

# Breaking into the Amateur Game

## Part IV—On the Air for the First Time

By "Q.R.L."



**T**HE tuning of the Hartley transmitter described in the last article is not a difficult process. If the transmitter has been solidly constructed so that no vibration of parts or leads is possible, and a suitable power input is used, the outfit is capable of producing a clean, steady signal of which the operator will be proud. The tuning, however, will help to determine the character of the signal, and may completely change its note, if an RAC input is used. Hence it is important that the transmitter be correctly tuned, for a poor signal reflects discredit on the amateur responsible. The finer points of tuning will come with actual experience on the air, but it is the essentials given here which count most.

Now, before any attempt can be made to tune the transmitter, some means of listening to the signal must be available. For this the ordinary short-wave receiver may be used, or a monitor, which is simply a single valve receiver. The first essential is to tune the transmitter to the desired frequency, which must be within an amateur band—in the first case the 75-85 metre band. While this is being done the antenna gear may be left disconnected. The receiver should be moved not less than six feet away from the transmitter and tuned (oscillating) to some wavelength known to be within the 75-85 metre band. All connections to the transmitter should be checked, the filament clip being on the fourth turn from the grid end of the plate coil. The power may then be connected up and switched on, the key pressed, and the oscillator condenser turned until a loud whistle is heard in the receiver. This is the transmitter's wave, and a capacity of about .00025 mfd. in the condenser should bring it within the band.

If no whistle is heard, the transmitter is not oscillating and the filament clip should be moved a turn or two closer to the plate end of the coil. When the wave has been located well within the band, the antenna gear may be connected up with the coil, separation about two inches, and the torch bulb in the circuit. With the key pressed, the antenna condenser should be varied until the bulb lights up to the maximum, and responds instantly to taps of the key. If more capacity is required across the antenna coil, a small fixed condenser of about .00025 mfd. may be connected in parallel with the variable one. Although greater power is transferred to the antenna when its coil is closely coupled to the oscillator, a spac-

ing of less than two inches should be avoided, because the wave radiated will be much broader (i.e., will cover more of the dial in a receiver and cause interference).

The note will also be rougher, and the steadiness of the signal will be affected. It is important to remember that the strength of a signal is far

ones with their meaning are shown. The amateur has also devised a handy standard system of abbreviations consisting mainly of shortened words, and a few of them are given, though they are very easy to pick up. The snappy use of all the abbreviations adds much to the pleasure of a contact. Suppose the amateur has gone

this: "ZL-4AA ZL-4AA de ZL-2AA; R ge OM se QSO; tnx call; ur DC sigs QSA5 R8 stedi; QRK? ARK." Translated, this means: "Received O.K. Good evening, old man, I am pleased to QSO. Thanks for the call. Your DC note signals are easily readable, strength 8. What strength are my signals?" The tables for readability and strength are shown. It is important to note that although signals may be strength R7, they may only be QSA3, owing to QRN (static) or QRM (interference).

Fullstops and semicolons in the message are translated by the symbol —, as shown in the diagram. The "K" at the end of the message tells ZL-4AA to go ahead with his transmission, and he would then give the other a report on his signals. The two would continue thus to send anything of interest across to each other—"swap dope" is the amateur term. When one has exhausted his supply of dope he would say: "Well OM QRU hr nw, so WL QRT. 73 es tnx QSO gn AR VA." This means "Well, old man, nothing further here now, so I will close down. Best wishes and thanks for the QSO, Good night." VA means that the QSO is finished. For the majority of QSO's this sign-off is quite sufficient and is better practice than the usual rigmarole about nothing in particular adopted by some amateurs.

If the signals are weak and hard to read, each word of the message would be sent twice, but the receiving operator will generally say if he wants it sent "double." Occasionally, if there is QRM on the particular wavelength of a station, the receiving "op" will ask the other to QSY, i.e., change his wavelength. This change should always be slight, just sufficient to get clear of the QRM, and the sending "op" should say whether he intends to QSY up or down in wavelength.

It will be found easier to pick up the simple methods of operating by listening to amateurs actually "working" one another.

### The "Break-in" System.

**A**NOTHER system of communication is "break-in." If handled properly it is more interesting and faster than the other system. It is simply "duplex telegraphy," each operator having his receiver and transmitter on, and being able to transmit by merely pressing the key. Thus a conversation may be carried on without the necessity for "changing over." The system is not used much in New Zealand, probably owing to the fact that interference from the transmitter is caused if the re-

### INTERNATIONAL PREFIXES

ZL—New Zealand	I—Italy	RA—Russia
VK—Australia	T—Japan	SM—Sweden
VE—Canada	K—W.S. Possessions	SP—Poland
CT—Portugal	LA—Norway	SU—Egypt
D—Germany	LU—Argentina	X—Mexico
EAR—Spain	ON—Belgium	AC—China
EI—Irish F.S.	OZ—Denmark	ZS—South Africa
F—France	PA—Netherlands	
G—Great Britain	PY—Brazil	

from being the only thing that counts. Stability and pureness in a weaker signal will often get through where a loud but "wobbly" one would be "lost in the depths." When the oscillator has been adjusted to a wavelength within the band and the antenna tuned to resonance, the bulb must be shorted out by closing the small switch, and the transmitter is ready to go on the air officially.

Even if the transmitter delivers a good signal, its effect will be lost by poor operating of the station. No amateur in these enlightened times enjoys working a station whose operator is ignorant of the cardinal principles of two-way contact.

### Two-way Telegraphy.

**W**E shall begin right from the start and trace the procedure of making and maintaining a contact. Owing to the obvious necessity of brevity with Morse transmission, a system of abbreviations is in use throughout the world by all Morse stations. These are known as "Q" signals, and the more important

through all the procedure necessary for establishing a station, and is ready for his first exhilarating plunge into amateur transmitting. Naturally he will be excited and very keen to make his first contact, no matter with what station. After making sure that the wavelength of his transmitter is correct, he should proceed to send out a call inviting any station who desires a QSO to answer him. This is known as a "CQ" call. If his call-sign were ZL-2AA, he would send as follows: "CQ CQ CQ de (meaning from) ZL-2AA," and would repeat this for two or three minutes. At the end he would send AR, indicating that the call was finished.

He would then switch the transmitter off and the receiver on, to cover the band listening for stations calling him. Such a call would take the following form, supposing a calling station were ZL-4AA: "ZL-2AA ZL-2AA ZL-2AA de ZL-4AA ZL-4AA," repeated for two or three minutes and finished off with AR. ZL-2AA would then go back at 4AA, sending something like

### THE INTERNATIONAL MORSE CODE

A	• —	K	— • • •	U	• • —
B	• • • •	L	— • • •	V	• • • •
C	— • • •	M	— • • •	W	— • • •
D	— • • •	N	— • • •	X	— • • •
E	• • • •	O	— • • •	Y	— • • •
F	• • • •	P	— • • •	Z	— • • •
G	• • • •	Q	— • • •	General Call	— • • •
H	• • • •	R	— • • •	Attention Call	— • • •
I	• • • •	S	— • • •	End of Message	— • • •
J	• • • •	T	— • • •	End of Transmission	— • • •
1	• • • •	6	— • • •	"Go Ahead" transmitting	— • • •
2	• • • •	7	— • • •	Received (O.K.)	— • • •
3	• • • •	8	— • • •	Interrogation ?	— • • •
4	• • • •	9	— • • •	Period (.)	— • • •
5	• • • •	0	— • • •	Double Dash	— • • •
		Comma	— • • •	Distress Signal	— • • •