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QST Issue: Jul 1920

Title: 1AW, Hartford, Conn.

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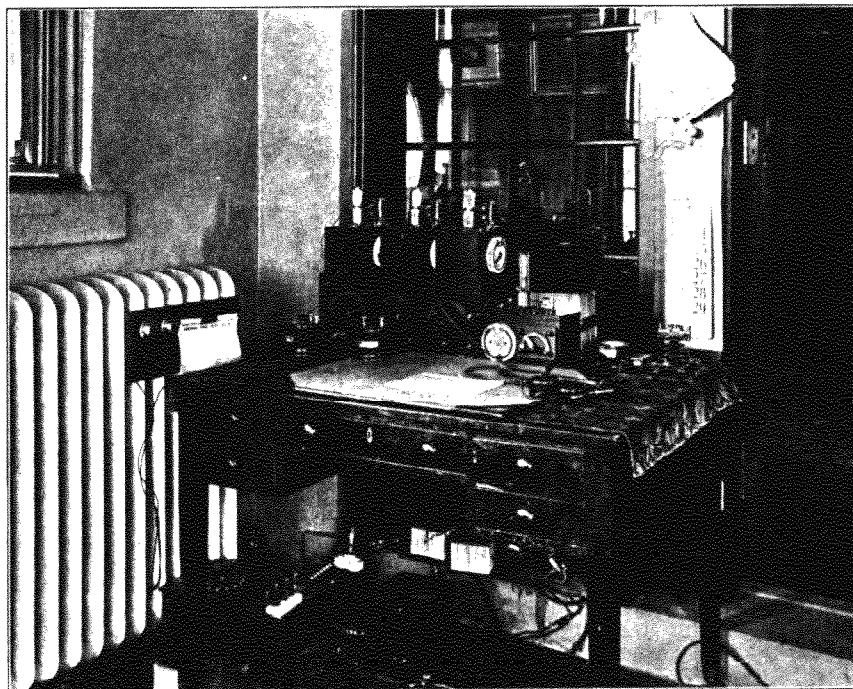
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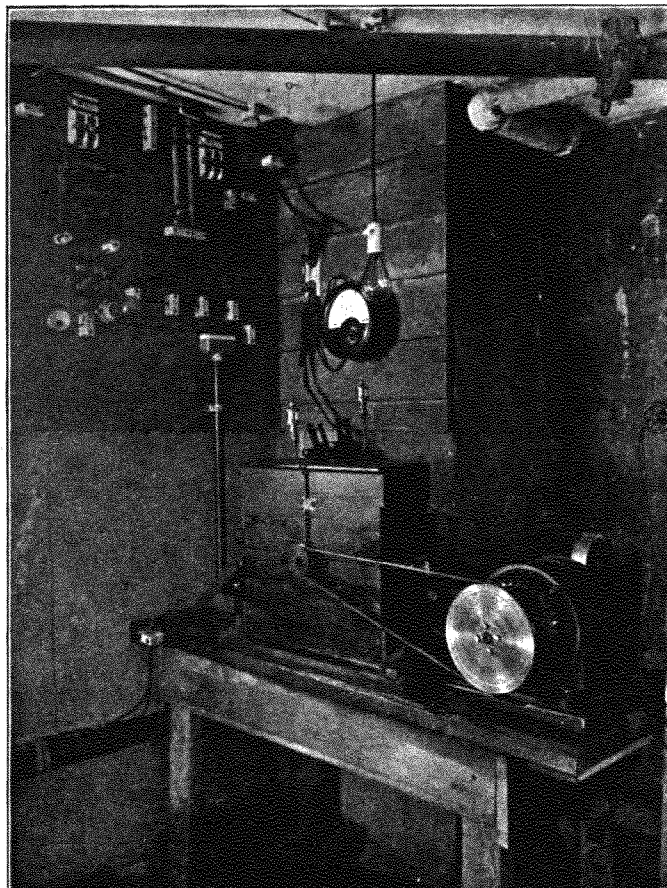
1AW, HARTFORD, CONN.



FOR this department this month we present a description of 1AW, the station of our President, Mr. Hiram Percy Maxim, at Hartford. The signals of 1AW are well known over the eastern part of the country, and we believe QST readers will be highly interested in learning some of the features of this station.

The most novel departure from regular practice is in the antenna, which is shown on our cover this month. This consists of a slanting flat-top of seventeen wires, 80 feet high at the open end and 50 feet high

at the lead-in end. The seventeen wires are spaced three feet apart along a cable at the open end, and supported by two 80-foot built-up wood masts 50 feet apart, while the spacing at the lower end (which is supported by a trussed spreader suspended from a pole on the rear of the house) is 15 inches. From the spreader the wires descend vertically, being gathered into a cable and led directly to the transmitter in the rear corner of the basement. The design employed is the nearest approach to a vertical fan that the disposition of the premises permit, and has given excellent results.



A conductive ground is used—water pipes, driven pipes, buried plates, and buried wire, there being considerably more wire in the ground system than in the aerial. That this job has been well done is attested by the fact that the resistance at 230 meters, measured by the substitution method, is but five ohms. The capacity of the system is .0011 mfd.

A very short anchor gap with large faces is used in the ground lead, and a single wire from the lead-in outside the house runs to the change-over switch (a Simon, with key on same base) at the receiving table, which is located in the library. As will be seen in the photograph, there is nothing unusual in the receiving equipment, which consists of a Paragon RA-6 regenerative tuner, a soft tubular detector with variable plate voltage, three stages of audio-frequency amplification in home-made units using Acme transformers and VT-1 tubes, and Baldwin phones.

An impedance in the power line is

located on the floor and makes possible the use of reduced power for short distance work. The anchor gap obviates the need for a distant-control device; the gap motor runs continuously and the power line runs direct to the key on the table without induction troubles—as simple an arrangement as could be thought of.

Both an Acme and a Thordarson transformer are in this station. At the spark frequency used they give exactly the same antenna current. The balance of the apparatus consists of a non-synchronous rotary gap, a 24,000 volt Dubilier mica condenser of .01 mfd., and an oscillation transformer of heavy 2-inch ribbon. Switches, meters, and protective devices are located on the panel as shown in the third photograph. Chief interest in the transmitter attaches to the rotary, which has four revolving electrodes on a 15-inch circle, belt-driven at 7000 r.p.m. from a ½

h.p. induction motor. This gap is the result of a number of years of experimenting. It was originally described on page 22 of QST for February, 1917, at which time it had 8 moving electrodes on a 12-inch circle, with a Bakelite center 8 inches in diameter, enclosed in an asbestos-lined box with the stationary electrodes mounted on Bakelite pieces on either side. Subsequent experimenting showed improved results by lessening the number of electrodes and increasing the speed to maintain the frequency, and the number was reduced to six, then to four. This season it was rebuilt with a solid metal hub and two solid arms in a cross, and the shaft and pulley are therefore "live", the insulation being furnished by the driving belt. Not the slightest trouble is now had with this apparatus and it definitely answers the question whether it is possible to do away with an insulating hub and rely on the driving belt. Because of the narrow electrodes and very high peripheral speed and its attendant air blast, it is believed that in this gap quenching is

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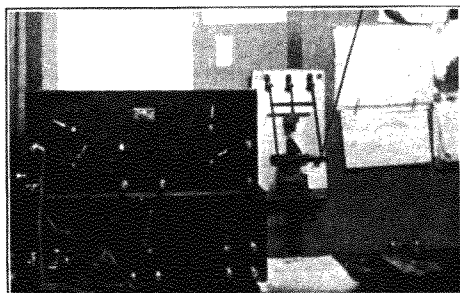
secured far beyond that given by ordinary rotaries, so that a tighter coupling is possible in the oscillation transformer with purity of wave maintained.

The input on full power is 770 watts, and the antenna current at this input, 5.5 amperes. 1AW has been heard in Nebraska, Arkansas, Texas, and as far south as Cuba. In point of consistent performance we believe it ranks with the top-liners in the amateur world. It serves as a gateway station for traffic between New England and the west. Mr. Maxim's "sine" is "HP", and the Editor, when he can find a spare evening to sit in, signs "KB". QRU?

9AU, CHICAGO

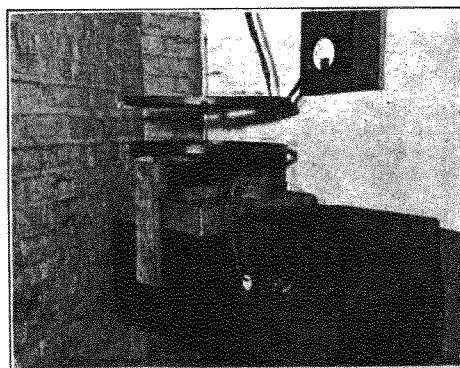
These two views are of 9AU, the station of Mr. C. H. Zeller, Assistant Central Division Manager, located at 4732 No. Maplewood Ave., Chicago. Mr. J. F. Scholtes alternates nights with Mr. Zeller in its operation. Zeller signing ZO and Scholtes AM. Both are ex-Marconi operators and have worked ships together.

The aerial is a T with three 100 foot phosphor bronze wires spaced 3½ feet, well insulated.



The receiving apparatus consists of a regenerative receiver in connection with a tron detector, single step amplifier, and Baldwin phones.

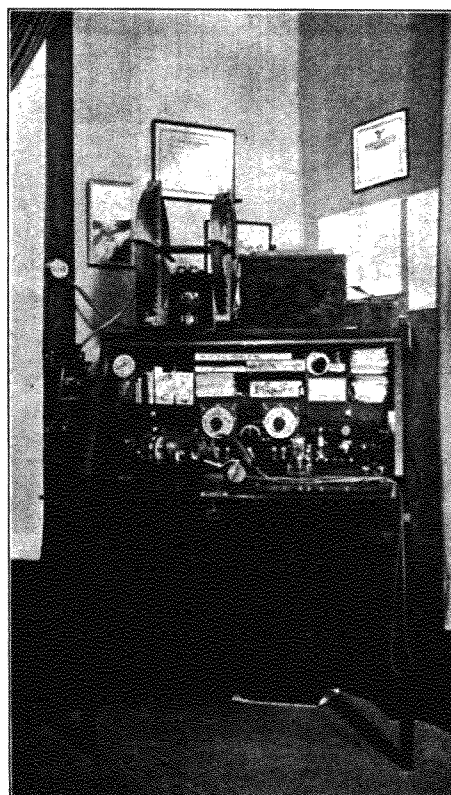
(Concluded on page 46)



5AO, HOUSTON, TEX.

Amateurs who are crowded for station room can get some hints from this picture of 5AO, which is the station of Mr. Alfred P. Daniel in Houston, Tex. The receiving set is mounted in a desk, the front of which lets down to form the writing table, while the transmitter is on top and the antenna switch and H.W.A. on a nearby window facing, making a very compact station.

The O.T. is a Thor. but the transformer



isn't, being homemade—of the open-core type, made from an old gas-lighter "make and break coil" for a primary with eight magneto secondaries strung on it in series. The condenser, plate glass in oil, and the enclosed six-point sawtooth rotary are also home-made.

The receiving set comprises, left to right—vario-coupler 200 to 600 meters; honeycombs for long waves; DeForest vernier condensers; Audiotron detector and two Marconi VT's for amplifiers; Baldwin phones, too.

5AO is reported QSA very in New Orleans (325 miles) and Eagle Pass (403 miles).