



On the Short Waves



ENGLAND'S SHORT-WAVE PIONEER

The most famous amateur phone station of the world, undoubtedly, is G2NM, Caterham, England, located a few miles to the south of London. Two views of its transmitting equipment appear on these pages. It is owned and operated by Mr. Gerald Marcuse, who is vice-president of the International Amateur Radio Union and acting vice-president of the Radio Society of Great Britain. Mr. Marcuse has been for many years well known among the "ham" fraternity of the world; although to broadcast listeners, of course, short-wave work was an unknown quantity until very recently.

The continuing demands for "overseas broadcasts" which rolled into Great Britain from the Dominions and Colonies in 1927 were met by the British Broadcasting Company with the uniform reply that short-wave technique had not advanced sufficiently to justify the necessary expense. This may be set down to conservatism, and the fear that listeners in other parts of the earth would expect local quality and certainty of reception; but it was evident that a need existed. Mr. Marcuse stepped forward and offered to undertake at his own expense a short-wave Empire broadcast service. This generous offer overcame official inertia; Mr. Marcuse started on this work, and the successful demonstration forced the hand of the B. B. C., which then undertook its short-wave transmissions from 5SW.

"After many years of experimenting on the various short waves," says Mr. Marcuse, describing his system in a letter to RADIO NEWS, "and finding that these signals were being received with such remarkable regularity and consistency in various parts of the world, I thought it would be an interesting experiment to attempt short periods of broadcasting. Unfortunately, private enterprise of this description in this country is not very favorably received by the various government departments concerned; but they realized that there was room for experimentation of this kind, and they accordingly granted me certain facilities which enabled me to carry out tests on a fairly extensive scale.

"I realized at the time that, in order to put out a stable signal free from 'frequency pull' in order to give the distant listeners the best possible signal, it was necessary to use crystal control. I

therefore chose the 130-meter wavelength for the crystal; this frequency was doubled and redoubled, then amplified. The input to the final amplifier was 1200 watts, and the two special modulators handled also 1200 watts. This gave me a 60% modulation, free from distortion, which was sub-controlled by two 75-watt tubes in parallel.

"These were connected by a private telephone line to the house of my assistant, Mr. Percy Valentine, about a mile away, where the control room and studio were situated. We were fortunate in having the use of a music room, complete with organ and piano, etc., for a studio; and inter-communication telephones were used throughout. The control room housed the note oscillators, early A.F. amplifiers, and broadcast receivers, used in rebroadcasting various programs.

"My wavelength throughout these experiments was 32.5 meters; the aerial a full-wave Hertzian, with Zeppelin feed, both feeders being tuned to give identical readings. One end of the aerial was attached to a mast 90 feet high, and the other to a mast on the house, about 60 feet high. The filaments of the tubes were fed from storage batteries of large capacity, separately housed. The plate power supply was available from either 50-cycle 240-volt alternating current, stepped up by a transformer and rectified by tubes, or from a motor-generator. Two separate voltages were available; 2000 for the crystal drive and amplifiers, and 4000 for the modulators and output amplifier. The total power used by the transmitter was 3500 watts.

"This station worked during the authorized six hours per week, with a few extra programmes thrown in, continuously for twelve months without a breakdown, except for an unfortunate accident at the first opening broadcast. The transmissions have been rebroadcast in Australia and Ceylon; one of my most interesting experiments was when I received a program from Sydney, Australia on 28 meters which I rebroadcast on 32.5. This was received back in Sydney satisfactorily and with practically no time-lag. Many artists have come forward and have greatly assisted in these experiments by giving their services freely.

"My present license expires on Nov. 30 and, owing to the international regulations coming into force on January 1, I am not able to say what the future of G2NM will be. My readers will

realize the trouble and expense my assistant and I have gone to, to make these experiments successful, and they can readily imagine that we had very little spare time available after attending to the maintenance of the station. I would like my readers to understand, however, that this was purely an amateur effort and the only reasons for attempting these broadcasts were the same as exist in other amateur stations; namely, to try and find out something which has not been discovered before and also to prove that short-wave broadcasts are a really reliable proposition. After all, the British Empire is a large one, and I consider that it is England's duty to provide her scattered subjects with Empire programs."

When this was written, no subsequent information about schedules for the coming year was available; but it may be hoped that Mr. Marcuse's patriotic efforts will receive the same encouragement from official sources that they have been given by the British press, and that overseas listeners will continue to enjoy reception of G2NM.

FROM SENOR CESPEDES

Editor, RADIO NEWS:

I thank you for the insertion of my call letters among the short-wave broadcast stations of the world; an honor gained by the constancy of my regular amateur broadcasting. The work is well repaid every week when I receive letters from all America. This mail brought me four from the United States to show the DX my little station is giving. Mr. Charles J. Schroeder in another letter repeats my words, in Spanish and English, and reports reception R-8 (*Very good—almost loud-speaker strength*) of a special program I gave him on Nov. 3. He says it was "the night of nights," because of the marvelous clearness of my transmissions.

I am doing all I can, and hope that I will have soon a 75-watt amplifier in order to get more DX throughout the United States. I am glad to repay thus the education I have received in Uncle Sam's schools. I am on the air every night from 10:30 to 11:30, E.S.T., on 30.5 meters. I use 500 volts on the plate of a Ceco L-10 tube, modulated by two others of the same type. Cordially,

AMANDO CESPEDES MARIN,
Stations NRH, NR4AC, Apartado 40, Heredia,
Costa Rica, Central America.

NO FREE VERIFICATIONS

Editor, RADIO NEWS:

The enclosed letter speaks for itself, for I wrote to 5SW for verification and got it and this letter. I use a Bremer-Tully short-wave set and find by mounting condensers on $\frac{1}{8}$ sheet copper and grounding it to "A+" it works fine. I have also a piece of tin between transformers to prevent coupling, also grounded to "A+."

TERENCE BUCKLEY,
Taftsville, Connecticut.

(The enclosure was a form stating that the British Broadcasting Co. has received so many requests for verifications from overseas listeners that it has decided to charge for making them by mail; though answers would be made free only in a publication issued by that company, and which has considerable circulation in Great Britain.)

In the early days, when short-wave broadcasting was more highly experimental and the only listeners were amateurs trained in short-wave work, all short-wave stations were glad to get letters and acknowledge them, in order to learn the definite limits within which transmissions at a given wavelength from a given point might be heard. In fact, by this means almost entirely, short-wave work has been made of such high commercial value that most of the high frequencies have been taken away from the broadcasters and the amateurs and allocated to public utility and other companies.

Now, since it has been found that, over large areas of the earth's surface, a high-power short-wave station "comes in like a local" almost anywhere at times (though it does not give the consistent "blanketing" that a commercial service area must have) and the number of broadcast listeners with short-wave sets is increasing enormously, it is undoubtedly onerous to such stations to answer all



Mr. Marcuse in the control room adjoining the studio of G2NM, about a mile from the transmitter. The shielded amplifiers are shown, and the monitor receiver and speaker. Lower right, a short-wave receiver; English and foreign broadcasts have been picked up here and relayed over G2NM. A telephone instrument of the English type is at the lower left.

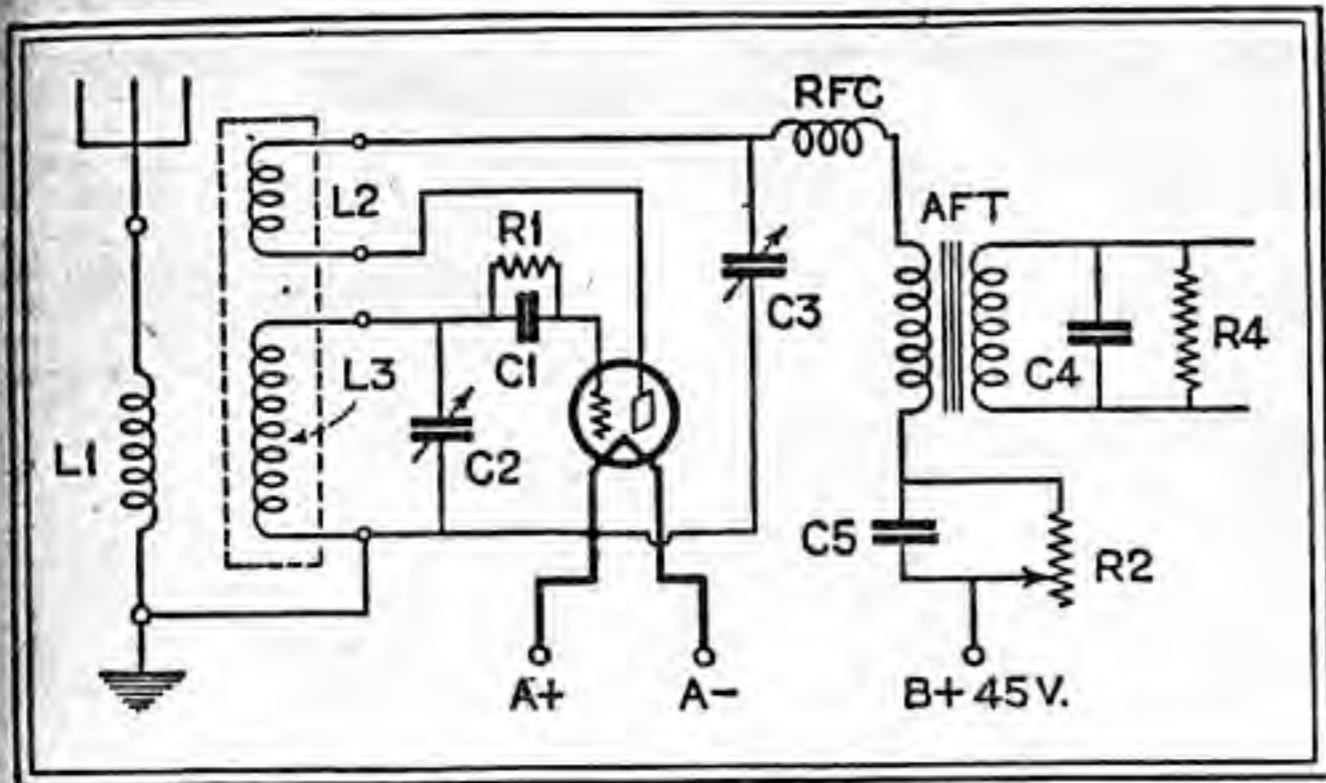
Radio News for March, 1929

thrill-seekers who wish merely to exhibit cards to their awe-stricken friends. Much, therefore, of the short-wave DX listening must now be its own reward. Very low-powered stations, of course, still welcome distant-reception reports; and the ultra-short transmissions (below 13.0 meters) are still so far in the condition of uncertainty that reports by skilled observers are valuable to the experimenters. —EDITOR.)

FOR DEAR, OLD SHORT-WAVES

Editor, RADIO NEWS:

Your short-wave department in RADIO NEWS has, I am sure, attracted much attention throughout the world. (Right!) Personally, I am deeply interested in the development of short-wave broadcasting; in fact, so much that I seldom, if ever, listen in any more between 200 and 600 meters. It may interest some of your readers, especially here in the southern states, to know that I have received the following foreign stations all with loud-speaker volume: EAM, 2NM, 5SW, CJRX, PCJJ, PCLL, RFN, 9RH, 2ME and 3LO, the latter station coming in from 5 to 7 A. M. with excellent volume and little fading.



I am using a hook-up as prescribed by P. H. Quimby in Q.S.T. of March, 1928, using detector and one stage of audio amplification in a cabinet 8 x 9 1/2 inches; on top of this cabinet I use an Atwater-Kent two-stage audio amplifier which gives me three stages of audio with perfect control from 15 to 90 meters. This may account for the loud-speaker reception of the foregoing foreign stations. (Not necessarily; a signal must be received before it can be amplified.)

I trust this may help to further the short-wave art, and will be glad to hear from my fellow-listeners, especially in foreign countries. With every good wish for your short-wave department, I am,
RALPH E. HOWARD,
167 East Lake Terrace, Decatur, Ga.

CODE INTERFERENCE ON SHORT WAVES

Editor, RADIO NEWS:

I take the liberty to make some comments regarding short-wave transmissions. KDKA's 25.4-meter transmitter is practically on the same wavelength as some powerful foreign code station which causes their signals to be distorted. You cannot tune out this station, and its signals are always present when KDKA is tuned in. WGY's short-wave transmissions are also rendered distorted as a result of code stations surrounding their wavelengths.

Fading is the principal bugbear of short-wave transmission; but when you have to put up with code, it is almost hopeless to listen in. The time has come when some international agreement should be made whereby code should not be permitted to use wavelengths which interfere with the principal short-wave broadcast stations. The ultimate success of such transmissions is worth while, as a good overseas radio market could be established and manufacturers could extend their sales to tropical markets.

L. R. BOURNE,

The Palms, Cheapside, Barbados, B. W. I.

(According to the international radio convention, effective Jan. 1, 1929, the bands from 50 to 48.8 meters, 31.6 to 31.2, 25.6 to 25.2, 19.85 to 19.55, 16.9 to 16.85, and 14.0 to 13.9, are reserved exclusively for broadcasting. On these waves there should be no commercial interference.—EDITOR.)

RECORDS TO BE KEPT

Announcing that a 500-watt experimental license had been granted to the Bell Laboratories, 463 West St., New York, to operate between 50 and 200 meters, the Federal Radio Commission took the opportunity to announce that it will require monthly reports from all experimental transmitters as to

frequencies used and power output. Hitherto no official record has been available as to what is actually going on over the short waves in this country; let alone foreign transmitters.

SHORT WAVES FROM AFRICA

An opportunity is available to short-wave listeners to hear 30-metre telephony transmissions from wildest Africa. We understand that, until further notice, Major Court Treatt is transmitting on this wavelength from Bahr-el-Arab, Southern Sudan, between 6 and 8:30 p. m. G. M. T., using the call sign FXCT.—Popular Wireless.

BROADCASTS IN SUMATRA

A nautical correspondent, after a trip across the Indian Ocean, writes that, in addition to other stations we have previously listed, one at Medan, on the island of Sumatra, is sending out a 37.50-meter program on Mondays, Tuesdays, Thursdays, and Fridays, between the hours of 8 and 10 p. m. While it is not so stated, we presume this to be its local time, about 11 1/2 hours later than Eastern Standard, or 6 1/2 hours later than GMT.

Mr. Quimby used "Scotch" (tube-base) coils with 15-mmf. condensers. L2 has 37 turns of No. 28, 16 of 22, and 7 of 20 for 80-, 40- and 20-meter bands; L3 25, 20 and 10 respectively of No. 30 wire. The fan may use specifications on page 876 for condenser sizes there given. L1 is two turns of bell wire on the tube base. R2 is 0-50,000-ohm; C4 (.0005-mf.) and R4 (1/10-meg.) are to filter out noises.

"RADIO NEWS" TO THE ANTARCTIC

RADIOGRAM—The New York Times Radio Station, Times Square, New York. D 132 WFAT SS. Eleanor Bolling, Nov. 22, 1928 RADIO NEWS, New York City:

Please mail to catch SS. Makura leaving San Francisco November 28, October and November issues RADIO NEWS. Address Byrd Antarctic Expedition, care Tapley, Dunedin, New Zealand. We are not leaving Dunedin until arrival this mail about December 20.

MALCOLM HANSON

Mr. HUGO GERNSBACK:

Please airmail these to Frisco.

MEINHOLTZ, Times.

(The requested issues were airmailed accordingly)

to the Byrd Expedition, whose present address in Antarctica, however, is not reached by the mails this summer (....). Mr. F. E. Meinholz, who transmitted the message, is manager of the Times station and has been, at times, in closer touch with Commander Byrd than with the Times, as a recent front-page article in that paper revealed. Mr. Meinholz was sitting in his home in Queens Borough, New York City, listening to a dispatch from the City of New York, then in Antarctic seas, when he heard his own name mentioned: "Meinholz, the Times wants you to hang up your telephone receiver so it can call you on the phone." The operator at the Times station in New York, unable to call his chief by phone, had requested that the message be relayed from the Byrd ship ten thousand miles away—and it was done successfully! See "SCIENCE & INVENTION" Magazine for March for full story.)

EASTERN CANADIAN BROADCASTS

Station VAS (Louisburg, on Cape Breton, Nova Scotia), which is regularly operated in commercial work, is now transmitting on both the broadcast band and on short waves for the benefit of the Canadian Maritime and of fishermen at sea.

The 28-meter transmission, carrying weather forecasts, storm warnings, press dispatches, etc., begins at 11:18 p. m., Eastern Standard Time. Atlantic Time, used at the station, is an hour later.

SHORT-WAVE TIME SIGNALS

In addition to the numerous long-wave time signals, such as those from the Eiffel Tower, Paris, and NAA, Arlington, Virginia, there are short-wave signals which may be picked up and used for the correction of timepieces, determination of longitude, etc.

Chelmsford, England, sends out on 24 meters, daily except Saturday and Sunday two signals, at 1300 and 2100 GMT—8 a. m. and 4 p. m. Eastern Standard—of six dots at one-second intervals. The last begins the hour.

Arlington gives signals from the naval observatory at Washington; on 74.7 meters at noon and 10 p. m.; on 37.4 meters at noon, 10 p. m. and 3 a. m. every day. Elgin (Illinois) sends out a larger number on 33.5 meters from WNBT. These are at 1, 9 and 11 a. m., 1, 3, 5 and 7 p. m. except Saturday afternoon and Sunday. The 1 a. m. signal, which is given on Sunday also, is heard regularly in the Antipodes. These signals, like Arlington's, consist of dots sent out at intervals of one second, the 29th and the 55th to 59th being omitted from the series. They begin five minutes before the hour.

SHORT-WAVE CLUB IN ARGENTINA

Editor, RADIO NEWS:

I am enclosing copy of the Buenos Aires Herald announcing the organization of the English-Speaking Radio Club. Part of the aims of this organization includes broadcasting in English and we ask
(Continued on page 886)



The transmitter of G2NM, located at Coombe Dingle, Caterham, Surrey, England, a few miles to the south and west of London. This 1,200-watt station has been heard in all parts of the world. Its call was familiar to all amateurs long before Mr. Marcuse undertook short-wave broadcasting for the benefit of listeners throughout the British Empire—and incidentally others.

On the Short Waves

(Continued from page 845)

that you will kindly publish a note announcing this.

G. E. FULLER,

Avellaneda 255, Buenos Aires, Argentine Republic.

(The newspaper account stated that it was suggested that the club be known as a "short-wave" organization; and while this motion was not adopted, the proposed transmissions will undoubtedly be attempted on short waves for foreign listeners. We have asked for details as to the programs which will be transmitted.)

LOCAL INTERFERENCE

Editor, RADIO NEWS:

The other night we tried, as usual, to tune in on Station WGY and could only hear the program very faint. By a mere accident one of us happened to lay his hands on the short-wave adapter and to our surprise the reception came in very clear. Thus we continued with "the laying on of hands" during the rest of the time that WGY was on the air and with very good results.

The next day the adapter was taken apart to see if there was anything wrong with it. Inside we found a spider had spun a very beautiful web which had caused the entire adapter to be grounded.

The tube on top of the adapter must have been removed long enough to allow the spider to enter through the holes on top.

We are very curious to know if you have heard from anyone else who has had a similar experience; if not this may be of some benefit to others who use the short-wave adapter in the tropics.

ALBERT M. CLAIR,

Chicle Development Co.,

C/o Alvaro Perez, Sucs.,

Alvaro Obregon, Tabasco, Mexico.

(A spider's web should not cause an electrical short-circuit, being akin to silk which is a good insulator; but this, and other material a large tropical spider might drag in, could alter the condenser's capacity; which is evidently what happened.)

AN AERIAL-CONDENSER LEVER

Editor, RADIO NEWS:

Thanks for the "Wonder Box," which is my new name for the "Junk-Box." Here is a pointer: when the small aerial condenser C3 is well insulated from the baseboard it smoothes out lots of troubles. I mounted mine on two Polymet resistor bases. My panel is attached to the sub-panel with my son's erector parts; there is a $3\frac{1}{2}$ -inch space between the panel and the sub-panel. I used more erector parts to make a simple lever, attached to the sub-panel brace; and I can adjust the aerial condenser *with the set in operation*. When the tickler coils are just right, this little condenser can be very critical; but, after I ran a lead from the soft-iron erector parts to the ground post of set, body capacity disappeared. I added a stage of audio; last transformer, choke and grid condenser are under the sub-panel.

The hams around 80 meters roll, in on this little set on the speaker, strong and clear, from all parts of the United States and Canada, while the hams themselves are howling "I can't get U, OM, QRM here to-night." This is my first letter after several years of reading the only *real* radio paper ever printed.

JOSEPH MOORE,

General Delivery, Flint, Michigan.

CORRESPONDENTS WANTED

Editor, RADIO NEWS:

I would appreciate it if some amateur or short-wave fan could help me in getting a license.

PAUL B. LOVEGREN,

7846 Euclid Ave., Chicago, Illinois.

Some of the other readers of RADIO NEWS who express a desire to communicate with other short-wave fans are: James Fletcher, 173 Avoniel Road, Belfast, Ireland; Kendall B. Wood, 3 Harvard Place, Ann Arbor, Mich.; Melford C. Kupps, (wishes California correspondence) 537 North Meyer St., San Pedro, Calif.; Ben F. Locke, Martha-ville, Louisiana (interested in the "Pilot Wasp"); Larry Lucas, 19928 Canalport Ave., Chicago, Ill. (wishes letters from hams); Earl Eugene Martin, 114 So. 34th St., East, Cedar Rapids, Iowa; George C. Brown, 96 Eighteenth Boulevard, Rockaway Beach, New York; John A. C. Bechtler, 114-11 One Hundred and Twenty-Sixth St., South Ozone Park, New York (broadcast receivers and accessories as well); William Henderson, Route 2, Thomaston, Georgia.