

United States Early Radio History By Thomas H. White

Excerpted from Thomas H. White's excellent online resource
<http://www.earlyradiohistory.us>

Period Overview (1896-1927)

General reviews of the individuals, activities and technical advances which characterized this era.

Radio -- signaling and audio communication using electromagnetic radiation -- was first employed as a "wireless telegraph," for point-to-point links where regular telegraph lines were unreliable or impractical. Next developed was radio's ability to broadcast messages simultaneously to multiple locations, at first using the dots-and-dashes of telegraphic code, and later in full audio. Although "electromagnetic radiation" is the formal scientific term for what Heinrich Hertz produced with his spark transmitter, in addition to "radio" numerous other descriptive phrases were also used in the early days, including various permutations of "Hertzian waves," "electric waves," "ether waves," "spark telegraphy," "space telegraphy," "aerography" and "wireless." (In the November 30, 1901 *Electrical Review*, a letter from G. C. Dietz offered "atmography" as the answer to "What Shall We Call It?", but the suggestion fell on deaf ears). What's the difference between wireless and radio? "There ain't none" -- both refer to the exact same thing -- explains Edward C. Hubert in "Radio vs. Wireless," from the January, 1925, *Radio News*.

In 1917, Donald McNicol wrote about the importance of documenting radio's "historical narrative," noting, "I believe it to be the duty of those acquainted with views and facts of its introduction to set [the most illuminating essentials] down for the inspection of the ultimate historian." McNicol's overview of radio's beginnings, "The Early Days of Radio in America," from the April, 1917 issue of *The Electrical Experimenter*, covered significant events, articles, books and individuals during the period from 1896 through 1904, beginning with Guglielmo Marconi's groundbreaking demonstrations in Great Britain. In the June, 1917 *Proceedings of the Institute of Radio Engineers*, Robert H. Marriott comprehensively reviewed the technical advances plus the struggles and character flaws of much of the early U.S. radio industry from 1899 to 1915, in "United States Radio Development."

The transformation of radio, from scientific curiosity to a practical

communications technology, was due to incremental improvements in a variety of areas. "Radio Detector Development" by H. Winfield Secor, which appeared in the January, 1917 issue of *The Electrical Experimenter*, reviewed advances at the receiving end, starting with the micrometer spark gap used by Heinrich Hertz, followed by various magnetic, electrolytic, and crystal detectors, and finally the very important improvements in three-element vacuum tubes.

The U.S. Navy quickly recognized radio's potential. Following successful tests by Italy and Great Britain, the Navy Department's 1899 annual report noted that Marconi equipment would soon be evaluated, "in order to determine its usefulness under service conditions." These tests quickly convinced the Navy of the value of radio, and three years later R. B. Bradford, Chief of the Bureau of Equipment, reported that, "There is no navy, so far as the Bureau is aware, which has not given special attention to this subject." The U.S. Navy began to equip its entire fleet with transmitters, and also set up an extensive chain of coastal stations. Radio was also employed as an aid to civilian and military navigation. By 1908 the Hydrographic Office and the Naval Observatory reported that warnings about sea obstructions, plus daily time signals, were being "sent broadcast" on regular schedules by the Navy's coastal stations according to *U. S. Navy Department Annual Report Extracts: 1899-1908*. The Navy's impact on U.S. radio communications would continue to expand. In 1913, numerous shore stations started to handle commercial traffic in areas where there were no private stations, meanwhile, naval leaders lobbied for a government monopoly of radio transmitters. Finally, in April, 1917, with the entrance of the U.S. into World War One, the government, led by the Navy, took over control of all radio communications for the duration of the conflict according to *U. S. Navy Department Annual Report Extracts: 1909-1918*. (A book published in 1963, *History of Communications-Electronics in the United States Navy* by Captain Linwood S. Howeth, USN (Retired), is a comprehensive history of activities in the U.S. Navy through 1945).

The United States Department of Agriculture also rapidly foresaw radio's possibilities. Beginning in 1900, the department financed some of Reginald Fessenden's early research, until the two sides had a falling-out. But the department continued to work, at times haltingly, to develop radio applications, at first for gathering reports, and then for distributing them over a broad area. The Agriculture Department was responsible for some of the earliest radio broadcasts, including weather reports in 1912, although the first transmissions were in telegraphic code according to *U. S. Agriculture Department Annual Report Extracts: 1898-1927*.

Pioneering Amateurs (1900-1917)

Radio captured the imagination of thousands of ordinary persons who wanted to experiment with this amazing new technology. Until late 1912 there was no licencing or regulation of radio transmitters in the United States, so amateurs -- known informally as "hams" -- were free to set up stations wherever they wished. But with the adoption of licencing, amateur operators faced a crisis, as most were now restricted to transmitting on a wavelength of 200 meters (1500 kilohertz), which had a limited sending range. They successfully organized to overcome this limitation, only to face a second hurdle in April, 1917, when the U.S. government shut down all amateur stations, as the country entered World War One.

Beginning in the late 1880s, Heinrich Hertz conducted a series of experiments in Germany which proved the existence of radio waves. Moreover, the devices used in early radio demonstrations could readily be constructed by self-trained individuals -- in the July 6, 1894 *The Electrician* (London), Oliver Lodge, reviewing "The Work of Hertz," noted that, "Many of the experiments lend themselves to easy repetition, since they require nothing novel in the way of apparatus except what is easily constructed; many of them can be performed with the ordinary stock apparatus of an amateur's laboratory." A few months later, 21-year-old Guglielmo Marconi began his historic experiments on his father's Italian estate.

Prior to late 1912, there were no laws or regulations restricting amateur radio transmitters in the United States. The industrialized Northeast quickly became congested with a mixture of competing amateur and commercial stations, and it was the amateur operators who sometimes dominated the airwaves, as recounted in Irving Vermilya's "Amateur Number One," from the February and March, 1917 issues of *QST* magazine. (Vermilya came from the ranks of a group which provided a number of the earliest radio enthusiasts -- amateurs operating private telegraph lines, who wanted to expand their range without the bother of having to ask the "Mr. Taylors" of the world for permission to string their wires. "Amateur Telegraphers," from the August 6, 1892 *Electrical Review*, included a plan in Cranford, New Jersey to interconnect 30 locations by telegraph lines.) Although most amateur enthusiasts were male, in 1911 a young woman, who worked as a landline telegrapher but hoped to someday become a shipboard radio operator, joined the New York City-area airwaves. Her personal review of early radio, "Autobiography of a Girl Amateur," appeared anonymously in the March,

1920 *Radio Amateur News*. "The Feminine Wireless Amateur," from the October, 1916 *The Electrical Experimenter* reviewed female amateur and professional radio operators.

It was difficult at first for amateur experimenters to find technical information about radio. In "Hertzian Waves," the November, 1901 issue of a mechanical and electrical hobbyist magazine, *Amateur Work*, included construction information for a simple transmitter and receiver, similar to what Heinrich Hertz had used. Another early resource was "How to Construct An Efficient Wireless Telegraph Apparatus at Small Cost," by A. Frederick Collins, from the February 15, 1902 *Scientific American Supplement* -- in 1917, Donald McNicol reported that within the United States "this article did more to introduce the art of amateur radio than anything else that had appeared." Many early amateurs were young, and most built their own spark-transmitters and receivers. *Amateur Work's* June, 1904 issue, "Wireless Telegraph Plant By Amateur Work Readers" showcased the efforts of two Boston, Massachusetts 8th graders, who had built a set capable of covering eight miles (12.8 kilometers). And the September, 1906 *Technical World Magazine* included an article by M. W. Hall, "Wireless Station in Henhouse," which featured the activities of two Rhode Island teenagers. Over time radio technology became more refined, and an eight-part series beginning in the September, 1916 *Popular Science Monthly*, "How to Become a Wireless Operator" by T. M. Lewis, provided detailed plans for constructing a tuned spark transmitter and crystal detector receiver.

One of the first companies to sell affordable radio equipment to experimenters and amateurs was the Electro Importing Company of New York City, set up in 1904 by Hugo Gernsback, an 18-year-old immigrant from Luxembourg. Beginning in 1905, this company sold what may have been the first complete radio system -- including both a simple transmitter and receiver -- offered to hobbyists on a national scale, under the name of Telimco Wireless Telegraph Outfits. The first national advertisement for Telimco outfits -- possibly the first-ever advertisement by a company offering an inexpensive complete radio system to non-professionals -- appeared in the November 25, 1905 issue of *Scientific American*. The Electro Importing offerings were later expanded, and in a 1910 catalog, which featured "Everything for the Experimenter," the company claimed it was "the largest makers of experimental Wireless Material in the world." The basic Telimco systems, plus other radio transmitting and receiving equipment, are included in a 1910 extract from *Electro Importing Company: Catalogue No. 7*.

Hugo Gernsback would continue to be one of amateur radio's strongest proponents during its first years. In addition to the radio equipment sold through his Electro Importing Company, Gernsback started three magazines with large amateur followings -- *Modern Electrics* in 1908, *The Electrical Experimenter* in 1913, and *Radio Amateur News* in 1919. He also claimed credit for coming up with the idea of assigning amateurs to 200 meters, dating to an editorial which appeared in the February, 1912 issue of *Modern Electrics*. Gernsback's other accomplishments were recounted in a rousing review which closes with, "Long live the Wireless! Long live the Amateur!!" in "Wireless and the Amateur: A Retrospect," from the February, 1913 *Modern Electrics*. And the 1914 *Electro Importing* catalog included "A Sermon To Parents," written by Gernsback, which predicted that, "Electricity and Wireless are the coming, undreamed of, world-moving forces" and were also the perfect hobby, because, "It Keeps Your Boy At Home."

The number of amateur radio enthusiasts started to expand, especially in the industrial northeast. The October, 1908 issue of *Electrician and Mechanic* reported on this growing "mania" in wireless telegraph stations in Baltimore, meanwhile, "Night Air Full of Wireless," from the April, 1909 *Modern Electrics*, noted that hundreds of amateur experimenters were now active in the New York City area. The "Wireless" Devotees of Chicago, which appeared in the July 21, 1910 issue of *Electrical World*, reported that, "There are estimated to be not less than 800 amateur stations in Chicago," who were practicing a form of self-regulation -- one rule being "Don't interfere with commercial stations, or one day you will miss your antennae." At this point national magazines began to help amateurs to organize. In mid 1908, *Modern Electrics* notified its readers that it was preparing a "Wireless Registry" of amateurs, and was planning to publish an annual national "Blue Book" listing -- its July, 1908 review of the Wireless Registry listed the first ten members. A few months later, the January, 1909 issue of *Modern Electrics* announced its formation of a free "Wireless Association of America" -- by January, 1910 the W.A.O.A., now claiming 3,000 members, was rallying its membership to fight the proposed Roberts bill, warning that, "Congress threatens to pass a law licensing all amateurs." Meanwhile, in its September, 1908 issue, *Electrician and Mechanic* reviewed the 114 charter members of its own free organization in The Wireless Club, which promoted both national and local groups of amateurs. The magazine's first locally affiliated group, "Wireless Club 1," was formed in Chicago, Illinois, and beginning with its October, 1908 issue, a new monthly "Wireless Club" column featured news of interest to amateurs and experimenters.

Eventually, interference being caused by amateur antics, again especially in the Northeast, began to get national attention. "Regulation of Wireless," from the March 3, 1906 *Electrical World*, commented on the trouble being caused by local amateurs to the Navy's station at Newport, Rhode Island, and suggested that, "the time has now come when in wireless telegraphy it is either regulation or chaos." In its January, 1909 issue, *Editorials in Electrician and Mechanic* reported that the magazine would not be releasing an updated list of commercial stations, because the companies were upset about the disruption being caused by amateur stations trying to contact them. The magazine also cautioned its readers not to interfere with commercial and Navy operations, noting: "Don't get the idea that the ether is free, for Uncle Sam has police powers even over the ether, if he cares to exercise them." The U.S. Navy in particular had problems, partly due to the use of primitive and inefficient equipment. In the February 27, 1909 *The Outlook*, "Wireless Interlopers" commented on the amateur interference which had blocked the Navy's attempt to contact the "Great White Fleet" as it returned from an around-the-world voyage. "Wireless Interference," by Robert A. Morton, which appeared in the April, 1909 *Electrician and Mechanic*, reported that although some amateur stations had helped out by handling Navy traffic when the naval stations were out of commission, others had responded to interference complaints from the Boston naval station with comments along the lines of, "Who ever heard of the navy, anyway? Beat it, you, beat it." Morton later covered many of the same topics in a general circulation publication with "The Amateur Wireless Operator," in the January 15, 1910 *The Outlook*.

The above two Morton articles include some of the first written references to an amateur radio operator as a "ham" -- a term with an interesting history. At the start of the 1900s, "ham" was sometimes used to refer to someone as "unskilled" -- "Ham actor" being the most common example. Wire-line telegraphy employees at this time had a rich vocabulary of insults for describing less-than-capable operators, and in The Slang of the Wire section of "Telegraph Talk and Talkers," from the January, 1902 issue of *McClure's Magazine*, author L. C. Hall noted, "It is an everyday thing to hear senders characterized as Miss Nancys, rattle-brains, swell-heads, or cranks, or 'jays,' simply because the sound of their dots and dashes suggests the epithets." Hall's review further noted that, "senders of hog-Morse, called technically 'hams'" were known for their propensity for transmitting garbled Morse code.

In the early days of radio, many U.S. amateurs operated with skill and efficiency, but a few others did not, and in this unregulated era they were a nuisance to both commercial stations and fellow amateurs. (The 1918 edition of the Electro Importing Company's *Wireless Course*

cautioned that, “many otherwise well grounded students of wireless, who think they can operate, succeed in charging the ether with a nondescript series of spasmodic signals intended for the code, which are enough to make good old S. F. B. Morse himself turn over in anguish.”) An extract from Irving Vermilya’s 1917 “Amateur Number One” recounts the adventures of one struggling New York City-area amateur, circa 1910, who proved so incompetent that an exasperated commercial operator eventually christened him “The Queen of the Glue Factory.” So it was natural, in light of wire-telegraph practice, to label less capable amateurs as “hams.” But, interestingly, over time “ham” would lose its negative meaning and become a general nickname for all amateurs. This evolution was spotty and not very well documented. As early as the May, 1909 “Wireless Registry” list which appeared in *Modern Electrics*, Earl C. Hawkins of Minneapolis, Minnesota was listed with the callsign of “H.A.M.” This callsign was likely assigned by the magazine -- this was before the U.S. government began licensing stations and issuing callsigns -- but was this a coincidence or an inside joke? A pre-World War One program hosted weekly by Sybil Herrold, on her husband’s station in San Jose, California, reportedly was known as the “Little Ham Program.” However, the term took a while to completely lose its negative connotations. A letter from Western Union employee W. L. Matteson in the December, 1919 issue of *QST*, “Why is an Amateur?,” complained that amateurs, now regulated by the government, were not getting the respect they deserved, and noted that “Many unknowing land wire telegraphers, hearing the word ‘amateur’ applied to men connected with wireless, regard him as a ‘ham’ or ‘lid’.” But in the next month’s issue, Thomas Hunter’s exuberant “pome,” “I am the Wandering Ham,” showed that other amateurs had fully embraced “ham” as a friendly description for their fellow hobbyists.

By 1912 it was clear that some sort of national radio legislation was going to be enacted soon, if only to conform with the regulations from the upcoming London Radiotelegraph Convention. In the March 29, 1912 *New York Times*, a letter from Hugo Gernsback, “400,000 Wireless Amateurs,” promoted the rights of amateur operators against the threat of excessive restrictions. However, in a strong response printed two days later, “Amateurs in Wireless” from American Marconi employee Alfred Goldsmith compared the interference caused by amateurs using untuned spark transmitters to the racket made by careless children banging tin pans. The sinking of the Titanic on April 15, 1912 added momentum to the process, as reported by the *New York Herald* on April 17, 1912 in “President Moves to Stop Mob Rule of Wireless.” A key question was what to do about the amateur radio operators. Some of the proposed bills were very restrictive, eliminating amateur transmitters altogether. But when “An Act to Regulate Radio

Communication” was adopted August 13, 1912, instead of banning amateur stations, it merely limited most of them to using a wavelength of 200 meters. (The new law also provided that selected amateurs could receive special licences for better wavelengths.) With the passage of the new law, many of Irving Vermilya’s early adventures were now illegal for amateurs, and could result in fines and criminal prosecution, as the American Radio Relay League warned its membership with notices such as “Arrest Radio Operator in San Antonio,” which appeared in its December, 1916 issue of *QST*. Another individual inadvertently got the attention of legal officials because his test transmissions were being more widely heard than he thought, which resulted in his being arrested for his SOS, according to the February 17, 1917 *New York Times*. But although the new regulations restricted amateur activities, it also forced them to become more disciplined and proficient.

By the early 1920s, it was widely believed that the 1912 restriction of most amateurs to 200 meters had been part of a plot to eliminate amateur transmissions altogether -- described in Jack Binns’ 1922 foreword to *The Radio Boys at the Sending Station* as a “sardonic proposal” by Washington officials to, “Put ‘em down below 200 meters, and they’ll soon die out.” However, in light of the support for the 200 meter standard by such amateur advocates as Hugo Gernsback, this appears to be somewhat melodramatic. Amateur radio grew steadily after licensing began, and from the beginning selected amateurs received “Special Amateur” licences which allowed them to operate on wavelengths greater than 200 meters. Although government regulators at the Commerce Department did prosecute amateurs who caused interference by operating in violation of the rules, the department also actively promoted the hobby. In the April 1, 1916 issue of its *Radio Service Bulletin*, the Commerce Department published a letter from Francis F. Merriam, president of the Atlanta Radio Club, and applauded its “spirit of cooperation,” even though the letter noted that many of the amateurs at this inland location were actually using wavelengths greater than 200 meters, in technical violation of the rules, although the amateurs took care to insure they weren’t interfering with commercial or government operations. Meanwhile, amateurs participated in some of the precursors of broadcasting, as the January, 1917 issue of *QST* announced in “Radio Lessons By Wireless” that 9YA, the Technical and Training school station of the State University of Iowa, was transmitting short radio lessons and university news three nights a week. (These transmissions were most likely in Morse Code.)

Because of the lingering concern that the government might someday eliminate their stations altogether, amateurs did make a conscious effort to improve their reputation with the general public. Setting up

emergency communications became one of the most important amateur services -- "The Wireless Amateur in Times of Disaster," from the April, 1913 issue of *Modern Electrics*, reported how amateurs provided assistance during a flood in the midwest. Two years later a second, smaller, flood affected the same area, and afterward "The Ohio Flood" from the Commerce Department's March, 1915 *Radio Service Bulletin* announced the government's plan to issue Special Amateur licences to prominent amateur stations in the region, in order to provide emergency communication. This plan was reviewed in "Floods and Wireless" by Hanby Carver from the August, 1915 *Technical World Magazine*, as the author proclaimed that "Thus has the 'ham' come into his own. At first ignored, he kept plugging away at simple experiments with his crude apparatus. Then as his feeble signals became perceptible to the powerful commercial stations he was made the butt of ridicule... Now he is a necessity, an auxiliary to the forces of national public welfare, and the Government feels the need." Other examples of public service were covered in articles such as "News Out of the Air" from the May, 1914 issue of *Electrical Experimenter*, which announced that the Central Kansas Radio Club was planning to, "furnish the smaller papers of the state with the news from neighboring towns" for free, while in Iowa a farmer posted weather reports and other news for his neighbors, as reviewed in "How Radio Brought the News to the Farm," from *The Electrical Experimenter* for July, 1917. In 1922, Charles William Taussig reported in "The Story of Radio (Airplane extract)" how amateurs once notified a local airport about a lost mail pilot, helping to bring him in safely.

In 1915, Hugo Gernsback chartered a new amateur organization affiliated with *The Electrical Experimenter*, its birth announced with great fanfare by *The Radio League of America* in the magazine's December, 1915 issue. As part of its efforts, the RLA began organizing "relays," in which Morse code messages were transmitted along chains of stations. A December 31, 1915 "rotary" message, originated by William H. Kirwan, operator of experimental station 9XE in Davenport, Iowa, was successfully distributed throughout much of the central United States. The RLA's next relay goal, scheduled for the Washington's Birthday holiday on February 22, 1916, was to distribute a message nationwide. And this first nationwide effort was a success -- starting in Iowa, the Washington's Birthday message was relayed from coast to coast, and eventually delivered to the President and 37 state governors, as reported by Kirwan in "The Washington's Birthday Amateur Radio Relay" in the May, 1916 *The Electrical Experimenter*.

The RLA wasn't the only group interested in setting up amateur relays. A short notice in the August, 1912 issue of *Modern Electrics* announced

that the United Amateur Relay Club in Passaic, New Jersey, was looking for members from "all over [the] United States." And in April, 1914 the Radio Club of Hartford, Connecticut accepted Hiram Percy Maxim's idea to develop a new organization, the American Radio Relay League, to promote national amateur cooperation. In February, 1915 the ARRL became independent of the Hartford club, and in December of that year began publishing a magazine, QST. Although the RLA and ARRL initially cooperated, a bitter rivalry between the two organizations quickly broke out. (In the July, 1916 issue of QST, the ARRL published a series of letters in QST and the American Radio Relay League which reviewed the refusal by *The Electrical Experimenter*, because of its association with the RLA, to accept advertisements for the ARRL.) As the ARRL expanded from its northeast base, its relays covered larger areas, and by late 1916 it was planning a nationwide relay of its own. By now Hiram Percy Maxim appears to have "forgotten" the RLA's successful national relay of the previous February, as Maxim's report about the upcoming ARRL relay plans, *The First Trans-continental Relay*, which appeared in the December, 1916 QST, noted vaguely that "We have heard rumors that some one tried it last year, or intended to try it, or came near accomplishing it, but no positive evidence is at hand that it has yet been done," an interesting assertion, given that Maxim had personally participated in the RLA's Washington's Birthday relay, and QST had printed a detailed review. In any event, on January 4 and 5, 1917 the ARRL made a first try at a national relay, but this initial attempt, reported on in the February, 1917 QST--*First Trans-continental Relay Fails* -- proved unsuccessful. A second attempt was made on February 6, 1917, this one successful, as reported by *The Trans-continental Record*, from the April, 1917 QST.

Meanwhile, William H. Kirwan and the Radio League of America were preparing for the RLA's second Washington's Birthday nationwide relay, as reported in "The Washington's Birthday Relay," February 24, 1917, from the March, 1917 *Electrical Experimenter*. And by now the rift between the RLA and the ARRL was becoming very visible. An article in the February, 1917 QST, "The Danger Signal Up," warned the ARRL membership about the supposed dangers of cooperating with other relay organizations, claiming this could lead to chaos and the eventual elimination of all amateur licences. Kirwan and the RLA were unfazed by the ARRL's dubious concerns, and continued to work toward the Washington's Birthday relay. Kirwan's article in the April, 1917 *Electrical Experimenter*, "The Washington Birthday Relay" and the Q.R.M. League of America, directed a few return salvos at the ARRL and QST, complaining that, "A certain magazine in the East, which surely cannot have the real interests of the amateurs at heart claims that there is a danger signal up and that if you do not join its crowd, all

of our licenses will be taken away,” while threatening to teach these “struggling nonentities” a lesson by creating a competing amateur organization. The RLA’s second Washington’s Birthday relay was more ambitious than the first, but only partially successful -- Kirwan’s review, “The Washington Birthday Relay Prize Winners,” appeared in the May, 1917 *The Electrical Experimenter*. And the increasingly contentious battle between the RLA and ARRL for amateur radio hegemony ended a few weeks later, dwarfed by a much bigger conflict, as all U.S. amateur stations were shut down by the government, because of the entry of the United States into the war with Germany. (The RLA briefly reappeared after World War One, then quietly disappeared when Hugo Gernsback became more interested in the huge consumer market created by the broadcasting boom of 1922. And William H. Kirwan eventually made peace with the ARRL -- his 1921 Washington Birthday relay effort was promoted by *QST* magazine as being conducted, “with the co-operation of the A.R.R.L. operating department”).

Following the start of World War One in Europe in August, 1914, U.S. radio amateurs had watched with special interest whether the United States would be drawn into the conflict, due to the fact that the 1912 Radio Act gave the President permission to shut down radio stations “in time of war.” (Canada silenced its amateur stations from August, 1914 to May 1, 1919). During the first two-and-one-half years of the war the U.S. was officially neutral, and President Wilson assigned the U.S. Navy the task of insuring that U.S. radio stations respected this neutrality. Acting under this authority, for a few months the Navy banned all amateur sending and receiving in the west, as reported in “Amateur Wireless Plants Closed By Government” in the May, 1915 *The Electrical Experimenter*, although under the circumstances these restrictions appear to have been somewhat premature and excessive. (In his 1915 annual report, Victor Blue, Chief of the Navy’s Bureau of Navigation, noted that, “in one naval district all amateur stations were closed... for a time sufficient to impress upon their owners the necessity for keeping the transmission of messages to a minimum.”) J. Keeley’s “20,000 American Watchdogs” in the January 30, 1916 *San Francisco Chronicle* reviewed the role of amateurs in protecting the nation, highlighting the efforts of the Radio League of America in promoting preparedness amongst the nation’s amateurs. While Keeley’s article declared that, “our boy operators are forming a great army of defense,” the June, 1917 *Popular Science Monthly* noted that “Preparedness” includes women wireless operators, as it reviewed training classes at Hunter College in New York City. In the March, 1917 *QST*, the ARRL suggested in :“War?” that, if the United States formally entered the conflict, amateurs should at least be allowed to keep their receivers operational, acting as “a thousand pairs of listening ears,” monitoring for illegal transmissions.

However, on April 6, 1917, when a declaration of war against Germany was signed by President Wilson, an Executive Order was also issued closing most radio stations not needed by the U.S. Government. And the Navy further announced that all private radio listening was also banned, although there was some questioning whether the government really had the legal authority to do this. An article in the May, 1917 *QST*, “War!,” reviewed the suspension of amateur sending and receiving for the foreseeable future, and suggested that now was the time for all patriotic amateurs to join the military, where their radio skills were in great demand.

“Wireless is a thrilling pastime. Fancy a boy sitting in his room at home with his fingers on a telegraph key and a telephone receiver to his ear listening-in to the news of the world as it is flashed out from the great coast stations or by ships far out at sea! It’s a great experience. Yet thousands of boys are doing this wonderful thing every day and night of the year, and you, my young friend, can do it as easily as they, for any boy can own a real wireless station, if he really wants to,” A. Frederick Collins, *The Book of Wireless*, 1915.