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George Newnes, Ltd.
Valve Types

The newcomer may be pardoned for expressing ignorance concerning the appropriate type of valve to be used in a given stage of a modern receiver. Pentodes, which at one time were only used in H.F. stages and which were otherwise known as S.G. valves, are now regularly employed in the L.F. stages, and in at least one range of valves have replaced output pentodes. Pentodes are suitable for use in any stage of a receiver, although made in different types. No doubt there will be a time when valves will be classified and related to a minimum of types, but in the meantime a careful check has to be kept of new types and the passing out of old ones. In this issue we continue the details given concerning pentodes and tetrodes, and we hope this will clear up the matter for those who are finding it confusing to know just what each valve type is intended for, and will enable every constructor to select a suitable valve for any particular circuit which he may desire to make up or with which he may wish to experiment.

Television in Germany

Rumours have been current that the German authorities intended to close down or move the television transmitter situated on Amerika House. It is now officially stated, however, that there is no intention of closing down the transmitter, but as it does not fully serve the main part of Berlin it has been considered whether or not there is not some alternative site which would be more effective.

Broadcasting in Ceylon

The total number of licence-holders in Ceylon is approximately 6,000, it was stated by the Minister of Communications recently in welcoming the Governor of Ceylon to the thirtieth anniversary celebrations of the Colombo Broadcasting Service.

All-India Radio Additions

New stations shortly to be opened by All-India Radio will be situated at Bengal Dacca and Trichinopoly. These will be independent stations broadcasting their own sectional programmes. The establishment of a 5-kW station at Trivandrum (Travancore State) to operate on the medium-waveband is also being contemplated. It is also stated that the Government of the Travancore State proposes to install 100 receivers in various State colleges and schools.

New Italian Stations

It is also stated that the Government of the Travancore State proposes to install 100 receivers in various State colleges and schools.

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Listeners Answer Back

WHEN the B.B.C. Exhibition was at Nottingham Denis Morris, Midland Public Relations Officer, answered at the microphone a number of questions and comments by listeners. A similar idea is being tried in an outside broadcast (Midland, March 29th) from a hall in Kettering, where Mr. Morris will address a meeting there. The last few minutes of his speech will be broadcast and then listeners in the audience will have an opportunity of putting their own points of view about broadcasting at portable microphones for about a quarter of an hour. Their points and the speakers' replies will thus make the bulk of the broadcast programme. It is hoped to follow a similar procedure at one or two other places later in the year.

The Atomic World

Of special interest to technical-minded readers will be the talk to be given on March 28th (Wales) by E. J. Williams, Professor of Physics at the University College of Wales, Aberystwyth. The talk is entitled "The Atomic World."

An Hour at the Opera

The Torquay Municipal Orchestras, led by Harold F. Petia and conducted by Ernest W. Ossl, with Nan Maryska (soprano) as the soloist, will broadcast a concert entitled "An Hour at the Opera" from the Marine Spa, Torquay, on March 29th. The Marine Spa was formerly the principal concert hall in Torquay, and the concert by the Municipal Orchestras are being held there during the reconstruction of the Pavilion, which was opened in 1912.

II Trovatore

REPLACING "Der Freischütz," Verdi's "II Trovatore" has been scheduled as the last of the current quarter's series of fully jointed studio contributions. It will be broadcast from St. George's Hall on March 31st (National) and April 3rd (Regional). During the summer, opera broadcasts are expected to be available from Covent Garden, Glyndebourne and Sadler's Wells, and Stanford Robinson, chief of the B.B.C. Music Productions Section, has therefore postponed "Der Freischütz" until next autumn.

"This and That"

Professor John Hilton, one of the outstanding personalities of radio, has not been broadcasting regularly since 1887. Listeners should be interested to hear that he is returning to the microphone in a series of thirteen weekly talks to be given on Sundays. As on previous occasions his talks will be entitled "This and That" and he will be speaking on anything that has occurred to him as interesting, amusing or exciting during the previous week. Perhaps the secret of Professor Hilton's success as a broadcaster lies in the fact that there is practically nothing under the sun that he does not find interesting, and in his ability to communicate his interest in a vivid manner to his unseen audience. The first talk will be given on April 2nd.
Turkey Popularises Broadcasting

The Turkish Government has decided to import or manufacture 40,000 wireless sets free of duty, and to distribute them to the population in out-of-the-way villages at very low prices. No licence tax, at first, will be charged in order to encourage the people to become radio-minded. The receivers will be of such a type that the Ankara broadcasts may be heard in every district of Turkey in Europe, and Asia. The Ministry of Public Works which is sponsoring this system of education will hold the monopoly for trading in cheap receivers, leaving the private dealers to handle the more expensive sets.

Australia’s New High-powered Station

According to a recent report, the new high-powered naval radio station at Canberra, which is claimed to be the largest in the southern hemisphere, is nearing completion. Five separate transmitters are being installed, all of which may be used simultaneously.

Obituary

We regret to record the death of Mr. Robert Chignell, O.B.E., the celebrated composer and singer. Mr. Chignell, who was fifty-six, lived at Aucassin, Horley, Surrey. The name of Robert Chignell must be familiar to all owners of radio sets, for in four years no fewer than 2,500 of his works, including many special arrangements, have been broadcast. Mr. Chignell specially composed the music for the series of broadcasts of the adapted version of Victor Hugo’s novel, “Les Miserables.”

Fencing

Charles de Beaumont, Épée champion of Great Britain for the last three years and captain of the fencing team which represented Britain at the Olympic Games in Berlin in 1936, will give a commentary on the Final Pool of the Foils Championship of Great Britain, which will be staged at the Salle Bertrand on March 31st. The championship is organised on the pools system, the winners of the bouts in each pool meeting until the champion is decided. This broadcast will be given in the Regional programme.

City of Birmingham Orchestra

Regional as well as Midland listeners will hear on March 23rd the City of Birmingham Orchestra’s performance of Elgar’s symphonic poem, “Falstaff,” which is the chief work in their concert at the Birmingham Town Hall. Leslie Heward is the conductor.

Variety from Northampton

The variety bill on March 29th will be broadcast from the New Theatre, Northampton, and will be heard by Regional listeners as well as Midland listeners. The principal attractions are being installed, all of which may be used simultaneously.

INTERESTING and TOPICAL NEWS and NOTES

“Music Hall” from Hull

A broadcast from the Alexandra Theatre at Hull will be heard on March 31st, not only on the Northern wavelength but in the Regional programme also. Besides a variety excerpt from the theatre at night, listeners will be able to take a peep into the theatre during a rehearsal for the evening’s show.

Solution to Problem No. 339

When Kennedy connected, the primary winding between anode and earth was short-circuited, and it was not obtained satisfactory tracking throughout the entire range. He checked the wiring of the circuit and found that the vanes in one section were cut away. He built the circuit to a standard design, but found that he could not obtain satisfactory tracking throughout the entire range. He checked the wiring of the circuit, and found that the vanes were not exactly in order. What was the trouble? Three books will be awarded for the first three correct solutions opened. Envelopes must be marked “Music Hall” from Hull. A broadcast from the Alexandra Theatre at Hull will be heard on March 31st, not only on the Northern wavelength but in the Regional programme also. Besides a variety excerpt from the theatre at night, listeners will be able to take a peep into the theatre during a rehearsal for the evening’s show.

SOLVE THIS!

Problem No. 340

Robert decided to build a superhet and purchased a set of coils and I.P. transformers by a well-known maker. He found a number of parts in his spare box, including a superhet type gas-filled condenser—whale he verified by checking that the vanes in one section were cut away. He built the circuit to a standard design, but found that he could not obtain satisfactory tracking throughout the entire range. He checked the wiring of the circuit and found that the vanes were not exactly in order. What was the trouble? Three books will be awarded for the first three correct solutions opened. Envelopes must be marked “Music Hall” from Hull. A broadcast from the Alexandra Theatre at Hull will be heard on March 31st, not only on the Northern wavelength but in the Regional programme also. Besides a variety excerpt from the theatre at night, listeners will be able to take a peep into the theatre during a rehearsal for the evening’s show.
Further Details of F. J. Camm's 50/- All-wave Three

Completing the Constructional Work, and Operating Details of this Remarkable Low-priced All-wave Receiver

In last week's issue we gave the main constructional details of this new receiver, and no difficulty should have been experienced in this part of the work. The wiring, whilst not difficult, must be carried out carefully, and this applies particularly to the switch unit. In the wiring diagram which was published last week the artist drew the contacts in the form of two rows, so that the relationship between them could more easily be seen. In Fig. 5 in that issue we showed a rear view of the switch and indicated how the centre six contacts related to the surrounding 18. It is thus possible to connect the first grid, for instance, to any of the internal six contacts, provided that the associated three contacts are immediately above, as shown in Fig. 5. If, however, you regard the lower row of contacts in the wiring diagram as representative of the internal row in Fig. 5, reading from left to right and starting with letter A, then the upper row, in the same order, will commence at A1 and proceed logically to F3. A good plan when wiring a switch of this type is to take one section at a time, and to check as the wiring is completed by means of a meter and battery. This avoids the necessity of taking down all connections afterwards should it be found that a mistake has occurred.

Battery Leads

There are no difficult points in wiring, other than the taking of the usual precautions to make certain that components which are held in position by wiring are rigidly attached. The short-wave choke, for instance, should be wired to the switch with fairly stout wire so that it remains up against the side runner in the position shown in the diagram, whilst the resistances and chokes should all occupy the positions shown. The use of screened sleeving should be carefully noted, and in the case of the reaction condenser the return from the moving vanes is taken via the screening of the wire for the fixed vanes. In other words, only one lead is taken to the reaction condenser, and this is for the fixed vanes, but the moving vanes are joined to earth through the screened sleeving and the associated wiring. The lead from the reaction coil and from the reaction condenser are run together near the

Three-quarter view of the complete receiver.

Theoretical circuit of the 50/- All-wave 3.
TELEVISION FEATURES

F. J. CAMM'S 50/- ALL-WAVE THREE

(Continued from previous page)

Valve in that stage being a variable may be modified— as wave aerial and earth, using the medium - wave circuit. Before placing valves and batteries in circuit to the projecting screw of the original trimmer, the wiring should be carefully checked on the condenser, but do not bend this has been removed the trimmer for clarity and it is not essential to point indicated, and although these are shown projecting through the rear runner this has only been done for the rear end of the chassis. In the chassis drilling details in Fig. 3 last week, we did not show a hole for these leads as it was thought desirable to leave the placing of this individual requirements. In some cases a constructor may wish to use a horizontal type of cabinet with the speaker at one side of the set, and thus the batteries would have to be placed at the side of the set. There is ample room at hole 4 to enable leads to be brought through at this point and this may therefore be used for the purpose. Alternatively, a clearance hole may be placed at any other part of the chassis, provided that care is taken to knot the cords or otherwise guard against their being pulled away from the point of contact when handling the plugs.

Trimming
Before testing the receiver the trimmers on the ganged condenser should be removed entirely. To do this, unscrew the adjusting nut and then carefully unscrew the small bolt which may be seen near the end of the soldering tag connection. When this has been removed the trimmer plate and mica washers may all be taken away, but the small bolt should be reinserted as it assists in holding the fixed section in place. It is preferable, therefore, to bend up the circular part of the trimmer to a vertical position and screw it back on the condenser, but do not bend the top down so that it will short-circuit to the projecting screw of the original trimmer.

When construction is completed the wiring should be carefully checked before placing valves and batteries in circuit. When quite certain that everything is in order connect the aerial and earth, using the medium-wave position for the aerial for preliminary tests. The bias applied to the first coil circuit should be 1.5 volts for preliminary tests. This may be modified as desired, the valve in that stage being a variable type and increase of bias will decrease sensitivity. The bias for the output valve, with a 120-volt H.T. battery, should be 3 volts. With these bias voltages the total H.T. consumption is approximately 10 milliamps. A reduction may be effected by increasing the bias on the output valve, at the sacrifice of the power-handling capacity and quality given by the set. Next switch the set on by means of the combined volume-control and on-off switch, and turn the wave-change switch to the central position (medium waves). Stand the set on its side and rotate the main tuning condenser until the local station is heard. The two small trimmers underneath will now enable you to bring the station into line with the engraving on the dial and also to line up the two tuning circuits. When this has been done turn to a point at the top end of the medium-wave band and see if any adjustment is needed. The setting should hold good for long waves. On the short waves, of course, the trimmer for the aerial is not in circuit and the aerial is aperiodically coupled to the first valve. When satisfied that the trimming has been properly completed, the set may be turned over and is ready for installation in a cabinet. The correct impedance load for the output valve in this particular model is 16,500 ohms and the appropriate setting on the loudspeaker should be made for this value.

SPECIFICATION FOR F. J. CAMM'S 50/- ALL-WAVE THREE

One set of coils—broadcast, short-wave—and special W. choke (Peto-Scott), 10s. 6d.
One .00043 mfd. two-gang condenser (C3 and C7) (Peto-Scott), 5s. 6d.
One slow-motion drive assembly, including scale, counters, etc. (Peto-Scott), 5s. 6d.
One plain wooden chassis with 3 runners (Peto-Scott).
One combined switch, type S.208 (Bulgin), 3s. 9d.
One reaction condenser, type C.V.19 (Bulgin), 2s. 6d.
Two trimmers, type S.W. 99 (C2 and C9) (Bulgin), 9d.
Six fixed condensers: two .0001 mfd., type P.C.301 (C1 and C6); one .0002 mfd., type P.C. 502 (C10); one .005 mfd., type P.C. 205 (C11); two .1 mfd., type P.C. F1 (C4 and C5) (Bulgin), 3s. 3d.

TELEVISION DELICACY IN HONOUR OF FRENCH PRESIDENT

MARCEL BOULESTIN, the cookery expert, is devoting a special television delicacy in honour of President Lebrun, who is on a State visit to this country. The item of cooking to be televised live is a special television delicacy in the name of the French President, the cuisine of which he is considered an expert. The programme is to be shown in the evening television programme on March 24th.

MAGYAR MELODY

"MAGYAR MELODY," Eric Maschwitz's musical romance at His Majesty's Theatre, will be the first complete musical comedy to be televised direct from a theatre. Viewers will see the entire play on the evening of March 27th beginning at 8.30 p.m. and continuing with interludes until after 11 p.m. Produced by William Mollison, the play is the work of Eric ("Balálaika") Maschwitz, former B.B.C. Director of Variety, Fred Thompson and Guy Bolton. Lyrics have been written by Harold Purcell and Eric Maschwitz, and the music is by George Oxford and Bernard Grun.

The cast includes Binnie Hale, Arthur Margesson, Stella Arbenin, Roger Trevelly, Betty Warren, Jimmy Godden, Jerry Verno and Betty Bucknell. Walford Hyden conducts his Magyar Symphony Orchestra.

Three television cameras will be used, one being installed in a stage box for "close-ups" and two in the dress circle.

TELEVISION FEATURES

DINGHY SAILING

DINGHY sailing will be televised direct from the Thames at Putney on the afternoon of March 25th, when one of these small boats will come into the picture. The commentary will be given by Peter Scott, one of the outstanding dinghy enthusiasts in this country, who has represented Great Britain in dinghy races in America. Dinghy is an Indian word for "small boat." Viewers will see a large number of the twelve-foot type of dinghy assembled for a race. The boats must be passed as seaworthy, though this does not absolve the crews from acting as ballasts; dinghies have no keels, and it requires some gymnastic skill to maintain stability in a swoll.

"THE SWITCHBACK," A JAMES BRIDIE COMEDY

JAMES BRIDIE'S comedy, "The Switchback," which is to be televised in the evening programme on March 24th, deals with the adventures of a country doctor who believes he has discovered a cure for phthisis. But his cure is found to be based on a fallacy and the doctor after being involved in a newspaper stunt is struck off the Medical Register. It is then that his adventures begin, and it presents the delights of freedom, described with all the fun and wisdom which are to be expected from a Bridie plot.

James Gibson will play Dr. Malloch, and the part of the errant Mrs. Mallaby will be taken by Leslie Wareing. The producer will be Neil Kelsall.

"The Switchback" will be repeated in the afternoon television programme on March 28th.
Thinking About Portables

ABOUT this time of the year most constructors begin to consider the question of building a portable receiver. The object of this is usually to permit of a certain amount of experimenting out-of-doors, and partly to provide entertainment in the garden or on picnics or tours in the country. The first question concerns the type of circuit to be employed, and the second is in connection with the components to be employed.

When the constructor is prepared to spend a couple of pounds on components he can quite easily make a really compact set, using midget valves and parts, but if

Fig. 1.—A simple type of two-valve circuit which is quite satisfactory when reception of the local station only is required, or when a low-volume output from the speaker will suffice.

the idea is to employ standard parts, many of which are probably on hand from previous receivers, the matter calls for different treatment. And since rather more care is called for when making a receiver from midget parts, we propose to consider here only the construction of an outfit from standard components.

It should be pointed out, however, that unless for special reasons an attempt is to be made to receive a wide variety of programmes. In the latter case a superhet would be indicated and, if the complete set is to be really compact, a fair amount of careful experiment would probably be necessary before a suitable design were evolved. Additionally, it would be desirable to make use of a number of midget components. Our preference is for a well-made two- or three-valve. This will give good speaker reception from a couple of local stations at least, and probably from a number of others in good conditions. More depends upon the final tuning-up of the set than upon the circuit.

Fig. 2.—A suggested arrangement of parts when making a simple portable suitable for housing in a container similar in proportion to a gramophone-record case. The drawing on the left is not necessarily correct scale and the layout is intended mainly as a suggestion. How the finished set would appear is shown on the right.

When the constructor is in the open country or in the garden.

It has been pointed out, however, that since it does not have to carry any direct current. A separate H.T.- lead is provided for the screening grid of the H.F. pentode used as detector, and the anode circuit is decoupled.

With a set of this type a throw-out aerial is a practical essential, since a frame is not sufficiently sensitive unless made very large. The earth lead is not essential, especially if a metal or metalised chassis is used, to which the L.T.- lead is connected, but reception will often be slightly improved if an earth lead can be attached. A short metal splice can be used when the set is in the open country or in the garden.

Three-valve H.F.

Before considering suitable methods of construction we might look at the other circuit shown in Fig. 3. This is similar in the main to that in Fig. 1, but has an H.F. pentode used as pre-detector amplifier, a triode detector and a power pentode in the output stage. Additionally, grid bias is obtained automatically by utilising the voltage drop across a resistor in the H.T.- lead. A 50-mfd. electrolytic condenser is used to by-pass the bias resistor, and this has a voltage rating of 12, which is ample for the G.B. voltage normally required.

It is not possible to give the value of the resistor, since it is dependent upon the total...
**THINKING ABOUT PORTABLES**

**By F. J. Camm**

**SHORT-CIRCUIT CURRENT CONSUMPTION OF THE RECEIVING TRANSISTOR**

H.T. current consumption and the particular type of transistor employed. The current consumption is also governed by the voltage of the H.T. battery, of course. When the total current consumption is known, the value of the bias resistor can be calculated by dividing the G.B. voltage required by the current in milliamps, and multiplying the result by 1000. Thus, if the total current were 8 mA and the voltage required 4, the value would be 800. As a matter of fact, this value is most frequently required.

**Construction**

With regard to the form of construction to be adopted, much depends upon the shape of container preferred, or upon the carrying case into which the set is to be fitted, assuming that a case is available. An old gramophone record case is often convenient, when the set can be made on a chassis built up from sheet aluminium and plywood as shown in Fig. 2. All receiver components are mounted on a strip of metal sheet made into a channel section about 2½ in. wide and 10 to 12 in. long. The tuning condenser, whether single or a two-gang unit, must be of the midget type and can be mounted on the metal strip. The speaker unit—a 5-in. cone would be necessary—is mounted as near as possible to the receiver components on the five-ply board, so that there is room for the batteries at the other side of the case. This general form of construction could be followed whether making a two- or three-valve receiver. It will be understood that a circular hole or a fancy fret would have to be cut in the side of the carrying case; this could be of greater diameter than the speaker cone, and could therefore be made central in the side of the case and a length of thin, strong string is passed screws through the slot in one side of the spool and soldered to the carrier. A large sheet of speaker silk could be glued over the plywood board to face the hole in the container.

**For an Attache Case**

If the set were to be built into an attaché case of standard proportions the arrangement shown in Fig. 4 would prove convenient. In this case it would be necessary to use two separate condensers for tuning (if the H.F. circuit were adopted) unless the case were adapted deeply. Alternatively, a two-gang solid dielectric condenser might be available, although these are not now made. A solid dielectric condenser would in any event be used for reaction.

It can be seen from Fig. 4 that a complete inner frame is made for the case, this being built from plywood and aluminium sheet; this makes the complete set easily remov-able from the case when it is desired to modify it. The speaker is mounted on a thin five-ply sheet, which also serves to conceal the batteries. This five-ply could be held rigid by passing screws through the edge of the case into small wooden blocks glued and nailed to the plywood, or by fitting such blocks to the sides of the inner frame and passing screws into these through the plywood.

**Self-winding Aerial**

It has been assumed so far that a throw-out aerial would be used. This is certainly recommended, partly because it is often more effective than a frame, but also because it considerably simplifies gaining difficulties. When using a frame considerable trouble is always experienced between two condensers—one acting on the frame and one on the inter-valve coil. It can be made to line up; this is because of the entirely different inductive and capacitative properties of the coil and frame. If it can be arranged, an excellent idea for the throw-out wire is that shown in Fig. 5, where it will be seen that the wire is self-winding on a spool.

The spool can be built up from discs of plywood or even stout card, and is firmly fixed to a 4 B.A. or 2 B.A. threaded spindle. A coil spring is anchored to the case and a length of thin, strong string is passed from this to the mounting spindle. When the wire is coiled on the spool the spring is not tensioned, but as the wire is withdrawn the spring is stretched. Consequently, as soon as the end of the wire is reached the spring rotates and winds on the wire. Thin rubber-covered flex is most suitable for the aerial wire since it is easily coiled. The method of fastening the string to the spool is to clamp it between two nuts or to tie it to a collar clamped to the spindal. It will be seen that the greater the diameter of the spool in relation to the diameter of the speaker, the greater is the length of wire that will be self-winding. Usually a few feet is sufficient, but when a greater length can conveniently be used, an additional piece can be twisted round the end of the wire of the built-in aerial. Note that the end of the aerial wire is taken through a slot in one side of the spool and soldered to the spindle.

**Frame-Aerial Data**

As most readers are aware, if a frame is to be wound, the medium-wave section should consist of approximately 600 ft., and the long-wave section of about 150 ft. when the aerial is about 1 ft. square. These lengths are given as approximate because they depend to a certain extent on the perimeter of the aerial. The lengths finally chosen must be decided by trial, arranging them so that the diameter of the aerial is as large as allowed. Usually the medium wave is made to line up with the long-wave section.

**Diagram**

![Diagram](image-url)
Wireless Licence Increases

THE great increase in the listeners’ army goes on, for the Post Office, in February, issued 839,500 receiving wireless licences, which represents an increase of 14,409 in the number of licence holders after making allowance for expired licences and renewals. The approximate total number of licences in force at the end of February, 1939, was 8,444,300, as compared with 8,561,340 at the end of February of 1938, an average increase during the year of no less than 932,960. During the month there were 325 successful wireless prosecutions. These figures seem to indicate that very shortly the wireless market must depend for its profits upon replacements, or rather the sale of replacement sets, unless, of course, someone radically changes design by discovering some new principle, or inventing some new device which will render all our sets obsolete. It seems to me that the only thing in the scientific offing which can do this is the television receiver, for sometime in the not too distant future we shall all want to own television sets. We are told that television is here, and “you can’t shut your eyes to it.” Remember the old sets which were sold in thousands about a dozen years ago? They are thought that they would be obsolete within a couple of years. As soon as television has become a national service, and I hope it will be soon, our present receivers will be scrapped. I feel that the sooner the B.B.C embarks upon a national television service the better. At present it is causing sales to languish, for people are awaiting its arrival, and they are afraid to purchase a new receiver lest it go out of date within a few months. When television is a national service receivers will be scrapped. I am certain that the licence figures will reach astronomical limits.

The Perfect Earth

Between moments of a calligraphical evisceration of my opinions, “Torch,” as you know, bursts into song. I do not know whether the spring is responsible for the following, but as I should hate to think of “Torch” suffering from an ingrowing poem, once again I accord him the privilege of my space for the following:

My bomb-proof shelter has arrived; At present it’s unused, And at such waste of useful space I am indeed amazed. Let’s hope no swarm of foreign planes Will ever cloud our skies; And whilst we’re waiting, cannot I Some useful end devise?

“A hen- pen for some Plymouth Rocks?” The wife asks, as, for Fido’s sake! No beastly hen shall ever scratch My flowers up, I swear.”

“A kennel, then, for Fido.” The wife lets out a squeal.

“My darling Fido shall not sleep Inside those walls of steel!”

“Some flowers, then, to fill the eye With pleasure and delight.”

“No, that’s no use, for flowers need A good supply of light.”

“Well, what about a rustic bower, In which to take our tea?”

The mistress gives a sly look, And says: “You’re telling me!”

“Then would it be of any use To do your weekly wash?”

“The laundry, sir, takes care of that; Why must you talk such bosh?”

“An outdoor dormitory, then, When your relations come?”

The wife says; “Just you dare!”

“Why must you talk such bosh?”

“A hen- pen for some Plymouth Rocks!”

Hush! Half a mo! I feel a rush Of brains towards my head!

A length of insulated wire To it shall soon be led.

Three feet it’s buried in the soil; At last I see its worth.

Loud cheers! Whilst waiting for the bombs, The perfect radio earth!

The “Combs”

In a recent case in which twelve individuals were charged with and pleaded guilty to operating wireless sets without a licence, it was stated that Government officials had toured various streets in the town with an apparatus called the “comb,” which enables them to detect houses in which radio sets are being used. I should very much like to know how this particular piece of apparatus is able to detect a non-oscillating radio set. These Post Office people are very clever, I know, and I do not have sympathy for those who try to rob the B.B.C. of its small licence fee. You cannot obtain for too such a service in any other industry, in any other country in the world, but my thirst for knowledge is whetted by the thought that they can detect a non-oscillating wireless set.

A Bigger and Better Radiolympia

I was present at a luncheon the other day where the guest of honour was Sir Stephen Tallents. He spoke on the B.B.C.’s plan to assist in making Radiolympia the biggest and best ever.

Emphasising the ambitious nature of the plans for this year’s show, which will open on August 23rd, Sir Stephen said that the B.B.C. was already hard at work, in collaboration with the organisers—the R.M.A.—devising new attractions which would demonstrate to the public in a way which had never been done before the tremendous range of entertainment offered by modern broadcasting.

It was too early yet to give details of the lines on which they were working, but the B.B.C. looked forward to Radiolympia as their great opportunity to introduce a large and interested public behind the scenes of sound and vision broadcasting. He was certain that Radiolympia, 1939, would attract a record attendance to see and hear in novel form the latest developments in sound broadcasting and television.

Speaking of the R.M.A.’s plans Colonel Ozanne (Chairman of the R.M.A. Exhibitions Committee) stressed the diversity of the attractions which would be found at this year’s Show. As well as being the focal point of radio interest throughout the country, Radiolympia would have something to interest everybody—young or old, technical or non-technical; the enthusiast or the occasional listener.

Radiolympia, 1939, would, of course, show the world the very latest developments in British radio and television, but it would do very much more than that. Visitors...
Hum and the Pick-up

ONE of the main difficulties which confront the user of a pick-up associated with A.C. mains apparatus is the hum. In many cases when an existing set is modified so that a pick-up may be used it is found that hum cannot be removed. Screening the leads and with effective earth connections to the screens fails to effect any improvement. In several cases it has been found that the trouble is not due to the leads or to the method of connecting the pick-up. The trouble in these instances has been direct induction between the motor and the pick-up coils. Where a synchronous motor is used it may be found that if the pick-up is held just above the turntable and slowly moved towards the centre the hum will increase as the pick-up nears the centre of the table. In some cases a sheet of metal on top of the motor-board, directly beneath the turntable, connected to earth may prevent the trouble, but several instances have been met where it has been impossible to cut out the hum unless the pick-up was changed.

Aerial Insulation

THE efficiency of the aerial is recognised as being one of the most important points of installation by most constructors, but the method of carrying out the best arrangement from an insulation point of view is not always appreciated. In many cases a good single insulator is used and thought to be sufficient. It must be remembered, however, that when an insulator is exposed to the air, especially in big cities, it quickly becomes coated with a film of soot which is conductive, and it is thus possible for the insulator to be short-circuited. A chain of insulators, even of very small dimensions, is preferable as, although these may also become coated, it has been found that the trouble fails to effect any improvement.

Skilled Porters’ Feat

In its travels, undertaken in pursuance of the B.B.C.’s policy of making its Symphony Orchestra a national rather than a metropolitan institution, it has also gone abroad: in 1935 it played at Brussels, and in 1936 in Paris, Zurich, Vienna, and Budapest. Its appearances at these European cities, as at the British centres, were outstandingly successful.

Sir Adrian Boult to Visit Preston

THOUSANDS of music lovers in Preston, Blackburn, the Fylde, and North-west Lancashire generally, are looking forward to March 29th as the day which will bring a rare musical “treat” and the outstanding event of the music season in the north-west—the visit of the full B.B.C. Symphony Orchestra, under its conductor, Sir Adrian Boult, to Preston to give a public concert there.

It will be the seventeenth journey into the provinces to be made by this “crack” orchestra (of 119 players) which has a world-wide reputation. Since December, 1934, when the orchestra first appeared out of London—at Manchester—it has travelled as far north as Aberdeen and Dundee, as far west as Plymouth and Swansea, as far south as Southampton, and has played at most of the important centres of the Midlands and the northern counties of England.

Toscanini’s Praise

THE orchestra has also in recent years had the honour of playing under the world-famous conductor, Toscanini, who, after their first series of concerts under his baton in 1935, said: “The B.B.C. Symphony Orchestra is one of the best I have ever conducted.” In 1937 the orchestra gave two more series with Toscanini, summer and autumn, and a fourth in the summer of 1938. In May this year they will once again be conducted by the maestro in seven concerts of works by Beethoven. This will be the B.B.C.’s principal contribution to the London Music Festival, and the Queen’s Hall is already sold out for all the seven concerts.
We are often asked to recommend a short-wave set for a beginner, and accordingly suggest a simple detector L.F. combination. It so happens, however, that a few weeks later we may receive from the querist a glowing report of performance with two or three pages of stations which have been received, or on the other hand, a complaint that the set brings in a few stations on 50 metres and nothing below. It is, in such cases, only possible to say either that the set has been wrongly built or made from defective parts, or that it is not being used in the correct manner. There is, however, an important point in connection with short-wave receivers which is often overlooked and which is impossible to explain in every circumstance. For instance, at the time this article is being written the B.B.C. are apologising for being unable to give an American relay because "conditions are unfavourable." It will be realised that if they, with their elaborate circuits, are unable to obtain sufficiently good results to enable a station to be relayed it would be hopeless to expect a simple battery set to give readable signals. It is, therefore, important to remember when first trying out a short-waver that bad results may be due to bad atmospheric conditions. To the ordinary listener there is, unfortunately, no way of ascertaining whether it is conditions or the set which is at fault, although a very good plan is to use a 40-metre coil and endeavour to receive a local amateur transmitter. You will generally find this possible and by listening to the conversation will be able to gather whether or not conditions at the moment are good or bad.

Aerial Design

Should you hear that he is getting some good long-distance results, and you are unable to do so you will know that either your set is not being worked properly, is defective, or that your aerial is not pulling its weight. If you have built a published set from guaranteed parts, and have made a good job of wiring, etc., you can rule out the set and concentrate on the aerial. Do not make the usual mistake of the beginner in thinking that because you wish to receive stations from the other side of the world you must put up the largest aerial possible. On the short waves you will often find that a very short wire, erected with every possible precaution from the point of view of insulation, will be better than the largest and highest aerial you can put up. Insulation is probably more important than length in this connection, although an aerial which is resonant at some point on the short waves will obviously give better results than one which is not. Although most listeners put up a horizontal aerial, it will probably be found that a vertical arrangement will be more effective, although in this connection it is found that local conditions will have a marked effect in this direction. Interference will undoubtedly be less with a vertical aerial, but it is always worth while to carry out experiments with the aerials before modifying a receiver design.

Fading

The most annoying part of short-wave reception is fading, and there are many suggestions for overcoming this trouble. The latest idea, as has already been explained in these pages, is that wherein two separate aerial systems and H.F. stages are used, arranged so that the aerials are in a certain relation to the wavelength as regards their separation, and with a form of A.V.C. to cut out amplification on the H.F. stage when it receives the fading half of the signal. Is there a simpler way of carrying out this idea? Here is a good source of experiment for the enthusiastic amateur. Two aerials connected to a standard receiver will be found to give some form of fading compensation, but is there not some way by which they may be connected so that they balance one another and give the desired results? Slow fading is not so simple to overcome, but if the signals fade right out they become unreadable, whilst high-speed fading generally acts so quickly that you can read the signal through the fading. We shall be glad to receive details of any experiments which readers may have carried out on this side of short-wave work.

Adaptability

As conditions vary from night to night, one suggestion which has been made is to use a standard L.F. amplifier, with plug on R.F. stages. When conditions are good a simple detector stage is connected, and when poor conditions are experienced, a powerful multi-H.F. unit or a superhet unit are used. Most amateurs find, however, that the superhet or multi-stage receiver gives such an increase in amplification that background noise is raised to the level where signals are not worth while. It is for this reason that many prefer the simple detector stage. It is definitely quieter, but this is only because of the lack of ampli-
Leaves from a Short-wave Log

A 60-kilowatt for Lithuania

The Lithuanian Government has ex-
acted a substantial sum of money to defray the cost of a 60-kilowatt short-wave station to be in-
stalled at the capital for the broadcast of the Kaunas radio programmes through-
out the world. It is hoped to bring the new station into operation by the spring of 1940.

Albania Carries Out Further Tests

ZAA. Tirane (Albania), is trying out a series of channels; latest reports show the logging of experimental broad-
casts from this station on 20.04 m. (9.087 mc/s), between G.M.T. 20.45-21.00. Other channels tested were 19.03 m. (15.765 mc/s); 29.71 m. (10.907 mc/s); 40.07 m. (7.187 mc/s); and 41.01 m. (7.24 mc/s).

Addis Ababa Again Logged

The short-wave transmitter has been heard working on 31.06 m. (9.66 mc/s) between G.M.T. 19.00-20.00. The station is by LRX, Buenos Aires (Argentine Republic).

News from British Honduras

NWS bulletins in the English lan-
guage are broadcast daily at G.M.T. 01.30 every Wednesday, Friday and Sat-
urday by ZIK2, Belize (British Honduras), on 29.3 m. (10.6 mc/s).

Latvia Tests on 10-metre Band

Listeners report reception of the first ultra-short wave broadcasts from a station giving the call YL2C, and believed to be situated at Riga (Latvia). The channel used was 28.8 mc/s in the immediate vicinity of Jerusalem. Although, no careful note was made of the channel allotted, it is expected that it will be in the region of 14 mc/s.

A simple-value receiver is often used with good effect by the beginner, in spite of its simplicity.
THOSE PUZZLING PENTODES
(Continued from previous page)

were of the early large diameter air-cooled.

Single H.F. Stage

For a single H.F. stage circuit, it is permissible to use a straight or variable-mu S.G. or H.F. pentode, as the input, unless one is living in the noisy parts of the

normal volume control can

makes

be used, but that will not have the actual

activity of the H.F. stages is not usually

the best quality, the full gain and selec-

tion out to a separate pin. For example, when

by Mr. Canto.

new

and 18 monthly payments of 15/6.

licaid, impossible -on the Ordinary type of set.

contact the world with a TROP0Y-hosts of transmissions to be

"Sportfolio"

Diary," "At the Wheel," "Topical Notes of

Queries," "Notes from a Garage Mechanic's

files"

MARKS

Any of our trade marks or service marks and
advice respecting Patents, Trade Marks or

NAME

or Designs, should apply to Messrs. Rayner

and advice respecting Patents, Trade Marks

29, Southampton Buildings, London, W.C.2,

 "Replies to Readers' Queries," "Notes from a Garage Mechanic's

or Designs, should apply to Messrs. Rayner

and advice respecting Patents, Trade Marks


The voltage will depend on the

of valve, though a maximum of 30

volts will be usually found sufficient.

quarters.

including specified Peto-Scott Chassis, Panel, Coils, Choke, Station -

...9:17

continuous. We have used some of these records

are other

melodies are contained on each side

of our companion

features.

illustrated

records

a complete change

at this end they all bear on the label the exact

duration ;

six to a disc) ;-

and absence of surface noise. After several

Several hundred plays of one of these discs is only

just showing signs of breaking down.

New Melodies

From an entertaining point of view the

the melodies available are a complete change

from the lacquered discs which one now

ears every day, and to assist customers to

select appropriate discs the makers have

prepared a useful list which bears a clas-

ified section, dividing the records into

Agitatos, Burlesque, Comedy and Light

Novelties, Galops, Martial, Eccentric, Gro-

tesque, etc.

SPEAKERS for chassis 901, 902, 903, 21/- extra, or stone deposit but add 1(5

improves reception 100,..

Handy tuning facilitating easy

rialists will be interested in a series of

lists FREE.

see centre column for Press-Button models

From an entertaining point of view the

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Agitatos, Burlesque, Comedy and Light

Novelties, Galops, Martial, Eccentric, Gro-

tesque, etc.
Average Household. The very large screens is undoubtedly the most popular in the ordinary-sized room, while the 12in. diameter tube gives a 10in. by 8in. picture for the average householder. The very large screens in home sets where a projection C.R. tube is employed need quite big rooms, and a long viewing distance, to do real justice to the reproduced image. Another very interesting point raised by the same investigator is the effect that since television, in his opinion, can be considered as the optical counterpart of audio broadcasting, it calls for very high acoustical reproduction to be acceptable. The reason advanced for this is the conclusion that the success of sound motion pictures, and the justification for their existence as an entity, depend upon the quality of silent motion pictures considered by themselves. It is, of course, known that with the present B.B.C. television service the sound signals are far superior in quality to ordinary radio, because a wider sideband is permissible on the ultra-short waves.

A Limitation

It is generally conceded that one of the limitations existing insofar as television engineering is concerned, and one which is emphasized in large output work, is an inherent difficulty at the transmitting end. At the moment no two television cameras are identical in all their electrical characteristics; a point brought home forcibly when three or four cameras are in use for a single production, and fading from one to the other is essential to give full programme entertainment. Lighting suitable for one is unsatisfactory for another camera, and rapid light changes are difficult to achieve, and cause very unpleasant shading effects if they are introduced. Evidence of this is forthcoming whenever a feature film is shown, and the alterations in light level brought about by changes in light density destroy for a time the tonal value of the received picture. Better cameras in conjunction with improved methods for tracking, and less focus adjustment, have helped matters considerably of late, but as programmes become more and more ambitious film studio technique will have to be studied very carefully. This again is yet another reason why the basic problems of film and television requirements should merit a closer co-operation. Any segregation of the old and new arts will only add to confusion, and it is encouraging to find that in some quarters a better understanding is prevailing, a factor which cannot fail to benefit the one who, after all, must have the final say in the matter—that is, the set user, whether domestic or otherwise.
Mr. M. M. Stockley has resigned his position as London sales manager of British Belmont Radio, Ltd.

Mr. L. Glazer, after three years' association with Philco, has left to join Arvin Electric, Ltd., as sales manager for Arvin Autovox car radio receivers.

Sir Allan Powell, the newly appointed chairman of the B.B.C., will take over his new duties on April 30th. Sir Alfred, who is at present the Mayor of Kensington, succeeds Mr. R. C. Norman at the B.B.C.

A Man of Vision

No one can fail to be aware of the impact of Gerald Cook's television on the world of radio, and his position as B.B.C. director of the service has enabled him to make some very interesting contributions to the various opinions which exist as to the best method of expanding the service. Bearing in mind the details given in various notes in these pages it is useful to know that Mr. Cook envisages a five-year plan for the expansion of television to cover the whole country. He favours the erection of relay stations which will be able to transmit the programmes provided from a central source of production, for in this way it is claimed that wasteful and expensive duplication of plant, staff and material will be avoided. The length of weekly programme desired by viewers in general is also a matter underlying investigation at the moment. At present it averages between 1,500 and 2,000 per week. Although it is realised that television viewing demands concentration on the part of the viewer, it is claimed that a five-hour per week is possible to select a number of outstanding items which give remarkable entertainment value, but with a public who have been accustomed to forms of amusement both radio and otherwise which give many alternatives, it seems certain that an extension of hours of operation if more and more people are to acquire sets for home use. The problems associated with these are not easy, because of radio receivers, but no doubt in those authorities will eventually find means for satisfying the wishes of the public.

Signal Attenuation

Although as a general rule the aim of television engineers is to secure the maximum signal strength available at any given area, there are many occasions which arise in practice that call for a television signal attenuated in magnitude. When close to the transmitting station the direct signal pick-up with a normal aerial may be sufficient to overload the cathode-ray tube with normal receiver control knob settings, with the result that the gain control has to be turned back to a setting where the vision is not functioning efficiently and distortion can occur. By introducing a simple combination of resistances between the feeders the signal strength will be reduced to any desired value simply by using the correct resistance values in the attenuator pad, as it is generally referred to by most engineers. It is essential that uniformity in impedance is maintained at the input and output terminals of this resistance junction, otherwise phase changes can occur which will mar what would otherwise be a good picture. This problem of reducing the amount of available signal at a given amount is met with in other television equipment, and it was therefore interesting to find that a scheme has been proposed whereby attenuation can be carried out electronically. The signals to be attenuated are applied to a grid mesh electrode of a special type of electron multiplier in such a way that they control a stream of electrons provided by a light-activated cathode. The emerging stream is magnetically directed towards the other end of the electrode where the potentials applied to them are controlled in such a manner that the predetermined fraction of signal is derived from a perforated grid.

Signal Attenuation

One way to do this is to use the characteristic of the grid electrodes, which are each controlled in such a manner that the potentials applied to them are controlled in such a manner that the predetermined fraction of signal is derived from a perforated grid. The potential between the grid electrodes would be varied in such a manner as to maintain the constant effective number of grid electrons of the sheet, which enters the first amplifier stage. The output signal is derived at the output stage of the second amplifier.

This is a modification of the idea of using a solid detector, which is electrically connected to a grid electrode of a special electron multiplier. The grid electrode is controlled in such a manner that the potentials applied to them are controlled in such a manner that the predetermined fraction of signal is derived from a perforated grid.
Items of Interest

Arthur Askey to Make Films

SO the man who kept the British Public at home on Wednesday nights is to go on the films. Arthur Askey is not the first radio favourite to be lost to listeners, and he won't be the last.

According to the well-known film critic, C. A. Lejeune, writing in this month's Screen Pictorial, "Big-hearted Arthur" is to make films for the next five years for Croxley Corporation.

Crosley Corporation Applies for Television Construction Permit

THE CROSLEY CORPORATION, operators of Station WVL (Cincinnati), recently filed an application with the Federal Communications Commission for permission to construct a television transmitter in Cincinnati. The application filed is for a construction permit only. This entails building two transmitters, one for video or visual broadcasting, and the other for radio or sound broadcasting in connection with the video transmitter.

In the event of the application being granted, the Corporation has six months in which to construct the television station.

The station, according to the plan, will be of 1,000 watts power, and will operate on a frequency band between 50 and 50 megacycles. A leeway of this magnitude is necessary for television, engineers pointed out, adding that the one station would require a band six times wider than the present standard broadcasting band of from 550 to 1,500 kilocycles.

Deputy Television Announcers

We are informed by the B.B.C. that Miss Olga Edwardes, and Miss Eileen Bennett, have been booked as deputy television announcers during the absence of Miss Jasmine Bligh and Miss Elizabeth Cowell. Miss Edwardes, deputising for Miss Cowell, has been booked for dates between March 30th and April 17th.

Miss Bennett, who will be deputising for Miss Bligh, will be on duty at intervals from March 24th till April 4th.

Miss Edwardes, who is twenty-two years of age, is a Brunette, and is already well known toviewers as an actress, her most recent appearances being in "Condemned to be Shot," by Reginald Brooke, and "The Young Idea." Beginning as a ballet dancer trained by Anton Dolin and Brigitta, she has taken both stage and film parts, her last engagement being in the film version of "The Dominant Sex." She prefers stage acting to films.

Miss Bennett, who is nineteen years of age, is a Brunette, and is already well known to viewser as an actress, her most recent appearances being in "Condemned to be Shot," by Reginald Brooke, and "The Young Idea." Beginning as a ballet dancer trained by Anton Dolin and Brigitta, she has taken both stage and film parts, her last engagement being in the film version of "The Dominant Sex." She prefers stage acting to films.

Arthur Askey in one of his character poses.

Arthur Askey in one of his character poses.

Gainborough. Three film companies offered him contracts. "The first was good," he says. "The second, better, and the third, magnificent."

"The Prisoner of Zenda"

WHEN he invented the imaginary country of Rutlandia, Anthony Hope, even in his most sanguine moments, can have had little idea of the world-wide success that his romance would enjoy. "The Prisoner of Zenda" has been translated into practically every language in the world, in addition it has come before the public as an operetta, a play, a silent film and a talkie, and has been the model on which countless works of the cloak and sword type have been based.

The book has been adapted by Jack Ingiss as a serial play for broadcasting and nine instalments will be heard on consecutive Sundays, the first broadcast being on April 2nd, in the National programme. The two chief roles, Rudolf Rassendyll and Colin Sapt, will be played by Robert Douglas and Milton Rosner respectively, and the production will be in the hands of Leslie Stokes.

Just before his sudden death recently, Robert Chignell was engaged in writing special music for this serial. He had finished a melody for the Rutlandian National Anthem, and this will be orchestrated and variations of it prepared by Leslie Woodgate. The music will be recorded by the B.B.C. Symphony Orchestra, Section C.

Practical and Leatherwork

And Other Allied Crafts

By Fred Jace

This handbook not only deals exhaustively with leatherworking, but other crafts such as Applique, Gesso, Raffia, Batik, stencilling and rugmaking. It contains 96 pages and 179 photographs and diagrams.

From all Booksellers, Is., or by post 1s. 2d., from the publishers, George E. Pott, Ltd., (Book Dept.), Tower House, Southampton Street, Strand, W.C.2.
A Simple U.S.W. Adapter

Sir,—Regarding the letters of W. W. Llewellyn and T. A. Lane in the issues of February 18th and March 11th respectively, I also should like to see a U.S.W. adapter described which could be plugged into the P.T. terminals to receive the television sound, especially for mains operation. — Geo. S. Collie (West Looe, Cornwall).

Sir,—I follow with interest the letters from readers which appear in your journal, and I would like to say how much to the favour of T. A. Lane’s request for an ultra-short-wave adapter to receive television sound.

Most of the letters seem to come from short-wave enthusiasts who proudly display their various logs, but I am interested in amplifying equipment. I am also interested in your “class B” amplification. I would like to correspond with another reader interested in these subjects, preferably in the Birmingham district. — Parker (40, Shakespeare Street, Stratford-on-Avon).

Sets Using Old Components

Sir,—I think the idea of describing sets to make use of old components a splendid one. We like the actual building of sets, and having many components on hand wish to use these if it can be done without spoiling the set design.

Can you give us such a one using a band-pass arrangement? Selectivity is very bad in U.S.W. districts on the medium band; in fact, sometimes it is impossible to hear the West or North. Wishing you increasing success. — H. Edgar Parker (Southampton).

Station XGOY, Chungching, China

Sir,—It may be of interest to other readers—“Leaves from a Short-wave Log” to know that on Monday, the 27th ult., I logged the station XGOY, Chungching, China. The announcer informed listeners at 22.00 hours G.M.T. that the station was inaugurated on Sunday the 26th ult., and was working on a carrier-frequency of 9.5 mc/s (31.6 m.). He then gave news of the week of this, the present capital of China, and also said that there would be English news next week at the same time. The transmission was received on a 5v. commercial set, and the signals were Q5A5 R9+.

I have been an enthusiastic reader of your paper for some time, and wish it every success in the future. — Eric H. Williams (Wallasey).

“Audible” Radiations

Sir,—I was very interested in the remarks by B. H. of Nunetown, about radio reception from an amplifier. I have had the same experience, and found that any attempt to apply coil and/or condenser to the grid for tuning purposes simply lost the signal which came out of the amplifier. Is it possible that A. and E. in the usual connection but no tuning capacity or indication whatever. One reader suggests a peak-up as an indication, but I possess no peak-up, so the reason is to be found elsewhere. One person said the local relay was to blame. I wonder! I agree with P. A. E. Ford who says that the output L.F. of a radio set must be half-wave H.F., and this is what the relays are putting out on their wires. — A. W. (Bridlington).

Correspondent Wanted

Sir,—I have been a regular reader of PRACTICAL AND AMATEUR WIRELESS for the past three years, and would like to correspond with any reader living abroad and interested in short-wave reception and transmission. — D. Shapley (46, Bath Street, Southport).

A 5-valve Battery S.W. Receiver

Sir,—In your issue of January 21st, 1939 you invite the opinion of readers on the suggestions of Mr. C. Heyne for a 5-valve battery S.W. receiver. I am in entire agreement as to his suggestion for a PRACTICAL AND AMATEUR WIRELESS powerful S.W. receiver, but why superhet, unless required for some particular frequency? After listening to the “cavernous” (let us call it) reception on the higher frequencies from the latest expensive “all-wave superhet” commercial receivers, it is a relief to the ear to get back to a hefty S.W. “straight” circuit even though it is composed (with the exception of modern valves) entirely of — C. F. Armstrong (Kenya, S. Africa).

Station W3AEP, W1HRC, W4DHQ, W2KFA.

Sir,—Mr. Heyne’s letter published recently in PRACTICAL AND AMATEUR WIRELESS and your request for opinion on the suggestion offered, encourage me to again ask that consideration be given to publishing a circuit of 6 to 7 valves for operation from a 6-volt battery. I think, however, an all-wave receiver (9 to 2000 metres) for broadcast reception would more meet the needs of the majority and would be particularly welcomed in this area.

We are well over 3000 miles from the B.B.C. and the more important European stations. — STACEY (Kingbridge, Devon).

Wind-driven Charging Plant

Sir,—May I complete the triangle with our friends in Kildare—and in Orkney—in asking you to publish an article on wind-driven charging plants. In many out-of-the-way places they could be a great boon. From another point of view, in these troublous times, it is almost a matter of national importance to discontinue the dislocation of power plant, broken cables, etc., in an emergency, and perhaps the diversion of power to other purposes would make home-made current invaluable. And dry batteries might not be so easy to get; but with a few accumulators and wet H.T.—and wind cheap—the problem would be solved. As the B.B.C. will communicate, nationally speaking, through the B.B.C. network, in an emergency, I think the more we are independent of the B.B.C. System, the better it would be to a loss to maintain communications. — W. H. Stackey (Kingbridge, Devon).

Logged on 20 Metres

Sir,—Listening on the 20 m. band on Tuesday, February 28th, between 6.00 p.m. and 8.45 p.m., I heard the following stations:—

KBY, ZSIT, SU1GP, SU1DM, HASS, KSA8Y, HAIP, SU1DF, K1AYF, CT1PM, W2KFA, W1HRC, W2KPA.

I picked up these stations on a seven-valve superhet with a 25ft. outdoor vertical aerial. — Vincent Richardson (Andover).

CUT THIS OUT EACH WEEK.

The Editor will be pleased to consider articles of a practical nature suitable for publication in PRACTICAL AND AMATEUR WIRELESS. Such articles should be written on one side of the paper only, and should contain the name and address of the sender. Whilst the Editor does not hold himself responsible for manuscripts, every effort will be made to return them if a stamped and addressed envelope is enclosed. All correspondence intended for the Editor should be addressed:—The Editor, PRACTICAL AND AMATEUR WIRELESS, Ltd., Tower House, Southampton Street, Strand, W.C.2. Due to the rapid progress in the design of wireless apparatus and to our efforts to answer readers’ queries with the latest developments, we give no warranty that any correspondence sent may receive a reply.

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Club Reports should not exceed 200 words in length and should be received First Post each Monday morning for publication in the following week's issue.

THE CROYDON RADIO SOCIETY
Headquarters: The Royal, Ledbury Road, S. Croydon.
Meetings: Mondays at 8 p.m.
Hon. Pub. Sec.: Mr. E. L. Cumbers, 14, Campbell Road, S. Croydon.
Members of the above society met on Tuesday, March 7th, to hear Mr. H. S. Croydon, on Thursday, March 9th, to hear Mr. G. P. Clarke, the chairman, demonstrate his new television equipment and displayed for inspection a 35-inch amplifier, and results will be based upon the last individual DX station received (with verification). Over 50 amateurs and friends were present. At the present time, there will be more use or less an endearment for careful listening to this and antenna. Results will not be known until June 4th, when it is hoped a detailed report can be made.

Information regarding lectures and demonstrations from manufacturers of amateur gear etc., will be appreciated.

Further particulars of the club can be obtained from the hon. sec., at the address given above.

ROXFORD AND DISTRICT AMATEUR RADIO SOCIETY
Hon. Sec.: R. C. E. Bebout (G3ET), 58, Geneva Gardens, Chadwell Heath, Essex.

At our meeting held on February 25th and 28th, the members were given a talk on Cathode-ray Tubes and the Encephalograph, and a very interesting time was had by members in constructing a Cathode-ray Oscilloscope. The next meeting, Tuesday, March 29th, is the Annual General Meeting. The vice-president, Mr. G. F. Bell, will preside, and the evening will conclude with a selection of ten-minute talks from members.

THE ILFORD AND DISTRICT RADIO SOCIETY
Hon. Sec.: C. E. Largus, 44, Trewhay Road, Hainault, Essex.

Recent activities of this society have included a demonstration by Messrs. Tungsram Electric Lamp Works, Ltd., on Electrolytic Condensers, on behalf of that firm. An interesting time was had by members in constructing a high-quality unit for the upper ones. The headquarters of this society is at the address given above.

The MEDWAY AMATEUR TRANSMITTERING SOCIETY
Headquarters: Head, Millwall, Rochester, Kent.
Meetings: Every Tuesday at 8.15 p.m.
Hon. Assistant Sec.: R. Nicholson, 8, Pine Road, Chatham.

At a meeting held on February 14th, Mr. J. E. Bentham, 40, Maidstone Road, was the guest speaker on "The Last Word in Amateur Television," and gave a very interesting talk on television equipment and displays for informal evening work. The next meeting, April 13th, will be devoted to Morse code practice and informal evening work, and will be attended by members in uniform, who have passed the G.P.O. test.

The ASHTON-UNDER-LYNE AND DISTRICT AMATEUR RADIO SOCIETY
Hon. Sec.: Miss J. Buxton, 9, East Beecham Street.
Meetings: Held on the above address.

A meeting was held on March 9th, the date of the contest, for members of this society on field days, and a very interesting time was had by members in constructing their own key, and have access to the garage also was visited, where patrol cars were inspected in detail with the aid of maps. The headquarters of this society is at the address given above.

The PENZANCE AMATEUR RADIO SOCIETY
Headquarters: St. Erth, Penzance, Cornwall.
Meetings: On the above address.

A meeting was held on February 25th, at which Mr. H. Maynard, 100, Invicta Road, Sheerness, Kent, was the guest speaker on "The Last Word in Amateur Television." The headquarters of this society is at the address given above.

The BRADFORD SHORT-WAVE CLUB
Hon. Sec. and Treasurer: A. Forster, 28, New Road, Bradford, Yorks.
Meetings: Held on the above address.

A meeting was held on March 9th, the date of the contest, for members of this society on field days, and a very interesting time was had by members in constructing their own key, and have access to the garage also was visited, where patrol cars were inspected in detail with the aid of maps. The headquarters of this society is at the address given above.

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Impressions

on the Wax

A REVIEW OF THE LATEST GRAMOPHONE RECORDS

THERE are some very attractive light orchestral records in this month's releases. The London Palladium orchestra, under Clifford Greenwood, plays a selection of Sous Marches and " March of the Bowman " from the conductor's " Robin Hood " suite. H.M.V. C 309

Barnabus von Geagy, one of the most famous of Continental light orchestra leaders, takes the " Lambeth Walk " and " The Donkey Serenade " and makes a fine job of them on H.M.V. B 8871.

Louis Levy's Orchestra gives a melodious selection of the best tunes in the latest Macdonald-Eddy film, " Sweethearts. " on H.M.V. BD 688. His trick of giving some of the violin a sort of roving combination above the " top line " is quite fascinating. Anton and the Paramount Orchestra, with Al Bollington at the organ, give charming arrangements of Elgar's morceau Saint d'Amour and Ordla's " Serenade." H.M.V. BD 660.

Apart from the music they play, Alan Blumlein's Accordion Orchestra has other points of novelty. Its 120 members are all employees of Hohner's Concessionaires, who make the instruments on which they play, and the orchestra is in size from the midget to the mammoth. They play a piece specially written for them by G. S. Mathis, who conducts-a Homonoomoom, " Singing " H.M.V. BD 664.

Vocal

It is surprising that Meliza Korjus, who is such ideal material for the films, has not, been seen in an " starred " musical. Her first film, " The Great Waltz," is a vehicle for the tunes of Johann Strauss in his most elaborate arrangements.

Meliza Korjus gives some charming examples of vocal acrobatics, and, as the musicians say, coloratura singing, and these recordings were made direct from the sound track of the actual film. They include "Tales from the Vienna Woods" " H.M.V. B 8862. "One Day When We Were Young," and " There Will Come a Tune " H.M.V. B 8863.

Cicely Courtneidge and Jack Hulbert sing the duet, "Together Again from their sensational new show, " Under Your Hat." The other side of the record carries " If You Want to Dance," by Jack Hulbert and the Rhythm Brothers, on H.M.V. B 8864.

For years Peter Dawson has been regarded as the ideal exponent of the hearty and forthright ballad. Of late he has shown his more serious yet equally attractive side, and these two fine examples of the English art song have figured with great success in his recent programmes. They are Alan Blumlein's " Serenade, " and " Raun of Exile, " by Bax, on H.M.V. B 8866.

Arthur Askey, radio's No. 1 comedian, is delightful in two of his latest adaptations " The Cuckoo " and " All to Specification." -H.M.V. BD 656.

Swing Music

PROMINENT among the new records of swing music is the first H.M.V. record by Arrie Shaw and his Orchestra. In the space of only one year, Shaw has risen out of nowhere to take his place as America's most popular swing band. As a class performer he's at home in the classics as he is in jazz. He is also an arranger and composer for his own orchestra.

On one side of H.M.V. B 8860 you will hear his own arrangement of the famous " Indian Love Call " from " Rose Marie," Shaw agrees that the tune is lovely-too lovely to submit to a contempory analysmus of fun so that he deliberately plays the original modern jazz. The instrumentation is nearly half the record, the men in the band sing " Cheep Cheep " for no reali at all behind the vocal ; but Shaw has produced a classic of jazz phrasing. On the reverse of this record is his theme song, " Cheeky Chappie, " which he composed himself.

One of the most popular of recent record issues was an actual recording of Max Miller's complete turn as it was snapped at the Holborn Emporium.

It was so successful, in fact, that in response to the amazing public enthusiasm, H.M.V. have had to go back to the Holborn Emporium to make yet another set of records by the " Cheeky Chappie. " Apart from his signature tune at the beginning and end, this " hit."

Remember you Smiling " and " Grandma Speak, Music " and " You're Lovely, Madame." The last tune looks like being a success.

COIL WINDERS. Hand driven, levicentric, 60/min. Bob Crosby and his "-jazzy " band, with Bill Miller's new song " The Palais Stroll, " has " caught on," and " You're Lovely, Madame." Bob has made the instruments on which they play, and the orchestra is in size from the midget to the mammoth. Meliza Korjus, who is such ideal material for the films, has been seized upon and " starred " before. Decca's " Cheep Cheep " for no reason at all behind the record, the men in the band sing " Cheep Cheep " for no reali at all behind the vocal ; but Shaw has produced a classic of jazz phrasing. On the reverse of this record is his theme song, " Cheeky Chappie, " which he composed himself.

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LATEST PATENT NEWS

Group Abridgments can be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, either sheet by sheet as issued on payment of a subscription of 2s. per Group Volume or in bound volumes, price 2s. each.

CATHODE-RAY TUBES.—Baird Television, Ltd., Szegho, C., and Tomas, G. A. R.—Television, Apr. 23. In a cathode-ray tube of the kind having a luminescent screen, the sheet is arranged so that light from the side which is scanned by the cathode-ray may be projected through a substantially plane part of the envelope without interception by any electrode. As shown, the luminescent screen which may be transparent or translucent is formed on the plane back wall of the tube which may be provided with a reflecting back ing 4 (Fig. 1) of silver, etc. The image passes through the front 5 of the tube which is plane and may be parallel to the screen. The cathode-ray, which is displaced to the side of the tube, can be viewed horizontally and, when the sheet is vertical, deflects the optical axis through a right-angle. According to a modification, the sheet has two vertical positions—when the sheet is vertical, deflects the optical axis through an intermediate position, the sheet has two vertical positions, then two alternatively operative mirrors deflect the optical axis through a right-angle.

Fig. 2.

TELEVISION.—General Electric Co., Ltd., and Jesty, L. C.—Television, No. 496,964. An optical system shown, the luminescent picture is reproduced from the screen that the image is formed on the sheet in every position of the sheet in which it can be viewed. According to a modification, the intermediate image is illuminated after the optical axis of an image of the reproduced picture on the sheet 2, and a cylindrical image of the intermediate image is formed on the screen with definition at right-angles to the direction of the scanning lines. An intermediate image of an illuminated aperture is formed in the cell, and a cylindrical image of the intermediate image is formed on the screen with definition at right-angles to the direction of movement of the supersonic wave.

New Patents

These particulars of New Patents of interest to readers have been selected from the Official Journal of Patents and are published by permission of the Controller of H.M. Stationery Office. Further particulars of New Patents can be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, price 1s. weekly or 2s. 6d. bi-monthly.


5974.—Short.—Short-wave receiving sets, Feb. 23.

6067.—Fokker, A. R.—Method, etc., for the remote control of wireless receivers, Feb. 23.


6701.—Gow Co., Ltd., and Jones, F. R.—Tuning devices for wireless receivers, March 1.


6123.—Kallmann, H. E.—Television transmitter, etc., systems, Feb. 24.

6240.—Monge, G. de.—Elimination, etc., in receiving masts in the reception of radio transmission, Feb. 24.

6049.—Murphy Radio Ltd., and Henry, G.—Television receivers, Feb. 23.

6048.—Philo Radio and Television Corporation.—Remote control for radio receivers, etc., Feb. 27.

Specifications Published.

601,042.—Radio Corporation of America.—Sound-recording.

601,043.—Radio Corporation of America.—Sound-recording.

601,051.—Telefunken Ges. Fur Drahtlose Telegraphie.—Aerial systems for radio-reception.

601,410.—Milne, H. R., and Milnes Radio Co., Ltd.—Thermal generation of electric current.

601,411.—Milnes, H. R., and Milnes Radio Co., Ltd.—Apparatus for thermal generation of electric current.

601,438.—Marconi's Wireless Telegraph Co., Ltd., and Norwood, H. C.—Adjustment mechanisms for tuning condensers in radio receivers and for like purposes.

601,352.—Kolster-Brandes, Ltd., and Smith, K. G.—Padding condensers for superheterodyne radio receivers.

601,370.—Mitchell, F. A.—Tuning devices for radio receivers.


601,373.—Standard Telephones and Cables, Ltd.—Television transmission tubes.

601,279.—Standard Telephones and Cables, Ltd.—Cathode-ray device.

601,251.—Telefunken Ges. Fur Drahtlose Telegraphie.—Direction — finding radio receivers.

601,254.—Marconi's Wireless Telegraph Co., Ltd.—Modulated carrier-wave receivers.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at the uniform price of 1s. each.

TELEVISION FACTS AND FIGURES

With the idea of securing some concrete information concerning the present television service, the Postmaster-General was asked the following question in the House of Commons the other day: What is the present approximate number of licences in force in respect of television receivers; what is the approximate annual revenue therefrom; what has been the average cost of the television service since its introduction, and who has borne the difference between this cost and the revenue? There is no doubt that the main idea behind this question was to ascertain some figure which could be said to represent authoritatively the number of sets sold for viewing purposes, but due to the way it was worded the P.M.G.'s assistant was not quite non-committal on this point. In his reply he stated what all readers of this journal know—namely that the reception of television is at present covered by the ordinary wireless receiving licence and that no special television licence is necessary. It seems certain, however, that later on a further effort will be made to obtain a figure which can represent the number of television sets sold so far by manufacturers, although it is generally accepted that this has now passed the five-figure mark and is rising rapidly. On the question of cost it is interesting to note that the amounts given by the B.B.C. for the annual revenue costs of the television service together with depreciation on capital expenditure were £111,500 in 1936, £277,149 in 1937, and £352,840 in 1938. This rising cost in expenditure was met by the Government returning to the B.B.C. a larger proportion of the licence revenue than had been done in the past. It emphasized that the ordinary listener is not being made to suffer on account of television, but merely that the Government is withholding less of the licence revenue than it has previously, an action which it is unlikely would have occurred but for the incurrence of the television service.

PRACTICAL WIRELESS SERVICE MANUAL

By F. J. CAMM.

From all Booksellers 5/- net, or by post 5/6 direct from the Publishers, George Newnes, Ltd., (Book Dept.), Tower House, Southampton Street, London, W.C.2.
PRACTICAL AND AMATEUR WIRELESS

March 25th, 1939

47

QUERIES and ENQUIRIES

Microphone Transformer

"As a result of the information I have got out of your paper I have now succeeded in obtaining a New Holpatrick. I see that the 2½-watt transformer but am in difficulty with regard to the microphone. Speech is in "the background," and I wonder if the connections to my transformer are correct. This is a Bulgin microphone transformer with five coloured leads and I should like to know the connections for this."—D. S. (Old Holpatrick).

THE secondary of the transformer in question has the leads coloured red and green, the latter being joined to the grid. The green was blue and with the centre-tap yellow. For a standard microphone you need a high step-up and therefore should half of the primary, which will give you approximately 70 to 1 ratio. Therefore, join your microphone and battery in series across the yellow and one blue lead.

Electrolytic Condenser Connection

"I had a little difficulty in my set with an electrolytic condenser breaking down, and I saw by the case that this was the 8 mfd. units in one case. I have bought a new one and connected this up but am doubtful as to the polarity. I have given the polarity which I have seen has told me it is joined backwards. I am sending a sketch of the set and the condenser and should be glad to know whether he is right."—J. E. D. (Old Holpatrick).

N in the circuit you send the two electrolytic condensers are joined on either side of the smoothing choke, with a common positive lead to earth. The component you have obtained, however, has a common positive connection and thus you have joined the two condensers the wrong way round in the circuit. You will note from the marking on the condenser case that it specifies a 4-pin H.F. pentode in the Acme top cap being taken to a pin on the base top cap. It was intended for a superhet circuit and I saw by the ease that this was two stages. The pentode connections to my transformer are correct. Therefore, join your microphone and battery in series across the yellow and one blue lead.

H.F. Pentode Connections

"In an article I read some time ago it stated that the H.F. pentode was obsolete. Do you mean the one to be used was 4-pin in S.W. modification, or was there a 5-pin H.F. pentode with no cap at one time—the top cap being taken to a pin on the base making it a 5-pin base? Mr. Camm specifies a 4-pin H.F. pentode in the Acme

RULES

We wish to draw the reader's attention to the fact that the Queries Service is intended only for the solution of problems or difficulties arising from the construction of receivers described in our pages, or on general wireless matters. We regret that we cannot, for obvious reasons—

1. Supply circuit diagrams complete multi-valve receivers.

2. Suggest suitable modifications of receivers described in our contemporaries.

3. Suggest alterations or modifications to commercial receivers.

4. Answer queries over the telephone.

5. Grant interviews to queries.

A diagram of the set or appliance must be enclosed for the reply. All sketches and diagrams should be clear and the name and address of the sender should be written in the back of the diagram. Diagrams for answering queries must not be enclosed with queries as they are dealt with by a separate department.

Send your queries to the Editor, PRACTICAL AND AMATEUR WIRELESS, George Square, Ltd., Tower House, London, W.C. 2.

The coupon must be enclosed with every query.

Push-pull and Recording

"I recently built your 2½-watt amplifier. Seizing that its output is push-pull and as I wish to do some home recording I should like to know how I connect the pick-up to the same."—V. H. P. (Brighton).

THE method adopted for connecting a multi-valve in push-pull stages is exactly the same as that employed for connecting an extension speaker. A centre-tapped choke must be joined to the output terminals, the centre tapping being joined to H.T. positive. A 2 mfd. fixed condenser should then be connected to the two radio valves. You will need the choke to couple to this condenser, a fixed capacity of 2 mfd. being used with a 2 mfd. fixed condenser. The output filter circuit with the exception that two condensers are used.

Signal Strength for Recording

"I have purchased a home-recording apparatus and I am using as a cutting head an ordinary H.M.V. reproducing pick-up. This makes a perfect spiral, but without the sound waves. Do I need a special recording head?"—E. D. (Ebberston).

Y OU may be in difficulty with the fact that you are not feeding a sufficiently strong signal into the pick-up to obtain a good cut on the record. You should also use a proper cutting needle with a sapphire or diamond point. You can use an ordinary playing needle (steel) which has been provided to play one or two transcriptions first, but the sapphire gives best results.

Crystal Set Results

"I have constructed a crystal set which gets the London Regional very clearly, but how much coil I put in the circuit I cannot get any other stations. Can you assist me in this difficulty?"—F. M. (Rickmansworth).

W E note that you live very close to the London transmitter, and in view of the poor selectivity of your cheap crystal receiver you are probably unable to reduce the spread of the station in order to hear other stations. We therefore suggest that you choose a time when London Regional is not transmitting and then make a careful search on the dial, when you will be able to ascertain whether or not any stations are within range with your particular aerial system.

The coupon on page iii of cover must be attached to every query.

receiver, and therefore it cannot be obsolete, so I should be glad if you could explain this."—W. I. (Hull).

THE H.F. pentode battery valve is available with either a 4-pin or a 7-pin base, or with standard and current. The 7-pin valve has the advantage that the metallising may be separately earthed when desired but in all other respects it is identical. In some cases the suppressor grid may be joined to one of the pins but this is not standardised.

Old-pattern Coil

"I am thinking of making an all-wave amplifier incorporating an all-wave coil which I have. This is of the panel-mounting type and is definitely preferable to the simple alternative type mentioned by you.

of connecting to a receiver for home broadcast method of connecting to a trans-
These Blueprints are drawn full size.

Couples of appropriate forms containing descriptions of the sets in some cases are added, and the prices, which are additional to the cost of the Blueprint, indicates that the order is out of print.


Amateur Wireless — 4d.

Practical Wireless - 1d.

The index letter preceding the description indicates that the set is still in print, and the price in parenthesis indicates that the description appears under the heading "(H.H.P.)" refers to the description appearing under Practical Wireless. F.M. to Practical Wireless. W.M. to Wireless Magazine.

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Wireless, P.M. to Practical Mechanika, W.M. to Wireless Magazine.

MISCELLANEOUS.

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A. W. ARMSTRONG Radio chassis, including Ferrum Hilton models, 6 infra-red models, can be seen in our Showroom at our Showroom in London. Armstrong chassis are sent on approval, carriage paid. All our chassis are produced here in London, and have fully illustrated technical descriptions describing all models. - Armstrong Company Limited, 104 and 106, Putney High Street, London, S.W.12. Retailer: All electricity stations.

SITUATIONS VACANT

TELEVISION.—All those who wish to enter the television field might apply to the Radio Times, 171, Brompton Road, London, S.W.3.

MISCELLANEOUS

METAL chassis, panels and cabinets, from £6, made to your requirements. Prompt quotations and satisfaction guaranteed.—The Universal Productions, Baguley Lane, Bromsgrove, Wors.

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