

Hams Span the Atlantic on Shortwave!

Only 75 years ago, hams transmitted the first *shortwave* radio signals across the Atlantic...20 years, to the day, after Marconi sent the letter S across the same ocean.

By Bruce L. Kelley, W2ICE, and Donald G. Hudson, KA1TZR



The monument in Greenwich, erected by the Radio Club of America to commemorate 1BCG's accomplishment. (*photo courtesy of Steve Ford, WB8IMY*)

Think back on the thrill of your first contact. Then imagine the thrill of receiving the *very first* transatlantic shortwave message! Paul Godley, 2ZE, as the official representative of the ARRL, experienced that ultimate excitement on December 11, 1921, in Scotland, receiving a message from Greenwich, Connecticut.

Today, if you drive into Greenwich via Merritt Parkway Exit 31, about 1-1/2 miles south of the Parkway you will see a monument to this special event on the right in the triangular intersection of North Street and Clapboard Ridge Road. The monument is about 200 feet from the site of the original station. The inscription on the marker reads:

NEAR THIS SPOT ON DECEMBER 11, 1921, RADIO STATION 1BCG SENT TO ARDROSSAN, SCOTLAND, THE FIRST MESSAGE TO SPAN THE ATLANTIC ON SHORT WAVES. 1BCG, AN AMATEUR STATION, WAS BUILT AND OPERATED BY MEMBERS OF THE RADIO CLUB OF AMERICA.

Responding to a 1948 recommendation of the Awards Committee of the Radio Club of America (RCA), the Club's board of directors approved the construction of this marker and the presentation of a replica of the Armstrong Medal to the seven members of the club who were involved in that special achievement. In October 1950, the club recorded the story of the building and operation of Station 1BCG and the sending and receiving of the first transatlantic shortwave radio message in a specially authorized booklet, the *1BCG Commemorative Issue of the Proceedings of the Radio Club of America*. This publication is a treasure of information on the design challenges, operating frustrations, personal commitments (and hardships, because of the extreme cold), and press coverage of this achievement.

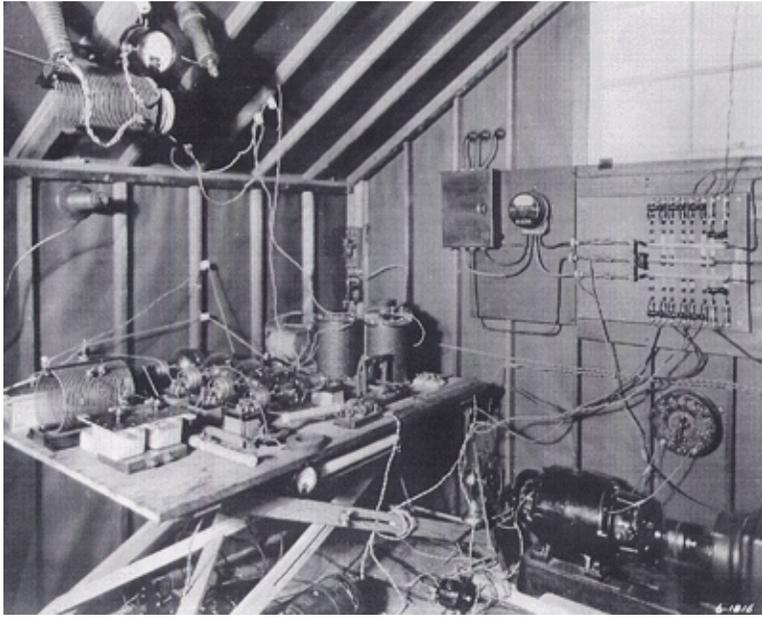
As Edwin H. Armstrong noted in the booklet, "The plan was simple. American amateurs were to transmit, British amateurs were to receive—and an American amateur, Paul Godley, was to be sent abroad with his own receiving equipment in an attempt to guard against a repetition of the failure of similar tests in the preceding year, when signals sent from the United States remained unreported from Britain."

The six-man operating and engineering staff of 1BCG included Ernest V. Amy, Armstrong, George E. Burghard, Minton Cronkhite (holder of the 1BCG station license), John F. Grinan, and Walker P. Inman. Amy and Burghard contributed the section entitled "The History of 1BCG" to the booklet. They note that in 1920, amateur operation was limited to 200 meters and down because these so called "short waves" were believed to be of little value for long distance communication by government and commercial organizations.

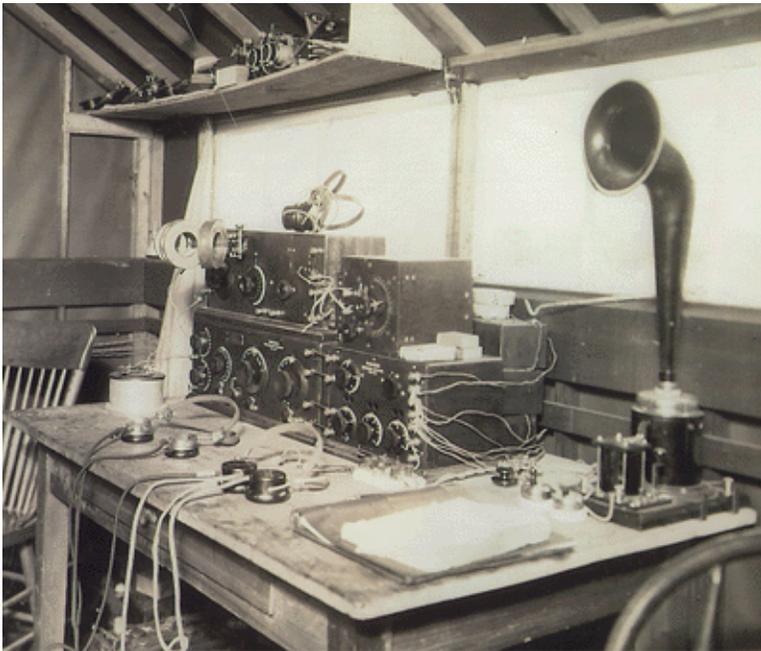


A 1921 view of 1BCG, located on a field of the Elisha P. Cronkhite estate in Greenwich, Connecticut. The flattop T cage antenna is supported between two steel masts 108 and 75 feet tall. This was the cover photo for February 1922 QST, and was also published in the Scientific American article (see sidebar) and in other reports of the event.





The 1921 1BCG transmitter.



The 1921 1BCG receiver.

Some highlights from the 1BCG story:

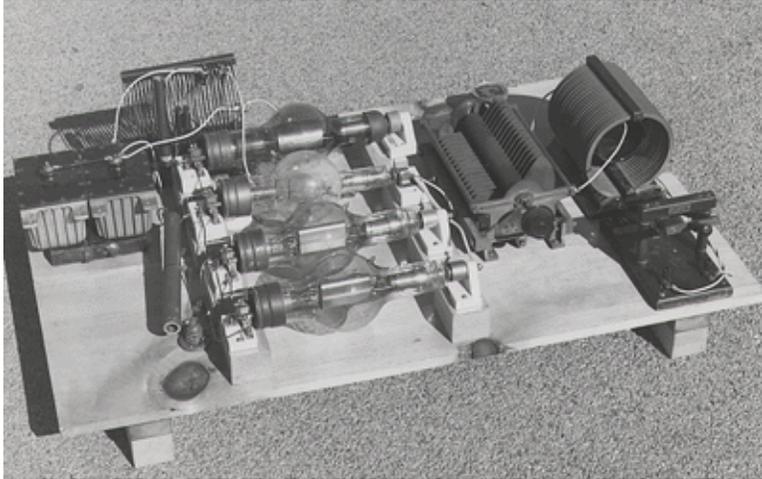
1BCG, constructed specifically for the 1921 ARRL transatlantic test, won the prize as the best station!

The team constructed a T antenna with a 100-foot horizontal cage flattop made up in two sections, each 50 feet long with eight

#14 stranded phosphor-bronze wires that were equally spaced around 18-inch-diameter metal hoops and connected from the center point with a 70-foot downlead.

They also constructed a counterpoise consisting of 30 radial wires, each 60 feet long. The radials extended from a common central point, at a height of seven feet above the ground. To reduce resonance effects, the counterpoise had two equal fan-shaped halves, each with 15 wires.

The 1BCG transmitter, as originally built, used two UV-204 Radiotron tubes in a self-excited, self-rectifying Colpitts oscillating circuit. It was rebuilt in the field into a master-oscillator, power-amplifier (MOPA) arrangement, to avoid the disadvantages of a self-excited oscillator and to produce a pure, steady CW signal. The single-204 oscillator was direct coupled to three more 204s in parallel in the amplifier. A motor-generator set supplied 2000 V dc for the plate voltage.



The replica transmitter, which will be on the air from 2300 UTC, December 11, through December 15, 1996, on or near 1815 kHz, signing W1BCG.

The tests started on December 7, 1921, and, after many tries, a complete message transmitted by 1BCG was received in Scotland at 3 AM GMT, December 12:

NR 1 NY CK 12
TO PAUL GODLEY
ARDROSSAN, SCOTLAND
HEARTY CONGRATULATIONS
BURGHARD INMAN GRINAN ARMSTRONG AMY CRONKHITE

The station was dismantled on December 29, and the transmitter moved to Columbia University for exhibition at a reading of a paper before the Radio Club of America. All the technical data in this paper is covered in a special section of the 1950 RCA booklet. Unfortunately, no one knows what happened to the transmitter after that event.

In honor of the 75th anniversary of this historic transatlantic transmission, a special-event station will operate from Greenwich, Connecticut, December 11 through 15, 1996. A replica of the original transmitter—built by Bob Raide, W2ZM, of the Antique Wireless Association (AWA)—will be on the air from a location near the original site in Greenwich. This rig will be on the air starting at 2300 UTC, December 11, on or near 1815 kHz, which is as close as practical to the original frequency of 1350 kHz. The call sign W1BCG will be used.

The organizers for the event, with the support of the ARRL, are the Antique Wireless Association (Bloomfield, New York; Bill Fizette, K3ZJW, president), the Greater Norwalk Amateur Radio Club (Norwalk Connecticut; Ed Ashway, W9KTH, president), the Shoreline Amateur Radio Club (Waterford, Connecticut; Sandy MacLean, N1MUS, president) and the Stamford Amateur Radio Association (Stamford, Connecticut; Jim Murdock, N1NNG, president).

The organizers are grateful to George Wells, KA1JUV, of Greenwich, who is providing the “shack” for this operation at a site that is close to the original location used by 1BCG.

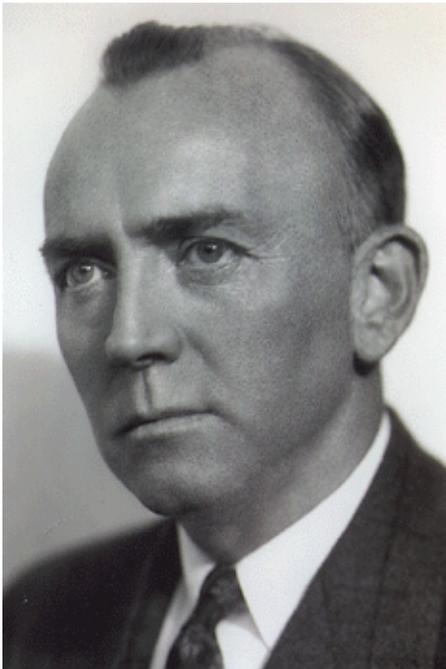
Event coordinator Tim Walker, N2GIG, learned via the AWA and the ARRL's sister-societies in England (Radio Society of Great Britain) and France (Reseau des Emetteurs Fran aise) that hams in those countries want to participate in the special event. Since

the original transmissions were directed to the UK and Europe, extra efforts will be made to involve European operators.

The AWA invites all hams to commemorate that historic ham event of 75 years ago by working W1BCG and its replica transmitter.



The 1BCG shack and five of the six crew members (l-r): Amy, Grinan, Burghard, Armstrong and Cronkhite (Inman was not present for the photo).



Paul Forman Godley, 2ZE—"Paragon Paul"—copied the historic message transmitted by 1BCG.

Further Reading on the 1921 Transatlantics

Amateurs had been given the radio spectrum of wavelengths of 200 meters and shorter to clear the longer wavelengths for the use of government and commercial stations. These “short waves” were, at the time, considered to be useless for long-distance communication. But, to the surprise of the radio experts of the day, hams started using short waves to span progressively greater distances. The obvious next hurdle was to span the Atlantic. And hams did it! The story, as related in the pages of 1921 and 1922 issues of *QST*, is fascinating, and we recommend it to your reading.

In addition to reporting on the transatlantics in the pages of *QST*, the event was important enough to be noticed by the lay press, with newspaper articles in the *Greenwich (Connecticut) News and Graphic* (Dec 12, 1921) the *New York Telegram* (Dec 16, 1921); and the *New York American*, (Dec 16, 1921). The historic first was also reported in major publications of the day: *Radio News* (Feb 1922); *The Literary Digest* (Apr 1, 1922); *The Wireless Age* (Jan 1922); and—with its cover featuring a reproduction of a painting of the 1BCG transmitter by Howard H. Brown—*Scientific American* (Apr 1922).

The following list of *QST* articles is not a complete bibliography of articles about the 1921 transatlantics, but these articles give a good overview of the tests. Check with local hams, ham clubs, and community and university libraries to find these vintage issues of *QST*, and vicariously feel the thrill of accomplishment experienced by our elders.

“Godley to England to Copy Transatlantics,” Oct 1921, pp 29-32.

“QRV for the Transatlantics?,” Nov 1921, pp 10-11.

“The Second Transatlantic Tests,” Dec 1921, pp 7-8.

“Transatlantic Tests Successful,” Jan 1922, p 7.

K. B. Warner, “The Story of the Transatlantics,” Feb 1922, pp 7-14.

Paul F. Godley, “Official Report on the Second Transatlantic Tests,” Feb 1922, pp 14-28, 36-40, 46.

George E. Burghard, “Station 1BCG,” Feb 1922, pp 29-33.

R. C. Higgy, “The Successful Transatlantic Stations,” Mar 1922, pp 11-18.

“The European Transatlantic Results,” Mar 1922, pp 20-21.

“More About the Transatlantics,” Apr 1922, pp 35-36, 39, 54.

Philip R. Coursey, “Report on Receptions by British Amateurs in the Transatlantic Tests, December 1921,” May 1922, pp 23-27.

Paul F. Godley, “Back-Scanning,” Dec 71, p 53.

Royal Mumford, W3CU, “We Got Across...,” Dec 1971, pp 54-57.

Bruce L. Kelley, W2ICE, 59 Main St, Bloomfield, NY 14469, was first licensed as W8ACY in 1929, and has been a member of ARRL since 1929. Educated at the University of Rochester, he is now retired from the Engineering Department of Eastman Kodak. Kelley was one of the cofounders of the Antique Wireless Association in 1952 and is the curator of the AWA Museum in Bloomfield, New York.

Donald G. Hudson, KA1TZR, 97 Southwood Dr, New Canaan, CT 06840, was originally licensed as W9BLM in 1946, while in the US Army Air Forces in Hawaii. He attended the Northwestern Technological Institute after leaving the ASAAF. While in the cooperative work study program there, he was employed as an engineering trainee at Hallicrafters. After receiving an MBA at Northwestern, he was employed by Procter & Gamble and later by Booz, Allen & Hamilton, and Towers, Perrin. Now retired, Don collects and repairs Hallicrafters equipment for other hams as a labor of love.

Photos are from the 1BCG Commemorative Issue of the Proceedings of the Radio Club of America, except where otherwise credited, and furnished through the courtesy of co-author Bruce Kelley.