

- 8.59: Orchestral—Studio Orchestra, (a) "Egyptian Dance" (Ansell); (b) "Edelweiss Gavotte" (Trouble); (c) "Gnomes' March" (Ketelbey).
 9.7: Weather report and station notices.
 9.9: Violin, 'Cello and Piano—Miss Gladys Vincent, Mr. Francis Bate and Miss Doreen Daly, from Double Concerto in A Minor—(a) "Andante," (b) "Vivace non Troppo" (Brahms).
 9.19: Record—Choral—The Gresham Singers, "The Shepherdess."
 9.23: Orchestral—Studio Orchestra, "The Old Ballet" (Massenet).
 9.33: Contralto—Mrs. R. F. Jamieson, Songs from Memory Land—(a) "That Hour With You"; (b) "All Roads Lead Home" (Tait).
 9.39: 'Cello—Mr. Francis Bate, (a) "Ave Maria"; (b) "Gavotte No. 5."
 9.45: Record—Le Scala Chorus, "Va Pensiero Sull'Alti Dorale" (Verdi).
 9.53: Orchestral—Suit Orchestra, "Vienna Life" (Strauss).
 10.8: God save the King.

4YA, DUNEDIN (650 KILOCYCLES)—SUNDAY, JANUARY 17.

- 8.0: Chimes. Selected recordings.
 8.30: Children's song service, conducted by Big Brother Bill.
 8.15: Instrumental recordings.
 8.30: Relay of evening service from the Hanover Street Baptist Church. Preacher, The Rev. Mr. Tuckwell. Choirmaster, Mr. H. P. Desmoullins.
 7.45: Instrumental recordings.
 8.15: Relay of concert programme from 3YA, Christchurch.
 10.0: God save the King.

2YB, NEW PLYMOUTH (1230 KILOCYCLES)—SUNDAY, JANUARY 17.

- 7.30 to 8.15: Church relay.
 8.15 to 10.0: Studio concert.

Distortion

(Continued from page 17.)

test the rectifier and the connections associated with it.

In the case of the former, many factors may enter in. If used as a choke it is possible that there is a break-down actually in the speaker itself and this can usually be determined by a continuity test. The service manuals accompanying a.c. sets usually specify the resistance of the dynamic speaker field and this should be checked up with a ohmmeter which, by the way, every serviceman should possess. If this is in order and the magnetism is weak, then look to the radio set on the other side of the choke. An open circuit of any description in the previous portions of the set associated with the power supply would diminish the amount of current flowing through the circuit and so weaken the magnetism in the speaker. This entails a systematic search of the receiver which can best be done by testing the valves, which is the next step in any case in our search.

Testing the Valves.

FIRST test the power-valve, not only for operating voltages, but for balance. Power-valves must be balanced to within five or ten per cent. if quality is desired. By balancing is meant that the plate current taken by the two must be the same. From the power-valve go back right through the set testing all valves, not only for weakness in emission, but also for an internal short circuit. The latter, however, more usually causes hum.

Other Tests.

HAVING been assured that all the voltages and valves are correct, test chokes, transformers, etc., for partial short circuit, mainly in the secondaries of transformers. Particularly would a break-down in the secondary of a pushpull transformer cause the trouble. If a gramophone pickup is available, or if the set is one of the combination types, try the audio side, and if this is in order, as it probably is if all the tests have been made and a negative result obtained, the trouble is obviously in the radio section, and in all probability is due to the condensers being out of alignment. Particularly in super heterodynes must the stages be balanced up and generally checked over. An open circuit in one of the grid returns of the h.f. valves will also cause distortion, as would a break-down in the bias resistor on any valve. See that the volume control is working properly, for quite often the volume control introduces distortion through one of several channels, depending upon the nature of the trouble. Look over the set for anything that would cause loss of volume, for if the set is not as sensitive as it should be it is quite likely that the man is trying to force his set, causing overloading and so distortion.

Lastly, check the output transformer for correct ratio. If the set is a commercially made one it is most unlikely that this will be wrong, unless some defect has taken place in the transformer itself, which is unlikely.

Summary.

SUMMING up, we would expect to find the trouble in the speaker it-

self, or in the circuit directly associated with it. In the pushpull valves, or in their circuit, particularly in the grid returns and the resistances and condensers associated with them.

We have not taken into consideration the inadequacy of design or the faults in design, for it is presumed that a commercial A.C. set with a dynamic speaker is quite satisfactory when it is installed. With the battery set, however, the case is somewhat different, because some of them are quite old, and standards in those days were very much different from what they are now, and the radio serviceman would have to make some alterations in design in order to give complete satisfaction to his client.

Indian Broadcasters Close

Lack of Funds

OWING to a serious lack of funds the Indian Government has found it necessary to close down every broadcasting station throughout the country.

It was on July 23, 1927, that the Indian Broadcasting Company's first station—Bombay—was opened, to be followed shortly afterwards by the inauguration of the Calcutta station. It was hoped at the time that a third transmitter at Madras would be opened in due course. It was recognised by all who understood anything of Indian conditions that the problem which broadcasting in that country presented would be a difficult one to solve. The mixed communities, the relatively small number of Europeans and educated Indians, together with the vast number of illiterates, of an infinite variety of castes and creeds, made of broadcasting in India something entirely different from what it was in any other country in which that service had been introduced.

Although broadcasting was commenced with an English trained staff, and therefore, under the best auspices, the financial difficulty was an ever-present menace. The odds against ultimate success were tremendous, and a stern fight was put up. Not many months ago the whole broadcasting service was taken over by the Government, but it was soon evident to those in charge that the losses were too great to be borne indefinitely; hence the recent decision.

Ultra-shortwave Experiments

AN interesting experiment in testing the suitability for broadcasting purposes of "ultra-short waves" will be made shortly in conjunction with the Marconis by the B.B.C.'s engineers, and a special transmitter using waves in a 6.5 to 8 metre wave-band is being installed at Broadcasting House, the huge new headquarters to which the corporation's activities are gradually being transferred from Savoy Hill.

Clubs Affiliation

A REQUEST has come from the Tanagera Radio Club that efforts be made to affiliate all radio clubs throughout the Dominion.

"This step is long overdue, as we feel that, while individual clubs can have little voice in the control of radio broadcasting, we believe that if those clubs were united under one body, there would perhaps be a chance of the listeners as a whole having some say in the matter. Radio clubs and listeners' leagues are being formed in nearly every town of any size in New Zealand, and we would suggest that even an affiliation of such clubs under each district, with every district again affiliated under one governing body, 'The New Zealand Radio Club,' would be a step in the right direction. Such subdivision into districts would be to the benefit of the smaller local clubs, since a visit from a 'District Officer,' say, for the purposes of a lecture, would tend to hold the smaller clubs together."

Amateurs' Convention

AN error crept into the report of the Radio Convention where it was stated that the meeting recommended that other than transmitters should be admitted to membership. The position is that any person with a genuine interest in radio is eligible and the actual point in question was relative to the status of transmitting and non-transmitting members when dealing with matters which really affect certificated amateurs only. The whole issue was one which entailed considerable discussion, as there were certain aspects which necessitated careful consideration. Summarised, it amounts to this, that the incoming executive need to decide whether to advise that there be two classes of members and their status. The matter can be placed before all members so that they should be practically unanimous in their decision.

Radio For Algerian Schools

THE town council of Algiers, following the example of Paris, Lyons, and Bordeaux, has just voted a credit of 40,000 francs with the object of equipping twenty schools with broadcast receiving sets, for the purpose of the lessons (states a French contemporary). For instance, in the case of a lesson on some great musician, his principal works, played or sung by an artist, will be broadcast from the Algiers station and listened to by the pupils through the school's loud-speaker. Similarly, when the life and works of a famous poet or dramatist are dealt with, readings from the poems or plays concerned will be transmitted from the studio for the benefit of those following the lecture. The schools chosen for the initial experiment are those above the primary ones, and known as "écoles primaires supérieures," but, if successful, the scheme will later be applied to Algiers schools in general, and eventually extended to schools throughout the main towns of Algeria.

RADIO GOODS *What to Buy and Where*

BURGESS RADIO BATTERIES, All Radio Dealers.

LOFTIN-WHITE AMPLIFIERS Stewart Hardware Ltd.,
 Courtenay Place, Wellington.

MULLARD VALVES All Radio Dealers.