

time ago we published an article about electrolytic condensers. You should find all the information you require in that. Regarding the making of the condensers, we regret that this is not suitable for amateur construction, and we have been asked by the authorities to draw attention to the dangerous nature of such experiments.

N.H. (Te Awamutu).—What book would be suitable to assist me in the construction of a three-valve set?

A.: The "R.R." of February 28, and March 7, "Round the World Two" and "Three," two very successful sets, are described. If you do not require the short-waves, you could make only the broadcast section.

POWER-VALVE (Palmerston North): There are three rheostats on my home-made set, but the one controlling the detector is the only one of any use to control the volume. How can I make the other two work?

A.: You could use a 30 ohms. rheostat on your radio valve, and none on your audio, or a better way would be to control volume by means of a 500,000 ohms. resistance between the aerial and the earth. The most successful system of volume control is by increasing the bias on the radio valve. This is the method incorporated in most of the new American a.c. sets.

W.Q. (Whangarei): My electric set distorts badly. Should I change the valves?

A.: No; consult the dealer who sold you the set.

S.N.K. (Miramar): I cannot understand the references to time expressed like this—400 to 800 G.M.T. How does this correspond with New Zealand?

A.: For scientific purposes the clock is regarded as being graduated from 0 to 24 hours, commencing at midnight. Four figures are used to express hours and minutes, e.g., 4 a.m. should be written 0400, whereas 9.45 p.m. should be 1745. The G.M.T. refers to standard time at Greenwich, near London, and is a basis for calculating time throughout the world. Every country is so many hours ahead or behind this—time is based on geographical position. Our DX clock would simplify the reduction of times to New Zealand standard. The numbers you quote, 800, 1400, and 1800 G.M.T. (allowing one hour summer-time in England), are 8.30 p.m., 2.30 a.m., and 6.30 a.m., New Zealand time.

QUERISTS (Napier): What is the value of a condenser with 21 plates?

A.: This is an unusual size, and is probably either .00035 or .0005. If the plates are large it is the latter.

2. How many plates should be removed to alter the value to .0002, and would double spacing be an advantage?

A.: Eleven plates are required for a .0002 condenser, and double spacing would certainly be an advantage, but you would need less plates. The easier plan would be as you suggest to use a series condenser of .0045 or .008, according to the capacity of your condenser.

3. What is the diameter of a test-tube?—About $\frac{1}{2}$ in.

DARAMA (Palmerston North): Can an a.c. short-wave adaptor be used with an a.c.?—Yes.

M.E. (Nelson): Will you explain how to make a saturated solution of bluestone for the Daniell's cell charger?

A.: Take about half a pint of water,



MR. WILBUR DAVIES
Who will assist the Methodist Church Choir, Lower Hutt, during their concert to be relayed from 2YA on October 5.

—S. P. Andrew, photo

preferably warm, and add the bluestone crystals, stirring all the time. Leave them to soak, and when they have disappeared add more until you reach the point where additional crystals will not dissolve. You will require about a pound of bluestone for the six jars.

2. Will six cells be enough to keep my battery charged?—If it is a four-volt one, yes.

3. My set works best with the detector rheostat turned a quarter on. Why?

A.: At this point the valve is heated to its optimum temperature and further increase does not improve matters.

AJAX (Auckland): I enclose a circuit. Is it suitable for New Zealand conditions?

A.: It should be quite an interesting circuit to try out, though it will not have the amplification that a B.D. type of set would have with a stage of screen-grid r.f. transformer coupled.

2. Are the coil windings correct?—Yes.

3. Could L2 be wound on L3? If so, how many turns?—Yes, 20.

4. Are L2 and L3 wound in the same direction?—Yes.

5. Is my valve combination correct?—Yes.

G.G.L. (Palmerston North): I enclose a circuit which I have pieced together. Would it be satisfactory?

A.: When one sees your set, there is a strong temptation to quote Grey—"Let not ambition," etc. You would be very lucky if you managed to get this set working. Two stages of screen grid should be ample for your requirements, for you must realise that when a certain point is reached the amplification of noise is increased to such an extent that the gain one way is offset by the other.

2. Is the power supply adequate and are the coils satisfactory?

A.: Yes, these seem to be quite in order, but we advise you to use smaller formers, say 2in.

3. Is the volume control satisfactory—a 200,000 ohms resistance across the first transformer?

A.: It would be better to incorporate some form of v.c., which prevents overloading the detector. Adjustable bias on the s.g. valves would be better.

4. Is the coupling between the stages correct?—Yes.

NOTE.—Your results would be better if you used anode bend detection.

OPTIMUM (Wellington): I cannot get more than the local station, and then only very poorly. I am using a screen-grid four-valve set. When the s.g. valve is moved from the socket there is no difference.

A.: Bring in the aerial to the grid of the detector valve, and see how reception compares with the full set. No doubt there is something wrong with the screen grid stage. Do you have the connections made correctly? The plate in your valve is at the top. Check over the wiring once more and look for dry joints. If everything is in order have the s.g. valve tested. The list of valves you append are not entirely satisfactory. You have not stated the order in which

they are placed. If one is to take it that if they are in the order nominated in your letter you will no doubt be encountering trouble on this score. B205 is a last stage valve, A209 first audio, and A225, if anything, detector, though A215 would be a far better valve for this socket than 225.

2. What stations should I be able to receive on this set?

A.: This depends on your locality, but you should be able to hear Australian and Japanese stations quite easily.

A.TOM (Wanganui): I am a little disappointed with my set, for when I attempt to increase the volume there is a terrific noise. A hospital with an X-ray plant is not more than about a mile away, and freezing works are also

LISTENERS must attach this coupon to all queries sent to the Technical Editor (Box 1032, Wellington). Questions arriving without it are likely to go astray or be delayed.

Name of set

Number of Valves

Name

Address

Nom de plume

To be kept in subsequent inquiries.

Date

Please Note:—

- (1) Be specific and brief, tabulating, if possible.
- (2) Write legibly, and on one side of the paper.
- (3) We do not design circuits, but accept suggestions for feature articles.

Solving trouble, as different from advice, is difficult by correspondence and while letters are given every consideration, answers are not necessarily correct—they are only our opinion based on the matter supplied, which may be quite inadequate. Intricate and involved specifications cannot be supplied without a specialist's fee.

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