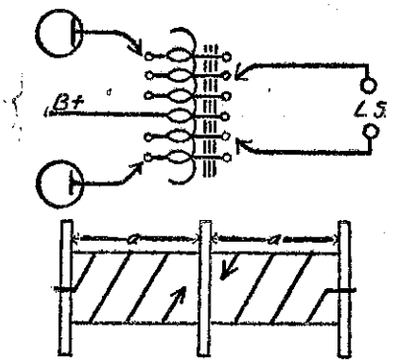
ping it so that it can be used to step up or down as per diagram 1.

As I suppose that each half would require to be about 25 henries I propose to use a 1½ x 1½ core with 12,000 turns.

This, with 36 wire, should give the value easily. Now, it appears to me that, to get the centre tap in the electrical centre, and to facilitate equal proportions in the intermediate tappings, that it would be desirable to wind the coil in two halves, on a spool as per diagram 2.

Of course I realise that the widths "A" would have to be exactly equal



and the pair of windings equal in all finished dimensions.

This is preferable to one continuous winding on one spool with a centre tap taken out at half the number of turns. I would wish to start the windings at the outside faces of the double spool, and I come up against the elementary difficulty that I cannot decide if both coils should turn the same way.

[The diagram shows the correct method which may be applied to eliminator windings.]

This choke will be used as an ordinary output choke in the meantime; using one-half or both in series or parallel according to 25, 50, or 12½ henries, seems to give the best results and is occasioned by the commercial choke I am using being quite inadequate for its work.

My present idea is to work up to two screen-grid stages, an R.C. valve as anode bend detector, with resistance coupling to first audio, then the AFS and a B403, later, converting the last stage to push-pull by halving the AFS secondary externally by means of two grid leaks.

P.H.I. Schedule

PHILIPS Station, PH1, transmits from Holland as under:—

Wednesday, May 15—11.30 p.m. to 3.30 a.m.

Thursday, May 16—10.30 p.m. to 3.30 a.m.

Friday, May 17—11.30 p.m. to 3.30 a.m.

New Zealand time; wavelength 16.88 metres.

BEFORE installing a B eliminator, make absolutely certain that the aerial switch to earth is in good working order, and does not under any circumstances switch over the aerial coil to earth. (With this the mains can be shorted just as badly as though there was no condenser in the earth lead.)

Modern Methods of Musical Reproduction

The Equipment of the Majestic Theatre

THE march of radio, coupled with that of musical reproduction, is clearly indicated in the modern methods employed in the new "Majestic" Theatre, Wellington. This theatre has been recently completed, and as far as the equipment is concerned, neither skill nor expense has been spared to produce the last word in luxury and comfort.

In accordance with the idea of modern reproduction, the appointments are noteworthy. Within a fortnight the apparatus for sound motion pictures will be installed, but at the present time music is being supplied by one of the most brilliant combinations of musicians in New Zealand. That they are under the baton of Mr. George Ellwood, the distinguished 'cellist known from 2YA is sufficient proof of this.

Directly connected with the theatre is the tea and supper-room with its glass dancing floor and tor light ing effects. Of interest to radio enthusiasts is the equipment to provide this room with music. This is obtained from three distinct sources: from 2YA, from a gramopho , and from the orchestra when it is playing in the main theatre. From 2YA the programme is picked up by an aerial on the top of the building and passed to a crystal detector at the control point in the lounge. Here is located a power amplifier, comprising two 281 rectifiers, two 250's in push-pull, nd two 227's. This amplifier is capable of strengthening up the output to enormous proportions, so that the question of volume control becomes a difficult one. A small, easily operated switching device at this point controls the electric gramophone and the relay from the theatre.

During the evening session, when the orchestra is performing, the music is picked up by a microphone and relayed to the distribution point in the refreshment room. It is then, li' the output from the gramophone and crystal set, passed to the power amplifier. From the power amplifier leads are connected with two "Epoch" mov ing coil loud-speakers, which are situated on the upper floor of the room. These are so neatly designe that from the lower floor they are hard to discern, and it is almost impossible to tell from whence comes the music—yet it comes, and fills the whole at r here. It can be toned to a whisper, or can fill the whole room with volume.

Technically, the reproduction is perfect. A slight variation from the usual moving-coil loud-speakers has been made in that they are of the high resistance type. Because of this, the over-all reproduction is very even and everything is perfectly natural, as though an orchestra were playing in the room. Indeed, it is better than this, for very few orchestras could so approach those whose recordings are played through the gramophone.

The equipment of this theatre is merely an indication of the future attainments of musical reproduction, and it is safe to assume that before very long radio, as usually interpreted, with amplification methods which are inseparably bound up with it, will be universally employed whenever music is to be faithfully reproduced.

Successful Long Distance Conversation

IN view of the backwardness of British attempts at wireless telephony to Australia, the Australian Press Association invited Dr. Koomans, chief of the Dutch Radio Laboratory, to indicate the factors of success in the repeated Dutch conversations between Holland and Java, and between Holland and Sydney. Dr. Koomans says his station used a directional beam with wavelengths of 18.4 and 38.8 metres, and a power of thirty-two kilowatts. Recently outstanding success had been achieved in the daytime with a new transmitter on 16.3 metres. There was no fading on any of the wavelengths, and no atmospherics on the two lower ones. He admits that it is virtually impossible for the Dutch station to get efficient communication at night.

Dynamic Speakers

THE terms "dynamic speaker," "moving coil," and so on are used rather indiscriminately in this coun- and evidently also in the United States, for I notice, states a writer to "Modern Wireless," that the U.S. Radio Manufacturers' Association has now adopted a definition of the term "dynamic speaker" as follows:

"A dynamic speaker is one in which a portion of the conductor carrying the alternating signal current is a part of the moving system, the force producing the motion being due to the location of this conductor in a magnetic field."

The U.S. R.M.A.

THIS definition was adopted by the Radio Manufacturers' Association at a meeting held in Chicago at the end of the year. It will be seen from the definition that it includes what we call a "moving coil" speaker, as well as one in whicl an iron iature is used having a winding around the armature which carries the speech current or some portion of it. It is just as well that this definition should have been adopted, although it seems that the term "dynamic speaker" should really cover any type of speaker in which, for instance, a diaphra or an armature was used.