
Steps to War

“Spare no pains, no cost, to gain information of the enemy’s movements and designs; whatever sums you pay to obtain this end, I will cheerfully refund.”

—General George Washington

The history of US Army intelligence leading up to World War I consisted largely of isolated stories in which the actions of individuals and visionaries would play as important a role as official Army initiatives. The first advocate for exploiting information was none other than George Washington, who had, as a young officer, witnessed firsthand the consequences of intelligence failure; following the French and Indian War, Washington would dedicate himself to studying all available books on the subject. For most of the Revolutionary War, General Washington, as commander of the Continental Army, would also serve as his own intelligence chief—creating spy rings, applying deception, and ordering that all plans be kept as secret as possible. Trenton and Yorktown, two of Washington’s greatest triumphs on the battlefield, were aided by intelligence and secrecy. Unfortunately, those who came after him did not learn from Washington’s example of practicing the art of knowing one’s enemies and saw no need to establish a permanent intelligence organization within the new republic’s War Department. Apart from the lack of vision on the part of its military commanders, America did not feel threatened by enemies on its borders and thus saw no need for an early warning mechanism. Being a democracy, the United States also did not acquire a tradition of court intrigue and dependence on foreign alliances—conditions that spawned the use of trained spies and secret communications among European nations.

Each time a major war broke out during the 19th century, commanders in the field depended on observation and reconnaissance as their chief means of information gathering; management of intelligence collection within major army headquarters was left in the hands of veteran officers who possessed neither training nor special talents. This would hold true for both the North and South during the Civil War, but the conflict did witness the first attempt by the Union at centrally collecting information for the purpose of informing its leadership in Washington, D.C., as to the current status of the enemy's forces. In peacetime, the Army's primary focus remained on the frontier, where it provided order and protection during America's long movement westward, and subsequently came to rely on a number of intelligence tools in fulfilling its mission. To chart new territory, the Army utilized topographical engineers; to pacify the Plains Indians, the Army depended on the reconnaissance skills of its cavalry and scouts, eventually establishing a Corps of Indian Scouts in 1866.

In 1885, the War Department finally took its first step toward organizing a viable intelligence agency when the adjutant general created the Military Information Division (MID) in order to answer questions on foreign military matters for the secretary of war. The term *information* was selected instead of *intelligence* because in the 19th century, the latter term was often equated with the day's news, as evidenced by a number of papers employing the term as part of their title. MID's first home was located in three offices on the first floor of the ornate State, War and Navy Building (now the Eisenhower Executive Building) next to the White House. Other, more subtle factors were also at work that reinforced the decision to organize the division. A number of reformers believed that gathering information on Europe's forces would potentially benefit the War Department's own plans to transform the Army into a more professional organization. The new MID also ensured that the Army kept pace with the Navy, which had recently established an Office of Naval Intelligence to collect data on emerging technology from maritime powers.¹

In the 19th century, the Army occasionally dispatched military observers overseas, such as during the Russo-Turkish War, but the longest of these assignments was for only six months. On September 22, 1888, Congress passed an act that provided for a more permanent means of collecting and classifying military information from abroad, and in turn, gave MID its first real function. In the future, the War Department would appoint officers as attachés who would be entitled to transportation and computation of quarters while on duty, plus the assistance of a clerk to help with day-to-day correspondence. On March 11 of the following year, the first two military attachés departed the States: one destined for the US legation in London and the other to Berlin. Soon, other officers were on their way to the capitals of Austria-Hungary,

Russia, and France. Once settled into their new duty stations, the attachés set about to obtain a wide variety of data thought to be of value to the US Army; the information falling into two broad categories: general and technical or scientific.²

During the coming years, MID's mission and capabilities continued to grow, eventually forming four branches. One dealt with digesting incoming reports from attachés and using the information to publish books, monographs, and maps for distribution within the Army; among the early publications was Major Theodore Schwan's *Organization of the German Army*. Another branch monitored the strength of the National Guard as well as prepared plans for its mobilization. A third was assigned the task of watching the northern border, frequently sending officers on hunting and fishing leave for the purposes of visiting and mapping the Canadian wilderness. The last branch kept close tabs on countries within the Caribbean, and on the eve of the Spanish–American War, would dispatch several officers undercover to Puerto Rico and Cuba.³

Having served as an instructor at the Fort Leavenworth School, forerunner of the US Army Command and General Staff College, Colonel Arthur Wagner was best known as an advocate for professionalization of the Army's leadership; later he would help to establish the Army War College. Wagner also played an equally important role in the development of military intelligence by promoting the thinking that all modern armies should have a viable organization to collect information. He subsequently authored a book on the subject—*The Service of Security and Information*—the first of its kind in the US Army. Wagner also published a second book, *Organization and Tactics*, in which he called for the Army to assign an intelligence officer to each major field headquarters. In 1896, the arrival of Colonel Arthur Wagner as chief of MID marked an important moment in the organization's development; unfortunately, during the Spanish–American War, the Army's commanding general in Cuba kept Wagner from putting into practice many of his revolutionary ideas. Apparently, Major General William Shafter believed that Wagner's proposed Intelligence Bureau was, in actuality, an attempt by the War Department to spy on how the war was being conducted in the field, not to collect information on the enemy.

By the turn of the century, America was demonstrating to the world that it was a rising power. In the aftermath of the Spanish–American War, the United States liberated Cuba and assumed responsibility for the Philippines. In 1898, the United States also acquired the Hawaiian Islands, further extending its presence in the Pacific, and in 1903, it gained the rights to construct the Panama Canal, which would eventually link the world's two great oceans. Coinciding with these dramatic changes, Secretary Elihu Root modernized

the War Department in 1903 by establishing a General Staff, which was divided along three functional lines: administration, intelligence, and plans as modeled by the French.⁴ Of the 44 officers assigned, 6 were given over to intelligence, the so-called Second Division, which absorbed MID's missions. Although this restructuring gave intelligence an elevated status, the Second Division remained far from its modern equivalency; the division still operated only for purposes of the General Staff and possessed no authority to influence the organization of intelligence within the larger Army.

In light of its international obligations, the United States finally began to grow its standing Army over the next 10 years until it reached 100,000—a fourfold increase—yet still miniscule when compared to the major powers of Europe. Paradoxically, its intelligence capacity would virtually disappear over the same period. In 1908, the Second Division, now situated in the Lemon Building not far from the White House, underwent a series of organizational changes that unfortunately would prove its undoing. The Third Division, which had oversight of operational planning and was the major consumer of information generated by the Second Division, was relocated to Washington Barracks (now Fort McNair) situated in the southwest corner of the District of Columbia. Given limited means—one automobile—to courier documents between the two divisions, the chief of staff Major General J. Franklin Bell signed off on the recommendation that the Second and Third Divisions be merged at Washington Barracks. Bell's decision was believed to have been prejudiced by an incident that took place several years before in the Philippines where he had suffered the embarrassment of having his support for a certain matter openly overruled in favor of a position held by the local intelligence element.⁵

In any event, the Second Division did not go quietly but strenuously objected to the recommendations and pointed out that it existed to serve all of the War Department, not just operations. The division's staff members also departed with the consolation that an ad hoc committee of War Department senior officers agreed with their position. Irrespective of these arguments, the Third Division was subsequently renamed the War College Division, and residual functions of the Second Division consolidated within a paper organization called the Military Information Committee, whose members were members in name only and were preoccupied with their normal day-to-day duties.

It is easy to dismiss the absence of a permanent intelligence element within the War Department on the eve of the Great War. The long delay in acquiring an authoritative command over the Army and its lack of a General Staff were certainly key factors that had discouraged such thinking. Still, it is hard to understand the failure by the Army leadership to see the need for routine

intelligence reporting on developing situations internationally and the need for such basic tools as maps, especially when the United States became responsible for security interests in the Pacific and the Caribbean.

Although the War Department was once again without an active intelligence organization, the number of attachés assigned grew over the years to cover most of the European nations along with Mexico, Japan, and a number of countries in the Caribbean basin. However, without someone within the War Department to assist them, they lacked any professional guidance on what type of information the Army actually wanted collected. A member of the General Staff later acknowledged the consequences: “the collecting, digesting, and filing of military information of foreign countries . . . appears never to have been carried on continuously,” and the “work of attachés is without proper supervision and guidance, and therefore to a large extent, the value of their work is lost.”⁶

As far as any intelligence effort in the field on the eve of the Great War in 1914, the Army possessed only the Military Information Division in the Philippines, where for 15 years it had gathered information on local guerrillas, managed informers, and created maps. Besides monitoring the activities of potential Filipino insurgents, the small intelligence element helped to expose the occasional attempts by the Japanese to conduct espionage in hope of fomenting unrest within the islands. The Philippines also served as a staging area for several trips by officers traveling incognito to China to map railroads and other lines of communications. Interest in China had grown since the European powers, Japan, and the United States had acquired a commercial stake in the country and had deployed an international force to quell an anti-foreigner rebellion on the part of the Chinese.⁷

Elsewhere within the Pacific region, Army Lieutenant A. Seone and Commander Joseph Thompson of the US Navy Medical Service conducted a two-year reconnaissance of Japanese fortifications and coastal facilities while disguised as South African naturalists, which gave them cover as they traveled about to collect specimens for their research. Finally, the Army began language classes in both Japan and China for a handful of officers on a rotating basis. Ironically, on the eve of war in Europe, the Army’s limited collection efforts were in the Pacific, and in the eyes of its handful of intelligence officers, Japan posed the greatest threat to US interests.⁸

THE SIGNAL CORPS

The US Army also possessed a second intelligence player—the Signal Corps, begun in 1860 under the able leadership of General Albert J. Myer. As a

medical doctor, Myer had first acquired an interest in communications when he created a sign language for the deaf. In the Army, Myer developed a wig-wag system that employed flags and torches during the Civil War to relay messages in a timely fashion from high atop towers and elevated platforms. Using their telescopes, Signal Corps personnel also possessed an extended view of the landscape. While stationed on a mountain, Signal Corps personnel had first warned of General Robert E. Lee's army crossing the Potomac River and advancing into Maryland during the Gettysburg campaign. The Confederate Signal Corps took its mission a step further by reasoning that all collected information required transmission, and thus intelligence should logically fall under its control. Consequently, the Confederate Signal Corps not only carried out its day-to-day communications responsibilities but also ran the South's spy nets inside the Union capital of Washington, D.C. In the 1890s, the Army Signal Corps, which by then called itself the Service of Information, would dust off the same argument in an unsuccessful bid to bring the Military Information Division under its direct control.⁹

Balloons had seen limited action in both the Civil and Spanish–American Wars. Consequently, as the Signal Corps entered the 20th century, its leadership maintained an interest in, but not a commitment to, the use of balloons for the purposes of observation and command and control of troops in the field. In 1907, the environment began to change under the new chief Signal officer, Brigadier General James Allen and his assistant, Major George O. Squier, who had the distinction of holding a doctorate in engineering from Johns Hopkins University and was already considered a pioneer in electrical communications. On his own, Squier began to study aeronautics and followed the progress of the Wright brothers and their heavier-than-air flying machine. In August, General Allen named Squier chief of the newly created Aeronautical Division with the mission of all matters pertaining to military ballooning, air machines, and kindred subjects. Four months later, the Army solicited bids for a two-passenger craft that could fly at least 40 miles per hour in a sustained flight. Because the Signal Corps did not possess sufficient funds to sponsor the trials, the Board of Ordnance and Fortification agreed to provide the necessary funds.

On September 3, 1908, Orville Wright and his aircraft arrived at Fort Myer, Virginia, just across the Potomac River from Washington, D.C., to undertake the first flight from a military installation, achieving several new records in the process, but on September 17, disaster struck shortly after takeoff with Wright at the controls and Lieutenant Thomas Selfridge as a passenger. (Selfridge was chosen for the initial tests because he and fellow officer Benjamin Foulois had already piloted cigar-shaped balloons with motors.) One of the two pusher propellers split, cutting a guy-wire that collapsed the rudder,

causing the aircraft to plummet to the ground. Wright was seriously injured and Selfridge lay dying—the first air pioneer to make the supreme sacrifice; the historical marker would read “in an effort to aid man’s endeavor to fly.”

The tragedy would fail to deter the Army in its quest for an airplane, and almost a year later in July 1909, the Wright brothers returned to complete a round trip between Fort Myer and Shooters Hill (now the site of the George Washington Masonic National Memorial) overlooking the city of Alexandria while maintaining a speed of 42 miles an hour. To mark Shooters Hill, the Signal Corps inflated one of its stored balloons and tethered it to an unmanned pylon. First Lieutenant Benjamin Foulois was the lone passenger on the flight, and President William Howard Taft was among the crowd on hand to witness the historic event. On July 30, 1909, the Army awarded the Wright brothers a \$30,000 contract to provide an aircraft and to train a handful of pilots.¹⁰

Lieutenant Foulois was not among those who received training from Wright, but he would be the one sent with the 40-horsepower aircraft to Fort Sam Houston, Texas, with the following instructions: “Take plenty of spare parts, and teach yourself to fly.”¹¹ Given only \$300 in congressional funding, Foulois soon had to dip into his own pocket to finance maintenance and employed a local blacksmith to forge parts; following several crashes, the lieutenant decided it was in his best interest to install the first seatbelt made from a saddle strap. Still, these early steps by Foulois and his enlisted assistants, known locally as the “crazy birdmen,” were considered crucial ones. In 1911, Major H. A. Erickson interested the Army leadership in combining photography with the airplane when he submitted superb aerial photos of the San Diego area. The same year, other milestones were achieved, for instance, night flying and the development of a more powerful scout plane (Wright Type C) that contained room for an observer along with wireless and photographic equipment.

The years 1912 and 1913 were equally important ones in the early history of Army aviation. Congress allotted an appropriation of \$125,000 for the purchase of five new aircraft and the formation of an aero company at Fort Sam Houston. For the first time, the War Department established the designation of aviator with performance standards as well as an increase in pay. In 1913, the aero company would evolve into the 1st Aero Squadron (Provisional), which, on paper, consisted of 20 officers and 90 enlisted men. An Army pilot and his observer also completed a cross-country flight from Texas City to San Antonio 200 miles away, establishing a new two-man record, but more importantly for intelligence purposes, on the return flight the observer made a sketch map that measured 18 feet in length, reinforcing the aircraft’s potential value as a reconnaissance platform.¹²

Although not as dramatic as the aircraft, the Signal Corp experienced advances in communications, most notably the coming of the wireless that held long-term implications for intelligence. Known initially as the wireless telegraph, the system allowed for the transmission of Morse code by electromagnetic waves rather than wires. The discharge of a spark across a gap caused by the pressing of a telegraph key generated the electromagnetic waves that relayed the message. The Signal Corps first used the wireless in 1906 during military operations involving US Army troops in Cuba. However, dissipation of energy over the broadband limited how far signals could travel. Further advances in continuous wave technology coupled with the invention of the vacuum tube were necessary before wireless telegraphy would evolve into radiotelephony.¹³

Although private inventors and the Navy led the way, the Signal Corps proved adept at repackaging emerging technologies for military uses. Yet at no time did the Signal Corps give thought to future exploitation of these emerging technologies for intelligence purposes, despite the fact that during both the Civil and Spanish–American Wars, Army personnel had gained important information through the use of wiretapping of telegraph lines. The hasty deployment of elements of the Army’s V Corps to Cuba during the Spanish–American War had been attributed to a Signal Corps wiretap of a cable from Spain relaying news that its main fleet had been dispatched to the port of Santiago de Cuba.¹⁴

If the Signal Corps lagged behind in new technologies, one could sympathize and attribute it to the absence of congressional funding; but the Signal Corps’ lack of progress in the area of cryptology, the study of making and breaking codes, was less understandable as it was at the very heart of the branch’s mission—communications. Perhaps one reason for the inattention was that cryptology had been historically associated with diplomacy rather than military affairs. Just prior to World War I, the Signal Corps had at its disposal the War Department Telegraph Code, a bulky code designed primarily to save telegraph charges, not to safeguard messages. Because of its administrative nature, the Telegraph Code did not possess the necessary vocabulary for use under actual combat conditions, but it did have a substitution table of encipherment to pass classified messages. Unfortunately, too often communicators employed their own homemade systems—an additive or subtractive method—in an attempt to garble sensitive communiqués. For instance, during the Spanish–American War, signal personnel simply used the number of the year 1898. For nonheadquarters elements in the field, the Signal Corps devised a handheld, celluloid device called the Army Cipher Disk, based on the simple principle of mono-alphabetic substitution. The concept was more than 400 years old, and the disk itself resembled one used by the Confederate

Army during the Civil War. Realistically, it offered about the same degree of security as toy secret rings later found in cereal boxes. The failure of the Signal Corps to protect communications had left the Army's secrets open for all to read.¹⁵

WAR IN EUROPE

Events had transpired long before 1914 to set the stage for conflict in Europe and to make the forthcoming war appear inevitable. Germany had embarked on a total armament program under Kaiser Wilhelm II, whose saber rattling and martial strutting would have been comical if the consequences were not so dire. France, with the continent's second largest army, still remembered its bitter loss to Germany in 1870 that had given rise to the Third Republic. The spark that finally lit the powder keg of Europe occurred at just before 11:00 A.M. on June 28, 1914, in the streets of Sarajevo in Bosnia, a southern province of Austria. Gavril Princip, a member of a secret society called the Black Hand, fired into the open car, killing the visiting Archduke Francis Ferdinand, heir apparent of the Austro-Hungarian Empire, and his beloved wife, Sophie—all for the cause of a greater Serbia. In the aftermath of the assassination, failure of Europe's diplomats to avert war, flawed strategies embraced by its military leaders, and a series of entangling alliances would soon bring the powers of Germany, France, Russia, and Great Britain into the conflict.

Halfway around the world, President Woodrow Wilson responded by embracing America's long-standing policy of keeping out of Europe's wars. Wilson proclaimed, "Force will not accomplish anything that is permanent, I venture to say, in the great struggle which is now going on, on the other side of the sea," and he went on to urge that Americans remain neutral in thought as well as deed. The problem for Wilson was that United States could not or would not enforce its neutrality. In theory, Americans should have been able to trade equally with all belligerents, but the British proceeded to announce the whole of the North Sea be considered a military area and that all ships must consequently first stop in Dover for sailing directions through the minefields. This pronouncement flew in the face of international law that placed the North Sea outside of territorial waters, plus the fact that the British list of what was contraband continued to grow until it conveniently excluded all items even remotely of value to the Central Powers. From 1914 to 1916, American exports to France and Great Britain rose from \$750 million to \$2.5 billion; at the same time, they would drop from \$345 million to \$2 million for the Central Powers. Germany, which was not a sea power, proceeded to launch U-boats to counter the blockade and reduce the delivery of materiel

to the Allies. The principles that President Wilson publicly expounded would soon fall victim to the battle for control of the seas.¹⁶

From the start of the war, Americans followed events in Europe with a watchful eye. Over time, such acts as a German U-boat sinking the British liner *Lusitania* that resulted in the drowning of 1,198 persons, among them 128 Americans, began to sway public opinion in favor of the Allies. Support was also growing for the preparedness movement, in which young volunteers began to train seriously at General Leonard Wood's camp in Plattsburg, New York, for a war they believed would soon involve the United States. Yet there were still vocal minorities who remained either pro-German or arch-isolationists, and Wilson successfully campaigned for reelection in 1916 on the slogan "He kept us out of war."

The coming of war in Europe may have ironically saved the attaché system. In early 1914, the Army leadership was attempting to address the severe shortage of available officers by reducing the number of those in detached status. In response, Brigadier General Hunter Liggett, president of the War College, wrote the most amazingly short-sighted proposal to his superiors. In it, he recommended the elimination of attachés in Spain, Italy, Austria–Hungary, and Belgium and the designation as temporary the positions situated in Russia, Switzerland, the Balkan states, and Turkey. Finally, if the US Army was to undertake major field exercises, then all attachés in Europe along with officers studying in France and Germany faced the prospect of immediate recall.

Fortunately, with the announcement of war, cooler heads in the War Department prevailed. Not only were the 16 existing positions worldwide saved, but observers were added to supplement the work of the attachés in Europe so that the latter could continue to pursue their normal duties. Six new officers sailed for France, six more to Germany, three to Austria–Hungary, and five to Japan. All went well, except for the element in France, where authorities refused to allow non-Allied personnel to accompany French armies into the war zone. The head of the US delegation in Paris lamented that the courtesies offered were "practically the same as those extended to small unimportant countries, such as, for example, Ecuador and Siam."¹⁷ One of the Americans attached to the French mission was 38-year-old Captain Marlborough Churchill, an artillery officer and distant relative to Winston Churchill; Captain Churchill was destined to hold several key leadership positions within military intelligence.

TWO CAPTAINS

With the nation itself, just three short years away from entering the war, there were no indications that Captains Dennis E. Nolan and Ralph Van De-

man would soon lead the largest intelligence organizations in the history of the United States and that these would be comprised of hundreds of soldiers and civilians. Apart from holding the same rank, being rather tall and wearing glasses, the two held little in common. Nolan and Van Deman were acquainted with each other, serving briefly together in the Philippines and later within the Second Division of the General Staff.

The junior of the two, Nolan, was a son of an Irish immigrant who worked in the gypsum mines of western New York. Originally studying to become a schoolteacher, Nolan took a late appointment to the US Military Academy when it became available. From the start, he seemed destined for greater things; Nolan starred on the athletic fields of West Point and held a position of leadership among the cadets. He also married well—Julia Dent Sharp, the daughter of a recognized military family and niece of First Lady Julia Grant. During the Spanish–American War, Nolan demonstrated bravery under fire when he received two decorations that were later replaced with Silver Stars. He would return to the academy where he taught history and coached the football team to its greatest season to date. Nolan also prided himself as an administrator—a position he held on several occasions. In the Philippines, Nolan served as acting adjutant general to newly appointed Brigadier General John J. Pershing and in various capacities in the civil government where he made the acquaintances of those who would later become instrumental in his selection to lead intelligence. While in the islands, Nolan also experienced firsthand the trials of an intelligence officer when a local native he recruited as an informant was unfortunately hacked to death by suspicious neighbors. The outbreak of war in Europe in 1914 found Captain Nolan and his wife at Fort Seward in Alaska—a bittersweet time for the family, having to adjust to the recent loss of their young son due to illness while celebrating the arrival of a new daughter.¹⁸

Captain Ralph Van Deman possessed more of a scholarly bent as evidenced by his impressive academic credentials; his career began as a member of the Ohio National Guard where he organized its first signal detachment. After Van Deman graduated from Harvard, he stayed on for a year to read law and then returned to his native state of Ohio to obtain his medical degree before finally accepting his Army commission. In 1895, while attending the school at Fort Leavenworth for infantry and cavalry officers, Van Deman became acquainted for the first time with Colonel Wagner; two years later, he would serve under Wagner when he became head of MID. Having been exposed to Wagner's vision was enough to convince Van Deman to become a lifelong advocate for a viable intelligence system within the Army. He would have his first opportunity to turn theory into reality during the Philippine insurrection when he worked within the Bureau of Insurgent Records. In time,

local authorities selected Van Deman to reorganize the bureau into the Military Information Division of the Philippines; this he accomplished by adding mapping functions and organizing spy rings. By doing so, Van Deman would create the field intelligence organization that his mentor Wagner had planned but failed to accomplish in Cuba during the Spanish–American War.¹⁹

While assigned to the islands, Van Deman experienced firsthand what would become his life’s passion—counterintelligence. He personally directed a band of paid, undercover Filipino agents, who on at least one occasion learned of a plot to attack sections of Manila and to assassinate key military leaders. The same agents successfully identified the hiding place of the attackers along with the names of many of their contacts inside the city, making possible the quick dispersion of the guerrillas. From the Philippines, Van Deman also traveled incognito to China to help map railroad lines emanating from Peking. By 1907, Van Deman had returned to Washington, D.C., to serve again in the Second Division, only to be present at its demise 12 months later. When the year 1914 dawned, Van Deman was once more back in the Philippines—the only place where Army intelligence remained a reality.

In 1915, Major Dennis Nolan received orders for Washington, D.C., where his superiors assigned him the task of assembling a threat estimate to justify the War Department’s preparedness plan. Having no current intelligence estimates to draw from, Nolan relied on three outdated documents for his figures: a 1914 almanac of the world’s armies, a shipping register from the same year, and the Army’s own Field Service Regulations. The result was either ingenious or laughable, depending on how seriously Nolan actually believed his own math. Utilizing Nolan’s calculations, it was possible for Germany to deploy to the United States a force of 435,000 men and 91,457 horses and mules in only 15.8 days, thus overwhelming America’s current army. As absurd as the proposition was on its face, the finished product accomplished what the War Department leadership wanted—rationalization for an expanded force. Nolan’s next assignment would be the promotion of national conscription.²⁰

Also in 1915, the War College Division created the Military Information Section as one of its two major subelements, but it was purely window dressing for the sake of preserving congressional funding. Apparently, Congress still had an appropriations line designated for the Military Information Section, General Staff; funds were divided between \$11,000 for contingencies and \$15,000 for observers and attachés. The War College assigned the new paper organization “General Staff work,” an eclectic mission statement consisting of 10 functional areas ranging from writing histories to working legislation issues—only one actually dealt with intelligence matters.

On the positive side, the president of the War College, Brigadier General Montgomery M. Macomb, attempted to correct a major deficiency—pub-

lication and dissemination of valuable information to the Army. His plan consisted of sending documents to the Command and Staff School at Fort Leavenworth, where its staff would be responsible for printing and distributing the studies. Unfortunately, the first document selected just happened to be one originally obtained from a major European power by a military attaché who had pledged under the strictest of confidences to keep its contents secret. Following this debacle, the War College quickly retreated from the publishing business.

When Major Ralph Van Deman was reassigned to Washington, D.C., in 1915, he discovered that “he was the only officer in the War College Division who had had any training or experience in what we now designate as military intelligence.”²¹ Van Deman immediately began a letter-writing campaign to reverse the status quo. In March 1916, Van Deman put down on paper the role that military intelligence should be performing within the General Staff and urged that it immediately reestablish a separate and viable Military Information Division. General Montgomery M. Macomb promptly signed off on Van Deman’s proposal and forwarded it to General Hugh L. Scott, chief of staff, for his approval.

General Scott, a veteran of the wars in the West and a recognized authority on the Plains Indians, did not respond directly to Van Deman’s paper but did surprisingly fulfill in April a long-term goal of military intelligence. Within the continental United States, the Army divided itself into six geographic departments. For the first time, the chief of staff directed that each departmental commander establish an intelligence element within his headquarters as circumstances dictated. Their subordinate posts and commands were also to name their own intelligence officers (IO). The duties of these officers included the creation of information files and indexing of maps. Although the original orders referred to the new departmental intelligence offices as branches of the War College, this linkage on paper never became one in reality. Instead, all of the departmental intelligence offices operated autonomously, similar to the MID organization in the Philippines.²²

The same legislation in 1916 that increased the Army’s authorized strength to 175,000 also contained a provision that specified half of the officers assigned to the General Staff could not at any time be stationed or assigned to or employed upon any duty in or near the District of Columbia.²³ This meant that of the 41 officers assigned to the General Staff, only 19 could be in the Washington area. At the very time the War College’s staff fell to nine officers, its onetime dormant Military Information Section began to experience a dramatic rise in mail. To process the incoming requests and documents, Brigadier General Joseph E. Kuhn, the acting president, directed in late 1916 that classes at the college be canceled and that all available personnel be used

to conduct an extensive study of military intelligence reports from abroad so the information compiled might be imparted to the troops.

SMALL STEPS BY THE SIGNAL CORPS

The Signal Corps, in the meantime, recognized that the war presented an opportune time to solicit more funding for its fledgling aviation element and used as its rationale the need to keep pace with the various European armies. After all, the total military aircraft of Britain, France, Italy, Russia, Germany, and Austria–Hungary had quickly mushroomed to over 2,000. In stark contrast were the 30 aircraft that at one time or another had been in the US Army’s inventory; the number included one that was now in the Smithsonian Institution and 20 others destroyed in accidents or condemned, leaving only 9 operational planes. To sum up the government’s prevailing attitude, one congressman allegedly remarked, “Why all this fuss about airplanes for the Army—I thought we already had one.”

In a pamphlet, the chief signal officer, Brigadier General George P. Scriven, outlined the potential role of airplanes in reconnaissance—a role that was presently being demonstrated in the skies over the battlefields of Europe. To satisfy these goals, Scriven believed that 18 squadrons were necessary. The War College issued a separate report indicating that three types of aircraft were essential if the Army’s needs were to be met: scout aircraft to conduct long-range reconnaissance and to battle enemy aircraft, ordinary reconnaissance aircraft, and a third category for destroying the enemy’s combat forces and related materiel.

To correct the deficiency, General Scriven boldly requested a little over \$1 million, but the secretary of war reduced the request to \$300,000. Congress would cut the amount by another \$50,000; all in all a pittance, but still almost twice the amount of the previous year. While the chief signal officer contended for more money, his Aviation Section and school each were suffering through scathing reviews by the Army’s inspector general and an investigating officer appointed by the General Staff. One result of these probes was the reappointment of Colonel George O. Squier as the head of the Aviation Section. Fresh from his tour of duty as an attaché to London, Squier brought with him firsthand information on state-of-the-art aviation as well as numerous contacts with emerging European leaders in the industry. During his stay overseas, Squier secretly undertook several trips to the frontlines where he observed firsthand the performance of airplanes under actual combat conditions, including the use of cameras; this would lead him to report that for strategic and tactical reconnaissance the aircraft had become indispensable.²⁴

Prior to US involvement in the war, the most significant accomplishments in Army cryptology could be attributed to one officer—Captain Parker Hitt. An imposing figure at 6 feet 4 inches, Hitt was a former engineering student at Purdue University. Following service in the Spanish–American War, where he won his commission, Hitt settled into a teaching position at the Army Signal School at Fort Leavenworth. While assigned to the training center, Hitt embraced the study of cryptology, soon becoming the Signal Corps’ foremost authority on the subject. His wife, Genevieve, shared in his avocation, and throughout their marriage, they often corresponded by means of a sophisticated strip-cipher device that he had invented.²⁵

In 1915, Hitt recorded his knowledge for the purpose of training other officers—the *Manual for the Solution of Military Ciphers*—which he offered for sale at the Fort Leavenworth school for a sum of 35 cents. More importantly, Hitt’s primer was the first book on cryptology ever published in the United States, and it covered ciphers up to polyalphabetic (mixed alphabets) in difficulty. Compared to Europe’s military codes and ciphers, the book was outdated when it went to print, but its contents still proved useful. Hitt wrote in a style that gave understanding and clarity to the novice, and when listing the various factors that led to success in cryptanalysis, he demonstrated a certain refreshing honesty by citing the role played by luck. Captain Hitt also used his publication to advocate the establishment of cryptologic offices within field headquarters, outlining their duties and pointing out how the Army’s own transmissions could be made more secure. Finally, he called for the creation of an agency to conduct interceptions of enemy communications.²⁶

THE FIRST SHOTS IN THE INTELLIGENCE WAR

Intelligence organizations of the Central Powers became involved in an unofficial war against America long before their armies exchanged shots. Count Johann von Bernstorff, German ambassador to Washington, was in the inevitable position of nursing President Wilson’s desire to keep America neutral while at the same time overseeing Germany’s efforts to sabotage US war materiel before it reached Allied hands. Von Bernstorff was the ideal person for the assignment because he spoke English without an accent and had married an American. To assist him, Ambassador von Bernstorff employed a number of lieutenants: Captain Franz von Papen, military attaché; Captain Karl Boy-Ed, naval attaché; Franz von Bopp, consul general in San Francisco; and Doctor Heinrich Albert, commercial attaché. Albert handled the money and was personally responsible for putting many of Bernstorff’s plans into action. Unlike Europe, where German intelligence had planted professional

agents in countries long before the outbreak of war, this had not occurred in the United States. The absence of a trained intelligence network would, from the start, hamper Germany's intelligence and sabotage plans and cause them to be less effective than hoped. A second problem for the Germans was that the British were routinely reading the diplomatic traffic between Berlin and North America, having obtained a copy of their code.

On New Year's Day, 1915, Germany launched its sabotage campaign by bombing the John A. Roebling wire-cable manufacturing plant in Trenton, New Jersey. Two days later a detonation tore a gaping hole in the S.S. *Orton* docked in Brooklyn. Over the next four months, saboteurs detonated other explosions at ammunition plants in Haskell and Pompton Lakes, New Jersey, and Allon, Illinois. One ship carrying munitions caught fire at sea, and crews on two others discovered unexploded bombs. In August 1915, the British released documents revealing the role of Austro-Hungarian Ambassador Constantine Dumba to the United States in fomenting strikes at munitions factories. Following Dumba's recall in December, US authorities captured would-be saboteur Robert Fay, who implicated the German attachés, Franz von Papen and Karl Boy-Ed, forcing their quick departure.²⁷ Fay, who was an experienced mechanic, was best known for having built a sabotage device that could be attached underwater to the rudder post of a ship while at a pier; a clock piece served as the timer.²⁸ There were much more than ships at risk; German agents also attempted to inoculate horses bound for France with glanders disease and anthrax bacilli.

Two of the early German saboteurs are of particular significance: Both were among the most effective, and Army counterintelligence would later play an important role in their apprehension. Doctor Walter Scheele was a German chemist sent to the United States in 1893 to acquire technical intelligence on American's munitions industry. When war broke out, he invented a cigar-shaped sabotage device (usually a four-inch lead pipe) with a copper disk that divided two packages; one half held sulfuric acid that slowly dissolved the disk and then penetrated the second package of chlorate of potash or picric acid, resulting in a fire.²⁹ Mass production of the device took place aboard German vessels interned in New York harbor, and it took little skill to place these on nearby ships bound for Europe and to set them to ignite 15 days later or when the ship was out in international waters. On several occasions, crews put out the fires before they could do large-scale damage, but still proceeded to deliver the doused munitions. This led Allied gunners to begin reporting duds and premature explosions, giving credence to the rumor that US munitions were somehow inferior.

A member of the Imperial German Navy, Lothar Witzke, had found himself interned when the light cruiser that he had been on was scuttled in Chil-

can waters less it fall into the hands of the British. Witzke would eventually make his way north to San Francisco. Soon thereafter, he became a member of Germany's most prolific sabotage team and was personally involved in its greatest singular act of destruction. At the Lehigh Valley Railroad's Black Tom Island terminal on the New Jersey side of the Hudson River, close to the lower end of Manhattan, a large amount of munitions was awaiting shipment to the Allies. In the early morning hours of Sunday, June 30, 1916, Witzke and his companion were responsible for a huge explosion that ripped through the depot, scarring the Statue of Liberty with shrapnel, leaving the New York City skyline awash in light, knocking late-night revelers in the city off their feet, and waking people as far away as Maryland. Its shockwave caused the deaths of five people, including that of a sleeping 10-week-old infant who died when violently thrown from his crib in nearby New Jersey.³⁰

Besides the threat from foreign agents, the United States faced a number of groups who were openly pro-Central Powers, such as veterans of Germany's armed forces. Others were anti-British, among them those from Ireland and India. To counter these, the Department of Justice, the Secret Service, and bomb squads of various large cities soon found themselves on the front lines. The New York City Bomb and Neutrality Squad was led by Inspector Thomas J. Tunney, who was described as a scrapping Irishman; Tunney and his men proved particularly adept in working the docks to capture saboteurs and their would-be assistants—many of them recent immigrants from Ireland now working as longshoremen. His greatest triumph was exposing the connection between Paul Koenig, chief of security for the Hamburg–America Shipping Line, and von Papen who was directing the sabotage campaign. During the investigation, Tunney and his team of detectives conducted various types of surveillances that included shadowing of suspects, using undercover operatives, and deploying telephone taps.³¹ Yet despite all these early efforts to safeguard the nation, no other country during the war would come close to the United States in terms of the amount of losses of materiel suffered at the hands of saboteurs; all the while, the Army possessed no means to protect itself against the growing threat.

AN EARLY TEST SOUTH OF THE BORDER

As early as 1915, it had become obvious to a number of pro-German agents that sabotage alone could not prevent the United States from shipping goods and arms to the Allies. Franz von Rintelen, a former representative of the Deutsche Bank in Mexico, wrote, "Should Mexico attack the United States, the United States would need all the arms it can produce and would not be

in a position to export arms to Europe.” Meanwhile, Mexico had exchanged the incompetent government of General Victoriano Huerta for another led by Venustiano Carranza, but the staid Carranza soon faced a revolutionary threat in the form of the wild and colorful Pancho Villa. To offer support in case of war with the United States, German agents would make contacts with any and all groups that might hold power in Mexico: General Huerta, who was exiled to Spain, officials of the Carranzista government (the so-called Constitutionals), and persons associated with the revolutionary Pancho Villa.

To discredit Carranza, Villa tried to draw the United States into intervening in Mexico. Carranza himself had employed the same tactic when he used the US occupation of the port of Vera Cruz as an excuse to criticize his predecessor. On January 11, 1916, Villa’s band held up a train carrying 17 recent college graduates from California traveling south to Mexico to open a mine. Although the Americans journeyed under a safe conduct pass issued by Carranza, it did not stop Villa’s men from murdering 16 of the young engineers. The Santa Ysabel massacre quickly drew the attention of the Wilson administration and the US public, but Villa wanted more. Consequently, on March 9, he raided and set fire to the town of Columbus, New Mexico, killing 17 soldiers and civilians in the process. Some evidence exists that a German agent, Felix A. Sommerfeld, who had exchanged his life as an engineer for one of a soldier of fortune and an arms dealer, was involved in buying guns for Villa for use during the cross-border raid.³²

Although attempts by agents to stoke open hostilities between the United States and Mexico produced more smoke than fire, Germany would get partially what it wanted—US military intervention into Mexico. On March 15, 1916, Brigadier General John J. Pershing led a Punitive Expedition of 6,000 soldiers across the Rio Grande to bring Pancho Villa to justice. Authorities also called up thousands of National Guard troops to help protect the borders in the event of a repeat attack by Villa. In the coming months, US forces would penetrate more than 300 miles into the state of Chihuahua, where they endured mountainous terrain, a late blizzard, and sandstorms.

With two small exceptions, the intelligence phase of the expedition confined itself to south of the border. An information officer with the expedition routinely sent copious reports back to the War College in the form of telegrams. Here, another officer read the incoming mail, but no evidence exists that anyone in authority ever acted on the information. Van Deman recalled that while at the War College, he discovered a table piled high with such telegrams that had never been filed. From time to time, the border command intercepted ciphered messages emanating from Mexico.³³ Most originated with the Constitutionals because they had access to wireless sets, but occasionally, from agents associated with Villa. The intercept stations passed

on all unreadable coded messages to Captain Parker Hitt, who used various methods to decode them, including the Mexican Army Cipher Disk, which employed four numerical alphabets placed on a revolving disk.

General Pershing appointed Major James A. Ryan, 13th Cavalry, to lead the “service of information.” Ryan had previously served as an associate professor of modern languages at the US Military Academy and was proficient in Spanish. His successor was Captain Nicholas W. Campanole, who spoke Spanish as his native tongue as well as several other languages, including, of all things, Japanese. Regardless of who was in charge, intelligence faced numerous obstacles; foremost was the lack of maps. Coupled with this, the state of Chihuahua was also Villa territory and the people were either friendly to the rebel leader or simply hated Americans; even the jingle of silver often did not elicit the desired information. Another reason many Mexicans did not choose to cooperate was simply their lack of knowledge as to events outside their immediate area.

Although not easily obtained, intelligence derived from humans remained the primary source. Occasionally, US patrols performing reconnaissance duties made contact with American prospectors, ranchers, and Mormon colonists. As far as Mexican prisoners or civilians were concerned, it was often hard to determine whether they were telling the truth. Colonel George H. Dodd, Commander of the 2nd Brigade, once became so frustrated that he impressed two locals into service on the threat of their immediate execution. Whether by design or ignorance, the two reluctant guides then proceeded to lead Dodd and his men on a long, roundabout way to their destination, thus preventing Dodd’s surprise attack from fully succeeding. A frequently used method to derive intelligence from prisoners or townspeople was to question them separately. After comparing all stories, a US officer could usually arrive at some semblance of the truth. Despite the obstacles, Major Ryan was able to assemble a small trustworthy band of agents and civilian scouts who each received a designator such as “Agent J” or “Messenger O.” Among their successes, two of the individuals gained access to Villa’s camp in September and reported that his forces amounted to 800 men. After the campaign was over, one of Ryan’s spies produced a signed note that recommended US authorities grant him citizenship based on his invaluable service to General Pershing.³⁴

The Punitive Expedition would be the last time the Corps of Indian Scouts would see action. Lieutenant James Shannon commanded a detachment of 20 Apache scouts and was forced to deal with their unique approach to the campaign. To the Indians, a Mexican was a Mexican; they did not see the fine line of political loyalties. In one instance, having sighted a company of Carranzista soldiers, First Sergeant Chicken gave the following command to his men, “Heap Mexican. Shoot ’em all!” Lieutenant Shannon had all he could

handle to rein in his men. On another occasion, the scout's actions spoiled what could have been an even larger victory. Approaching a camp of Villistas, the Indian scouts were supposed to hit their objective at full gallop, but when they heard a shot fired, they quickly abandoned their horses and began firing back far out of range. Apparently, it was not a part of the Apache's nature to receive fire without returning it immediately, and no amount of commands could persuade them otherwise. Still, the Indian scouts utilized their exceptional tracking skills in helping to hunt down Villa's army as well as the occasional US deserter.³⁵

While the Indian scouts were on their way out as intelligence collectors, US Army aviators received their baptism under fire during the Punitive Expedition. The 1st Aero Squadron, under the command of Captain Benjamin Foulois, showed up with 11 officers, 84 enlisted men, 1 civilian, 8 planes, and 12 trucks. On March 12, the first flight over Mexico went off without a hitch, but because the 1st Aero Squadron possessed the only mechanically qualified personnel on hand, authorities initially diverted them to assemble wagon bodies on truck chassis for the expedition, as well as to serve as drivers until the Army could hire civilians.³⁶

On March 19, General Pershing ordered the pilots to fly all eight of the aircraft to Casas Grandes to receive their first assignments. None of the planes made it. One had to turn back because of engine trouble; the others faced the daunting prospect of landing at night—only three were unscathed. Unfortunately, this became a trend, and by April 20, only a single JN4 or Jenny remained operative. The aircraft simply lacked the power to work in the mountainous terrain, and the airframe proved too fragile for the daily rigors of a sustained campaign. This forced Captain Foulois to report that due to terrific vertical air currents and whirlwinds, which at times drove the aeroplanes within 20 feet of the tree tops, the pilots were unable to cross the Sierra Madre Mountains. Remarkably, Foulois was able to arrange for a quick delivery of four more powerful aircraft, but the V-8, 165 hp Curtiss R-2's would have several defects of their own to correct—the most difficult was obtaining wooden propellers that would not warp or split.³⁷

Pershing had good reason to write that the airplanes were of no material benefit, either in scouting or a means of communications. Most amazingly, no US pilot lost his life in spite of repeated forced landings. On two occasions, pilots found themselves with a disabled plane in uncharted territory, days on foot from any American base. Despite suffering from thirst, hunger, and wounds, they still managed to reach safety. From time to time, pilots also faced hostile crowds who threatened to destroy parked aircraft by throwing stones, and on one occasion, Foulois spent a night in the local jail—the first US aviator to become a prisoner of war.

Despite these challenges, Army aviation achieved a number of important milestones. Between March and August, pilots of the 1st Aero Squadron flew 540 missions, covering over 19,500 miles. A typical mission was to scout the Carranzista troops, whose intentions were of increased concern to the Expeditionary Forces. “Pershing would get a bit of information saying that there were 350 [Carranzista] cavalry over at such and such a ranch. He’d send us out, and we’d fly over there, and we would fly low around the corral of this ranch. If there were only five horses in there, why chances were that there weren’t any cavalry there.” The squadron also experimented with an automatic camera, manufactured by the Gem Engineering Company of Philadelphia for the purpose of producing serial strips—excellent for mapping purposes.³⁸

The Signal Corps witnessed no new breakthroughs in the area of communications as evidenced by its having to resort to carrier pigeons. The only telegraph line ran along railroad tracks but was controlled by the Carranza government and placed off limits to Americans. The corps laid hundreds of miles of so-called buzzer lines, but the noninsulated telegraph lines were unreliable under certain weather conditions. For good reason, the wire was often referred to as the “please don’t rain wire.” The widespread deployment of motor vehicles during the Punitive Expedition was just as revolutionary as the airplane. The Signal Corps experimented with radio-tractors—White Company trucks carrying wireless sets—but the mountains and dependence on French-made radio parts greatly undercut the receivers’ effectiveness.³⁹

Located at Pershing’s headquarters and the rear supply base in Columbus, New Mexico, the primary mission of the radio-tractors was to transmit messages, but beginning in June, they also picked up communiqués emanating from Carranza forces that were quickly passed on to General Pershing. Messages revealed the locations of the Mexican government’s soldiers so that Pershing could avoid them, particularly late in the campaign, when tensions flared between the two governments. Intercepted transmissions also provided insights as to where Mexican forces thought Pancho Villa was situated. Pershing reported that his staff “took up the study of code messages and soon was able to decipher any code used in Northern Mexico.”⁴⁰ An overstatement, but coded messages between Mexican Secretary of War Alvaro Obregon and his generals were routinely broken. In addition, the Americans also began tapping telegraph wires to gain intelligence, but when Mexican officials learned of the practice, they lodged a formal protest to the US Department of State.

By the fall of 1916, a Mexican–American commission and the pending reelection of President Wilson neutralized the affair. The last of the US troops withdrew in February 1917 as the focus of the US public had shifted to events surrounding the war in Europe. Most histories label the Punitive

Expedition a failure because of its inability to bring Pancho Villa to justice. In his book, *Blood on the Border*, Clarence C. Clendenen arrives at a much different conclusion: “it should be sufficient to point out that the Villistas were surprised in every single encounter. The Punitive Expedition was not a single slow column plowing through the Mexican wilderness. Pershing’s method of operation, rather, was a series of small, mobile forces that moved as fast as the Mexicans, or faster, and could live off the country for long periods of time.”⁴¹ Just months away from the US involvement in Europe’s war, the US Army had benefited from the early shakedown, especially the National Guard units that had been mobilized. In addition, several important future leaders emerged—most notably, General Pershing, who was previously unknown to the US public. As far as intelligence was concerned, aviation would prove the big winner by making Congress aware of its need for much greater appropriations.

NOTES

1. Ralph H. Van Deman, *The Final Memoranda* (Wilmington: Scholarly Resources, 1988 [1949]), 3–4.
2. John P. Finnegan, *Military Intelligence* (Washington, DC: Center of Military History, 1998), 12.
3. *Ibid.*, 13.
4. James Hewes, *From Root to McNamara* (Washington, DC: Center of Military History, 1975), 5–6.
5. Van Deman, *The Final Memoranda*, 23–24.
6. Finnegan, *Military Intelligence*, 16.
7. Van Deman, *The Final Memoranda*, 11–12.
8. *Ibid.*, 21; Bruce W. Bidwell, *History of the Military Intelligence Division* (Department of Army, 1961), pt. I, chap. IX, 10.
9. Rebecca Robbins Raines, *Getting the Message Through* (Washington, DC: Center of Military History, 1996), 82–83.
10. Benjamin D. Foulois, *From the Wright Brothers to the Astronauts* (New York: McGraw-Hill, 1968), 60–65.
11. *Ibid.*, 2.
12. Maurer Maurer, *The US Air Service in World War* (Washington, DC: Office of Air Force History, 1978), Vol. II, 19, 22.
13. Robbins Raines, 105, 126.
14. *Ibid.*, 89.
15. James L. Gilbert, “US Army COMSEC in World War I,” *Military Intelligence* 14 (1988): 24–25.
16. Chad Millman, *The Detonators* (New York: Little, Brown, 2006), 6.
17. Bidwell, *History of the Military Intelligence Division*, pt. I, chap. X, 183.

18. Karen Kovach, *The Life and Times of Dennis E. Nolan* (Fort Belvoir: US Army Intelligence and Security Command, 1998).
19. Marc B. Powe, "American Military Intelligence," *Military Review* (December 1975): 17–30; Michael E. Bigelow, "Van Deman," *Military Intelligence* (December 1990): 38–40.
20. John P. Finnegan, *Against the Specter of a Dragon* (Westport, CT: Greenwood, 1974), 50.
21. Van Deman, *The Final Memoranda*, 19–20.
22. Bidwell, *History of the Military Intelligence Division*, pt. I, chap. X, 19.
23. *Ibid.*, 24–25.
24. Maurer, *The US Air Service in World War*, Vol. II, 55–57.
25. David Kahn, *The Codebreakers* (New York: Macmillan, 1967), 321–322.
26. Parker Hitt, *Manual for Solution of Military Ciphers* (Fort Leavenworth, KS: Press of the Army Service Schools, 1916); Kahn, *The Codebreakers*, 323.
27. Thomas J. Tunney, *Throttled!* (Boston: Small, Maynard, 1919), 151.
28. For his crime, Fay would spend less than a month in prison before he escaped, eventually making his way to Spain.
29. Jules Witcover, *Sabotage at Black Tom* (Chapel Hill, NC: Algonquin Books, 1989), 91.
30. Millman, *The Detonators*, 91–93.
31. Tunney, *Throttled!*, 8–9.
32. Frederick Katz, *The Secret War in Mexico* (Chicago: University of Chicago Press, 1981), 413.
33. Van Deman, *The Final Memoranda*, 19.
34. Clarence C. Clendenen, *Blood on the Border* (London: Macmillan, 1969), 332–333.
35. James A. Shannon, "With the Apache Scouts in Mexico," *Cavalry Journal* 27 (April 1917): 546.
36. Clendenen, *Blood on the Border*, 316.
37. Foulois, *From the Wright Brothers*, 134–135.
38. Clendenen, *Blood on the Border*, 319; Foulois, *From the Wright Brothers*, 134–135.
39. Robbins Raines, *Getting the Message Through*, 150.
40. David Hatch, "The Punitive Expedition," *Cryptologia* 31, no. 1. (January 2007): 41.
41. Clendenen, *Blood on the Border*, 358.

