Laboratory Jottings

A.C. Adapter Harness, the Dongan Filament Transformer and Radiotron A.C. Valves

Ltd., has been thoroughly tested, and the following report is now presented.

This accessory consists of a set of special valve adaptors suitably connected so that they may be attached to a filament transformer, and into the sockets of the battery set. This is all that is necessary to convert such a set into an A.C. filament. The transformer used (the Dongan) is a particularly neat arrangement fitted with three tappings for voltages of 1.5, 2.5, and 5 volts. These tappings were correct according to an accurate metre. The transformer is provided with a special socket, so that the battery eliminator may be plugged into this to obviate the necessity of another connection to the electric light mains.

The harness supplied was suitable for a five-valve set. To use this all that was necessary was to connect the terminals to the transformer and plug the adaptors into the valve sockets and fit in the A.C. valves. Bias for the 227 valve is automatically applied by an extra connection to that battery or eliminator tapping.

By the courtesy of Amalgamated Wireless, Ltd., we were able to test out the following valve with this apparatus:-R.F. two 226's; detector, 227; first audio, 226; power valve, 171.

The result was altogether satisfactory. The change to A.C. was made in a very few minutes, and the signals came in clear, loud, and pure without any hum-in fact, there was no telling when D.C. and A.C. was being used.

The following are a few salient points in favour of the apparatus:—(1) Correct voltage is applied continuously to the filaments. (2) The wiring set does not have the molested. the other

Electrify Your **Battery Set**

The Dongan Filament Transformers referred to in the accompanying report, are obtainable at the following prices:

Dongan Filament £2/5/0 Transformer Fransformer 8-Valve A.C. Adap- \$2/

ter Harness..... 6-Valve A.C. Adap- £2/15/0

ter Harness...... &L/ IJ/ U From any good Radio Dealer. Or from:

ABEL, SMEETON

Customs Street East, AUCKLAND.

THIS transformer and harness as tery connections remaining as before. submitted to us by Abel Smeeton, (3) The use of a power valve is encouraged. (4) Running expenses as compared with the "A" battery are negligible.

Radiotron A.C. Valves

THE appeal of the A.C. receiver is growing, and we have made it a point of securing some of the A.C. valves and testing them with a view to further informing our readers on their possibilities. Most constructors avoid trying out A.C. sets though, no doubt, before this season has elapsed. many of these amateurs will have tried their hand at A.C. We hope before long to publish the full working details of the A.C. Browning-Drake.

The valves submitted to us by Amalgamated Wireless, Ltd., were UX226, UY227, and UX-171A. These were used with the Dongan unit and E.B.H. harness adaptor, reviewed in another column. The 226 is a valve which resembles very much the ordinary receiving valve. The filament voltage is 1.5, requiring a current of 1.05 amperes. The amplification factor is 8.2, and the anode voltage 135 volts.

The 227 is slightly different from the ordinary valve, in that the filament is heated indirectly. Alternating current is applied to two terminals of the valve, but these two are not to the filament. This is an independant electrode, the emission of which is a result of the heat transferred from the heater. For this reason the valve is known as a "heater" type. This requires 2.5 volts on the heater and 1.75 amperes. The amplification factor is 8, and the plate voltage 45. This valve is most suitable as a detector, but is quite frequently used in the radio frequency stages. Through this arrangement of indirect heating, hum is kept to a minimum. On our test, there was no

It is not very commonly known that alternating current can, without fur-ther adjustment, be applied to the filament of the 171A. Most power transformers have a winding that will deliver 5 volts. This can be applied directly to the filament of this valve without any hum disturbing reception. For some weeks, the writer has been using this arrangement with the other valves heated by direct current. The results have been excellent.

Power transformers are now coming on to the market and there is no reason why any listener should not take the filament current fo his power valve from the filament winding. Power va'ves usually require a high amperage so that it is a distinct saving to take it direct from the mains.

NO listener should hunt for long-disa moment whether his set is oscillating two cones were pulled together by

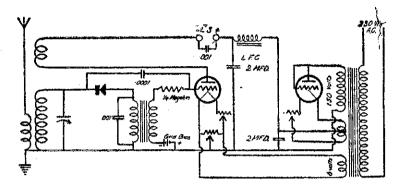
Suggestions from Correspondents

Combined Circuit

"MULTIPLEX" (Wellington) suggests: "I constructed, as a first attempt, the A.C. main crystal and one valve set described by 'Pentode' on November 16 last. Using a cheap valve in the rectifier transformer position and a power valve in the audio stage. It works perfectly with a large horn "(b) Tickler coil. I tried 40 turns speaker. The 400 ohm potentiometer in one layer first and found the coil

coil 60 turns, and Wellington tunes in with the condenser plates all out. tried another condenser in parallel. but had to put it all in and then lost volume compared with only one condenser. Can this be improved? If so, how, please.

[Reduce the aerial coil to 20, then. if still tuning with plates out reduce secondary.]



An interesting combination of two successful receivers-The "Three in One" and the "A.C. Crystal and Valve."

across the audio valve makes practically no difference in any position, there being no sign of "hum." The set will not work with the valves in the The grid bias is opposite positions. nine volts.

"Now I consider the one-valve set described on November 30, and decided to combine the two sets, using the November 30 one-valve amplifier with the rectifier transformer part of the November 16 set. I enclose a copy of the circuit I worked out. It also works absolutely O.K., but I should like your advice on the following points:-

"(a) Condenser tuning secondary Aerial coil 40 turns, secondary

could be turned in any position or leads reversed without making any difference. I now have 60 turns two layers on, but it still makes no appreciable difference how I turn it; but it cuts down volume if reversed leads are connected. Why does this coil give me no control? Are still more turns necessary, and if so, how many would you suggest?

[Yes; more turns are required.]

"The combined set is considerably louder than the A.C. set first published and is absolutely clear and quite loud enough, but I do not feel satisfied on the above points. I have not tried any other station except Wellington.

The Calico-Cone Speaker

A CORRESPONDENT, "Sapiensis" (Lower Hutt), writes: It may be of interest to some of your readers --particularly those who delight in making up various parts for themselves-that upon completing the "calico cone-speaker," details for which were published in your paper some time ago, I was astonished to find that it was possible to make for oneself an instrument considerably superior in tone to a great many expensive conespeakers at present on the market Driven by a 4-valve Browning-Drake set, also made up from details published in the "Radio Record"; volume and tone leave nothing to be wished for. I may say that I have departed slightly from the original design, for instance, I have fitted the small cone at back upon an independent frame, which is adjustable, a decided improvement.

I discovered that several coats of very thin shellac varnish was a much tance stations unless he can tell in better job than a few thick coats. The means of an ordinary small socket.

such as are sold for use with shortwave coil fittings. This gives a good grip, and being hollow is easy to adjust.

The small cone I made of thin silk. inding after making several from different materials, that this gave a much purer high note. The large diaphragm I made of thin linen, and its reproduction of the very deep notes is a revelation. The unit I used at first was a small one taken from a small horn speaker, but coming across a 3in. diaphragm old type Amplion cheap, I thought I could not get a reed to fit it, so I simply fitted the bar to the diaphragm, which works admirably. In cidentally, it is a: well to pack the rod that passes through the cones with cotton, as there is liable to be a little burr otherwise.

Constructing a 25 Henry Choke

F.W. (Alexandra) writes: I intend making an output choke that can later be used in place of an output transformer in the push-pull stage, tap-