

# Breaking into the Amateur Game

## The First of a Series of Articles on Amateur Transmitting

By "Q.R.L."

**THIS is the first of a series of articles dealing with the essential points of amateur short-wave transmitting. It will tell, in detail, how to become an amateur operator, construct a complete transmitter, and operate it successfully. In these respects it is considered that the articles will fill a need by letting the enthusiast know how simple it is from start to finish to put a licensed transmitter on the air, and that it is not the highly expensive, technical and difficult process it is generally considered to be. The writer is an experienced and well-known "ham."—Ed.**

Doubtless the A.C. mains will be resorted to if higher power is later desired, as it is impracticable to use batteries above two or three hundred volts.

The chief factor in any transmitter is the power supply, and the greater the power the greater the distances that can be covered with reliability, but with the small power mentioned, distances up to 1200 miles will be easily covered on the higher amateur wavebands, while on the lower much greater distances under good conditions.

For the transmitting antenna no complicated arrangement or great height is required, the single wires employed being cut to a definite length, and no earth is used.

### WAGNER

The greatest  
of German opera  
composers.

will be the  
subject of a  
Lecture  
Recital

by  
Mrs. Daisy  
Basham  
from 2YA  
Monday, Dec. 29.



We shall have more to say about this subsequently.

### The Government License.

**NOW**, before an amateur station can be established, it is necessary to obtain a Government license. If an ordinary receiving license is held, this costs nothing extra, but before the transmitting license and a call-sign for the station are issued a small examination must be sat to satisfy the Government authorities that the prospective licensee is qualified to operate a station.

This examination is conducted by the P. and T. Department, and is in two parts, the first being in Morse operating, reading and receiving, and the second in elementary theory and know-

ledge of simple transmitters and the Government regulations. The Morse is at the slow speed of ten words per minute, and the code must be learnt and practised for a while to attain this speed.

The theory is elementary, and any listener who has read this paper for a time should have no difficulty there. The knowledge of simple transmitters and the regulations governing amateur operation will be dealt with fully in a future article. Anyone who is prepared to spend his spare time for a few weeks should have little trouble in passing this examination in both sections, the Morse being generally considered to require the more work, and the regulations simple.

### Beginning to Chirp.

**A**fter the exam. is passed, a license and call-sign will be allotted, and will take one of the following forms: It will begin with "ZL" which is the "intermediate" for all amateur stations in New Zealand, just as "VK" is for Australia. Every country has an intermediate so that the origin of signals can be instantly known. If the station is in the Auckland district, it will have the number "1," a complete call-sign being ZL1AA; for the Wellington and Hawke's Bay districts, the number is "2," e.g., ZL2AA, and for Christchurch and Dunedin "3" and "4" respectively. The station will be known only by the call, just as is a broadcasting station.

When the license has been allotted, the station may be put on the air, but its wavelengths and general operation are governed by the regulations previously mentioned. Once on the air, the real fun starts, and the amateur will continue to widen both his sphere of knowledge and his circle of friends. There are several wavebands in which he may operate, and they are known as the 80, 40, 20, and 10 metre bands respectively. For a few months at first the transmitter must be operated on the 80-metre band, until more practical experience is gained, and consequently the contacts, or "QSO's" will be limited to New Zealand and Australia, but one can be certain during this time of being able to "work" some station any night. Many experienced hams get as much pleasure out of rag-chewing, or yarning, with home country stations as out of real DX contacts.

### Getting On to the High Frequencies.

**A**FTER a permit has been obtained to operate on the lower wavebands, 40 and 20 metres, there is practically no limit to the distances workable, Europe and Asia being quite common contacts. Of course, the majority of amateur work is done with Morse, as this has probably four or five times the carrying power of telephony, or "fone," and is far simpler and less subject to atmospheric interference. It is an invariable practice to commence transmitting with Morse only, since it requires less power and simpler apparatus, but generally the amateur has a try at fone later on. There is a great attraction about it, but the signal, or carrier wave, which is cut up into dots and dashes for Morse, but on continuously for fone, must be very pure,

**I**n the history of radio the amateur experimenter stands predominant. Though it is often overlooked, the credit for the advancement of radio science is due to a large extent to his persevering and farseeing efforts, which have often been seriously hampered by unsympathetic legislators, and he has shown conclusively that his existence is far more than justified.

He has triumphed over many difficulties, and to-day there exists a vast army of amateur transmitters, stretching a net of two-way communication to the remotest spots of the earth. Every night one may, by listening on a short-wave receiver, hear amateurs in distant countries talking to friends on the other side of the world, and a great brotherhood has been formed following the international friendships that have sprung up through two-way radio communication.

The unbounded possibilities of two-way communication enable the transmitter to keep up that keen permanent interest which so soon dies with mere reception, and it is a really thrilling way of opening up a vast store of new attractions which are virtually unending for the amateur.

No doubt there are many such keen listeners in New Zealand who, having built short-wave sets and hearing the wide world, have cast longing eyes on the amateur transmitter, and wondered what his apparatus is like and how he operates it, and how one becomes an amateur operator in the first place. It is often thought that this is quite difficult to do, and that the apparatus is costly and hard to construct. Now the purpose of these articles is to show just how simple it really all is, and to show any short-wave listener who is prepared to put a few evenings' work into it how to break into amateur transmitting.

The great advantage of short waves is the huge distances coverable by transmitters using but small power. This is the basis of nearly all amateur activity, since few amateurs can afford the high-powered gear necessary for covering even short distances with long waves. It has been shown by amateurs that signals have been sent across the globe on the shorter wavelengths with no more power than an everyday receiver uses.

### The Essentials.

**MOST** amateurs begin with just such power and a transmitter that is no harder or costly to construct than a three-valve receiver, and a future article will be devoted to a description of such a transmitter.

**I**T employs only one valve, which may be just a common receiving one, such as the 201-A, and the power for the filament and plate is obtained from the "A" battery of the receiver, and a "B" battery of about 150 volts. Many amateurs use the A.C. mains for power supply, generally transforming the voltage up, but the A.C. must be rectified and thoroughly smoothed in order to give a clean, clear signal. A D.C. battery saves all this extra gear, and gives the best signal, especially for the beginner.