5 field manual, and told to commit most of it to memory. We were taught the fearfully strict set of rules about handling and protecting classified documents, and told all about confidential, secret, and top-secret clearances granted to people at different levels of the intelligence community.

…My hopes of learning the more adventurous tricks of my chosen trade, like lockpicking, microfilming valuable enemy documents and seducing gorgeous foreign agents were dashed, however. The courses at Fort Holabird were straightforward and decidedly unexciting.[29]

While all this was happening in Maryland, a second anchoring root of the intelligence training system was concurrently taking hold in Massachusetts. Fort Devens was established in 1917 to mobilize and train the 76th Division.

The Army Security Agency, created in September 1945 to assume the mission of the former Signal Intelligence Service, opened a training school at Vint Hill Farms, Virginia, during the war. The school was moved to Carlisle Barracks, Pa., briefly, and finally to Fort Devens in 1951, where it was the Army's mainstay for cryptologic training. In 1957 it was renamed the U.S. Army Security Agency Training Center and School. It became part of the Army Intelligence Center and School in 1976. The U.S. Army Security Agency school at Fort Devens injected realism into its training with its "Vietcong" demonstration platoon and a mock Vietnamese hamlet.

The year 1967 was the genesis of a dream for the men and women of the intelligence community. The Army Chief of Staff Harold K. Johnson approved on 1 July the recommendations of the Norris Board, a body specially created to look at the Army's intelligence programs and organization. As a result, the old Army Intelligence and Security Branch, which had included the Army Security Agency, now became the Military Intelligence Branch. The MI mission changed from one of combat service support to combat support. Now the Army began studying the possibility of moving the Intelligence School from Fort Holabird and centralizing the training for the many intelligence specialties.

Training requirements were increased in 1962 when the intelligence function, which had been performed by officers and men from other Army branches, got its own MI branch. The school at Holabird, hemmed in by industrial complexes and overcrowded by the increased demands of the Vietnam War, was now clearly inadequate. In early 1969, the Assistant Chief of Staff for Intelligence, Maj. Gen. Joseph A. McChristian began to brief an idea he had for an Intelligence Center and was given the go-ahead to implement the plan by Gen. William C. Westmoreland, the Army Chief of Staff. In February 1970 the Blakefield Board, named after its chairman Maj. Gen. William Blakefield, commandant of the Intelligence School at Holabird, recommended that Fort Huachuca be the site for that center.

During the Vietnam War, intel doctrine, assets, and technology proliferated, calling for specialized training over a wide ranging spectrum. A host of innovations made intelligence training for a greater number of soldiers an imperative.

Huachuca

There were three separate intelligence schools in 1970. There was the Army Security Agency School at Fort Devens, the Intelligence School that was at Holabird, and the Combat Surveillance and Electronic Warfare School at Fort Huachuca. General McChristian felt that "over the years as these schools were separated…, that not only were we failing to have people in intelligence train together and work together and exchange ideas together, but we were bringing about a split in the…Military Intelligence Branch itself."[30] He elaborated upon his concept for a home of Military Intelligence.

…I thought if we can bring one of each type of intelligence unit and put it at a home, they always know

to come back to that home; unless they are needed elsewhere to perform a mission….

And then you have a…young lieutenant, coming to that basic course we needed so badly, and which I must state here could not in my judgment have ever been conducted at Fort Meade or Fort Holabird. We needed so badly to take those young men we were going to train and say "Here are all the various types of intelligence equipment from sensors on the battlefield to planes in the sky, and others, of which you need to know the limitations and capabilities, to be able to work with the tactical units you are going to support."

This is not available today in our Army at any one place. It is better at Huachuca today than it was at Holabird, because we have two schools together. We do have open spaces, we can take people out and turn on radars; we can do a lot more.

…My concept is basically this: A home where all intelligence schools, all intelligence units, and all intelligence activities of the Army that are not required to be located someplace else, are established for the first time in our history where they can work together, and find out how one can help the other; because it is team work, you do not do intelligence in compartments. They must help each other on the battlefield.[31]

Basing his opinions on 38 years in the Army during which he rose from private to major general, serving as Chief of Intelligence for General George Patton's Third Army, the head of intelligence for General William C. Westmoreland in Vietnam, and, just before his retirement in 1971, the Army's Assistant Chief of Staff for Intelligence, McChristian told a congressional subcommittee that he believed strongly "that there is no staff function more important to a decision-maker than intelligence. Knowledge is a big factor of power."

McChristian visited Huachuca in March 1969. He said, "When I arrived there and saw Huachuca, I said, 'Gee, if we could have this entire post as an Intelligence Center, it looks good to me.'" Upon his return to Washington, he briefed the Vice Chief of Staff of the Army and told him that Huachuca seemed a good candidate for an Intelligence Center. There were other candidates—Fort Riley, Kansas, and Fort Lewis, Washington. Huachuca had the advantage of a larger area in which to train and an uncluttered electromagnetic spectrum.

But like any transplanting operation, the transfer of the Intel School to the high desert of the Southwest would not be simple. There was the question of water. It was originally thought that there would not be enough to sustain the added population. And the facilities at Huachuca were primitive: A vacant World War II station hospital and barracks built in 1940. But a decision was made by the Army Chief of Staff in November 1970. General Harold K. Johnson directed the Army's Intelligence School be moved from Holabird to Fort Huachuca and renamed. Fort Huachuca became the "Home for Military Intelligence" on 23 March 1971 when the Intelligence Center and School was officially created.

Opposition to the move to Huachuca was led by Congressman Clarence D. Long, a Democrat from Maryland, who understandably was moved by the loss of Fort Holabird in his district, and the chairman of the House Armed Service Investigating Subcommittee on Relocating the U.S. Army Intelligence School…to Huachuca, Representative Otis G. Pike from New York, who one Army general compared to Joseph McCarthy for his zeal in attacking the Department of the Army.[32]

Long wondered how the Intelligence School in the Arizona desert would "attract qualified people to work in that sparsely populated area."[33] There were also the real problems of housing shortage and insufficient water to support the larger population, although the water problem subsequently proved to have been grossly exaggerated.

Congressman Pike tried to undermine the reasoning for choosing Huachuca based on the absence of electronic clutter. In questioning Maj. Gen. Linton S. Boatwright, who had chaired a Long-Range Stationing Study, he asked, "If anybody ever got mad at us down in Mexico could they not generate quite a lot of electronic clutter?" General Boatwright replied that "if the Mexicans turned against us they could, yes."

The Intelligence School completed its move from Holabird to Huachuca in September 1971. It was a

fait accompli. The House Subcommittee which investigated the move a year later could only fume that the Army "failed to consider the cost of the relocation at Fort Huachuca and the resource problems which existed at that post." The subcommittee concluded that, "while Fort Huachuca does provide larger training areas which permit exercises with electronic equipment and aircraft, it falls far short of the Center conceived by Gen. McChristian. …It appears that is a high price to pay for the luxury of not admitting a mistake in the selection of Fort Huachuca."[34]

The school grew with the addition of a school support element in 1972, and the Military Intelligence Officer Basic Course. Following a March 1973 reorganization, the Intelligence Center and School acquired the U.S. Army Combat Developments Command Intelligence Agency and in July took over the U.S. Army Combat Surveillance and Electronic Warfare School.[35] Now the school had added the mission of combat development as it related to intelligence doctrine, organization, and material studies. It became the proponent for surveillance, target acquisition, and night observation operations, known as STANO. The school offered 39 various courses of instruction, including the MI Officer Basic Course and the MI Officer Advanced Course. Its expanded role called for a higher graded commandant and on 7 May 1973 Brig. Gen. Harry H. Hiestand became the first general officer to command the Intelligence Center and School. He found the most significant achievement during his tenure to be "our recognition as the Intelligence Center for the United States Army."

But the facilities did not grow with the mission. A student coming to Fort Huachuca in the 1970s would attend class in those World War II cantonment buildings that were hurriedly built in the 1940s as a temporary station hospital.

An Intelligence Organization and Stationing Study, ratified by the Army leadership in 1975, paved the way for the eventual consolidation of MI training at the Center and School. The Army Security Agency Training Center and School and the ASA Combat Development Activity at Fort Devens were transferred to the U.S. Army Training and Doctrine Command control and that headquarters, in turn, placed those organizations under the command of the Intelligence Center and School in October 1976.

Now intel training was indeed consolidated under one organization, but the sites for that training were still scattered at four separate campuses—Fort Huachuca, Fort Devens, Goodfellow Air Base, Texas, and the Naval Technical Training Center at Corry Station, Florida. The U.S. Army Intelligence School at Fort Devens handled the intelligence and electronic warfare training for both officer and enlisted personnel, relying for help on its two detachments at Goodfellow AF Base and Corry Station, Florida. The U.S. Army Intelligence Center and School taught the MI Officer Basic and Advanced courses, courses in combat intelligence, tactical reconnaissance and surveillance, and counterintelligence.[36]

Also in October 1976 the school took over for its headquarters a building known as Riley Barracks which had been built a few years earlier as a barracks for Fort Huachuca's Troop Command. It was a definite improvement, not only for the command group which was instaled there, but for the students who would be billeted in these more acceptable accommodations.

In 1975 a concept was introduced at the Intelligence Center and School that would change the way the intelligence professional provided information to the commander. Called Intelligence Preparation of the Battlefield, it was a systematic and standard way of collecting and managing information on terrain, weather, and enemy doctrine in order to elucidate the enemy's probable courses of action. It better supported the commander through all phases of hostilities and provided a picture in a graphic rather than a narrative mode. By 1982, Intelligence Preparation of the Battlefield was incorporated as doctrine in FM 34-1, *Intelligence Electronic Warfare Operations*, and taught at the school. A digitized terrain data base was developed to incorporate IPB into the All-Source Analysis System.

Beginning in 1977, TRADOC authorized a position in the grade of colonel known as TRADOC Systems Manager for each of the Army's new weapons and equipment systems. In the beginning, three TSMs were assigned to the Intelligence Center and School. The TSM was responsible for managing a specific system from its inception to fielding. He would oversee the development, testing, production and fielding of an item of equipment and act as TRADOC's single representative with the contractor and

interested Army staff agencies. But the TSM also reported to the Commander of the Intelligence Center and School. The TSM program put the Intelligence Center and School at the center of IEW systems development and gave it a voice in IEW systems innovations and doctrine.

The landscape was beginning to change at Huachuca. Phase I academic facilities of the U.S. Army Intelligence Center and School were completed in October 1980. This phase encompassed four buildings and two parking lots, and cost approximately $6.2 million. They are known today as Alvarado, Sisler and Walker Halls. The complex took on the appearance of a sapling that had weathered the Arizona drought.

The Intelligence Center and School acquired a larger share of the training mission in 1982 when it took over from Fort Devens SIGINT and EW training for officers, known as Specialty 37. This followed a Review of Education and Training for Officers (RETO), a comprehensive look at the jobs a MI officer would have to perform, called for by TRADOC. It determined that MI lieutenants and captains needed to be trained in tactical intelligence derived from all sources. The instruction in tactical intelligence (Specialty 35A); imagery intelligence (Specialty 35C); counterintelligence, human intelligence, and signal security (Specialty 36); and signals intelligence and electronic warfare (Specialty 37) could best be accomplished at a single location—Fort Huachuca. The transfer of Specialty 37 courses allowed Fort Devens to concentrate on the increased training requirements for the enlisted career management field 98, while at the same time giving Huachuca the ability to initiate tactical all-source intelligence training for company grade officers.

In 1983 construction was begun on another multi-building complex. Two buildings were in use by the end of 1984 and the third by the spring of 1987. The last mentioned was the $9 million Strategic Interrogation Debriefing Facility named Mashbir Hall.

The Vice Chief of Staff of the Army approved in 1983 an MI unit for Fort Huachuca. The 1st School Brigade, which had provided command and control for the 2,000 soldiers assigned to the Intelligence Center and School since 1973 was redesignated the 111th MI Brigade (Training) on 17 March 1987. The unit allowed more hands-on training, field training and training realism for MI soldiers.

In 1984 the Intelligence School conducted a detailed study on the role of female soldiers in MI. The goal of the study, according to Maj. Gen. Sidney T. Weinstein, was to "maximize the role of women while at the same time assuring career opportunities and assignment variety for both males and females." The study looked at both officer and enlisted jobs that could be filled by women. By 1988, the MI Corps was recommending opening some 400 positions in tactical, forward-deployed CEWI units to women to give them tactical experience and a more equitable rotation between tactical and nontactical units.

Funding was approved and plans were underway in 1984 to build an 3,800 square foot addition to Riley Barracks that would house the headquarters of the Training Support Company (CEWI). Congressional approval was received for a new HUMINT academic building.

In 1985 the center and school added the proponency for the Remotely Piloted Vehicles/Unmanned Aerial Vehicles (RPV/UAV), the Joint Surveillance Target Attack Radar System (JSTARS), and the All Source Analysis System (ASAS), thereby taking a wider responsibility for Intelligence and Electronic Warfare (IEW) assets. At the same time it also gained the responsibility for battlefield deception and battlefield weather operations, projecting large increases in the training load.

At the end of his tour in July 1985, General Sidney Weinstein said that he was "confident that we are sending the best trained MI soldiers that the Center and School has ever produced to tactical and strategic assignments throughout the world." He went on to say that he was just as proud of all that had been done "in the development and fielding of IEW systems and equipment and work on the design of the proper MI force structure."[37]

It was at this time that the training of MI student officers and NCOs was enhanced through the development and use of an automated division-level simulation called the G2 Workstation. When the workstation began operation in 1984, the initial focus was on automation support of intelligence functions of the G2 Workstation into a training simulation for intelligence operations began in 1985. The workstation simulated the functions and operations of the division intelligence system in a classroom environment. Players

participating in a G2 Workstation exercise conducted all phases of the intelligence cycle as they would in the field with the exception of the actual collection of intelligence data.

On 30 April 1986, Maj. Gen. Julius Parker, Jr. broke ground near Cushing Street to begin construction of a new general instruction building. The 40,000-square-foot facility contained fifteen classrooms for human intelligence training, which would become known, upon its completion in September 1987, as Tallmadge Hall.

On 31 August 1987, a $5 million contract was awarded for the construction of the All-Source Analysis Training Center Facility that would automate manual methods of training. The 65,000-square-foot general instruction building would contain twenty-two classrooms, administrative and support space and laboratories. It was completed in 1990 and called Rowe Hall.

The Military Intelligence Corps was activated on 1 July 1987. Maj. Gen. Julius Parker, Jr., described the goals and impact of the new corps. For the first time, "it bound soldiers and civilians, active and reserve component alike into a regimental organization proud of its heritage and committed to mission excellence in support of tactical and theater commander and national-level decision makers." General Parker continued, "…We must educate not only our brethren in the combat arms but also our junior MI officers that successful service as a maneuver battalion or brigade S2 can be just as career enhancing as MI company command."[38]

In October of that year the Civilian Intelligence Personnel Management (CIPMIS) began to be implemented. It fully integrated the MI civilian workforce into the personnel proponency system.

It was a year when the USAICS began its own NCO Academy, one that would become a model for other academies. The Chief of the MI Corps approved in March 1987 the establishment of an MI Corps Historical Holding, the first step in creating an MI Museum.

On 1 July 1988, the MI Corps Hall of Fame was unveiled, and its first eighty-nine members inducted. These individuals were recognized as having made significant contributions to the growth and development of the MI Corps. Distinguished Members of the Corps (DMOC), by virtue of their accomplishments that qualified them for their membership, were automatically inducted into the Hall of Fame.

Consolidation

In May of 1990 it was announced that $129 million of planned construction would take place at Huachuca, most of that being new buildings to accommodate the students, instructors and administrative personnel that were projected to be transferred from Fort Devens in connection with the Base Realignment and Closure Act of 1988.

Fort Devens, which had a long tradition of signals intelligence training, dating back to its Army Security Agency days beginning in 1951, would now move to the desert to be grafted onto the main trunk.

On 1 October 1990, the U.S. Army Training and Doctrine Command assumed command of the installation as part of the 1988 Base Realignment and Closure initiative. The U.S. Army Information Systems Command became a tenant activity and the U.S. Army Intelligence headquarters replaced it as the controlling headquarters. Maj. Gen. Paul E. Menoher, Jr., commanding the center and school, became the installation commander.

On 18 June 1991 a ground-breaking ceremony marked the beginning of the first phase of construction for the consolidated Intelligence Center. This phase included seven barracks buildings, two dining facilities, two applied instruction buildings, a SIGINT/EW maintenance facility, and utilities and roads to support the complex. The initial phase, for which ground was broke in June 1991, was valued at $104 million, with additional contracts let for a second round of construction, including a $20 million Unmanned Aerial Vehicle training facility, a self-contained NCO Academy, athletic, medical, and PX facilities.

Ever since the Norris Board had endorsed in 1967 the concept of all intelligence training being conducted at a single site, planning moved in that direction. There was political resistance from those states

losing assets. And there was the problem of funding suitable facilities. But 26 years later, the end was truly in sight. All military intelligence disciplines would be taught at Fort Huachuca, now the Home of Military Intelligence in an all-embracing sense.

During 1992 the creosote-covered lower slopes of the Huachucas were transformed into what looked like a major college campus as the construction of six new barracks, two dining halls, two applied instruction buildings, and a self-contained new NCO Academy, including barracks and an instruction building, neared completion. In addition, construction began on a Joint UAV Training Center.

The new academic complex was designed to accommodate the students and instructors who began arriving in force in early 1994 from Fort Devens. It became a symbol of the long-cherished dream of all U.S. Army military intelligence training being consolidated at one location. That dream was enabled by the Base Closure and Realignment Act, or BRAC, of 1988, which called for the move of the U.S. Army Intelligence School at Fort Devens to Fort Huachuca. A small Forward Transition Support element from Devens arrived in August 1992.

The new school buildings, the new technology, and the new doctrine began to be characterized in 1993 as a "Revolution in Military Intelligence." Maj. Gen. Paul E. Menoher, Jr., summed up the MI revolution when he said in July: "The revolution is multi-faceted. You've got the fourteen new systems, you've got the new operational concept, you've got the new organizational designs, you've got the new doctrine and the new training. All of those things are coming together to make us better prepared to support commanders on the modern battlefield, a force-projection battlefield."[39]

When Brig. Gen. John J. Pershing took his American Expeditionary Force to France in July 1917, it was without a general staff with such crucial elements as an intelligence organization. Pershing would organize one, but the more experienced European military leaders looked askance at this green American headquarters scrambling to catch up to the accepted military science of the day. They wanted to absorb the disorganized Americans into their own formations. A French general lectured Pershing that it "takes 30 years" to establish a working general staff. Pershing shot back, "It never took America 30 years to do anything."[40]

Pershing's reaction embodies the parable of American military history. In each crisis, the U.S. Army had to marshall all of its ingenuity and energy, often with allied help, to build a military capability on a par with its adversaries. It was the price to be paid for not supporting a large standing Army. In the initial stages of its wars, the sacrifice of lives to buy time to mobilize was disproportionate and tragic. But, until Vietnam, the U.S. Army would always meet the challenge and discover the resources needed to succeed. This reinforced the attitude that resourcefulness could offset unpreparedness. The American Army could do in six months what the European armies took 30 years to accomplish.

This brief review of military intelligence training mirrors the larger pattern of the Army's admirable achievements in wartime, and quick structural decline in peacetime. The story of MI training is really the tale of remarkable individuals who were not only struggling against the American reluctance to pay for a large regular Army, but often against unenlightened officers in their own chain of command. Arthur L. Wagner, Ralph Van Deman, Marlborough Churchill, Dennis E. Nolan, Walter C. Sweeney, James H. Reeves, William F. Friedman, George Goddard, Robert R. Glass, Phillip B. Davidson, Joseph A. McChristian, Paul E. Menoher, Jr., John F. Stewart, Jr.... It is a roster of farsighted leaders who spoke in one voice over a century, calling for the maintenance of military intelligence during peacetime through the establishment of a comprehensive training program. There is also in their writings an unbroken and emphatic recognition that the primary importance of intelligence work is to the battlefield commander. They established a tradition that finds expression in today's doctrinal truism: "Intelligence if for Commanders."

In the era following the Vietnam War, the improvements in military intelligence are incontestably revolutionary and those men who made the case time and again for a better intelligence organization would be encouraged by the standing of military intelligence in the modern U.S. Army. Whether it can withstand the budgetary retrenchments and peacetime slide towards indifference that has historically fol-

lowed emergencies, will depend, in large part, on those MI men and women who read these words.

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31. *Ibid.,* p. 17.
32. Walters, Lt. Gen. Vernon A., *Silent Missions*, Doubleday and Company, New York, 1978.
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35. The Combat Surveillance School and Training Center had existed at Huachuca under one name or another since December 1957. By 1966 is offered 20 different courses of instruction which varied in length from three and one-half days to 24 weeks. Some of the subjects were Ground Surveillance Radar Systems, Airborne Sensor Systems, the Light Target Missile System, and Advanced Individual Training Courses. An Orientation Course was designed to familiarize officers with the combat surveillance equipment "now, or soon to be in the hands of the troops."
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Heraldry

The distinctive unit crest for the U.S. Army Intelligence Center and School incorporates a Sphinx, the symbol for wisdom and silence, on a checked background representing a chess board. Above the shield, a sheathed saber stands for military leadership while a lamp of knowledge represents enlightenment. The motto "Veritas, Vigilantia, Victoria" is inscribed on a banner under the shield. The crest is divided into three parts just as military intelligence has the threefold job of collecting, producing and disseminating information.

The shoulder patch for the Intelligence Center and School is diamond shaped with a silver-gray border surrounding a blue field. In its center, it has a flaming torch and half-sun in gold. Blue and gray are the colors of the military intelligence branch and the gold signifies achievement. The torch stands for education and the sun depicts light and guidance. The seven rays emanating from the sun represent spreading wisdom and strength.

The crest of the Military Intelligence Corps uses the symbols of a flash, representing signals intelligence; a key, which suggests the mission of unlocking the enemy's secrets; and a sphinx, standing for human intelligence. These are in gold on a field of oriental blue. A scroll bears the motto "Always Out Front."

The Military Intelligence Branch insignia is distinguished by a symbolic sun suggesting Helios, the mythical god of the sun who could see and hear everything. The rays of the sun are a reminder of the worldwide mission of military intelligence. A rose, the ancient symbol of secrecy, is superimposed over the sun, while a dagger, concealed behind the sun, suggests the danger and intrigue of the branch mission.

The MI Corps flag incorporates a shield on the eagle's breast of oriental blue, the traditional color of Military Intelligence. The shield is designed with a flash, representing signals intelligence, and a key suggesting the unlocking of enemy secrets. Both the flash and the key are silver gray, the secondary MI color. On the center of the shield appears the Sphinx, the symbol of human intelligence. A flaming torch between crossed swords is positioned above the eagle and recalls the MI mission of illuminating the battlefield. The streamer in the eagle's mouth bears the MI motto, "Always Out Front." The streamer below the eagle is inscribed "Military Intelligence Corps."

[2] Written under a "War Department, Office of the Chief of Staff, Washington" letterhead, with the subhead "War College Division," and dated March 2, 1916, the actual title is: MEMORANDUM FOR THE CHIEF, WAR COLLEGE DIVISION: Subject: Historical sketch of the steps taken by the War Department for the collection, classification and distribution of military information in the Army.

[3] Extracted from *History of the Counter Intelligence Corps, Volume III, The Inception of the Counter Intelligence Corps, World War I, 1917-1918*, U.S. Army Intelligence Center, Fort Holabird, MD, March 1959.

[4] Dated June 29, 1942.

[5] This article is an extract of *Intelligence for the Division: A G2 Perspective*, by Colonel Richard J. Quirk, III, who had served as the G2 for the 24th Infantry Division commanded by Maj. Gen. Barry R. McCaffrey during Operation DESERT SHIELD/STORM. The paper was originally published by the Defense Technical Information Center, Cameron Station, VA, 22304-6145. It was written as a military studies program paper for the U.S. Army War College, Carlisle Barracks, PA, class of 1992. In the words of Colonel Quirk, it is "a narrative description of a G2's experience in peace, crisis, and war." Because of space limitations, I have condensed here only material dealing with the combat phases of Operation DESERT STORM. All seven chapters and his conclusion deserve reading.

[6] The term intelligence failure is a piece or journalese that has fallen into everyday use, but is normally used much too loosely. Most commonly, it is adopted as a synonym for "unknown" or "unpredicted." If the intelligence community did not forecast a coup in one country or a policy reversal in another, it is said to be an intelligence failure. The subcommittee does not accept this broad definition of failure. First, as

in baseball, no one can be expected to bat 1.000--in fact, baseball players with averages below .300 make it into the Hall of Fame. Intelligence, like baseball, is a matter of percentages. To set an unreasonably high standard does not avert failure, it commands failure. Intelligence officers of foreign governments have been known to lose their positions when they failed to inform their bosses that a favored U.S. senator would lose re-election or that a new Secretary of State would be named who would alter a key policy toward their government. This demands too much of intelligence. Policy makers and private citizens who expect intelligence to foresee all sudden shifts are attributing to qualities not yet shared by the deity with mere mortals. In Iraq, before Operation Desert Storm, U.S. intelligence successfully located only half the major nuclear sites of which we are now knowledgeable. This was an intelligence gap. But it was not a failure because intelligence professions warned that we lacked sufficient knowledge about Iraq's nuclear program. It would have been a failure if they had said they knew with high confidence every nuclear site. And we can say it was a failure that the intelligence community did not devote more resources to trying to fill in those gaps in its knowledge.

[7] A full disquisition on the count of Iraqi personnel—including the number killed and the number facing Coalition forces when the ground war was launched—appears on pages 29-33 of *Defense for a New Era: Lessons of the Persian Gulf War*, published April 1992 by the House Committee on Armed Services. There is a statistical error in that section. The number of Iraqi troops captured during Operation Desert Storm was 85,251. The figure of 63,000 shown in the text is the number of Iraqi troops captured by the United States, but excludes those captured by allied forces. This correction means that the estimated number of Iraqi troops who were either killed during the 100-hour ground war escaped the theater at the end of the fighting falls below 100,000.

[8] The military's operational command for the Persian Gulf/Red Sea region is the Central Command (CENTCOM), based at McDill Air Force Base, Tampa. CENTCOM has component commands from each of the four services—the Army's ARCENT, Air Force's CENTAF, Navy's NAVCENT, and the Marine Corps' MARCENT, plus the Special Operations Command's SOCCENT. The intelligence staff within many military organizations is traditionally the second bureau, known as G-2 within the Army and the J-2 at the joint level, such as CENTCOM.

[9] European Command, Atlantic Command, Pacific Command, and Southern Command (covering Latin America), as well as CENTCOM.

[10] Commander-in-Chief, Central Command, i.e., General H. Norman Schwarzkopf and his predecessors.

[11] U.S. military forces have for decades been structured on the assumption that the European battlefield was the most challenging that would be faced; what would work in Europe would work elsewhere. These SIGINT systems were designed with fairly static fronts anticipated for any European conflict. In Desert Storm, the front was anything but static, however.

[12] General Schwarzkopf's congressional testimony relating to intelligence during Desert Storm is included in the appendix to this report.

[13] The 18 M1A1 tank losses break down as follows: seven to friendly fire; two to enemy fire; four to anti-tank mines; two to onboard fires of unknown origin; and three that broke down and were destroyed by U.S. forces to prevent their capture.

[14] Deception includes concealing plans and evidence of intentions, and broadcasting a number of false signals. Japanese war preparations are a good example of the first means of deception; the North Korean conciliatory attitude and lull in border raids is an instance of the second.

[15] The Japanese threat was thought to be minor compared to the rumblings of the German war machine in a theater on the opposite side of the world.

[16] There is the problem of placing too much confidence in a source, as when decision-makers thought that the Magic source would reveal all about Japanese intentions.

[17] Michael I. Handel has observed in *Intelligence and Military Operations* that, "most military commanders are to some extent unaccustomed to dealing with and accepting criticism, especially when the suggestion that they might be wrong comes from and individual of lesser rank or experience. Indeed, it is human nature to acquire such an outlook when one is constantly catered to and agreed with on a daily basis—and when only an extremely rare individual would venture to voice a contradictory opinion despite the risk of incurring his superior's displeasure. Having been long insulated from criticism through habit and experience, such a leader will view intelligence contradictory to his established plans or cherished aspirations as a personal challenge or even a threat." An experienced British intelligence expert, Donald McLachlan, concurs in this belief when he says in *Room 39*: "Fighting commanders, technical experts, and political leaders are liable to ignore, under-rate, or even despise intelligence. Obsession and bias often begin at the top. …The boss, whoever he is, cannot know best and should not claim that he does."

[18] McLachlan, Donald, *Room 39*.

[19] Donald McLachlan, an experienced British intelligence analyst, has presented in his book *Room 39* a series of lessons. Number three is: "Intelligence is the voice of conscience to a staff. Wishful thinking is the original sin of men of power."

[20] Donald McLachlan warns that "Intelligence judgments must be kept constantly under review and revision. Nothing must be taken for granted either in premises or deduction."

[21] Many U.S. analysts constructed precise scenarios for the attack on Pearl Harbor prior to the event. But these were useless in the face of the accepted opinion that the Japanese would not attack American territories. In *Intelligence and Military Operations*, Michael Handel points out that "Nations that are powerful—or at least perceive themselves as such—are usually less motivated to improve their intelligence capabilities since they believe that they will be victorious in any event."

[22] The "cry wolf" syndrome is sometimes caused by too many false alarms given by analysts who are afraid of being blamed for a failure. Sometimes the analyst is correct in predicting an attack but the enemy changes or delays their plans. After several false alarms, decision-makers are desensititized to the warning. It is hard to recognize changing conditions when they evolve over a period of time and look like a consistent pattern. This was true in 1949 and 1950 when the North Koreans kept up a steady and gradual pattern of border incidents.

[23] When faced with the unfamiliar, it is natural to seek more familiar situations from the past in which to frame the new experience. In using historical analogy, it is necessary to make some assumptions. First, one must believe that history repeats itself, at least in a general way. Second, one must consider that the key causes of a past event will again produce the same results in the present situation. The dangers arise from using an incorrect analogy, one that does not have all of the critical similarities.

[24] Communist China made clear its broad objectives for the Korean peninsula when it used diplomatic channels and public statements to define its conditions for intervention. If UN forces entered North Korea, it would take action. Peking was committed to the continued existence of a Communist state on its border. China watchers in the U.S. however, failed to perceive this, thinking instead that China's national interests were not threatened by western troops at their door and that the new regime in Peking had nothing to gain by intervention and a lot to lose. They judged the Chinese leadership's willingness to take risks by American standards. They had done this before at Pearl Harbor. U.S. Ambassador Joseph Grew summed up this tendency to apply a familiar value system to a little understood culture. "National sanity would dictate against [an attack on the U.S.], but Japanese sanity cannot be measured by our own standards of logic." [Quoted in Kam, p. 69.]

[25] Or what Clausewitz calls the "friction of war;" that which cannot be foreseen.

[26] Sweeney, Walter C., *Military Intelligence: A New Weapon in War*, Frederick A. Stokes Company, 1924, pp. 103-119.

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