

"How to Build A Wireless Station"

By M. Adaire Garmhausen

No, we're not starting a Women's Auxiliary—not quite yet. But they're getting in the game, fellows, and soon it will be Marcelle Waves vs. the Hertzian brand. Mrs. SER should watch her laurels. In this story Miss Garmhausen gives an amusing account of how a "Ham (F.)" breaks in.—Editor.

WELL, it's just like this—these super-intelligent articles in QST are way over my head. After I swim thru an especially high-brow contribution such as "a generator for plate voltage" or "a voltage for plate generators"—whatever it was (apologies to the author)—I gaze out of the window and wonder if I will ever be able to appreciate these essays to their full value. Then perhaps I turn the page to where 8-somebody-or-other's highly efficient set is pictured or described and I look at my own collection here and laugh till the family comes running in, in wild alarm. So, just as a sort of reaction from the sublime to the ridiculous I shall proceed to describe my own efforts to "get in the game".

To begin with—I belong to the so-called "fair sex", and we are never expected to have brains. Also, my knowledge of radio telegraphy is decidedly limited. True enough I possess a commercial license, but it isn't hard to learn what the book says. When it comes to applying that knowledge—that is a "different matter". However, there is nothing like trying, so one day when my ears got to itching for the gentle buzzing till I could stand it no longer, I knocked off work about four o'clock and waltzed up to the radio shop I had discovered on Calvert St. I didn't care much what I bought just so I could hear a little radio on it. That little simplest receiving set we draw for the examination came to my mind now, so I got a crystal detector and a pair of phones, also some copper wire. Of course everyone in the shop (about fifteen curious youths appeared from nowhere) took me as a huge joke and poured forth fabulous tales about hearing POZ on one wire and some insignificant apparatus, etc., and each offered suggestions to which I harkened not. Only one of them was civil and I appreciated his courtesy. My enthusiasm waves were still undamped so I proceeded homeward to erect my aerial. Here was a real problem! I had spent lots of thought on how I was to get it up, but had arrived at no conclusion in spite of the manifold suggestions from the shop, so I thought I would reconnoiter on the roof a bit and possibly work out an answer. I broached the sub-

ject to my father. He replied that if I put masts on the roof they would be a constant menace for fear of being blown down, and besides, the less I tramped around on the roof the better off I'd be. I tackled my mother. She informed me that walking on the roof might make it leak and that I certainly could not go up. So, having secured their permission, I borrowed a ladder from the lady next door and climbed to the roof. I found two chimneys ideally located and pressed them into service. I had some porcelain cleats on hand for insulators and in a short time I had a two wire inverted-L aerial erected, as good as any. My lead-ins are too long but I expect to try another kind of aerial soon, so shall fix them then. This much being done I went below. It was getting dark now and I was still in frenzied haste to hear some radio so I connected the end of the lead-in directly to the detector. My set is by the window so I led my ground lead out my window and into the kitchen window, directly below, where there is a water pipe. I had forgotten a ground clamp in my haste so I simply coiled the wire around the pipe. Rushing upstairs again I shunted the fones around the detector as per the diagram and—behold! thru the stilly night purred the beloved sounds into my eager ear. And I just want to say, if any of you remember the first signals you ever heard on your own set, AIN'T it a gran' and glorious feelin'? I sat up that night till all had been silent a long while, and early the next morning I was at it again. I was unable to obtain a ground clamp so I used a hose clamp, which is just as good and in fact almost the same thing. After I put that on the water pipe and made a neat connection, I retired to the set to see what was going on. Things were quite lively. NBZ and 3OU were both sending and I could read both on account of the difference in spark notes, even thru static. Suddenly above these came a rhythmic pulsation persisting with mechanical accuracy. Could it be—!! the time from Arlington!!—on only detector and fones!!—and my little aerial!!!! Breathlessly I waited while the pulsations continued—then a pause—and then—oh crown of fame—"QST-QST-QST-de-NAA-NAA-NAA." Pop-eyed with joy I rushed

downstairs and embraced my startled mother. I danced a Highland Fling around the kitchen singing, "I heard Arlington—I heard Arlington". If the lad who had sent those gladsome words had known the excitement he caused in our camp he would have been amazed. Nightly thereafter I listened for the time. About nine o'clock one night I decided to make a tuning coil and see what effect it would have on my range. Any tuning coil I would construct would be just as liable to reduce the range as increase it. I had some bell wire on hand but nothing to wind it on. A tour of the cellar yielded a glass jar about three inches in diameter and about a foot long—just what I wanted—and upon this I wound about seventy feet of the bell wire. The diagram called for a fixed condenser, but I didn't have any so I used a variable. It served the purpose nicely and a lot more stations came in. So far everything was lovely—and then came a thunderstorm. It reminded me that I had no protection for my set and that lightning is no friend to radio hams. The family did not know how to disconnect the apparatus and if I forgot it and was away from home during a storm something was liable to happen. So I got me a switch. What I know about switches could be printed in scare-head type on a postage stamp. I wanted to connect so I could throw it one way and connect the set in and throw it the other way and just connect the aerial and ground. I had a suspicion I knew how I could do it so I brought my lead-in down along the window, screwed the switch to the wall, and made the whole connection so neat that the family wondered what had become of the wires. The wiring I learned from electricians I have watched at work. I hooked the set in but wasn't at all confident of results. With the fones on, I threw the set out. Silence reigned supreme. Then I threw it in, and the low rumble of static told me all was well. My delight knew no bounds! "Eureka!" I shouted "She does work after all—there's static—hurray"! My sister was in the room. "For pity's sake, shut up about static!" she said. "You have a fit every time that fellow sends. You must be in love with him"! Oh yes, I must be—we all are. But the connection was right, anyhow.

And that with a buzzer tester constitutes my entire set. Go ahead and laugh—I expect it. But wait till my audion and amplifier arrives that I sent for back in the dim ages. I shall defy a flickering smile to cross one face, for I expect to hear the soup chorus of the Esquimeaux at six p. m. every day. And when I have perfection in receiving sets I shall construct a transmitting set that will make the night hideous for the whole United States.

One thing I have discovered about radio

—it is never as hard as you think it is going to be. When you get started everything works out like magic. I hope this isn't just beginner's luck because I still have almost everything before me, but I'm learning more and more every day and that gives me hope that some day I will be able to appreciate to the fullest those super-intelligent articles.

THE JUNIOR OPERATOR

(Concluded from page 48)

slide down with their wave length and help themselves and others.

TABLE IV

Cap. Used with Coil	Units of Inductance for 200 m	Units of Inductance for 150 m
.002	5630	3160
.004	2820	1580
.006	1880	1052
.008	1400	790
.010	1126	633

Of this total value of primary inductance, allow about 500 units for the leads from the condenser to gap and inductance. These SHOULD UNDER NO CONSIDERATION EXCEED TWENTY INCHES.

Our one inch spark coil needed .004 capacity. This fixes the inductance of the primary not to exceed 2820 units for 200 meters and not to exceed 1580 units for wave length of 150 meters. Subtracting 500 units from the total amount, 2820, we have 2320 units for the primary itself.

Our next consideration is what size helix and how many turns will yield this value.

The helix will be made of ¼ inch brass or copper ribbon, six turns spaced three-quarters of an inch. The diameter will be seven inches. About four and one-half turns will be needed for 2820 units and about two-and-one-half turns for 1580 units, for 200 meters and 150 meters respectively.

The secondary of the oscillation transformer will be similar in dimensions and the full six turns can be used with an antennae whose total length, including lead-in and ground lead, does not exceed 140 feet for 200 meter radiation, and an antennae of not over 100 feet total length as before for radiation at 150 meters wave length.

It is hoped that the above data will be of service to the amateur in putting up a good spark coil set. He is cautioned not to split hairs on the Tables but to take the figures as a guide to his dimensions. The tables have been carefully prepared and can be depended upon.