Keeping the Lines Open: The United States Army Signal Corps

(United States, 1856-Present)

Effective communications have always been vital to military operations. By the mid-nineteenth century, modern weapons led to extended battlefields where the simple horns, drums, and flares of the past no longer sufficed. Larger, more complex armies needed to communicate over larger and larger distances. The U.S. Army was spread over a vast continent, and the reality of geography meant the Army needed a means of rapid, long-distance communication. Thus the United States Army became the first army in the world to establish a separate communications branch.

Albert James Myer, an Army doctor, first conceived the idea of a separate, trained professional military signal service. He proposed that the Army use his visual communications system, called "Wigwag", while serving as a medical officer in Texas in 1856. When the Army adopted his system on June 21, 1860, the Signal Corps was born with Myer as the first, and at that time only, Signal Officer.

With flags for daytime signaling and torches at night, Myer first used his visual signaling system in New Mexico during the 1860-1861 Navajo expedition. Wigwag’s combat test occurred early in the Civil War in June of 1861, when the system was used to direct the fire of a harbor battery at Fort Calhoun (Fort Wool) against the Confederate positions. In 1863, Congress authorized a regular Signal Corps for the duration of the war. Some 2,900 officers and enlisted men served in the Civil War Signal Corps.

Myer’s Civil War innovations included an unsuccessful balloon experiment at the Battle of Bull Run and the use of the telegraph. The Wigwag system relied on line of sight. Soldiers had to establish relay stations in sight of each other. While this system worked well enough to relay updates during the Battle of Gettysburg to Washington D.C., the system required a significant number of well-trained Soldiers and
good weather. Even as the Signal Corps came to be, the Wigwag system was giving way to the telegraph.

After the war, the use of the telegraph grew as fast as the expanding nation. Between 1867 and 1879, the Corps strung some 4,000 miles of telegraph lines along the country's western frontier.

In 1870, Congress established the Weather Bureau. Since accurate weather forecasting depended on disciplined observers and rapid reporting of conditions via telegraph, the task of organizing this service naturally fell to the Signal Corps. Myer, now a general and Chief Signal Officer, chose Adolphus Greely as his assistant. By the time of Myer’s death in 1880, he and Greely had built the internationally renowned organization now known as the National Weather Service. Responsibility for the operation of the service passed to the Department of Agriculture in 1891.

The Signal Corps played a significant role in the Spanish American War and the subsequent Philippine Insurrection. The Corps still used visual signaling, including the heliograph, in areas that lacked existing telegraph wires. During this conflict, however, the Corps laid telephone and telegraph wire lines and cable communications, fostered the use of telephones in combat, employed combat photography, and renewed the use of observation balloons to great effect. Shortly after the war, the Signal Corps constructed the Washington-Alaska Military Cable and Telegraph System (WAMCATS), introducing the first wireless telegraph in the Western Hemisphere.

On August 1, 1907, the Corps established an Aeronautical Division within the Office of the Chief Signal Officer. In 1908, the Wright brothers began making test flights of the Army's first airplane built to Signal Corps' specifications. Army aviation remained within the Signal Corps until 1918, when it became the Army Air Service.

The Signal Corps lost no time in meeting the challenges of World War I. Chief Signal Officer Major General George Squier worked closely with private industry to perfect radio tubes and built a major laboratory at Camp Alfred Vail (Fort Monmouth). In 1918, early radiotelephones, which transmitted voice signals and were developed by the Signal Corps, were introduced into the European theater. Though superior to the radiotelegraph sets, which used Morse code, telephone and telegraph remained the major technology of World War I.

A pioneer in radar, Colonel William Blair, director of the Signal Corps laboratories at Fort Monmouth, patented the first Army radar in May 1937. Even before the United States entered World War II, mass production of two radar sets, the SCR-268 and the SCR-270, had begun. Along with the Signal Corps’ tactical FM radio, also developed in the 1930s, radar was the most important communications development of World War II.

During Project Diana in 1946, the Signal Corps successfully bounced radar signals off the moon, paving the way for space communications. On December 18, 1958, with Air Force assistance, the Signal Corps launched its first communications satellite and demonstrated the feasibility of worldwide satellite communications.

Technologies such as telephone and telegraph required a physical link between Army units in the form of a wire that could be broken or cut. When the Korean War flared up the rough terrain, poor roads, and sheer distances and speed of battle limited the use of wire for communications. The Signal Corps' VHF radio became
the "backbone" of tactical communications throughout the conflict.

Wired communications, however, are more secure. The enemy can more easily monitor radio communications, so the Signal Corps help pioneer the use of codes and signal encryption to keep military secrets secret.

The complex communication needs of the Army in Vietnam led the Signal Corps to develop new and more sophisticated methods of providing large scale, long-range communication systems. Then, as now, the Signal Corps had to balance the need for rapid communications against the increasing ability of the enemy to monitor radio and telephone conversations. Today, the Signal Corps continues to lead the way in innovative communication systems and methods.

Sources:


"[T]he American Signal Corps… is the original basis of all foreign services of like character, [and] recognizes that only by constant effort can it hope to maintain its supremacy among military corps of the world. To do this is the aim and intent of the American Soldier."

~ General Adolphus Greely, Chief Signal Officer