

The aim of this section is to give listeners information of new and interesting devices and sets on the local market. It is free of advertising intent or influence and to the best of our ability will convey only absolutely reliable statements. Names, prices and sources of supply are mentioned for the benefit of readers and to save individual inquiry

THROUGH the courtesy of the General Electric Co., Ltd., Empire Chambers, Willesdon Street, Wellington, I have been able to put the Geophone gramophone electric pick-up through a series of tests. This is an English line retailed at only £3—a low price for this type of device. The pick-up is slipped on to the tone arm of the gramophone and an eleven-foot cord is plugged in to the detector valve socket. The radio loudspeaker is then plugged into the last stage of audio of the radio set in the ordinary way, so that the record is reproduced from the loudspeaker. The Geophone pick-up was put on test with various types of gramophone records and gave good volume without any tendency to chatter. It does not weigh so heavily on the records as some types of pick-ups. The design is neat and compact and the material is good.

STOCKS ARE SHORT.
OVER-CAUTIONSNESS in buying is almost as unprofitable as reckless buying on the part of the radio importer. "Meter" has seen some admirable lines imported within the past few months which were cleared out immediately. These lines comprised only a few samples, and they came from manufacturers of high repute, and as the merit and prices of the lines were "right" according to information received prior to importation it shows over-cautionness in sending for only a small initial supply of the lines. Anyone who has his finger on the pulse of the New Zealand trade knows immediately what will sell. Radio listeners are notoriously impatient, and if the line they want is not available they are easily diverted to something else. This means that what is one importer's loss is another's gain, but one, nevertheless, regrets that a market for better goods, which means greater satisfaction for the buyer and a better advertisement for broadcast listening, is sometimes lost through timidity on the part of an importer or his foreign buyer. "Meter" knows of lines which will sell promptly on sight, and is surprised to see only a small initial consignment arrive from the manufacturers, but he was not surprised to

see the line cleaned out within a few days. Use better judgment, gentlemen!

WILL PRICES DROP?

NOT infrequently the excuse given by people with means for not possessing a receiving set is that they are "waiting for prices to drop, as they surely will in the near future," or words to that effect. If we are to be guided by the latest news from the United States prices for sets and components are not only unlikely to drop, but are on the up grade. As a matter of fact some of the makers of the best receiving sets in the United States increased their prices on February 20 of this year. Take the C. R. Lenz Co., Long Island City, New York, as an example. On February 20 that company increased the prices of their sets by 33 1-3 per cent., and the prices of their B and C eliminators by over 14 per cent. A number of other companies also announce increases all round. The new refinements in radio sets cost money and are not calculated to mean lower cost to the public. The indications are that prices will be steady for a while now, but there are no prospects of a reduction in the prices or the better class of sets.

A NEW POWER AMPLIFIER VALVE.

THE CX-350, UX-270 is a new valve for use in the last stage of a transformer-coupled audio frequency amplifier. For the same filament current and plate voltage it has more than twice the undistorted power output of the 210 valve, which thus adapts it for use with loudspeakers to be used in large auditoriums. Due to its low plate impedance it must be used with an output transformer or choke coil and bypass condenser. Its filament current is 1.25 amperes at 7 1/2 volts, the filament being of the coated ribbon type. It has a height of 6 1/2 in. and a diameter of 2 1/2 in., fitting a large standard socket. Its characteristics at various plate voltages are as follow:—
Plate voltage 250 300 350 400 450
Negative grid bias (volts) 45 54 63 70 84

Plate current (milliamperes)	28	35	45	55	55
Plate resistance (a.c.) (ohms)	2100	2300	1900	1800	1800
Mutual conductance (micromhos)	1800	1900	2000	2100	2100
Voltage amplification factor	3.8	3.8	3.8	3.8	3.8
Max. undistorted output (milliwatts)	900	1500	2350	3250	4050

The new valve's maximum output is about 84 times that of a UX-201A valve. This valve, which is for use with an A battery or eliminator, is not in New Zealand yet.

REMOVE SURPLUS FLUX.

IN a very few weeks the cold crisp nights that every radio fan has been waiting for will be here. When this time arrives you want to have your set in the most efficient condition possible. Now is the time to overhaul your set so that when real DX weather arrives you will be able to pull in distant stations.

If you are building a new set take special precautions in the soldering of all joints, and be sure to clean off the surplus flux with an old tooth brush or a bit of cloth moistened in alcohol. Flux between two joints will allow the currents to leak across and lower the working ability of your receiver.

If your set is an old one the probabilities are that a number of connections are badly corroded or coated with dust. This may be due to a coating of excess flux that was left after the connection was soldered. Go over every connection as described above and your reception may be greatly increased.

If rosin flux was used there will be no need for the above cleaning process, because rosin is an insulator and will not cause this sort of trouble.

THE SHIELDED GRID VALVE.

MOST favourable reports have been received from those who have installed the new shielded grid type of valves in their receivers, the valves, although more expensive than ordinary

valves, are well worth using. It is found that when they are employed as radio frequency amplifying valves, a degree of sensitivity seldom obtained with three ordinary radio frequency stages is easily obtained. Although the valve is remarkably stable and easily controlled, interference from atmospheric is said to be greatly reduced. Used in short-wave sets, the valves are giving striking results, and seem to make an ideal addition for the reception of short-wave overseas broadcasting. The sets are comparatively easily made, and ordinary circuits can be modified to receive them. It should be borne in mind, however, that careful shielding of the apparatus in the receiver is essential to successful operation. The screened grid valve must be shielded in a special metal case, and the radio frequency and detector tuning circuits should also be separately shielded for best results. With a little care, however, no difficulty will be experienced in carrying out the shielding work. An aluminium panel instead of an ebonite one will be found useful, and the remaining shields can be made from sheet aluminium or sheet copper. Copper will probably be found slightly easier to use than aluminium, as it can be soldered without difficulty. If aluminium is used, the pieces of the shields may be bolted together with small brass bolts of the kind widely used for wireless terminals.

CORRECT GRID LEAK.

SET builders will find that the simplest method of adjusting the grid-leak of the detector valve is to try successive grid leaks of different values until the one which gives the best results is found. Assuming the use of a .00025 microfarad fixed condenser as grid condenser, most of the detecting valves usually work most satisfactorily with a grid leak having a resistance of about two megohms. Occasionally, however, cases will be found in which this value is too high, and a tendency for the set to howl develops until a leak of lower resistance is used. It should be borne in mind that the position of the grid leak return on the filament is of as great importance on the detector valve as it is on an amplifier. It is usual now to connect the grid leak across the grid condenser. When this is done,

the second end of the tuning coil, which is connected to the grid condenser, becomes the return lead for the grid leak. This return should generally be connected to the positive side of the filament, but cases will be found in which it will give best results when connected to the negative side of the filament of the detecting valve. When making a new set, it is therefore wise to make this return connection of a temporary nature, until it can be ascertained by test whether it will give best results on the positive or the negative side of the detector. It should be borne in mind, also, that the value of the grid leak for the best operation of the set will depend, to a considerable extent, on the pressure used on the plate of the detecting valve. Adjustments to the plate pressure of the detector valve will often greatly improve both the quality of reproduction of a receiver, and also its sensitivity.

NEW ENGLISH VALVE.

A NEW receiving valve just announced by a British manufacturer incorporates two useful features, which will appeal to many listeners. The main purpose in designing the valve was to have an instrument which would work from both a two-volt and a four-volt battery. Incidentally, the type of construction adopted virtually gives the valve two filaments, so that when one is burned out or broken, it can still be used for a time. Although not absolutely new, the internal construction is unusual. The valve really contains two filaments, two grids, and two plates.

The two grids are connected, and so are the two plates, so that they really work as if they were only one large grid and one large plate. The two filaments are connected at one end, and the free end of each is brought through the glass in the form of a lead. A lead through the glass also provides connection to the ends of the filaments joined together. If it is desired to use the valve from a four-volt battery, the filaments are used connected in series. If only a two-volt battery is available, they can be connected in parallel. If one filament burns out, the other can still be used from a two-volt battery.

TELEVISION SYSTEM

A SIMPLE EXPLANATION.

Few scientific secrets have been more carefully guarded in the last decade than those relating to the methods adopted in the television systems now undergoing trial. It is evident from the brief reports received from time to time that the problem of television has at last been solved. The success recently reported was one of the most striking yet achieved. A liner in mid-Atlantic, fitted with a television receiving

station, was able to "pick up" pictures broadcast from Great Britain, with such clearness at times those on board declared that the images of friends ashore were practically faultless.

Sixteen Pictures a Second.

Efforts to develop a system of television have been made from time to time practically ever since the invention of the telephone. From the beginning, the general principle to be adopted was clearly understood. The difficulty experienced lay in the construction of apparatus to apply the principle. For the production of an effective

"moving" picture, about 16 successive "fixed" pictures must be produced, one after the other every second. If fewer pictures are produced, they do not blend together well, and the resulting moving picture is inclined to be jumpy. For the electrical transmission of a picture, the original must be analysed into a series of very small sections, which for effective transmission cannot be larger than small lots, such as make up the illustrations in "The Radio Record." Each one of these points must be transmitted separately from the sending to the receiving instrument, and at the receiver each section or dot must be placed in its correct position on the receiving screen. The actual transmission of the dot in its correct tone of light presents no difficulty. This can readily be accomplished by a photo-electric cell at the transmitter, which controls the intensity of light from a special lamp.

The real difficulty of television lies in analysing the picture into many thousands of sections so quickly that the process takes place at least 16 times a second, and then rebuilding it, equally rapidly, at the receiver. The general method adopted by modern workers consists of the use of a series of rapidly revolving prisms. These prisms are placed between the image and the photo-electric cell, and as they revolve they "sweep" the image in such a way that one section after another of it is focused on the photo-electric cell. At the receiver the process is reversed. The light from the lamp is passed on to the series of revolving prisms, which bend it out of its ordinary straight line, and scatter it over a ground glass receiving plate, so that the point of light from the lamp falls on every section of the surface of the plate 16 times a second in the correct intensity to build up an image.

A GLASS FRONT PANEL

SEVERAL ADVANTAGES

There are a number of advantages to be obtained through the use of glass for panel and cabinet material. The principal one is, of course, that glass is transparent and will allow the apparatus and the wiring to be seen from four sides without having the lid of the cabinet.

A direct advantage of this lies in the fact that such a cabinet will be more or less dust and trouble proof. When the lid of a cabinet is allowed to remain up for any length of time to observe the operation of the valves, or the functioning of the other parts, dust is sure to settle on the condenser plates and other parts of the set. This will soon give your set a shop-worn appearance and reduce the efficiency of its operation.

If you are a careful workman and take pride in a good, neat job of wiring, a glass panel and cabinet will reveal for the reason that your workmanship would always be in plain view.

Glass a Good Insulator.

Last but not least, glass is one of the

best insulators available, and is especially valuable in the construction of radio equipment due to its low electrical losses. Glass does not absorb moisture or have the bad capacity effects that are inherent with some wood cabinets and panel materials.

With the proper degree of care, and a little patience, the task of drilling holes through a piece of plate-glass is not at all difficult.

Secure a piece of plate-glass cut to the size you wish your panel. There are two methods available for making the holes through the glass for the shafts of the instruments of your set, screw holes, etc. One method is to allow hydrofluoric acid to eat a hole through the glass. The other method is to drill a hole through with carbide and use turpentine as a cutting fluid.

Acid Makes Holes.

Spot the glass at the points where you wish to drill a hole. In case you

desire to use the acid method make a small mound of clay over the spot. Make a small opening through the clay with a lead pencil, the exact size you wish to have the hole through the glass.

Now pour a small quantity of the acid in the clay mound and allow it to stand. The length of time required for the acid to eat through will depend on the strength of the acid and the thickness of the panel.

Condenser-shaft holes could be bushed with ebonite tubing if desired.

WIRELESS as a link between those who live high in the mountains and their friends in the towns is the latest development of radio in Switzerland. For a few francs townspeople may go before the microphone and speak to friends in snow-bound villages in the mountains.



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