sistance, of course, but it can be of a high value—say 100,000 or 200,000 ohms.—so as not to affect the response curve.

The circuits given have, of course, been shown in the form of battery-

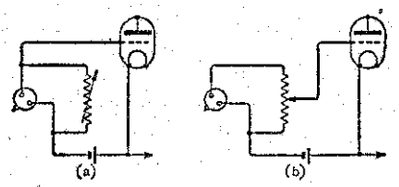

Diagram 9, left.
Diagram 9, right.

operated receiver circuits. It is not anticipated that readers will have any difficulty in applying them to a.c. receivers as the major connections are the same. It is proposed, however, in certain future a.c. designs, to incorporate special provision for the inclusion of a pick-up, and these designs will doubtless be of assistance to readers wishing to modify an existing a.c. receiver for gramophone reproduction.

SWITZERLAND develops so much more hydro-electric power than it needs that in the last year it was able to export over one billion kilo-watt-hours. We believe that many parts of Holland are supplied by electricity similarly imported from Germany, and very cheaply into the bargain. New Zealand, we are afraid, will be hard put to it to find a market when the supply exceeds the demand on account of her geographical position. That time, however, is not yet.

Reader's Suggestion

YOUR articles on wireless aerials were most interesting and instructive. Permit me to give my experience in making and erecting mine. The masts are made of oregon pine 3in. by 2in. Three lengths, each 25ft. long, are required, and can be used either rough or smooth. Before erection they require at least two good coats of paint. Two pieces, each 2ft. 6in. long, are cut from one of the 25ft. lengths. These are fastened between the two long lengths, with half-inch bolts and nails. One piece is placed at the end and the second piece about the middle of the long lengths. The end of the remaining long length has two bolt holes, drilled to correspond with similar holes through the top of the bottom section of the mast. The topmast, with pulley for aerial, back stay, and side stays attached, is now loosely bolted through one of the aforesaid holes in the lower mast, which is now ready for erecting.

Owing to its comparatively short length, viz., 25ft., the lower portion is easily erected. A board placed at one side of the hole, for the foot of the mast to rest against, will prevent it sticking into the earth, as the mast is raised. When this operation is completed, the hole can be filled with concrete. The topmast will have its lower end sticking up at an angle. By means of a strong thin line, or wire, previously attached, it is an easy matter to elevate the top half until a strain can be placed on it by means of the back stay. Just before it reaches the extreme vertical position, a ladder can be placed against the lower section, and the line removed. A further haul on the back stay brings the lower bolt-hole in line, and with the insertion, and tightening up, of the bolts the job is done. All that remains now is to anchor the back and side stays, and haul up the aerial. The above idea is cheap, easy to carry out, and will stand any amount of wind. I have found three side stays ample, but more can be added if desired.

A Simple Lead Indicator

IT is often necessary to find out which is which of various battery leads, particularly when multiple cables and twin-flex wire is employed. If you have a voltmeter of the polarised type, that is to say, one which has to be connected a certain way round as regards positive and negative, this is a simple matter.

All you need do is to connect the voltmeter at the end of the leads from a battery and note whether a reading is obtained or whether the needle tries to kick back off the scale. If the needle indicates a reading, the positive lead is the one joined to the positive terminal of the meter; or if the needle kicks back, then the positive lead is the one joined to the negative terminal. The meter must not be used on voltages greater than the maximum reading on its scale.

It will be appreciated that this method of telling one lead from another is very useful in the case of loud-speaker and other extension leads. In this case, a small battery should be connected across two of the wires at one end, and the meter joined across various pairs of wires (if there are more than two leads) at the other end.

When the meter is connected to the same two as the battery, the needle will move, and according to whether it kicks back or gives a proper reading it will be possible to tell which of the two wires is joined to the positive of the battery. The meter is thus being used as a polarity indicator and enables you to differentiate between the various leads.

Weird Wireless

(Concluded from page 3.)

rent to and from the bit of rail between them. Half-way between these main brushes is a trio of searching brushes connected in a kind of push-pull way to a transformer. The secondary of this transformer goes to a four-valve ampifier which works various relays, and when any kind of flaw upsets the symmetry of the current flowing in the rail, these relays do their work—they sound a warning buzzer, record the exact position on a travelling tape, and even go so far as to spray a blob of paint on to the offending bit of rail.

Having done all this, they send off a wireless message to H.Q., sacking the foreman responsible of laying that bit of rail . . . and that is the only bit of exaggeration this article contains.