

# Choice of Valves for your Receiver

"AN increase in efficiency of as much as 75 per cent. can be brought about by the careful choice of the correct type of valve for each socket in a Broadcast Receiving Set."

**T**HIS was the expressed opinion of a well-known Radio expert, in answer to the question: "Are there too many types of valves on to-day's market?" The expert further went on to say that the haphazard selection of valves either by home constructors of sets, or by special set manufacturers, was in a good measure responsible for much of the dissatisfaction one hears expressed in regard to the value of broadcast reception as a medium of entertainment. "Purity of reproduction—a most essential factor—can only be obtained if each valve is capable of performing all amplification duties assigned to it without overloading, and consequently producing distortion. It is quite easy to see that the last, or output valve in a receiving set is called upon to handle as much as three and four times the energy of the valve preceding it, and this state of affairs exists all the way back until we arrive at the first valve, which brings about the initial amplification of the signals received in the Broadcast Station. The motto should then be: 'Let each valve in each socket work in comfort.'"

## POWER VALVES.

"It is a generally accepted fact that purity of reproduction in any Multi-valve Broadcast Receiver cannot be obtained unless a special valve is used in the last or output socket which feeds the loudspeaker. These valves are commonly called "Power Valves," which is perhaps a misnomer, because in actual operation, the substitution of a power valve for a general purpose type does not add to the volume of the reproduction, but sweetens the tone, and gives

increased clarity. Again, it is useless to attempt to use a Power Valve unless the makers' instructions are followed as regards correct values of plate and grid-bias potentials."

**PHILIPS RADIO** have for some time past specialised in the production of highly efficient Power Valves, designed to suit practically any type of receiver, and to handle, without distortion, sufficient energy to work a loudspeaker at comfortable or very great volume.

In the 6-volt series, there is the B605 for medium power and the C603 where larger energy is to be handled, while in the 4-volt series, there are three types, which, placed in the order of handling capacity, are B409, B405, and B403.

The B405 is the newest production, possessing the remarkably high slope (mutual conductance) of 2.4 mA/V!

## MATCHING IMPEDANCE

**TALKING** of valves in general, the impedance of each valve, relative to the impedance of the circuit into which it is feeding energy, is also an important point, and has direct bearing upon the overall radio frequency gain particularly.

Philips Radio produces so many types of valves of different impedances and amplification factors, that a happy choice can be made, to give maximum efficiency in practically any type of circuit or receiver.

The general purpose types—A409 (4-volt) and A609 (6-volt)—suit the radio frequency detector and the first audio frequency stages of most American-built receivers (on account of the relatively low impedances of the primary windings of the radio frequency transformers usually fitted), while for some types of English receivers, as described in English journals, the higher impedance type of valve, such as Philips A425 (4-volt) and A630 (6-volt) are recommended. These are also very excellent for resistance capacity audio amplification.

## SPECIAL DETECTORS.

**SPECIALLY-BUILT** valves, having a high degree of sensitivity, for use in the detector socket of any receiver—namely, Philips "Four-fifteen" (A415—4-volt) and "Six-fifteen" (A615—6-volt) bring about an improvement in gain, tone and volume, on account of the higher amplification obtainable during rectification, while the impedance is still kept very low. A very special process in manufacture, known only to the Philips Laboratories, enables the production of these remarkable valves.

## SCREEN-GRID A.C. VALVES

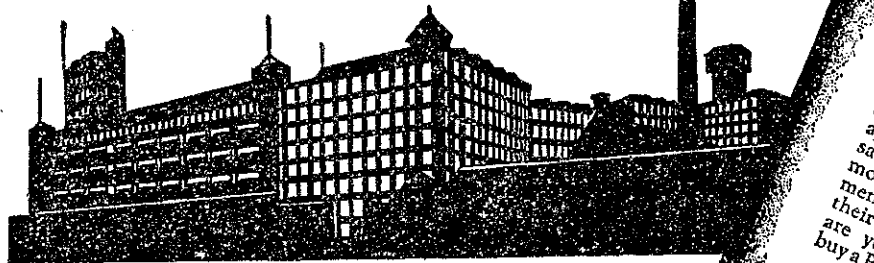
AS is only to be supposed,

Philips have not been behind in producing highly efficient screen-grid and A.C. types. They have even gone further than any other valve manufacturers, and samples have already arrived in this country of A.C. operated valves, working on the screen-grid principle. These are in addition to the ordinary battery operated screen-grid, which, from the characteristics given and tests made are probably superior to any other type.

In A.C. operated valves, Philips are producing several types, both with directly heated filament and indirectly heated cathode. The voltages at which they work are respectively 1 volt for the former, and 2 volts for the latter. A shipment of these valves is expected to arrive in N.Z. very shortly, and there are several other surprise valves on the Philips programme which will be available here this season.

# Why most radio sets are equipped with

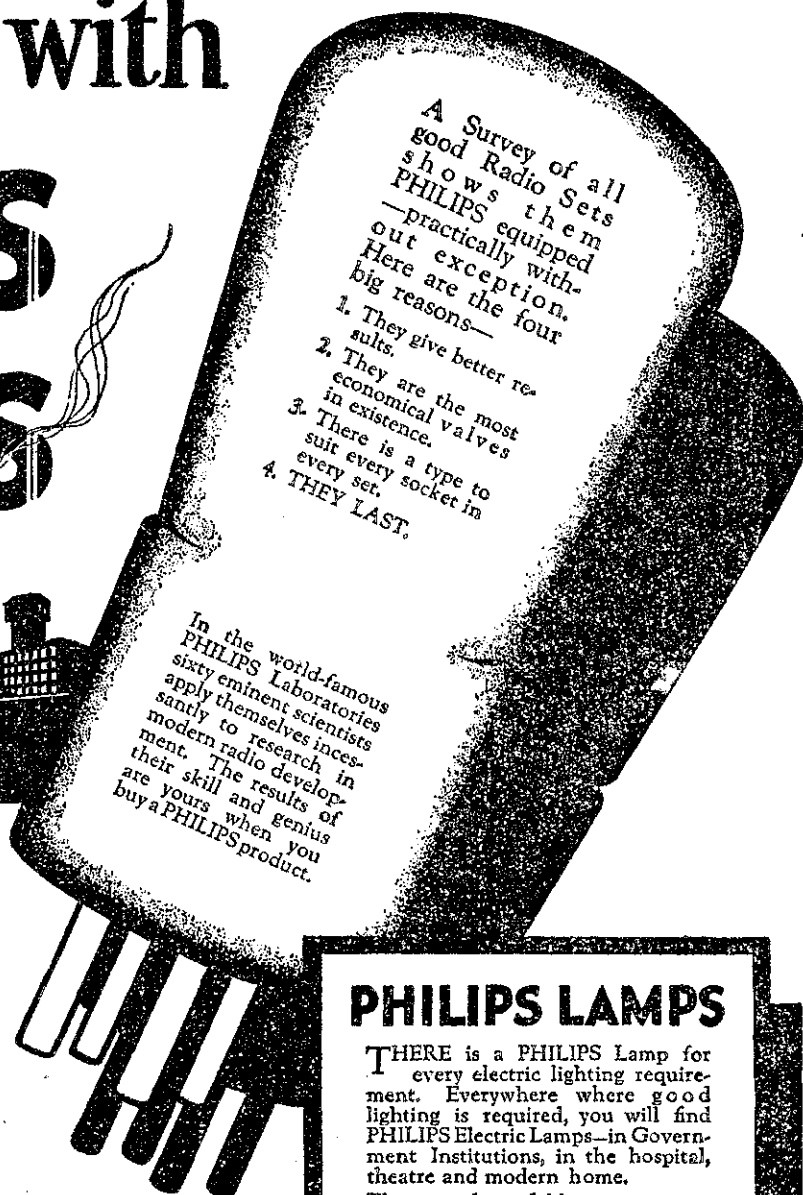
## PHILIPS MIGHTY "MINIWATT" VALVES



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