

For the Constructor.

THE following are jottings from the lecture delivered by Mr. C. C. K. Fear before the general meeting of the Wellington Amateur Radio Society. Mr. Fear is a recognised authority on the Browning-Drake circuit.

The gauge of wire in most coils can be varied a point or two without incurring trouble. A few more turns are needed for the thicker wire.

The covering of the wire is not of great importance. Silk (D.S.C.), cotton (D.C.C.), or enamelled wire are equally suitable. Enamelled wire should be space wound owing to thin insulation. Close winding would result in a high self-capacity coil.

Space winding is very effective, but hardly necessary with D.C.C., the insulation being an effective spacer.

The impedance on the first valve must match that of the slotted primary. AUX199 valve or Philips 630 are suitable H.F. valves and require 25 turns on primary. Philips A609 or 409 or UX201 require 17 turns.

If a Radiotron valve UX199 is used with six-volt valves in the rest of the circuit a resistance of 33 ohms must be wired in series with the filament.

Tone, not ratio, should be the guiding factor in selecting a transformer. Ratios of $3\frac{1}{2}$ to 1 should be considered sufficient. Ferranti products are suited for the purpose.

In general, the bigger the transformer the better—Philips is an exception. Smaller transformers are not worth while.

If a high-pitched squeak greets the listener on tuning-in, the H.F. current is feeding back into the amplifier. Embody an H.F. choke between the tickler and the first and second transformer, marked "P."

A Corner for Beginners

— By Observer —

Keep the grid and plate wires short and the wire between the fixed plates and the grid short and up from the baseboard.

Clean Connections.

THE importance of these cannot be over emphasised, especially where low-powered sets are to be employed. One case in particular is worthy of mention in this respect.

A dealer was called upon to fit an amplifier to a crystal set already in commission. On taking up the phones it was noticed that volume was very weak, so weak that it would be difficult to suitably amplify the current with the one valve to be used.

A glance at the terminals revealed the cause of the trouble. The enamelled aerial wire was joined to a flat strip which passed under a window. This was connected to another piece of enamelled wire which, in turn, was connected to the crystal set. All joins were made by passing a loop of the enamelled wire through the next conductor. No attempt had been made to clean the wire.

On being asked whether the strength had been improved by the use of a pocket knife, the reply was distinctly affirmative. The owner added—"and I thought we were getting good reception."

Wireless has been a novelty—it has passed that stage; it is now a definite utility. The onus of every listener is to find out what good reception is, and

to ensure that his reception is pure and undistorted.

To See How it Worked.

VERY puzzled, an owner who prided himself on how much he knew about radio, took his machine in to be tested. It was not going as he wished it to go, and he had been unable to locate the trouble. The expert, detecting a technical fault, which was more than the average listener would be able to track down, adjusted it and handed it over complete.

The radioman, not wishing to make known the technicality, kept his secret. The customer was not satisfied, and several days later the set was returned, refusing to function.

Investigation showed the set had been tampered with—this time the expenses were very much heavier.

It is unwise for the listener to take his set apart to learn all about it. There are certain things every efficient radio operator must know, but when it comes to technicalities, leave that to the man who has had experience, and training, and expect to fully reward him for his service. After all, its cheap instruction and entertainment.

When the Set is Going.

THE warning voiced by Mr. Fear not to tinker with a screwdriver when the set is in use reminds one of an unpleasant incident which befel an experienced amateur. Incidentally, the set was a Browning-Drake and had been going well for some time, but appeared a little dusty. Taking a steel brush, the owner set about "cleaning-up." He was more successful than he had anticipated. No less than five valves were "cleaned-up" at once. Mr. Fear's advice is not without ground—heavily insulate all wires, leave the set alone when the power is connected. If the wiring is uninsulated, then it is imperative to undo the B plus leads before you alter anything inside the set itself. Failure to take this simple precaution costs listeners thousands of pounds for new valves.

Improving the Crystal Set.

A CORRESPONDENT writes: (1) Is it possible to run two crystal sets off one aerial and get the same volume as you would with two aerials? (2) Can two crystal sets be coupled together in any manner to obtain double the volume of one? N. T. Sowry (Lower Hutt). (1) It is possible to run two sets from one aerial with satisfactory results, but for the best results separate aerials are required. (2) No; to increase signal strength from a crystal the following methods may be adopted: (a) Improve the aerial or the earth; (b) use a more sensitive crystal or a more suitable coil; (c) improve and solder connections where possible; (b) add a valve amplifier.

Intermittent Reception.

IT often occurs that signals, apparently normal, go right out without any indication of cause, to come on a little later as though nothing had happened. This, to those unacquainted with their sets, may cause quite a great deal of uneasiness, and may even cause radio to be condemned.

A little trouble tracking on the part of the listener in the right direction will in all probability reveal the trouble without the aid of an expert.

Intermittent signals caused by the receiving set will most likely have their origin in one of the following:—

(1) Loose valve connection. An instance in this respect may serve to illustrate the point. The owner of a table model receiver was puzzled by the failure of his signals. At times the set worked perfectly, but on other occasions it was turned on and there was no response. Being unable to solve the mystery, a dealer was called in.

Finding the instrument silent the radio man tapped it, and without more ado it went as sweetly as desired. Tapped again, silence ensued. A glance inside the cabinet was sufficient to confirm his suspicions—a loose valve connection! Removing the offending valve from its socket, prising the split in the prong and replacing it was all that was necessary to put the set in working order. Moving or dusting a receiver will often cause a loose valve to give trouble.

(2) A broken lead-in wire. When the lead-in from either the aerial or the earth breaks within its insulation this phenomenon may result and with out careful examination would not be detected.

(3) Broken transformer windings.

(4) Faulty phones or speaker.

The two latter may have a direct bearing on the battery voltage, and in this connection much trouble has been hard to track. A customer brought a pair of phones into a local man complaining that they would not reproduce any signals. The dealer, connecting them to a small valve set, found them in perfect condition and returned them to the astonished owner. On returning home the listener found that his set would still not work.

The whole set (a crystal) was taken to pieces and rebuilt, still without result. In desperation the dealer was again referred to, and as before the phones gave excellent reproduction. To make the test more extensive a crystal set was brought into operation—this time silence.

A few moments' contemplation resulted in an explanation which on investigation proved to be correct. The coil inside the phones were broken. When applied to a set using a battery a spark jumped the gap and established a connection. This could quite easily explain intermittent signals resulting from a break in the transformer or speaker windings.

Reduction of Noise.

A GOOD many people who complain of interference from such sources as leaky power lines, have never tried the effect of a counterpoise. A counterpoise is simply another aerial strung a few feet above the ground, directly below the main aerial. It may very well consist of two or three wires, anything from one to several feet apart. The wires in the counterpoise, which is insulated from the earth and from

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