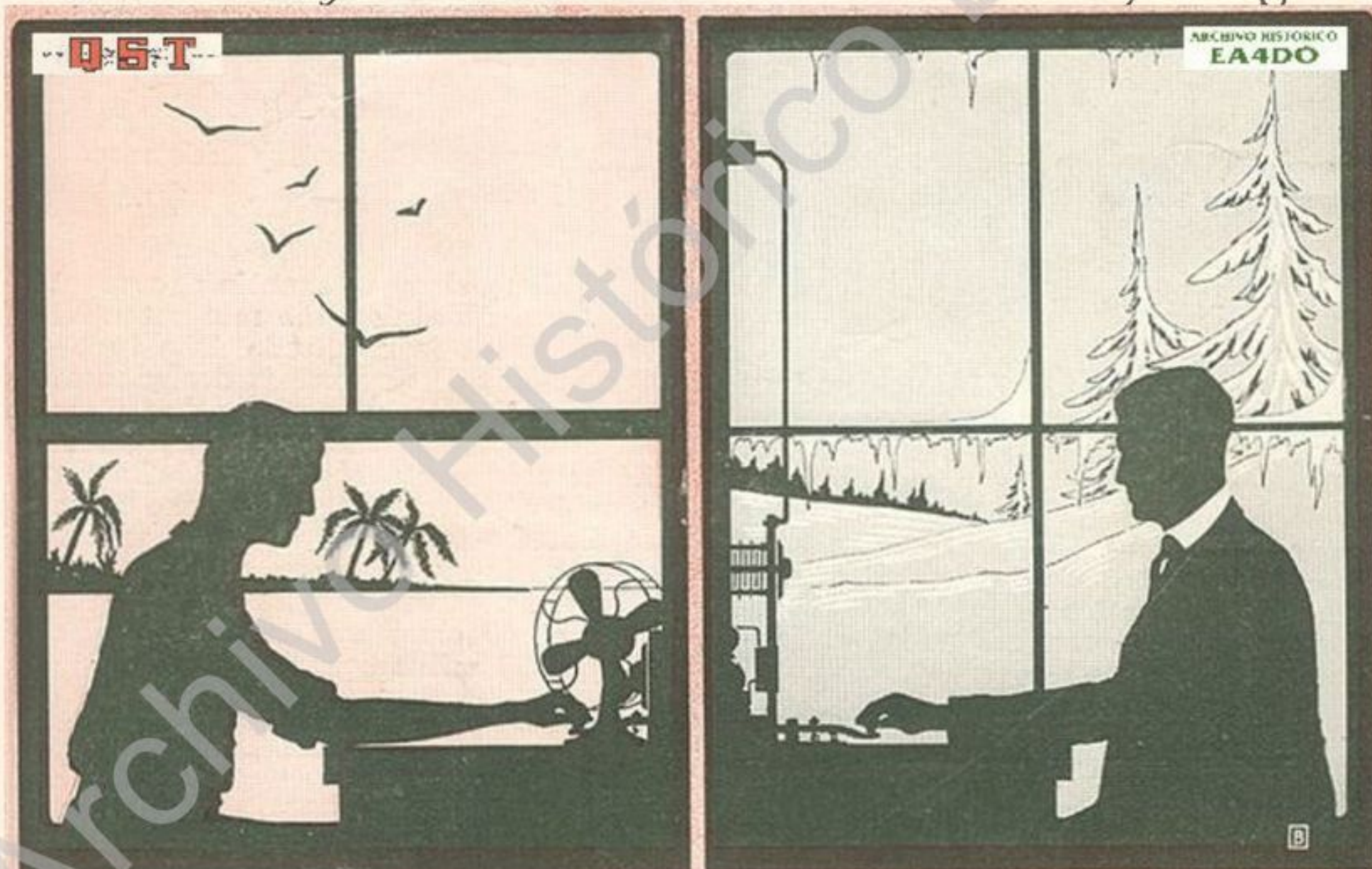


QST

DEVOTED ENTIRELY TO

AMATEUR RADIO

Published by the American Radio Relay League



MERRY CHRISTMAS

AND 2014

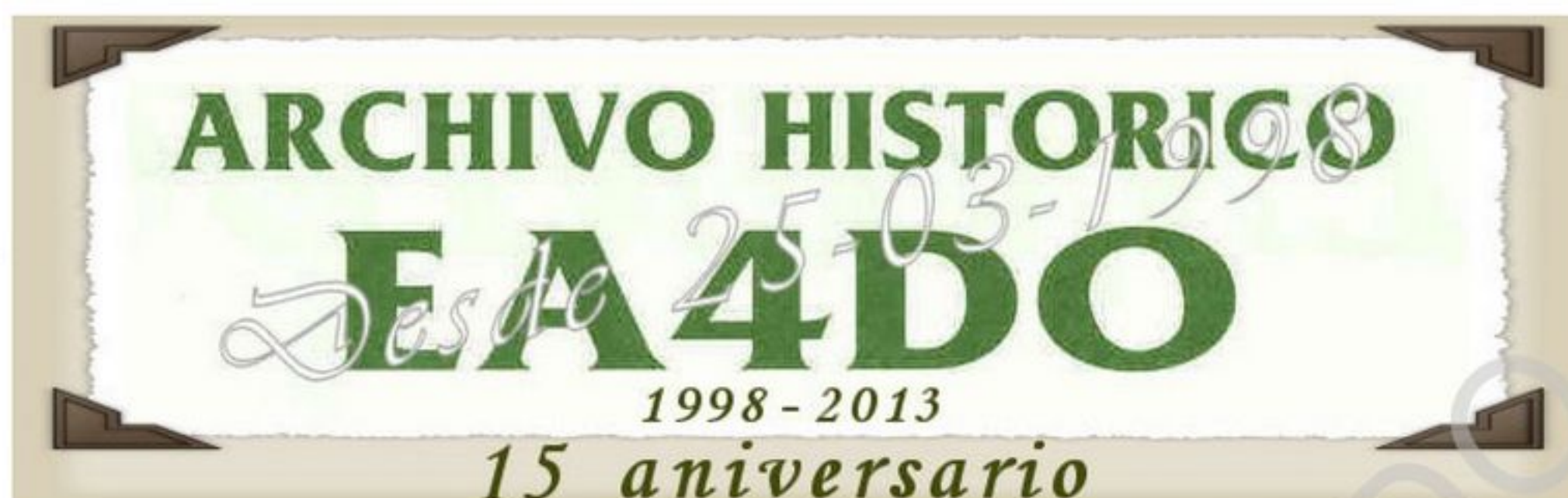
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Two-way Tests with Europe

NOT content with the success of the Transatlantic Tests the Traffic Manager immediately upon their conclusion started arrangements for a definite attempt to establish two-way communication between European and American amateurs. Plans for the tests with England have not yet been completed, but the first series of French tests has been run off, unfortunately without success.

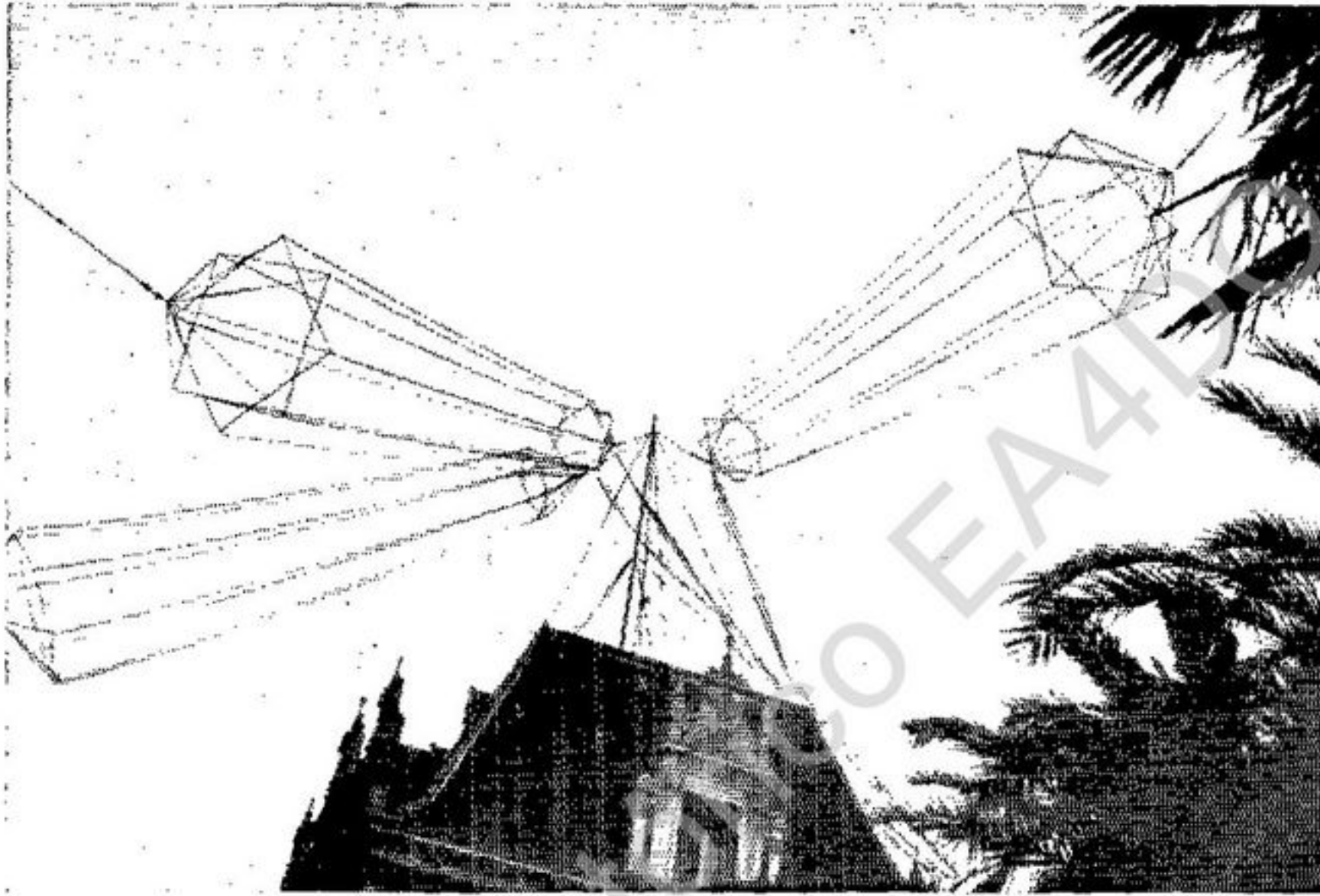
Station 1CKP in South Manchester, Conn., which was heard in England, France

and Holland during the December tests, was chosen as the American station for the first trials, and 8AB of Nice as the French terminal. A schedule was arranged by cable providing for transmission and listening periods from Jan. 26th to Feb. 3d, between 5:00 and 7:00 P.M. and between 10:00 and 12:00 P.M. E.S.T. Communication was not established, altho 8AB was heard on two nights. The first reception is credited to Mr. E. Laufer, of 2AQP, New York City, who, reading in the newspaper of the tests, straightway re-

paired to his set and slipped on the cans. This was at 5:30 P.M. on Jan. 27th. Local QRM was so bad that he was about to despair, when at 6:20 he picked up Deloy, sending slowly and signing "8AB French." Wave 195 meters, 25-cycle C.W., slight QSS, good audibility but QRM'd; which checks

to make a hard job of it. He was heard many times calling and signing, but the only text copied was "Arc QRM terrible—nothing heard." From this it is known that 8AB was having his troubles too and did not hear 1CKP.

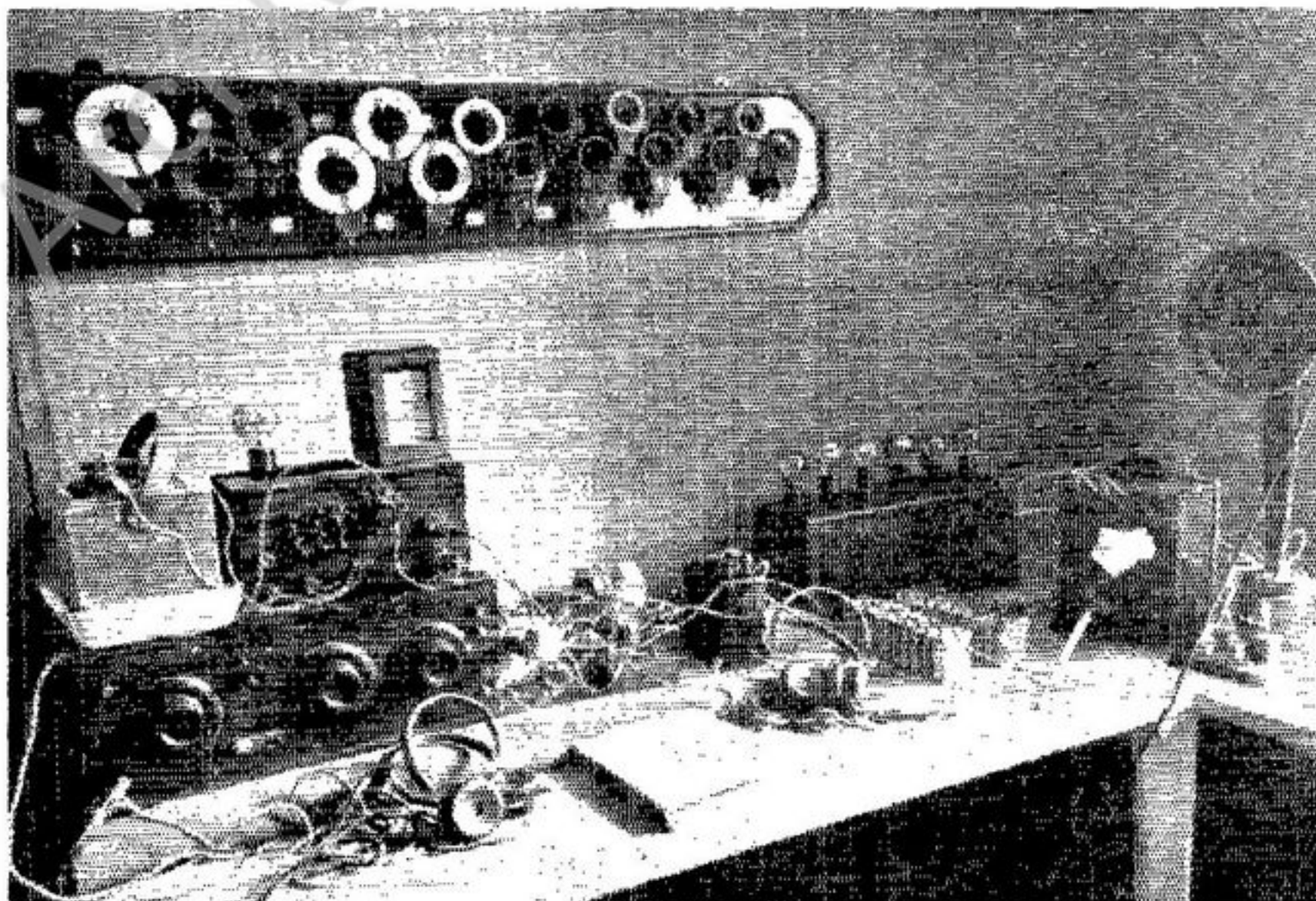
Mr. Deloy has cabled us that on Sunday



The aerial at French 8AB

up OK. On the night of Feb. 2d 1CKP was successful in picking up 8AB on both transmission periods. Under better conditions the signals would have been readable practically thruout, but heavy QRM, considerable QRN, and slight QSS combined

Feb. 4th at 0632 G.M.T. he heard 1XM calling him. Communication was not established, but in the hope that this may be accomplished soon 8AB has arranged to be on the job regularly until March 15th. Here's your chance, fellows. The two-way



The receiver at 8AB

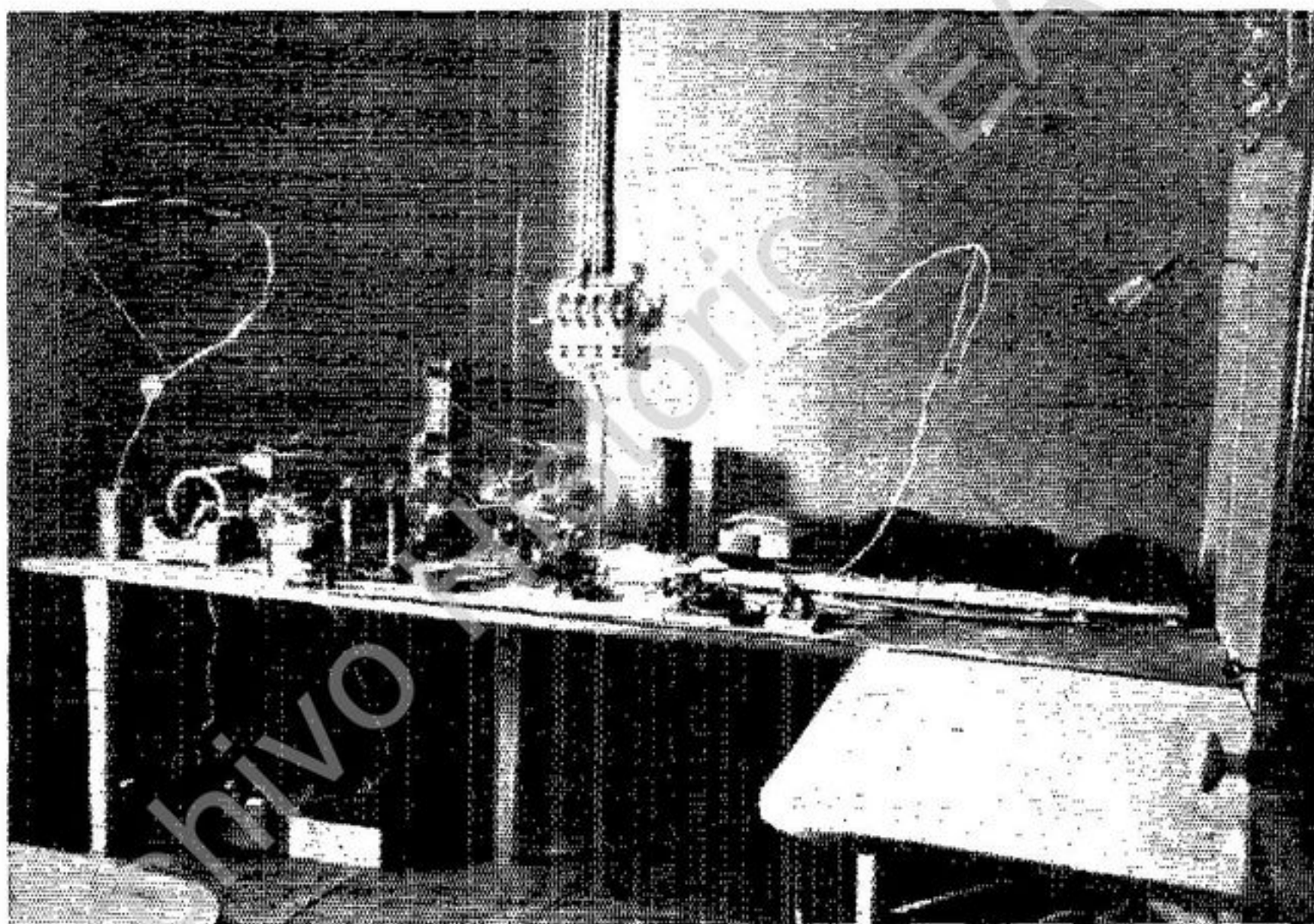
trans-atlantic test is wide open to everybody, a free-for-all. Every man with a good station is invited to participate. 8AB advises that he will transmit every Sunday, Tuesday, and Thursday from this writing until March 15th, from 0500 to 0530 G.M.T., which means from midnight to 12:30 A.M. of those days in E.S.T. Anyone who hears him is privileged to answer from 0530 to 0600 G.M.T. (12:30 to 1:00 A.M. E.S.T.), during which time 8AB will listen for replies.

And QST hereby offers one genuine Brown Derby to the first American amateur to establish two-way communication with Europe. Up and at 'em, lads!

1CKP is a 500-watt 500-cycle I.C.W. set putting 8 amperes into an inverted-L cage

The first thing to impress the reader in the photograph of 8AB's receiver is the American-built Tuska 3-circuit tuner. This was used during the Tests, with the detector and its battery to the right of the tuner, and the one-step audio amplifier on top of the cabinet. The 6-valve R.F. amplifier, heterodyne, and Magnavox, at the right of the picture, were not used during the tests. 8AB logged 1ARY, 1BCG, 1BDI, 1BGF, 1NY, 2KL, 8AQO, and 8MS on this equipment.

Particular interest attaches to Deloy's transmitter, of course, but unfortunately the picture is not a good one and requires considerable explaining. Left to right are the aerial lead, antenna meter, short-wave condenser, grid coil, aerial and plate coil,



The transmitter at 8AB Nice, France.

aerial 65 ft. high. Altho a new station, it has been heard in every district. Chas. A. Service, jr., assistant A.R.R.L. secretary, is its chief operator.

We take pleasure in presenting several photographs of 8AB, the only French amateur station so far heard in this country. M. Leon Deloy, its operator, was introduced to our readers in "Who's Who" in our December number.

8AB's aerial consists of three 8-wire cages radiating from a main mast on his home at Nice. The top of the 30-ft. mast on the house is about 105 ft. above ground; the other three masts, not shown, are 75 ft. high. At their far end the cages are 12 ft. in diameter, tapering to 6 ft. at the house end; the lead-in cages are 8 inches in diameter.

two 50-watt tubes used as grid-leak *a la* 3ZO, grid condenser, rheostat for the 50-watt tubes, two rheos in parallel for the main tubes, insulation condensers (two in series), four 250-watt valves, filament voltmeter, choke coil, H.T. milliammeter, keys, high-tension transformers (four with secondaries in series, delivering 5,000 volts), switch in transformer primary circuit. Below the table is a storage battery for the 50-watt tubes, while on the wall above is the main switch on the 25-cycle 110-volt 3-phase town supply. Filaments of the 250-watters are heated by a step-down transformer located between the O.T. and insulation condensers.

Who will be the first U.S. ham actually to work 8AB?

K.B.W.



Transatlantic Amateur Communication Accomplished!

1MO and 1XAM Work French 8AB When Two-Way Amateur Contact is Established Across Ocean for First Time; 1MO Wins QST's Brown Derby for Feat; One Hundred Meters Does the Trick

THE Atlantic Ocean was bridged in two-way amateur operation for the first time in history when Station 1MO in West Hartford, Conn., communicated for almost two hours on the night of November 17th with French Station 8AB, operated by Leon Deloy in Nice, France. Later that same night Station 1XAM, sometime 1QP, in South Manchester, Conn., also worked 8AB.

For years we have dreamed of this; 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. For the first time in history we have worked a European amateur, and for the first time the amateurs of distant foreign countries have sat by their respective firesides and talked to each other with ease.

The story of how it was done goes back to this summer when Mr. Deloy, the leading French amateur, visited this country to study American amateur methods with the

avowed intention of "working" us this winter. Hundreds of our fellows met him at the A.R.R.L. Convention in Chicago this fall. Returning home, Deloy applied the "dope" he had collected here and built a short-wave transmitter and when all was in readiness cabled Traffic Manager Schnell that he would transmit on 100 meters from 9 P.M. to 10 P.M. starting Nov. 25th. This news was spread immediately by broadcast and many stations commenced listening. Schnell built a special short-wave tuner for the job and at 9 P.M. on the 25th was tuned to 100 meters and waiting. Promptly at 9 o'clock Deloy started up, and from the very first word he was copied by 1MO. Altho Deloy has been heard in America before, this was in itself an achievement. For an hour he called "ARRL" and sent the cypher group "GSJTP" for identification purposes. The next night, No. 26th, Deloy again transmitted and, having been advised by cable that he was QRK, sent two messages, which were copied not only by 1MO but by 1QP. One of these, the first amateur mes-

sage ever sent from France, read as follows:

NICE FRANCE

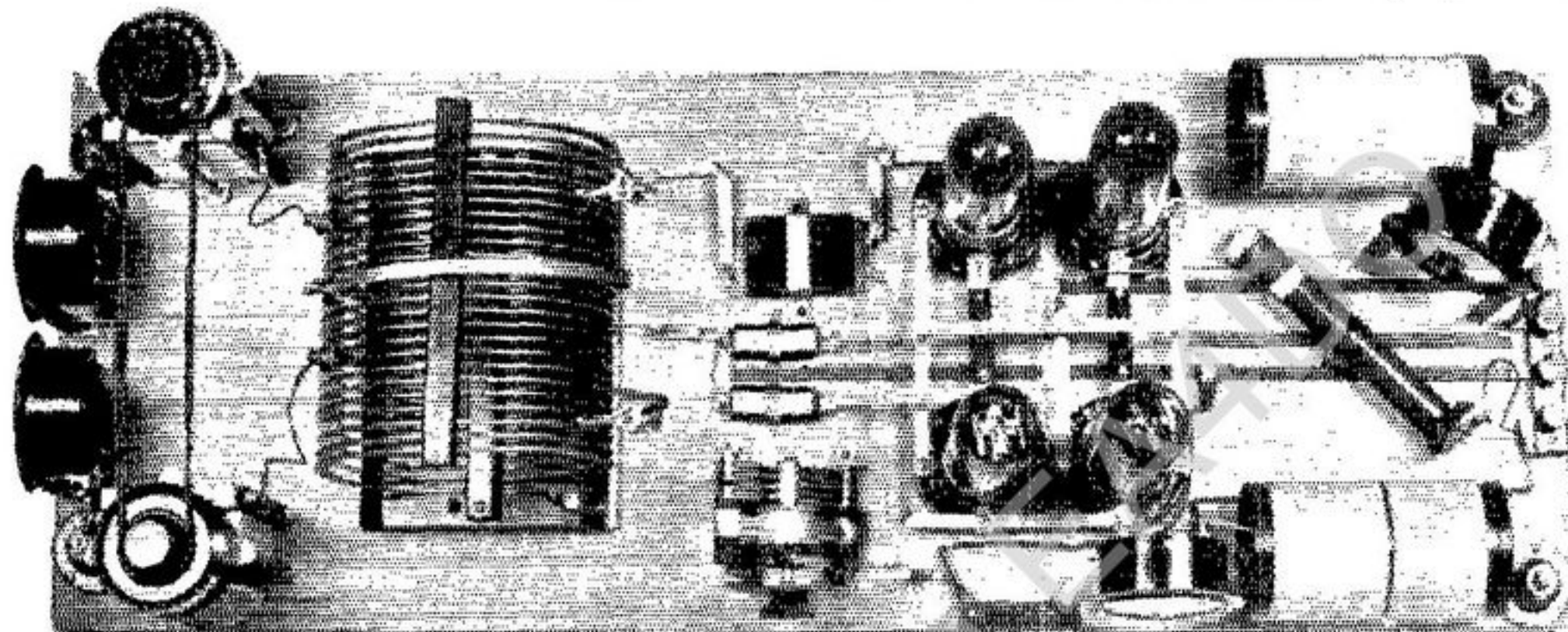
A.R.R.L.

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

LEON DELOY

GRATULATIONS THIS IS FINE DAY MIM PSE QSL NR 1 2.

Then Schnell asked him if he would take some messages, and greetings were sent to General Ferrie, director of French military radio, and to Dr. Pierre Corret, president of the French Joint Transatlantic Committee. Meanwhile 1XAM (1QP on special



THE TRANSMITTER AT 1MO-1BHW which, under the call 1MO and on a wavelength of 110 meters, was the first American amateur station to connect with a European amateur. This set was built in accordance with the scheme outlined by John L. Reinartz, of 1QP-1XAM, in another article in this issue, which every transmitting amateur should read.

The other message made a further schedule and proposed listening for a reply on about the same wave. Meanwhile 1MO got permission from the Supervisor of Radio to test on the short wave, and the following night, the 27th, was in readiness. Deloy



1MO And His "Hay-Wire" Receiver With Which He Worked F8AB. (Photo by Foto Topics, Inc.)

came on at 9:30 and for an hour called America and sent two more messages. At 10:30 he signed off, asking for a QSL, 1MO gave him a long call on 110 meters, and European and American amateurs were working for the first time, for Deloy came right back! It brought the thrill that comes but once in a lifetime. Deloy's first words were:

R R QRK UR SIGS QSA VY ONE FOOT FROM PHONES ON GREBE FB OM HEARTY CON-

license) called 8AB on 115 meters simultaneously with 1MO and Deloy acknowledged receipt, asking him to QRX. The Editor took the key at 1MO for a few minutes and exchanged compliments with Deloy, and then Schnell asked 8AB for a message from French amateurs for WNP, the MacMillan Arctic Expedition's "Bow-doin." This message Deloy sent, expressing the hope that they might soon work Mix; but a couple of words were missed at 1MO and a repeat was asked for. Reinartz had copied it solid, however, and acknowledged it to 8AB, who then shifted to his wave and chewed the rag with him for several minutes. Then 1MO and 8AB connected again, Deloy repeated the WNP message to Schnell, but shortly after developed some sort of transmitter trouble and signed off rather hurriedly at 12:28 A.M.

For two hours these two American stations had worked the French station and in this space but one repeat in each country was necessary. At 1MO, 8AB was audible 25 ft. from a loud-speaker working on one audio step, and 1XAM used loud-speaker thruout too. Deloy reported 1MO "a foot from fones," using a Grebe CR-13.

Not only was the ocean spanned but new records were made for 100-meter operation; in fact, we believe we can say it was the short wave that made the accomplishment possible. It is interesting to note that all three stations in this communication used the same circuit arrangement, a Hartley with modification originated by Reinartz and described in detail elsewhere in this

issue. Deloy visited Reinartz while here this past fall and was so interested in the possibilities of the short-wave set that he resolved to build one, with the results already reported.

The next night after this work, Nov. 28th, was a bad one, with plenty of static and noise. 1MO had a schedule with 8AB at midnight; they exchanged calls but that was all. 8AB changed wave length and apparently had trouble. His note was poor and he faded badly. 1BGF in Hartford, listening on a Grebe CR-13, and 1XAM also heard him.

Thanksgiving night, the 29th, 1XAM again worked 8AB for a few minutes. 8AB was right on KDKA's short concert wave, about 103 meters, and could be heard only when KDKA was idling. 1XAM heard him at 8, 8:30 and 9 P.M., and connected with him at 10:40 P.M., asking him to shift wave length. This he apparently did but nothing more was heard of him. 1MO had had a schedule at 6 P.M. but 8AB was not heard.

On the night of Nov. 30th 1MO had 8AB on from 10:58 P.M. until 1:17 A.M., signals very QSA but decent copying utterly impossible because of terrific squeals from several local receivers, to say nothing of heavy static. Four long messages were sent to 8AB and acknowledged. He sent two to 1MO which were copied complete by 1XAM who, fortunately, was free from "listener QRM." 8AB was also heard by 2CQZ, 1BGF, 1ANA, and 1XAQ.

At this writing, the first of the month, a very determined little group of amateurs is hard at the job, resolved that 8AB shall be kept in nightly contact with this country.

Schnell Wins the Brown Derby

It is going to 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!). We're going to hand-paint this derby until O.M. Stetson himself won't know what it is—watch FS's smoke!

The Stations

We have no particulars on M. Deloy's transmitter, but imagine his power was close to a kilowatt, for which he is licensed, as he certainly had a mean signal. The note, by the way, is 25-cycle unrectified, and

the signal was strong enough to receive non-oscillating, merely regenerating on the 25-cycle modulation! His receiver is a new short-wave Grebe. 1XAM used the transmitter described elsewhere in this issue, with 3.1 amps. in the antenna on 115 meters; he of course used a Reinartz tuner for reception, with a 2-step. The sender at 1MO is of the same type but is a full-wave self-rectifying circuit using two UV-203-A's on each side of the cycle. The antenna current on 110 meters is about 1.5 amperes. The power at both 1MO and 1XAM is under a half kilowatt. 1MO's receiver was at best a pile of junk, just a couple of cardboard tubes with a few turns of wire in the ordinary tickler circuit, a 4-plate variable condenser, and a junk detector-onestep.

IN the first transatlantic operation between U1MO and F8AB, a message of greetings was sent to the renowned General Ferrié, director of French military radio, reading as follows:

HARTFORD, CONN.

GENERAL FERRIE,
PARIS, FRANCE.

AMERICA GREETES YOU FOR THE FIRST TIME BY AMATEUR RADIO ACROSS THE ATLANTIC OCEAN ON 100 METERS.

AMERICAN RADIO RELAY LEAGUE.

The answer was received on the morning of Dec. 2d when F8AB sent his Nr. 9 to U1MO:

PARIS.

AMERICAN RADIO RELAY LEAGUE,
HARTFORD, CONN.

REMERCIÉ ET MAGNIFIQUES FELICITATIONS RESULTATS OBTENUS AVEC ONDE 100 METRES QUI ONT PERMIS ETABLIR NOUVELLE LIAISON ENTRE FRANCE ET ETATS UNIS.

GENERAL FERRIE.

Translated, this reads:

AMERICAN RADIO RELAY LEAGUE,
HARTFORD, CONN.

MANY THANKS AND MOST HEARTY CONGRATULATIONS ON THE RESULTS OBTAINED WITH 100 METER WAVE, WHICH HAVE PERMITTED THE ESTABLISHMENT OF A NEW BOND BETWEEN FRANCE AND THE UNITED STATES.

GENERAL FERRIE.

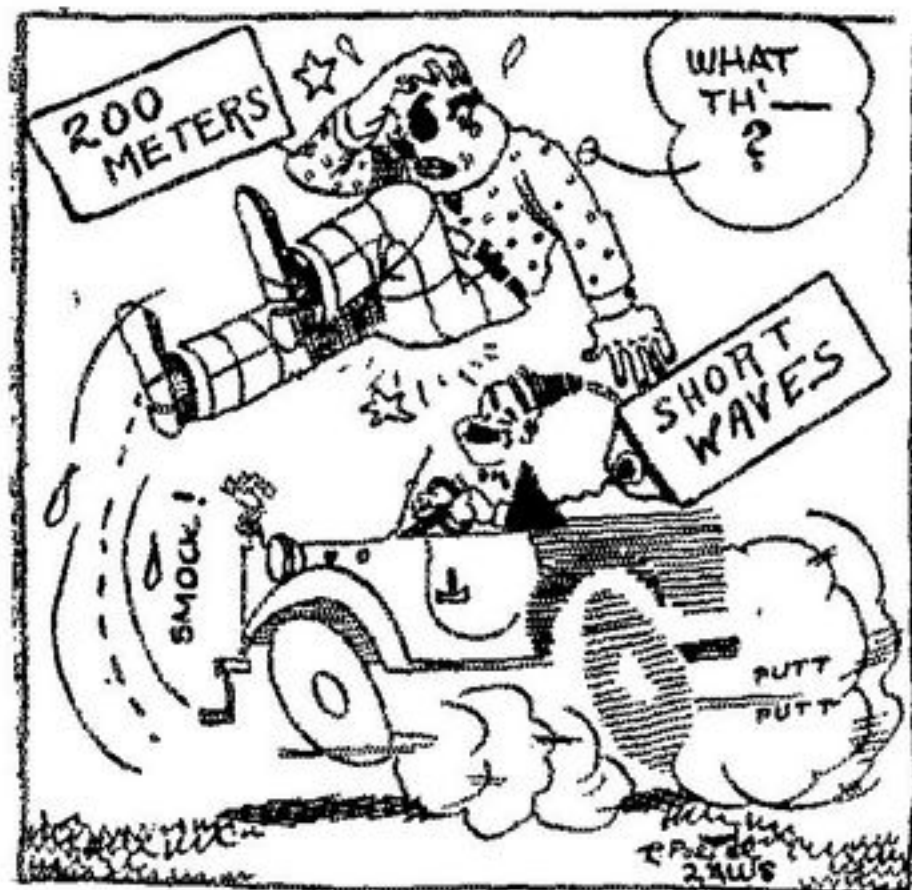
Not a thing extraordinary, in other words, about any of the stations—the accomplishment is merely a demonstration, more effective than all our talk, of the efficacy of the



shorter waves. Deloy recognized this too. In his conversation with the Editor via radio he said: "This is... a great moment in my life, for which I have been working several

years. Hearty congratulations to you both and to League for great development of short wave work."

The distance covered by these tests, some 3400 miles, is not remarkable, for western



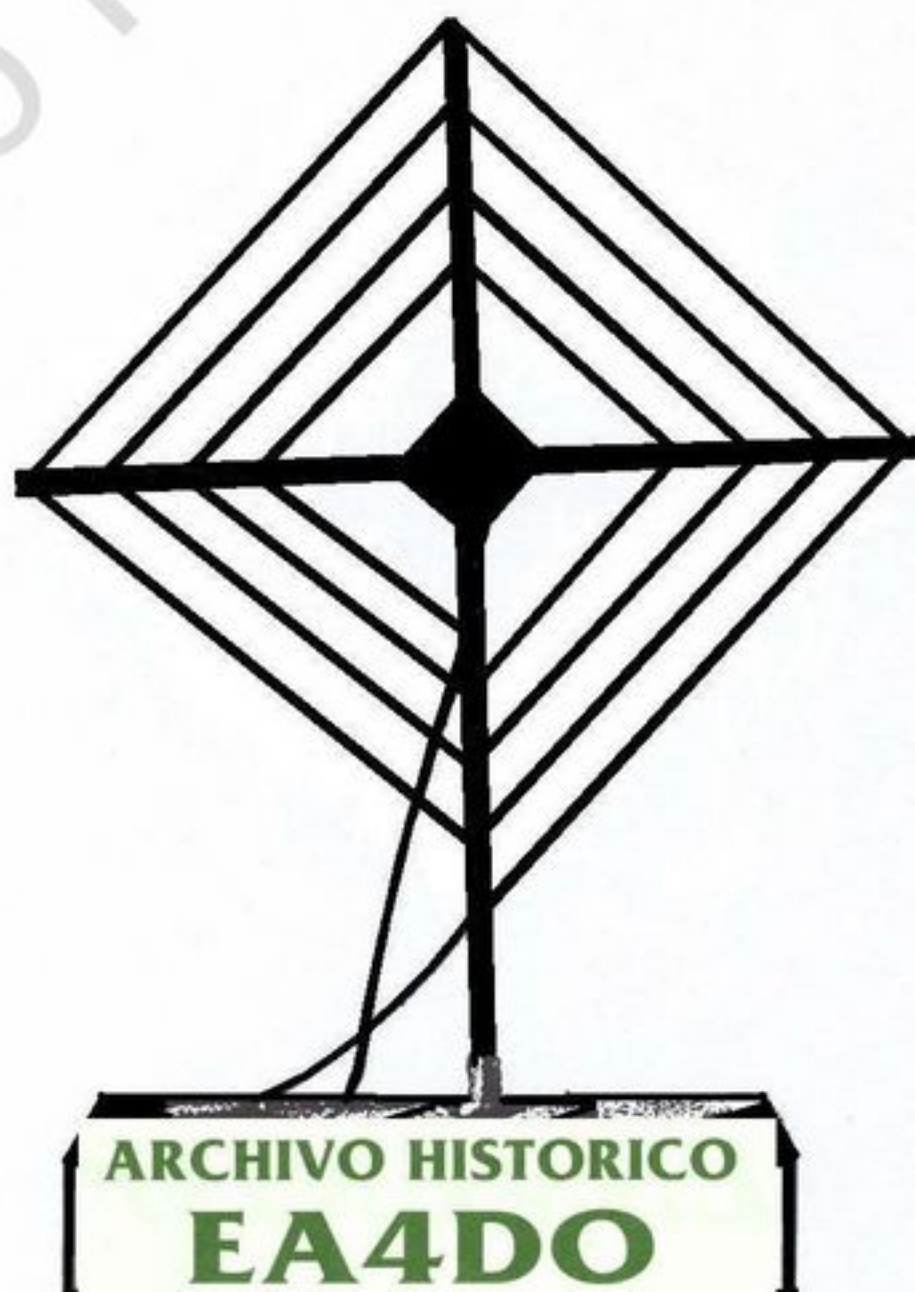
amateurs dump signals to New Zealand over much vaster distances as a matter of course, nor does it compare with the WNP-6CEU record for two-way communication. But it was over an area confessedly much more difficult to cover, it is the first two-way transocean contact with any foreign country, and it is the most important achievement of Amateur Radio in

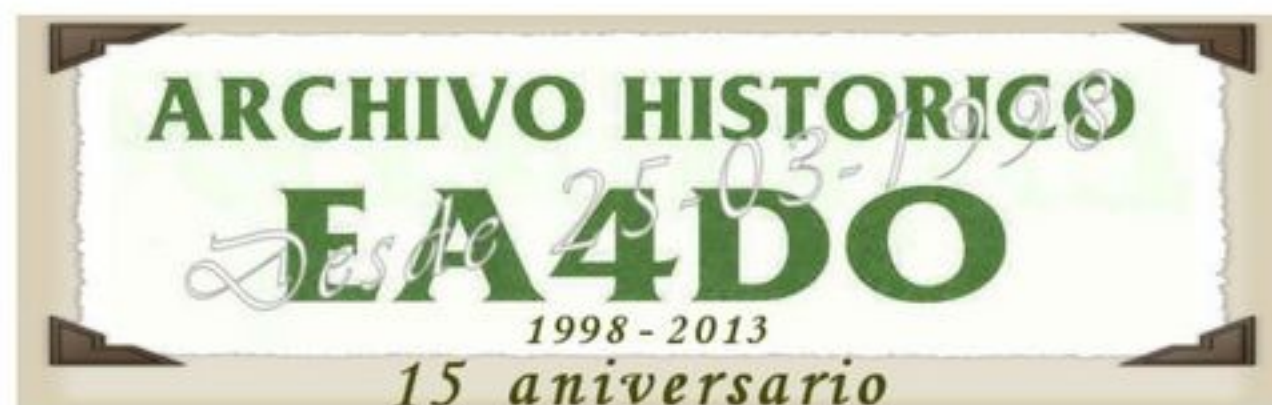
years in that it definitely links us with our European cousins.

Beating the Tests

It seems assured that this is but the forerunner of regular transatlantic operation. European amateurs of course continue to log large numbers of American hams regularly. On the night of Nov. 24th 1AWW in Springfield, Mass., and 8BOY and 3BVA at State College, Pa., copied 6NI in Liverpool, England, calling "Test" on D.C.C.W., signals QSA, wave between 225 and 250 meters, 10:20 to 10:30 P.M. E.S.T. Altho we imagine 6NI is a broadcasting station, this was in good Continental. British 2AW and Dutch PA9 solicit special 100-meter tests with American amateurs—the Traffic Manager is arranging schedules. PA9, by the way, is the first authorized amateur transmitter in the Netherlands, especially licensed to the Dutch amateur transatlantic committee at Delft for the 1923-24 tests. There is some activity in Italy and ACD is ready with 200 watts, waiting for his license. Belgium shows signs of life and before long there will be amateur transmitters there. In France and England of course they are ready for us this winter by the dozens, but they will have to step some to keep up with F8AB. To Deloy and 1MO and 1XAM, our hearty congratulations. You have started a great winter!

—K.B.W.





New World's Relay Records

International Group Sets Speed and Distance Marks

The fastest relayed message.....	2412 miles per hour.
The longest 3-station round-trip relay.....	12,300 miles.
The longest amateur relay.....	9,565 miles.
The first 4-country relay.....	France, U.S.A., Canada, Greenland.

Sounds like the work of many stations and many weeks, doesn't it? But it isn't—6 stations did this in a few evenings.—Ed.

ON November 20th messages started buzzing back and forth along a 3-station relay route reaching from Refuge Harbor, above Etah, Greenland, to Hartford, Connecticut—by way of Catalina Island, California. This route worked beautifully from the start—messages snapped from WNP at Etah to 6XAD-6ZW at Avalon, Catalina, and thence transcontinentally to 1HX at Hartford with hardly an interruption. After the route had run for about a week and had provided

another try that evening, and while they did not better this speed they put a message (a thanksgiving greeting from Mrs. Mix) into Don's snowed-under radio cabin less than 6 minutes after his mother had finished telephoning it to 1HX.

The Speed Record

On the next night the new record was made—a message started at 1HX at 5:19:00 A.M. Eastern Standard Time, was acknowledged by 6XAD at 5:21:00 A.M. E.S.T. and after a "break" to WNP was acknowledged by that station. Immediately Mix started an answer back to 6XAD, who acknowledged with a single "R," broke to 1HX and received an acknowledgment at 5:24:06 A.M. E.S.T., or FIVE MINUTES AND SIX SECONDS AFTER THE MESSAGE HAD STARTED. This represents a distance of 12,280 miles covered at the rate of 2412 miles per minute. That's a double world's record, the longest round-trip relay and the fastest relayed message!! It beats the famous 1AW-9AWM-6ZAC message in both respects, for that covered 9800 miles at a speed of 2279 miles per minute.

This was a good beginning but there was more to come—and on the same night at that.

The International Relay

In the early morning of the 27th 1MO and 1XAM-1QP were working French 8AB at Nice, France. Presently Leon Deloy of "F8AB" sent 1MO a message addressed to WNP and the message was copied partly by 1MO, but copied complete and acknowledged by 1XAM who phoned it to 1HX. From 1HX the message went to 6XAD as usual but stalled there since WNP was apparently not on the air. 6XAD gave it to Canadian 9BP at Prince Rupert, B. C., who passed it to WNP the next night. This message broke no speed records—it hardly traveled fast at all but it did break two



"Four on One Hook!"

rapid contact between Radioman Donald Mix, 700 miles from the north pole, and his family at Bristol, Conn., it happened to occur to both 6XAD-6ZW and 1HX that they had all the machinery for making a round-trip relay speed record. They began trying on the 27th and made a round trip in 8 minutes and 30 seconds for 12,300 miles covered. This was good—but it needed improvement to suit these three. They took

other records: it was the first 4-country relayed message, and it traveled farther than any relayed amateur message had ever gone before.

Here is the routing:

	Miles
F8AB, Nice, France to 1XAM, S. Manchester, Conn.....	3500
1XAM to 1HX by telephone	
1HX, Hartford, Conn., to 6XAD-6ZW, Avalon, Cal.	2500
6XAD-6ZW, Avalon, Cal., to Can. 9BP, Prince Rupert, B. C.....	1305
Can. 9BP, Prince Rupert, B.C. to WNP, Etah, Greenland.....	2260
<hr/> Total.....	<hr/> 9565

The Stations That Did It

WNP has been described many times in these pages. Mix, the 50-watt tubes and the Zenith sending set, performed brilliantly as always. Wave length 180 meters. Receiving set, Zenith 1R.

9BP, Jack Barnsley's station at Prince Rupert, B. C., has acquired fame along with WNP. The description on page 49 of the December issue is still good, except that this time the wave was 180 meters. Paragon receiving set.

6XAD-6ZW, Lawrence M. Mott's station on Catalina Island, Calif., certainly needs no introduction—it has been heard everywhere. We do not know which of the many sending sets was in use but the signal on this coast sounded as if the antenna cur-

rent was about 15 amperes. Wave 220 meters. Grebe CR-13 receiver.

1HX-1XAQ used a pair of "50-watt" General Electric UV-203-A tubes in the familiar Hartley circuit—with A.C. on the plates, one tube on each side of the cycle. Nothing remarkable about this set except an 85-foot mast that nearly caused this magazine to need a new technical editor—and the C. D. Tuska Co. a new Engineer.



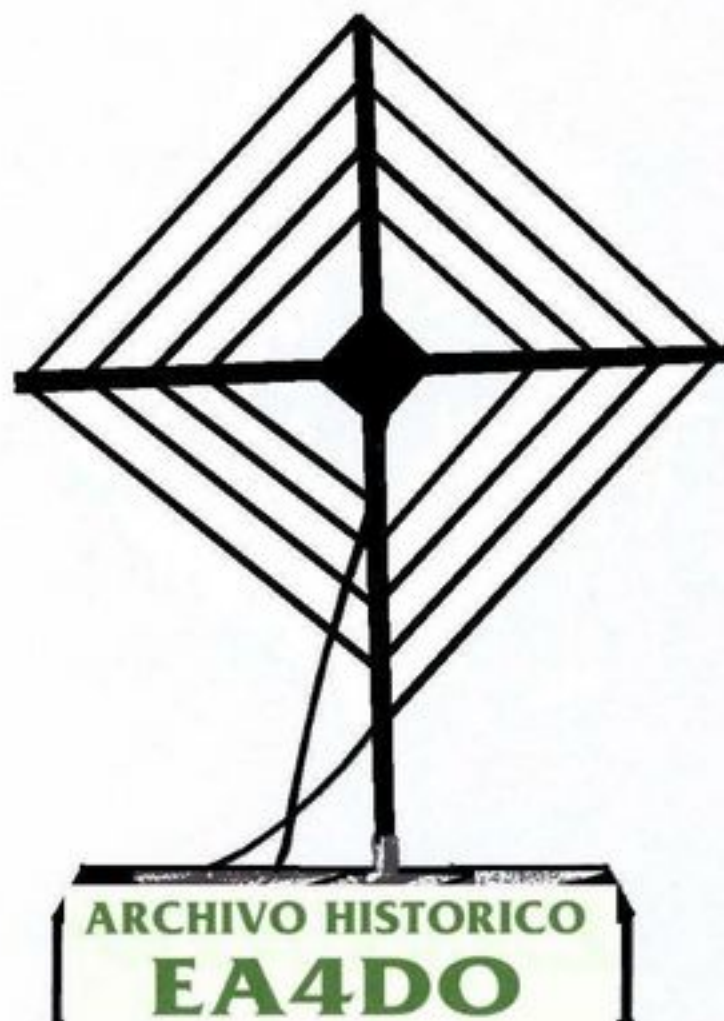
GETTING 'ER DOWN

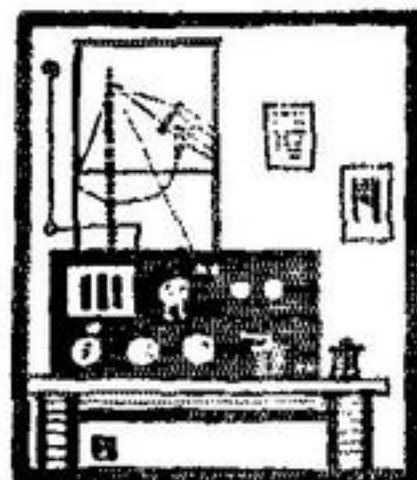
"Every Station but 6XAD-6ZW was below 200"

It happens that the station belongs to "LQ" and to "BP." Wave 180 meters. Tuska 220 receiver.

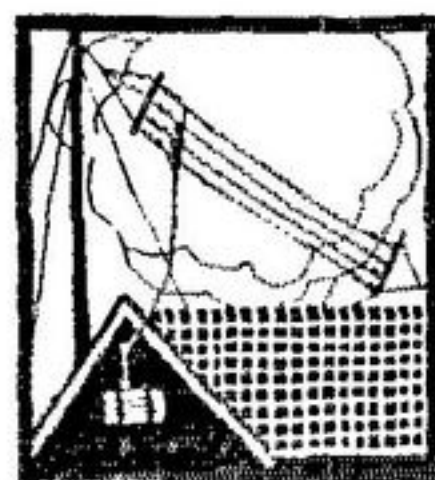
1XAM is described in this issue. Wave 100 meters. Reinartz receiver of course.

That leaves French 8AB, of which station we know little except that it belongs to Leon Deloy of Nice, France, and that the plate supply sounds like about 20 cycles—rattles. But it has plenty of punch, even tho the wave is 100 meters. Grebe CR-13 receiver.

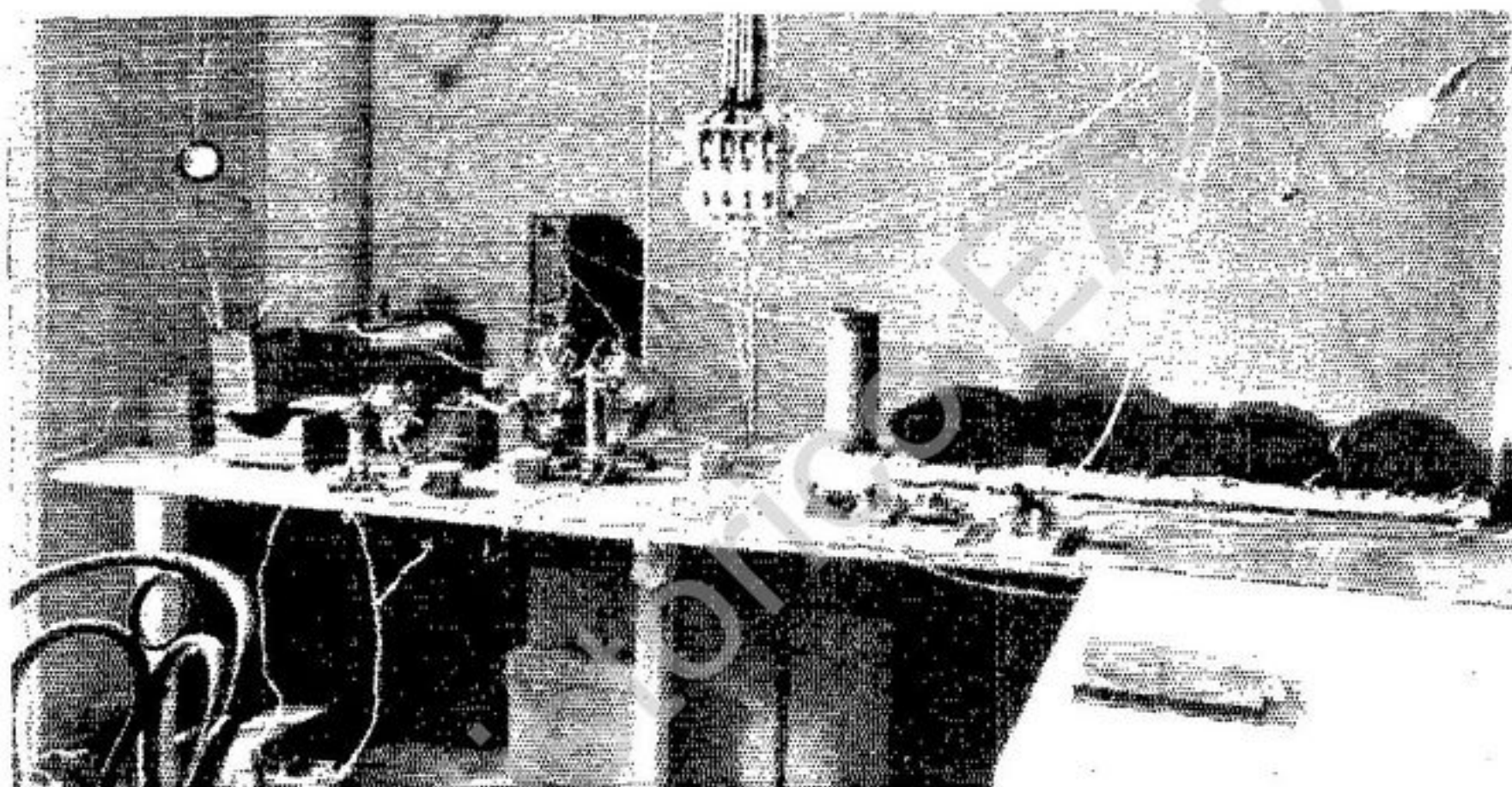




Amateur Radio Stations



F8AB, Nice, France



The 25-cycle signals from Leon Deloy's station, F8AB, at 55 Boulevard Mont Boron, Nice, France, have been heard all over the United States and southern Canada during the past month. Amateurs everywhere are curious to know the details of this station's transmitter. F8AB was not only the first French amateur to work American amateur stations, but his signals are still the strongest amateur signals that have ever come across the Atlantic.

M. Deloy, when on his recent visit to America, spent a good deal of his time visiting amateur stations and getting information and ideas on the tube transmitters used by amateurs here. When he sailed for France he was confident that he could go home and build a transmitter that would reach this country—and it was not long before that was done and his signals were heard on this side.

The photograph shows the transmitter just as it was when it was first heard in this country. It is just an experimental layout and no attempt was made to make a finished job of it. The Hartley circuit is used with variable series condensers in both the antenna and counterpoise leads after the fashion described by 1QP on page 26 of the January QST.* Two S.I.F.

French 250-watt (input) tubes are used in parallel as oscillators, with high voltage 25-cycle alternating current applied directly to their plates.

Looking closer, the two series condensers can be seen at the extreme left in the wooden boxes. Next is the inductance, made of copper tubing and wound on a wooden frame. In front of the inductance is a 50-watt (input) French tube, the plate-to-filament resistance of which is utilized as a grid leak for the oscillator tubes, as suggested by Mr. T. Appleby. The boxes behind the transmitting tubes contain fixed condensers made of photo plates. To the right of these is the radio frequency choke coil; a single layer of cotton or silk covered wire on a cardboard tube. The high voltage current is supplied by the four transformers seen in the right-hand side of the picture. These have their primary windings connected in parallel and their secondary windings in series, the sending key being connected in series with the primary windings.

Passing to the outside of the station,

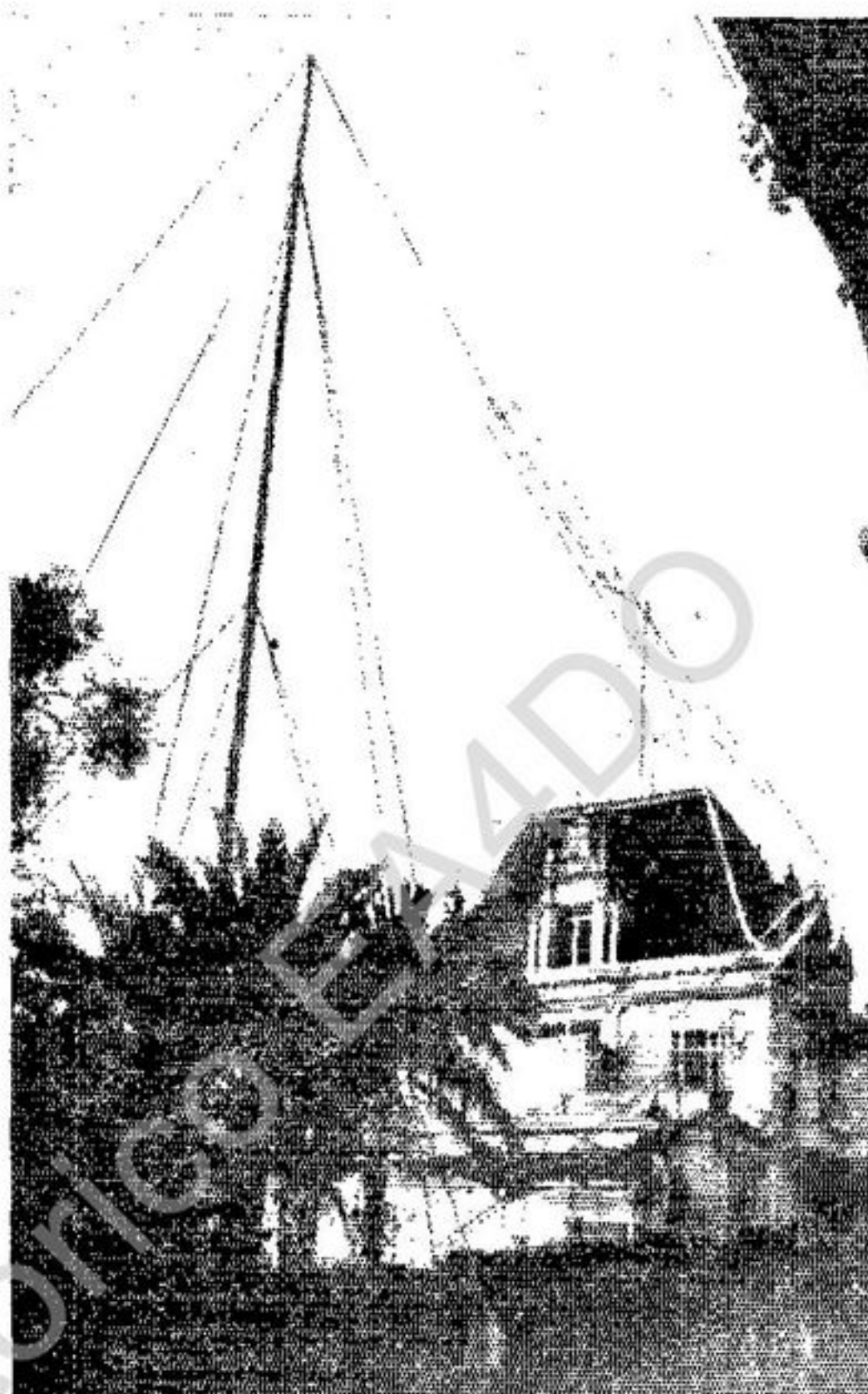
*Can be obtained from the QST Circulation Dept. at the regular price.

the antenna is an inverted L, the flat top of which is a four-wire cage on three-foot spreaders with an average height of 76 feet above the ground. The lead-in is about 46 feet long and consists of two wires running to the operating room on the top floor of the house. The counterpoise, nearly underneath the antenna, is a three-foot cage running from the operating room to a point six feet above the ground. It is slightly longer than the antenna.

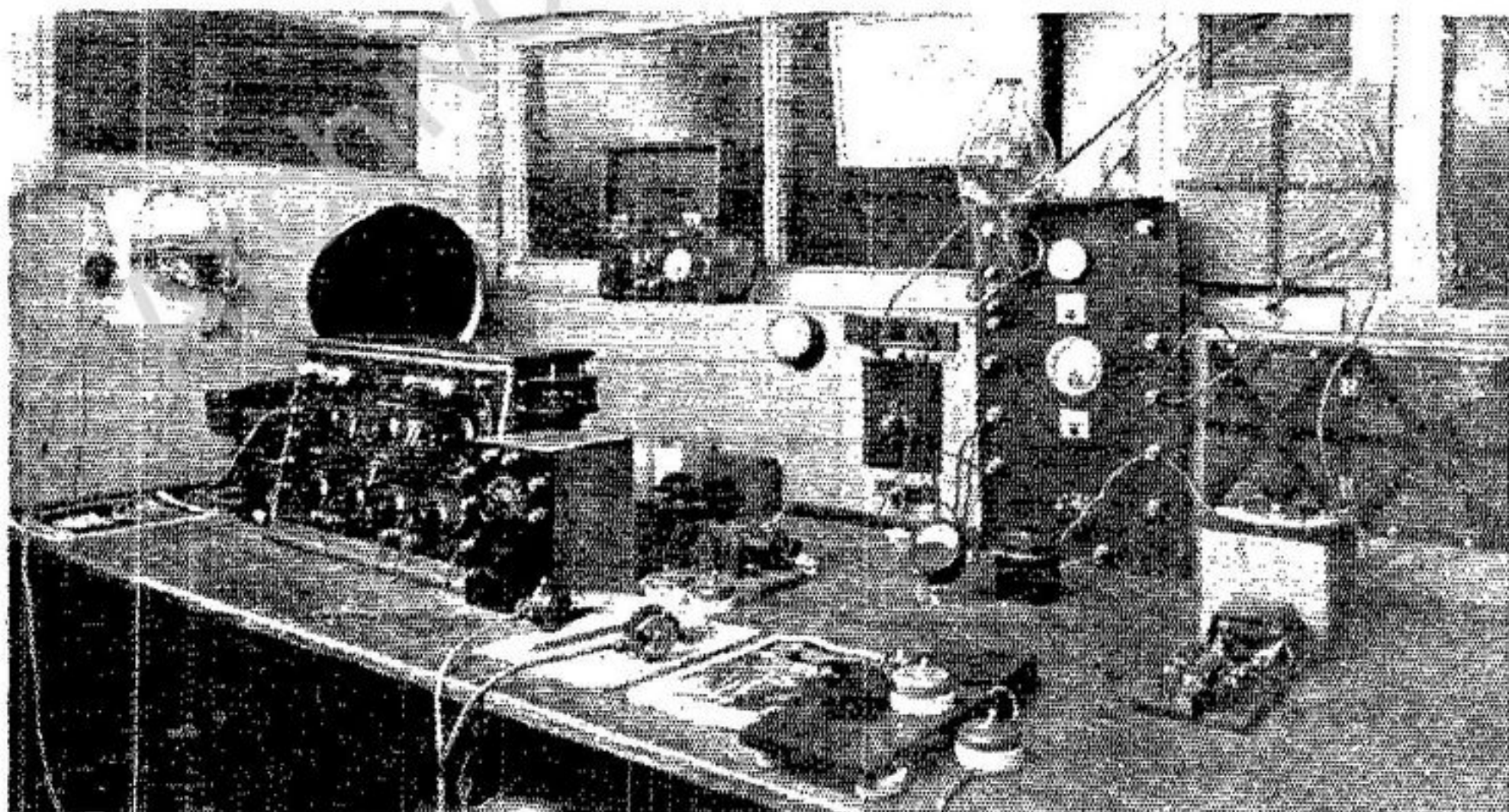
A Grebe CR-13 receiver has been used lately in the transatlantic work, but an experimental super-heterodyne set and several other receivers are in the station and are used at times.

The normal antenna current at F8AB on a wave length of 108 meters is in the vicinity of 3 amperes, but good communication has been carried on with American amateurs with as little as one ampere in the antenna!

Since the above was written, and since this photograph was taken, M. Deloy has rearranged his antenna system and altho he is now getting less antenna current he comes in nearly twice as loud on this side as he did before. Details of what the changes were have not yet been received but will probably be published later.



G2KF, London, England



British amateur station 2KF was the first English amateur station to carry on reliable two-way communication with America. For that reason we are especially glad to get a peep at the inside of this

pioneer station and have Mr. J. A. Partridge, the owner and operator, tell us about the apparatus and connections employed at his station.

(Concluded on page 56)

The Navy-MacMillan Expedition

By R. H. G. Mathews*

ONCE more amateur radio has an opportunity and best of all in a project in which nothing but amateur radio could achieve the desired result. Commander Donald B. MacMillan, whose last Arctic expedition made radio history with Don Mix and WNP, sails again for the North in June. This time the plan is more ambitious than that attempted by any previous explorer.

It is Commander MacMillan's intention to explore that great unknown area of a million square miles near the pole to prove definitely or not if land lies within this area, and if there is land to find out something of its characteristics. These things will be accomplished by two amphibian airplanes which will accompany the expedition. Commander MacMillan is taking two ships, his little favorite, the Bowdoin, which he himself will command, and in addition the Neptune, a Scottish whaler, which will be skippered by Commander Eugene F. MacDonald, Jr., president of the Zenith Radio Corporation, who will also be second in command of the expedition.

Radio will play an even more prominent part this year than last. Both ships will be radio equipped—the Neptune with regular ship equipment and the Bowdoin with a short wave transmitter and receiver designed and built to meet those special conditions which are encountered in operation on the wave bands centering about 20, 40, 80 and 160 meters. This equipment was designed and built by K. E. Hassel and H. Forbes of the Zenith Laboratories together with John Reinartz of 1XAM who will accompany the expedition as operator.

The Bowdoin's transmitter consists of a panel-mounted 250-watt tube with the necessary accessories connected in accordance with the circuit shown on page 33 of February QST. The circuit labeled "original circuit" will be used.¹ Interchangeable inductances are provided to allow use of the various wavelengths mentioned. Losses have been reduced by the use of glass supports, proper placement of wiring and so on. The power for the set is supplied by a 32-volt storage battery charged by

a Delco gas engine generating outfit. A 32-volt motor drives the 2,000-volt D.C. generator which supplies plate power.

The antenna is a 45-foot stranded gold plated wire running from the ship's deck to the cross trees of the main mast. Pyrex insulation is used.

In tests at the Zenith Laboratories in Chicago this set was operated under the call of 9XN using a replica of the Bowdoin's antenna. The antenna current was about 2 amperes. Traffic Manager Schnell at NRRL reported strong signals 1,600 miles West of San Francisco when 9XN was operating at 40 meters. The set also reached New Zealand 4AG in daylight, being reported very strong and steady.

Airplane Transmitters

The airplanes are also radio equipped. The airplane transmitters demanded special consideration since it may be necessary to operate them after a forced landing when a wind driven generator would probably be out of commission. A small



THE BOWDOIN, which again goes North with short-wave radio equipment.

outfit has been developed which uses dry cell power entirely. These sets use a UV-201-A tube and operate at 40 meters. These sets can operate with either key or microphone.

* Manager, Central Division, American Radio Relay League, 1358 Estes Ave., Chicago.

¹According to our latest information from the Bureau of Navigation, Department of Commerce, this circuit is definitely forbidden for amateur use. The Bowdoin is of course a special case and is permitted to use direct coupled equipment. Others should use the regular inductively coupled Hartley circuit shown in page 13 of our March issue, the Colpitts circuit shown on page 14 of that issue, or else the circuit of 6TS shown on page 16. If it is desired to use the same circuit as on the Bowdoin, it must be inductively coupled as shown in the lower half of Fig. 1, page 33 of our February issue.

Re-broadcasting

An attempt will be made to retransmit the voices of the plane observers from the Bowdoin, to pick them up in the United States and then to retransmit them for the second time on the usual broadcast wavelengths.

Amateur Communication

After MacMillan and MacDonald pass the 66th degree they will be in 24 hour daylight which necessitates the use of a short wave. Twenty meters has been chosen. It is hoped that many amateur stations will be equipped for communica-



- Thoughts -

tion on this wave in order to insure continuous contact with the expedition.

To facilitate the installation of such equipment Mr. Reinartz has been retained to advise anyone interested in the construction of a station suited to the purpose. He may be reached in care of the Zenith Radio Corp., 332 South Michigan Ave., Chicago.

21	9DXN	47	c3NI
22	9EGU	48	c9AL
23	6ZH	49	6CDN
24	5AKN-5XHB	50	WNP
25	2MU	51	6CGW
26	4BY	52	NRRL

The number is now so large that everyone can use these O.W.L. stations to spot calibration points on wavemeters and tuners. As we have explained before—there will be no schedules, the stations will simply carry on their regular work on the 5, 20, 40, 80 and 150 meter bands, announcing the wave they are using at the close of each sending. For instance, 9ZT will finish up.

“u 9ZT 76” or “u 9ZT 180” or “u 9ZT 42”

This is *not* the same thing as the Bureau of Standards system, since there are no regular schedules and there is no attempt to secure the extreme accuracy that is provided by WWV, 9XI and 6XBM. The O.W.L.S. can be depended on to 1% however in most cases and 9ZT-9XAX checks them up regularly to see that their waves are correct.

All correspondence regarding O.W.L.S. should go to D. C. Wallace, 54 Penn. Ave., Minneapolis, Minn.

WWV and 6XBM Schedules

WE have no new schedules from the Bureau of Standards so refer those interested to page 34 of the March issue and page 21 of the May issue.

New schedules will probably be printed next month.

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MacMillan Shoves Off

THE Schooner "Bowdoin" and the S. S. "Peary" of the MacMillan-Navy Arctic Expedition sailed from Wiscasset, Maine, on June 20th for Etah, Greenland, amidst tooting whistles and the cheers of a multitude of spectators. Altho it expects to return in September, the expedition is most formidably outfitted with supplies and scientific equipment of many sorts, not the least of which is the short-wave radio apparatus. As we told in our last issue the "Bowdoin" is equipped for short-wave work with amateurs, the operator being our old friend, John L. Reinartz of 1XAM-1QP. As this is written the "Bowdoin" is slowly working her way up the coast and WNP is in reliable touch with many amateur stations.

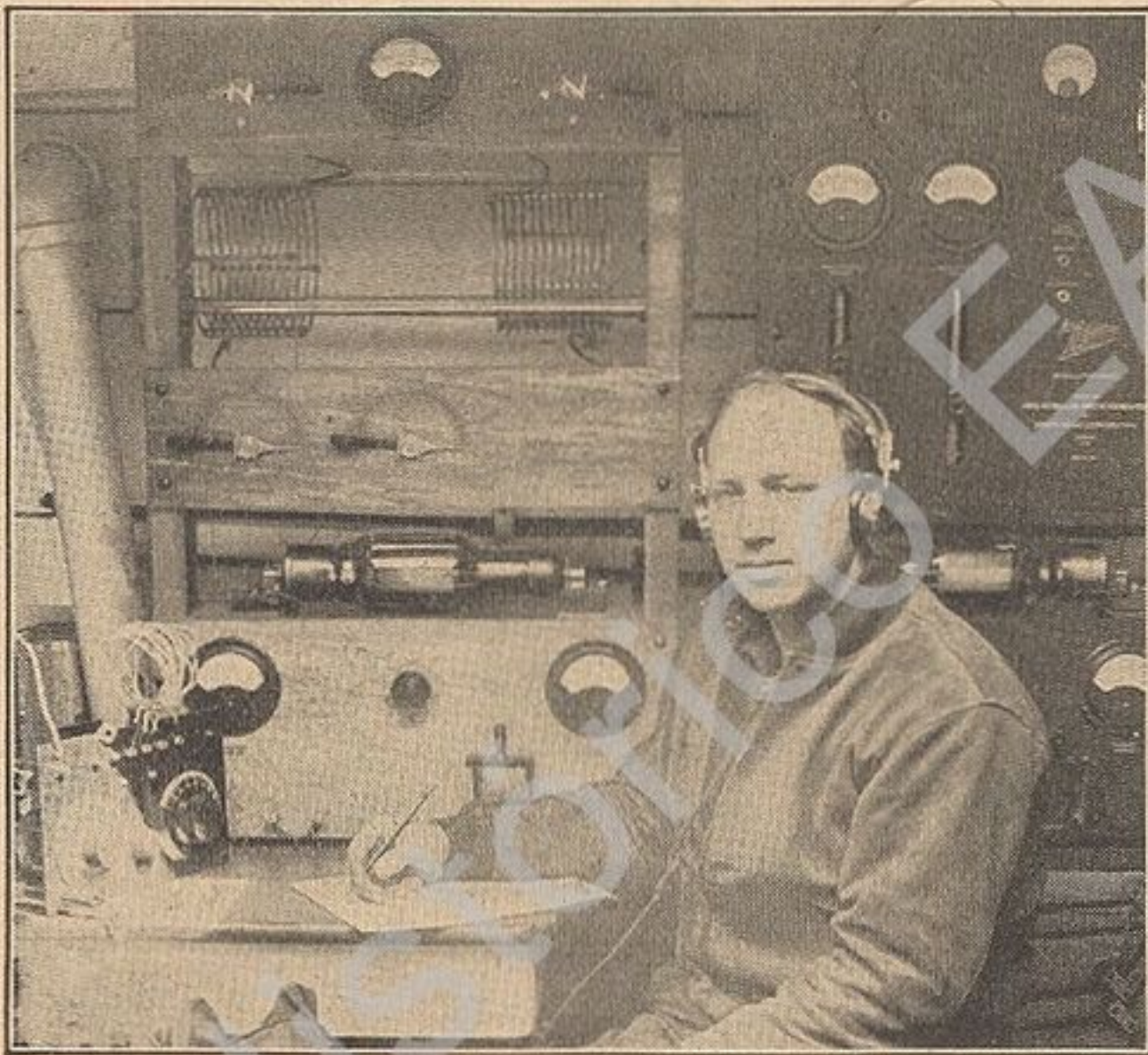
This is one of the most important exploring expeditions that ever sailed, as it has for its objective the exploring of the one remaining large uncharted area on the earth's surface, where it is suspected an unknown continent may be discovered.

The affair is under the auspices of the National Geographic Society, and to that society Comdr. MacMillan will send dispatches reporting the results of the party's explorations. Amateur radio is looked to to provide the contact, and all A.R.R.L. stations are requested to keep a sharp look-out for WNP. See details of schedule, wavelengths and instructions for handling dispatches, in July *QST*. Everyone is much interested in the results of this expedition and we amateurs have a wonderful opportunity to get credit for amateur radio and A.R.R.L. in maintaining the communication.

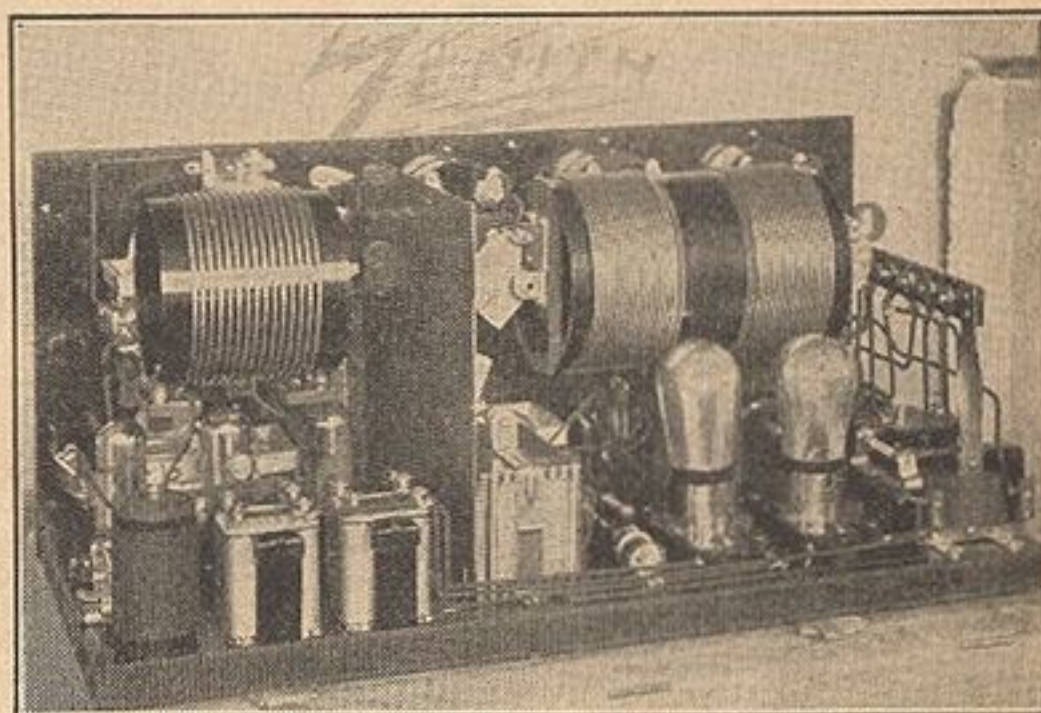
In addition to her Navy spark apparatus, the "Peary" carries a 2 K.W. C.W. and phone set, equipped with a 250-watt master oscillator and two 1 K.W. Radiotrons.

The call is WAP, and the wavelengths approximately 20, 40, 80 and 275 meters.

This set will be used chiefly for communication with the three Navy planes that will do the long-range exploring, but also for communication with the Zenith experimental station at Chicago. It is hoped that by means of a short-wave channel and rebroadcasting connections, the expedition may "go on the air" with local Eskimo talent and tell the world all about their experiences. It should prove quite a sensation if it works. The 275-meter wave is designed for reception on the Navy receivers on the planes, but the latter also carry Reinartz short-wave sets and our guess is that 275 meters won't be used very much. The operator on the "Peary" is Paul J. McGee, prewar 9AE of Mattoon, Ill., and now a member of the Zenith staff. McGee expects to find plenty of time to ham too, and the "Peary" has lots of punch, so listen for WAP also.



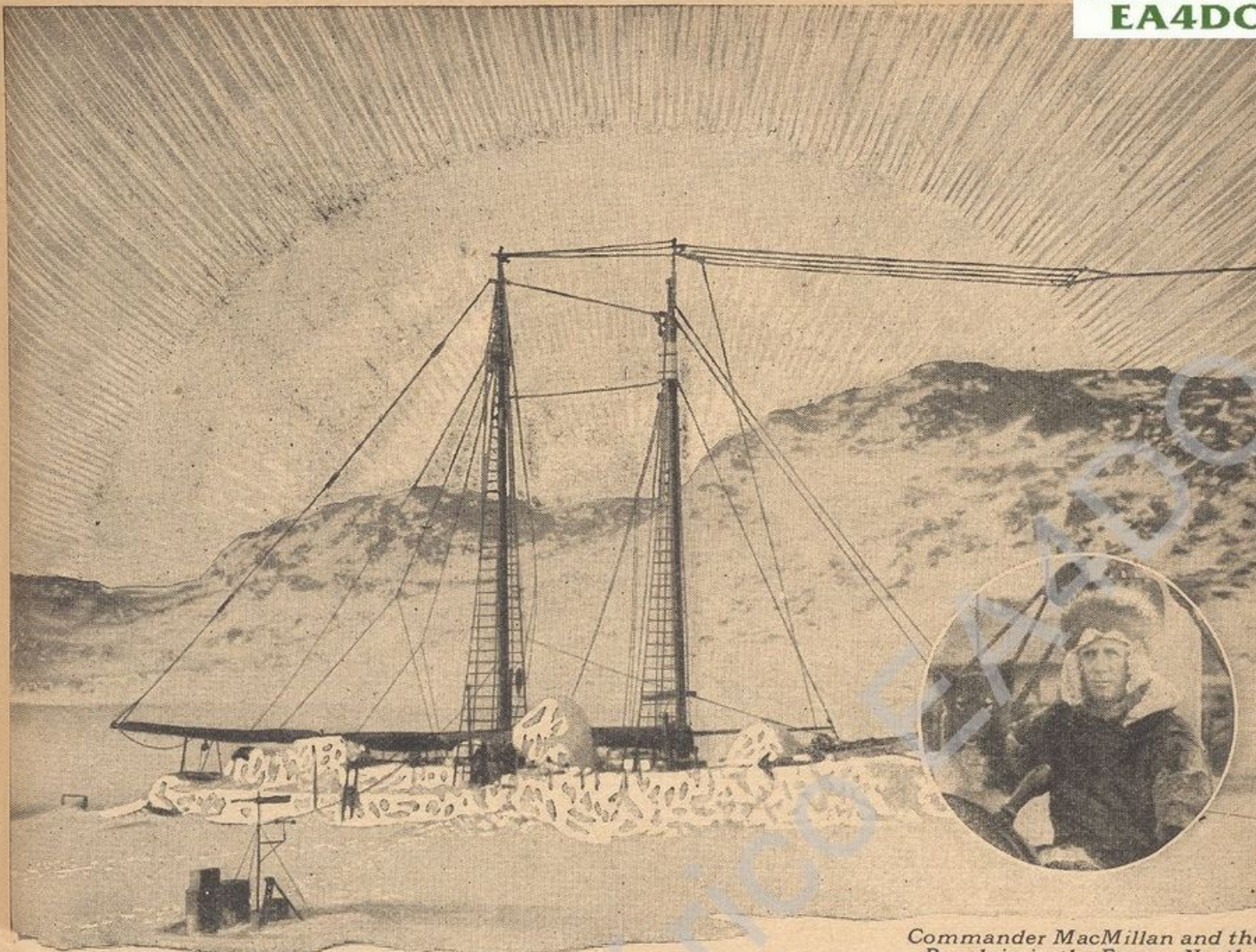
REINARTZ ABOARD WNP.
(Photo © McDougall & Keefe)



REINARTZ-ZENITH AIRPLANE SET installed on the Loening Amphibians of the expedition. The receiver is shown on the left, detector and two audio stages, using C-299 tubes. On the right is the transmitter, a 40-meter C.W. and phone set using C-301 tubes and dry battery plate supply.

Please report all communication with WNP and WAP to A.R.R.L. Headquarters.

—K. B. W.



Commander MacMillan and the Bowdoin in the Frozen North

With MACMILLAN in the ARCTIC

ONCE again that intrepid explorer, Donald MacMillan, has gone into the Frozen North. And once again—for the fourth time—he relied on Exide Batteries to serve him, without flinching, through the extreme rigors of the Polar region.

Each item of equipment on such an expedition is chosen with utmost care, for life or death hangs in the balance. On previous voyages to the Arctic with MacMillan, Exide Batteries have been through shipwreck, blizzard and incredible cold and never once have failed.

On this latest adventure all the storage batteries are Exide—for radio sending and receiving, for electric light aboard ship and on shore, for operating the sensitive scientific instruments. The three U. S. Navy airplanes that accompanied MacMillan's two vessels are equipped with Exide Batteries.

Wherever radio must not fail, you will almost always find Exide Batteries have been installed—in government and commercial plants—on the giant ship Leviathan, on

the Navy dirigible Shenandoah, on the new British airship R33; on every continent and the seven seas speeding up communication throughout the modern world.

The same qualities that make Exide the choice where lives are at stake are built into the Exide Batteries that you can have with your own receiving set. Staunch and dependable, the Exide gives uniform current through a long period of discharge and assures the clearest reception of which your set is capable. There is a type for every tube and a size for every set, obtainable at radio and all Exide dealers.



Exide 6-volt "A" battery in one-piece case

There are also Exide "A" batteries for 2-volt and 4-volt tubes and "B" batteries, 24 and 48 volts, of 6000 milliamper capacity. The Exide line includes a most economical "B" battery rectifier.

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Exide Batteries of Canada, Limited
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