Glossary of Wireless Terms

UNDER this heading we will give regularly sections of the glossary of wireless terms which is a prominent feature of the N.Z. Radio Listeners' Guide. In that book, although set in the smallest type, it occupies some 13 pages, and is definitely in our opinion the most comprehensve and complete glossary on modern lines which has been made available in the Dominion. For the benefit of our readers the glossary will be reprinted in our columns.

CHOKE CAPACITY COUPLING.—A system of low-frequency amplification which is considered to be less liable to distortion than transformer coupling, but does not give the same degree of amplification. A choke, c ndenser or grid leak are substituted for the transformer.

CHOKE COIL.—An inductance without any associated condenser, designed to act as a choke to prevent the flow of high-frequency currents in a circuit. Has very small self-capacity in order to be efficient.

CIRCUIT.—A collection of wireless or electrical instruments so arranged, or wired, that a current can flow from one to another without interruption. A circuit is said to be "closed" when current can flow, and to be "open" when a disconnection takes place. A "short" circuit denotes a fault, causing the current to take a short path back to the battery or generator without having completed its flow of the whole circuit. A short circuit usually is characterised by the flow of an undue amount of current, unless a fuse blows and opens the circuit.

COIL.—A winding of wire. When associated with a condenser or aerial for tuning purposes is called an "inductance." May be used as a "choke" to offer resistance or impedance to the passage of alternating or oscillating current, and under these circumstances is not usually associated with a condenser. For alternating current work the coil has an iron core inserted in it.

CONDENSER.—A device capable of storing electricity. The greater the capacity the greater the amount storable. The capacity is dependent on the surface area of metal plates exposed to one another and the nature of the insulating substance interposed between the plates. Condensers may be fixed or variable. The former are usually enclosed in metal cases and consist of alternate sheets of metal foil and mica. The latter are stiff metal sheets, one-half of which are capable of rotation, interleaving the other half, which are fixed. The varying surface area gives the variation of capacity.

CONDENSER - BLOCKING.— See "Blo ing."

CONDENSER BY-PASS.—See Blocking."

CONDENSER THROTTLE.—See "Throttle."

CONDENSER GRID.—Usually of about .00025 micro-farad capacity. To prevent the flow of direct currents to the grid of the valve, with choke-capacity or resistance-capacity amplincation, for instance, and to enable the grid to be kept at a steady potential in respect to the filament of the valve by means of a grid leak. Of vital importance in rectification of radio signals. See "Rectification"; also "Blocking Condenser."

CONDENSER S.L.F. (STRAIGHT-LINE FREQUENCY). S.L.W. (STRAIGHT-LINE WAVELENGTH).—Condensers of such design that when the waves are turned from zero to maximum the increase in capacity is a proportionate increase and may be represented as a straight line. When combined with an inductance the same increase in capacitty causes straight-line increase in wavelength.

CONDENSER, TELEPHONE.—To store signal currents from a circuit and discharge them through the 'phones or loudspeaker. It also acts as a by-pass for high-frequency currents flowing in the plate circuit of a valve, which might otherwise be damped out by the impedance of the telephone or loudspeaker windings, or might injure the windings by causing breakdowns due to their surges.

CONDENSER, VARIABLE.—Is employed in circuits, usually in conjunction with a coil possessing inductance, to enable the wavelength of that circuit to be varied within accurate limits.

CONDUCTOR.—A substance that permits of the flow of an electric current. Most metals are conductors, and copper is mostly used in wireless work because of its relatively low resistance and economic cost of production. A "conductor" of very high resistance may be termed an insulator. Porcelain, for instance, is useless as a conductor and is termed an insulator. Certain substances are better electrical conductors than others, and various figures are given to each material to indicate its value as a conductor. Copper is taken as a standard, and its conductive value is stated at 100. The figures set out against other substances represent the value of their conductivity compared with copper:—

Alluminium	60
Copper	100
Gold	72
Iron	17
Lead	8
Nickel	13
Platinum	14
Silver	106
Tin	12
Tungstein	32
Zinc	27

CONTINUOUS CURRENT.—Another name for direct current. See "Current."

CONTINUOUS WAVES (C.W.).—In modern radio communication, particularly for telephony, the actual signal is superimposed upon a constant stream of ether waves, which are themselves inaudible. In telegraphy the constant stream is interrupted by the "make and break" of the Morse key. Continuous waves are called carrier waves for broadcast purposes.

USEFUL NEW COMPONENTS

A WELL-MADE audio transformer is now being sent out from the Australian factory of Amalgamated Wireless, Ltd. This transformer, which carries a one year's guarantee, is made in several ratios—2-1, 3½-1, 5-1, and 9 to 1, and retails at the reasonable figure of 18s.

A new variable condenser from the same factory is a commendable piece of workmanship, and up-to-date in every sense. The whole of the brasswork is actually silver-plated, giving a highly desirable effect for a smart receiver. Another good feature is the independent spindle—standard ¼in., by the way—which can be removed by loosening a screw, so that any number of condensers may readily be gauged on a common spindle. An efficient pigtail cuts out any chance of intermittent connection. The .0005 capacity retails at 14s., and .00035 and .00025 at 13s. 6d. each.

Another product is a non-microphonic spring valve socket, known as the "AW.A. non-microphonic." This is made of bakelite, in two patterns, the ordinary at 3s. and the sub-panel at 2s. 3d. It is claimed that though similar, it is an improvement upon the Benjamin, and in addition bears the necessary letters to guide in connecting up.

An inexpensive cone speaker is to be marketed, and the writer has now one of these for a few days' test, and will report on it next week.

The A.W.A. "Radio Guide" for 1928 comprises an extensive review of the firm's activities, apparatus, and accessories, together with a large amount of useful and interesting tables, formulae, circuits, etc., and sells at 1s. 6d.

QUERIES BY CORRESPONDENCE.

1. Every communication enclosing queries is to be addressed to "Megohm," Box 1032, Wellington, and must be accompanied by a stamped addressed envelope for reply by post.

2. Questions must be written so that a space is left in which the reply may be added.

3. No charge is made for replies.

DUTIES OF CONDENSERS IN POWER SUPPLY EQUIPMENT

THE filter condensers used in B socket-power units should have sufficient dielectric to withstand the full voltage of the device over many years of service, and also to withstand the occasional peaks or surges which may run two or three times the maximum output voltage. It is wise practice, says Harry Houck, eminent radio engineer, to employ filter condensers rated at twice the output voltage; in other words, for a 200-volt maximum output B device, the filter condensers should be of 400-volt working voltage rating, and so on. The condenser nearest the rectifier is subjected to the greatest electrical strain, since the current at this point is not entirely straightened out and therefore has decided peaks in voltage. It therefore follows that the first condenser in any B-unit should have ample dielectric strength. If condensers of different dielectric strength or voltage rating are employed, then the first filter condenser should rate highest, as a measure of protection.

There are three filter condensers in the usual two-section filter system. The first condenser (that nearest the rectifier) does not have much influence on the hum or smoothing of the output current. It is intended rather to maintain the output at a fairly fixed voltage, despite the fluctuating current drain. It serves for the regulation of the rectifier.

The second condenser controls the degree of hum, and any increase in the capacity of this condenser, within reasonable limits, reduces the hum in conjunction with the proper choke coils.

The third condenser controls the tone quality at full volume, because it acts as the virtual electrical flywheel of the B unit. It provides an ample reserve of energy to meet the unusual drains, particularly those caused by the deep, bass notes, placed on the B supply. This condenser should be as large as possible, say even up to 8 mf. capacity. The usual manufactured B socket-power unit can be materially improved by placing additional condensers, say 4 to 6 mf. in capacity, across the B— and highest B-plus terminals; thus building up the last condenser in the filter system for the best system for the best tone quality.

THE HONEST TRUTH

THE following statement is made in Messrs. Johns, Ltd.'s, new catalogue, under the heading "Aerial Balls."—"These ornaments are now in common use. Customers should note that they do not increase the efficiency of a set in the slightest. Undoubtedly, however, thir appearance is attractive to many."

The catalogue is a handy, up-to-date list that should be perused by all constructors.

SHORT-WAVE SCREEN-GRID BOOSTER.

CONSTRUCTORS should note that the direction of turns should be in the same direction on both the aerial and secondary coils.

(End of Construction).

A GOOD CRYSTAL RECEIVER

(Continued from page opposite)

ALTERNATIVE CONNECTIONS.

WHERE great selectivity—ability to cut out unwanted stations—is not required, the experiment may be tried of connecting the aerial to the top of the 56-turn coil and earth to the bottom. In some cases greater volume may be obtained.

Sometimes the crystal circuit works best without earth connection when the 20-turn coil is in use. To come to the crystal to earth for trial, connect the E terminal, as shown by the small crosses, to test the effect.

Another test is to place the crystal connection to the top of the coil instead of to the centre tap. The best arrangement to suit the location will thus be found, and may be permanently kept.

VALVES TO USE.

REFERENCE to the valve guide in the "Listeners' Guide" shows the most suitable 3-volt amplifier to be the UX199, taking .06 ampere, which is economical on battery current.

Using two dry-cells instead of three, we may use a 2-volt valve. Phillips A200. There are other suitable valves, but they use up more current.

PARTS REQUIRED.

Variable condenser, .0005mfd.
Dial for do.
Audio transformer 5 to 1 ratio.
Rheostat, 30 ohms.
Crystal or detector unit.
Valve holder, UX type.
Six terminals, two 'phone do.
Wire, 24's and 28's.
Headphones, A and B batteries.
Panel, baseboard, connecting wire, screws, etc.

RADIO DIRECTORY

What to Buy and Where

AUCKLAND

ATWATER-KENT RADIO ..	Frank Wiseman, Ltd. 170-172 Queen Street, Auckland.
ALTONA & HAMMARLUND-ROBERTS SETS.	Johns, Ltd. Chancery Street, Auckland.
AMPLION LOUDSPEAKERS ..	All Radio Dealers.
BREMER-TULLY RADIO	Superadio, Ltd., 147 Queen Street, Auckland.
BURGESS RADIO BATTERIES,	All Radio Dealers.
CE-CO VALVES	All Radio Dealers.
FADA RADIO	Radio Supplies, 251 Symonds Street, Auckland.
FEDERAL, MOHAWK, GLOBE	Federal Radio House, 8 Darby Street, Auckland.
GILFILLAN AND KELLOGG .	Harrington's, Ltd., 138-140 Queen Street, Auckland.
GREBE RADIO	Howie's, Dilworth Building, Custom st., Auckland.
MARCONI ECONOMY VALVES	All Radio Dealers.
MULLARD VALVES	All Radio Dealers.
RADIOLA RECEIVERS	Farmers' Trading Co., Ltd., Hobson Street, Auckland.
RADIOTRON VALVES	All Radio Dealers.
RELIANCE BATTERIES N.Z. Made	Reliance Battery Mfg. Co., Ltd., 96 Albert Street, Auckland.

COUNTRY TOWNS

CROSLEY ELECTRICAL AND BATTERY MODELS	The Forrest-Crosley Radio Co., Ltd. Cuba Street, Palmerston North.
CROSLEY RADIO SALES AND SERVICE	D. A. Morrison and Co. The Avenue, Wanganui.
FEDERAL AND AIR PATROL RADIO	J. B. McEwan and Co., Ltd., New Plymouth.
GAROD, CROSLEY, RADIO AND ACCESSORIES	The Hector Jones Electrical Co. King and Queen Streets, Hastings.
GREBE, CROSLEY AND RADIOLA SERVICE	E. Dixon and Co., Ltd., Hawera.
RADIOLA DEALER AND SERVICE	G. C. Carrad. 140 The Avenue, Wanganui.
PHILIPS VALVES AND APPARATUS	All Good Radio Dealers.

A NEW VENTURE

ACTRESSES BROADCAST ON SUNDAYS.

AN anthology of poetry compiled by a Government Department is decidedly a new thing in this old world, but the shock is lessened when it is learned that its authors are the British Broadcasting Corporation.

Under the title of "The Foundations of Poetry," the B.B.C. have collected in one volume the 107 poems which are being broadcast on Sunday afternoons throughout the early part of summer. This book, bound in a paper cover of a delicate blue shade, is now issued at the modest price of 1s.

The pieces chosen range from Chaucer and Spenser to Tennyson and Swinburne, but no later, and among their exponents before the microphone will be Mr. J. C. Squire, Miss Edith Evans, Miss Fay Compton, and Miss Jean Forbes-Robertson.

"Not everyone likes poetry," says a foreword to the book, "some fear it, some despise it; some have never known it and hate it, as barbarian people hate all strangers. The contents of this book are the typical products of English poetry taken in chronological order; the best known and most quoted works of every style. It is not exactly the hundred best poems because of the historical principle, but it is the hundred or so most typical poems. The voice of the reader should be the interpreter."

MUSIC FROM THE AIR

AN orchestra of six "dynaphones," which drew airs from the air, performed for the first time before a select audience on Tuesday. The dynaphone is the invention of a French engineer, Rene Bertrand, who claims that it is superior to previously exhibited instruments which have extracted music from wireless waves—on account of its simplicity. It has a keyboard with stops, which enables a variety of sounds to be obtained with ease.

All types of instruments can be imitated on the dynaphone, from flute to double bass, but most success is obtained by imitations of the saxophone.

ON a recent night, when the Sydney broadcasting station 2FC was broadcasting the University carillon, a stray dog started to bark at the microphone, and listeners were amused to hear the dog, together with the shouts of half a dozen men who were trying to drive the animal beyond the picking-up range of the "mike."