Quelle: “Ham Radio History” 2013, by © Christopher F. Codella, W2PA
(1) http://w2pa.net/HRH/crossingsi-aquitania/
(2) http://w2pa.net/HRH/crossings-ii-ardrossan/
(3) http://w2pa.net/HRH/crossings-iii-accolades/
(4) http://w2pa.net/HRH/the-fourth-times-the-charm/

Crossings I—Aquitania

Marconi had first done it back in 1901. For amateurs, crossing the Atlantic was the next natural challenge—they had been thinking about it since before the war. Many in the scientific community were skeptical that such a feat could possibly be achieved at such a short wavelength as 200 meters, especially with power as low as one kilowatt.

An early rumor that American signals had been received in Europe appeared in the press in December 1920.[1] The new record, the story went, may have been set on 6 October when signals from 2QR, a 100-watt station operated by brothers Harold and Hugh Robinson of Keyport, New Jersey, were reportedly received by George Benzie and James Miller in Aberdeen, Scotland, who claimed they had heard “phonograph musical selections.” But after a year-long investigation that was still going on during both sets of transatlantic tests, a committee of the R.C.A. concluded that it had not, in fact, occurred.[2] The group did not question the Robinsons’ motives, believing they had given Benzie’s letter, in which he claimed reception, to the press in good faith. As it turned out, 2QR was not transmitting when Benzie claimed to have heard it, and the Robinsons agreed.

In February 1921 the first, though unsuccessful, transatlantic attempt involved 25 US stations transmitting and over 250 British amateurs enrolled as receiving entrants.[3] The test had been originally proposed and planned in 1920 by M. B. Sleeper, the radio editor of *Everyday Engineering*. But after the magazine ceased publication later that year, Sleeper asked ARRL to take over the operation. With little time left to fully reconsider how to run it, the ARRL Operating Department stepped in. Coded messages (which they called “arbitrary signals”) were assigned to the transmitting stations, and logged reception reports were compared for accuracy. Although many signals were heard but not copied, none could be conclusively shown to represent a completed reception. In the twenty years since Marconi’s crossing, the criteria for what constituted a valid reception had become much more stringent—a single letter ‘S’ would no longer suffice. After all, in Marconi’s case, his station had been easy to identify since it was the only one on the air.

While gratefully acknowledging the cooperation and enthusiasm of British hams, ARRL secretary Kenneth Warner attributed the failure to their outdated receiving equipment and an understandable lack of experience in DX work, both of which the Americans had developed only after “years of patient struggle.” With new equipment and expertise he was confident of success next time. “We would bet our new spring hat that if a good U.S. amateur with [a more modern] set and an Armstrong Super could be sent to England, reception of U.S. amateurs would straightway become commonplace,” wrote Warner. The bet would eagerly be taken up and doubled down.

After considering other deficiencies that might have contributed to failure in the first test, the organizers developed improved procedures. A second attempt would take place on the evenings of 8 through 17 December.[4] The new plan would give “each transmitter a fair chance to accomplish this almost unbelievable feat.” To be eligible to participate in the test a station would first have to be shown capable of reaching 1,000 miles by doing so in an over-land qualifying test

in November. Phillip R. Coursey, assistant editor of *The Radio Review* in London and operator of 2JK (British), was in charge of all receiving operations and would determine the winners after reports had been received. Coursey had also officiated in the previous unsuccessful tests in February. The announcement in *QST* referred to the event as a "contest"—maybe the first DX contest, albeit one in which all contacts were one-way only.

Late 1921 was a particularly busy period. In the midst of the phone boom and plans for the transatlantic tests, the ARRL held its first national convention in Chicago from 31 August through 3 September, including "the biggest banquet ever held in the history of Amateur Radio." October *QST*'s coverage filled more than fourteen pages—its cover boasted that all districts were represented and featured a picture of a group to prove it [5]. Well organized and attended, the convention had been "two big hotels full of bugs chewing the sock until break o' dawn every morning."

A message arrived at the convention from US Secretary of Commerce Herbert Hoover. The man who would be elected president seven years later referred to his department as the "Patron Saint of Amateur Wireless Operators," and called amateur radio "a very important movement." The message arrived via radiogram, of course.

Maxim, in his opening address, reflected on the historic nature of the first convention and how far amateurs had come in organizing since those first days in Hartford. He predicted that nothing could stop relaying from going worldwide, and in a thinly veiled political statement envisioned a day "when private citizens may communicate without cost from the shores of the great far-flung Pacific on the west to the limits of civilized co-operation and good government on Europe's east."

An evening session featured many well known speakers including DeForest, Armstrong, A. H. Taylor, L.M. Clausing, and R F. Gowen, along with Frank Conrad of 8XK radiotelephone fame. CW was the hottest topic of the technical sessions and a "CW Night" was devoted to that mode entirely. Professor C. M. Jansky[6] of the University of Minnesota presented a paper on the superiority of CW to spark by comparing operating experiences. Not everyone had been convinced, however, and Warner read two letters from "Speedo Vermilya, 1ZE" about spark's superiority. The debate continued; the only consensus was that the coming season of on-air work would likely decide the matter.

The ARRL Board of Direction met to discuss the transatlantic test and decided unanimously to appropriate funds to send a US ham to England to ensure success.

Paul Forman Godley grew up in Kansas and spent his late teen years working as a telegraph operator for railroads and other companies. Enthralled with wireless at a young age, he read whatever material he could find about it, such as articles in *Scientific American*. In 1908 at age 19 he managed at last to become involved in wireless at a commercial firm in Chicago. Impressed with his enthusiasm and expertise, his superiors put him in charge of the United Wireless station in Grand Rapids before he turned 20. Over the next four years he found himself in a whirlwind of wireless work: a student at the University of Illinois, installing equipment and designing courses

on wireless in Texas, on assignment as “wire chief” of the Post Office in New York, and on the Amazon River helping to develop a radio service for the Brazilian government.

Paul F. Godley

Finally settling in New Jersey in the summer of 1914, he built a station, 2ZE, broke all distance records with it, and designed a new regenerative receiver that became very popular among amateurs. Presenting his designs to the R.C.A., and publishing them in *QST*, he was widely credited with being the first to adapt the Armstrong regenerative circuit to shortwave amateur use. As an engineer at the Adams-Morgan Company he developed their *Paragon* line of receivers based on this design, and later at the Marconi Company he designed military receiving equipment for use during the war. In 1918 he married, started a family, and later started his own company in Montclair.

By late 1921 Godley, now 32, was a senior member of the radio establishment, both amateur and professional, and widely recognized as an expert in shortwave reception—one of an elite few. Therefore, it would be “Paragon Paul” whom the ARRL would dispatch to England to anchor the receiving end of the next transatlantic tests.[7]

Godley would be sent specifically to supplement the British efforts with American expertise using American apparatus.[8] Judged by the ARRL board as "America's best authority and best operator in short wave receiving," he would sail to England aboard the *Aquitania* on 15 November to prepare for the December operation. Meanwhile, he would be building and selecting the best equipment he could find to cover the shortwaves.

It wasn't that the British hams were not up to the task, as had been suggested by a French magazine. After all, it was England to which the American and Canadian hams had looked for early supplies of vacuum tubes after the war. But, as *QST* amusingly put it, "the British are not such 'Boiled Owls' as we North American hams and do not, as a class, relish staying up to all hours." And since the ARRL would never be so impolite as to ask them to do so, "it was at first thought that the transmitting schedules would have to be limited. But the sending of an American amateur changes this so that not only will the special stations have individual schedules but everybody else can enter who will."

Perhaps the most important change from the February attempt was that in addition to scheduled operations of the more powerful, qualifying stations, everyone else was invited to join in too. The organizers explicitly wanted this test to be a "free for all in which everybody can participate." *QST* reminded readers that the proper direction to favor was northeast since signals followed the great circle route. Therefore those on the Atlantic coast would not necessarily have an advantage.

The test would consist of ten nights of six-hour sessions, from 7 thorugh 16 December , and run from 7:00 p.m. to 1:00 a.m. Eastern Time in the US. The "free for all" session would run from 7:00 until 9:30, when stations could transmit according to time slots assigned in fifteen-minute intervals assigned by district. Qualifying stations would then transmit for the second interval beginning at 9:30, according to a schedule of fifteen-minute periods, the sequence of which would be rotated each night. Two or three stations shared each time slot and would transmit simultaneously.

Each of the qualifying stations would transmit five-letter coded messages, called "secret cipher combinations," that were sealed in envelopes not to be opened until the tests began. The identities of the 27 stations were likewise kept secret, and included 20 CW and 7 spark transmitters. Among them were 1AW (Maxim), 1ZE (Vermilya), 6XH (Stanford University) and 9ZN (Mathews).

ARRL Traffic Manager Schnell would send the schedule and station list to only Coursey, and seal his own copy in the safe at ARRL Headquarters. Godley, who would report through Coursey just as the other listeners would, only knew the free-for-all schedule as did the general public. Coursey would give him and all the other listeners information about schedules and wavelengths, but would keep the station identities and cipher groups secret.

Public interest in the test ran high in Europe, especially in the Netherlands, France, and Britain, where details were published in their national radio journals. A *Burndept III Ultra* receiver would be awarded by Burnham & Co. of England, as announced by Mr. W. W. Burnham, "one of England's leading amateurs."[9] The prize would go "to the A.R.R.L. member whose signals rank first in the reception in the British Isles," though it was unclear how the ranking would be judged.

British Marconi station MUU at Carnarvon planned to transmit nightly test reports at 2:00 a.m. EST. In *QST,* A. L. Groves described apparatus he recommended for receiving MUU on 14,200 meters while dealing with possible QRM from NSS on 16,900, WGG on 16,100, and WII on

13,600. In particular, he noted that in some nearby areas NSS and WGG heterodyne with each other creating a problem within “three or four thousand meters of these waves.”

In an example of how exquisitely complicated tuning an advanced receiver was in his day, Groves instructed readers that:

With Duo-Lateral coil 1500 in the secondary, shunted by a 43 plate (.001mfd.) condenser, WII tunes in at about 50 degrees on the 180 degree scale, and MUU should tune in at not over 53 degrees. The filament and B battery are of course adjusted in the usual manner; then the secondary condenser is adjusted to approximately the figures above indicated. The plate coil is gradually brought closer to the secondary until the tube oscillates which is indicated by a “thud” in the phones. With the primary coil about 2 to 2-1/2 inches from the secondary, slowly vary the primary condenser until the set is “balanced out.” After signals are picked up they can be brought in clearer and stronger by further adjustment of primary coupling, accompanied by slight changes in primary condenser. After that a slow loosening of the plate coupling will almost always give additional amplification.

Today this seems rather like running through an alignment procedure each time you tune your receiver to a new frequency.

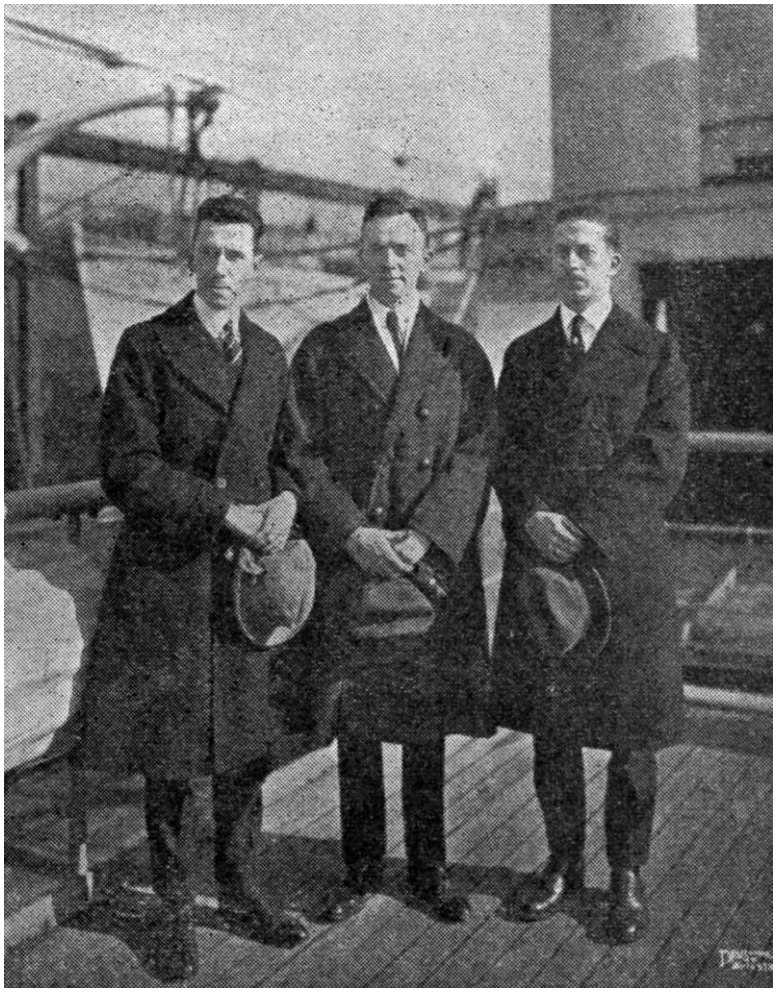
The December 1921 *QST* cover drawing by 8ZZ announced “Transatlantic Tests This Month” in large type across a globe where lightning bolts linked North America to England and “QRM Babies” were lashed tightly to the north pole spike where they presumably could do no harm. In America, a ham sits at his station keying his transmitter with The Old Man looking on. In England a ham listens intently through headphones tightened firmly in place with a C-clamp over

his head. Another gentleman looks on, perhaps the British equivalent of T.O.M., or perhaps Mr. Burnham.

Inside, a photograph captured Schnell and Warner on board the *Aquitania* seeing Paul Godley off on his voyage to England. A send-off dinner had been held for him in New York the night before departure, attended by luminaries including Maxim, Hebert, Camp, Stewart, Service, Goette, E. H. Armstrong, J. Andrew White, P.H. Boucheron, G. H. Burghard, and W. S. Smith. Among the testimonials, Armstrong was quoted as saying, "I'll stake my scientific reputation on Paul Godley."[10] It's hard to imagine a stronger endorsement.

On the morning of 15 November, The *Aquatania* was set to sail for England. Amid the commotion of the multitude at the dock and on board the departing ship, the "radio birds" used opening-closing hand gestures to send Morse code messages back and forth to Godley standing at the ship's railing above all the QRM of the crowd.[11]

By coincidence, Dr. Harold H. Beverage, inventor of the wave antenna,[12] also happened to be aboard *Aquitania* for this voyage, something neither Godley nor anyone else in the crowd had known beforehand. Recognizing the well-known radio experimenter at the railing a short distance from Godley, the group on the dock let him know via this hand-Morse. Godley immediately went over to introduce himself, the two having never before met in person. Beverage, who had noticed the gesturing too, signaled "OK" to the crowd as he shook hands with Godley—a striking metaphor for what was to come.



Warner, Godley, and Schnell aboard the Aquitania just before it sailed for England.

Godley carried with him information about the final schedules and the all-important cipher combinations, messages that were known ahead of time only to ARRL Traffic Manager Schnell, in a sealed packet that Coursey would open and become the only person to know them on the receiving side of the Atlantic.

In addition to the nightly reports transmitted by MUU, Beverage's station, 2BML, manned by operators from RCA's Long Island receiving station in Riverhead, New York, would retransmit the reports on 200-meter CW. ARRL gratefully acknowledged the help of both companies, Marconi and RCA.

Godley's own twenty-page account of the entire operation, including much of his minute-by-minute log, appeared in February 1922 *QST* and makes interesting reading.

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For several nights after leaving New York "the amateur air was thick with farewells and good wishes for 2ZE, Godley's home call, for everybody knew he would be in the static-room on the *Aquitania,*" wrote Warner. And so he was, spending much of his time with the operators in the radio room, enjoying their hospitality. Although he had access to the ship's station, there was no time to tune for amateur signals because of the high volume of regular message traffic.[13] He nevertheless received messages from US friends via commercial wireless transmissions to the ship. A message from ARRL that he copied himself on his second day at sea read:

From Hartford, Conn.
To Paul F. Godley, SS Aquitania via WBF.
Bon Voyage! The entire radio world is pulling for you!
(Signed) Warmaxnell[14]

He replied, "Confidence increases as distance squared. Broadcast my heartfelt appreciation." Heartened by the well-wishers' messages, he resolved to "get signals or bust!" Keeping in mind the skepticism and what he termed "veiled interest" from the engineering community of which he was a member, and feeling that no ham in Britain believed the test would succeed, Paul Godley was eager to prove them all wrong.

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1. "2QR Heard in Scotland?," *QST*, December 1920, 21.
2. "2QR's Transatlantic Claim Disproved," *QST*, January 1922, 8.
3. "Failure of the Transatlantic Tests," *QST*, May 1921, 15.
4. The Traffic Manager, "Transatlantic Sending Tests," *QST*, September 1921, 12.
5. "Our First National Convention," *QST*, October 1921, 7.
6. Father of Karl G. Jansky, discoverer of radio waves from the Milky Way and a founding father of radio astronomy. A unit of signal strength as flux density is named after him. ↩
7. This might also be considered the first DXpedition.
8. "Godley to England to Copy Transatlantics," *QST*, October 1921, 29, Paul F. Godley, "DE Godley Re Transatlantics", Radio Communications by the Amateurs, *QST*, October 1921, 56.
9. "QRV for the Transatlantics?," *QST*, November 1921, 10. ↩
10. Clinton B. DeSoto, "200 Meters and Down," The American Radio Relay League, Inc., 1936, 73.
11. "The Second Transatlantic Test," *QST*, December 1921, 7.
12. It was later named the Beverage antenna. He was 28 years old at the time of the voyage, 4 years younger than Godley.
13. Paul F. Godley, "Official Report on the Second Transatlantic Tests," *QST*, February 1922,

Crossings II—Ardrossan

Paul Godley slept well during his six-day Atlantic voyage, catching up on the sleep he lost during the intense organizing activities in the run-up to the transatlantics project. Arriving in England on 21 November 1921, he was unexpectedly met by H. J. Tattersall, Superintendant of the Marconi Company in Southampton, who helped him deal with various customs problems.[1] A recently imposed import duty would have caused his equipment to be held up for weeks. Instead, they negotiated for Godley to leave a $100 deposit to be returned when the equipment again exited the country.

Moving on to London, he attended meetings of the Wireless Society and the Royal Society of Arts. There, he heard a lecture by Fleming, and met other people prominent in radio including Marconi, who expressed confidence in his ultimate success and asked Godley to pass on his regards to the American amateurs, telling him, "I, too, am but an amateur!"

A group of local hams arranged a dinner in Godley's honor, where he was surprised to meet two "O.W.'s" among the attendees. Despite the group's hospitality, he still detected in their demeanor that the British hams were "unable to decide whether I was just a 'nut' or whether I was really confident of our ability to put the thing over."

An article appeared in the *London Star* on 30 November describing the events leading up to the test. Its author asserted that Americans blamed the failure of the February tests on incompetence of the British hams (as well as QRM from oscillating regenerative receivers), and that was why they had sent over "one of their hardest of 'hard-boiled hams' with a brand-new bag o'tricks and their good wishes. He will show us how it should be done," they wrote. Godley later remarked dryly, "And now you know why I went to Scotland!!"

Godley had the opportunity to have a broad discussion of amateur radio with E. H. Shaughnessy, chief engineer for the wireless section of the General Post Office (GPO)—the main radio authority in Britain and the body responsible for the severe operating restrictions in effect at the time. The official believed that wireless operation such as existed in the US could not work in Britain because of the island's comparatively small size and its proximity to foreign countries—they would have to consider effects on international communications. He was also amazed at the rapid development of radiotelephone broadcasts in the US and dubious of such a possibility in Britain.

Despite Shaughnessy's skepticism, Godley was confident that eventually the restrictions there would be lifted once the British public began to understand the possibilities of radio in public hands. It was something he was certain had not yet been fully grasped in the US, either, even by amateurs, writing,

I wonder if even here in America we amateurs realize that today the state of the art makes it possible for the President of these United States to speak directly to every citizen in the land? One's imagination cannot help but see the immense value of such an arrangement during times of national peril.

He fully appreciated the impact a successful transatlantic crossing could have.

At the Wembley Park home station of Commander Frank Phillips, one of his English hosts and designer of the grand prize *Burndept III* receiver, Godley set up some of his equipment to have a listen to the local radio environment. He did not like what he heard. Below about 275 meters, harmonics from high power commercial stations filled the London air waves. On one GPO station in particular he was amazingly able (and "highly amused") to count thirty-nine harmonics. He was also surprised and dismayed to hear the high level of QRN, which was mostly nonexistent during winter in the States.

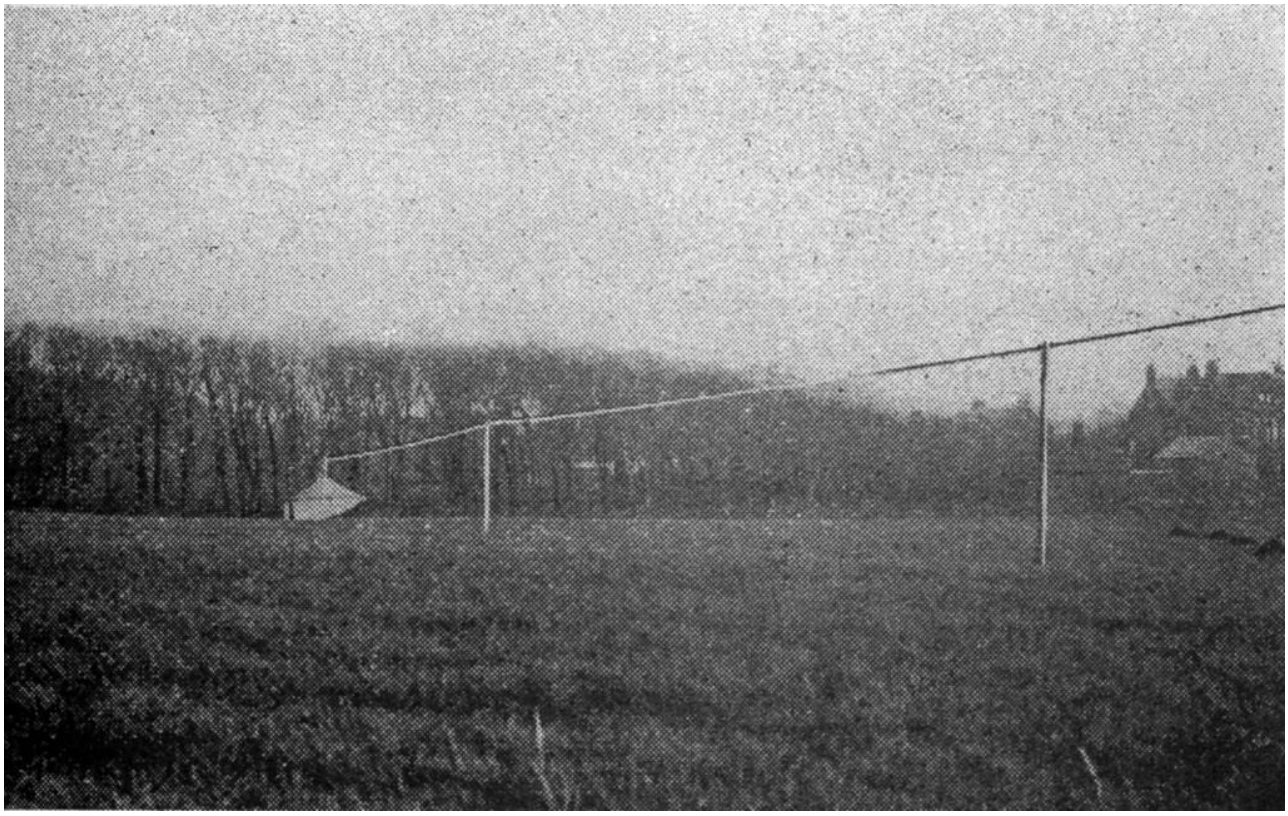
The harmonic QRM, the intense QRN and five days of foul weather in London all convinced him to move to Ardrossan, a small fishing village twenty miles west of Glasgow in Scotland, a site he had already chosen as an alternate. The Londoners warned him just how miserable Scotland would be at this time of year, including the "ill effects of the Scotch whisky which one would most certainly be unable to dodge." But his mind was made up.

He now needed a permit extension to be able to operate a receiver in Scotland. After failed attempts by British test organizer Phillip Coursey and others to get one, Godley decided to go to the GPO himself and managed to see an assistant secretary named J. W. Wissenden who, after intently listening to his story, was able to get the permit issued[2] and arranged for it to reach Glasgow in time for the planned start of operations.

On his way north, Godley took a side trip to Aberdeen at the request of the R.C.A. committee investigating the 2QR reception report. His visit partly contributed to their eventual findings. There he met the Miller brothers at their electrical shop, then drove into the countryside to meet Benzie at his station. Impressed with Benzie's antennas and enthusiasm, in spite of being handicapped by a lack of sophisticated equipment, Godley later wrote, "He had the bug badly, and would come nearer to feeling at home were he to be suddenly dropped into the thick of amateur activities on this side than any other whom I met." He complemented Miller and Benzie for their "sportsmanlike spirit," as well as that of the Robinsons in the US. The British amateurs' consensus view seemed to be that the two had very likely only heard a British amateur station.

Arriving in Glasgow on Saturday evening, 3 December 1921, Godley slept late into Sunday morning in an attempt to shake off an oncoming head cold. The temperature was near freezing there and his hotel room at the Central Station Hotel was unheated. Sick, tired, and cold, he now had three days to get ready.

The next morning he met his local contacts, picked up new supplies including a tent, and boarded a train for Ardrossan in late afternoon. Arriving, he checked into the Eglinton Arms Hotel. The awful weather, which had been a constant, cold rain, eased somewhat toward evening. With only thirty hours to go until the tests were to begin, Godley went out that night to scout beach locations that looked promising on the map as ideal ones for putting up his Beverage receiving antenna. To his dismay, he discovered both local beaches were at high tide and flooded. Using them would be impossible.

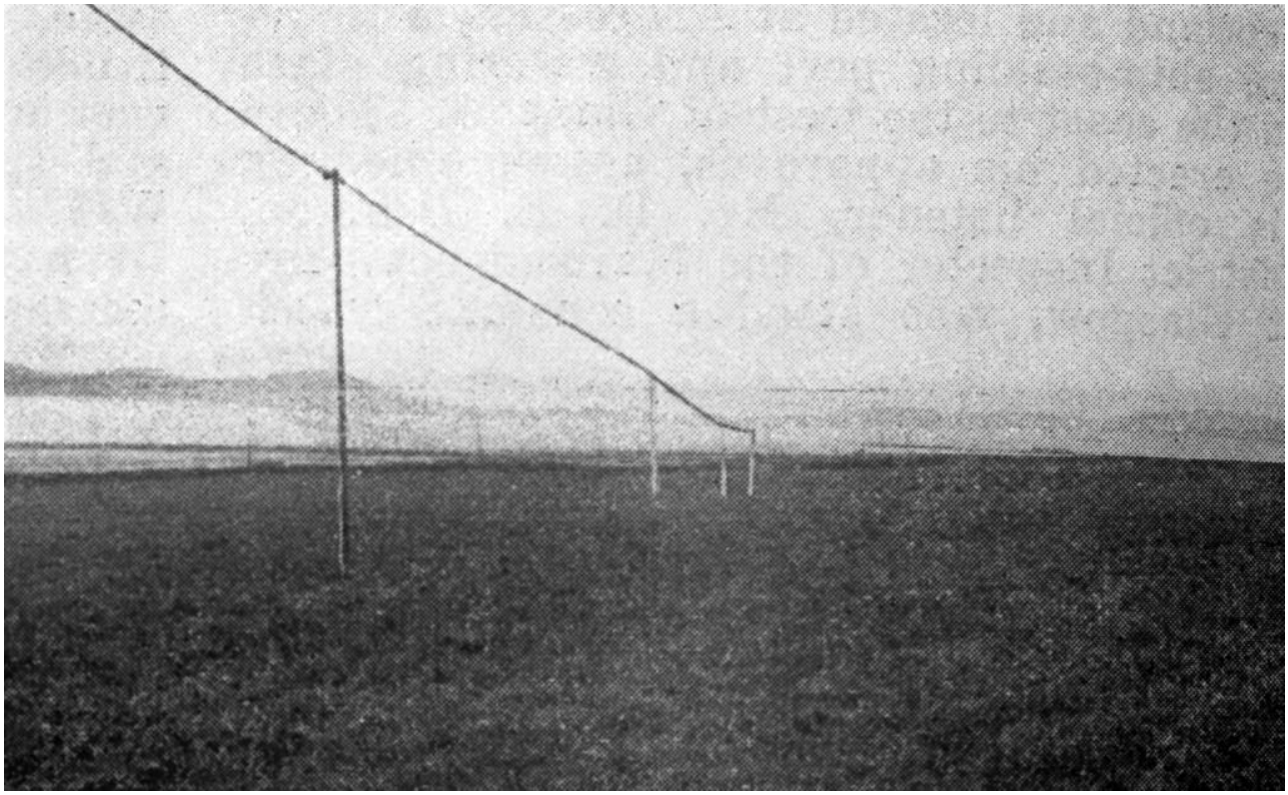


Operating tent and Beverage wire feed point

In a driving downpour the following day, and with the help of some local officials, he at last found an empty field that looked usable. After a brief respite at the hotel to warm up, they set off again to talk with the land owner. “I had been congratulating myself all along on the good fortune of having two interpreters with me,” he wrote, “because I must admit I found considerable difficulty in understanding English as spoken in Scotland.” The land owner, Mr. Hugh Hunter, was excited by the project and eagerly allowed them the use of his field.

The Marconi Company’s Inspector D. E. Pearson, who would act as “checking operator” with Godley during the operation, joined him in Ardrossan to help get set up for the test.

Hunter’s field was slippery with seaweed used for fertilizer and walking was difficult as they began assembling the receiving station. A horse-drawn wagon carrying the supplies had trouble reaching the set-up location and had to be partly unloaded some distance away. They put down floor boards over the mud and raised the tent which promptly blew down. Pre-built two-by-four beverage poles they had bought in Glasgow were spread out into the field. They had prepared enough poles and wire for a 1300-foot Beverage wire, 12 feet up, along a line oriented 26 degrees north of west—“directly towards 9ZN.”

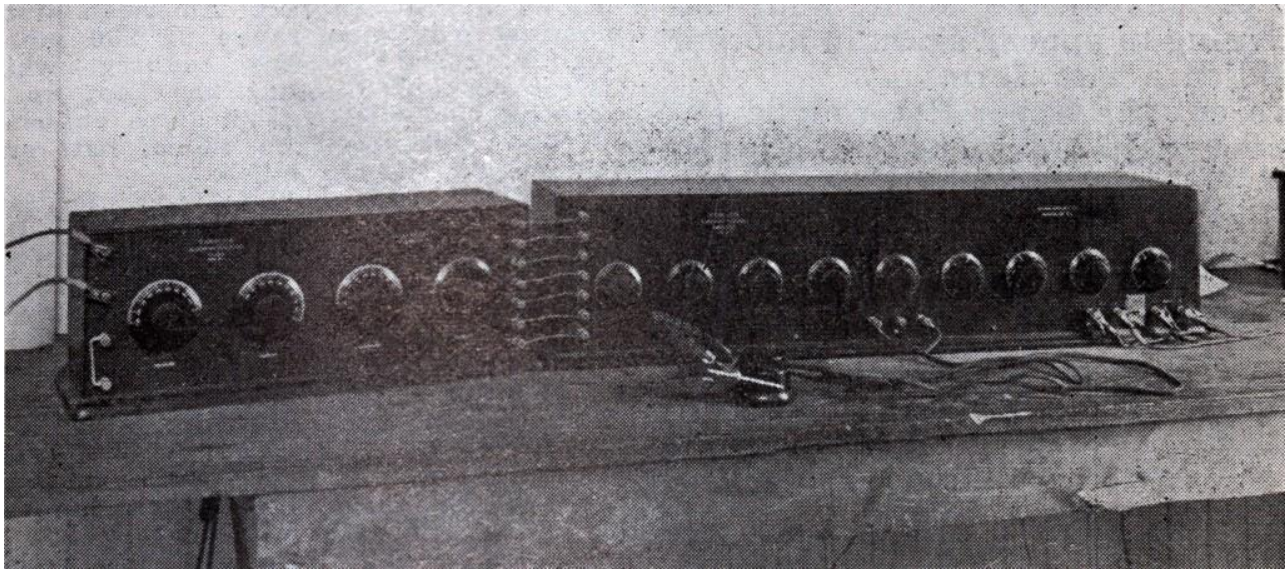


Beverage wire antenna pointing toward the North Atlantic

By 4:00 p.m. it was dark and still raining but they continued to work until 6:30. Later that evening, back at the hotel, Godley connected a receiver to a 60-foot antenna wire and heard many 600-meter stations and far less noise than in London. Exhausted and disappointed at not getting operational as originally planned, he retired for the night, at least reassured that the improved on-air conditions had justified his move.

They were back out at dawn on 7 December, and with additional local help worked all day setting up the receiving station. By nightfall at 4:00 all the poles were up and the Beverage wire had been strung. They continued to bury ground plates and connected a variable, non-inductive resistor to complete the antenna. After a quick dinner at the hotel, they returned to hook up the receiving equipment. Everything was working so far, and just before midnight they were receiving signals from European stations including FL in Paris, POZ in Nauen, Germany and many more on 600 meters.

The receiving equipment included a Paragon regenerative receiver with a DA-2 detector-amplifier and a 10-tube superheterodyne receiver with external beat oscillator for CW. A 60-foot wire was put up in a tree and the incoming 600-meter signals were used to tune it up for maximum sensitivity on shortwaves. Around 1:00 a.m. they began listening on the Beverage, hearing a few commercial harmonics as expected, but far fewer than in London. The Paragon connected to the Beverage mirrored the unplanned handshake between the two inventors aboard the *Aquitania*.



Godley's superheterodyne receiver

Only a half hour into listening they already began to hear signals unmistakably coming from the US, possibly identifying 1AEP and definitely 1AAW on 270 meters. The signals were fluctuating between too weak to read and booming in loudly, but Godley and Pearson were elated, having achieved their primary goal on the very first night! They took a break around 2:30 to inspect the antenna and repair a wire break and a downed pole caused by the high winds. Hearing no further signals from the US and rising QRN, they quit, tired but happy, at 6:00 a.m. after 21 hours of continuous work in the cold wind and rain.

Although the weather finally cleared the following evening, 8 December, they heard no amateur signals at all. Some 600-meter signals were noticeably weaker than on the previous night indicating that conditions were probably worse overall. CW reception was particularly hindered by harmonics of high power stations, especially the one at Clifden in Ireland.

As the clear weather chilled further, Godley's head cold worsened. "Pearson being a Scotchman seems to be immune," he wrote, "and no doubt would suggest that I don't drink enough of Scotland's Honeydew." They closed down at 6:00 a.m. after a futile night of noise-filled listening.

The rain returned on 9 December, and after listening for free-for-all spark signals, they switched to CW and immediately heard 1BCG very steadily around 12:50 a.m. on 230 to 235 meters plowing right through the QRM from Clifden. His signals improved even more after adjusting the Beverage. "He is calling 'PF test' and signing. Sweetest song I have ever heard," wrote Godley excitedly in his log, "He fades out for 30 seconds every 3 or 4 minutes but always comes back strong and steady."

Godley had chosen the Beverage antenna after hearing the high QRN in London, and abandoned plans to also erect a vertical. They tuned the Beverage by running back and forth from the operating tent to the far end where the variable resistor was located. He later speculated that, since on the ninth they had optimized it on the signal from 1BCG and then left it there, this was the only wavelength for which it was ever properly adjusted.

They shut down at 6:00 a.m. after hearing no other stations, but started up again briefly just to copy MUU. Upon hearing it sending "Godley's message," he was struck by the reality that they were indeed making history. Suddenly feeling held back, he wrote, "I would give a year of my life for a 1-KW tube transmitter … aerial .. license… To be forced to listen to a Yankee ham and *only* listen is a hard blow."

The New York Times reported the news on 10 December without detail, saying that "between 15,000 and 20,000 amateur radio stations in the United States are taking part."[3]

Godley wired Coursey with the report of hearing 1BCG. Greatly impressed by the quality of its signal, he and Pearson speculated about what equipment that station could possibly be using, with Pearson unable to believe it was less than 1 kW. The signals had been so "unusually steady" (in frequency) that he was able to take advantage of resonance in the headphones to boost its readability—not knowing that was exactly what its designers had hoped for. So good was the signal that Godley was able to detect an operator change, presumably by changes in *fist*, the particular style with which each operator sends Morse code.

He decided to wire Armstrong directly to suggest he try sending a message the following night. But Godley's message was mishandled and came through as "send MGES." So the following night with signals coming in very well, instead of sending actual messages 1BCG comically kept sending "MGES" over and over all night long through fading and static (and reflected in Godley's running log annotated with time stamps).

They heard and identified several other stations on both CW and spark that night, including many who were calling other stations. 9ZG was recognized by fist though he was not heard to sign his call. After a productive night of listening and logging, they closed down at 6:50 a.m. to copy MUU.

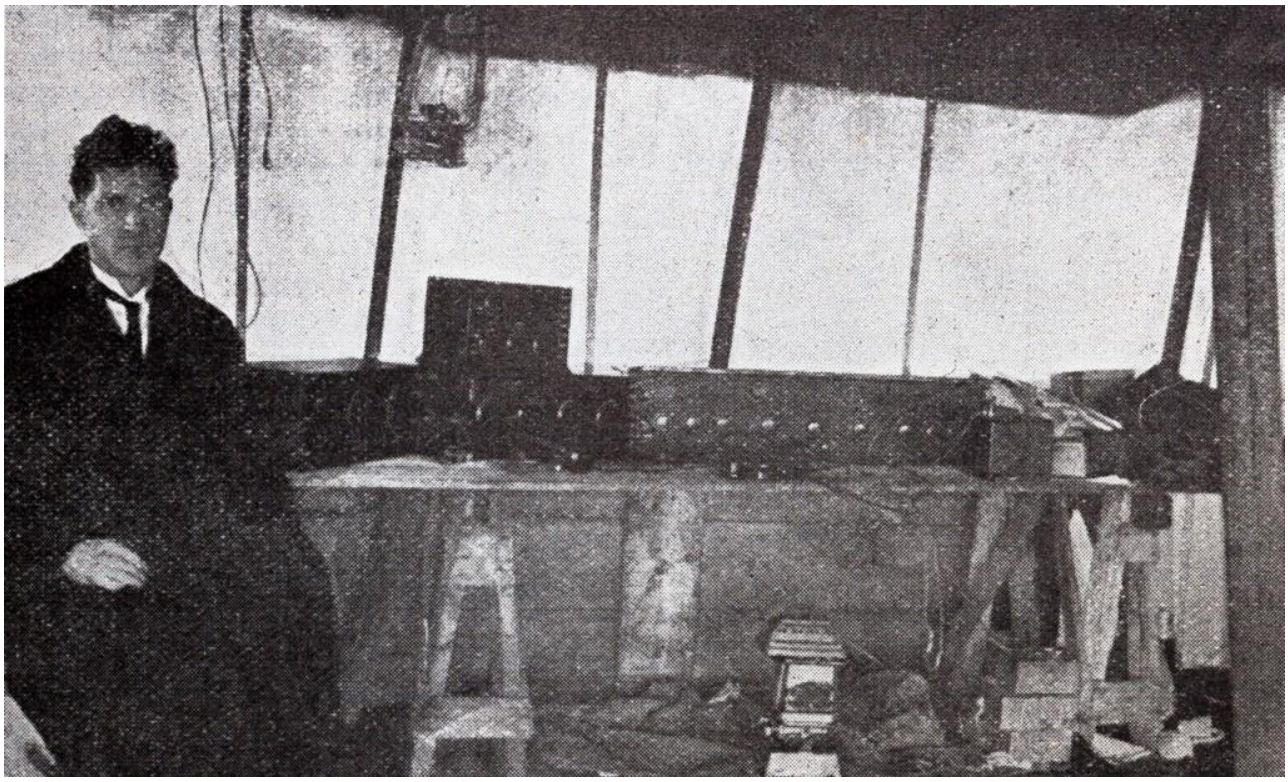
Godley cabled 1BCG with a copy of his note to Coursey. He imagined the gang there rejoicing at their success as he and Pearson marveled at the performance of 1BCG, the highlight of the test and steadily the strongest, most constantly copyable signal.

Many other stations were heard that night but not identified, sometimes simply because they failed to sign their calls while making local contacts, a practice Godley made a point of condemning. Between 4:30 and 6:00 a.m. there were sometimes so many stations coming through at Ardrossan that the QRM made copying difficult. It reminded him of familiar conditions around New York, but with much weaker signals.

The next night, Monday, 12 December, they again heard lots of weak stations and identified many from the first and second district, on spark, CW or ICW.[4] Everything faded out completely by around 4:00 a.m. On Tuesday, Signals had been coming through in London as well, and Coursey radioed ARRL headquarters with, "Many your stations heard by British amateurs. Details later."

Godley and Pearson, having been awake for 24 hours, overslept and did not begin operating until 1:30 a.m. that night. Although the weather was clear, on-air conditions were poor and they heard no identifiable signals from the US. On 13 December into the fourteenth, they slept late again. According to a letter from Coursey, US stations had been heard in London in the early morning on modest equipment, but mostly hearing QRM from harmonics and commercial stations.

It was overcast, and still quite cold and windy. The oil heater was not working well so they moved it under the operating table. They then arranged the equipment to permit them to crouch down near the heater with their heads just above the table, so that "the greatest possible portion of our bodies was exposed to what little heat was radiated by the stove." At one point, they both fell asleep against the desk. As they slept, the stove began to smoke. Godley awoke suddenly, startling Pearson who gave him a strange look. Some of the papers along with the underside of the table had turned black, and so had the portion of Godley's face that had lain across a crack in the table. After another disappointing night of hearing no signals, they quit at 3:10 a.m. "very tired and sleepy… both greatly in need of rest."



D. E. Pearson, in the operating tent at Ardrossan

At times they were so tired it was difficult to go outside to check the antenna. The static, the harmonic QRM, the cold and wet were hard to endure. Godley was also battling a worsening head cold that taxed his energy. Fearing pneumonia, he considered quitting but was inspired to continue by Pearson's operating ability and enthusiasm. And, of course, the signals coming through kept them both excited and interested.

Wednesday, 14 December into Thursday, the weather was finally beginning to warm just a bit. But light static, commercial stations and harmonics were all that they heard, with very few signals of any kind coming through. They quit early again at 4:30 a.m.

The following day they were "up all day getting photos of set-up; also had several visitors," one of whom voiced incredulous disbelief upon being told where the various signals were coming in from—"I know a bit o'American swank when I see it," he said. With much worse static that night they shut down at 4:40 on Friday morning after another session without hearing any US signals at all.

Godley originally intended to return home by Christmas to spend it with his family. But once he decided to operate from Scotland he realized that it would not be possible. He could not get back to Southampton in time to catch the *Aquitania* on 17 December due to the schedule they had set up and the extra travel involved. So, before going north he had booked himself on the *Olympic*, scheduled to sail on the twenty-first. Now he could use the extra time to "pay proper respects to various men who had been of great assistance," get his equipment through customs, and retrieve his deposit.

He'd have to make it to London by Monday the ninteenth in order for this new schedule to work out. So, on Friday afternoon he and Pearson decided to forego another night of listening in favor of dismantling the station. That way Godley could return the equipment he had borrowed in Glasgow before everything closed down there, as it normally did at noon on Saturdays. By early Friday evening everything had been packed up and later that night they were back in Ardrossan, ready to board the train to Glasgow in the morning.

Besides the schedule advantages, they later were glad they had quit when they did because the tail end of a cyclone hit Scotland that night bringing higher winds than at any time during the operation. The same storm had flooded London and battered the *Olympic* on her way in, causing two deaths aboard and damaging equipment. Godley speculated that the storm might have actually played a part in the success of the tests. It had originated in the Gulf of Mexico, proceeded up the east coast of North America, crossed the Atlantic and brushed by the British Isles before going on to Norway. That meant the storm had been located between their receiving station and the US East Coast during the time when they had heard the largest number of signals.

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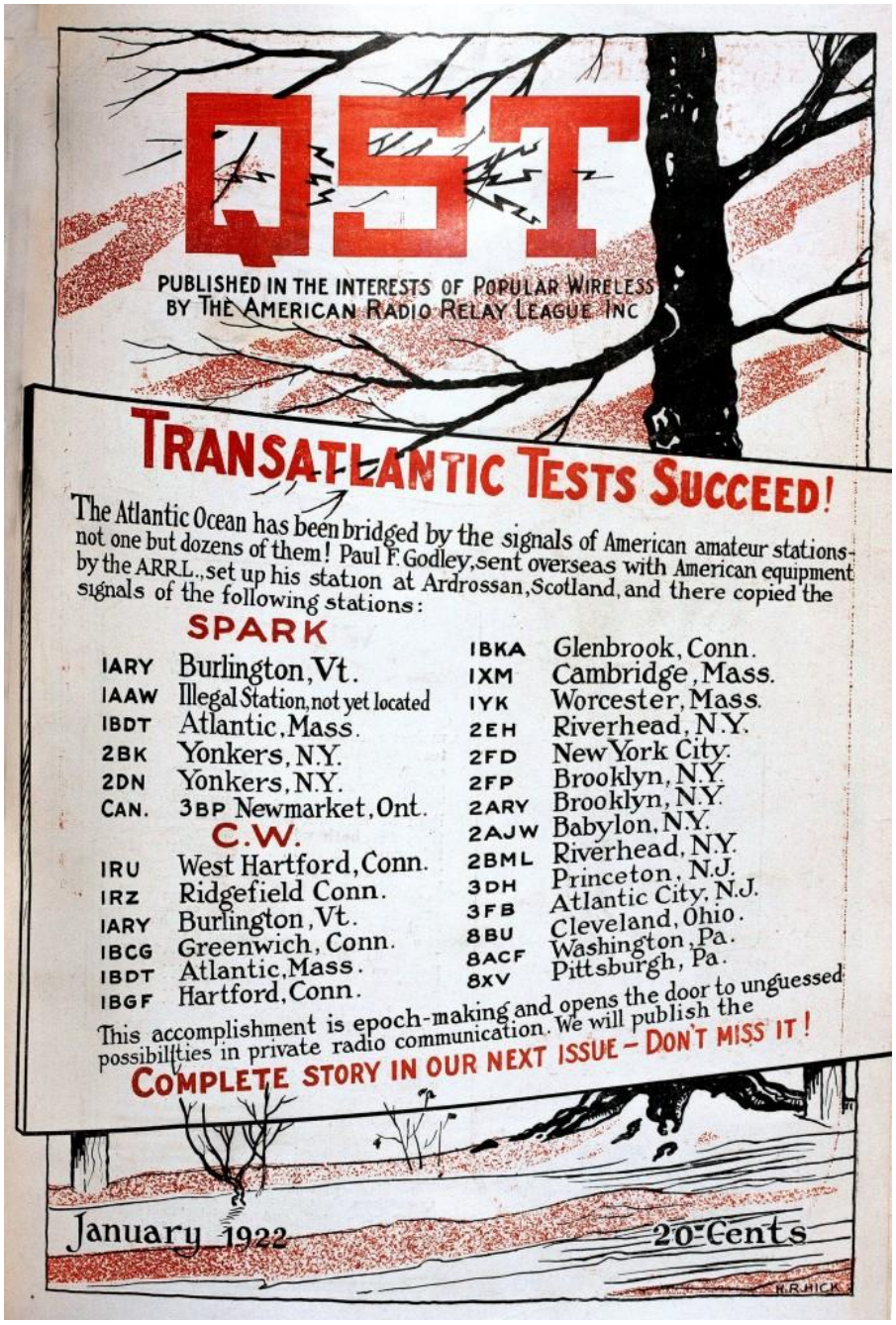
The editor of the popular British science magazine "Conquest" sent Paul Godley a poem during the test that neatly summarized his various trials:

If our climate is un-Godley,
If the weather seem to Paul,
If our static strikes you oddly,
If you hear no sigs at all,
If you get harmonics down the scale,
As far as tuners go,
If the dialect in Scotland,
Doesn't sound like Ohio,
If twenty thousand hard boiled hams
Are waiting on your word,
If but the thought of hearing them
Seems very near absurd,
If, – in the chilly morning hours, –
The faintest sigs come thru,
We'd like to hear about it,
If it's all the same to you!!

1. Paul F. Godley, Official Report on the Second Transatlantic Tests," *QST*, February 1922, 14.
2. The permit was reprinted as part of Godley's article in February 1922 QST.
3. "Amateurs Send Radio Far," *The New York Times*, December 20, 1921.
4. Interrupted CW, a way of modulating or pulsing a straight or undamped CW signal to make it audible in a receiver having no beat oscillator.

Crossings III—Accolades


QST

PUBLISHED IN THE INTERESTS OF POPULAR WIRELESS BY THE AMERICAN RADIO RELAY LEAGUE INC

TRANSATLANTIC TESTS SUCCEED!

The Atlantic Ocean has been bridged by the signals of American amateur stations—not one but dozens of them! Paul F. Godley, sent overseas with American equipment by the A.R.R.L., set up his station at Ardrossan, Scotland, and there copied the signals of the following stations:

SPARK

1ARY	Burlington, Vt.
1AAW	Illegal Station, not yet located
1BDT	Atlantic, Mass.
2BK	Yonkers, N.Y.
2DN	Yonkers, N.Y.
CAN.	3BP Newmarket, Ont.

C.W.

1RU	West Hartford, Conn.
1RZ	Ridgefield Conn.
1ARY	Burlington, Vt.
1BCG	Greenwich, Conn.
1BDT	Atlantic, Mass.
1BGF	Hartford, Conn.
1BKA	Glenbrook, Conn.
1XM	Cambridge, Mass.
1YK	Worcester, Mass.
2EH	Riverhead, N.Y.
2FD	New York City.
2FP	Brooklyn, N.Y.
2ARY	Brooklyn, N.Y.
2AJW	Babylon, N.Y.
2BML	Riverhead, N.Y.
3DH	Princeton, N.J.
3FB	Atlantic City, N.J.
8BU	Cleveland, Ohio.
8ACF	Washington, Pa.
8XV	Pittsburgh, Pa.

This accomplishment is epoch-making and opens the door to unguessed possibilities in private radio communication. We will publish the

COMPLETE STORY IN OUR NEXT ISSUE – DON'T MISS IT!

January 1922 20 Cents

H.R.HICK

Back in London, Coursey[1] kidded Paul Godley about freezing up north in soggy Scotland while he and the other British hams relaxed comfortably in their warm, cozy London homes, receiving signals using small aerials. British amateurs had indeed heard many northeast US stations, and 1BCG was also heard in Holland and on a ship docked at Hamburg. Godley spent ten hours at Coursey's office documenting details of the test.

January *QST's* banner cover headline read: Transatlantic Tests Succeed! – followed by a list of twenty CW and six spark stations whose signals had made it across during Godley's adventures in Ardrossan. Inside, the lead article did not yet have all the details but proclaimed, "Transatlantic Tests Successful" and "WE GOT ACROSS!!!!!!"

“Excelsior!” crowed ARRL secretary Warner in his editorial as he recounted the skepticism with which an attempt at amateur transatlantic communications was met by professional communications engineers, and how certain they had been that amateurs could not possibly succeed.[2] The feat rocked the radio community.

Warner continued:

They had no idea it could be done – strong and steady signals night after night at a distance of three thousand miles, with an input of less than a kilowatt and the wave length two hundred meters! They’re wondering today why they put in 200-kilowatt machines and miles of 500-foot towers and use wave lengths of many thousands of meters when a private citizen in his home in Podunk, Penn., with less than 50 watts of C.W. power can do the same thing.

He struck a nerve. In response, Bowden Washington, chief engineer at Independent Wireless Telegraph Co., took exception in a letter to *QST*. The commercial engineers, he said, were wondering no such thing and had taken aim at a different goal entirely. They spent more for higher power and big antennas to achieve reliable around-the-clock service.[3]

However, many still suspected the original 200 meter assignment was meant to do away with amateurs. Now that they had shown what could be done, the worry might shift to others coveting what was once considered “worthless.”

The identity of one of the successful transmitting stations continued to puzzle everyone. Exactly who 1AAW was—heard on spark that first night, identified on the January cover only as “Illegal Station, not yet located”—remained a mystery. Some had reported hearing the call sign locally in the Boston area, though the Roxbury, Massachusetts ham who actually held the call hadn’t been on the air in over six months.

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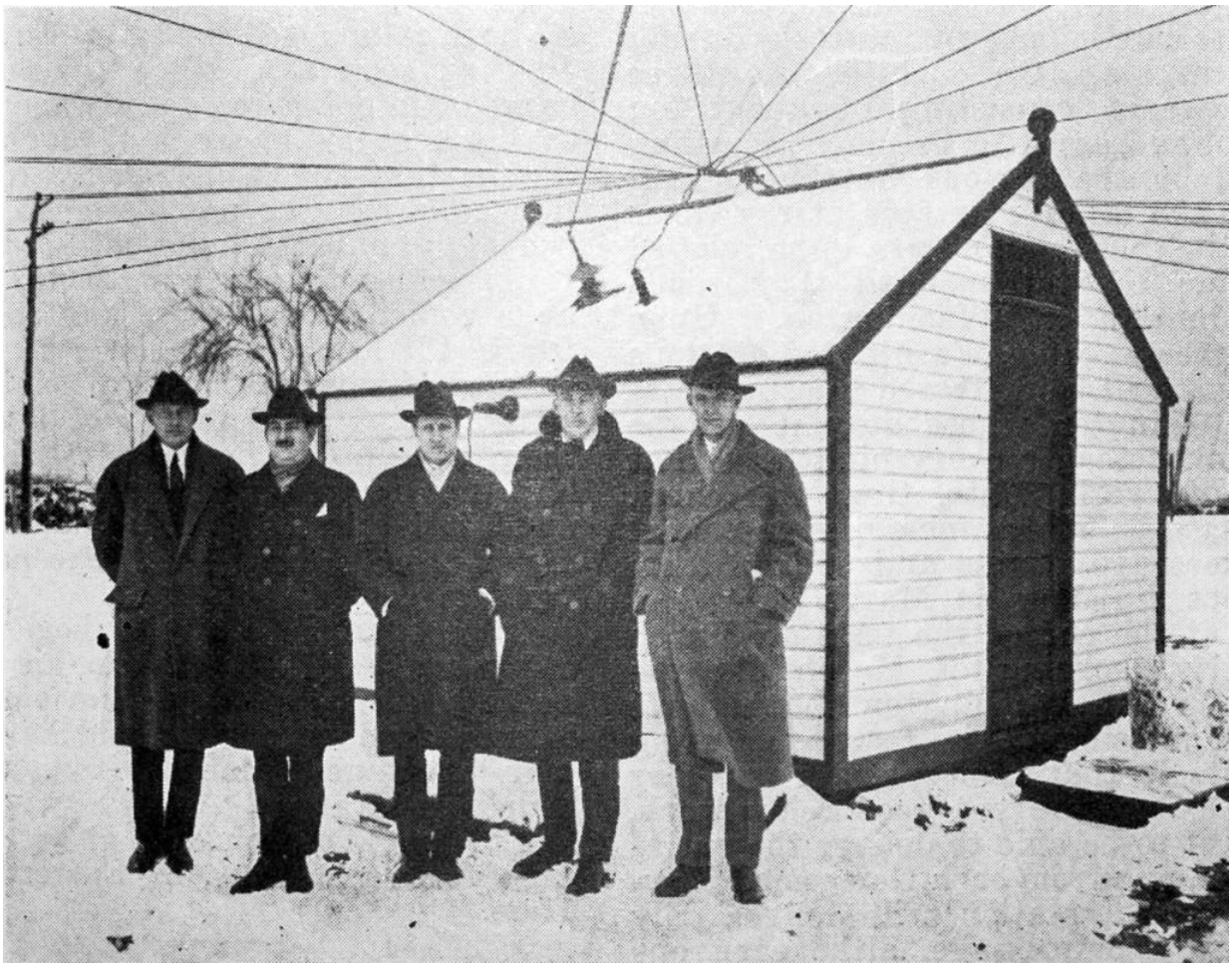
In a long article *The New York Times* reported the entire story of the test including the planning, procedures, and participation, and wrongly credited the actual owner of 1AAW with the first signal received.[4] “A new era in the history of amateur wireless work will date from this achievement,” the paper noted, emphasizing that low-powered instruments had surprisingly done the work of large, high powered commercial stations, probably annoying Mr. Washington and his colleagues yet again.

A second, smaller article in the same edition quoted Maxim who remarked, “It had not been thought possible by experts that amateurs could span the ocean, and we have proved that it could be done,” adding that, “The amateur’s apparatus has been developed on the basis of love for his work; it is not the perfunctory, although skillful, performance of the hired employee.” The article’s headline, “Maxim is Pleased with Radio Tests” indicates that he was well enough known to deserve a single-name reference in the *Times*.[5]

Paul Godley’s successful operation was a kind of combined contest and DXpedition. It took place outdoors in December during downpours, winds, and cold temperatures, operating on batteries from a tent heated by an oil stove and lit by an oil lantern. Winds and rain from a passing cyclone thrashed the location. “What a debt we owe Godley for what he went thru for us!” wrote Warner.[6]

If there were still any doubts about the effectiveness of CW over spark, the transatlantics swept them aside.



1BCG Designers, Builders, Operators: (L-R) Amy, Grinan, Burghard, Armstrong, Cronkhite

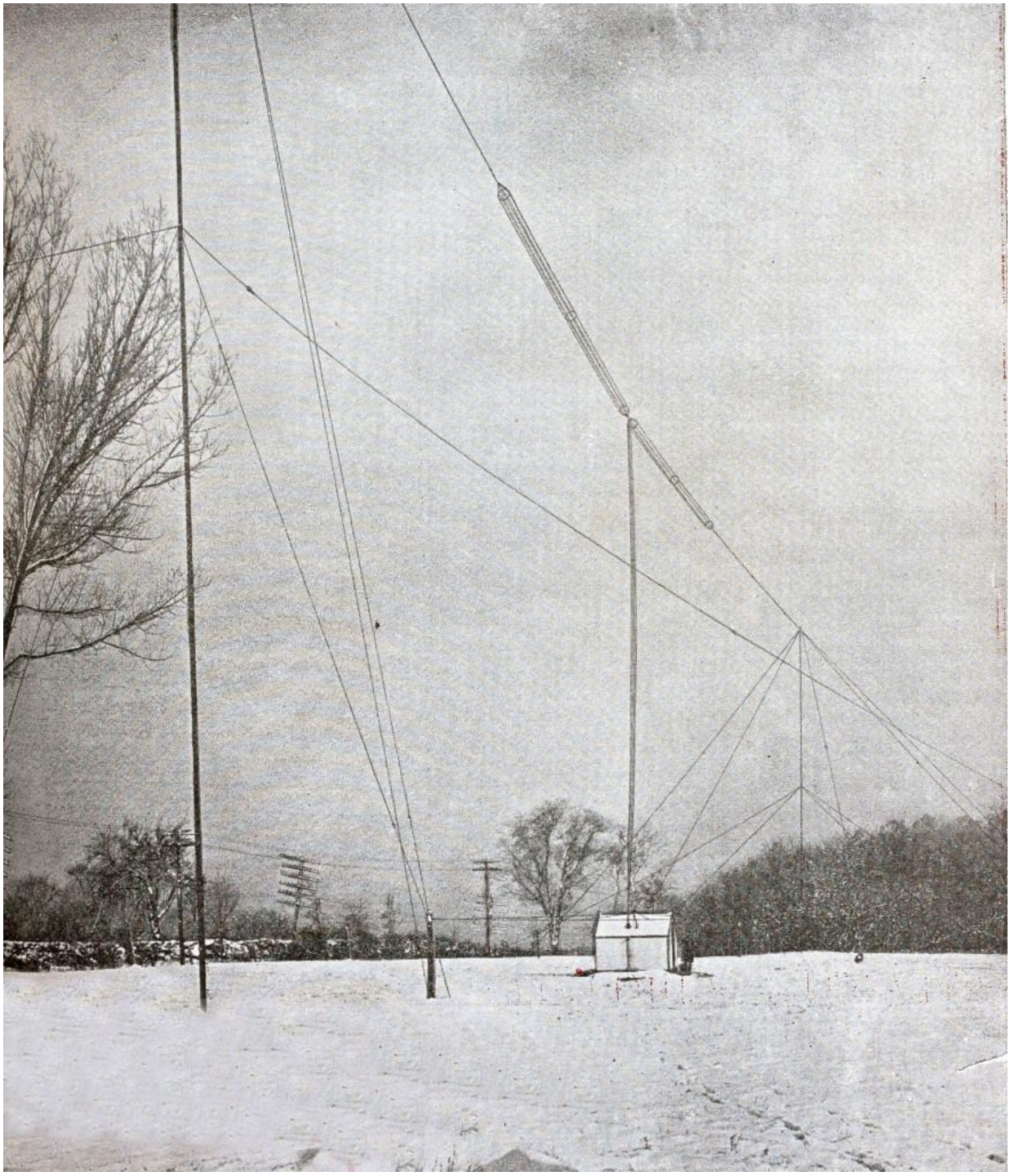
The transmitting station made famous by the test was the high brain-powered, as much as RF-powered, 1BCG. Having marveled at its consistently strong and steady signals, which were far better than any of the rest, Godley and Pearson had wondered what kind of transmitter and antenna the station was using.

Constructed especially for the transatlantic test, it was described at length, first by George E. Burghard at the R.C.A. meeting at Columbia on 20 December 1921, as Godley was on his return voyage, and reprinted in *QST* the following February.[7]

Because the identities of the qualifying transmitting stations had been kept secret, and since this new station was yet to be built when Godley left New York, he and Pearson had no way of knowing anything about it, other than who the call sign belonged to.

As Godley sailed for England, six R.C.A. members—Armstrong, Amy, Burghard, Cronkhite, Grunan and Inman—met on 18 November and decided to build a new station specifically to reach Godley. After considering several sites, they chose Cronkhite's station, 1BCG, in Greenwich,

Connecticut and began construction the next day. Working day and night, in snow and rain, they managed to finish the antenna and its extensive ground system on 30 November, and attempted their first transmissions late that night, with “expectedly poor results,” they reported.



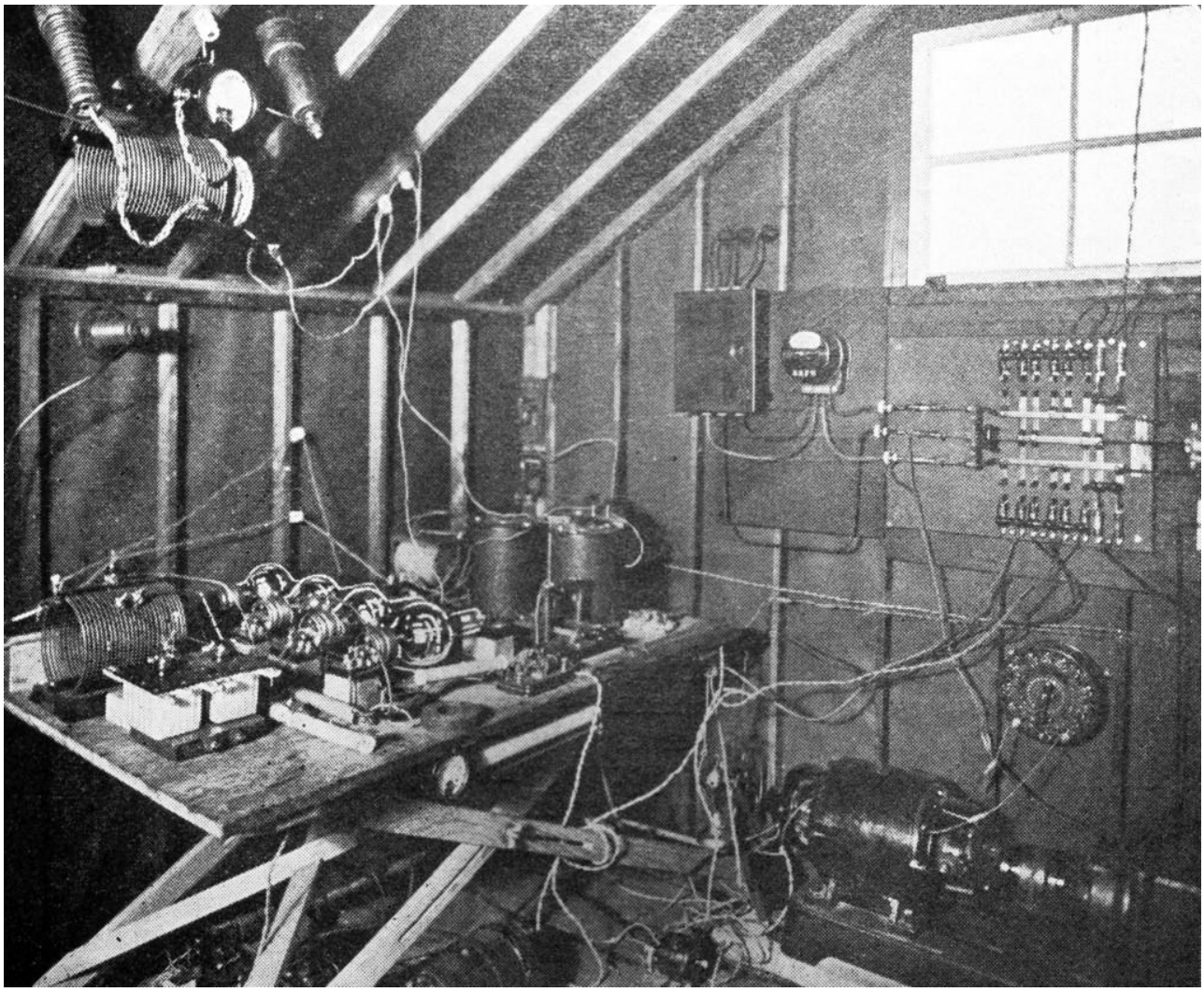
Antenna and Station at 1BCG

Supported by two masts, 108 and 75 feet tall and 230 feet apart, the transmitting antenna was a T-vertical, in which all three sections of the T were wire “cages.” It had a counterpoise radial system fanning out from the base of the feed line—there was no earth ground connection. The station being positioned at the center of it all permitted a very short lead-in connection to the

transmitter. Antenna resistance measurements indicated that it was resonant near 190 meters. They were intending to work at 230 meters, which partly explained the poor first attempt.

A great deal of thought went into building a transmitter that would work optimally with the superheterodyne receiver Godley would be using. They wanted to be sure the frequency was stable so that he could make use of natural resonances of the headphones and his ears! Everything about the design was to be optimized, right down to the human element in the receiving system. Designing for a 1 kHz audio note in the receiver, they wanted as constant a radio frequency as possible in order to eliminate changes in audio that would be distracting to the receiving operator, or worse, make the signal inaudible. They would push the capabilities of the state of the art in 1921. But with people like Edwin Armstrong on the design team they were *defining* the state of the art.

“There is but one type of transmitter which can possibly meet this condition—the master-oscillator-amplifier type with a motor-generator for the plate supply,” they concluded, referring to a two-stage transmitter with a DC plate voltage produced by an AC motor driving a DC generator, instead of either a battery or a straight AC supply.



1BCG Station Equipment

The transmitter would have a UV204 Radiotron tube for the oscillator and three more in parallel for the final amplifier with 2200 DC volts on their plates. The oscillator would run continuously, to avoid frequency variations introduced by keying it on and off, and the transmitter was keyed by two relays[8]—one opened the grid-leak circuit disabling the amplifier stage, and the other shifted the wavelength of the oscillator by 5 meters (about 38 kHz)—in effect, FSK where the "back wave" or "back lash" component during key-up times was at greatly reduced power. The output circuit was coupled to the antenna through a fairly standard two-winding air transformer arrangement.

Methodically dealing with one problem after another over the course of several days, they finally had the new transmitter up and running just past 1:00 in the morning on 9 December, which explains why Godley did not hear them at all on the first night despite conditions being so good. They measured their antenna power as 558 watts (with 990 watts input power to the tubes).

By far, the most important innovation in this transmitter was the steadiness of its transmitted frequency, which did not vary under keying or with movement of the antenna, both of which affected most other CW stations of the time. "Observation on a windy night, when the notes of all C.W. stations heard were varying so badly as to be almost unreadable, showed the frequency [of 1BCG] to be absolutely unaffected by the motion of the antenna," they noted.[9]

Several records were set by this station during the tests including distances of 3,800 miles to Amsterdam, 2,600 miles to California, and in message passing, a twelve-word one to Godley at Ardrossan, and three to Catalina Island, Calif.

Nearly coincident with the transatlantic tests, from 14 December to 5 January, Clifford J. Dow, 6ZAC, at Wailuku, Territory of Hawaii, had been receiving many mainland amateur stations, mostly special license stations, including a couple in the Midwest and an Army station, XF-1 at Langley Field in Virginia.[10] Despite heavy QRN and harmonic QRM from NPM at Pearl Harbor, he also managed to copy message traffic directed to him "blind" by several West Coast stations. Dow had thus achieved something the transatlantics had not: the relaying of a routine message for a third party as part of normal ARRL relaying operations.

On the coast, 6ZR's 1 kW spark on 375 meters in Los Angeles was the loudest arriving in Hawaii, beating even KPH, the RCA station in San Francisco; and 6ZAF, who was running 100 watts on CW was "in all over the house on two steps," wrote Dow, referring to a detector with one or two steps of audio amplification making it audible far away from the headphones. Dow intended to build a set just like the one at 6ZAF to attempt a two-way contact.

In Europe, as reported by Coursey in *The Wireless World*, British amateurs had successfully received code groups from the scheduled stations and copied many other free-for-all stations.[11] 1BCG was heard by five different British amateurs. W. R. Burne, of Sale, Cheshire, heard seven stations and won the top British prizes. Coursey defended British amateurs against charges of inferior equipment being the reason for the failed earlier tests and lack of receptions prior to the December test.[12] He attributed the success to the increased length of the tests, noting that the previous ones had run for only three days, and this time the major opening had only lasted that long. He also blamed it on the time zone difference and that British hams do not routinely stay up

late (thus reinforcing their non-boiled-owl credentials). Furthermore, all the pre-war equipment in Britain had been confiscated by the government and, when returned, was mostly unfit for use, so they had to build from scratch after the war. Lastly, Godley was allowed to use a much longer antenna than is normally permitted for British amateurs.

Interest had also been high in France, where there had been some amusing confusion over Godley's messages sent via MUU, which they copied every morning.[13] He often used phonetic words instead of letters whenever he wanted to make sure a callsign or code group made it through, especially after the "MGES" mixup. So when he said he had heard "one able yacht," the French took it to mean he heard a boat at sea. Dr. Pierre Carrot, editor of the French amateur magazine *La T.S.F. Moderne* wrote about their confusion:

Here is a puzzle for us! A correspondent writes us "I'll be damned if I understand anything of this mystery where rams, dogs, foxes, yachts and even X-rays play such an important part ! ! ! might this not be a code?"

He proceeded to explain how phonetics could be used as code for letter groups, the way "the telephone girls" do it, he wrote. Once they figured out the "system" they had no further problem with Godley's messages. But there were other words that caused confusion, such as *beverage* and *sinkgap*, which required explanation too.

French amateurs were being licensed for 100 watts of CW on 200 meters, partly resulting from the successful tests. Carrot went on to speculate about propagation effects, astonished that the short wavelengths "do carry" after all. Their scientists were at a loss to explain it, but suggested it might be due to reflection from "the higher strata of the atmosphere." Could it have been related to the moon? Based on which days signals were and were not heard, perhaps moonlight had an effect, since it was well known that "short waves are particularly sensitive to the absorbing effects of light." The full moon was on 15 December and Godley had heard nothing but "feeble signals" from the twelfth onward.

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A sidebar to Godley's *QST* article reported that F. Clifford Estey, 1AFV, had in January succeeded in passing three messages to W. W. Burnham in London who acknowledged them by cable.

As an early supporter of the test and prize sponsor, Burnham had heard of the American plan to send Godley over to listen. After reading how only the American hams were "dyed in the wool" and could stay up to all hours listening, he had embraced and upped Warner's challenge and bet ARRL a new spring hat that Godley would not hear *any American signals at all*—never mind it becoming commonplace. July *QST* showed the ARRL secretary wearing his prize.[14]

The hat, which was made by Harrod's, is handpainted in colors, bearing on one side the Union Jack and on the other the Stars and Stripes, united by wireless flashes which encircle the crown. Inside the hat is the inscription "From W. Witt Burnham, M.I.R.E., to Kenneth B. Warner, Secretary, A.R.R.L.", while on the front in hand-painted lettering is "In Commemoration of the Success of the Anglo-American Wireless Test organized by the A.R.R.L., 1921."

It looks rather like some versions of the lid worn by the Mad Hatter in Lewis Carrol's *Alice's Adventures in Wonderland*.

Burnham’s spring hat

Kenneth Warner wearing his prize

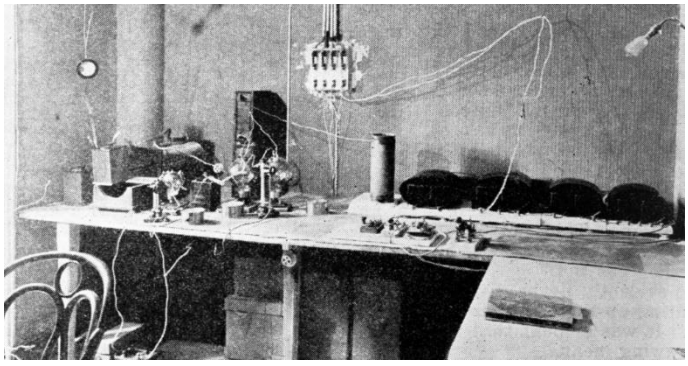
1. Phillip Coursey, the British test coordinator.
2. K. B. Warner, "Excelsior!," Editorial, *QST*, January 1922, 25.
3. "Re: Our January Editorial," Radio Communications by the Amateurs, *QST*, April 1922, 63.
4. "Amateur Radio's Triumph," *The New York Times*, December 18, 1921.
5. "Maxim is Pleased with Radio Tests," *The New York Times*, December 18, 1921.
6. The Editor, "The Story of the Transatlantics," *QST*, February 1922, 7.
7. G. E. Burghard, "Station 1BCG," *QST*, February 1922, 29.
8. The relays were referred to as "mechanically-controlled keys."
9. Interestingly, it was difficult for the team to get accurate reports from listeners about the steadiness and quality of their signal, because 1BCG's signal was so strong that it would cause nearby receivers (within 50 miles) to shift frequency, having unstable oscillators themselves and lacking any sort of automatic gain control. Instead, they were able to fashion a local signal monitor that could develop a beat note using the third harmonic of the detector oscillator against the station's primary signal.
10. "And Now, Transpacifics," *QST*, March 1922, 7.
11. "The European Transatlantic Results", *QST*, March 1922, 20.
12. Philip R. Coursey, "Report on Receptions by British Amateurs in the Transatlantic Tests, December, 1921," *QST*, May 1922, 23.
13. "More About the Transatlantics," *QST*, April 1922, 35.
14. "An Echo of the Transatlantic Tests," International Amateur Radio, *QST*, July 1922, 35.

The Fourth Time's the Charm

After the initial thrill of being the first to hear transatlantic signals, Paul Godley's next thought was of making contact, and a helpless frustration at not having equipment to transmit a reply. And now, emboldened by the successful second set of transatlantic tests in December 1922, many amateurs were talking about the possibility of a first two-way contact across the ocean.

In fact, in early 1923 US hams were already informally running two-way tests with Leon Deloy, French 8AB (one of the European stations most widely copied in North America last time), without success, but with both sides hearing each other at different times.[1] Deloy had also started a series of his own tests every Sunday, Tuesday and Thursday, transmitting between 0500 and 0530 GMT, then listening for thirty minutes.

Later in the year he reported experimenting all the way down at 45 meters.[2] Deloy was hearing signals in Nice sent by an experimental station in Paris 435 miles away, in broad daylight with signals readable 16 feet from the phones, no QSS, and very little QRN. He believed that signals of equal power at 200 meters or higher would not have been readable at all. It was a just hint of things to come.



Deloy's nice Nice experimental shortwave station 8AB

In the US several individual amateurs had been testing as well, exploring shorter wavelengths in a sort of inverted mountain climbing procedure. The explorers would first rendezvous at base camp at 200 meters and then tentatively descend lower in stages.[3] Aside from the freedom from QRM—the short wavelengths were mostly empty except for commercial harmonics—they all found that the strongest signals came through below 170 meters.

To stimulate more such exploration, the ARRL Operating Department announced a *100 meter CQ party* for the nights of 24 and 25 March 1923, from 10:30 p.m. to 12:10 a.m. Eastern Time, with ten minutes of transmitting time allotted to each US district plus Canada. Trying to encourage efficient operation, ARRL Traffic Manager Fred Schnell warned, "Don't call CQ 185 times and sign once; no one is going to camp on your wave forever—keep signing at intervals. Everybody is invited to try both sending and listening and to send the logs to the *QST* Shop. They must be clean logs—not logs written on scrap paper or in the middle of a letter."

Hams turned out enthusiastically. Logs arrived at headquarters from all districts except the seventh, as recorded in a special edition of the *Calls Heard* section of *QST*, in which the editor reported that "the gang is absolutely 'nuts' about short waves."[4] All of the calls reported were heard between 80 and 190 meters. Every effort was made to eliminate harmonics of signals at 200 meters or higher that could have been mistaken for short wave signals, presumably so that only those who were actually taking part in the test would be credited with being heard.

All of these experiences fed enthusiasm as hams prepared for the fourth transatlantic tests, which were to run from 21 December 1923 through 10 January 1924. As in the previous test, selected stations in Britain and France would be allocated specific times to transmit code words. But this test would also differ from its predecessors in one significant way: complete QSOs would be their ultimate goal. Even the name of the event changed. "The two-way transatlantic test would be open to everybody—a free-for-all," announced ARRL Secretary Kenneth Warner, meaning that, in addition to the allocated stations, everyone else would get a chance to participate.

Several things were coming together to favor success this time:[5] The government now mandated evening quiet hours, a regulation put in place just a few months earlier. Europe would again transmit and no North American stations were allocated transmit times until 11 January when the two-way attempts would start. Any North American station caught transmitting during the quiet periods would be disqualified from all awards. The only exception would be in case of emergency.

Each night, the test would be conducted between 0100 and 0600 GMT. During the first two hours, any amateur in Europe could transmit between 180 and 220 meters. Then, from 0300 to 0600 individual designated transmitters would send their assigned code words, with British and French amateurs transmitting on alternating nights. Finally, on 11 January, everyone was to attempt two-way contacts (QSOs).

QST offered a "genuine Brown Derby" to the first American to make contact. And a collection of prizes worth $3,600[6] was donated by various companies to recognize "the best reception records." A Grebe four-tube, 250-watt transmitter was the top prize and would be awarded to the amateur who reported the largest total *station miles*, meaning the sum of all the distances of all the stations logged, each one counting only once. In the case of code word stations, that bit of information must be correctly copied and reported as well. Winning the top prize excluded an entrant from winning any of the other prizes.

Next after the Grebe were five more award groups, designated A through E. Within each group the top five places carried awards of equipment ranging in value from $200 for first place down to $20 for fifth. The Group A award was for the greatest distance of any single reception, B and C were for the greatest station miles with France or Britain, respectively, on any given night, and D and E were for the greatest station miles with France or Britain over the duration of the tests.

Each amateur would be eligible to receive only one award. As Schnell put it, “It is to be understood that this is purely a sporting event and there is no excuse for anybody to be unreasonable and expect to grab everything in sight.” Logs should be complete and contain at least call sign, code word (if any), date, time, and wavelength for each reception, and each entrant should indicate in which group they were competing. The logs would be due at HQ no later than 25 January, a mere two weeks after the end of the tests.

With the exception of the equipment awards, the overall structure of the test was beginning to look a lot like today’s on-air contests.

As in previous years there would be a friendly bet. This time Schnell would wager on the outcome with UK equipment maker and radio amateur W. W. Burnham. Schnell suggested the stakes would be a pair of green suspenders, based on any challenge Burnham cared to name. They ended up betting “a nice clock” that at least twelve stations from Europe would be heard in North America.[7]

Recalling the QRM problems in the previous tests, Warner stressed the need for discipline during the upcoming round. He reminded everyone how embarrassing it had been when many stations, including some prominent ones, refused to stand by during the designated listening periods leading to a failure to copy more than just a few European signals “thru the merciless interference caused by the morons in our midst.”[8] This year’s test would concentrate on receiving, before any two-way attempts. “These tests are an international sporting event,” repeated Warner, “and the whole world is invited to participate—but in listening, not in sending,” a tall order for hams eager to hit the key.

Leon Deloy, 8AB

One amateur taking the challenge particularly seriously was Leon Deloy, who spent a month traveling in the US attending the ARRL convention and visiting various American amateur radio stations in order to study them and prepare his own station, which he hoped would be one side of the first amateur two-way contact between Europe and North America.[9] He knew of several other hams in France also building 1-kW stations specifically for the tests and wanted to get an edge over his competitors. “It will be more than a radio achievement; it will be one more tie of friendship between the two great nations which have been brought so close together by the late war,” he wrote.

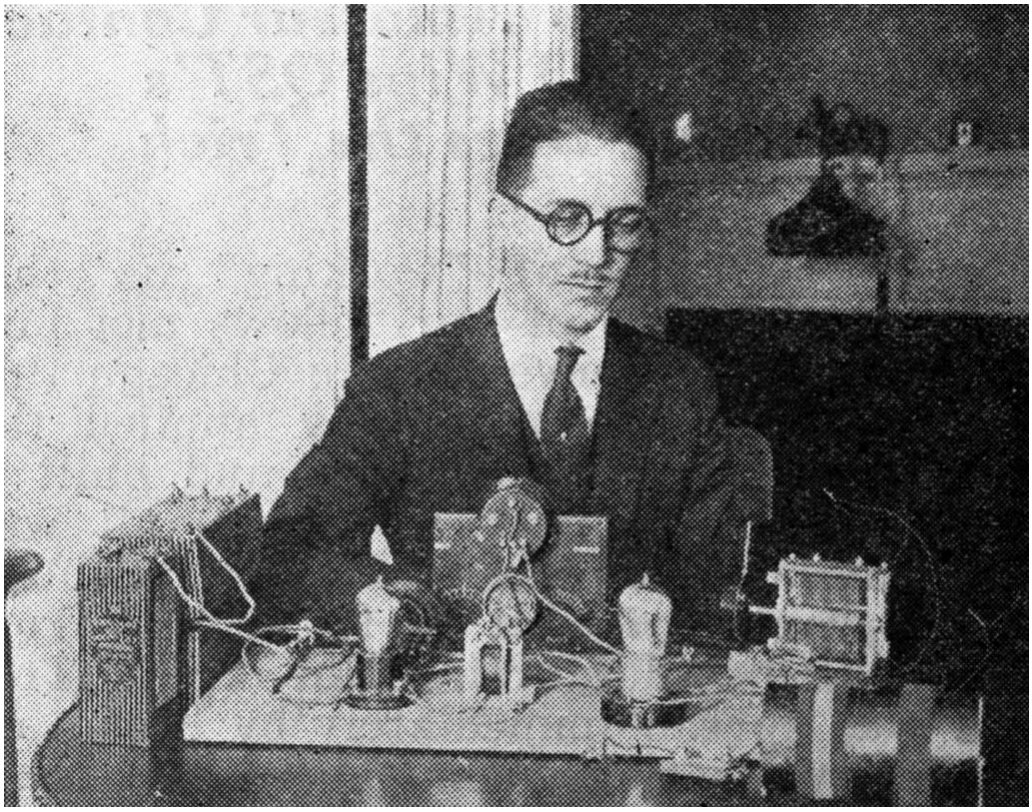
Seeing the same level of enthusiasm in the US as in France, Deloy also took note of the differences in amateur operations in the two countries. For one thing, the average amateur was much younger in the US. For another, on-air operation was more “business-like” in that US amateurs concentrated on message handling (which was not even allowed in France), whereas the French amateurs emphasized experimenting. Transmitters in the US were often remotely controlled, but in France they were nearby where operators could get their hands on them—as an experimenter should. American amateurs optimized their receivers for ease of operation, useful in message handling, whereas in France they emphasized sensitivity and had receivers that were “most of the time spread all over the table,” wrote Deloy, which led to “difficulties in adjustment and lower reliability, but I think we very nearly get the maximum sensitivity possible out of our sets and most of us like far better to experiment with new hookups whenever we please than to sit night after night in front of the same nicely finished cabinet.”

He thought it quite a shame that spark was still allowed in the US—it had been banned in France.

The building, the traveling, the conversations, the research—a year or more of patient, painstaking preparation was all coming together in the fall of 1923. But the wait for the January transatlantic two-way tests proved to be too long for Monsieur Deloy.

Shortly after he returned from his trip to the US, he began preparing to try. Via telegram to Schnell he announced his intention to transmit on 100 meters from 9:00 to 10:00 p.m. Eastern US Time, beginning on 25 November. The word was then spread via broadcasts. Having just built a new tuner, Schnell was ready and listening on 100 meters the first night and copied 8AB immediately.

Commenting later on that scheduled reception[10], Warner wrote that his tuner, “the most goshawfullooking haywire receiver you ever saw, had hurriedly been assembled … At the appointed hour there Deloy was, right from the first dot, readable all over the house. Wow, did this short-wave stuff work!”



Fred Schnell at 1MO

Deloy continued to call "ARRL" for an hour, as arranged, along with his cipher group "GSJTP." He was notified (by other means) of the good copy and the next night he sent two messages that were copied by both Schnell at 1MO and John Reinarz at 1QP. The first message ever sent from France to North America via amateur radio read:

NICE FRANCE
A.R.R.L.

WANT THIS FIRST TRANSATLANTIC MESSAGE TO CONVEY MOST HEARTY GREETINGS OF FRENCH TO AMERICAN AMATEURS.

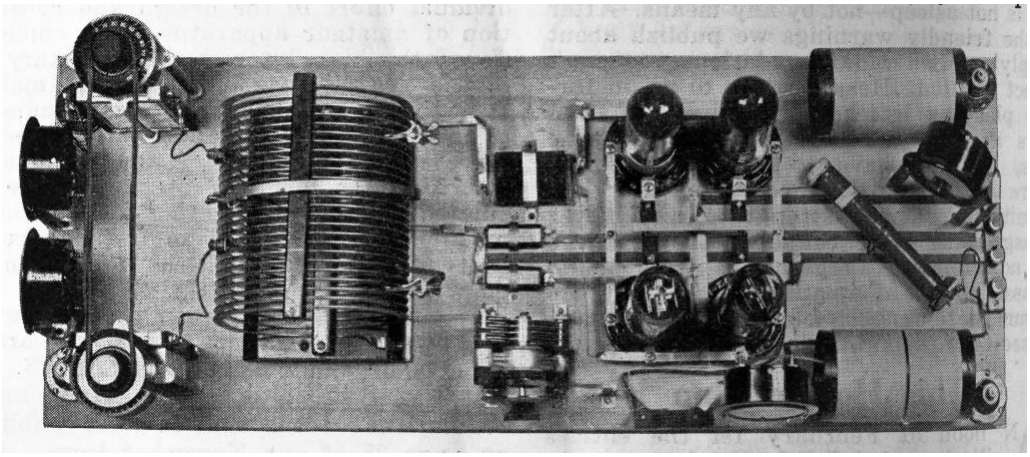
LEON DELOY

The second message suggested a scheduled two-way contact. 1MO immediately asked for and received permission by the Supervisor of Radio to test on 100 meters—all was ready. The following night Deloy called again for one hour starting at 9:30 p.m. Eastern Time, sent two messages, and ended by asking for acknowledgement (QSL). Schnell then sent a long call on 110 meters and immediately heard Deloy replying.

Not quite ready to believe it, Schnell and Warner, who had joined him at his station, suspected it might just be a coincidental blind transmission, not a reply at all. "Will the fellow never end his call and say something!" wrote Warner, "Aha, he breaks! And then, my lads, came the first transocean R, R, R in all amateur history! Oh boy, oh boy, was that a thrill?" The history-making first inter-continental amateur QSO was in the log! Deloy's first in-QSO message to Schnell was:

R R QRK UR SIGS QSA VY ONE FOOT FROM PHONES ON GREBE FB OM HEARTY CONGRATULATIONS THIS IS FINE DAY MIM PSE QSL NR 1 2

This meant he had received Schnell's transmission with signals that were readable and very strong, being heard one foot away from the headphones on his Grebe receiver. "MIM" is the alphabetic equivalent of the Morse code for a comma. Lastly, he asked for an acknowledgement of his messages numbered 1 and 2. At 1MO, 8AB was coming through equally well, copyable on Schnell's loudspeaker from twenty-five feet away.



1MO transmitter used for first DX contact

After acknowledging Deloy's messages, Schnell sent some of his own, including greetings to various French notables such as Pierre Corret, the president of the French Joint Transatlantic Committee. While this was going on, Reinartz called 8AB from 1XAM on 115 meters, and heard Deloy acknowledge and ask him to QRX (stand-by). 1XAM was Reinartz's experimental station in South Manchester, Connecticut, specially licensed for operation on 100 meters.[11]

Warner also "exchanged compliments" with Deloy for a short time, then Schnell invited Deloy to send a message for WNP (the MacMillan arctic expedition) on behalf of French amateurs. Although Schnell missed some of it, Reinarz copied it solid and acknowledged receipt. He and 8AB then "chewed the rag" for a while.

John Reinartz with transmitter at 1XAM

“For years we have dreamed of this,” beamed Warner, “for over a year we have seen it coming; for weeks we have been sure that winter weather would see the thing accomplished. It has been done, fellows; we are actually in back-and-forth contact with Europe over our amateur sets.”

After successfully sending the WNP message to 1MO on his second attempt, Deloy developed some transmitter problems and had to sign off just before 12:30 a.m. The next night conditions were very poor, making a repeat performance impossible. The night after that, on Thanksgiving Day, 29 November 1923, 1XAM made a short contact but could not copy 8AB reliably because of interference from KDKA’s “short concert wave” on 103 meters. On the thirtieth, 1MO was hearing 8AB quite loudly but could not copy what he was sending due to heavy static and QRM generated by local receivers! Four other amateurs reported hearing him, too.

More significantly than just being a record for 100-meter work, some amateurs began to recognize that operating on that shorter wavelength, rather than being more of a challenge, may have actually been what made it all possible. All three stations in this first set of QSOs were transmitting using the same Reinartz-modified Hartley oscillator, 8AB’s being powered by 25-cycle unrectified AC, which made it copyable using a non-oscillating detector. And the Connecticut pair both ran 500-watt transmitters with some degree of rectification on the plates. All receivers were based on regenerative Reinartz tuners: a Grebe at 1XAM, and a version at 1MO that was, as described by Warner, “at best a pile of junk” (a friendly jab at Schnell).

Schnell wearing his prize

The point of all this was that there was nothing remarkable or special about any of the equipment except for the fact that the contacts were all made with it tuned to very short wavelengths. Warner concluded that, “the accomplishment is merely a demonstration, more effective than all of our talk, of the efficacy of the shorter waves.”

He then admitted that it would be "hard to explain to you fellows, we know, how an A.R.R.L. officer happened to win the Brown Derby offered by the Editor of *QST* as a trophy to the first ham to work to Europe. We hear agonized yells of 'Collusion!' We're helpless, tho. Schnell vowed his determination to win the lid, he got busy and did it—and there's nothing else to do, he has won it. (Jealous of our high British hat, we think, and wanted something to wear himself. Hi!)."

For his part in the achievement, Leon Deloy was later made a *Chevalier de la Légion d'Honneur*, or Knight of the Legion of Honor,[12] the fifth degree of France's highest decoration, first established by Napoleon Bonaparte.[13]

Testifying before the US Senate seven years later, Maxim described the event to try to convey the excitement of each new achievement in amateur radio:[14]

It is difficult to explain the thrill that accompanies an experience such as this. It is sublime and carries with it a sort of uplift that makes us better and deeper-thinking men. The precision of it all, the picture of the Frenchman sitting in his little den in France, waiting for the precise second to come around, hand on key, the Americans sitting in their little shack in a little street in New England, silently listening and watching the time, the miles and miles of lonely black ocean over which the little electro-magnetic oscillations must travel, are utterly compelling to us amateurs.

1. Kenneth B. Warner, "Two-Way Tests with Europe," *QST*, March 1923, 13.
2. "French Work on 45 Meters," Radio Communication by the Amateurs, *QST*, October 1923, 50.
3. S. Kruse, "Exploring 100 Meters," *QST*, March 1923, 12.
4. Calls Heard, *QST*, May 1923, 75.
5. F. H. Schnell, "The Fourth Transatlantic Tests," *QST*, December 1923, 9.
6. Equivalent to nearly $50,000 in 2013.
7. Kenneth B. Warner, "Achievement," Editorial, *QST*, January 1924, 7.
8. Kenneth B. Warner, "Be a Sport!," Editorial, *QST*, December 1923, 7.
9. Leon DeLoy, "My Impressions of American Amateur Radio," *QST*, December 1923, 17
10. Kenneth B. Warner, The Editor's Mill, *QST*, December 1933, 7.
11. Kenneth B. Warner, "Transatlantic Amateur Communication Accomplished!," *QST*, January 1924, 9.
12. Clinton B. DeSoto, *200 Meters and Down*, The American Radio Relay League, Inc., 1936, 97.
13. It had also been awarded to Edwin Armstrong in 1919.
14. "President Maxim Testifies at Washington," *QST*, April 1930, 29.