The Army Amateur Radio System: 1925-1941

A Monograph
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Abstract

THE ARMY AMATEUR RADIO SYSTEM: 1925-1941 by MAJOR Scott B. Hedberg, United States Army, 78 pages.

This monograph conducts a historical study of the Army Amateur Radio System, the predecessor to the Military Auxiliary Radio System (MARS). MARS is primarily known for its performance during the Vietnam conflict in providing morale communications for US service personnel. In 2009, the Department of Defense changed the MARS mission to support homeland security functions by using MARS to provide backup emergency communications to local, state, and federal authorities. Viewed as a new direction for MARS, the responsibility of providing emergency communications is the same mission that was ably conducted by the Army Amateur Radio System prior to the United States entry into World War II. By better understanding the history of the Army Amateur Radio System, MARS can better meet the challenges it faces in meeting its requirements.

This study of the Army Amateur Radio System begins by first analyzing the context and requirements that drove its creation. Next, the organization's establishment, development and employment are analyzed, focusing on the Army Amateur Radio System's ability to accomplish its mission. The study concludes with an examination of the suspension of the Army Amateur Radio System upon the United States' entry into World War II.

The United States recognized radio as a critical mode of communication during World War I. The integration of radio to support Army operations generated a significant manpower and skill requirement that was not easily met. The Army Amateur Radio System was formed in 1925 to provide a pool of trained radio operators to augment the Signal Corps during mobilization in time of war and provide an extension of the Signal Corps' radio network to support civil authority with natural disaster relief efforts. While supporting military goals, the organization was composed of volunteer civilians who were accomplished radio amateurs. These civilians applied their specialty skills in radio communication while supporting the Signal Corps across the continental United States, the Philippines, Panama, and Hawaii.

The organization ultimately experienced both success and failure. The Army Amateur Radio System succeeded in developing the proficiency of its radio operators as demonstrated by the support provided to local, state, and federal authorities during natural disaster relief efforts. However, on the eve of the United Sates' entry into World War II, the Army Amateur Radio System's membership was significantly underdeveloped in numbers to provide significant manpower to augment the Signal Corps' mobilization for war.

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Introduction

The Military Auxiliary Radio System (MARS) is primarily known for its contributions during the Vietnam conflict. With the Department of Defense's existing communication network consumed with operational message traffic, MARS provided the opportunity for US service personnel to send and receive short messages from home, called MARSgrams, or actually talk to family members back in the continental United States via a telephone-radio link called a phone patch. This communications service had two primary parts: the servicemen who operated the radio equipment in Vietnam and civilian volunteers who operated similar equipment stateside. At its peak of activity, MARS, with 47 stations operating throughout Vietnam, handled 42,000 messages per month during the spring of 1970. Enabling the connection between service personnel serving halfway around the world and loved ones back home had an immeasurable impact on morale.[1]

Based on the well known tradition of MARSgrams and phone patches, it would surprise many to know that in response to the January 2010 earthquake in Haiti, MARS deployed a team of civilian radio operators to Port-au-Prince. This team was not employed to provide morale communications support to deployed US service personnel. Instead, the MARS mission was to facilitate emergency communication between military, medical, and non-governmental relief efforts.[2]

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[1] Paul A Scipione, *MARS: Calling Back To The World From Vietnam*, (Kalamazoo, MI: The Center For The Study Of The Vietnam War, 1994), 27.

[2] University of Miami, "After the earthquake, UM's new ham radio station is a lifeline in Haiti", February 17, 2010, http://everitas.univmiami.net/2010/02/17/after-the-earthquake-um%E2%80%99s-new-ham-radio-station-is-a-lifeline-in-haiti/.

The change from the traditional MARS mission of providing morale communications to service personnel to supporting disaster relief was highlighted on December 23, 2009, when the organization known as MARS changed its name. Founded in 1925 as the Army Amateur Radio System (AARS), in 1948 Captain Robert L. Gabardy selected the use of the acronym MARS, the Roman god of war, as a fitting name for the post-World War II rebirth of the AARS as the Military Amateur Radio System.[3] The organization was again renamed in 1953 to the Military Affiliate Radio System. In alignment with the 2009 Department of Defense guidance, the newly renamed Military Auxiliary Radio Service added to its traditional role of providing health and welfare communications to the US military. MARS was refocused to use its membership to provide emergency communications to local, state, and federal authorities. In this role, MARS was charged with supporting civil authorities at all levels with contingency radio communications reflecting a homeland security focus.[4]

The Department of Defense Instruction, Number 4650.02, which directed the organizational and name change, refocused the MARS mission. A military auxiliary is defined as "(a)n organized body of volunteers prepared to supplement the uniformed services or any designated civilian authorities by provision of specialized autonomous services when called upon or when situations warrant."[5] In approaching its mission as an auxiliary, MARS can examine the early history of the Army Amateur Radio System to recognize that homeland defense was one of two original missions for the AARS.

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[3] Robert L. Gabardy, telephonic interview by author, January 26, 2010.

[4] The American Amateur Radio Relay League, "MARS Get New Name As It Fine Tunes Mission," ARRLWeb: ARRL NEWS. http://www.arrl.org/news/stories/2009/12/24/11267/ (accessed December 24, 2009).

[5] The United States Department of Defense. "Department of Defense Instruction 4650.02, December 23, 2009". http://cio-nii.defense.gov/policy/index.shtml (accessed January 25, 2010).

From 1925 to 1941, the Army Amateur Radio System successfully fulfilled the role of providing emergency communications in support of civil authorities' disaster relief efforts. However, the AARS and its parent organization, the Signal Corps, stumbled in time of war to provide an adequate supplement of trained radio operators to the US Army or provide its collective services to aid in civil defense efforts. This monograph examines: how the use of radio became an important and growing requirement for the US Army, the emergence of a civilian radio operator capability to meet the Army's requirement, and the resulting establishment, growth and wartime suspension of the Army Amateur Radio System.

Did the AARS succeed or fail at meeting its intended missions? The organization was constituted to accomplish both a peacetime and wartime function. The peacetime function focused on extending the communications capability of the War Department and providing backup emergency communications capability for local, state, and federal authorities reacting to natural disasters that had disabled existing landline communications. The wartime function of the AARS was based on the organizations ability to provide a manpower pool of trained radio operators to the Signal Corps.

From its implementation in 1925 and restructuring in 1929, the AARS ably performed its peacetime function. The organization initially helped provide communications for National Guard and Organized Reserve units. Later, the AARS helped extend the communications structure that supported Civilian Conservation Corps camps. Prior to the United State's entrance into World War II, the AARS provided the ability of service personnel to send and receive messages from home. The AARS produced an extensive record of support in support of natural disaster relief efforts across the country. As a peacetime organization, the AARS was successful.

The AARS failed, however, in the accomplishment of its wartime mission. The Signal Corps envisioned the AARS constituting a reservoir of radio operators trained in Army radio procedure. In time of national mobilization, the Signal Corps intent was for these trained radio operators to enter the ranks of the Army, saving countless weeks of delay in technical and

operator training. The AARS members were proficiently trained in Army radio procedure and capable of fulfilling the role of an Army radio operator. However, the organization never grew its membership to large numbers that could provide a difference in fulfilling the manpower gap during wartime mobilization. Finally, there was no mechanism in place to bring the members of AARS on active duty when a crisis arrived.

To understand the context of the Army's use of radio and how amateur radio operators played in its development, it is necessary to look at three areas that were distinctive. The first area looks at the Army's initial use of radio and radio's growth and integration in both a tactical and administrative role. The second examines the emerging identification of radio amateurs as a resource in meeting Signal Corps requirements. The third area reviews the establishment of the AARS, its development, use in accomplishing its peacetime function, and ultimate suspension of the organization following the attack on Pearl Harbor.

Radio and The US Army

First Use of Radio

The first operational field use of radio by the US Army Signal Corps can be traced back to 1904. The Signal Corps had been sent to Alaska to help the US Government in building its communications capacity in support of the ongoing Klondike gold rush. The existing means of establishing communication in the Nome region was through overland wire and undersea cable to connect islands with the mainland. An attempt to connect the small settlement of St. Michael with Cape Nome, for example, was frustrated by Norton Sound which lay in between. The Army laid an undersea cable and this worked effectively until the spring thaw carried the cable out to sea.

Radio was proposed to solve the problem and despite the infant technology provided a reliable means for the Army to maintain working communications between the two points.[6]

Subsequently, in the continental United States, the US Army began to connect its forts in the west by means of radio. One of the first links was established between Fort Sam Houston, Texas and Fort Riley, Kansas in 1907. While the initial performance of radio in supporting this link was poor, improvements were implemented over the next four years making radio a viable means to connect the two installations. In 1911, increasing lawlessness along the Mexican border resulted in a group of Mexican bandits cutting much of the telephone and telegraph wire in an effort to stall US military reaction to their criminal raids into the United States. Despite landline communications being severed, the radio remained an effective means of communications and allowed the Army to communicate back to Kansas informing them of the growing border crisis.[7] Although the Army radio field sets of this period were unsophisticated and limited in range, they proved their value in being able to keep units and garrisons in communication with each other.

Recognition of the Shortage of Trained Operators

The border troubles with Mexico forced the US Army first to recognize the value of radio and its need to train sufficient operators. National Guard units from around the country were activated to meet the developing crisis. Amongst this group was David More, a National Guardsman and founding member of the American Radio Relay League (ARRL), an organization established in 1914 to help organize the swelling ranks of amateur radio operators and to act as a lobbyist to the US Government on behalf of the radio amateur. Mr. More encouraged other

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[6] Charles M. Saltzman, "The Signal Corps," *The Signal Corps Bulletin 34*, May 1926, 37.

[7] Fred P. Andrews, "Radio Evolution in the Eighth Corps Area," *The Signal Corps Bulletin 36,* October 1926, 18-20.

amateur radio operators to offer their service to the government during the crisis in the hopes of providing a base of radio experience amongst the Regular Army.[8] It took World War I to bring large numbers of radio amateurs into the ranks of the Army.

Radio amateurs had begun to establish themselves as a distinctive group of individuals that were developing a unique set of talents with their interest in radio. Those talents would be both recognized and called upon during World War I. Clinton B. DeSoto published the first history of amateur radio, titled *200 Meter and Down: The Story of Amateur Radio*. In it he describes the radio amateur as:

> … a young man 25 years of age. His station, which is homemade from manufactured parts purchased largely at the neighborhood parts store, utilizes radiotelegraphy exclusively, although he expects some day to try radiotelephony… The young man is a high-school graduate. He works for a living, is self-supporting, unmarried, and is employed in the technical trade. He is quite well-liked in his community, respected for his knowledge of radio with the respect due an expert.[9]

World War I: An Increase Requirement for Army Radio Operators

As hostilities broke out in Europe, the Signal Corps consisted of just 55 officers and 1570 enlisted men.[10] The Signal Corps relied on trained professionals recruited from the commercial sector as well as civilian radio amateurs who had acquired radio operating skills through their own personal development to fill the ranks.[11] However, both these pools of manpower could not come close in meeting the needs of the Signal Corps at war. Of the 41,000 men inducted into the

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[8] "Uncle Sam's Wireless," *QST*, August 1916, 213; Clinton B. DeSoto, *200 Meter and Down: The Story of Amateur Radio*, (West Hartford, CT: The American Radio Relay League, Inc., 1936), 40.

[9] DeSoto, 1-2.

[10] Alfred E. Larabee, "The Signal Corps and Signal Communications," *The Signal Corps Bulletin 31*, September 1925, 33.

[11] "Now The Army," *QST*, September 1917, 15.

Army and placed into the Signal Corps between May 1917 and November 1918 few had any prior radio experience.[12] To mitigate this lack of specialized training in radio, the Signal Corps partnered with universities to conduct advanced training for radio operation. In a letter to the State University at Iowa City, Iowa, Lieutenant Colonel Wildman said that "the need of telegraphers in the Signal Corps is serious" and that "the available supply has been exhausted and new men must be trained to complete the present organization and prepare for future increase."[13] By the Armistice at the close of World War I, the Signal Corps had peaked at 2712 officers and 53,277 enlisted men.[14] In reacting to the crisis of World War I, the manpower shortage was a significant frustration for the Signal Corps. Learning a lesson, they were determined to be better prepared to meet the next conflict.

Lack of Trained Radio Operators

There were 6000 radio amateurs in the United States prior to World War I. Over 4000 volunteered for military service in the conflict.[15] This experience demonstrated both the usefulness of radio amateurs filling manpower shortages and the high regard in which the Army held the radio amateurs.

However, a drawback of using civilian personnel already trained in radio operations was that they were not specifically prepared to handle military traffic. They had developed habits and skills that were suited for either commercial or amateur use, but were of little use in conducting

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[12] Rebecca R. Raines, *Getting the Message Through: A Branch History of the US Army Signal Corps*, (Washington, D.C.: Center of Military History, 1996), 168.

[13] "S.U.I. Will Train Army Telegraphers," *QST*, September 1917, 23.

[14] Alfred E. Larabee, "The Signal Corps and Signal Communications," 33.

[15] Dulany Terrett, *The Signal Corps: The Emergency*, (Washington, D.C.: Office of the Chief of Military History, 1956), 20.

radio operations by the methods suitable for the Army.[16] This problem persisted after World War I. During early joint communications exercises with the US Navy, the Army radio operators were often perceived as being inferior to those of the Navy. A report brought to the attention of the Office of the Chief Signal Officer noted that "radio operators' standards in the Navy are considerably higher than the operators' standards of field units of the Army, and the Navy apparently has no difficulty in handling their traffic by radio very expeditiously and satisfactorily."[17]

The Navy advantage can be explained by the early history of the Navy and radio. The Navy was an early adopter of radio, having been first interested in British Royal Navy tests with the Marconi Company in 1899. The tests revealed radio was aptly suited in supporting communications for ships at sea and by 1903, the US Navy was equipping both ships and shore installations with radio. In 1913, radio was adopted as the primary means of tactical communications for the Navy.[18]

Radio Amateurs And World War I

When established in 1914, one of the first acts of the American Radio Relay League (ARRL) was to seek some type of formal relationship with the US military. Writing to Lindley M. Garrison, President Woodrow Wilson's Secretary of War, the ARRL hoped to inspire the development of just such a relationship. The letter, written in August 1915, promoted the ARRL's

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[16] Sanford D. Ashford, "Radio Communication in the Coast Artillery," *The Coast Artillery Journal*, August 1922, 164.

[17] Robert Davis, "Radio Intercommunications = Army-Navy," *The Signal Corps Bulletin 30*, June 1925, 35.

[18] Linwood S. Howeth, *History of Communications-Electronics in the United States Navy* (Washington, D.C.: US Navy, 1963), 25-203.

communication capacity, boasting of an organization consisting of 600 radio stations in 38 states. The letter also highlighted ARRL's ability to provide radio communications to government officials in times of emergency. The letter concluded by stating "if we can be of any service to our country, we shall be glad to serve in any capacity requested. We offer you our complete organization and facilities."[19] The ARRL received a short response from Lieutenant Colonel Samuel Reber, acting Chief Signal Officer, stating "should at any time it be found that these stations will be of service to the War Department, you will be further communicated with." [20]

Following its letter to the War Department, the ARRL began to develop in January 1916 the idea of a "Volunteer Radio Corps." Members of the ARRL as a whole were not specifically familiar with the methods used by the government in passing message traffic: however, the ARRL proposed a dedicated group that would organize around the task of directly supporting the government with its capabilities in radio communication. The proposal maintained that a volunteer corps as a civilian organization would assist with providing communications in cases of domestic emergencies and disasters.[21]

In an attempt to maintain the momentum of the idea of association between radio amateurs and the US Army, the ARRL began to promote demonstrations of the capability amateur radio operators could provide. The Washington's Birthday Amateur Relay Message[22], conducted on February 22, 1916 served that purpose. Colonel W. P. Nicholson at the Rock Island

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[19] "National Defence. Our Services Offered To Government," *QST*, December 1915, 3-5.

[20] Ibid., 5.

[21] "A Volunteer Radio Corps," *QST*, January 1916, 16.

[22] The Washington's Birthday Amateur Relay was organized and conducted annually by the ARRL in order to demonstrate the capability of both radio and the host organization in its ability to maintain a message relay system capable of rapidly passing information across the United States.

Arsenal agreed to participate in the demonstration by providing the following message for transmission: "A Democracy requires that a people who govern and educate themselves should be so armed and disciplined that they can protect themselves."[23] The message then entered the ARRL's existing message traffic network from the amateur radio station of W. H. Kirwan, 9XE[24], in Davenport, Iowa. The intent was then for the message to travel to every end of the ARRL network, being received by amateur radio operators and then hand-carried to local public officials, state governors, and even to President Woodrow Wilson whose own message arrived at the White House three hours after it had originated from Davenport, Iowa.[25] The Relay was considered a success and attracted attention to the communication capabilities of the amateur radio operator. While it did not result in the establishment of an official relationship between the US Army and the radio amateur, it did lay the foundation for future coordination between the two.

Maintaining the momentum, gained in establishing links with the Army, in the fall of 1916, the ARRL coordinated with the US Navy radio station, NAA[26], located at Arlington, Virginia to showcase the ability of the radio amateur to support the government as well as testing the technical abilities of the Arlington station's equipment. Similar to the Washington's Birthday Relay, NAA broadcasted a message at a designated time while amateurs around the country copied the message, sending a copy of the message via US postal mail to the Superintendent of

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[23] W. H. Kirwan, "Washington's Birthday Amateur Relay Message," *QST*, April 1916, 65-69.

[24] The Department of Commerce licensed radio amateurs to operate on the airwaves by issuing them a callsign. Prior to the 1927 International Radiotelegraph Conference, US amateur callsigns started with a single digit followed by two or three letters.

[25] W. H. Kirwan, "Washington's Birthday Amateur Relay Message," 65-69.

[26] Navy radio station callsigns consisted of three letters beginning with the letter "N".

Naval Radio Services at Washington, D.C. The ARRL believed that this demonstration would further show the government the value that radio amateur operators could provide the country in times of emergency. More importantly, the ARRL attempted to influence government policy in allowing the radio amateur to maintain his bandwidth allocation within the government controlled radio spectrum provided by the Radio Act of 1912.[27] By proving their value as a non-government group making good use of its privileges in the radio frequency spectrum, the ARRL believed that those privileges would be secure from infringement by other interests.[28]

The formation of the American Radio Relay League (ARRL) in 1914 was noted by *Popular Electricity & Modern Mechanics*, which described the organization's purpose as "to establish wireless communication between far distant points thru the co-operation of amateur wireless operators thruout[*sic*] the country. The results of the organization will be unique in that never before has the transmission of intelligence over long distances been possible except thru the agency of some great corporation or Government."[29] Another purpose demonstrated through the actions of ARRL was to be the foremost lobbyist on behalf of the American amateur radio enthusiast to insure that the United States Government protected the practice of amateur radio through both legislative act and executive action.

The ARRL recognized that the Radio Act of 1912 was quite favorable to amateur radio and set about to preserve those protections. The act formally recognized the radio amateur,

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[27] Richard A. Bartlett, *The World of Ham Radio, 1901-1950* (Jefferson, NC: McFarland & Company, Inc; 2007), 23.

[28] "NAA Message," *QST*, September 1916, 261.

[29] "Editorials," *QST*, February 1924, 7.

allocated a specific portion of the radio frequency spectrum for their use, and set up regulation and licensing under the Department of Commerce.[30]

The United States preparation for World War I presented an opportunity for the ARRL to attempt to demonstrate the value of amateur radio in the hopes that it would maintain its favored status. The ARRL first proposed the formation of a "Department of Defence"[31] which would organize to "render service, valuable as well as patriotic whenever our country finds itself in need of us."[32] The envisioned service would act as a relay messaging service for the US Government, using radio technology and ARRL's organization to expedite the flow of critical information around the country.[33] Knowing of the possible threat of closure of amateur radio due to wartime security efforts, the ARRL argued that there was a "military advantage" for allowing amateur radio to continue, noting that "(w)ithout us, the Navy would lose these one thousand pairs of listening ears."[34]

Further arguing the capabilities that amateur radio could provide to a nation at war, the ARRL highlighted its membership of 5425 amateur radio stations positioned throughout the entire country to provide support to both the Army and Navy, bridging any existing communication gaps.[35] The ARRL efforts to demonstrate its usefulness during the mobilization

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[30] DeSoto, 31-3.

[31] Edgar Felix, "Department of Defence," *QST*, February 1917, 20.

[32] Ibid.

[33] Ibid., 23.

[34] "War?" *QST*, March 1917, 29.

[35] Edgar Felix, "Department of Defence," 32.

for World War I was recognized, if only in part, by the US Navy. The Navy was able to use the ARRL as a recruitment tool to fill both its regular and reserve ranks.[36]

In response to ARRL's support, the Director of Naval Communications, Commander D. W. Todd, sent a letter of thanks on May 28, 1917, to editor at *QST*, ARRL's monthly publication. He applauded the pro-Navy editorials in *QST* and used the opportunity to stress all the opportunities made available by the Navy for young men interested in radio.[37]

In the run up to the United States entrance into World War I, the ARRL hesitantly accepted the fact that security concerns could force amateur radio off the air but still held to the hope that the US Navy would allow some stations to remain on the air "to help the Navy."[38] Declining the ARRL's offer, the US Navy, assuming the wartime authority for the regulation of the radio spectrum, took control of the nation's airwaves and directed the closure of all amateur radio stations.[39] Understanding this position, the ARRL offered the resources of its organization to the US Government and urged its members to join the Army or Navy in order to apply each member's "special radio knowledge and training."[40] Responding to a US Navy shortfall of radio equipment, ARRL members were also asked to donate their personal equipment to aid the US Navy. In addition to the shortfall of equipment, the US Navy sought the ARRL's assistance in

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[36] "Our Country Calls Us" *QST*, April 1917, 25.

[37] "Commander Todd Has a Word For the Amateurs" *QST*, July 1917, 2.

[38] "If We Are Closed Up" *QST*, April 1917, 26.

[39] DeSoto, 51.

[40] "WAR!" *QST*, May 1917, 3-4, 13.

recruiting 2000 amateurs, to include disseminating an application for enlistment in the US Navy inside the July 1917 issue of *QST*.[41]

While the ARRL demonstrated its patriotism in supporting the US Navy efforts, it did so with the knowledge that after the conflict in Europe had concluded, the reopening of the amateur bands would be at the discretion of the Navy. In return for their cooperation in mobilizing amateur radio operators to donate equipment and enlist in the Navy, the ARRL expected preferential treatment from the Navy and a return to the status quo after the cessation of hostilities. However, the US Navy hesitated to give up control after the armistice of November 11, 1918, enjoying its monopoly over the radio spectrum.[42]

Turning on the ARRL after the war, the US Navy sought legislation to permanently gain control of the airwaves and eliminate the favored status that the amateur radio enthusiast had previously held. Quickly mobilizing its membership to pressure Congress, ARRL defeated the Navy's efforts, if only temporarily.[43] While amateur radio remained off the air, the US Navy began lobbying Congress to achieve the following:

> (1) the appointment of a special commission to study radio problems; (2) authorization to the President to designate specific bands of wavelengths for different classes of work; (3) a Navy monopoly of ship-to-shore radio; (4) a Navy monopoly of transocean and international radio; (5) authorization to use Navy radio stations for commercial and press business; (6) authorization to the Navy to assist American enterprise in the general development of American radio.[44]

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[41] "Big Demand Coming" *QST*, May 1917, 13; "Wanted: By Uncle Sam: 2,000 Amateur Wireless Operators" *QST*, July 1917, 3; "Application For Enrollment in the United States Naval Reserve Force" *QST*, July 1917, 7-8.

[42] "The Future Looks Safe" *QST*, June 1917, 23.

[43] "The Busted Radio Bill" *QST*, Special Bulletin 1919, 2.

[44] "The Amateur Situation" *QST*, September 1919, 5.

Congressional pressure orchestrated by the ARRL led to the September 26, 1919 announcement from the US Navy that removed the ban on amateur radio operations.[45] The heavy-handed moves by the US Navy set the tone for the ARRL's rabid defense of the privileges held by radio amateurs and further encouraged the ARRL to continue to demonstrate its unique abilities to the US Government in the hopes of establishing a permanent affiliation between the ARRL and the US Government.

Growing Importance of Radio in Support of Army Operations

World War I spurred an increase in radio research and development. During July 1917, the Chief Signal Officer established a separate Radio Division which, in 1918, transferred operations to a new facility at Camp Vail, New Jersey.[46] Despite the growth and innovation of radio technology, wire communication remained the primary signaling means during World War I.[47]

Radio, though, was present on the battlefield and acted as a backup for wire communications. Army commanders had a difficult time embracing the new technology as exemplified by the following story from the 1919 Chief Signal Officers report to the Army Chief of Staff. The story concerns a brigade of the 2nd Infantry Division which was in the middle of offensive operations on the night of September 12, 1918:

> Radio communication was practically continuous, but was seldom used. The American had learned to think in terms of the telephone, and so it was natural for

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[45] "BAN OFF!" *QST*, October 1919, Supplement.

[46] George O. Squier, *Report of the Chief Signal Officer, 1919* (Washington, DC: Department of the Army), 447-448.

[47] Ibid, 185.

> a brigade commander, whose telephone lines had been shot out, to send this radio message to the division: "I am absolutely out of all communication."[48]

Radio equipment had generally been designed to support fixed positions with some radio sets weighing up to 500 pounds. Lack of radio equipment suitable for use by frontline units did nothing to aid in the coordination of action outside the trench. Although technological advances such as the vacuum tube were introduced and the US Army adopted the use of some French made radios, "radio carried little of the war's communication load."[49]

Even though radio did not meet its full potential in World War I, many in the US Army recognized the potential value radio offered in supporting Army operations. Radio was formally adopted into the Table of Organization and Equipment for combat units at the regimental level and above. A 1921 article in *The Calvary Journal* observes that radio "is an ideal means of communication between command posts which move often and at irregular intervals with respect to each other and when the direction and distance of movement of one of the command posts is as variable as in the case of a squadron carrying out the mission of advance-guard cavalry."[50]

Technological developments in radio following World War I produced an emerging view among US Army officers that radio had reached "a stage of very efficient development"[51] and was well suited to support US Army operations in the field. No longer weighed down by heavy equipment designed to support higher echelon units, one officer advocated the applicability of

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[48] Ibid.

[49] Raines, 186.

[50] O. S. Albright, "Cavalry Signal Communications," *The Cavalry Journal*, January 1921, 36-37.

[51] O. S. Albright, "Cavalry Signal Communications," *The Cavalry Journal*, April 1921, 151.

radio in direct support of combat operations for units down to the battalion level.[52] The technical literature concerning radio that was available to the military therefore grew. Much of this information was produced in support of the growing community of civilian amateur radio enthusiasts. US Army officers outside the Signal Corps were encouraged to develop their own skills in the new science of radio by taking advantage of this increasing wealth of information.[53] Individual branches, like the Cavalry, established a formal relationship with the Signal Corps School in order to help provide its officers with the latest information concerning the advancements and application of radio to the profession of arms.[54]

The boom year for radio was 1922. Following the establishment of the first commercial radio station in 1920, growth continued at a rapid pace. In 1922, over 500 hundred new commercial stations went on the air. Major General George O. Squier, Chief Signal Officer, described radio's emergence as "the outstanding feature of the year in signal communications."[55] No longer the realm of the experimenter, radio had become ubiquitous in society. Noting the widespread popularity of radio, a coastal artillery officer observed that "everyone has come in contact with radio in some form."[56]

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[52] Sanford D. Ashford, "Radio Communication in the Coast Artillery," *The Coast Artillery Journal*, August 1922, 164.

[53] "Book Reviews," *The Journal of the US Artillery*, April 1922, 387; J. V. Matejka, "Radio," *The Journal of the US Artillery*, June 1922, 558.

[54] "Communications Literature," *The Calvary Journal*, January 1926, 101.

[55] Raines, 225.

[56] Sanford D. Ashford, "Radio Communication in the Coast Artillery," *The Coast Artillery Journal*, August 1922, 164.

The first licensed commercial broadcast radio station was KDKA in Pittsburgh, Pennsylvania. The station was run by Dr. Frank Conrad, a radio amateur, with the callsign 8XK.[57] His broadcasts started on November 2, 1920 with election coverage and grew to include music, news, and sports announcements. The popularity of the broadcasts drove the sale of radio for listeners within range of his transmitter. By 1922, sales of radios for listening to the ever growing number of commercial radio stations reached $60,000,000.[58]

The US Army's Signal School was opened at Camp Vail, New Jersey in October 1919. Positioned within easy reach of the hub of commercial radio technology development in New York City and the engineering community of the Massachusetts Institute of Technology, Camp Vail proved to be an ideal location for the development of Army signalmen and officers expected to be proficient in the latest technological developments of radio.[59]

The War Department Radio Net

Initially conceived as an emergency backup for the telephone and telegraph network that supported communications for the Army across the United States, the War Department Radio Net demonstrated that radio technology had come of age. One of the provisions of the National Defense Act of 1920 was to divide the country into nine separate corps areas. Each corps area consisted of between three and eight states with the corps area headquarters assuming administrative functions for the Army units (Regular, Organized Reserve, and National Guard)

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[57] The Department of Commerce licensed radio amateurs to operate on the airwaves by issuing them a callsign. Prior to the 1927 International Radiotelegraph Conference, US amateur callsigns started with a single digit followed by two or three letters.

[58] Bartlett, 65-66.

[59] Raines, 221-222.

within each corps area as well as a domestic defense function which included natural disaster response and relief efforts.[60]

Commencing operations in January 1922, the War Department Radio Net planned to have stations in all nine of the corps areas as well as major cities. Starting with five sites located at Washington, D.C., Fort Benjamin Harrison, Indiana, Fort McPherson, Georgia, Fort Howard, Maryland, and Fort Wood, New York, by June 1925 the network expanded to include twelve primary radio stations. One station was located in each of the nine corps areas, two acted as relay stations, and net control was located in Washington, D.C. The total network grew to encompass 164 stations that included not only Alaska but also Army ships thereby making it the largest such radio net in existence.[61]

In 1922, message traffic through the War Department Radio Net control station, WVA[62], located near Washington, D.C. initially averaged only 50 messages per day. By 1925 the average reached 600 messages a day. The Chief Signal Officer, Major General Charles McK. Saltzman, successfully promoted the network by offering its services to other government agencies to include the Post Office, Internal Revenue, Department of Justice, and others.[63] The War Department Radio net proved to be a useful service and secured an important role for the Signal Corps.

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[60] Military Organization of The United States (Fort Leavenworth, KS: The General Service Schools, 1928), 11.

[61] Raines, 224

[62] Three letter callsigns were assigned to all Army radio stations of the War Department Radio Net. Each callsign started with the letter "W".

[63] Edward F. French, "War Department Radio Net," *The Signal Corps Bulletin 30*, June 1925, 13-16.

General Charles Saltzman highlighted the degree of growth of the network in a 1926 address. He provided an example of a message he received from an Army installation at Manila, Philippines that was conveyed via radio to Washington, DC in less than three minutes over a distance of 10,000 miles. Major General Saltzman also noted the Signal Corps new association with the American Radio Relay League (ARRL) in an effort to further extend the range of the War Department Radio Net to all corners of the country. "In our big Army net, when we get a hard problem and want to reach a far distant point that cannot be reached by our system, in a pinch we can always depend on these boys [the American amateur radio operator] to get the message through for us." Major General Saltzman concluded by noting that the Signal Corps functioned as a public utility for not only the US Government, but the country as a whole.[64]

This increasing dependence on radio by the US Army during peacetime, while providing amazing value to the nation, required an increase in the number of available radio operators. Decreasing funding from Congress and the War Department drove the authorized number of active duty Signal Corps officers and soldiers consistently down. During wartime, the requirement would drastically increase and the Signal Corps wanted to be ready to meet that demand with a trained pool of civilian radio operators. The new association with the ARRL offered a potential solution to provide a source of trained manpower without incurring any financial cost.

Part of the Army's manpower problem, though, could be attributed to the policy of having individual branches (Cavalry, Artillery, and Infantry) provide their own signalmen below the division level. This policy resulted in a lack of standardization in the use of radio among the

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[64] Charles M. Saltzman, "The Signal Corps," *The Signal Corps Bulletin 34*, May 1926, 37-43.

different branches and the Signal Corps. Additionally, other branches failed to recognize the importance of soldiers serving as signalmen through their promotion systems and thus failed to attract necessary talent into the positions.[65]

The lack of standardization was the direct result of policy decisions from the April 1919 Superior Board[66] held by General John J. Pershing. The policy allowed branches other than the Signal Corps to develop and maintain their own communications soldiers.[67] The board's intent was to "examine the organizational and tactical experiences of the war." Major General George O. Squier argued against the policy change urging "a return to the former system which provided Signal Corps personnel for practically all signaling duties."[68] The role of the Signal Corps in supporting the active Army was reduced to the division signal company as well as a signal service company for each of the nine corps areas, Alaska, Hawaii, the Panama Canal Zone, the Philippine Islands, and the Signal School at Camp Vail, New Jersey. Concurrent with the reduced field presence, the National Defense Act of 1920 reduced the Signal Corps to a manning of 300 officers and 5000 enlisted men. In practice, due to increasing budgetary constraints, the Signal Corps numbers dwindled away to only 2200 enlisted men by 1926.[69]

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[65] O. S. Albright, "Cavalry Signal Communications," *The Cavalry Journal*, April 1921, 152.

[66] The Superior Board was held by General Pershing following World War I in order to identify needed changes in how the US Army was structured and functioned based on lessons learned during both the mobilization for and participation in World War I. The decisions of the board were quickly implemented throughout the Army.

[67] Raines, 219.

[68] Raines, 219.

[69] Ibid, 220.

Decreased Manpower and Growing Requirements

Despite the reduction in Signal Corps strength, the need to support the War Department Radio Net continued to increase. Quickly identified as an efficient and inexpensive method to move government communications around the country, fiscal year 1926 saw a total of 219,386 messages passed over the net.[70] The Signal Corps used the War Department Radio Net to highlight not only their continued importance to the Army (after being limited to echelons above division) but their ability to save the US government money by relying on the Signal Corps run War Department Radio Net for the transmission of government messages, rather than using, and paying for, commercial carriers.

The reality of a shrinking active duty Signal Corps, the growing requirements of the War Department Radio Net, and the desire to develop a ready pool of military trained radio operators that would be necessary in the next war, the Signal Corps turned to the civilian radio amateurs as a solution. By affiliating with the American Radio Relay League (ARRL), the lead organizing body for the radio amateur community in the United States, the Signal Corps was able to begin the process of establishing a large pool of volunteer radio operators without the expense of adding them to the Army's payroll. These radio amateurs were located in all 48 states and would be able to extend the War Department Radio Net beyond the corps area headquarters to nearly every part of the country.

The Creation of the Army Amateur

The Signal Corps maintained a favorable impression of the radio amateur. Brigadier General Edgar Russel, who had recently completed a tour in 1921 as the Signal Officer of the

[70] O. K. Sadtler, "Extract of Annual Report of Army Communication System," *The Signal Corps Bulletin 36*, October 1926, 47.

Second Corps Area, wrote to the ARRL to express his admiration for the work done by the ARRL to encourage radio experiments that included the recent success of establishing communication between two stations on either side of the Atlantic Ocean.[71]

Manpower continued to be a significant issue for the Signal Corps. The National Defense Act of 1920 limited the Signal Corps to an active duty limit of 5000. Actual manning in 1921 numbered 3000 and fell to 2184 in 1922. Only one signal battalion remained in the Regular Army, the 51st Signal Battalion at Camp Vail, New Jersey. The Superior Board had limited the Signal Corps' tactical role and it struggled to man the War Department Radio Net with trained operators.[72]

In preparation of the establishment of the War Department Radio Net, the Chief Signal Officer of the Army submitted his first invitation for cooperation between the radio amateur and the US Army. In the June 1921 issue of ARRL's *QST*, the War Department described its plans to establish radio stations in all nine of the Army corps areas operated by radio amateurs who were brought into the Army's Signal Reserve Corps. These stations would then be responsible for the radio nets within the respective corps areas.[73]

Inclusion of radio amateurs into a signal reserve failed to gain traction. Major George L. Van Deusen, Commandant of The Signal Corps School, directed his Officer in Charge of the School's Enlisted Department, Captain Tom Rives, to conduct a study on how else the Signal

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[71] "Gen Russel Congratulates A.R.R.L." *QST*, March 1922, 63.

[72] Dulany Terrett, *The Signal Corps: The Emergency*, (Washington, D.C.: Office of the Chief of Military History, 1956), 22.

[73] "Amateurs Wanted to Join Signal Reserve Corps" *QST*, June 1921, 25.

Corps could leverage the talents of the radio amateur for the betterment of the Army.[74] The Signal Corps thus recognized the potential that radio amateurs could provide as an extension to the War Department Net and that they could constitute a reservoir of trained radio operators. With the ever increasing tally of licensed amateur radio operators (a total of 16,570 licensed operators in 1923[75] - many more unlicensed), the Army saw the ARRL as a partner for affiliation.

The Signal Corps and the radio amateur thus developed a close relationship through shared endeavors in the evolution of the radio art. In June 1925, the Signal Corps' radio station located on Fort McKinley, Philippine Islands, was successful in exchanging messages between amateur stations in both Hawaii and San Francisco using high frequencies (HF) previously believed to be unusable for consistent communications.[76] These mutual developments between the Signal Corps and the radio amateur were recognized by the Chief Signal Officer's radio address in the spring of 1926 when he announced the supplementing of the War Department Radio Net with the ARRL's relay system.[77]

Beyond the expansion of the War Department Radio Net, the Signal Corps recognized the affiliation with the ARRL as "another step in the mobilization of the civilian man power of the United States for defense in the event of either a local or national emergency."[78] In the completed plan that was placed into operation on November 1, 1925, the Signal Corps wanted to accomplish

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[74] James D. O'Connell, "The Amateur and The Military Affiliate Radio System" speech delivered at the 10th National ARRL Convention, August 13, 1958, 3.

[75] "What the Department of Commerce Says About Us" *QST*, February 1924, 31.

[76] "40-Meter Record," *The Signal Corps Bulletin 32*, January 1926, 24; Clay I. Hoppough, "Short-Wave Development," *The Signal Corps Bulletin 32*, January 1926, 7-9.

[77] Charles M. Saltzman, "The Signal Corps," *The Signal Corps Bulletin 34*, May 1926, 41.

[78] "The Signal Corps Affiliation With The Transmitting Radio Amateur," *The Signal Corps Bulletin 35*, August 1926, 45.

the following: (1) solicit volunteers from the existing reserve of trained manpower represented by upwards of 25,000 amateur radio enthusiasts for use in emergency, (2) organize these volunteers amongst the nine corps areas, (3) establish radio nets for each corps area, its resident Organized Reserve division(s), as well as each state's National Guard, (4) and create a supporting relationship between the volunteer radio amateurs and Organized Reserve or National Guard units.[79]

The ARRL excitedly promoted its affiliation with the Army by publishing both the correspondence from Major General Saltzman, Chief Signal Officer of the Army, and the complete affiliation plan.[80] The listed purposes of the plan were:

> (a) To secure additional channels of communication throughout the continental limits of the United States that can be used in time of an emergency such that the land lines, both telephone and telegraph are seriously damaged or destroyed by flood, fire, tornado, earthquake, ice, or other causes. (b) To provide channels of communication for the civilian components of the United States Army; National Guard and the Organized Reserve, such that they may carry on portions of their business through these channels. (c) To provide a reservoir of radio operators trained in army methods of procedure and in the basic principles of the army's methods of using radio in the field. (d) To provide a means of establishing considerable number of radio operators and popularizing the Signal Corps and its activities with them as well as the exchanging of views on experimental work.[81]

A distinctive difference from the plan published in *QST* to the purposes described in *The Signal Corps Bulletin*, however, is the absence of the idea of assigning radio amateurs to actual National Guard or Organized Reserve units.

Continuing to promote the plan amongst its members, ARRL highlighted its affiliation with the Army in the December 1925 *QST* editorial and featured a copy of an Army Amateur

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[79] Ibid., 47-48.

[80] "The Army Links Up With The Amateur" *QST*, October 1925, 22-24.

[81] Ibid., 23.

Radio Station certificate that would be received by all radio amateurs whose applications to join the Army Amateur organization were approved.[82] In the April 1926 issue of *QST*, the ARRL established a re-occurring column called "Army-Amateur Notes" that re-emphasized the affiliation between the Army and ARRL, encouraged the growth in applicants, and detailed the development and workings of the new Army-Amateur organization.[83]

Army Amateur Development in the Corps Areas

> The 1925 plan called for three different Army Amateur radio nets:
>
> First: A corps area radio net, comprising of the headquarters of each of its Organized Reserve divisions, the governor's office in each State within its area and a corps area headquarters station acting as a net control station. Second: A division radio net for each of the Organized Reserve divisions with brigade, regimental, and such other nets as are necessary to properly provide radio communications for the units of the Organized Reserves. Third: A radio net for the National Guard of each State to be called the governor's radio net and which will comprise all of the units of the National Guard of that state, grouped into brigade, regimental, and such other radio nets as are necessary to properly provide radio communication for all of the units of the National Guard.[84]

This hierarchal structure was centered on each of the nine corps areas and intended to provide radio communications between the corps area headquarters and the individual Organized Reserve divisions and National Guard organization. Subnets allowed for radio communications between Organized Reserve division headquarters and their subordinate units as well the various National Guard units within a state.

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[82] "Editorials" *QST*, December 1925, 7; "Communication Department" *QST*, March 1926, 11.

[83] "Army-Amateur Notes" *QST*, April 1926, 48.

[84] "The Signal Corps Affiliation With The Transmitting Radio Amateur," *The Signal Corps Bulletin 35*, August 1926, 48.

A vital element in the execution of this plan was the initiative of the individual radio amateurs in establishing a supporting relationship with either an Organized Reserve or National Guard unit. To facilitate the establishment of this relationship, the ARRL appointed representatives in each of the corps areas "to act as advisors to the Signal Officers of each Area"[85] and help coordinate the efforts of the radio amateur. Tying the overall organization together was the amateur radio station at Fort Monmouth.

Fort Monmouth maintained the net control station, 2CXL, for the Army Amateur Corps Area net. Captain Tom C. Rives, a member of the Signal Corps School at Fort Monmouth, was appointed as the liaison between the Signal Corps and ARRL. His task was to coordinate with the corps area signal officers to help integrate the volunteer radio amateurs and stand up the new Army Amateur radio nets.[86]

From its initial inception, and by design, the Army Amateur organization was decentralized in its execution. Emphasis was on the individual corps area, with the real benefits to be immediately derived from the inclusion of radio amateurs amongst the supported units in the corps areas. The War Department Radio Net, with its net control station, WVA, from Fort Meyer, Virginia, already had existing and active radio communications established with each corps area headquarters. The Army Amateur corps area net, managed by radio amateur station 2XCL at Fort Monmouth, was present only to encourage the newly formed amateur radio nets emerging throughout the corps areas.

While 2XCL was a radio amateur station, the radio equipment itself had been built by Signal Corps soldiers and manned by Army radio operators who held amateur radio licenses.

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[85] "Editorials" *QST,* December 1925, 7.

[86] Ibid.

2XCL was first put on the air in 1922 and was used not just for radio communication with the amateur radio stations being established in each corps area but also for attempting long distance contacts with other amateur radio stations around the world.[87] Also available for students, the recreational use of amateur radio at Fort Monmouth worked to further develop the technical skills necessary for the graduates of the Signal School.

QST, the monthly publication of the ARRL, started a new column in April 1926, Army-Amateur Notes, to further promote the Army Amateur cooperation and highlight the specific progress in each corps area. The emphasis continued to remain on building the organization by getting individual radio amateurs to either seek out a local Organized Reserve or National Guard unit to support or send a letter to the corps area signal officer stating an intent to volunteer, and subsequently being place with a nearby Army unit.

As a decentralized organization, each corps area developed differently. Individually, most corps areas conducted their own training and published monthly newsletters for their members. The majority of all training was conducted on the air and during nets. Training included passing message traffic, encoding and decoding messages using Army ciphers, and participating in contests that recognized the most proficient radio operators. A brief examination of selected corps areas is illustrative of both the inventiveness and differences of the various corps areas.

The First Corps Area (Maine, New Hampshire, Vermont, and Massachusetts) was headquartered in Boston and quickly recruited approximately 100 stations across the corps area. In an effort to provide training and build up the competence of Army Amateur radio operators,

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[87] "Amateur Radio Stations: 2CXL-2XBB, Fort Monmouth, N.J." *QST*, May 1926, 51-53.

the First Corps Area started a nightly broadcast for Morse code practice. Included along with the Morse code practice was the basics of Army Radio Procedure.[88]

Radio amateurs of the First Corps Area subsequently participated in the Joint Army-Navy maneuvers of May 1927. The maneuvers involved the Navy acting as an invading fleet that was attempting to land hostile forces on the coast while the Army manned coast defenses and attempted to thwart the invasion. First Lieutenant David S. Boyden, the Radio Adviser on Amateur Matters to the First Corps Area Signal Officer, helped design and implement the radio amateur participation through splitting the supporting radio amateurs into three groups. The first group consisted of radio amateurs who were dedicated to intercepting "enemy" radio traffic for exploitable intelligence. The second group provided communications for coastal scouts who called in sightings of "enemy" ships via the radio. The final group was the net control station at the headquarters element. This group coordinated the efforts of the other two and acted as a central location for information flow. Both the commanding general, Major General Preston Brown, and the Corps Area Signal Officer, Major P. W. Evans, were impressed by the performance of the radio amateurs as well as the capability they provided concluding that "(t)he results of the Army Amateur activities in these exercises proves the Amateur Radio operator to be a potential factor who can be relied upon as an aid to our armed forces in the event of an emergency."[89]

The Second Corps Area (New York, Rhode Island, New Jersey, and Delaware) was headquartered at Governor's Island, New York. With the assistance of the Second Corps Area

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[88] "Army-Amateur Notes" *QST*, May 1926, II; Military Organization of The United States, 11; "2SC, Governor's Island, New York" *QST*, January 1927, 48

[89] "David S. Boyden, "Army Amateur in Joint Army-Navy Maneuvers" *QST*, July 1927, 21-23.

Signal Officer, the corps area amateur station, 2SC, coordinated to exchange encoded messages with Fort Monmouth, 2XCL, for training purposes. The radio set used by 2SC was built by the Signal Corps Repair Shop in Brooklyn. The Second Corps Area held monthly membership meetings at the Army Building in New York City which regularly drew an attendance of 300 radio amateurs. Subsequent guest speakers included the corps area signal officer, Colonel Allison, future Chief of Signal Corps Colonel George S. Gibbs, and the Army's liaison agent for the Army-Amateur affiliation from Fort Monmouth, New Jersey.[90]

The Third Corps Area (Pennsylvania, Maryland, Virginia, and the District of Columbia) took a different recruiting approach, selecting only "the most capable" radio amateurs to participate. Its corps area amateur radio station, 3SN, was on the air nightly from the corps area headquarters at Fort Howard, MD. The Fourth Corps Area (Tennessee, North Carolina, South Carolina, Georgia, Mississippi, Alabama, and Florida) was able to establish a Governor's Net for the Florida National Guard and recruited 69 radio amateurs to support three Organized Reserve divisions within the corps area.[91]

The Fifth Corps Area's (West Virginia, Kentucky, Ohio, and Indiana) association with radio amateurs went back to 1923. Despite an initial lack of interest at the corps area headquarters, two National Guard officers (First Lieutenant Loren G. Windom and Lieutenant E. L. Murrill) established a corps area net between principle cities and integrated into the Army

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[90] "Army-Amateur Notes" *QST*, December 1928, VII; "Army-Amateur Notes" *QST*, March 1927, V

[91] "Army-Amateur Notes" *QST*, May 1926, II; *Military Organization of The United States*, Fort Leavenworth, KS: The General Service Schools, 1928, 11; "2SC, Governor's Island, New York" *QST*, January 1927, 48.

Amateur net after its founding in 1925. Lieutenant Windom functioned as the original net control station, 8GZ, and the Fifth Corps Area Radio Aide.[92]

The Sixth Corps Area (Illinois, Wisconsin, and Michigan) established its corps area net control station (9AWW) in Chicago along with additional stations in Detroit (8BMW), Milwaukee (9DTK), and Madison, WI (9CCF). Three stations (9DOX, 9CBJ, and 9BRM) were able to establish a supporting relationship with Organized Reserve units and establish an Organized Reserve Net for the Sixth Corps Area. The Seventh Corps Area (North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Arkansas) was able to establish nets in support of the National Guard in both Kansas and Minnesota. The Organized Reserve Net received twenty-nine volunteers.

Development in the Eighth Corps Area (Texas, Oklahoma, Arizona, New Mexico, and Colorado) was slow with the initial establishment and operation of a Governor's Net.[93] A unique development was the inclusion of Reserve Officer Training Corps (ROTC) units into the Army Amateur plan, acting as relays specifically along the Mexican border where their usefulness in times of emergency was recognized.[94]

The Ninth Corps Area (California, Washington, Oregon, Nevada, Montana, Idaho, Wyoming, and Utah) showed little initial development with only one station (6RL) selected as an Army Amateur Radio Station.[95] With its net control station located at the Presidio of San

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[92] Loren G. Windom, "The Army Amateur Radio System, Fifth Corps Area," *The Signal Corps Bulletin 93*, November-December 1936, 27.

[93] "Army-Amateur Notes" *QST*, May 1926, II; *Military Organization of The United States*, 11.

[94] "Army-Amateur Notes" *QST*, July 1926, 50.

[95] "Army-Amateur Notes" *QST*, May 1926, II; *Military Organization of The United States*, 11.

Francisco, the Ninth Corps Area maintained daily contact with Camp Nichols, 1BD, on the Philippine Islands.[96]

All corps areas developed their Army Amateur operations independently. The Third Corps Area wanted to maintain only a small, dedicated radio amateur membership restricted to "those amateurs who have demonstrated their ability to Signal Corps officials…".[97] The Governor's Net, or state nets based out of state capitols and geared to support the National Guard, were the most popular due to the ubiquity of National Guard compared to the selected locations of the Organized Reserve divisions.

Noting the hurdle of individual radio amateurs in establishing a direct supporting relationship with units of the Organized Reserve and National Guard, in June 1926, the Signal Corps authorized the establishment of Auxiliary Radio Nets to recruit those radio amateurs who were interested in participating in the Army Amateur plan but either did not live near an Organized Reserve or National Guard unit or whose nearby units were already supported by other radio amateurs.[98] The introduction of the Auxiliary Radio Net proved very popular. It alleviated the necessity of individual radio amateurs of trying to find Guard or Reserve units that had not yet developed a supporting relationship with a radio amateur and instead allowed them to participate in an Army net and develop their radio operating skills using Army procedure. To organize these additional nets better, Second Corps Area further divided nets into district-sized areas falling beneath state nets. The Signal Corps also showed its commitment to pursuing the Army-Amateur

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[96] "Army-Amateur Notes" *QST* (March 1927): V.

[97] "Army-Amateur Notes" *QST* (June 1926): II.

[98] "Army-Amateur Notes" *QST*, July 1926, 49.

plan by filling Captain Tom C. Rives' position as the Army Liaison Agent with Captain A. C. Stanford.[99]

In summary, of the nine corps areas, the Second Corps Area showed the most promise. Despite the difficulties, they successfully established supporting relationships with both units of the Organized Reserve and National Guard. Organizers of the Second Corps Area nets noted a significant issue in coordination between radio amateurs and the Army units. These organizations were unused to working with either civilian volunteers or the implementation of radio into unit operations. The resulting problem of radio amateurs associating themselves with an Army unit was tied to the lack of understanding on the part of the Organized Reserve and National Guard units concerning the capabilities that the radio amateur offered as well as how that capability could be integrated into unit operations.[100]

Demonstrating the degree of support provided by the radio amateur to the Army, two radio amateurs (9AZN and 9BLF) provided communications for cadre conducting training at Camp Sparta, Wisconsin for National Guard, ROTC, and Civilian Military Training Corps during the summer of 1926 until the Army was able to install its own equipment.[101]

In the Fourth Corps Area, four radio amateurs assisted a Georgia National Guard unit, the 122nd Infantry, during the 1926 summer training on Tybee Island. Three radio amateurs accompanied the unit to the field and the fourth worked from Georgia's National Guard Headquarters in Atlanta. A total of 542 messages were handled between the 122nd Infantry and the Atlanta headquarters consisting primarily of operational traffic, as well as some emergency

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[99] "Captain Rives Leaves" *QST*, September 1926, 56.

[100] "Army-Amateur Notes" *QST*, June 1926, II.

[101] "Army-Amateur Notes" *QST*, September 1926, III; "Camp Sparta Peals Thunder of Artillery" *Milwaukee Sentinel*, July 16, 1926, 2.

traffic. The average turnaround time for responses between each party was approximately twenty minutes. This compared favorably against Western Union telegrams which averaged two hours. One emergency message was sent from Tybee Island to Atlanta concerning a thief who had stolen a large sum of money from the summer encampment and then made his getaway via train to Atlanta. The messaged was rapidly passed from Tybee Island to the Georgia National Guard headquarters and then to the Atlanta Chief of Police. When the thief arrived by train in Atlanta, he was successfully apprehended.[102]

In the Seventh Corps Area, four radio amateurs supported the 1926 Minnesota National Guard summer encampment with portable radio setup that was small enough to be placed in a briefcase. The radio amateurs used this portable radio to provide communication to companies training out in the field back to the cantonment area – a novel concept at this time as radio in the Regular Army was only fielded down to the battalion level.[103]

In the Ninth Corps Area, several radio amateurs were organized under the Headquarters Company Radio Section, 162nd Infantry Oregon National Guard to support their summer 1926 encampment in Medford, Oregon. These radio amateurs were used to support the 2500 soldiers of the 162nd Infantry to send personal messages back to their family and friends.[104]

The Second Corps Area used over-the-air contests and monthly membership meetings to stimulate membership in the Army Amateur plan as well as increasing the level of proficiency of its operators. The contests consisted of a message being transmitted from the net control station at a specific time. Some messages were sent in the clear and other were enciphered. The objective of

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[102] "Army-Amateur Notes" *QST*, October 1926, III.

[103] "Army-Amateur Notes" *QST*, October 1926, III.

[104] "Army-Amateur Notes" *QST*, November 1926, V.

the participating radio amateurs was to copy the messages as accurately as possible and then decipher them (if applicable). Hard copies of completed messages were then sent to the corps area net control station. Those radio amateurs that had the least number of errors were the winners and often received prizes.[105]

Contests were also sponsored by Captain A. C. Stanford, who replaced Captain Rives as the Liaison Agent at Fort Monmouth. Similar to the Second Corps Area contests, messages were sent at scheduled times on different frequencies. Those who most accurately copied the messages were recognized with their names being printed in *QST*, ARRL's monthly periodical.[106]

In the Chief Signal Officer of the Army's 1926 annual report, Major General Saltzman summarized the establishment of the Army Amateur affiliation with the following:

> For many years the Signal Corps has taken a keen interest in the amateur radio operators of the country, who have many times aroused the admiration of the nation by their contribution to radio development and research, by tremendous distances they have frequently bridged with their low-powered inexpensive home-built sets, and by the devotion they have displayed in transmitting important information when normal channels of communication have been destroyed. Thru the hearty cooperation of the American Radio Relay League and the unceasing efforts of the army corps area commanders and their signal officers, close and cordial affiliations with the amateur operators have been established. As a result there has been opened up a new and vast network of radio channels of communication which will be of great potential in time of emergency. And there has been made available to the Signal Corps a large reservoir of radio operators who will have received most valuable training in time of peace and who can be more quickly adapted to military needs in time of emergency. The establishment of such close contact with the radio amateur is a step toward better preparedness.[107]

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[105] "Army-Amateur Notes" *QST*, January 1928, V.

[106] "Army-Amateur Notes" *QST*, March 1927, V.

[107] "Editorials" *QST*, February 1927, 7.

General Saltzman's comments focus on the two areas where the Signal Corps believed that the radio amateurs could provide the most value: extension of the War Department Radio Net during peacetime and a provider of trained manpower to the Army during war. General Saltzman validates the creation of the Army Amateur affiliation as it transitioned from its tentative start to a reliable partner of the Signal Corps.

A demonstration of Army Amateur preparedness was evident during the 1927 Vermont floods. The floods were caused by a tropical storm that had moved into the Carolinas on the evening of November 2nd from Cuba. Over the next day, as the storm headed north along the east coast, it gained in strength and converged with a high pressure system moving south from Canada. The resulting storm impacted New England from Hatteras through central Vermont and western Massachusetts. The storm brought an intense rainfall to Vermont producing flood conditions that, in addition to taking lives and damaging property, cut all wire communication to the disaster area. Radio amateurs, to include members of the Army Amateur Nets, assisted in relief efforts to the disaster area and provided additional communications resources to those relief organizations around the area rendering aid. Radio amateurs continued to provide vital communications for a period of three weeks while repairs were made to the wire communication infrastructure.[108]

The Vermont floods, while demonstrating the value of the Army-Amateur relationship in support of providing emergency communications, showed that the system in place did not work as smoothly as it should have. Lessons were learned, among which were:

> (1) That a Corps Area amateur net control station and message center be established under the direction of the Corps Area Signal Officer. (2) That army

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[108] David S. Boyden, "Amateur Radio Work in New England Flood" *QST* (January 1928): I-IV.

> controlled frequency channels and calls be authorized to stations working in the affected areas... (3) That all traffic be sent through the Corps Area amateur-net control station (message center). (4) That certain stations be assigned by the net control station to accept traffic for the stations in the affected areas and deliver same to the message center for transmission. (5) That stations not engaged in handling emergency traffic refrain from transmitting. (6) That stations near other stations in the affected area offer these stations their services and any equipment they may need. (7) That as far as practicable operation shall be in the 80-meter band. (8) That stations in the affected area send out news bulletins at intervals, to be copies by intercept stations for the Associated Press. (9) Military, Fire, Police, Telephone, and Telegraph headquarters in different cities be advised as to one or more amateur stations in their city. (10) That auxiliary power supplies be made available or their availability ascertained in time of emergency. (11) That all stations not handling emergency traffic act as intercepts and where possible expedite delivery of messages. (12) That all stations should make certain even though engaged with emergency work that they do not create interference to other stations engaged in the same work.[109]

In the first large-scale use of radio amateurs to provide emergency communications through the framework of the Army, a decentralized system was therefore ineffective. Without standards of organization across and within the various corps areas, the task of providing efficient and responsive communications became that much more difficult. While the employment of radio amateurs in support of relief efforts in the flood were viewed as a success, the Signal Corps realized changes to the Army Amateur organization were required.

Finally, the Vermont flood of 1927 brought into great focus the need for a well organized structure to support emergency communications to government officials. Recognizing this need, the revised plan placed the Army Amateur Radio System not only in support of the US Army but also the Red Cross.[110]

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[109] Ibid., III.

[110] D. M. Crawford, "The Army Amateur Radio System," *The Signal Corps Bulletin 47*, March 1929, 39-45.

1929 – The Revised Plan

The 1929 revision to the Army Amateur plan accomplished much to address some of the flaws experienced in the initial execution of the 1925 plan. First, the revision established an actual name for the program: The Army Amateur Radio System. Second, the Signal Corps moved away from a decentralized structure and adopted a standard organizational structure for each corps area. Major General Gibbs, who assumed the position of the Army's Chief of Signal in 1928, had formerly been held the position of the Second Corps Area's signal officer.[111] While in that position, Major General Gibbs had significant interaction with the radio amateurs of the Second Corps Area. The revised plan directly reflected his experiences in the organization of nets in the Second Corps Area. Third, the plan recognized the complexity of radio amateurs partnering directly with National Guard and Organized Reserve units.

The objectives of the revised plan changed one of the four purposes of the organization. The revision focused on "providing the civilian radio operator with a knowledge of Army methods of radio procedure and of the basic principles of using radio in the field."[112] This is distinctly reworded from the 1925 plan's emphasis to "provide a reservoir of radio operators"[113] for the Army. The change in language indicated that the Signal Corps realized that the radio amateur represented less of a pool of manpower than they first envisioned or was perhaps an effort to bring in more membership by looking less like an active auxiliary of the Army.

To reflect the changes of a more centralized organization focused on providing emergency communications, the revised plan changed part of the net structure. The corps area net

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[111] "A New Chief Signal Officer" *QST*, February 1928, 17.

[112] Crawford, "The Army Amateur Radio System," 40.

[113] "The Army Links Up With The Amateur" *QST* (October 1925): 23.

remained in place, based out of Fort Monmouth, New Jersey. State nets, while centered on the state capitals, were no longer associated with the National Guard. State nets served as a link between the individual states and the corps area into which those states fell. Rather than a net for divisions of the Organized Reserve, the revised plan established district nets. District nets represented a subdivision of individual states and improved the state's ability to cover all regions. The last net in the revised plan was the local amateur radio net, similar to the previous auxiliary net, and intended to bring in a greater number of radio amateurs even if they could not participate in the other three nets.[114]

The 1929 plan formalized the leadership and advisory positions within the Army Amateur Radio System (AARS). The net control station at Fort Monmouth provided an Army amateur liaison agent who was responsible directly to the Chief Signal Officer and the corps area signal officers maintained the responsibility for the operation of AARS within their respective corps areas. Each corps area signal officer was assisted by a radio aide, a volunteer radio amateur who was selected by the corps area signal officer and served as the direct contact to the radio amateurs within the corps area.[115]

Radio continued to be an area of focus for the Army and was viewed for both its strategic and tactical applications. In a 1926 address to the Army Industrial War College, Lieutenant Colonel David Sarnoff, a reserve officer in the Signal Corps and future CEO of the Radio Corporation of America and the National Broadcasting Company,[116] observed that:

> (T)he existence of millions of receiving sets in the homes of the citizens of this country, together with the availability of great interconnected networks of

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[114] Crawford, "The Army Amateur Radio System," 40.

[115] Crawford, "The Army Amateur Radio System," 41.

[116] Bartlett, 55.

> broadcasting stations, will place at the disposal of the Government during any possible later war a most powerful weapon for organization and the maintenance of national morale. And this very fact, also, makes it necessary to perfect plans whereby the enemy's waves of sinister propaganda may be under control.[117]

Sarnoff again addressed the Army Industrial War College seven years later to review his findings after conducting "a study of American commercial communications systems for the purposes of providing peace-time 'set-up' that would be advantageous to national defense."[118] His study concluded the need for programs to be put into place to assure the successful transition of commercial communications systems to support wartime objectives. This included standards of training for commercial radio operators to enable their seamless transition in providing support to the military. To implement this plan, Sarnoff argued for a single government agency to "regulate American communication companies, in the public interest" which would facilitate the ease of transition for the communication industry between peace and war.[119]

The presence of radio at the tactical level of the Army continued to grow. During World War I, radios were fielded down to the regimental level. By the 1930s use of radio was extended down to the battalion level. In 1916 an infantry division was allocated five radio sets. This number grew to 74 by the 1930s.[120] The 1930s, American Field Army had the wartime requirement of 1512 radio sets. Although the infantry and artillery still put a primacy on wire communications, the inclusion of airplanes, tanks, and naval assets allowed for no other

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[117] David Sarnoff, "Radio In Relation to the Problems of National Defense," *The Signal Corps Bulletin 38*, March 1927, 38.

[118] David Sarnoff, "Communications Control in War," *The Signal Corps Bulletin 73*, March 1933, 1.

[119] Ibid., 22.

[120] James B. Allison, "Some Thoughts On Signal Communication in the Theater of Operations," *The Signal Corps Bulletin 89*, March-April 1936, 2.

alternative than the use of radio. The Army's Command and General Staff School curriculum and field maneuvers integrated the use of radio to support operational communications requirements. Radio had become part of Army doctrine.[121]

While radio emerged as a new means of communication, the Army continued to use older methods of communications along with it. In 1932 a pigeon expert conducted a lecture on the use of pigeons at the US Military Academy, West Point, New York. The lecture was followed by a demonstration in which the cadets wrote messages to their friends and families back home. The messages were then transported via pigeon to Fort Monmouth, NJ and then relayed via the Army Amateur Radio System to their intended destinations.[122]

The Second Infantry Division likewise conducted its own test in 1933 between pigeons and radio from its headquarters at Fort Sam Houston, Texas. The messages were sent from a field site twenty-two miles away from headquarters and contained encoded text that required decoding prior to delivery at Fort Sam Houston. The radio message was delivered eight minutes ahead of the pigeon-borne message but contained three errors that occurred during either the cryptography or transmission of the message. It was noted that the pigeon encountered a strong headwind that lengthened its time of delivery. The test concluded that performance of the two means of communication were "about even."[123]

The Artillery branch required fast and efficient communications between its individual firing elements and fire direction center. The Army's Chief of Artillery conducted his own test to conclude which means offered the fastest and most reliable means of communication: telephone,

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[121] J. G. Harbord, "Radio In War," *The Signal Corps Bulletin 77*, March-April 1934, 29, 34.

[122] "Timely Topics," *The Signal Corps Bulletin 69*, November-December 1932, 14-15.

[123] "Pigeons," *The Signal Corps Bulletin 74*, September - October 1933, 45-46.

wire telegraphy, or radio telegraphy. Despite the comfort level with telephone technology, it proved to introduce operator induced errors into sent and received messages. Use of telegraphy resulted in less mistakes and messages sent via radio telegraphy were delivered faster than those sent by telephone.[124]

As the Army fully integrated radio down to the battalion level, the number of required radio operators grew. Obtaining the necessary number of proficient radio operators remained the most serious problem for the Signal Corps, specifically in response to a national emergency.[125] The Signal School's course for training radio operators for both the Signal Corps (providing radio operators for the division level and above) and the other branches (providing radio operators below the division level) totaled 617.5 hours. Of this training, the great majority was used to teach Morse code. Additional training included radio procedure and basic cryptography, but the primary and most demanding skill being taught was the ability to send and receive Morse code.[126]

AARS: A Pool of Trained Operators for the Signal Corps?

To meet the expected demand, the Signal Corps continued to recognize the radio amateur as "a reservoir of expert operators, inadequate in number although it may be, is of vital importance to the successful operation of the large number of radio sets which will be necessary for military organizations in the event of future war."[127] A call for volunteers in response to a

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[124] "Comparison In Speed and Accuracy of Messages Telephoned With Those Telegraphed," *The Signal Corps Bulletin 74*, March - April 1933, 25-26.

[125] O. K. Sadtler, "Radio in the American Army," *Command and General Staff School - Individual Research*, June 1930, 12.

[126] Charles S. Stodter, "Methods Used By The Signal Corps In Training Radio Operators," *The Signal Corps Bulletin 66*, May-June 1932, 24.

[127] Fred G. Borden, "Some Peculiarities of High Frequency Radio Communications," *The Signal Corps Bulletin 73*, July-August 1933, 53.

military crisis did not assure that the radio amateur, who possessed the basic skills to become a proficient Army radio operator, would join seeking a communications position rather than a combat role. This was perceived as a failing in the mobilization for World War I with the lesson learned being that "regulations governing the selection and assignment of occupational specialists must be made immediately effective, so as to insure the most effective use of the manpower of the Nation in the prosecution of a war."[128]

One suggestion to insure the placement of Army Amateur Radio System members into military positions based on their skill set as radio amateurs was to incorporate them into the Enlisted Reserve. Another was to offer the radio amateurs courses of study through correspondence that would lead to a Reserve commission.[129] Radio amateurs consistently demonstrated resistance in making anything beyond an informal commitment to the Army through AARS. No proposal involving a formal enlistment or commissioning program between AARS and the Signal Corps ever materialized.

In his 1930 research paper for the Army's Command and General Staff College, Major O. K. Sadtler, who later served as the Office of the Chief Signal Officer's operation officer during the US entry into World War II, challenged the assumption that the United States could easily make use of amateur and commercial radio operators for military functions.[130]

> The proponents of radio have asserted that, out of this tremendous number of amateur and professional radio operators in the United States today, a sufficient

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[128] J. H. Hinemon, "Wartime Selection, Training and Replacement of Signal Corps Personnel," *The Signal Corps Bulletin 86*, September-October 1935, 4-5.

[129] Charles W. Roth, "Army Amateur Radio System, Sixth Corps Area," *The Signal Corps Bulletin 95*, March-April 1937, 52-53.

[130] "Army-Amateur Radio System Activities," *QST*, January 1942, 35; The "Army-Amateur Radio System Activities" column featured in *QST* uniquely represented the point of view from the Signal Corps as it originated from the Office of the Chief Signal Officer of the Army.

> number could be obtained without serious difficulty. Although personal experience has shown the ability of the amateur operator is much over-rated (excepting a small percentage who are first class) and that he knows next to nothing of the discipline necessary in radio net operation, it will be assumed that the amateur is capable and possessed of sufficient experience as to make him immediately available in case of national emergency. How many can pass the Army physical examination and how many will be within the legal age limits? In any event, the amateur represents material only for the initial supply. World War experiences of many officers should convince any one of the difficulty of recruiting the necessary number of capable, physically qualified radio operators to meet the needs of one Field Signal Battalion.[131]

Major Clarence L. Strike, a Regular Army Signal Corps officer serving as an instructor for the National Guard in the Fourth Corps Area observed that "a man may be an expert radio or telephone man, but until he has received thorough basic training, he never will be a good military communications man." Major Strike cites the example of high school and college-age enlistees who have prior experience with radio:

> When they get in the field they want to experiment and play with the set. They do not understand the strict discipline is necessary if radio sets in the field are to function properly. The result is that unless the communication officer has a lot of tact and a fair knowledge of radio and army equipment, he can do very little with these men, and therefore, his station never operates in the field.[132]

Despite the importance placed on the radio amateur by the Signal Corps to serve as a pool of manpower to draw from in times of emergency, no permanent personnel file system was maintained on the members of the Army Amateur Radio System. Radio amateurs, due to a variety of factors, joined, participated, and then left the AARS. Although no longer active members, their skills acquired during their participation in AARS would more than likely reduce the amount of training needed they were drafted into military service to serve as a radio operator. Even the then

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[131] O. K. Sadtler, "Radio in the American Army,"10.

[132] Clarence L. Strike, "Signal Training In The National Guard Divisions of the Fourth Corps Area," *The Signal Corps Bulletin 90*, May-June 1936, 17-18.

current membership of the AARS had no personnel records maintained beyond an informal system which varied by corps area. During a national crisis, there was no easy way to direct the members of AARS into the military service as radio operators.[133]

President Franklin D. Roosevelt's immediate priority once taking office in March 1933 was to provide job relief to the hundreds of thousands of Americans impacted by the Great Depression. The Army was formally tasked in April to help run the Civilian Conservation Corps (CCC). A program which gave responsibility to the Army to take in thousands of unemployed men around the country for purposes of providing them housing and administrative management as the men supplied the labor for public works projects.[134]

The implementation of the CCC put the corps areas under "war-time pressure"[135] and the signal officers supporting CCC operations were fully engaged. Operational communication needs for each CCC camp were significant. Coupled with the natural desire of CCC enrollees to send and receive messages from home, the existing communication infrastructure was overwhelmed. To provide relief, signal officer turned to amateur radio.

> Radio stations capable of operating as amateur stations were highly desirable because of the possibility of enrollees sending and receiving messages from their folks and friends and because the operation as an amateur station would result in considerable interest among enrollees and enhance the possibilities of working up worth-while educational and recreational activities around the radio station, with a qualified radio operator as the keystone.[136]

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[133] Charles W. Roth, "Army Amateur Radio System, Sixth Corps Area," *The Signal Corps Bulletin 95*, March-April 1937, 56.

[134] John W. Killigrew, *The Impact of the Great Depression on the Army* (Ann Arbor, MI: University Microfilms, Inc., 1960): 284-310.

[135] H. O. Bixby, "The Third Corps Area," *The Signal Corps Bulletin 92*, September-October 1936, 2.

[136] H. O. Bixby, "The Third Corps Area Civilian Conservation Corps Radio System," *The Signal Corps Bulletin 80* (September-October 1934): 31.

Many of the camps existed well outside the reach of telephone service and radio was an able solution to fill the communications gap. The Third Corps Area headquarters in Baltimore, Maryland, used the radio normally dedicated for the AARS nightly nets to support a daytime net with the CCC camps. By bridging the CCC and AARS nets, traffic originating from the CCC camps destined for family back home could easily (and with no cost) be passed to the AARS net for handling and delivery. This not only provided a valuable service to the members of the CCC but also provided training for the radio amateurs of the AARS net.[137]

The Sixth Corps Area was an exception where the development of a radio net to support the CCC was not necessary due to the existing communications infrastructure in the area. However, the demand by the CCC members to have amateur radio stations for recreational purposes at the camps led to the creation of a CCC network of radio stations even in the Sixth Corps Area. The Army recognized that beyond providing an auxiliary channel of communications or a means of recreation, amateur radio provided a vocational ability to learn electronics and radio repair.[138]

The Seventh Corps Area utilized a different approach in integrating the CCC and AARS radio nets. Amongst their CCC camps were radios that initially allowed for a dedicated daytime net to support CCC operations. To expand the existing usefulness of these radio stations, the Seventh Corps Area signal officer provided each with an additional crystal that allowed the radio stations to operate at night in state-specific nets using AARS frequencies.[139]

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[137] H. O. Bixby, "The Third Corps Area," 6.

[138] Joseph J. Grace, "The Signal Corps Activities of the Sixth Corps Area," *The Signal Corps Bulletin 95*, March-April 1937, 12, 48.

[139] James W. Hudgins, "Seventh Corps Area Army Amateur Radio System," *The Signal Corps Bulletin 97*, July-September 1937, 28-29.

Using radio to support CCC camp operations and integrating CCC radio nets with AARS nets proved to be effective in reducing communications (telephone and telegraph) costs. In the Seventh Corps Area, the average monthly communications cost was $3842.83 per month between the periods of September 1934 and August 1935. After the introduction of radios, monthly costs dropped by almost half to $1984.25.[140]

In January 1936, the Fourth Corps Area fielded thirteen radios to support the CCC camps in their area. Growing to a total of 37 radio stations supporting CCC camps across the Fourth Corps Area, the signal officers realized, in addition to the cost savings accrued through the use of radio as compared to telephone and telegraph, which the men who manned the CCC radio stations were in effect, becoming experienced Army radio operators. Their use of Army radio procedure during the CCC nets, as well as participation in the nighttime AARS nets, quickly developed a high level of proficiency for all participants. The Regular Army Signal Corps officers assigned to provide instruction to the CCC members also greatly benefited from the high operational tempo of the CCC operations to hone their own skills in the field of radio as well as an instructor.[141]

The AARS best demonstrated its capabilities in the organization's ability to provide backup communication to local, state, and federal officials in the aftermath of natural disasters. After the 1929 changes implemented by General Gibbs, the AARS structure supported an adaptable organization that enabled it to respond to floods, earthquakes, and hurricanes which had disrupted the existing landline communications infrastructure. The following are examples that highlight the AARS's contributions to providing emergency communications.

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[140] R. B. Woolverton, "Seventh Corps Area C.C.C. Communication," *The Signal Corps Bulletin 97*, July-September 1937, 32.

[141] D. W. Phillips, "C.C.C. Radio Communication in the Fourth Corps Area," *The Signal Corps Bulletin 97*, July-September 1937, 70-72.

Rising waters of the Tallahatchie River in Mississippi on December 18, 1931 led to the immediate mobilization of the Seventh Corps Area's AARS network. As the situation progressed, information was relayed from the corps area net control, W9BNT, to W3CXM, the net control station in Washington, D.C.[142] From there, the information was relayed to the Red Cross's Washington headquarters keeping them apprised of the situation and potential disaster relief requirements. A few days later, the Mississippi River threatened to overflow its banks. In response, the Fourth Corps Area AARS stood up a watch and passed updates to its corps area headquarters in Atlanta, W4SM. This information was then relayed to W3CXM in Washington. During this period of a threatening disaster, no actual damage took place to the commercial communications infrastructure.[143] However, AARS demonstrated that they had the ability to mobilize quickly and provide efficient communications in support of state and federal officials.

Another example of AARS preparations to provide emergency communications was the establishment of a hurricane radio watch. In August 1932 an Army amateur in Lake Worth, Florida, W4AWO, requested the establishment of a net to link Florida directly to the AARS station in Washington for the duration of the hurricane season.[144]

On January 16, 1933, AARS showed its rapid response capability to a snow storm that cut communications to the California towns of Olan, Lancaster, Denis, Mojave, and Palmdale. Mr. R. A. Rohrscheib, W6AIF and AARS member, responded by contacting both the local phone company and Red Cross to inform them that his AARS station was operational and was prepared

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[142] The 1927 International Radiotelegraph Conference established prefixes for amateur radio callsigns in order to determine what country an amateur was operating from. US amateur callsigns had previously started with a single digit followed by two or three letters. The new regulations preceded the callsign by the letter “K” or “W”.

[143] "A.A.R.S. News," *The Signal Corps Bulletin 65*, March-April 1932, 36.

[144] "Army-Amateur News," *The Signal Corps Bulletin 69*, November-December 1932, 17.

to relay any required communications. His primary contact to relay traffic was W6HAE in Los Angeles. However, when atmospheric conditions necessary for high frequency communication shifted and he was unable to maintain radio contact with the station in Los Angeles, Mr. Rohrscheib shifted to the corps area's alternate net frequency and was able to relay traffic through W6DPJ, in Provo, Utah, who in turn sent the traffic to Los Angeles. By nightfall on January 18, the landlines had been repaired. During the outage, Mr. Rohrscheib passed 16 urgent messages for requesting the emergency delivery of medicine as well as helping to coordinate with the highway patrol to close the roads that had been impacted by large snow drifts.[145]

The March 10th, 1933 earthquake, centered in Compton, California created significant damage in Long Beach and proved to be yet another opportunity for the AARS to provide assistance. A National Guard commander in San Pedro first requested the assistance of the AARS to pass a status report to his higher command located in Long Beach. W6DLI assisted from San Pedro and was able to work through the state net control station, W6DVD. The AARS response to this particular event demonstrated the utility in the district system outlined in the 1929 plan. District nets served as the first point for in-bound message traffic in an emergency. The state net effectively managed the flow of traffic beyond the district. Contact was also made with the Presidio of San Francisco, WLV, to update them on the developing situation. Eleven AARS operators were recognized by the Army's Chief Signal Officer for their support during this crisis.[146]

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[145] "Army-Amateur Radio System Again Steps In For Emergency Communication," *The Signal Corps Bulletin 72*, May-June 1933, 39.

[146] N. L. Baldwin, "Army-Amateur Radio System Proves Its Value in California Disaster," *The Signal Corps Bulletin 73*, July-August 1933, 48-51; MacLafferty, J. H., "The Army Amateur Radio System In The Ninth Corps Area," *The Signal Corps Bulletin 99*, January-March 1938, 22-25.

In the Seventh Corps Area, Army amateurs rapidly responded to the Nebraska flood of June 1935. The corps area radio station, WLU-W9BNT, handled reports that helped coordinate Red Cross relief efforts as well as working with the Chicago, Burlington, and Quincy Railroad to locate a passenger train that had been trapped by floodwaters.[147] A mobile station to assist the Nebraska Power and Lights Company flew with their radio equipment to a remote location and was able to relay information back through the corps area net control.[148]

The preparations carried out by the Florida members of the AARS were successfully put to the test when a hurricane struck the Florida Keys from September 3rd to 5th, 1935. Their net control station, WLRO -W4AWO, was located on the top floor of the Lake Worth municipal auditorium. The building itself was built of steel and concrete to withstand severe weather and included a stockpile of emergency supplies as well as the ability to serve as a temporary hospital. The facility was maintained mutually through both the AARS and Red Cross. For remote operations, the Florida AARS had converted a sleeping trailer into a motorized radio station, capable of deploying to the disaster area in order to provide communications. The Florida National Guard lauded the AARS response to the hurricane, recognizing many of the Army Amateurs who provided their services.[149]

The Sixth Corps Area already had a plan in place to deal with the floods that struck Southern Illinois in January 1937 and it had limited involvement for the AARS. Their plan relied

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[147] AARS radio stations that operated on Army frequencies were issued and identified themselves with three or four letter callsigns that used a "WL" prefix. When an AARS radio station operated on amateur frequencies, they used their FCC callsign.

[148] Hudgins, James W., "Seventh Corps Area Army Amateur Radio System," *The Signal Corps Bulletin 97*, July-September 1937, 25-29.

[149] Jones F. Myrl, "The Army Amateur Radio System In The Fourth Corps Area," *The Signal Corps Bulletin 90*, May-June 1936, 67-69.

on the use of unaffiliated radio amateurs rather than AARS members to provide the bulk of communications support. This was based on the assessment of the radio amateurs' adaptability in the variety of situations that would be encountered in responding to a natural disaster. The response of radio amateurs to assist in helping with the flood, however, was impressive but unorganized. Instead of helping provide communications, the uncoordinated response of the radio amateurs hindered efforts to provide emergency communications.[150]

The Texas hurricane of September 1941 cut all wire communications to the Corpus Christi and Galveston areas. Captain Tom Caswell, W5BB, was the communications officer for the Texas National Guard and operated the AARS net control station for the Texas net. The 7th Signal Company's AARS station, W5OW, based at Fort Sam Houston, served as a central point for sending and receiving message traffic to assist in the disaster response. During this crisis, AARS handled traffic for the Highway Department, State Police, Red Cross, Weather Bureau, as well as the Texas National Guard. The success of the AARS support was recognized by the Adjutant General of the Texas Guard, General J. Watt Page, the Texas legislature, and the governor.[151]

To help maintain proficiency in radio operation, AARS sponsored activities such as the Code Speed contest that was held on December 6, 1937. The contest tested the proficiency of radio amateurs copying Morse code at progressively faster speeds while maintaining the accuracy

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[150] A. V. Eliot, "Signal Activities During The 1937 Flood In Southern Illinois," *The Signal Corps Bulletin 97*, July-September 1937, 73-7.

[151] "Texas Hurricane Finds Hams Ready," *QST*, November 1941, 39, 94, 96.

of copy. These contests were sponsored by the AARS but were open to all radio amateurs as a way to promote membership in the AARS.[152]

Another popular proficiency exercise was the transmission of a message from the Secretary of War to commemorate Army Day on April 6, 1941. The message originated from the AARS net control station, WLM-W3CXL in Washington, D.C., over AARS frequencies (3497.5 kHz and 6990 kHz), AARS members copied it, and then retransmitted to non-members over radio amateur bands. This tested the AARS's ability to quickly disseminate a message as well as verify the member's competence.[153] The message from the Secretary of War also served as a means of recruiting qualified radio operators for the swelling ranks of the US Army.

The August 1941 edition of QST featured a contest based on Army radio procedure called the AARS Quiz Contest. The contest pitted corps areas against each other with the results tabulated by each Corps Area Signal Officer.[154] The ZCB Location Contest was conducted twice during 1941: first on June 2nd and then on September 8th. The ZCB (an Army radio procedural sign for intercommunication) Location Contest's purpose was to have as many AARS members contact as many other AARS members as they could within a limited time. Once contact was made, the members exchanged their cities, state, and corps area. Those with the most contacts won.[155]

Similar to the Army Day transmission from the Secretary of War, Armistice Day on November 11th, 1941, featured a transmission from the net control station of AARS with a

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[152] "Army-Amateur Radio System Activities," *QST*, March 1938, 34.

[153] "Army-Amateur Radio System Activities," *QST*, June 1941, 55.

[154] "Army-Amateur Radio System Activities," *QST*, August 1941, 27.

[155] "Army-Amateur Radio System Activities," *QST*, September 1941, 56.

message from the Chief Signal Officer of the Army.[156] The message's content served to remind the AARS membership of the seriousness of the situation in Europe and the Pacific as well as reflect what aspects of the AARS that the Army viewed as critical: an ability to provide communications in support of domestic defense and providing trained radio operators to meet the current crisis.[157]

AARS members also conducted training in areas that had direct ties to military operations and civil defense. One training operation involved finding the location of an unknown transmitting station through the practice of direction finding.[158] Radio interception was another area of training. An example took place on December 5, 1939 in which "a message was sent out on two unknown frequencies. As soon as the message was intercepted, stations were instructed to report into the corps area net the frequency and signal strength of the unknown station. Upon receipt of three such reports, the corps area net control station was to report the results and time required to get three station reports. In each corps area, the time was a matter of only a few minutes."[159] Such a capability could be applied against an attacking enemy force or saboteurs operating within the United States.

AARS members consistently conducted cryptanalysis training. Many Army-Amateur Radio System Activities columns in *QST* concluded with a cryptogram for the members to solve.[160] More formal training was offered to AARS members through a Signal Corps extension

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[156] "Army-Amateur Radio System Activities," *QST*, December 1941, 45.

[157] "Army-Amateur Radio System Activities," *QST*, January 1942, 62.

[158] "Army-Amateur Radio System Activities," *QST*, March 1938, 82.

[159] "Army-Amateur Radio System Activities," *QST*, June 1939, 43.

[160] "Army-Amateur Radio System Activities," *QST*, April 1938, 45.

course in Elementary Military Cryptography. The course was so popular amongst AARS members that there was often a waiting list to take it.[161]

To actually put the AARS member's skills to use in the field, the corps areas advocated for AARS members to have portable stations that could operate using battery power. Although the technology at the time did not allow for the small transceivers that were common by the 1960s, AARS radio amateurs were creative in designing and building their own equipment that allowed for portable operation. The success of portable operations can be seen in an exercise conducted in the First Corps Area on March 15, 1938. During this exercise the AARS partnered with the New Hampshire State Department of the American Legion to conduct a state-wide test on their ability to respond to a natural disaster. Portable AARS stations were quickly deployed to National Guard Armories, police, and fire stations and successfully provided communications to the state and local authorities.[162]

The August 1937 Japanese attack into Shanghai produced a large volume of message traffic during the ensuing evacuation of American nationals. To help lift the burden from existing military and diplomatic communication channels, the AARS Liaison Officer contacted Mr. C. R. Shekury, XU8CR, an employee of Bills Motors and resident in Shanghai. Through using AARS links in Guam (K6OCL), the Philippines (WLXR -KA1AX), and through special coordination with a British station in Hong Kong (VS6AH), traffic was relayed to Hawaii (WLXB-K6OGD), Los Angeles (WLMI-W6GXM), and the AARS net control station in Washington, D.C. (WLM-W3CXL). Mr. Shekury handled approximately 50 inbound and outbound messages a day supporting the Sixth Marines, mission institutions, and the sizeable Western community living in

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[161] "Army-Amateur Radio System Activities," *QST*, March 1939, 40.

[162] "Army-Amateur Radio System Activities," *QST*, June 1938, 32.

Shanghai. Traffic increased and by January 1937, 2890 messages had been transmitted from Mr. Shekury and 2000 received through the Army Amateur Radio System.[163]

Because of the outbreak of war in Europe President Roosevelt issued an Executive Order on September 8, 1939, to add an additional 17,000 men to the Regular Army. This action was followed by the phased call up of the National Guard and Reserve components beginning on August 27, 1940. Days later the Congressional approval of the Selective Training and Service Act of 1940 continued the rapid flow of new recruits into the Army.[164]

As the United States Army began to mobilize for war, the AARS provided a needed channel of communications for soldiers to contact their families back home, critical for morale. Normally AARS activities were suspended for the months of June, July, and August. This practice, however, was discontinued during the summer of 1941 not only to allow service members to send a message home but also to continue training AARS members on Army radio procedures and methods which received a new degree of importance.[165]

Messages to and from soldiers that were handled through the AARS were called service personnel radiograms. To handle the increased volume of radiograms, the AARS adopted the ARRL message formatting standard. This action allowed the messages to be routed through normal radio amateur channels rather than through the AARS net control in Washington, D.C., which had been operating at full capacity for some months. The Army net control station also announced that due to capacity operations already underway, the AARS would not be able to

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[163] "Army-Amateur Radio System Activities," *QST*, February 1938, 35.

[164] Marvin A. Kreidberg, *The History of Military Mobilization in the United States Army: 1775-1945*, (Washington, D.C.: Department of the Army, 1955), 571, 580.

[165] "Army-Amateur Radio System Activities," *QST*, July 1941, 37.

handle the Christmas greeting message traffic for 1941. Instead, such traffic should be handled through radio amateur channels.[166]

To improve the ability for service personnel to send a radiogram, AARS partnered with the United Service Organization (USO). The USO established clubs near military facilities allowing off-duty personnel an area for relaxation. The intent was to place amateur radio stations in each USO club. The station would then be operated by a radio amateur whose job was to send service personnel radiograms from the USO club into both the ARRL and AARS nets for delivery. The first station opened on November 10th, 1941, in New London, Connecticut, supporting the nearby naval base. In honor of its opening, Major General Dawson Olmstead, Chief Signal Officer of the Army, spoke via a special connection from Washington, D.C.[167] The Signal Corps sponsorship of the USO-AARS cooperation demonstrated the Signal Corps' acknowledgment and support of using civilian communications channels to augment the increasingly taxed War Department Radio Net.

WLM-W3CXL, which had moved from Fort Monmouth, New Jersey to Washington, D.C. as part of the 1929 revisions to the Army-Amateur plan, was the heart of the Army Amateur Radio System.[168] With its location in Washington D.C., AARS was linked directly to the War Departments Radio Network primary station, WAR; in fact, the two stations actually occupied the same room.[169] Similar to WAR, WLM-W3CXL was manned by Signal Corps radio operators

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[166] "Army-Amateur Radio System Activities," *QST*, December 1941, 45.

[167] "Army-Amateur Radio System Activities," *QST*, January 1942, 31, 60.

[168] "Army-Amateur Radio System Activities" *QST*, August 1941, 86.

[169] On November 30th, 1928, WVA symbolically changed its callsign to WAR; Dulany Terrett, *The Signal Corps: The Emergency*, (Washington, D.C.: Office of the Chief of Military History, 1956), 52.

daily, from 8am to midnight. The frequencies for operation were 3497.5 kHz and 6990 kHz.[170] During these operating hours, WLM-W3CXL maintained regular contacts with all the corps area stations, Hawaii, the Philippines, and Panama. As the net control station for the entire AARS, the majority of all message traffic was received by its operators and then relayed to its intended destination, keeping the operators busy.[171]

Using the Second Corps Area as an example, their headquarters was located on Governors Island, NY. Their War Department Radio Net station was WVP and operating in parallel nearby was the AARS station, WLN-W2SC.[172] The corps area AARS station served as the net control station for the corps area net and was assisted by an alternate net control station located somewhere else within the corps area. As the corps area net control station, WLN-W2SC communicated with subordinate stations located in New York, New Jersey, Delaware, and Puerto Rico. Each corps area headquarters maintained a similar structure for their radio operations.

As a modification to the 1929 plan, in 1936, the Chief Signal Officer eliminated the district and local nets, except where circumstances warranted their retention. The lowest level net of the AARS became the state-level net. A consequence of the elimination of the district and local nets was that individual AARS members received less on-air practice in Army radio procedure. To mitigate this, the larger state nets organized their members into shifts. The first would operate during the first 30 minutes of scheduled nets, the second would be allotted the following 30 minutes, until all members had a chance to check into the net and exchange any message traffic. The individual state nets generally met only once a week on Mondays while the corps area nets,

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[170] "Army-Amateur Radio System Activities," *QST*, March 1941, 53.

[171] "Army-Amateur Radio System Activities," *QST*, January 1938, 36.

[172] "Army-Amateur Radio System Activities," *QST*, March 1941, 53.

with usually only one station per state, operated nightly. During emergency operations, the state net was the primary net for coordination, consolidating relief efforts at the state level. Corps area contacts back with the AARS net control, WLM-W3CXL, occurred on a daily basis. As a mature communications network, AARS functioned orderly and efficiently.[173] To standout while operating in the radio amateur bands, WLM-W3CXL was authorized on June 24, 1941, by the Federal Communications Commission to change its callsign from W3CXL to W3USA with the USA standing for United States Army.[174]

In the late summer of 1941, the Chief Signal Officer of the Army coordinated an increase in available radio frequencies available for the Army. The expansion of the Air Corps drove the requirement for a greater amount of available frequencies from 3500-4000 kHz. To make room for this allocation, the AARS had to move approximately 70 of its nets that normally operated in that range.[175]

On July 26, 1941 Dr. Lawrence J. Dunn, W2CLA, was appointed to the position of Chief Radio Aide for the AARS, acting as the highest civilian level representative of the radio amateur to the Signal Corps. The Chief Radio Aide's job was to advise the Chief Signal Officer of the Army "on matters affecting the status of the radio amateur" as well as the AARS Liaison Officer, Major David Talley, "in the administration and operation of the Army Amateur Radio System."[176]

Of particular concern was the integration of radio amateurs into the developing Civil Defense structure. In addition to his duties as Chief Radio Aide, Dr. Dunn served as an advisor to

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[173] "Army-Amateur Radio System Activities," *QST*, May 1938, 51.

[174] "Army-Amateur Radio System Activities," *QST*, August 1941, 86.

[175] "Army-Amateur Radio System Activities," *QST*, September 1941, 56.

[176] "Army-Amateur Radio System Activities," *QST*, October 1941, 53.

George W. Bailey, ARRL president and chairman of the Amateur Committee of the Defense Communications Board.[177] Dr. Dunn specifically focused on integrating the AARS into civilian defense plans. The result was the urging of members of the AARS who were not fit for military service to become part of the manpower pool in assisting with civil defense communications with either the Air Raid Alarm Service or filling a civilian position as a radio operator with the War Department Radio Net.[178]

As the end of autumn 1941 neared, the AARS realized that when war came to the United States, standard operation of High Frequency (HF) bands would be eliminated due to the ability of the enemy to target and exploit those transmissions. Operation on Very High Frequencies (VHF), permitting only for line-of-sight radio contact, would offer a dependable source of radio communications that was not exploitable by an enemy force. The AARS therefore began urging its members to construct or obtain their own VHF equipment for operation on 112 MHz to allow for a local civil defense communications ability.[179]

Once the capability to operate on VHF frequencies was achieved, AARS members were instructed to integrate these VHF nets into the existing HF nets. Net control stations had to maintain the ability to operate on both HF and VHF as they would become the link between the two networks. The corps area commanders expressed confidence in the idea of leveraging the

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[177] The Defense Communications Board was established by President Roosevelt in 1940. The Board reviewed the country's civilian communications infrastructure and assumed wartime responsibility of civilian radio requirements; Ronald Garay, "Guarding The Airwaves: Government Regulation of World War II American Radio," *Journal of Radio Studies*, 1995-1996, 139.

[178] "Army-Amateur Radio System Activities," *QST*, November 1941, 51.

[179] "Army-Amateur Radio System Activities," *QST*, December 1941, 45.

abilities of radio amateurs for civil defense and AARS believed they would have a distinct part to role in protecting the United States.[180]

In 1941, of the approximately 58,000 licensed radio amateurs in the United States only 3-4% were active members of AARS.[181] The advertized membership requirements for AARS were not stringent. An applicant had only to display an interest, a willingness to cooperate, and be reliable and prompt in displaying the ability to participate in weekly AARS nets.[182] In certain corps areas, prospective members were specifically recruited in areas where natural disasters like floods and hurricanes were common. This provided a greater ability of AARS to assist in its mission of providing emergency communications.[183] Other corps areas had "closed their roles" - instituting artificial caps on membership and were very selective on who they would bring in.[184]

To help spur membership in AARS, as well as recruit radio amateurs for service in the Signal Corps, the net control of the War Department Radio Net, WAR, began regular contacts with civilian amateur radio stations. These exchanges were initiated by Major General Joseph O. Mauborgne, Chief Signal Officer of the Army, on December 3, 1940 in a contact with the ARRL's flagship station, W1AW, operated by George W. Bailey. Major David Talley, with the additional duty as the AARS Liaison Officer, worked with the Signal Corps radio operators at WAR (who were in the same room as those who operated the AARS net control, WLM-W3CXL)

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[180] "Traffic," *Signal Corps Information Letter*, December 1, 1941, 31.

[181] "Army-Amateur Radio System Activities," *QST*, August 1941, 27; "Army-Amateur Radio System Activities," *QST*, January 1938, 82.

[182] "Army-Amateur Radio System Activities," *QST*, September 1938, 33.

[183] "Army-Amateur Radio System Activities," *QST*, October 1938, 51.

[184] "Army-Amateur Radio System Activities," *QST*, March 1939, 40.

to carry out this program of civilian to military radio contacts. Major Talley, a reservist and radio amateur, had formally occupied the civilian position of Radio Aide in the Second Corps Area.[185]

Mobilization for War

As mobilization for World War II unfolded, the need for experienced radio operators swelled. The Navy sought early on to attract thousands of radio amateurs while the Signal Corps and Air Corps asked for hundreds.[186]

The Naval Communication Reserve (NCR) was setup in 1925, coinciding with the establishment of the AARS. It functioned similarly to the AARS in holding regular nets between continental Naval Districts and Washington, D.C. A primary difference between the two organizations was that members of the NCR were either enlisted or commissioned in the Naval Reserve. In 1940, as the US Navy began expanding its active force, the NCR remained a trained pool of operators from which the Navy could directly draw.[187] By May 1941, the NCR was deactivated: all its members were either on active duty or in the process of being called up.[188]

In an effort to access the potential of the radio amateurs' service in the Army, the War Department sent out WD OCSigO Form No. 170 to all United States radio amateurs holding a current license. Each Corps Area Signal Officer was responsible for the survey in their corps area and used the AARS members to facilitate the process. The survey also served as a means of further advertizing for membership in the AARS. After the data was collected by each corps area,

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[185] "Army-Amateur Radio System Activities," *QST*, February 1941, 47.

[186] K. B. Warner, "It Seems To US," *QST*, September 1940, 7.

[187] John L. Reinartz, "Naval Communication Reserve Notes," *QST*, September 1940, 29.

[188] "What The League Is Doing," *QST*, June 1941, 34.

it was then submitted to Washington, D.C. for tabulation.[189] Surveys were completed by over 41,000 radio amateurs (of the approximately 58,000 who held valid licenses). The results revealed that the majority of radio amateurs were not eligible for active military service. The average age of the radio amateur was 30.5 and 60% were married, had dependents, or in draft-ineligible physical condition.[190] These demographics therefore proved that AARS did not represent a prime manpower pool for an Army preparing for war.

As conscription began to draw those who were eligible for military service, the only way the Army knew if a draftee or volunteer held a radio amateur license, or had experience as a member of the AARS, was through self-identification at the induction station. ARRL urged potential inductees to take their FCC amateur license with them.[191] However, if the radio amateur chose not to disclose his previous training then it was unlikely he would end up in a radio operator's position.

A few disgruntled Army inductees wrote to *QST* to complain that even after self-identification as an experienced radio amateur, they were placed in non-radio positions or if placed in a radio operator's position, they did not actually get to operate a radio.[192] An inductee was successful and wrote *QST* to recommend other potential inductees request to be sent to Fort Monmouth, New Jersey for radio training. The new soldier said not only was the radio training at Fort Monmouth good, the food was much better than at other Army camps.[193]

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[189] "What The League Is Doing," *QST*, February 1941, 22; "Army-Amateur Radio System Activities," *QST*, April 1941, 100; "Army-Amateur Radio System Activities," *QST*, June 1941, 55.

[190] "Army-Amateur Radio System Activities" *QST*, November 1941, 51.

[191] K. B. Warner, "It Seems To US," *QST*, November 1940, 7.

[192] "Correspondence From Members," *QST*, July 1941, 42.

[193] "Signal Corps Radio School," *QST*, August 1941, 49.

In the November 1941 issue of *QST*, the ARRL saw forecasted the roll of the radio amateur should the United States go to war. The ARRL realized, with a sense of frustration, that there would be no direct collaboration between the radio amateur and the military in support of national defense. Those radio amateurs who were fit for military service were encouraged to join and contribute to the war effort. The majority of radio amateurs who were not fit for service were to prepare themselves to provide backup radio communications for state-level civil defense programs. Radio amateurs were encouraged to focus their contributions to local authorities and use VHF equipment to support short range emergency communications.[194]

AARS membership in November 1940 totaled 2307.[195] By the following year that number decreased to only 2192.[196] Just prior to the United States entry into World War II, AARS membership showed 2159 active members.[197] While no record was kept as to the numbers of AARS members who joined the Army, the decrease of 148 from 1940 to 1941 most likely indicates the number of AARS members who were eligible for military service and went into the Army. The remaining members composed what was left of the AARS prior to the Japanese attack on Pearl Harbor. By spring 1942, the majority of radio amateurs who were eligible for service had joined the military with 12,000 of the 58,000 licensed radio amateurs in uniform.[198]

On December 8, 1941 the FCC issued Order No. 87 suspending amateur radio operations in the continental United States as well as its overseas territories and possessions. Additionally, the FCC delegated the ability to authorize use of amateur radio in support of national defense to

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[194] "It Seems To Us," *QST*, November 1941, 7-9.

[195] "Army-Amateur Radio System Activities," *QST*, February 1941, 80.

[196] "Army-Amateur Radio System Activities," *QST*, December 1941, 46.

[197] "Army-Amateur Radio System Activities," *QST*, February 1942, 66.

[198] " Army-Amateur Radio System Activities," *QST*, May 1942, 42.

the Defense Communications Board. Local, state, and federal authorities who wished to use amateur radio to support its civil defense planning had to get permission first through the Defense Communications Board.[199]

The Chief Signal Officer of the Army issued the Message No. 49 which was the last transmission by the AARS net control WLM-W3USA on December 8, 1941. The message below constitutes the Signal Corps' final attempt to bring AARS members into active Army service, either uniformed or in a civilian role:

> ALL AMATEUR RADIO OPERATIONS INCLUDING THE ARMY AMATEUR RADIO SYSTEM ARE SUSPENDED FOR THE PRESENT STOP CIVILIAN DEFENSE AGENCIES REQUIRING USE OF AMATEUR RADIO FACILITIES SHOULD MAKE SUCH REQUESTS TO DEFENSE COMMUNICATIONS BOARD FOR CONSIDERATION STOP THE WAR DEPARTMENT TODAY ISSUED AN APPEAL FOR RADIO OPERATORS STOP MEMBERS OF THE ARMY AMATEUR RADIO SYSTEM AND OTHER AMATEUR RADIO OPERATORS WHO ARE ELIGIBILE FOR MILITARY SERVICE ARE NEEDED AT ONCE FOR THE SIGNAL CORPS STOP AMATEUR RADIO OPERATORS WHO ARE BEWTEEN THE AGES OF 18 AND 35 UNMARRIED AND IN GOOD PHYSICAL CONDITION ARE URGED TO VOLUNTEER THEIR SERVICES AT ONCE DURING THIS NATIONAL EMERGENCY STOP RADIO AMATEURS QUALIFIED FOR ACTIVE SERVICE SHOULD APPLY AT ONCE TO THE NEAREST ARMY RECRUITING STATION OR TO THE SIGNAL OFFICER AT THE HEADQUARTERS OF THE RESPECTIVE CORPS AREAS FOR FURTHER INFORMATION AND ENLISTMENT STOP AMATEUR RADIO OPERATORS WHO, BECAUSE OF MARTIAL STATUS, AGE, SLIGHT PHYSICAL DEFECTS OR OTHER REASONS MAKING THEM INELIGIBLE FOR ACTIVE MILITARY SERVICE ALSO ARE NEEDED BY THE WAR DEPARTMENT TO SERVE IN A CIVILIAN CAPACITY IN ARMY RADIO STATIONS AT CORPS AREA AND OTHER HEADQUARTERS STOP THESE CIVILIAN RADIO OPERATORS WOULD RELEASE THE PRESENT ENLISTED MEN FOR MILITARY DUTIES STOP INTERESTED MEN SHOULD APPLY BY MAIL OR IN PERSON DIRECTLY TO THE CORPS AREA SIGNAL OFFICER AT THE

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[199] "War Comes! We Take Our Posts In The Country's Defense," *QST*, January 1942, supplemental.

HEADQUARTERS OF THEIR RESPECTIVE CORPS AREA FOR FURTHER DETAILS IN THIS CONNECTION.[200]

On December 10th, 1941, the Chief Signal Officer sent a message to all the corps area commanders, responsible for recruiting, requesting the transfer of all recruits who presented their amateur radio license to a Signal Corps training center. General Olmstead attempted to make sure that recruits who were already familiar with radio would come to the Signal Corps and not another branch.[201]

The AARS had suspended its operations and requested members to either enlist for the Signal Corps or seek a position as a civilian radio operator working for the US Army. The appeal for qualified radio operators was followed by a coast-to-coast tour in April and May 1942 by representatives from both the Civil Service Commission and the Chief Signal Officer. They traveled to Los Angeles, San Francisco, Denver, Dallas, New Orleans, Atlanta, Cincinnati, Pittsburgh, Boston, New York, and Philadelphia to entice those experienced in radio to serve.[202]

By early January 1942, about 2000 radio amateur stations had been reactivated to function in a civil defense role. The Air Raid Precautions (ARP) services, which functioned underneath the Office of Civilian Defense (OCD), received the most attention and was where the majority of radio amateurs channeled their efforts. The ARP performed duties such as neighborhood wardens who verified compliance with wartime regulations to prevent against air attack as well as augmenting first responders like the fire department and police who would carry out critical functions after an attack occurred. Local communities stood up control centers to

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[200] "Army-Amateur Radio System Activities," *QST*, February 1942, 31.

[201] "Army-Amateur Radio System Activities," *QST*, February 1942, 66.

[202] "Army-Amateur Radio System Activities," *QST*, June 1942, 37.

manage these functions and employed the use of radio amateurs to support communications amongst the various elements should the wire communications infrastructure become damaged.[203]

AARS radio stations were not among the amateur radio stations that were reactivated. Instead of using the existing organizational structure of AARS, the OCD created the War Emergency Radio Service on May 28, 1942 to fill the void created in the absence of the AARS by functioning as a wartime radio service to meet the need for an emergency communications capability supporting civil and national security requirements.[204]

As the AARS plan had not setup a specific method to bring its members onto active duty in times of national emergency, the US Army, after the suspension of AARS on air activities, lost contact with the membership. No data exists to determine the number of AARS members who entered the service, but of those who did enter, not all were assigned to the Signal Corps.[205]

Conclusion

The Army Amateur Radio System, as envisioned in its original creation in 1925 and restructuring in 1929**,** was to serve two primary functions for the Signal Corps. First, the AARS was intended to provide emergency communications to local, state, and federal authorities in response to natural disasters that had disrupted the wire communication infrastructure. Second, the AARS was to provide a pool of radio operators trained in the use of Army procedures and methods for radio communications. The AARS succeeded in accomplishing the former, but failed to meet expectations in the later.

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[203] "It Seems To Us," *QST*, February 1942, 7-13.

[204] The War Emergency Radio Service: Civilian Defense Stations, OCD Publication 3040 (Washington, DC: US Office of Civilian Defense, 1943), v, 1.

[205] Harris Thompson, et al., *The Signal Corps: The Test* (Washington, DC: Center of Military History, 1957), 39.

After the attack on Pearl Harbor, the Signal Corps no longer had an obligation to maintain a domestic organization to provide emergency communications as that function fell to the Office of Civilian Defense. While the organizational structure of the AARS would have been a good match to assume the responsibilities of providing back up wireless communication for civil defense, the Office of Civilian Defense created its own organization from scratch. The AARS was an Army creation. The Army's focus had now moved overseas and was not on civil defense. While the Army realized the value of the AARS in supporting civil defense, the function of civil defense had moved to the purview of the Office of Civilian Defense, not the Army.

While the Signal Corps attempted to push the remainder of its AARS members into either active service with the Signal Corps or as a civilian employee of the US Army, its lack of emphasis in building an AARS organization that was populated with military-eligible members combined with no actionable plan to bring AARS members onto active duty in times of national emergency resulted the AARS providing little assistance to the United States as it faced its greatest crisis of the 20th century.

The AARS both succeeded and failed at meeting its intended missions. The organization was formed to accomplish a peacetime and wartime function. During peacetime, AARS extended the communications capability of the War Department and provided a backup emergency communications capability for local, state, and federal authorities reacting to natural disasters that had disabled existing landline communications. The wartime function of the AARS was based on the organizations ability to provide a manpower pool of trained radio operators to the Signal Corps.

As a peacetime organization, the AARS was successful. From its implementation in 1925 and restructuring in 1929, the AARS ably performed its peacetime function. The organization initially helped provide communications for National Guard and Organized Reserve units. Later the AARS helped extend the communications structure that supported Civilian Conservation Corps camps. Prior to the United State's entrance into World War II, the AARS provided the

ability of service personnel to send and receive messages from home. The AARS demonstrated a record of support in support of natural disaster relief efforts across the country.

The AARS failed in the accomplishment of its wartime mission. The Signal Corps envisioned the AARS constituting a reservoir of radio operators trained in Army radio procedure. In time of national mobilization, the Signal Corps intent was for these trained radio operators to enter the ranks of the Army, saving countless weeks of delay in technical and operator training. The AARS members were proficiently trained in Army radio procedure and capable of fulfilling the role of an Army radio operator. However, the organization never grew its membership to large numbers that could provide a difference in fulfilling the manpower gap during wartime mobilization. Finally, there was no mechanism in place to bring the members of AARS on active duty when mobilization for World War II began.

The 2009 MARS redirection towards providing emergency communication support to local, state, and federal officials has resonance in the previous success achieved by the Army Amateur Radio System. MARS can learn from the history of the AARS. Centrally organized, taking advantage of the initiative of the individual corps areas, the AARS was an accomplished organization with a track record of success in providing emergency communications. If MARS embraces their mission to the extent that the AARS did, MARS will provide civil authorities with a valuable resource in a time of crisis.

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