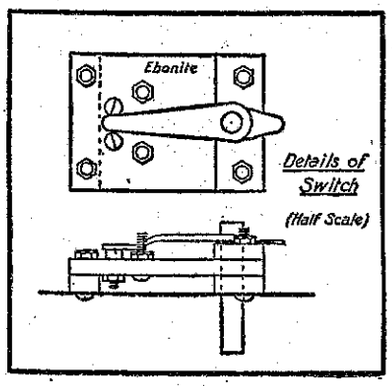


more low-loss this coil is made, within reasonable limits, the better will it perform. In the original 60 turns of 24 tinned wire spaced 22 to the inch (with enamel) on a 3in. former made a coil to cover any required wavelength. To cut out 1YA and 3YA 45 turns would be sufficient, spacing 22 to inch or using 20 d.c.c. close wound, on 3in. former. Cement to three double strips of celluloid and mount as shown or as most convenient. Many experimenters will have a suitable coil on hand.

Wooden Base.

THE wooden base is of ¾in. rimu, with a 3-8 strip screwed under back and front edges. The shield is attached by four screws through the copper, allowing it to hang over at the right to clear the projecting base of receiver. A pin projecting ¾in. may be put in base of receiver at A so that, using this as a gauge for position, the output pin will engage with the aerial socket without trouble.

Using the Trap.

THE trap may be always kept in position if used on an unselective broadcast receiver, because when not required as a broadcast trap, the short-wave coil may be switched in, when there will be no effect upon broadcast signal strength, whether tuned against 80 metres or not. If unwanted, 80-metre phone transmission is heard, adjust the condenser until it is cut out. This will not affect the receiver tuning, but when the broadcast coil is in use, tuning of the receiver aerial circuit will be altered.

Performance of the trap depends to some extent upon the receiver. Using the "Advance" all-electric short-wave receiver at a distance of two miles from 2YA, whilst the latter is transmitting, 2FC, can be received without interference. Stations further removed from 2YA's frequency are, of course, more easily tuned out.

In some locations or with certain receivers, if the trap does not appear to be cutting out sufficiently, it would be advisable to try disconnecting the output pin from A, and, instead, connecting to C, the centre of the coil, or B, a quarter of the total turns (see theoretical diagram). This refers to broadcast, and when switching over to short-wave it would be necessary to then connect output pin to the bottom of large coil. Experiment before shielding.

Theory of the Trap.

THE theory of the trap is that it accepts the unwanted signal instead of rejecting it, and is therefore called an "acceptor" wave-trap. A circuit of low r.f. resistance is provided by the coil and condenser, tuned to the unwanted frequency, around which it may circulate unhindered instead of entering the receiver circuit, which is tuned against it.

In practice no such circuit can have zero resistance, so that a small amount of the interfering signal may enter the receiver. Where this residual signal is not a negligible quantity, another trap circuit is required to absorb it. As a rule, one stage will be found sufficient, but when a keener trap is desired, the double circuit shown in the diagram may be utilised.

It should be understood that when receiving short-wave the "Advance" receiver experiences no interference whatever from 2YA at two miles distance.

A Double Trap.

THIS trap provides at A a circuit tuned to the unwanted frequency, by-passing it to earth. The wanted signals pass through a coil of few turns to the receiver primary coil, which must be separate from and not a tapped portion of the secondary or aerial coil. The few turns at B are coupled to a circuit tuned to the unwanted signals, providing a low-resistance path through which the remnant may circulate. With suitable coils this trap may be used for either broadcast or short-wave.

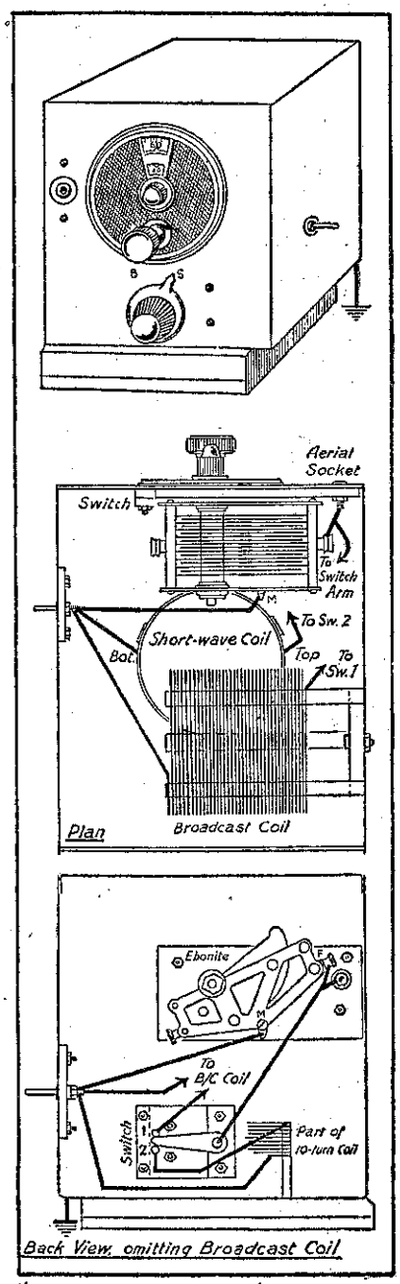
Even when unshielded and fitted with 80 metre coils, it will cut out a nearby transmitter completely, and when shielded and carefully constructed will cut out transmission at the station, enabling signals on other frequencies to be received.

Note that the receiver must have a loose-coupled r.f. stage.

The best arrangement for this trap is to have one condenser above the other on a panel about 8½ by 6in. minimum, B circuit at the top. Condensers may be of different values with appropriate coil turns for each. For 80 metres ten turns for .0005 condenser and 12 for .00015. The best coils are made of 18 d.c.c. on four strips of celluloid, the wire spaced about half its diameter on a 3in. former.

The coupling coil in circuit B requires only six turns of No. 18 d.c.c., which are wound outside the trap circuit coil, separating the two with celluloid strips. While winding, strips of cardboard are placed in between these to preserve a space between the two coils. One end of this winding connects to the pin or terminal engaging with aerial connection of receiver. The coils are not heavy and may be hung behind each condenser, but the fields must be opposed, so the bottom coil may be on edge, slightly diagonally, with its central axis from side-to-side of the trap. The upper coil would then be placed horizontally with its axis vertical.

For broadcast, suitable coils and condensers are used, and the coupling coil for circuit B may then be ten turns of 18 wound outside one end of the larger coil.



DX COMPETITION.
Entries for second period close June 30. Certificates for winners in each district. Verifications are required for every station logged.

Progress of Television

Serious Difficulty Overcome

ONE of the major difficulties encountered by engineers in attempting to design an efficient television receiver has been the lack of a sufficiently brilliant light. A solution of the problem appears to have been discovered, however, by J. L. Baird, British television pioneer, during his experiments with the "singing" arc light.

Its great brilliancy, combined with the fact that it varies instantly with the current supplied to it, adapt it to the special requirements of television. When a high-frequency current is superimposed upon the current supplying the carbons in the light, the arc varies in step with the frequencies, causing air waves to radiate from the light. If the high-frequency current is modulated by a microphone, the arc acts as a loudspeaker, reproducing the voice or music.

The intensity of the light varies also, and it is this property which makes the arc suitable for television. Neon tubes have been widely used for receivers, but they do not furnish sufficient light to enable projection of the image through a lens and upon a screen.

RADIO DIRECTORY

What to Buy and Where

CITIES

ACE and HAMMARLUND SETS, WESTINGHOUSE Rectifiers	**Johns, Ltd.** Chancery Street, Auckland.
BURGESS RADIO BATTERIES,	**All Radio Dealers.**
LOFTIN-WHITE AMPLIFIERS	**Stewart Hardware Ltd.,** Courtenay Place, Wellington.
MULLARD VALVES	**All Radio Dealers.**
N.Z. DISTRIBUTORS PILOT PARTS AND RECEIVERS, INCLUDING PILOT SUPER-WASP and GILFILLAN ELECTRIC RECEIVERS	**Harrington's, N.Z., Ltd.,** 40-42 Willis St., Wellington. 142 Queen St., Auckland.
RADIOLA RECEIVERS and Expert Radiola Service.	**Farmers' Trading Co., Ltd.,** Hobson Street, Auckland.
STEINITE RADIO	**G. G. Macquarrie, Ltd.,** 120 Willis St., Wellington

COUNTRY TOWNS

PHILIPS VALVES AND APPARATUS	**All Good Radio Dealers.**