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DEVOTED TO THE SCIENCE AND ADVANCEMENT OF AMATEUR RADIO

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In this Issue

CURRENT COMMENT

Hot Wallpaper!

A GOOD many of the things which a man does during the course of his everyday life become so much a part of accepted routine that their doing is barely noticed. When the telephone rings the hand is stretched out almost automatically to lift it from its rest. Pulling the starter knob in his private vehicle, or profferring the requisite fare in a public one, are to the citizen needful preludes to the job of travelling from A to B. He performs them practically subconsciously and without asking himself why. These and a whole host of other duties come into the category of what might be called " wallpaper jobs." They are as familiar as the wall-covering of the rooms at home.

Amateur Radio has its own considerable quota of " wallpaper jobs "—the switching on first of the room lighting, then, perhaps, of the receiver, and thence of the various other pieces of equipment that the operator intends to use during an evening " session in the shack." Every one of them is a routine and familiar action.

A large part of an active amateur's life is concerned with constructional work, much of which, again, comes into the routine of the accepted over-familiar. Precisely because of this the danger is always present that that same amateur may end up by being decidedly *in*active and perhaps not even to have a life any longer.

We offer no apology for this play upon words if it is going to make members more ready to take some notice of the very real dangers that can lurk inside even the most innocent-looking pieces of constructional work.

Yes, we are back again on that age-old subject of dangerous voltages in amateur equipment. Regrettably, it is a subject which has itself become a " wallpaper one " through the over-reiteration and over-familiarity that make it become the over-looked. It is more than likely that the amateur who writes " Danger: High Voltage " on the radio room door is the one who will take the worst risks when he gets inside!

High voltages are not the real danger. Lower voltages, treated with less respect, can be equally lethal or at least dangerous to the body tissues.

The British radio industry has adopted rigid standards of safety in its radio and television sets that make them almost as innocuous to use as a household electric lamp. It would be a good plan if British radio amateurs could adopt equally effective ones, and so claim that even a child or a domestic pet may enter the radio room in complete safety.

But this does not meet the two common cases of a breakdown of equipment, with the inevitable temptation to the operator to by-pass any protective devices in order to locate the trouble; and of work being done on an open chassis. These are the " hot wallpaper " of our headline.

Every member owes it first of all to his family that due caution shall be exercised to avoid any form of damage by electric shock; secondly, that a master switch whose location is known to everyone in the house is installed in an easily accessible position; and, thirdly, he owes it to the community that the special talents and skill which he possesses shall not be removed in an unnecessary and unexpected way from its service.—J.H.

The Eighth in November

THE thought was recorded on this page a few months ago that 1954 had the makings of an *annus mirabilis* so far as British Amateur Radio was concerned.

Within the next two weeks the last large-scale occasion of " this wonderful year " will be with us. It is the annual R.S.G.B. Amateur Radio Exhibition, and its advent early each winter is awaited almost as eagerly as National Field Day is in the early summer.

The exhibition is, of course, a much newer institution than Field Day, and it owes its origin to yet another of the bright ideas that flow from the brain of the General Secretary. When the first Amateur Radio Exhibition was held just after the war there were lots of hopes, perhaps a few misgivings, but a general feeling that here was an experiment worth making. The experiment has grown into an annual date in the Amateur Radio calendar. It allows the movement's own requirements and aspirations to be given a rather special " shop window " treatment that the National Radio Exhibition at Earls Court does not really provide, valuable though the latter is as a means of contacting the wider and less informed section of the public.

One of the particular attractions of the November event is the opportunity it gives for the enlargement of the individual amateur's knowledge. The member who went along to the Show and did not speak to a soul would still profit a great deal from simply studying the exhibits, amateur and professional, which every year exemplify the steady march of technical progress. But, of course, no one ever *could* go to " The Royal " and not speak to a soul; for one of the further pleasures of the occasion is conversing with the many kindred spirits who are always to be found there.

Till next week !—J.H.

Last Day for Copy

Items intended for publication in the BULLETIN should reach Headquarters not later than the 22nd of the month preceding publication. Copy arriving after that date is liable to be held over until a later issue.

Propagation on 144 and 420 Mc/s

Some Aspects of Forecasting Conditions

By C. E. NEWTON (G2FKZ)*, G. M. C. STONE (G3FZL)**,
A. J. WORRALL (G3IWA)†, and H. W. PARKER (G2ADZ)††

The authors of this article are well known as successful v.h.f. and u.h.f. operators. Their views on propagation on these frequencies, based on several years' close study of the problems involved, are therefore of considerable practical interest.

READERS will realise that in a single article it is quite impossible to deal fully with propagation problems on 2 m and 70 cm but it is hoped that sufficient interest will be aroused to cause others to delve into this very important subject and perhaps shed new light on obscure points. Unfortunately, all such researches tend to be "post mortem" enquiries to explain why certain things *happened*. Accurately forecasting results is not so easy, as the same characters of air mass are rarely repeated. Furthermore, forecasts are often effective only for a specific area.

For the average amateur, the necessary guides are a barometer to measure the air pressure, a wet and dry bulb thermometer and a knowledge of visible weather signs. A further aid is the synoptic or surface level weather chart shown daily on B.B.C. Television and published in *The Times* and the *Manchester Guardian*. The chart shows the type and extent of the various weather systems.

Even those with access to air ascents (aerological records) that reveal changes in the air with height have to be specialists to interpret possible results. In the opinion of the writers, such forecasting is outside the scope of the average amateur for whom this article has been written. As yet there are, even for the specialists, too few ascents of the required accuracy at the heights required and even these are limited to the narrow air mass track taken by the radio sonde.

It is doubtful if the "radio sonde" technique[1] is sufficiently sensitive to measure the fine structure of many inversions which are at the same time sharp enough to cause anomalous propagation. In addition, it is unfortunate that the Aerological Records are not generally published until about seven days *after* the ascents are made. Rather too late for the radio amateur's purpose!

Anomalous Propagation

On 2 m and 70 cm a common distance over which to observe anomalous propagation is about 150 miles. Let us consider such a path as shown in Fig. 1. The curvature of the Earth really represents a great hill between the two stations. The height of this hill is about 2500ft (the mathematically inclined can work it out more accurately). The signal has to reach or defract over that path. The further the two stations are apart, the bigger the hill is in effect. In comparison, hills beyond 20 miles away and up to 1000ft high are merely bumps! Nearer to the station, however, particularly if less than 10 miles, they do become important as the optical clarity so necessary for a good start is lost and there may be serious attenuation of the signal in surmounting the obstacle (no other factor being considered). The essential requirement of a good location is therefore optical clarity, no matter what the height above sea level. A station that has both height and optical clarity is ideally situated for v.h.f. working and the results achieved are often spectacular.

The problem is to establish how the signal is propagated from the transmitter to receiver. There seems no doubt that it is the meteorological phenomena occurring from the surface to about 10,000ft that are responsible for the extended signal path. Furthermore, it is probable that the first few hundred feet are of prime importance in considering propagation effects [2], [3].

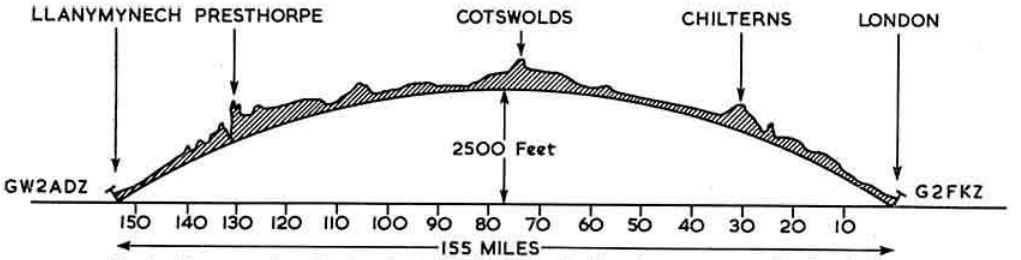

Fig. 1. Llanymynech to London Contour. (The curve is 4/3 radius, e.g., normal refraction).

Figs. 2 and 3 show some of the ways in which a signal may be propagated. Any one of them may be responsible for the signal that is received[4] but it seems probable that, at times, most occur with perhaps one playing a greater part than the others. The commonest forms are those due to partial reflection and to a leaky duct.

The diagrams show that the signal travels in a curved path. For it to be propagated in this manner a certain amount of stratification (layering) of the air mass must have occurred (exception 2a and possibly 2c). When there is stratification there is established:

(a) a humidity lapse rate,
(b) a temperature lapse rate.

Of these it is the humidity lapse rate which is most important —a 1 mb change in vapour pressure per unit height is worth about 9°F inversion of temperature[4].

The humidity lapse rate is of greater importance in long range propagation and therefore the observer should know how the lapse rate is affected. The highest humidity lapse rates generally occur when there is a rapid drop of humidity above a saturated air mass (*i.e.*, a cloud). The vertical depth in which the change occurs determines whether there is a good or indifferent duct[5]. If such an air mass is elevated, then to signals arriving from below it may well act as a reflector[4]. In this respect it is well to remember that where reflection phenomena are concerned it is the longest wavelength that will be reflected best. The reverse is true when there is pure ducting[1].

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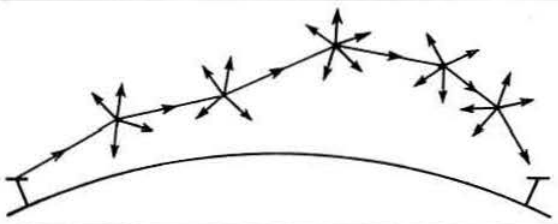
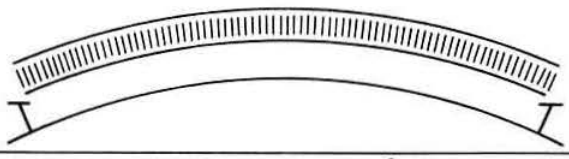
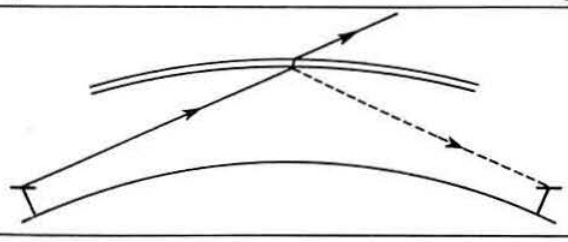
	PHENOMENON	COMPARISON OF 420 Mc/s & 144 Mc/s
	THE NORMAL OPTICAL PATH OF A SIGNAL IN SIGHT. (a)	SAME
	THIS IS A PURE GROUND DUCT. CAN EXIST UNINTERRUPTED OVER THE SEA BUT RARELY FAR INLAND BECAUSE OF THE TERRAIN. (b)	420 Mc/s BETTER THAN 144 Mc/s
	TURBULENCE. THIS BRINGS ABOUT "SCATTERING". TURBULENCE GIVES TINY DISCONTINUITIES (c)	144 Mc/s BETTER THAN 420 Mc/s
	THIS IS A "LEAKY" DUCT. ALL GRADES OCCUR. COMMONEST TYPE OF PHENOMENON. (d)	144 Mc/s BETTER THAN 420 Mc/s IN NORMAL CIRCUMSTANCES.
	THIS IS A PURE ELEVATED DUCT. THE MORE MODES THAT ARE TRAPPED THE BETTER IT IS. (e)	420 Mc/s BETTER THAN 144 Mc/s
	REFLECTION AT A DISCONTINUITY WHEN THE CRITICAL ANGLE OR LESS IS REACHED. IT COULD BE PARTIAL (f)	144 Mc/s BETTER THAN 420 Mc/s

Fig. 2—This series of diagrams illustrates some of the ways in which v.h.f. and u.h.f. signals may be propagated. It will be seen that it is possible for such signals to travel in curved paths, but a certain amount of stratification (layering) must occur (except in the case of (c)). Angles and ascents etc. are not intended to indicate phenomena as they actually occur. No frontal effects are shown.

When a rapid lapse rate in humidity is observed it is often referred to as a discontinuity and can therefore favour propagation if suitably placed.

Atmospheric turbulence may give rise to discontinuities that can propagate signals[6, 7, 8, 9, 10]. This is sometimes called the " blob " theory but at the power levels of most amateur v.h.f. and u.h.f. transmitters it is very problematical just what degree of importance can be attached to this type of propagation. The required amount of turbulence is in itself a very debatable matter. The passage of certain frontal conditions appears to induce mixing and so reduce scatter signals[7]; aerials suitable for scatter reception must be able to " see " over wide azimuth angles. At the best, fading of various types will be present because the signal will be travelling over paths of many different lengths, resulting in phase differences and hence fading[9]. It would appear that high level scatter gives very poor signal levels, the best conditions for relatively high signal strengths from scatter being when the air mass " blobs " can form and remain without mixing taking place; that is, under similar meteorological conditions to that which allow stratification to be produced[7]. In fact, a stratified discontinuity may only be an innumerable number of " blobs " packed tightly together.

The foregoing represents our " post mortem " findings. To *forecast* propagation conditions it must be determined whether stratification has occurred or is occurring and if so to what degree. The following describes what can be done to ascertain the likelihood of stratification occurring.

Favourable Meteorological Situation (Visible Signs)

There are several factors that indicate stratification. Each factor if taken separately is not infallible but together, with experience, it will be found possible to make a good estimate of what may occur[11].

Sky Colour

The colour of the sky overhead should be carefully studied. A pale blue sky indicates stability and therefore possible stratification as there is no violent mixing of the air above. On the other hand, a deep blue sky indicates no stratification and is a clear indication of unsuitable propagation conditions. Between these extremes of blue the type of condition is obviously graded.

Visibility

For the station well away from industrial areas the poorer the visibility due to haze the better the chance of stratification and good conditions. Good visibility is a sign of instability which is contrary to stratification. In an industrial area it is not easy to use visibility as a guide because, on the one hand, it is not easy to find a clear stretch and, on the other, smoke is very deceptive in the sense that it unnaturally reduces visibility. Even under such difficulties an idea of visibility in good conditions can be obtained with past experience of band openings.

Wind

Wind indicates mixing and therefore little or no stratification. No wind is favourable as it allows stratification to develop. A steady wind is to be preferred to a gusty one, as the latter indicates *vertical* mixing which is the condition most contrary to stratification. If a wind rises and increases in strength conditions can be expected to fall off. Conversely, if the wind dies down, better propagation can be expected. Many operators will recall how signal levels tend to increase after sunset when the surface heating that causes surface turbulence is removed.

Cloud

(i) No cloud can be a good sign during daylight because it can indicate well developed stratification. It can also mean a lack of moisture and therefore a poor humidity lapse rate resulting in poor conditions in spite of brilliant sunshine and an optimistic idea of a big anticyclone. At night, a cloudless sky is to be welcomed as this permits radiation of heat from the earth[14]. Stratification can therefore develop due to the strong temperature lapse rate[12].

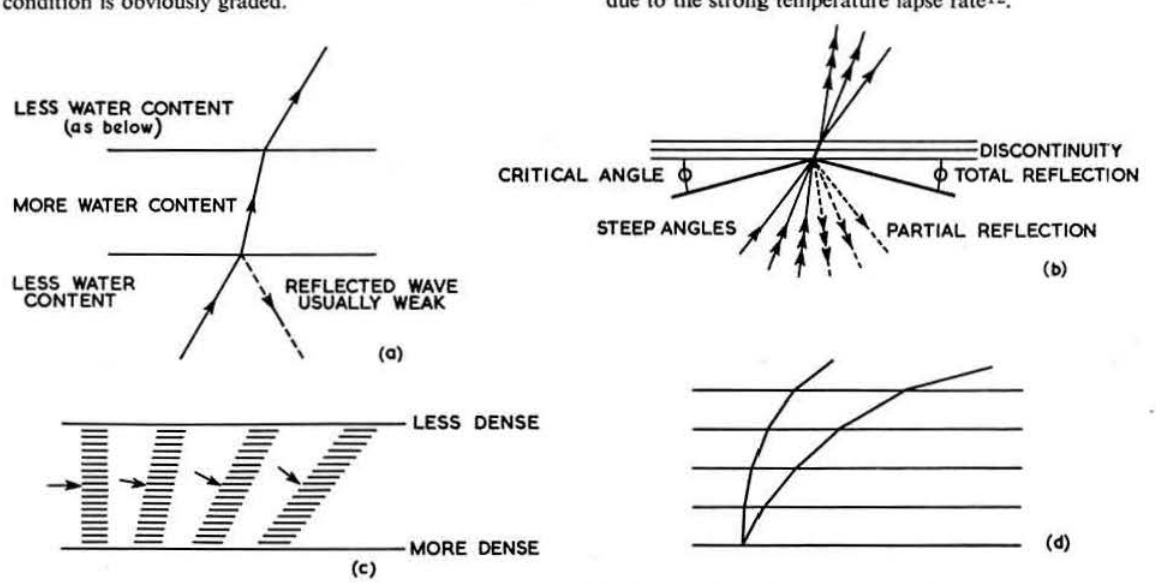


Fig. 3. Diagrams illustrating optical laws. (a) The effect on a signal when it passes through varying humidities, according to ray theory (b) Effect at a discontinuity. (c) How a wave moving horizontally is bent downwards, according to wave theory (ray theory does not show this so clearly). The wave front moves faster in less dense air. (d) Layers of decreasing density from the Earth's surface (density is influenced by water content and temperature lapse rate). Note the refraction (bending). If an infinite number of layers are considered the signal path becomes " curved " (ray theory.)

CLOUD INDICATIONS

In the following cloud photographs, all taken by Mr. I. E. Cole, instability is shown mainly by shearing effects at higher levels (Photo 1) and by considerable vertical development in the lower layers (Photo 3).

Deep blue skies with only unstable high level cloud are usually associated with the break-up of anticyclones or the approach of frontal conditions. Good conditions during winter anticyclones are often characterised by thin low level cloud layers often called anticyclonic gloom (Photo 4). In stable air masses the absence of low level cloud (Photo 2) can indicate either the presence of a very strong temperature inversion resulting in a cloud layer drying out and thus dissolving, or the possibility that a very poor humidity lapse rate exists which will result in disappointing conditions.

Photo 1
Typical instability at high and medium levels.

Photo 3
Considerable instability at low level.

Photo 2
General stability at high and medium levels.

Photo 4
A thin layer showing low level stability.

(ii) Some cloud is a more favourable and reliable sign than no cloud, particularly if it is low (say, 1000ft to 4000ft). The cloud should have a flattened form—long stratified layers with the top failing to develop any higher. The shallower it is the better[21,22]. If it appears to have appreciable depth (only experience here is a guide) then conditions, although indicating stratification, will show a poor lapse rate and conditions will be disappointing.

Examination of the higher clouds provides important evidence as subsidence (drying out and warming) occurs around 10,000ft. This is indicated by a decrease in cloud at medium height[15].

A REFLECTIVE LAYER

The presence of a "powdery cloud" or small "vertical towers" is the most obvious sign of lack of stratification.

The speed of cloud movement can indicate whether the stratification is going to be transitory or lasting (no movement).

It is better that all clouds should move in the same direction. Cloud travelling in different directions indicates a shearing motion in the air which causes turbulence. If a particle of low cloud is watched carefully then an increase in size will indicate lack of stratification. If it decreases in size or even disappears, it may be regarded as a sign of stratification. A watching period of five minutes or less is usual.

Surface Cooling

Cooling improves lapse rates both in humidity and temperature until dew point is reached at which time the water content condenses out. Up to this point stratification improves and a steady rise of signal strength occurs. At temperatures below dew point, conditions fall off as the humidity lapse rate required is reduced or even reversed. When this happens signals follow more vertical paths.

The conditions for cooling are as follows:

(i) *No Cloud.* Cloud acts as a blanket and keeps the earth warm. Low cloud is much more effective in this connection than medium or high cloud. With high cloud cover, radiation from the earth is still appreciable.

(ii) *A light wind.* Strong winds keep the air mixed up so that the lowest levels do not cool.

(iii) *A low vapour pressure.* This requirement is unfortunate as it means that to get adequate cooling little water vapour should be present in the air. Nevertheless it should be remembered.

(iv) *A dry soil.* The rate of cooling varies from one soil to another. If the soil can be chosen it should have a high rate of radiation loss.

Fog

(i) Shallow radiation fogs are undesirable and are the type produced by cooling of the air. In effect, the presence of fog means that there is less water vapour in the fog than there is above it because the vapour being cooled has condensed into water droplets. The humidity lapse rate is therefore reversed and signals travel more vertically. Those with locations above mist and fog level (*i.e.*, on hills) are indeed fortunate compared with those in the vales.

(ii) Fog in depth, due to mixing of two air masses or an unusual air mass moving over the surface, can give very good stratification and outstanding conditions.

Barometer Readings

A high barometer will indicate anticyclone conditions. Anticyclones are suitable for stratification but it must be borne in mind that it is the type of air mass within the anticyclone that is the deciding factor. Good conditions can occur with a low barometer if the stratification conditions are right.

Practical Method of Estimating Conditions

Stations in South London have found the following method most successful in helping to determine when good conditions are likely to occur. It is not known if the method applies to any other locality but it seems to offer excellent opportunities for experiment.

Vapour pressure must be measured at approximately the same solar time each day. From experience, one hour after sunset appears to be the best time. It is important to make the measurements as high up and as in the open as possible. To measure the v.p. (vapour pressure) wet and dry bulb thermometers and a book of hygrometric tables[16] are required. A flow of air must be maintained over the thermometers when readings are made. A fan can be used to ensure sufficient flow rates. The matter is dealt with fully in the book of tables[16, 0].

OPTICAL CLARITY IS ESSENTIAL

The daily readings obtained will often tell much about the type of air which is present. If they are plotted on a graph it will be found that as a general rule lower v.p. readings indicate more stable air and higher v.p. readings unstable cloudy weather. If such records are kept for a year, it will be noticed that the average readings will be higher during the summer and lower during the winter and that various air masses are characterised by certain v.p. readings.

During the summer months an Azores anticyclone air mass can easily give 20 mb vapour pressure which is a high reading. In the winter, a typical anticyclone (not Azores in origin) can be very dry with the v.p. down to 4 mb. The origin of the various air masses can be studied in reference 19.

When it is noticed that conditions appear to be favourable for stratification the v.p. readings will tend to fall on the daily graph. It will then be seen that a rather large fall suddenly takes place in comparison with the previous day's reading (about 25 per cent fall). In the case of the Azores anticyclone mentioned earlier it would be about 5 to 6 mb whereas with the winter anticyclone it would be about 1 mb.


NOW CONSIDER YOUR PATH TO A STATION 50 MILES AWAY

If at the same time each day the barometric pressure is recorded on the same graph it will be found that as the v.p. steadily falls the b.p. (barometric pressure) rises. This is the normal expected occurrence. What follows is the indication of the kind of opening that may be expected.

For clarity, the facts can be arranged in tabular form:

Barometer	Vapour Pressure	Conditions
Steady rise	Steady fall	Improving. Heavy fading.
Steady	Fall continues	Better than above. DX uncertain.
Small rise or fall	Sudden drop (25%)	DX.
Slow fall, continuing	Falling	Super DX. This is a rare condition.
Continual fall	Rises	Back to normal. Disappointing.

Several continental openings have been *forecast* by an average amateur active on 144 and 420 Mc/s and shown to be correct. It should be remembered, however, that this method may not be so successful in another location. It requires testing *all over* the country by careful workers. Others have tried various near-to-the-surface measurements in an attempt to correlate these with anomalous propagation[3], but it should be remembered that the upper air vertical lapse rates cannot be measured at the surface.

The accuracy of any forecast will be improved if the observer has a basic knowledge of meteorology. Several elementary but very useful books have been published on the subject and it is recommended that these be carefully studied. To give a reliable indication of the type of air mass present the observer should possess a good barometer and a wet and dry bulb thermometer.

STABILITY AND INSTABILITY

For those really interested in the subject and who hope to improve the accuracy of their forecasts, many good books on the mechanics of propagation have been published, although at the moment the findings of many workers appear to be contradictory. A list of recommended books appears in the references to this article. All may be found in the Patent Office Library, 25 Southampton Row (off Chancery Lane), London. which is open from 10 a.m. to 9 p.m. on weekdays (Saturdays, 10 a.m. to 5 p.m.).

Some other thoughts

An air mass circulating in a depression or an anticyclone is far from being homogenous. There is a change from the centre of such a system outwards. Again, at any equal distance from the centre the air in circulation will vary enormously.

Considerable interaction is always taking place between air masses of different origin; of cold and hot, moist and dry effects, of various dips and rises round the location where the air may stagnate or be continually on the move; of mountains and their influence on motion in the air.

It is no longer possible to give discontinuities a broad general characteristic covering all the country for they will be affected by the above circumstances. It therefore becomes apparent why anomalies occur; why one station works an OZ at S9 while another 50 miles away (nearer or farther) cannot hear the OZ and suspects his equipment. Quite often days occur when either stations in the south or north hear the others working DX which they cannot hear.

As a final comment, an article by Henry Piraux (8PY) in the *T. & R. Bulletin* for December, 1927, discussed reflections from mountains on 2.7 metres. Anomalous propagation is certainly not new.

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15" The estimation of vertical motion in the atmosphere," R. C. Graham, *Royal Meteorological Society Journal*, 1947, Vol. 73, page 407.

Discussion: " An investigation of subsidence in the free atmosphere," *Royal Meteorological Society Journal*, 1948, Vol. 74, page 110.

16*Hygrometric Tables*, *M.O.* 260, H.M.S.O.

17" Temperature and Humidity gradients in the lowest 100 metres of the atmosphere over S.E. England," Best, Knighting, Pedlow and Stormouth, *Geophysical Memoirs* 89, H.M.S.O.

18" Some aspects of microwave fading on an optical path over sea," *Proc. I.E.E.*, 1952, Vol. 99, page 236.

19" Characteristics of Air Masses over the British Isles," J. E. Belasco, *Geophysical Memoirs* 87, H.M.S.O.

20" Measurements of Humidity," National Physical Laboratory, H.M.S.O. 48–120–4.

21*Cloud Forms*, *M.O.* 233, H.M.S.O.

22*Cloud Reading for Pilots*, A. C. Douglas, John Murray.

A Modern Q5'er

Employing British Components

By LOUIS VARNEY, A.M.I.E.E. (G5RV)*

The only practical solution to the problem of the ever-growing interference on the high frequency amateur communications bands is sharper selectivity. In this article the author describes a simple additional i.f. unit for use with receivers whose i.f. amplifiers are too broad to cope with present-day conditions.

MOST really up-to-date communications receivers employ the principle of "double conversion" in order to achieve a degree of i.f. selectivity otherwise unobtainable except by the use of expensive and elaborate lattice-type crystal filters.

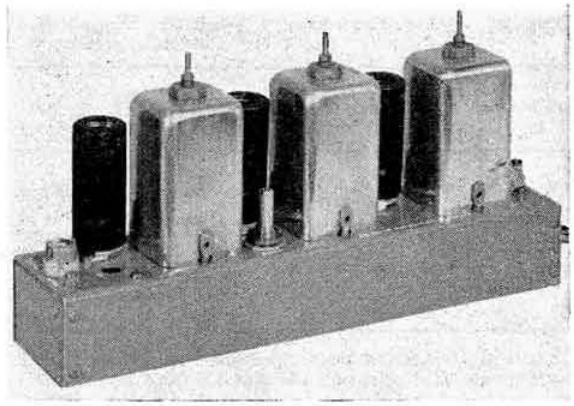
Double conversion means that the incoming signal is converted twice to successively lower frequencies. In order that the greatest advantage may be obtained, the second i.f. is made as low as practicable. Assuming the normal i.f. of a receiver to be between 450 and 470 kc/s, a second i.f. of between 50 and 110 kc/s is usually employed. At this lower intermediate frequency a high order of selectivity may be obtained.

By using a simple unit consisting of a mixer valve followed by two 85 kc/s i.f. stages, most existing communications receivers may be made capable of a performance equalling the most highly priced modern double superhets.

Until recently the 85 kc/s i.f. transformers required for the construction of such a unit were only obtainable in the U.K. in the form of components used in the BC453 type American receivers available on the surplus market. In fact, several excellent articles describing the use of that set as a second i.f. strip have been published. However, the set has now become difficult to obtain and relatively expensive and it is thought, therefore, that a description of a "Q5'er" made with British components, easily obtainable and inexpensive, will be of interest to all progressive amateurs.

Denco (Clacton), Ltd., have, at the writer's request, designed and placed on the market the necessary i.f. transformers and mixer oscillator coil. A very effective, easily built and compact unit using these components is described in the present article. It is intended to be incorporated within the existing receiver or used externally alongside it. The power requirements are so small that both l.t. and h.t. may be obtained from the power pack in the associated main receiver.

* *184 Galleywood Road, Chelmsford, Essex.*



General view of the Q5'er. The preset gain control may be seen between the first and second i.f. transformers. The ¾in. diameter hole near the mixer valve is for adjustment of the dust iron slug in the oscillator coil.

The Circuit

The circuit, shown in Fig. 1, consists of a mixer (6BE6) and two i.f. stages (6AM6 or EF91). The inclusion of a crystal diode detector enables the unit to feed either a pair of headphones or the grid circuit (top of the audio gain control) of the first a.f. stage in the existing receiver. It will be noted that the i.f. output of the unit is *not* fed back (as it could be if desired) into the second detector of the receiver. This avoids upsetting the original alignment and loading of the last i.f. transformer in the receiver and allows the original a.g.c. circuit to function normally.

The input to the unit is taken off the anode end of the primary of the receiver's last i.f. transformer *via* a 10 $\mu\mu$F

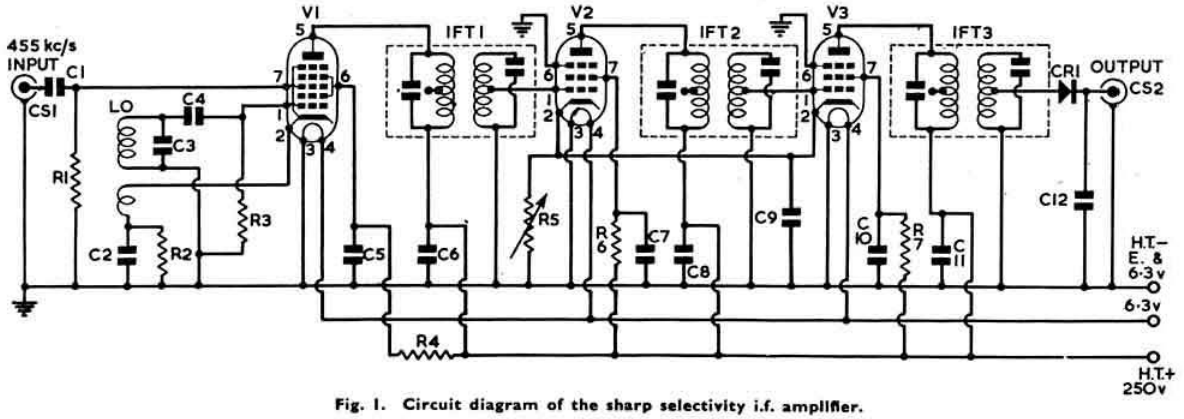


Fig. 1. Circuit diagram of the sharp selectivity i.f. amplifier.

ceramicon condenser and a short length of ¼in. diameter coaxial cable. Up to two or three feet may be used if desired. The last i.f. transformer in the receiver must, of course, be trimmed for maximum signal after this connection has been added. The fact that the i.f. transformer is thus feeding into what appears to be a bad mismatch may be ignored since the 85 kc/s unit provides much more gain than necessary. With three feet of coax and a 10 μμF condenser there is a loss of about 8 db but this is of course more than made up for in the second i.f. amplifier.

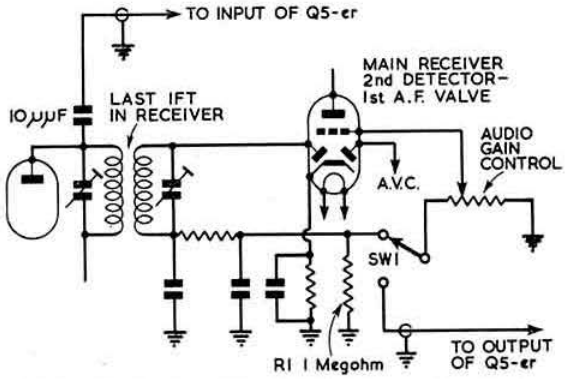


Fig. 2. Method of switching the Q5'er in and out of circuit.

Construction

Little need be said about the layout and general construction because a good idea of the disposition of the components can be gained from the photographs. The chassis measures 9in. by 2in. by 1½in. deep and is made of 18 s.w.g. aluminium. It is intended to be mounted on its side on the inside of an AR88 receiver just beneath the cabinet lid and immediately over the screening box which houses the tuning condenser and r.f. valves. The unit is fixed to the cabinet by means of two small " L " brackets. Power is obtained from the receiver *via* a 4-way Jones (Painton) plug and socket. This arrangement allows easy removal of the i.f. unit whenever access to the r.f. section is required. Output from the 85 kc/s unit is taken *via* a coaxial cable so that the unrectified 85 kc/s signal may be fed back into the main receiver detector circuit if desired. The d.c. output may be *via* a phone jack socket or a pair of terminals.

Adjustment

A signal generator, if available, may be used to line up the 85 kc/s stages. However, alignment can be effected by listening to the noise output with the unit connected to the main receiver as described earlier. All the 85 kc/s i.f. transformers, as well as the primary of the last i.f. transformer in the main receiver, should be adjusted for maximum noise in the absence of a signal. Alternatively, alignment can be achieved by using a v.f.o., crystal oscillator or BC221 frequency meter as a stable signal source set to any convenient frequency covered by the main receiver and adjusting for maximum signal with the receiver b.f.o. *on*. Greater precision may be achieved by using a microammeter in series with a 10,000 ohms resistor in place of the headphones. In this case, the b.f.o. should *not* be used.

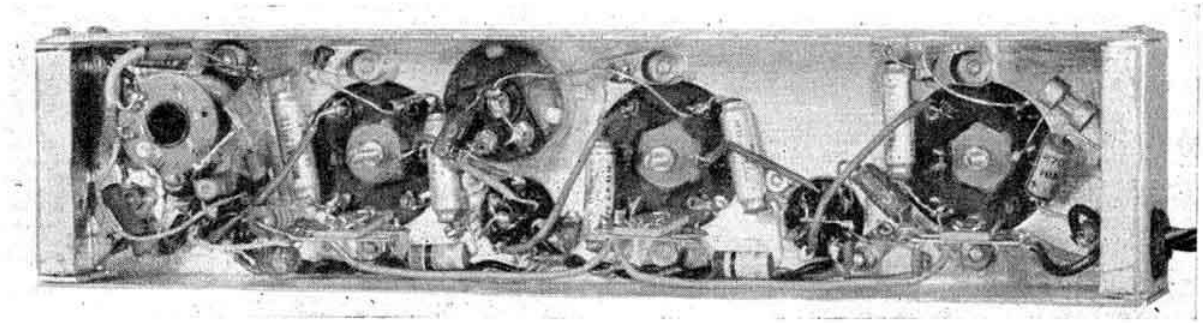
Should the overall selectivity appear to be too sharp (evidenced by difficulty in tuning or consistently poor quality with speech sounding " woolly "), the 85 kc/s i.f. transformers should be readjusted slightly to give acceptable speech quality. This will, in effect, cause the circuits to be slightly stagger tuned, thus providing a more flat-topped response curve. Such is the effectiveness of the unit that it can easily provide a response curve which is, in fact, too sharp for even " commercial speech " quality reception. For the c.w. enthusiast, however, the unit should be peaked " on the nose."

Switching

If required, the simple arrangement shown in Fig. 2 can be used to switch the 85 kc/s unit in and out of circuit. A single pole double throw toggle switch (fitted to the main receiver) is used to connect either the output from the normal second detector diode or the output from the second i.f. strip to the first audio stage in the receiver. R1 is necessary in order to maintain the normal load on the last i.f. transformer of the receiver when the switch is in the " Q5'er " position. Likewise, the " Q5'er " input is permanently connected *via* the 10 μμF coupling condenser to the primary of the last i.f. transformer.

Components List

C1, 4, 100 μμF ceramicon.
C2, 5, 6, 7, 8, 9, 10, 11, 0.01 μF miniature tubular paper.
C3, 470 μμF silver mica.
C12, 470 μμF ceramicon, Hi-K.
CR1, Germanium diode type CG1C (B.T.H.).
CS1, 2, coaxial sockets (Belling-Lee).
IFT1, 2, 3, 85 kc/s i.f. transformers (Denco (Clacton) Ltd.).
LO, Mixer oscillator coil (Denco (Clacton) Ltd.). Grid winding tuned to 540 kc/s with 470 μμF condenser (for 455 kc/s input from main receiver). Coil may also be constructed on Aladdin former type F804 with standard 5 section flanged polystyrene bobbin. Grid winding: 4 sections, 26 turns each. Cathode winding: 1 section of 26 turns. Wire: 34 s.w.g. enam. copper. Grid current between bottom of R3 and earth should be about 0.5 mA.
V1, Brimar 6BE6.
V2, 3, Brimar 6AM6 or Mullard EF91.



Under-chassis view of the 85 kc/s amplifier. The mixer coil may be seen in the extreme left-hand top corner.

Results

On many occasions it has been found possible to receive telephony stations clearly through really severe QRM which would have otherwise rendered reception impossible. The writer feels that the construction of similar units will well repay those who decide to construct them.

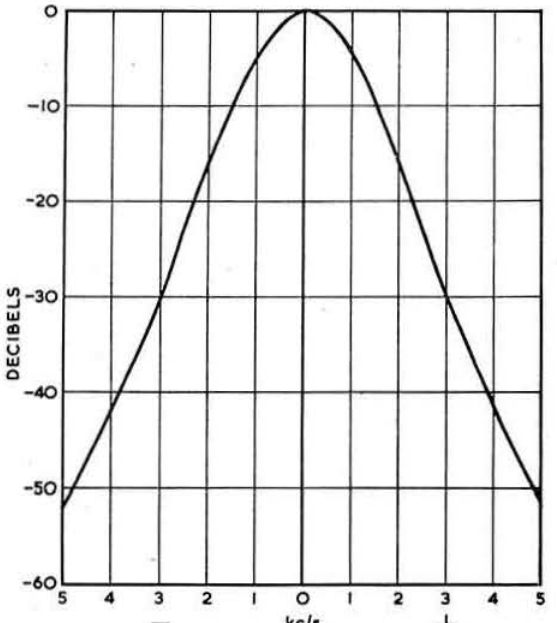


Fig. 3. Response curve of the 85 kc/s unit.

A typical response curve of the unit is shown in Fig. 3, but it should be rembered that the *overall* response of the complete receiver will be much sharper.

Panel Transfers

DATA PUBLICATIONS, LTD., 57 Maida Vale, London, W.9, have submitted samples of their "Panel Signs." These are permanent paint transfers which are currently supplied in two sets, one for receivers and amplifiers, and the other for test equipment. The sets, which cost 3s. 6d. each, contain tuning scales, control scales and appropriate wording and symbols. The tuning scales are black on white and the control scales white on black; lettering is white.

In practice, the signs transfer very satisfactorily to any surface. For the purpose of a test they were used on a smooth cellulose surface. The appearance is most attractive. Provided the instructions are followed the transfers are easily applied and enhance the appearance of any piece of apparatus. When applied to crackle finish the makers recommend the use of transfer fixing varnish. A suitable varnish is supplied by them.

"Wireless World" Diary 1955

DATA for receiving aerials for the forthcoming commercial television transmissions and the proposed v.h.f. sound broadcasts is given in the 79-page reference section of the *Wireless World* Diary for 1955, now in its 37th year of publication.

The reference section also includes useful formulæ, graphical design data, base connections for nearly 600 current valves and considerable general information including a directory of radio organisations.

The diary pages provide a week to an opening.

Prices are 5s. 10d. (Morocco leather) and 4s. 1d. (Rexine).

The Radio Amateurs' Examination

RESULTS issued by the City and Guilds of London Institute show that 334 candidates passed the Radio Amateurs' Examination held on May 7, 1954. Compared with previous years, the number of candidates, passes and failures were as follows:—

Candidates	1954	1953	1952
Home Total	395 — 100%	477 — 100%	534 — 100%
Passes	327 — 82.8%	388 — 81.4%	423 — 79.3%
Failures	68 — 17.2%	89 — 18.6%	111 — 20.7%
Overseas Total	13 — 100%	9 — 100%	12 — 100%
Passes	7 — 53.8%	8 — 88.9%	7 — 58.4%
Failures	6 — 46.2%	1 — 11.1%	5 — 41.6%

The examination paper was as follows:—

EIGHT *questions in all are to be attempted, as under*:
ALL FOUR *in Part* 1 (*which carry higher marks*) *and* FOUR *others from Part* 2.

PART I

1. (*a*) Explain why neutralisation is necessary when a triode valve is used in the r.f. power amplifier stage of a transmitter.
(*b*) With the aid of a diagram show how neutralisation is effected. (15 *marks.*)

2. How can the following types of interference be minimised:—
(*a*) at the transmitter,
(i) over-modulation,
(ii) harmonics, interfering with television reception,
(iii) spurious oscillation?
(*b*) at the receiver,
(i) image response,
(ii) blocking? (15 *marks.*)

3. With the aid of a simple diagram, describe a heterodyne frequency meter and explain how it is used to measure the frequency of a transmitter. (15 *marks.*)

4. State what requirements have to be met under the frequency control and measurement conditions of the Postmaster-General's licence to establish an Amateur Wireless Station and say why these conditions are necessary. (15 *marks.*)

PART II

5. With the aid of a diagram indicate the magnetic field associated with an air-cored cylindrical coil through which direct current is flowing. How does the strength of the magnetic field depend upon,
(*a*) the magnitude of the current,
(*b*) the number of turns?
What is the effect of inserting an iron core in the coil and why are laminations used for the core when a.c. is used? (10 *marks.*)

6. What is meant by the term resonsance?
If an inductance of 50 microhenrys is in series with a capacitance of 500 picofarads what is the resonant frequency? π^2 may be taken as 10. (10 *marks.*)

7. (*a*) State the relationship between the frequency and wavelength of a radio wave.
(*b*) What are the frequencies corresponding to wavelengths of 150 m, 2 m and 75 cm? (10 *marks.*)

8. Define the following terms:—
(*a*) mutual inductance,
(*b*) amplification factor,
(*c*) A.C. resistance (anode slope resistance).
State the relationship between them. (10 *marks.*)

9. Describe with the aid of a block schematic diagram a superheterodyne receiver suitable for continuous wave reception and state briefly the purpose of each stage of the receiver. (10 *marks.*)

10. Explain briefly why standing waves are undesirable in a feeder system connecting a transmitter to an aerial. How would you detect their presence and minimise them? (10 *marks.*)

Examiners' Comments: *Question* 1 (*a*) *was satisfactorily answered by practically all the candidates. In part* (*b*) *about* 20% *of the candidates in their diagrams of single-ended power amplifier stages incorrectly indicated the method of neutralisation by showing the neutralising capacitor connected directly between the anode end of the tank coil and the grid. Questions* 2 *and* 3 *were fairly well done by most candidates. Questions* 4, 5, 7, 9 *and* 10 *were well done by nearly all candidates. In Question* 6 *the first part of resonance was well done. In the second part about* 20% *of the candidates, although quoting the correct formula for resonance, were unable to complete the calculation. Question* 8 *was satisfactorily answered by practically all candidates. Most of them noted that part* (*a*) *of the question should have read "mutual conductance."*

Annual Report

THE Council is pleased to submit to the membership a Report covering the major events and activities of the Society during the year ended June 30, 1954.

New Subscription Rates

At an Extraordinary General Meeting held on October 22, 1953, the then current Articles of Association relating to subscription rates were amended. As from November 11, 1953, subscriptions were increased from 15s. to 27s. 6d. per annum in the case of Country Corporate Members and from 21s. to 27s. 6d. per annum in the case of London Corporate Members. The rate for Overseas Corporate Members was increased from 12s. 6d. to 21s. per annum, and that for Associates from 10s. to 15s. per annum. Membership in the Associate Grade is now restricted to persons under 21 years of age.

Revised Articles of Association

At an Extraordinary General Meeting held on December 18, 1953, a revised set of Articles of Association was adopted. A major change brought about by the new Articles concerns the government of the Society but the full effect of this change will not be felt until the year 1955.

A copy of the new Articles of Association was sent to each Member.

Membership

As was to be expected the membership suffered a setback as the result of the decision to increase subscription rates, the most serious drop occurring in the Country Corporate Grade.

As at June 30, 1954, the total membership was 9735, compared with 11,190 a year earlier—a drop of 13 per cent.

The comparative figures for the past few years are given in the following table:—

Grade	Sept. 30	June 30					
	1948	1947	1950	1951	1952	1953	1954
Corporate							
Home	12,336	11,851	10,936	10,119	9578	9077	7902
Overseas	651	672	672	700	775	840	819
Life	90	95	105	107	116	129	142
Honorary	8	8	7	7	8	9	11
Associates	1354	1412	1303	1201	1148	1135	861
Totals	14,439	14,038	13,023	12,134	11,625	11,190	9735
	(+569)	(—401)	(—1015)	(—889)	(—507)	(—435)	(—1455)

The drop in Associate membership was due to two factors. First, many Associates over 21 years of age transferred to Corporate membership. Second, a fairly large number of Associates over 21 years of age decided not to transfer. It will be appreciated that Associates transferring to the Corporate grade are required to pay at the rate of 27s. 6d. per annum compared with the previous rate of 10s. per annum.

The Council is making every effort to arrest the falling-off in membership.

Honorary Members

The Council is pleased to place on record that Mr. Rene Klein, G8NK (Founder Member and Vice-President), and Mr. F. J. H. Charman, B.E.M., G6CJ (Past President) were elected Honorary Members of the Society on February 16, 1954.

Licence Matters

After prolonged negotiations between the Society and the G.P.O. it was announced in April, 1954, that new licence regulations would take effect as from June 1, 1954.

The new Amateur (Sound) Licence contains a number of important concessions, chief of which is the facility which now allows a licensee to operate from a temporary alternative address or location for separate periods not exceeding four consecutive weeks at a time, using the suffix /A. The effect of this concession is to allow unrestricted portable operation from temporary sites.

The new Amateur (Sound) Licence also permits group working (netting) and allows the licensee to use his discretion in the matter of frequency control and choice of frequency measuring equipment. Transmissions may now be recorded and played back to the originating station provided the call-sign of that station is not included in the play-back. The new licence places no restrictions on sending periods; previously, sending periods were restricted to 10 consecutive minutes.

The new Licence also recognises the self-training aspects of the Amateur Service as defined in the Atlantic City I.T.U. Conference Radio Regulations.

Of far-reaching importance was the decision of the Post Office to introduce an Amateur (Sound Mobile) Licence which would permit amateur operation from any type of vehicle. The introduction of this licence has acted as an added stimulus to Amateur Radio operation in the United Kingdom. Already many members are equipped for operation from a moving vehicle and great distances have been and are being worked daily. Mobile operation is taking place on all bands from 160 to 2 metres.

In addition to the facilities conferred by the new licences, the Council were also able to announce during the year that, following lengthy negotiations, the G.P.O. had agreed to permit U.K. amateurs to use the band of frequencies between 3635 kc/s and 3685 kc/s. It was also announced that new licencees would be permitted to use input powers up to 150 watts on telegraphy.

The Council much appreciate the more liberal attitude which has prevailed in recent years at G.P.O. Headquarters.

Radio Amateurs' Certificate

The decision of the G.P.O. to issue a special certificate to those who have been successful in the Morse Test and Radio Amateurs' Examination was warmly welcomed by the Council. Holders of such certificate are permitted to operate any Amateur Radio station in the United Kingdom provided the licensee is present.

Radio Amateurs' Examination

As in previous years Examinations were arranged by both the G.P.O. and the City and Guilds of London Institute. The number of candidates sitting for these examinations was somewhat smaller than in recent years but the percentage of those who were successful was well maintained.

G.P.O. Morse Test

New arrangements for taking the G.P.O. Morse test were announced during the year. Although, at first sight, these appeared likely to present difficulties for persons living remotely from one of the examination centres none has, in fact, been reported to Headquarters.

The number of licences in force as at June 30, 1954, was 7624, compared with 7718 a year earlier.

The R.S.G.B. Bulletin

The 12 issues of the Society's Journal which, together, form Volume 29 (July, 1953–June, 1954), contain 584 pages, compared with 552 pages in the previous Volume. The standard of technical contributions again reached a high level.

The Norman Keith Adams Prize is to be awarded to Messrs. F. J. H. Charman, B.E.M. (G6CJ), and J. W. Mathews, Assoc. Brit.I.R.E. (G6LL), for their original paper entitled "The Reflectometer," and the Bevan Swift Memorial Premium to Mr. W. H. Allen, M.B.E. (G2UJ), for his meritorious paper entitled "The R.S.G.B. Two Metre Converter."

Other important contributions to Volume 29 were made by: Mr. R. L. Varney, A.M.I.E.E. (G5RV), ("The Elizabethan Transmitter"), Messrs. R. L. and J. Royle ("Amateur Television from G2WJ/T"), Mr. P. Sollom, B.Sc.(Eng.), A.C.G.I. (G3BGL), ("High Angle Propagation"), Mr. W. J. Segrott (G8SI), ("Radiation Patterns of Horizontal Aerials"), Mr. L. A. Moxon, B.Sc., A.M.I.E.E. (G6XN), ("The Moxon Beam"), Mr. H. M. Humphreys (GI3EVU), ("Single Sideband Technique"), and Mr. H. Whalley, M.Sc., A.M.Brit.I.R.E. (G2HW), ("TVI *can* be Cured").

Interest in transistors was reflected in the pages of the BULLETIN by contributions from several members who had been successful in making these devices work on amateur frequencies.

An important article on "*The Manufacture and Testing of Germanium Triodes or Transistors*" was contributed by The General Electric Co., Ltd.

"*The Month on the Air*" feature was contributed by Mr. A. O. Milne (G2MI), and, as from December, 1953, by Mr. S. A. Herbert (G3ATU). Mr. W. H. Allen, M.B.E. (G2UJ), contributed "*Around the V.H.F.s.*" Bi-monthly features were contributed by Messrs. M. Barlow (G3CVO), "*Amateur Television*," and H. F. Knott (G3CU), "*CQ Single Sideband.*" Other regular features included Contest Rules and Reports, Resum s of the Proceedings at Council Meetings, Regional and Club News, and lists of New Members.

The Council records its thanks to all who contributed material to Volume 29 of the BULLETIN, as well as to the Society's Advertisement Manager (Mr. H. Freeman). Income from advertising was well maintained.

London Lecture Meetings

During the period from October, 1953, to March, 1954, four lecture meetings were held at the Institution of Electrical Engineers. A list of speakers and their subjects follows:—

November 20, 1953. Messrs. H. de L. Banting, D. N. Corfield, D.L.C.(Hons.), and E. A. Dedman. "The Television Society's new TV Station."

January 29, 1954. Mr. F. H. Brittain, D.F.H., "Art and Science in Sound Reproduction."

February 26, 1954. Mr. S. A. Lacey, "Practical Aspects of Tape Recording."

March 26, 1954. Mr. G. P. Thwaites, B.Sc.(Eng.), A.M.I.E.E., A.M.Brit.I.R.E., "Trustworthy Valves and their Manufacture."

Amateur Radio Exhibition

The Seventh Annual R.S.G.B. Amateur Radio Exhibition —held in London during the last week of November, 1953— was opened by Brigadier Eric Cole, C.B.E. (G2EC), Chief Signal Officer, Southern Command. As in previous years the Exhibition was supported by the radio industry and by the Services. Attendances were well up to expectations. The high standard of workmanship achieved by members who loaned gear for display aroused much favourable comment.

Radio Amateur Emergency Network

At the Luncheon which followed the opening of the Amateur Radio Exhibition, the President (Mr. Leslie Cooper, G5LC) announced the formation of the Radio Amateur Emergency Network. Publicity was given to the announcement by both the National Press and the B.B.C.

The administration of the Network, now firmly established, is in the hands of a Committee consisting of Council and non-Council Members. Members of the Committee and others interested in furthering the work of the Network have contributed valuable technical information to the BULLETIN, including designs of suitable mobile and portable equipment.

The Council records its best thanks to the Committee, the Emergency Communications Officers and to all others who have helped in any way to establish the Network.

Fortieth Anniversary

The 40th Anniversary of the foundation of the Society —as the London Wireless Club—occurred on July 5, 1953. It was a matter for regret that a proposal to celebrate the occasion by a Dinner in London had to be abandoned because of lack of support. The July, 1953, issue of the BULLETIN, however, carried a tribute to Mr. Rene Klein and those associated with him in founding the Society.

Representation

For reasons of economy, only three Regional Meetings were held during the year, two in Scotland and one in Yorkshire.

A highly successful meeting between the members of the Council and the Regional Representatives was, however, held during April, 1954, when consideration was given to a number of matters of general interest.

Local activities were well maintained in most parts of the country, in which connection the Council records its thanks to all Regional, County, District, Town and Area Representatives for their loyal and valued support.

Technical Committee

The Technical Committee, under the Chairmanship of Mr. H. A. M. Clark, B.Sc.(Eng), M.I.E.E. (G6OT), has again rendered great service to the Society, whilst individual members of that Committee have given valuable assistance to the Editorial staff in connection with articles submitted for publication.

It has not yet been possible to publish any new technical booklets although, as members are now aware, the Sixth Edition of *A Guide to Amateur Radio* recently appeared.

The expense of producing a completely new *Amateur Radio Handbook* would, in the opinion of the Council, not be justified at present, but it appears probable that the new *Guide* may become the forerunner of a new *Handbook*. Should that happen, history would be but repeating itself because it was from prewar editions of the *Guide* that the *Handbook* sprang.

V.H.F. and U.H.F. Band Planning

In view of the great increase in interest in v.h.f. and

u.h.f. work the Council authorised the Technical Committee to convene a meeting of all interested parties to give consideration to the Band Plans which then existed and to make recommendations for the future.

The recommendations adopted at that meeting were published in the July, 1953, issue of the BULLETIN and have been widely accepted.

Contests Committee

The excellent work done by the Contests Committee, under the Chairmanship of Mr. W. H. Matthews (G2CD), was reflected throughout Volume 29 of the BULLETIN, each issue of which carried rules and reports of Contests. Support for National Field Day and other events was fully maintained.

The achievement of the Bristol Group in winning N.F.D. for the third year in succession has earned for that group well deserved praise.

The Senior B.E.R.U. Contest was won by Mr. R. G. Henwick (ZS2A), while another South African amateur, Mr. J. C. Van Wyk (ZS6R), was successful in the Junior event. Mr. A. R. Gilding (ex-G3GZP), was the winner of the Receiving Contest.

Qualifying Direction Finding Contests were held throughout the summer, culminating in a National Final.

The Council records its thanks to Mr. Matthews and the other Members of the Contests Committee for their valued services to the Society.

Slow Morse Transmissions

Slow Morse transmissions for the benefit of those who aspire to obtain a licence were again radiated daily on frequencies in the 1.8 Mc/s band.

The Council records its thanks to all who assisted in this important work which was organised, once again, by Mr. C. H. L. Edwards, A.M.I.E.E. (G8TL).

QSL Bureau

The organisation of the Society's QSL Bureau was again in the hands of Mr. Arthur Milne (G2MI), who had the assistance of a number of sub-managers. The Council records its thanks to all who co-operated in the successful operation of the Bureau.

R.S.G.B. Amateur Radio Call Book

The Third Edition of the *R.S.G.B. Call Book* was published on November 23, 1953. The Council records its thanks to Mr. J. P. P. Tyndall (G2QI), the Call Book Editor, and to Mrs. Tyndall for their work in preparing this edition. A Fourth Edition is due to be published in November, 1954.

Affiliated Societies

As at June 30, 1954, there were 123 Societies and Clubs affiliated to the R.S.G.B. an increase of 5 over the number on the register a year earlier.

Many of the Societies affiliated to the R.S.G.B. staged special Exhibitions during 1953—Coronation Year—all of which aroused great interest locally. An interesting experiment was tried out, with great success, by the Kingston, Sutton and Cheam, and Thames Valley Societies who hired a Thames steamer for the day for a trip from Kingston-on-Thames to Windsor.

The Affiliated Societies Contest held during February, 1954, was won by Stourbridge and District Amateur Radio Society for the second year in succession.

International Matters

During August, 1953, the President (Mr. Leslie Cooper) represented the Society at the D.A.R.C. Convention in Iserlohn, Germany.

Within a few months of the I.A.R.U. Region I Conference taking place in Lausanne during May, 1953, the recently elected International Committee met in London to draw up a Region I Division Constitution. The Committee also set up a Region I Bureau to deal with the routine work of the Division. The President of the R.S.G.B. (Mr. A. O Milne) is Honorary Secretary of the Bureau.

During the autumn of 1953 the Seventh Plenary Assembly of the International Radio Consultative Committee (C.C.I.R.) was held in London. The Society was represented at the Conference by the General Secretary. During the period of the Conference the Council took the opportunity of inviting all delegates holding an Amateur Radio licence to meet them for lunch and discussion.

Council Meetings and Attendances

The Council met on 12 occasions during the year. A list of attendances follows:—

Name	Possible Attendances	Actual Attendances
Auchterlonie, I. D.	12	10
Bartlett, H. A.	12	11
Charman, F. J. H.	6 (a)	5
Cooper, L.	12	11
Edwards, C. H. L.	12	12
Findlay, D. A.	12	9
Gee, A. C.	6 (b)	4
Hammans, R. H.	12	8
Hicks-Arnold, F.	12	12
Hum, J. H.	12	11
Milne, A. O.	12	12
Newnham, L. E	12	12
O'Brien, N. F.	6 (b)	6
Varney, R. L.	6 (b)	6
Walker, R.	6 (a)	5
Winsford, P. W.	6 (a)	5

(a) Retired December, 1953.
(b) Elected January, 1954.

Headquarters

The General Secretary and Miss Gadsden have once again rendered yeoman service to the Society, not only during normal office hours but also during much of their own time, and we are deeply appreciative of their unceasing loyalty and devotion.

Headquarters' staff have also given good service in somewhat overcrowded office space and our thanks are due to them for the way in which they have carried out their duties.

For and on behalf of the Council,
ARTHUR O. MILNE,
President.

Dorset Hamfest

AMONG the events on the programme for the Dorset Hamfest to be held at Askers Road House Hotel mid-way between Dorchester and Bridport on November 21, 1954, commencing at 10.30 a.m., are a film show, competitions, a free draw and an auction of members' surplus equipment. G2TZ/A will operate from the hotel. A short talk on "Modern Production Methods" will be given by Council Member Frank Hicks-Arnold (G6MB). The President-elect "Herb" Bartlett (G5QA) will also address the meeting.

Tickets, price 10s. 6d. including luncheon and tea, may be obtained from Kenneth O'Brien, "Hillside," St. Helen's Road, Dorchester, Dorset.

Are you a Teleprinter Operator ?

MR. H. HARRIS (B.R.S.12959), "The Huon," Branksome Hill Road, Bournemouth, Hants, who works a radio teleprinter on the receiving side, would like to hear from any other amateur in the U.K. who is similarly interested.

TWO METRES AND DOWN

By W. H. ALLEN, M.B.E. (G2UJ)*

ON several occasions, G6LI has deprecated late night operation on 2 m, maintaining that this band is usable at all times. He contrasts 2 m " silent and inhospitable from dawn to 6 p.m." with the round-the-clock activity on the lower frequencies.

In the past international conferences have pared off bits of our bands for this service and that. A howl of protest rises from the inhabitants of the particular band affected but all is soon quiet again until the next rumour of annexation comes along. Quoting G6LI again: " Is two metres dead—or are you killing it? "

G2AHP (Perivale, Middx.) observes that good conditions are often carried over to the following morning when (if there is any activity!) DX may be worked by those unable or unwilling to burn the midnight oil.

London U.H.F. Group

A V.H.F. dinner will be held at the Royal Hotel on November 27, at 6.30 p.m. Tickets, which include a raffle, are obtainable at 10s. 6d. from G4KD, 35 Gibbs Green, Edgware, Middx., and will be available on the V.H.F. stand at the Amateur Radio Exhibition.

The Group's third annual dinner will take place at the Bedford Corner Hotel, London, on January 6, 1955, at 7 p.m. Tickets, price 10s. 6d., may be obtained from G4KD.

At the October meeting of the Group D. N. Corfield (G5CD) considered the question: " Is an r.f. stage worth while? " and with the aid of noise and signal generators and a quantity of temporary connections—the lack of uniformity of both power and r.f. connectors was most marked—proceeded to run the rule over a number of 70 cm receivers.

The standard of comparison was G5CD's coaxial line DET24 pre-amplifier which possesses a noise factor of the order of 3db and the procedure was to measure the unaided converter and then insert the pre-amp in front and compare the readings. Noise factor measurements require, for accurate comparison between one equipment and another, correct matching between noise generator and receiver. With this proviso the following results may be of interest.

G2WJ's co-axial line converter gave a noise factor of 10db measured at the crystal mixer and 6db with its r.f. stage in circuit. With the twin DET24 pre-amp feeding into the mixer the result was 3db and with the r.f. stage operating a slightly better reading was obtained. G5CD's own receiver, basically as described in the July, 1951, BULLETIN and incorporating 12AT7s as p.p. r.f. stage and mixer with open line circuits, gave a similar result.

The beautifully engineered receiver built by G3FZL measured 4db, while the equally well constructed receiver described by Messrs. Newton, Stone and Webber in the June, 1953, BULLETIN produced a slightly worse reading, almost certainly prejudiced by input matching error, as in the signal generator test a tone modulated input of 0.3μV was clearly readable.

G2DD's latest converter performed as well as any on the signal generator, pushing out a remarkably " solid " signal with some 0.3μV input. All converters performed well with modulated inputs down to less than half a microvolt which, considering the necessarily makeshift nature of the set-up, reflected great credit on their designers. Sensitivity to c.w. signals would, in all cases, be quite a bit better than this. The signal generator in use was a Type 101, 10SB/6016.

* 32 Earls Road, Tunbridge Wells, Kent.

Station Reports—2 m

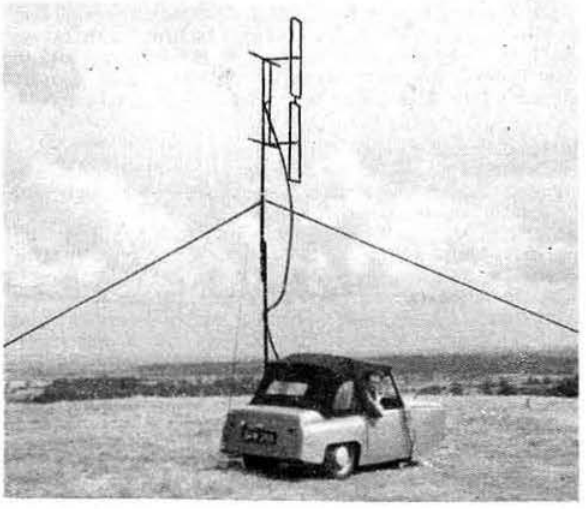
During a recent portable expedition **GM3EGW** operated from a number of sites in north-west England, Wales and the West Country, and although conditions were generally poor he found it a most interesting experience.

In September **GM6WL** found 2 m conditions at his Mull of Galloway site inferior to last year while the weather was generally terrible, and his most southerly contact was G2FJR (Sutton Bridge, Lincs.). G3CCH and G6XX were also worked in that direction. From Northern Ireland, only GI2FZQ and GI5AJ put in an appearance; the farthest north was a contact with GM6KH (Hamilton) over hills 2000ft high.

GM3BDA (North Berwick) has returned from his farm site which was in use during the summer months without realising his hope of contacting the Continent on 2 m. Stations were, however, worked up to a distance of 275 miles when conditions were good. Eleven stations were contacted in the European V.H.F. Contest, all but one over 150 miles distant.

The Scottish expedition by **G2BDQ** and **G4LX** at the end of September was not favoured by good conditions or activity, but some of those who beamed north at the time were able to add GM to their logs. The " stands " were Kincardineshire on September 23 and Morayshire, Angus and Roxburgh on the succeeding three days. No stations were worked or even heard from Morayshire. Suggestions are invited for further Scottish trips next year.

Patches of quite good conditions occurred in October



G3FKO/P operated from a site 1000ft a.s.l. two miles n.n.e. of Wells, Somerset, during the Second Two Metre Field Day, 1954, using the double skeleton slot aerial with reflectors shown in this picture.

with a peak around the 8th. **G3CCH** (Scunthorpe, Lincs.) worked G3HWJ, '3IOE, '3IOO and GM3EGW on October 7 besides hearing and calling a number of other stations. Many of these, although weak, were noticeably *over* modulated. Seems as if the recent discussion regarding *under* modulation on 2 m has been taken too seriously. On October 18 a path to the south-west was open, the best signals being from G2ADZ (nr. Ilfracombe, North Devon), '2YB and '3FIH (Bath, Som.). The latter station reports good openings on October 1–3, 7–8 and 13–17. Experiments with a new noise generator produced a n.f. of 3.5db from the cascode converter which improved to better than 3db when preceded by the EC91 two-stage pre-amp as described by the author in the BULLETIN for April, 1951. A total of 32 stations was worked and 17 heard during the month ending October 17.

G3DO (Sutton Coldfield) worked F8GH and F8WC, both RS58/9 on October 9 together with several stations on the south coast and heard G3IOE (Northumberland) and F8OL.

G3WW (March, Cambs.) made contacts with stations in London, the Midlands and to the west on October 8–9. Signal strengths were good but with some fading. G2AOK (Stow-in-the-Wold, Glos.), who is getting out well with 9 watts input, said that he had recently worked LA8RP on 2 m. On October 11 G2FNW and G3CRH were good signals with G3WW and G3EGG (North Bucks) and G3DBP (Nottingham) were new contacts on the 13th.

G3MI (Chesham, Bucks.) heard G3FIH (Bath), G3GNJ (Bristol) and GW3EJM at 2300 G.M.T. on October 16 and called them without result. **G5YV** (Leeds) has come up with a Ladder score of 15 regions and 202 stations in nine countries. The 15th region was provided by GM2BDQ/P (Kincardine) and GM4LX/P (Angus). **G3AGS** (Manchester), at a new address, is 125ft higher and indications are that he now has a far better site for 2 m operation. GW3GWA (Wrexham) who used only to be workable from a portable site was contacted on October 17 with a 4 element Yagi on the bench.

On October 7 **B.R.S.19162** (Dewsbury, Yorks.) logged several new stations in the Midlands together with G3GNJ and G5MA/P (Rutland) a few days later. The first signal to be heard over the Pennines was G3IOO (Oswestry) on October 10 followed by G5AU (Warrington) and G8SB (Manchester) on the 21st.

Good conditions to the north and Midlands on October 1 enabled **G2CZS** (Chelmsford) to work G3ABA, '3IOO, '5CP and '5YV and to hear G3DBP, '2FZU and '3CCH. G2DDD, '3FAN and '3IEX were heard and G3BNC and F8GH worked on October 10. Deep fading affected all signals.

Despite the fact that his beam is only 15ft high, **B.R.S.6327** (London, S.W.18) has logged 94 stations on his R.S.G.B. Converter in little more than a month including a number at ranges exceeding 100 miles. **B.R.S.19264** (Cheltenham) tells us that G5BM/A, operating from the Hobbies Exhibition, Cheltenham Town Hall, recently worked 50 stations on 2 m with 12 watts input from batteries and a 6 element stack.

G2HIF/P (Swyre Head, Dorset), in conjunction with the Bournemouth Radio Society, operated during the Second 2 m Field Day. In the rush to get the station erected before a rainstorm the converter was damaged and for 2½ hours scoring was very slow. Later a faulty feeder was discovered and in the last hours of the contest sufficient contacts were made to take 19th place. G2BAT/P, '3DIV/P and '3GZM/P were outstanding signals. (We regret that this report was omitted last month—W.H.A.). **G6XX** (Goole, Yorks.) worked GM3DIQ (Stevenston) on September 30 followed by GM3EGW, G2ATK, '2AVQ, '3GFW, '3IOE and '8PX a week later. Another contact was with G5MA/P (Rutland), who was S9 most of the time he was there. A move to a higher location in Streatham, London, S.W.16 has improved both transmission and reception for **G6TA** by some three "S" points and he now has a Ladder score of 97 stations in nine Regions.

Records

144 Mc/s:	W6ZL—W5GNL June 10, 1951.	1,400 miles
420 Mc/s:	W1RFU—W4TLM July 26, 1953.	410 miles
1,250 Mc/s:	G3QC/P—G8DD/P July 26, 1953.	100 miles
2,300 Mc/s:	W6IFE/6—W6ET/6 October 5, 1947.	150 miles
*3,300 Mc/s:	W6IFE/6—W6ET/6 October 5, 1947.	150 miles
†5,250 Mc/s:	W2LGF/2—W7FQF/2 December 2, 1945.	31 miles
10,000 Mc/s:	W7JIP/7—W7OKV/7 August 8, 1954.	109 miles
*21,000 Mc/s:	W1NVL/2—W9SAD/2 May 18, 1946.	800 feet

* *Band not available to U.K. amateurs.*
† *U.K. band is 5650-5850 Mc/s.*

For his last portable sortie of the year **G5MA** went to his old site near Oakham, Rutland, on October 16–17. Thirty-eight stations were worked, the best distance being to G3FAN (I.o.W.); F8GH was heard. All 2 m operators will wish to congratulate Bob on winning the 2 m Open Contest while portable in Monmouthshire. As G5YV, the runner-up, says: "I for one consider that portable stations are quite eligible to enter and Bob especially, having earned all the honours that come to him."

G8VN (Rugby) worked G4SA, '5BD, '5MA and '5YV in the period October 7–9 and has also had a contact with G2AOK, an S9 signal, and G5MA/P. G5SV will shortly be on 2 m from Rugby. **G2ADZ** made a welcome reappearance on the 2 m band from his new home near Ilfracombe and was worked by G3JGJ (Plympton, S. Devon) on October 9. Signals were S9 both ways over the 54 mile path which crosses the western edge of Dartmoor. Other contacts from **G3JGJ**'s rather difficult location include G3EGW/P (nr. Upton, Cornwall), '8DA (Exeter), GW8UH, and G2BAT (Falmouth). G6TA was heard calling CQ at 2018 G.M.T. on October 7 but did not reply, as was also the case with G3AVF, '3FAN, '5BM and GW2ACW. The 30ft mast carrying G3JGJ's 16 element stack is hinged to a support on a tree 30ft from the ground. By means of a block and tackle, beam and mast may be raised or lowered in about 5 minutes in a similar manner to the gaff on a sailing boat. The beam is fully rotatable by rope.

The Nottingham University Radio Society station **G3DBP** now has an 8 element stack fixed in a N/S direction at 40ft and a new modulator with p.p. 811s. A daily sked is run with G5CP (Chesterfield) at 1315 G.M.T. and on Thursdays at 1915 G.M.T. with G3GHO. Activity is mainly at lunch time and in the early evenings, especially at week-ends. A total of 31 stations were worked and 17 heard between October 7 and 19.

G5MR (Hythe, Kent) found October 2–3 particularly good for French stations on 2 m and worked F3GL (Auxerre, 85 m s.e. of Paris) and F3LS (Chateau de Lair, 25 miles south of Le Mans) for the first time. Conditions were excellent for stations in the Midlands in the early evening of October 9. It is understood that there was considerable long range 70 cm operation in France on that date.

The 240 mile sked between **G5BD** and **GM3EGW** is still running with nearly 100 per cent results.

G3GMX (Timperley, Ches.) says that activity generally appears less than last year although upwards of 15 stations in the near vicinity are on the band regularly. During August and September '3GMX, assisted by YL G3JZY, a popular newcomer to the band, operated mobile with some success. The set-up was quite ambitious, with 50 watts to an 832 (with what effect on the valve is not stated!) driven from

a Clapp oscillator on 4 Mc/s, and with frequency modulation. A quarter wave whip above the windscreen served as radiator and it seemed immaterial whether this was vertical or inclined at 45 degrees. A surprising number of lobes were noticed in the radiation pattern and moving the car a few feet was found, even on a local station, to change the incoming signal from S9 to S2/3. This effect naturally produced a rapid and violent flutter when on the move. G3GMX makes an appeal for the increased use of f.m. on the v.h.f.'s. Advantages are that changes of p.a. or band require no alteration in the modulator and BCI and TVI are avoided. The note from the Clapp oscillator previously mentioned varies from T8 on a.c. to a near T9 on battery feed.

The 70 cm Band

From the *Lea Valley Reflector* it is learned that **G8SK** (Enfield) has a 4 valve c.c. transmitter on 70 cm employing an ECL80 c.o./multiplier, 6J6s being used as tripler, b.a. and p.p. f.d. Output is 1 watt and the input 5. G8SK/P operated from Dunstable Downs during the second week-end of the 70 cm Contest. G3GZM/P was again contacted and the final score for the event was 39 stations worked and three heard.

G3HBW (Alperton, Middx.) worked 22 stations during the second part of the Tests on September 25–26 including G2DDD, '2DSP and '3JHM on the south coast. G3GZM/P (Clee Hill, Salop) at 115 miles was heard at poor strength on the Sunday but not raised. On October 10 contact was made with G3EGV (Farnborough, Hants.) on 435.93 Mc/s with reports of S8 each way.

GM6WL/P was active from Tomtain, Stirlingshire, on both 2 m and 70 cm on October 10 and, among others, worked GM3DDE (Edinburgh) on the higher frequency with reports of S9 both ways. GM3NG (Carluke) has only a 70 cm receiver operating at present and replies on 2 m. He has no difficulty in receiving GM6WL, in the heart of Glasgow, S9 at 20 miles. GM6WL's reception of EI2W on 70 cm when on the Mull of Galloway was reported last month. From the same site GI3FWF was worked at 42 miles and GI3FWF/P at 58 miles. On the former path, which lay over two ranges of hills 400ft high, signals were RST569, dropping to zero when a screen of trees just in front of '3FWF's house were deluged with rain.

G3WW has worked G2XV duplex, transmitting on 2 m and receiving on 70 cm. Signals from Cambridge were RS57 with a G2DD " flat lines " converter and a 16 element stack at 47ft.

G3MI heard the following stations during the Contest:—G2DD, '2FKZ, '2RD, '2WS/P, '3FP, '3FSD, '3FZL, '3HBW, '3JQN/A, '5CD, '5DT and '5RD. The outstanding signal was G3FZL with G3JQN/A a close second. Repeated calls to them and G5CD, who was also quite a good signal, failed to gain replies.

London Area Activity Report

G2RD (Wallington, Sy.) reports as follows:—G2BVW (434.37 Mc/s), '2DD, '2DDD, '2DSP (434.97), '2HDY, '2MV (435.18), '2RD, '2WS/P (434.37), '2XV, 3CGQ (434.1), '3EGV (435.9), '3EOH/P (435.1), '3FP (435.95), '3FSD, (435.4), '3FUL, '3FZL, '3GDR, '3GZM/P (433.33), '3HBW, '3IRW, '3JFR (436.4), '3JHM, '3JQN, '3JQN/A, '3MI, '5CD, '5DT, '5KH, '5RD (435.25), '5UM, '6NF, '8SK (435.0), '8SK/P (436.1).

New 1250 Mc/s Record

From **G2HKU**, who obtained the information from OK1KTI, we learn that a new world record of 125 miles was set up on October 5, 1954, by OK1KAX and OK1KRC. No further details are yet available.

Under Entirely New Management

In January, 1948, the author produced his first v.h.f. commentary under the title *The Month on Five—and Six*, having taken over the feature from Bill Scarr (G2WS). That first contribution occupied just over half a column. As the paper situation eased and more members became interested in the v.h.f.s so the reports and the size of the feature increased. The present article is the result of 33 letters received. Desirable as this increase in reports may be, and the present reports are from less than 10 per cent—probably less than 5 per cent—of those active, the work and correspondence entailed is proving more than the writer can manage. Rather than allow the standard to suffer the V.H.F. Editorship is passing to other hands from the December issue.

Quite apart from the work involved, such a feature as this must of necessity reflect to some extent the author's views, no matter how objective a treatment is made of the incoming correspondence. Every letter cannot be quoted in full—far from it—and inevitably a certain " colour " is bound to creep in. A change of authorship will not alter the news, but the method of presentation will be fresh and aspects not previously stressed will probably receive more prominence. This is all to the good, and while thanking my correspondents of the past for their great assistance and with the sincere hope that they will continue to support the new V.H.F. Editor, I hand over my task with the best of wishes and complete confidence to Fred Lambeth (G2AIW). Good-bye and good luck, and thanks for the many letters of appreciation of my efforts which have been received during the past few days.

* * *

Reports for the December issue should reach G2AIW, 21 Bridge Way, Whitton, Twickenham, Middx., by November 20.

World Wide DX Contest, 1953

IN the World-Wide DX Contest, 1953, organised by the International DX Club, which took place in October, 1953, Ron Perks (G4CP) was the leading English station in the Telegraphy " All Bands " Section with a score of 104,483 points. G6PD was second with 90,630 and G2VD third with 81,480.

The leading stations on the various bands were: *3.5 Mc/s*: G6PD first, G8KP second; *7 Mc/s*: G4CP first, G2VD second; *14 Mc/s*: G2LB first, G4CP second; *21 Mc/s*: G2BW first, G2VD second.

The winner of the Telephony " All Bands " section was A. J. Slater (G3FXB) with 19,758 points, who also topped the list on 3.5, 7 and 14 Mc/s but was beaten by G2WW on 21 Mc/s. The highest British telephony score was made by G. W. D. Brown (GM3DHD) with 49,152 points. In the same section, GI5HZ scored 8400 and GD3UB 13,018.

In the Telegraphy " All Bands " section GM3EOJ was the Scottish winner with a score of 21,929. In Northern Ireland GI3FJX was the leader with 37,200. Both these scores were exceeded by the two Welsh entrants, GW3IJ (60,500 points) and GW3ZV (49,929 points).

British Institution of Radio Engineers

THE shortage of engineers and technical manpower is stressed in the 28th Annual Report of the British Institution of Radio Engineers. The growth of radio and industrial electronics has created a manpower problem in Great Britain and abroad and the number of students completing their courses at technical colleges is insufficient to meet the present demand. Of the 1000 candidates examined each year since the war, less than 10 per cent have succeeded in passing the Institution's examinations.

There is also a great shortage of technicians which throws a further burden on senior engineers and is also reflected in the lack of technical data being published. A great deal of information on progress in radio does not become available because suitable authors cannot spare time for writing technical papers.

Problems of Moon Reflection Communication

Some Clear Thinking on Simple Facts

By O. J. RUSSELL, B.Sc. (Hons), A.Inst.P. (G3BHJ)*

This article will bring no comfort to those who hope for long-range communication on very high frequencies, via the Moon, in the near future, but for the more serious worker it does bring into focus the basic problems likely to arise in any experiments in that direction.

A CERTAIN amount of doubt seems to have been cast as to the possibility of moon-reflection contacts. The situation has not been helped by practical jokers, nor, for that matter, by those who will not recognise the existence of basic physical limitations. Whatever the motivation, it is unlikely that attempts to obtain moon-reflection contacts will be successful without attention to the basic facts of Physics which reveal that contacts of this type will be an engineering feat of the first magnitude, at any rate under amateur conditions, owing to the power limitation. With unlimited power, there is, however, no difficulty in observing moon-reflection echoes. In fact, with powers of the order of 200 kW and aerial arrays having a gain of 400 (26 db), echoes can easily be observed. Using equipment of the above power level and high gain aerials, c.w. messages have been reflected from the Moon.

The first moon echoes were obtained during 1946 by scientists in Hungary and the U.S.A. working independently.[1, 2] Readers genuinely anxious to hear moon echoes may find the Jodrell Bank Research staff willing to furnish schedules of their transmissions. It must be borne in mind that even with a large aerial and kilowatt pulses the received echoes are very little above the noise level. In the U.S.A., amateurs have carried out moon reflection tests using stacked rhombics, kilowatt pulses and receivers of low noise level and restricted bandwidth but the noise level problem is just as acute as in England. These U.S.A. transmissions could undoubtedly be received over here under suitable conditions.

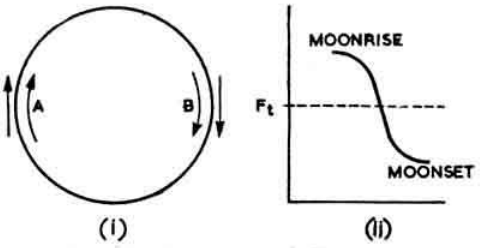
Receiver Characteristics Required

Bearing in mind the reluctance of the G.P.O. to permit pulse transmissions on frequencies where low noise, high selectivity receivers can be built, it may be of interest to give some consideration to the actual performance necessary in order to receive a moon echo. To improve the signal-to-noise ratio, the narrowest possible bandwidth must be used. The optimum pulse length, accordingly, is approximately the reciprocal of the bandwidth. Thus, with 10 c/s bandwidth, the optimum pulse length would be one-tenth of a second. Readers are referred to standard radar textbooks for more detailed discussion of these points. With 100 watts of radiated power and an aerial gain of some 500 times, the required bandwidth becomes about 1 c/s at 200 Mc/s, with a pulse length of one second. Assuming that a perfectly noiseless receiver can be made, some improvement is possible and a bandwidth of 3 c/s might be feasible. In the case of a kilowatt transmitter, bandwidths of between 10 c/s and 20 c/s are possible which is just adequate for c.w. transmission at medium speeds.

From the foregoing it will be clear that QSOs which purport to have been made with, for example, a 24 element beam and 100 watts of power are likely to be suspect. Results of any kind can only be obtained by a very high gain aerial system, considerable power and a very narrow bandwidth. The above considerations are in fact well appreciated by serious workers. Publication of them may serve to disillusion those who hope that a 2 m W.A.C. is just around the corner.

The Doppler Effect

The technical requirements, therefore, are not merely great; they are formidable in the extreme, power and aerial requirements being only part of the picture. A bandwidth of 1 c/s requires transmitting stability not far short of that used at WWV to permit reception, whilst the Doppler effect, due to the relative motion of the Earth and Moon, causes a shift in frequency of the received signal. This is not primarily due to the orbital motion of the Moon, but is chiefly caused by the rotation of the Earth. At moonrise, the observer is approaching the Moon with the rotational velocity of the Earth, and at moonset the observer is rotating away from the Moon. Consequently the received signal frequency is higher at moonrise than the transmitted signal and lower than the transmitter frequency at moonset. Typically, at 145 Mc/s, the maximum variation would be about 200 c/s above or below the transmitted frequency. However, as the Moon has an elliptical orbit, it also has a relative velocity with respect to the Earth. The Doppler shift, due to this velocity, has a maximum value of about one-third of that due to the rotation of the Earth. It should be added that, unless the experimenter can construct aerials some hundreds of feet across, the beam width at 145 Mc/s will not be sharp enough to



(i) At moonrise (A) the observer has a velocity towards the Moon due to the rotational velocity of the Earth. This is reversed at moonset. A Doppler shift of received frequency results. (ii) The received signal frequency varies about the transmitted frequency (Ft) due to the rotational Doppler shift, the received signal being of higher frequency at moonrise and of lower frequency at moonset. At 145 Mc/s, the shift is approximately 200 c/s above or below the transmitted frequency.

* *15 Reepham Road, Norwich, Norfolk.*

allow the accurate aiming with theodolites, a point which was referred to in the "spoof" article published in Germany last year. In fact, with the 24 element beam purported to have been used, the aerial would only require adjustment every half hour at the most. With the actual gains required, however, the aerial size would make aiming a difficult feat indeed; consequently fixed beams, for use at moonrise or moonset may, in fact, be used in the first practical moon-echo QSOs to be obtained. The stacked rhombics employed in the American tests[3] are typical of the approach necessary. Despite the difficulties of a purely practical nature thus outlined, there is no doubt that moon-reflection contacts will be achieved. They are unlikely at present, or for that matter in the near future, to become commonplace.

Moon QSOs Possible

In contrast, however, contacts *with* the Moon are almost ridiculously easy. A 25-watt transmitter and a dipole would suffice for such a QSO. Aerials which possess reasonable gain would enable a transistor transmitter to provide 100% communication. It was computed that for the initial moon echo tests, the field strength of the pulses on the Moon itself were equivalent to a strong local broadcast station. The first radio amateur on the Moon can be assured of plenty of QSOs. In fact, one might predict that he will be as likely to W.A.C. as will one on Earth who is attempting to W.A.C. by moon-reflection QSOs! The difficulties seem about equal at the moment. If anyone is going to raise a cry about "experts always being wrong," then the writer for one sees no reason why the next technical advance should not be in space flight rather than in a noiseless valve for 1 cm use.

References

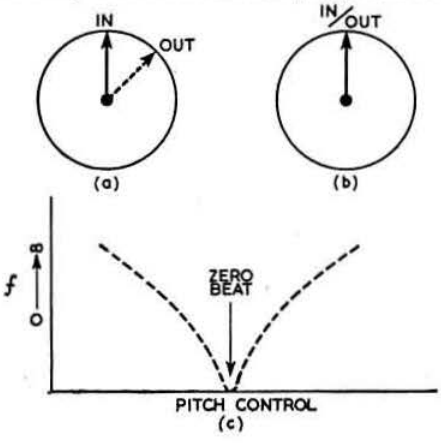
[1] Bay, Z, *Hungaria Physica Acta*, 1946.
[2] Moffensen, *J. Electronics*, 1946.
[3] W4AO and W3GKP, *QST*, June, 1952.

I.F. Alignment Without a Signal Generator

BY ERIC JOHNSON (G2HR)*

UNLESS a signal generator and output meter are available, it is usually wise to refrain from "fiddling" with the trimmers in a communications receiver, particularly those associated with the i.f. stages. No great harm generally results from slight adjustments to the r.f. trimmers, as even in the absence of an output meter, alignment by adjusting for maximum noise is usually good enough. For all other stages, "leave well alone" is a good maxim.

The writer was recently faced with the problem of modifying and generally improving his BC342. Numerous ideas which have been published from time to time in Amateur Radio magazines were tried out but despite modification of the crystal filter, the drop in gain with the filter in circuit was thought to be far greater than it should be. The most likely reason for this drop appeared to be because the i.f. stages were not lined-up correctly on the crystal frequency. The point then arose, how to prove that this assumption was correct without the aid of a signal generator and without having to remove the crystal for use in a test oscillator.



(a) Non-coincidence of the noise zero beat with the crystal in and out of circuit. (b) After re-alignment by the method described in the text. (c) Variation of noise pitch with rotation of pitch control.

* *35a Woodland Road, Chingford, London, E.4.*

A suspicion that all was not as it should be had first been aroused when the b.f.o. was switched-on and the pitch control rotated. As is well known, the pitch of the noise varies when this control is varied in the absence of a signal. In other words, it is possible to "zero beat" the noise in the same way as a received signal. The "noise zero beat" point with the crystal out of circuit was therefore carefully noted and the procedure then repeated with the crystal filter in circuit and the phasing control set at maximum selectivity. As had been expected, the two points did not correspond, indicating that the i.f. alignment was incorrect.

Alignment Procedure Adopted

No output meter being available, a 12 volt moving-iron voltmeter was connected to the output of the receiver *via* a suitable step-down transformer and the signal from a crystal calibrator fed into the aerial socket. The procedure was then as follows.

With the crystal filter in circuit and "zeroed" on noise, the receiver and not the pitch control was varied until a suitable beat note was heard which produced a convenient reading on the meter. The i.f. trimmers were then adjusted for maximum deflection. When this had been carefully done, "noise zero beat" was obtained at the same point both with crystal in and out of circuit, thus indicating that the i.f. stages were correctly lined up on the crystal frequency.

The method can be used profitably even when a signal generator is available, as whatever the nominal receiver intermediate frequency may be, it is most important that the i.f. stages should be lined-up exactly on the crystal frequency.

R.S.G.B. EIGHTH ANNUAL

Amateur Radio EXHIBITION

Royal Hotel, Woburn Place, London, W.C.1

from Wednesday, November 24th, 1954

to Saturday, November 27th, 1954

THE EXHIBITION WILL BE OPENED AT 12 NOON ON WEDNESDAY, 24th NOVEMBER BY MR. HARRY FAULKNER, C.M.G., B.Sc.(Eng.), M.I.E.E.

Hours of Opening
11 a.m. to 9 p.m.

Admission Charge 1/-

EXHIBITORS' CATALOGUE

AIR MINISTRY,

Royal Air Force.

VISITORS to the Royal Air Force Stand will see as the main exhibit a replica of the R.A.F. Amateur Radio Society's Headquarters Station, G8FC, with all details of layout and equipment. Also on view will be two typical Amateur Radio club-stations as in operation at R.A.F. Stations, one of them showing the interior details of all the radio equipment.

Another feature will be a large-scale map of R.A.F. Stations overseas where R.A.F. Amateur Radio Stations are functioning (such as Habbaniya, Negombo, Ceylon and Singapore) together with their QSL cards.

Visitors interested in careers for their sons will be able to talk to a young R.A.F. apprentice from the Radio School, Locking, Somerset, where a comprehensive training in wireless and radar is available for keen youths. The apprentice, himself a member of the R.A.F. Amateur Radio Society, will be doing an actual repair job on a piece of radio equipment.

Radio is of paramount importance to the Royal Air Force, as is the need for skilled technicians to service and operate it. Many career opportunities exist in the Service for enthusiasts and details may be obtained from the Stand or from any R.A.F. Recruiting Centre. Those interested in *spare-time* activities may obtain details from The Officer Commanding, No. 3700 (County of London) Radar Reporting Unit, 77 Hallam Street, London, W.1. (Telephone: LANgham 5511.)

AMOS (ELECTRONICS), LTD.,

45–49 *High Street, Bletchley, Bucks.*

AMOS (ELECTRONICS), LTD. produce a wide range of coils, h.f. transformers, television components and special radio, television and electronic equipment. In general, production is to customers' requirements but a number of standard items are manufactured. Various types of i.f. transformers are on show covering frequencies from 465 kc/s to 38 Mc/s. Miniature tuning coils to cover ranges of 150 kc/s to 30 Mc/s and tape deck oscillator coils are among other items on display.

The company specialises in the production of single units to the customer's own specification, either fitted in suitable cases or supplied in chasiss form, wired and tested. Quotations are given for any quantity from one upwards.

AUTOMATIC COIL WINDER AND ELECTRICAL EQUIPMENT CO., LTD.,

*Winder House, Douglas Street, London, S.W.*1.

ALTHOUGH the company does not manufacture apparatus specifically for the radio amateur, it does fully acknowledge the useful contribution he is making towards radio research. Throughout the year, the company gives what help it can to R.S.G.B. Groups. Arrangements have been made to modify Model 7 Avometers for use by blind amateurs.

AVO equipment is used by radio amateurs, not only in this country, but throughout the world. The high degree of reliability of AVO products is reflected by the ambition of so many amateurs to possess an Avometer of one sort or another.

COSMOCORD, LIMITED,

700 Great Cambridge Road, Enfield, Middlesex.

ON the Acos stand is a full range of new microphones including the MIC.36 series which are available, with or without switch, for hand or table purposes or with floor stands.

Other items shown include a new range of Acos Hi-g replacement pick-up heads suitable for the majority of modern changers. Included in the display are pick-ups and pick-up cartridges for all purposes.

ENGLISH ELECTRIC VALVE CO. LTD. (THE),

Waterhouse Lane, Chelmsford, Essex.

ON the English Electric stand examples of the following products will be exhibited: magnetrons, klystrons, voltage stabilisers, air and water-cooled transmitting valves, valves for R.F. heating purposes, thyratrons, high voltage, high vacuum X-ray rectifiers, mercury vapour rectifiers, ignitrons, glass and metal cathode-ray tubes and television camera tubes.

A particularly interesting exhibit will be the image orthicon TV camera tubes of the type used so sucessfully by the B.B.C. for outside television broadcasts.

ENTHOVEN SOLDERS, LTD.,

Enthoven House, 89 Upper Thames Street, London, E.C.4.

THIS company is displaying its well-known " Superspeed " activated rosin cored solder in a variety of alloys and gauges. Besides 1 lb, 5 lb and 7 lb reels for manufacturers, the selection includes Industrial Service Packs specially designed for Amateur Radio enthusiasts and service engineers. Literature and samples are available on request.

There are facilities for visitors to inspect and test the new " Superspeed " low voltage soldering iron—an efficient and economical instrument for the intermittent soldering usually practised in laboratories and small workshops and a boon to all engaged in spare-time electronic activities. Inquiries, both technical and commercial, are most welcome.

GENERAL ELECTRIC CO., LTD. (THE),

Magnet House, Kingsway, London, W.C.2.

THE G.E.C. is displaying a representative range of Osram valves including new types for Band III television and f.m. reception, and several types of interest to the transmitting amateur. Television and instrument cathode-ray tubes are also on view together with G.E.C. germanium diodes and transistors. A simple transistor characteristic curve tracer is shown in operation.

Other items shown include the well-known BRT400 communication receiver, the G.E.C. metal cone loudspeaker in its new octagonal loaded port cabinet and examples of the current range of microphones.

GRUNDIG (GREAT BRITAIN), LIMITED,

Kidbrook Park Road, London, S.E.3.

FOR the mobile radio amateur whose equipment must be both portable and trustworthy, the Grundig " Reporter " TK9 is ideal. Weighing less than 28 lb (including microphone and tapes, etc.) this efficient instrument will make infallible recordings of anything from a long-distance signal to music and singing from a portable radio. This can be accomplished in a car or under canvas by means of a converter.

The TK9, which may be seen and used on the stand, has

a frequency range of 50 to 9000 c/s. It is push-button operated with half-track recording in both directions. Track changeover is effected by press-button in less than a second. A unique feature of the instrument is the Precision Place Indicator which enables instant selection of any particular recording from the 850ft of sound track.

ILIFFE & SONS, LTD.,
*Dorset House, Stamford Street, London, S.E.*1.

DISPLAYED on the Iliffe & Sons, Ltd. stand are: *Wireless World*. Britain's leading technical magazine in the general field of radio, television and electronics; for well over 40 years it has provided a complete and accurate survey of current technique. Design data and circuits for every application are published regularly, whilst its new items embrace the wider aspects of international radio. Monthly, 27s. per annum.

Wireless Engineer. Accepted by research engineers, designers and students as an international source of information for advanced workers. The editorial policy is to publish only original work, whilst the correspondence columns form a recognised debating ground. Monthly, 47s. per annum, including annual index to Abstracts and References.

Technical Books. Selections from the comprehensive Iliffe range covering many aspects of radio and television, including the new fourth edition of the *Radio Designer's Handbook*—the work of 10 authors and 23 collaborating engineers. 1482 pages, 42s. net.

LABGEAR (CAMBRIDGE), LTD.,
Willow Place, Cambridge.

ON this stand the main exhibit is a de-luxe medium power desk-top transmitter which incorporates the very latest harmonic reduction features together with a standard of engineering unequalled in any commercially manufactured amateur band transmitter. An 813 is used in the p.a. and all bands from 3.5 to 28 Mc/s are covered. Special features include: no coil changing, wide-band exciter circuits, pi-network output, stable v.f.o., cool 150 watt plus rating, complete shielding, small size and low cost.

Other new products on show include high and low pass TV receiver filters, a standing wave ratio meter, a two metre converter, a parallel feed r.f. choke, a high-power switched pi-network and a 100db transmitter low-pass filter.

MAGNETIC DEVICES, LTD.,
Exning Road, Newmarket.

MAGNETIC DEVICES, LTD. are showing a varied range of relays, both sealed and open, with contact ratings ranging from a few milliamps to 20 amps. The contact and coil combinations available enable a great variety of requirements to be met easily and inexpensively with comparatively few standard designs. The 2400 and 595H relays will be found particularly interesting.

Also on this stand Power Controls, Ltd. are showing their range of r.f. multiway plugs and sockets which have features rendering them most suitable for all rack mounted unit connection problems. The company's range of miniature sealed co-axial plugs and sockets is on show, including a right-angle entry pattern which is extremely useful.

MINIMITTER COMPANY (THE),
*37 Dollis Hill Avenue, Cricklewood, London, N.W.*2.

IN addition to its well-known range of transmitter foundation units, the Minimitter Company is showing the Minimitter Table Top Transmitter, capable of 150 watts input on five bands. It is harmonic free, completely self-

contained and of attractive appearance.

Other products displayed include low-pass aerial filters, a band-switched aerial tuning unit, and a 35ft steel lattice aerial tower in kit form. The latter is designed for simple erection and incorporates several innovations.

PANDA RADIO COMPANY,

58 School Lane, Rochdale, Lancs.

THE Panda Radio Company's stand is in the form of a complete station designed to portray a typical Panda installation. It emphasises the neatness of layout, the accent being on efficiency. Demonstrations of how to keep the standing wave ratio on a feed line to the lowest possible figure are also being featured.

Equipment on show includes the latest Panda PR-120-V transmitter, A.T.U.150 aerial tuning unit, a low pass filter, a dummy load and the new Panda Cub transmitter. The latter is arranged to show the rugged construction and high quality workmanship.

E. J. PHILPOTT'S METALWORKS, LTD.,

Chapman Street, Loughborough.

ITEMS displayed this year are largely the well-tried designs and finishes shown previously. In view of the miniature technique now common, attention is being given to smaller portable cases, which should be particularly useful for test gear. Representatives are present on the Stand, and look forward to receiving suggestions from visiting radio amateurs to enable the Firm to keep abreast of current needs.

PYE LIMITED,

P.O. Box 49, Cambridge.

PYE TELECOMMUNICATIONS LTD. of Cambridge are displaying a comprehensive range of v.h.f. two-way radio-telephone equipment, including installations of the type used by police, fire and ambulance services, municipal and harbour authorities, taxi cabs, doctors and business executives. A typical two-way installation is working between two fixed points at the Exhibition.

An essential component part of equipment of this type is the quartz crystal used for frequency control. Cathodeon Crystals, Ltd. of Linton, Cambs. (a member of the Pye group of companies) are showing a range of these units together with a display featuring the various intricate stages in their production.

RADIO SOCIETY OF GREAT BRITAIN,

New Ruskin House, Little Russell Street, London, W.C.1.

Headquarters' Stand

THE Sixth Edition of *A Guide to Amateur Radio* and the Fourth Edition of the *R.S.G.B. Amateur Radio Call Book* are displayed. The *Guide* is intended to provide the newcomer to Amateur Radio with up-to-date information on all aspects of the subject. The *Call Book* contains a list of the Amateur Radio stations in the United Kingdom and Ireland and is the most comprehensive list of its kind in existence outside official circles.

Copies of the Society's Journal—now in its 30th year of publication—are available to prospective members at specially reduced prices, as are certain technical booklets in the " Amateur Radio " series.

A supplement to *Television Interference*, listing technical data on more than 300 recently introduced television receivers, and copies of the British Isles Two Metre Zone Plan Map are also on sale.

R.S.G.B. pennants, members' notepaper, car plaques, and badges are offered at list prices, whilst orders may be placed for subscriptions to *QST* and *CQ*. Limited quantities of the latest edition of the *Radio Amateur's Handbook* and the *A.R.R.L. Antenna Book* are on sale.

A selection of modern amateur-built equipment loaned by members of the Society's Technical Committee and other well-known amateurs, is a feature of the stand. The items on show include "A Modern Q'5er" (described elsewhere in this issue), "A Speech Clipper Filter Unit," "The R.S.G.B. Two Metre Converter," "The R.S.G.B. Frequency Meter," "A Band III Converter," "A Simple Pre-amplifier," "The Reflectometer," "A 70 cm p.a. using 4X150 Valves" and "A Compact Top Band Transmitter."

Members of Headquarters Staff are on duty to answer questions concerning the work of the Society.

* * *

Amateur Constructors' Section

The use of transistors and mobile equipment of all kinds provide themes for the exhibits in the Amateur Constructors' Section. A notable innovation is the introduction of a number of working demonstrations.

On the U.H.F./V.H.F. stand 70 cm equipment is the main feature but converters and other v.h.f. equipment, both from U.K. and European amateurs, is also on show. Home-built gear of every description is to be seen on the H.F. stand, whilst the latest single sideband equipment is exhibited and demonstrated on a special stand.

Amateur Television is represented by the complete station used by Messrs. R. L. and J. Royle, G2WJ/T. Demonstrations take place at intervals throughout the day.

The Exhibition Amateur Radio station, GB3RS, makes a welcome return this year. Headphones are provided for those who wish to listen to contacts taking place.

SHORT WAVE MAGAZINE, LTD.,

55 Victoria Street, London, S.W.1.

IN addition to a display of books and periodicals of interest to the radio experimenter and amateur transmitter the Short Wave Magazine will be showing several items of particular interest in the field of Transistory.

These will include the photo-cell battery and home-made transistor actually used in the recent successful sun-power tests, of which a practical demonstration was given to the National Physical Laboratory on October 27, when ranges up to 15 miles were obtained on c.w. in the 1.8 Mc/s band, under observed conditions.

STANDARD TELEPHONES & CABLES, LTD.,

Brimar Valve Division,
Footscray, Sidcup, Kent.

BRIMAR are exhibiting a good selection of their current range of receiver valves, metal rectifiers, germanium diodes and the well-known Brimistors. Also on show are the 21in., 17in., and 14in. flat-faced rectangular cathode-ray tubes and the new self-focus 17in. type all aluminized.

Of special interest to the amateur transmitter is a display of low power transmitting valves and, among working exhibits, transistor oscillators. A small range of transistors, for which literature is available, is included in the exhibit.

TAYLOR ELECTRICAL INSTRUMENTS, LTD.,

Montrose Avenue, Slough, Bucks.

IN addition to the comprehensive range of radio and television test equipment, several new models are being shown which are of special interest to the radio and television service engineer as well as to the amateur. The TV Sweep Oscillator Model 92A is designed for the alignment of television sets, the centre frequency point being continuously variable from 3 to 250 Mc/s. The new Oscilloscope Model 31A uses a 4in. c.r.t. while the time base covers the range from below 10 c/s to above 500 kc/s. The push-pull amplifier works from 10 c/s to 6 Mc/s.

The new Electronic Test Meter Model 171A is an accurate valve voltmeter covering a.c. volts from 1 to 250 and d.c. volts from 1 to 1000 and 25 kV with an external adapter. Model 191A Wide Range RC Oscillator is a new addition to the standard range of test equipment. A wide selection of test equipment of all kinds is also on show.

WAR OFFICE.

The Army.

THE Army is represented by the Royal Corps of Signals at this year's Exhibition.

The Regular Army portion of the stand shows the new type of telephone handsets which are virtually indestructable, together with the latest miniature loudspeakers of the type used in tanks. The preferred range of valves now in use is also on show.

The Army Emergency Reserve Squadron is demonstrating a complete 3 cm amateur station as well as a " hear your own Morse " exhibit whereby visitors can hear their own sending played back on a tape recorder.

Representatives of the Special Air Serice are demonstrating their miniature " behind the enemy lines " equipment.

Plastic Signs

DECORATIVE-MINDED members may like to know that very attractive white plastic letters and figures which are ideal for display in the shack or car can be obtained from Kennett Price Markers, 55A Eastgate Street, Winchester.

The most useful sizes seem to be letters of $\frac{3}{4}$in. and figures of $\frac{13}{16}$in. which are designed to be used together. They are priced at 3d. each—a five character call-sign would therefore cost 1s. 3d. Samples can be obtained free of charge from the makers.

G3IDG.

The R.S.G.B. in Retrospect

1939-1943

By C. H. L. EDWARDS (G8TL)*

Uneasy Peace—Then War

THE uneasy peace which followed the Munich Declaration of September, 1938, gave a breathing space in which it seemed that the radio amateurs of the world would be able to continue their experiments unhindered. Membership was still increasing as 1939 opened there being 2580—a rise of 239 over the previous year. But because of rising costs the Council decided—after an unbroken run of 12 years—not to take stand space at Radiolympia. In place of Radiolympia the General Secretary suggested that the Society should run its own Amateur Radio Exhibition at the Royal Hotel, London. Plans were made to open the exhibition during the second week of September, 1939, but alas it was not until 1947 that such an exhibition could be held. In July, 1939, Sir Joseph Causton and Sons, Ltd. of Eastleigh, Hants., secured the contract to print the BULLETIN, a move from London which was to prove most fortunate for the Society in the years to come. Arthur Milne took over the monthly DX commentary and the first G4 calls were issued.

Liaison with the G.P.O. continued, in the course of which the Society made efforts to obtain permission for U.K. amateurs to use the band 234–240 Mc/s but for reasons which became clear subsequently, without success. During August the G.P.O. informed the Society that in the event of a war licensed amateurs would be asked to remove all valves, pack them securely and make an inventory of their gear.

On August 30, 1939, German forces marched into Poland. On August 31 the following notice appeared in the *London Gazette*:—

Wireless Telegraph Acts, 1904-1926

To all holders of Licences for Experimental Wireless Telegraph Transmitting Stations, I, Major the Rt. Hon. George Clement Tryon, H.M. Postmaster-General, hereby give notice that in pursuance of the provisions therein contained, all Licences to establish wireless telegraph transmitting stations for experimental purposes and to use wireless sending apparatus in conjunction with artificial aerials, are hereby withdrawn. Dated this 31st day of August, 1939, G. C. Tryon, H.M. Postmaster-General.

The text of the notice was broadcast by the B.B.C. at hourly intervals and one after another amateur signals disappeared from the bands—not to be heard again for another six years.

One week after war broke out (on September 10, 1939, to be precise) a Special Meeting of the Council was held at the home of Mr. Watts at which it was decided that the work of the Society should be continued so that when peace again returned, there would be in existence a strong and virile organisation fully equipped to safeguard the interests of Britain's radio amateurs. It was also decided at that meeting to continue publication of the BULLETIN (in reduced size) but to suspend London meetings at the Institution of Electrical Engineers. The London subscription rate was reduced to 15s. p.a. (the rate which then applied to Country members), whilst members called up for service with the Armed Forces were allowed to pay a subscription of only 10s. p.a.

For the next four years (until July, 1943) the Secretary and Miss May Gadsden, with the assistance of Mrs. Clarricoats, conducted the routine business of the Society from the Secretary's home at 16 Ashridge Gardens, Palmers Green, London, N.13. During that time the assets of the Society increased fourfold—from £1000 to £4000.

Soon after the outbreak of war the G.P.O. began to impound apparatus but no one in authority seemed to know exactly what should be taken and what left. In some cases the whole station (including receivers and even junk boxes) was taken away while in others only valves and crystals were removed.

Service Reserves

The Admiralty called up members of the R.N.V.(W.)R. about two weeks before war was declared—in fact many were already at sea when the "balloon went up."* The Royal Air Force Civilian Wireless Reserve was also called up just before war broke out and it is now history that the first contingent—christened by G6CL "The Early Birds"—were on their way to France whilst the Prime Minister was making his historic announcement.

The QSL Bureau was taken over by Arthur Milne (G2MI) and the last call-sign issued before the war was G4QS.

On the morning war was declared the Secretary wrote the first paragraphs of a new BULLETIN feature, *Khaki and Blue*. This ran for more than six years and served to keep members informed of the activities of their friends in the Services.

War-time Council Meetings were held at the home of the General Secretary in North London. In this picture, taken after the September, 1940, meeting, appear from left to right, G6LL, G6CJ, G6WN, G6GR, G6OT, G5CD and G6LJ. Since that time G6CJ, G6GR and G6LJ have become Past Presidents and G6LL, G6CJ, G6WN, G6OT and G5CD Vice-Presidents. Mrs. Clarricoats in the background and Mrs. Corfield complete the picture.

As so many amateurs were now moving about the country on active service, members still at home were invited to offer ham hospitality. Their names and addresses were published in the BULLETIN. Many members in reserved occupations or too old for active service joined Civil Defence or the Home Guard, while others undertook important duties in their own homes for which their prowess as radio amateurs had fitted them.

During the main blitz on London the Society's old Headquarters at 53 Victoria Street were damaged, as were the offices of The Television Society in Holborn where Council Meetings had been held for some time. For the next few years the Council met on Sundays at Mr. Clarricoats' home in Palmers Green.

Throughout the war years the Service Departments, mindful of the amateurs' knowledge and past record,

*10 Chepstow Crescent, Newbury Park, Ilford. Essex.

(* The first amateurs to die on active service were Jack Hamilton, G5JH, and Ken Abbott, G3JY. They were drowned when H.M.S. Courageous was sunk in September, 1939. ED.)

invited the General Secretary to put forward the names of members for work of a specialised nature—although they did not know it many members owed their rapid promotion to the fact that they had done good work as amateurs prior to the war.

The Second Year of Conflict

During the second year of the war there began a big demand from the Services for the *R.S.G.B. Handbook* but little did the Council, or anyone else at that time, appreciate that by the end of the war the *Handbook* would have become a bestseller, and firmly established as a standard text-book.

In the BULLETIN, Arthur Milne (G2MI) wrote the "Month *off* the Air." The July editorial—headed "If Invasion Comes"—gave advice on the best way the amateur could help. Another new feature—"73"—was introduced to enable members to send greetings to their friends. Meetings at the I.E.E. were recommenced although a small charge was made for the cost of the tea and the hire of the room.

With the publication of the 14th Active Service list, the number of members serving in H.M. Forces passed the 1000 mark—a wonderful record of which the Society could be justly proud. As was to be expected membership had by this time decreased due chiefly to the fact that many members were abroad. At about this time the Society discussed with the G.P.O. the question of compensation for damage to impounded equipment. During these discussions the G.P.O. expressed the hope that the Society would co-operate with them prior to the cessation of hostilities in the examination of matters relating to post-war amateur licences.

In connection with impounded amateur equipment, the G.P.O. advised the Society later that year that it was merely acting as bailee of the property and was not responsible for loss or damage. It suggested that members could claim under the Private Chattels Section of the War Damage Act, 1941. Nevertheless, several members whose equipment was lost or damaged while in the possession of the G.P.O. were compensated after the war.

The Secretary's home in Palmers Green, besides being war-time Headquarters (until July, 1943) of the R.S.G.B. was also an Official Centre for Ministry of Information Bulletins. This picture, taken during the autumn of 1940, shows one of the Local Information Committee's boards in position. M.o.I. Information Centres would have played an important part in the defence of the country if Hitler had invaded the British Isles.

During 1940 the Council decided to publish a resumé of the chief items of interest discussed at their meetings under the title "Headquarters Calling."

The Air Ministry asked for the co-operation of qualified amateurs willing to train air cadets in Morse and radio theory. An urgent appeal—instantly answered—was made to members for Morse keys, buzzers, valve oscillators and headphones. In addition, valves, resistances, condensers and meters were required for practical work. At one period of the war more than 200 members were serving in the Air Training Corps as commissioned officers in the R.A.F.V.R. (Training Branch) or as Civilian Instructors.

At the end of 1940 Mr. Arthur Watts, after serving for six out of the past seven years as President, handed over to Mr. Alfred D. Gay (G6NF).

The R.S.G.B. P.o.W. Fund

Following the collapse of France, a member suggested that a list of the names and addresses of members held as prisoners of war should be published. The General Secretary went further and proposed that a P.o.W. Fund should be inaugurated for the purpose of sending parcels to those in enemy hands. A request published in the BULLETIN for an Administrator of the Fund was answered by the present writer. The first batch of parcels was despatched in November, 1941, to 13 members held prisoner in German and Italian camps. In three months the fund reached £70 and money was coming in so fast that it was decided to send parcels at monthly intervals.

The BULLETIN was now down to 24 pages, because of paper rationing for periodicals, but another 10,000 copies of the *Amateur Radio Handbook* were ordered from Causton's.

The Government, being short of measuring instruments, appealed to members to donate or sell to them meters of all types. A letter of appreciation from Lord Hankey on behalf of the Government for the valuable assistance rendered by members in this connection was published in the November, 1941, BULLETIN. (It seems a great pity that this generosity was not remembered after the war when surplus instruments were disposed of to the trade and not offered to the Society.—G8TL.)

The Third Year of War

During 1942 a supplement to *The Amateur Radio Handbook* was produced by some of the original team of writers with one or two new helpers. No less than 30,000 copies were ordered—the largest printing order ever placed by the Society. The *Supplement* sold at 2s. 6d. a copy. In April, because of the shortage of paper, the BULLETIN was again cut, this time to a quarter the size of pre-war issues. At a Special Meeting, the Council decided that "*The Month off the Air*," "*The 28 Mc/s Band*," and "*Experimental Notes*" should be suspended. It was also decided to lengthen the columns by ½in. and to use smaller type. June saw the demise of the T. & R. BULLETIN. From July, 1942, the Society's journal became known as the R.S.G.B. BULLETIN, Official Journal of the Radio Society of Great Britain. Thus another link with the past was broken. By 1942, membership was increasing once again—in fact by September, 1941, it was only 200 less than the peak figure recorded in 1939.

The P.o.W. Fund was steadily increasing. Prisoners were writing for books on such diverse subjects as Shakespeare, clock repairing, photography and economics and for technical books on electrical and radio subjects. One member requested copies of pre-war City and Guilds of

London Institute examination papers on electrical engineering which the Institute supplied free of charge. All these individual requests were eventually met, although it took long hours of searching in shops to fulfill all the requirements. The call for fiction was answered by members who sent hundreds of books for distribution. The Society adopted as next of kin, one Australian overseas member who had lost all of his kit on being transferred from an Italian to a German camp. By so doing, a complete parcel of the necessities of life, *i.e.* razor, blades, soap, towels, pencils, etc. were despatched and duly acknowledged gratefully. To a further prisoner " under the weather " was sent a parcel of invalid comforts, a special permit having first to be obtained. Likewise the gross of halibut oil capsules were later received and acknowledged.

In November the Fund was extended to include non-members who held call-signs or A.A. licences on September 3, 1939. More than £600 had been contributed, expenses to date being £162.

1943—Record Membership

During 1943 membership rose to 4480, a nett gain of more than 1000 in 12 months. The Society's journal was now down to 16 pages, but by using all available space and small type the equivalent of approximately 28 pages of reading material based on earlier methods of production was offered to members.

The G.P.O. Liaison Committee had several meetings with the Post Office regarding post-war licences. It was at one of these meetings that the General Secretary suggested that qualified ex-Servicemen should, after the war be exempted from the Morse test and a technical examination if such were introduced. The Council agreed to approach the City and Guilds of London Institute regarding a suggestion that the Institute should act as the Examining Body in the event of a technical examination being introduced.

In July, 1943, Society Headquarters moved back to Central London, by which time the membership had risen to nearly 6000.

Financial support for the P.o.W. Fund gathered momentum with the result that by August nearly £870 had been collected and £385 expended on gift parcels. At the suggestion of the General Secretary, enquiries were made to see if it would be possible to send attache cases to each prisoner. After much argument with officialdom a special permit was eventually obtained and the cases despatched. Later, the Administrator of the Fund, with a similar idea in mind, sent a kitbag to each P.o.W. without asking for a permit! It was very gratifying to learn, some months later, that both these articles arrived safely and filled a long-felt want. Although news was received that several members were prisoners of the Japanese it was not possible to send gift parcels to them as the Red Cross was not guaranteed safe passage by the Japanese authorities.

Another 30,000 copies of both the *Handbook* and the *Supplement* were ordered.

(To be continued)

Instruction Course

FOREST HILL General Evening Institute is organising a course in radio and television at Kilmorie Road School, London, S.E.23 (Room D2) on Tuesdays at 7.30 p.m. The L.C.C. fee for the session is 10s. Applications to join the course should be made to the Principal.

Mobile Column

Owing to pressure on available space, the usual feature devoted to mobile operation does not appear in this issue. During the winter months, " Mobile Column " will be published in alternate issues, commencing December, 1954.

B.B.C. Handbook 1955

THE ordinary listener and viewer, as well as those professionally interested in broadcasting, will welcome the appearance of *B.B.C. Handbook* 1955 (224 pp., 5s.). Its aims are set out in a foreword by the Director-General, Sir Ian Jacob: " to provide a clear and reliable guide to the workings of the B.B.C., to survey the year's work in British broadcasting and to bring together as much information about the B.B.C. as can be assembled within the covers of a small book." There is a long review of British broadcasting in 1953-54, supplemented by lists of representative programmes.

The latter part of the book provides a mass of useful reference material and includes the full text of the B.B.C.'s Charter Licence. Those who wish to apply for auditions, B.B.C. posts, or tickets for B.B.C. shows will find the information they want in a section entitled " Practical Advice," which also explains how to submit scripts and scores and gives the rules for SOS messages and appeals. All the articles have been written by senior members of the B.B.C.'s staff.

Royal Astronomical Society

UNDER the title " Occasional Notes," the Royal Astronomical Society publishes from time to time authoritative information on various aspects of Astronomy.

The current issue (No. 16) contains a comprehensive account of the work being done in the field of Radio Astronomy. Compiled under the editorship of Professor A. C. B. Lovell, each chapter has been written by an expert member of the staff of the Experimental Station at Jodrell Bank (University of Manchester). Although covering even the most recent techniques and advances the treatment is essentially elementary and can be readily understood without technical or mathematical knowledge.

The giant 250ft radio telescope being erected at Jodrell Bank, as well as other radio telescopes, are illustrated in this new publication, copies of which can be obtained (price 6s.) on application to the Society at Burlington House, London, W.C.1.

G6UT Is now ZS1RG

HIS many friends in the U.K. will be glad to hear that Vice-President T. A. St. Johnson, G6UT, is now active from Wynberg, Cape Province, under the call ZS1RG. " Uncle Tom," as he is affectionately known to us all, is spending a holiday in South Africa with his brother. He expects to return home next March. In the meantime he wishes to be remembered to his friends who are asked to look out for signals from his station on 14 Mc/s. Incidentally, within seven days of obtaining his licence, he worked 25 countries, including seven in Europe. His first U.K. QSO was with G5VT.

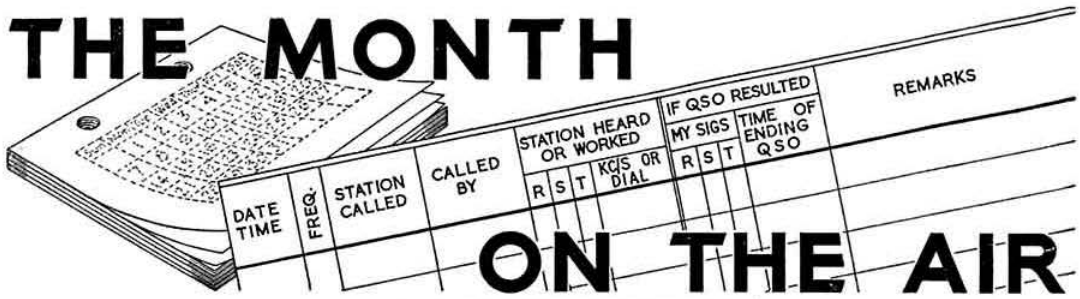
On his way to South Africa " Uncle Tom " was entertained at Las Palmas by the local EA8 fraternity who presented him with a silk pennant and a kiss on both cheeks!

Correspondent Wanted

TONNY SOERENSEN, a short wave listener living at 2 Hestehavevej, Hoejbjerg, Denmark, wishes to correspond with English short wave listeners interested in Denmark. He promises that all letters will be answered promptly.

Well Done, Jean

CONGRATULATIONS are offered to Mrs. Jean Hodgkins, until recently B.R.S.17456, of Tottington, near Bury, Lancs., on obtaining her licence—G3JZP. Jean and her husband, Johnny (G3EJF) thus join that very exclusive group of husbands and wives who both hold an amateur licence.



By S. A. HERBERT (G3ATU)*

NONE of us active on the bands within the last few weeks are in any doubt as to how things are going. Ten metres remains a hunting ground for the student of solar noise, but on all the other bands covered by this feature, conditions have been noticeably on the up-grade. People have even been heard to remark that "conditions seem quite good"—and when that happens, it means the band is wide open! Top Band qualifies for that statement and we start with a report thereon.

Top Band DX

The big news this month comes from **G6CJ** who, as mentioned last month, has been keeping watch with G6GM for ZL1AH and ZL3RB. After four weeks, ZL1AH had heard nothing from this side, although both Gs had heard snatches of him through the terrific noise-level. However, on October 10, signs were heard of ZL3RB and on October 13 at 0640, the great moment arrived, with both G stations making contact; G6CJ was RST229 and G6GM RST339 during the 15 minutes the ZL was audible. The QSO was continued an hour later, when '6CJ gave ZL3RB his very first G contact on 14 Mc/s!

Next day, G6GM was worked again on 1.8 and the ZL was heard on October 18. "Dud" thinks the season is now over and remarks that the noise-level, higher this year in ZL, seems to be the only limiting factor, provided good aerials are used. His own array is a pair of phased inverted Ls, "with a steering knob in the shack!"

Big news, also *via* '6CJ—ZL1AH has succeeded in working VS6CQ. Reports were RST339 in ZL and 449 in VS6; the QSO gave ZL1AH his W.A.C. on the band. Congratulations to all concerned. G6CJ confesses himself well satisfied after two years of effort, including the use of 500 Mc/s model aerials and much study of geophysics and Old Moore's Propagation Charts!

G3JHH was rightly delighted to hear that ZC4CA had copied his QSO with GW5BI on September 27 at 2345. '3JHH runs 9 watts into an 85ft end-fed wire and was RST339 in ZC4. He has worked 5 OKs and 68 counties, which, he says, shows what a simple rig and lots of patience will do.

ZC4GF started hearing DX on September 12, when G3CAS (RST239) called G3CWI (?). Later in the month, G3HDZ, G3JVI, G2JT, GW5BI, G3JHH, OK1NC and OH2YV were logged, all between about 2230 and 0030. ZC4GF is running a sked with W2EQS every fourth day at 0400 through November and December. **G3EOG** passes on a list of Gs heard on October 13 by **TF5TP**. G3JJA, G3CSG, GM2GMS, GI3HAJ and G3IK (phone), were all good signals between 2200-2230. TF stations, unfortunately, are not licensed for the band. **B.R.S.20106** started the season well with K2BUR, W2EQS, W1BB, W2JIL and W3HL (peaking S7 at 0600), all between 1804 and 1820 kc/s. Norman also heard a W4 (not identified) and HB9CM. **B.R.S.19107** logged several W1, 2 and 3 and says VP4LZ was heard on October 3 (but not by him). A QSL from VP7NM brings his confirmations to 22 out of 33 countries heard on the band. John hears that both TI2PZ and TI2BX will be active during the winter.

Eighty Metres

Eighty continues to reward the few hardy souls who use it during the wee, small hours. The R.A.F.A.R.S. Club station at Yatesbury, **G3HWF**, is a case in point. Ian Winter reports their recent one month W.A.C. which included such DX as ZB1BJ, '1AUV, ZB2A, FA3HA, '8DA, SU1XZ, '5LS, HE9LG, OY5S, OD5IM, TI2BX, VP4LZ, ZD2DCP, ZL4IE, VE1 and sundry Ws. The rig runs 150 watts and the aerial, a dipole, is 55ft high. **G3JAF**, with 45 watts and a 132ft wire, has worked lots of W/VE, but the high spot for him was a QSO with ZL4AL at 0700. A South American contact would give him his W.A.C. PY2BKV may be the answer. **B.R.S.20106** heard the latter, LZ1KAA. VE and W/WN on c.w.

Forty Metres

At this time of the year, 7 Mc/s is full of good stuff. Unfortunately, for much of the day it is also full of cloth-eared gentry happily working each other across town and complaining about the poor conditions. **G3AAE** dug through a layer or two and worked ZC7AM, ZS6AEH, 4X4FS, SU1WW and VP8AZ. **B.R.S.19894** logged VP8BE at 0410 and wonders about KG5P. calling LZ4U.

B.R.S.19107 logged some real c.w. DX, starting with W6RW(RST599) working KC6CG(RST559). The KC6 is on Ulithi Atoll in the Carolines Group. In addition, John heard KH6TA/KL7, KL7BNU (often S8 around 0745), VP8AA, '8AO, '8AZ, '8BE (2130-2300, or 0730-0815), HK0AI (0400), XE1MJ, CE2GG, LU2ZI (Deception Is.), LU7ZM (S. Orkneys), HR1JZ, ZE6JJ and ZD6BX (RST569, 2035). The ZD6, KC6 and HK0 bring the band score to an impressive 191 countries. **B.R.S.20106** logged much the same assortment and mentions also CE1AP, CO8AQ and '8JD, YI2AM (2030), EL2X, W5 and 6 and numbers of VK/ZL, including VK2GW at 1604. A restless cat enabled Norman to pull in HK0AI—0400 is not one of his regular listening times!

Twenty Metres

This band has been carrying heavy traffic as usual and short skip seems to be less in evidence. VK signals made a welcome reappearance at midday, while around dusk, in addition to Africans, W6, 7 and VE7 have been at good strength.

G3JFF, now in Mediterranean sunshine, hooked some new ones before departing. ZD2DCP, YI2AM, VP8BE,

*Roker House, St. George's Terrace, Sunderland.

VS1GJ (15 watts), ST2NG, VK2JY and FM7WP put him up to 87 countries. If he'd been able to attract the attention of people like ZS7C, HI8AM, FL8AN (?), HR1AT, KC6CG, CR7LU, VQ3GW, ZD6BX, ZD1BC, VU, AP, etc., he would just about have made DXCC! Of particular interest to Top Band exponents—'3JFF intends to listen there while at sea. He will be home in mid-December for another spell, before leaving again for the West Indies. **G3AAE** worked two new ones, FI8AZ and VK9AU (Wewak, New Guinea), but his best catch was elsewhere: see later. **A1291** concentrated on phone, which produced VKs, CO2IB (1300), VK9DB, KG6CE, EA9AL, FF8CW, HP1SS, ET2LE, VS2EB, KR6KS, KA4MI, VP5RO, VP6FO and ZLs, including the perennial " Voice of Hastings," ZL2BE.

B.R.S.1801 dug up some choice phone in OQ5FO, CR6CS, VU2JP, YK1AE, VQ3DQ, 4S7YL, VP2DN, ZD1BD and W6, 7 and followed it with CR7IZ, MP4BBL, ZS3P, FM7WD, JA8AE, KG6IZ (Iwo-Jima), UH, UI and VS1GT on the key. John is going to try the l.f. bands this winter. Judging by his h.f. results, he should do well. **B.R.S.19771** added W5RMJ (N. Mexico) and W7PCZ (Idaho), leaving Mississippi and Utah to complete his H.A.S. Other c.w. was from JA0CA, KG6AFY, VE6RR, VK7DZ, VP8BE, VQ6LQ and a ZA1FA (!), with phone logged from KA4MA (using s.s.b.), other KAs and VR1UX (S7 at 0900), who was heard to say he used a 3-element beam and 100 watts. John thinks he may be rather nearer Europe than he should be. Recent QSLs from FI8AZ, ST2NG, ZC7BB, VS2DS, ZC5SF, ZD3BFC (all by air) and SV0WK/9 give him 36 zones and 165 countries confirmed. The best from **R. J. R. Crocker** were MP4K, DU1AP, 4S7FG, 4S7YL, TI2WZZ, '2WLC, '2RMA, CM9AA, M1B, KL7AON, VK and ZL2, 3, 4. **B.R.S.20106** heard MP4QAJ (Quatar), MP4BBL, DU1VQ, HS1D, VQ6LQ, ZS8D, VP8AA, VK9AU, VE7GI, VE5PM, LU1ZT and ZL on c.w. On phone, his best were VS2DG, ZL2JL (0840), OA1C (2045), VP2DN, VE5DR and VE8MD. **B.R.S.19894** heard VP8AA, '8AD, '8AZ and '8BE, EA0AB and FM7WD on the key and some ZL and KL7 phones. **G3ATU** reports activity from FB8BE, FB8BR (1900), XZ2EM, XZ2OM (1400), FY7YE, EA6AU, all on c.w. VK9AU is often on 7 Mc/s. The QTH of KC6CG is Lorsta, U.S.C.G. Depot, Box 3, Navy 926, c/o F.P.O., San Francisco. VQ6LQ (ex-ZD1LQ, EL3LQ, G3LQ) address is Box 11, Hargeisa, Br. Somaliland. Cards to Box 232, Sandakan, Br. North Borneo, will reach ZC5SF.

Fifteen Metres

There have been some unusually good openings on this normally neglected band. October 16 in particular saw loud signals arriving from all over the globe. Twenty seemed quiet in comparison. **B.R.S.20106** logged phone from ZD9AC, W6OZC (2000), W8, 9, 0, CR4, ZS and other Africans. His best c.w. DX was from FY7YC, ZS9I, HR1AT and W6EEK, with some 27 countries logged in all. **G3AAE** is feeling particularly happy, having at long last worked a Mexican—XE1PJ on c.w., so completing his long-awaited W.A.Z. FY7YC was added for another new one and ZS1, 2, 6 and VO went towards E.DX.C. Ten more will do the trick. **B.R.S.19771** heard his first Novice station on the band—WN1BCV—plus CR6, KZ5, KP4LU and ZE, with SU1KB, VP6, YV5 and 4X4 on phone. **A1291** mentions phone from OQ5RU, EL10A, PJ2AA, 4S7YL and VK6BS (both good DX on 21 Mc/s), OA4BN and TI2DX, while **R. J. R. Crocker** heard masses of stuff, including OA4C, CP5AB, HC1FS, VP9L, CE3CZ, VS6CW (0910), ZS9G, CT3AN, ZD9AC, ZD1CS and maritime mobiles W2DUM (36°N, 42°W), W2ZXM (off Ceylon), K2CTA (off Virginia), W3KIF (11°N, 31°W), W4DGW, W3OZO (off Sumatra), W8QOH (at Takoradi) and W2BJB (50°N, 22°W).

Overseas News

In a letter to **G2MI**, **ZD3BFC** makes it clear that he will be in Gambia for at least two years. At present, operation is mainly on phone, usually crystal controlled on 14,100 kc/s at 0800 and in the evenings. Calls on that frequency must and will be ignored, Bill remarks that on one occasion only has a G station interrupted a QSO, although lots of others do it all the time. He wishes to thank G4ZU and G3FNN for their help in sending out the Collins transmitter now in use. There will be more c.w. work when his Vibroplex key arrives. (He has already been on 7 c.w. occasionally). Out of 374 QSOs, only 7 have previously worked ZD3, and 3BFC intends to QSL 100 per cent. **G2KU** (3A2AL) writes that he leaves for Brunei early in November and expects to be on the air as **VS5KU**. If conditions permit, he will visit Sarawak (VS4KU) and the trip will last some four weeks. The rig is very tiny—transmitter and receiver together weigh only four pounds and it is essential to call off his frequency, to give the simple little receiver a chance. **G5VT** passes news of Old-Timer G6UT, now on a long holiday near Cape Town and active as **ZS1RG**. On c.w. only at the moment, he has worked G5VT and others on 21 Mc/s and is looking for more G contacts. Incidentally, '6UT, a " brass-pounder " since 1923, still had to pass a Morse test before getting his ticket!

T. Saunders, who operated recently as ZC7BB, is on his way home. A new station, ZC7AM, using 25 watts on 7 Mc/s, is due to operate from Jordan for a period of about 5 weeks. Cards for ZC7BB can be sent *via* G4CP.

22546287 L/Cpl. Baker, 9 Medium Wireless Troop, M.E.L.F.12, is the new address of **ex-5A2CE**. Anyone still needing a 5A2CE QSL should write to that QTH. Ken hopes to obtain a new call and meantime finds Europeans in general come through well, though static makes DX logging difficult. **5A2CH** has also left Benghazi and is now home. A line to 139 Rectory Road, Grays, Essex, will bring QSLs, if needed. '2CH worked 58 Gs in two years (and scanned *M.O.T.A.* in vain for mention of his call!). **ZB1AH** will leave Malta for the U.K. this month and hopes to meet in person some of the Gs he worked from abroad. Should any QSLs have gone astray, a note to 23 Hill Top Crescent, Wheatley Hills, Yorks., will bring a card. **G6NN** and his XYL have returned from a cruise covering EA, CT, FA, SV, OD, YK and ZC4 and wish to record the wonderful hospitality accorded them by the ZC4 " gang." ZC4CA and '4PB acted as guides on a tour of the island's historic spots. The visit ended with a party of twelve looking over the *s.s. Oronsay*.

Congratulations to Lucy and Desmond Alimundo (**VS4HK**) on the arrival of a daughter and to Mrs. Matthews and Mike (**G3JFF**) on the birth of a son.

The **G2RO** tour was mentioned last month. Further news is that February 8 to 12 (approximate dates) should see activity from **VQ8RO** (Mauritius) and February 12 to 18 from **VQ4RO.**

The R.A.F. Amateur Radio Society

The Honorary Secretary, G6PZ, proposes to establish a net for R.A.F.A.R.S. members and affiliated clubs. This has been provisionally fixed for Tuesdays at 1900 G.M.T. on 3567 kc/s c.w. It is hoped this schedule will promote new and old friendships.

* * *

Apologies for the omission of the final paragraph of last month's *M.O.T.A.*, which vanished somewhere along the production line and which caused some people to miss the deadline. However, this is always the 20th of the month, unless that date falls on a Sunday, when it would be of assistance to have it in by the 19th. Until next month, good hunting and 73.

Kongres Radioamatera Jugoslavije

An account by the President (Mr. Arthur Milne—G2MI) of his recent visit to the Continent

How it started

WHEN the Council accepted the generous invitation of S.J.R. (the Yugoslav Amateur Radio Society) for the President to attend their National Congress in Ljubljana, neither he, nor they realised that the trip was to become something of an Amateur Radio "Goodwill Tour" of Europe!

The invitation was for a five-day stay in Ljubljana, the capital of the Republic of Slovenia, with all expenses paid but, as most of the route was to me new territory, I decided to go by train and meet as many "hams" as possible.

Bavarian interlude

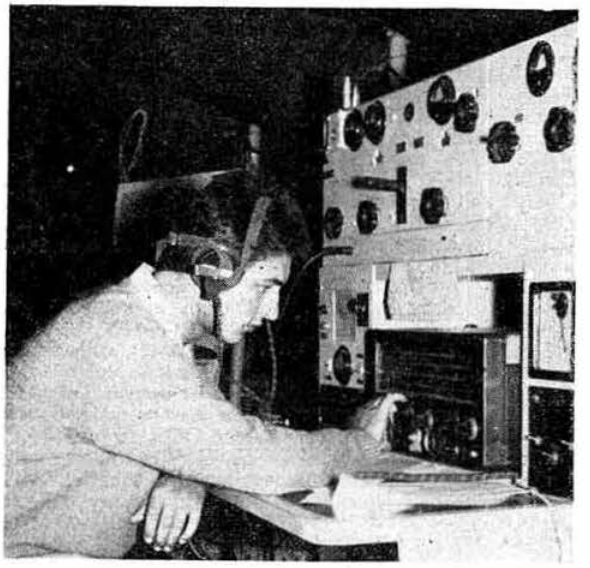
I had arranged to meet several of the Munich amateurs at the station for a chat, during the hour's wait between trains before going on to Salzburg; accordingly, I left London on the night of August 16 and travelled down the picturesque Rhine valley to Munich, where a cheery party, with QSL cards stuck into their hat bands, stood waiting. There were DL1YA, Chairman of the Munich group DL1BA, the D.A.R.C. QSL Manager, DL6XX and DL6RQ. We adjourned to the Rheinhof Restaurant, where we met DL6XW and, whether by design or accident, I do not know, managed to miss my connection. However, a call to OE2HW put things to rights and afforded the opportunity of seeing the fine station of Hans Schlieffenbaum (DL1YA) before going on.

Meeting an old friend

At Salzburg, it was evident that a certain amount of "influence" had been exercised, for I was whisked through the Customs and Passport control in the best V.I.P. tradition to a cordial meeting with Hans Wieder (OE2HW). The generous hospitality extended to me by Hans, his wife and daughter (OE2YL) was in the best Austrian style. On the following morning, despite an indoor aerial, we made excellent contacts with G2ZI, G2MF and several other British stations on 14 Mc/s before a tour of the lovely old city, including a visit to the castle and a call on Col. Cerwin (OE13AA) at U.S. Army Headquarters.

All too soon, it was time to leave but this time I had company, being joined by OE5HN, who was also Ljubljana bound. As we boarded the train, a voice asked "Are you hams? I'm DL1DH" so the three of us teamed up and were bid "Farewell" by OE2HW, OE5HA and OE2SP.

S.R.J. Council at the Congress. The President (Mr. Naceniovic) is speaking. Mr. Jancar, Director of the Technical Institute, is on his left and YU1AA on his right.



YU0A, the congress station at the Amateur Camp.

On to YU-land

The route from Salzburg to Ljubljana passes through some of the most magnificent mountain scenery in Europe and past forests of 100ft pines, all as straight as a die!

At the frontier, DL1DH declared his 2 m transceiver to the Yugoslav Customs officer, who, to my utter astonishment, gave him a receipt and allowed it through without batting an eyelid.

At Ljubljana station, there awaited a welcome worthy of a visiting potentate! Mr. Nacienovic, President of S.R.J., Janez Znidarsic (YU1AA) their Vice-President, Mr. Yuvanovic, Hon. Editor and members of their Council were there and cars were waiting to take us to our hotel, the Bellevue, set on a hillside and backed by a vast pine forest. We later assembled for dinner on the terrace, overlooking the city and tried to do justice to a prodigious meal in the warm summer air.

Congress Opens

On the following morning, with Mr. Yuvanovic, who acted as my interpreter and who gave up a great deal of his time to ensure that I was well looked after, I went to a large cinema where, in the presence of the Lord Mayor, the Plenary Session of the S.R.J. Congress was opened before some 450 members. The fact that the R.S.G.B. had sent its President created a deep impression; after a few preliminary words of general welcome, their President invited me to address the assembly. I conveyed the greetings of the R.S.G.B. and stressed the international significance of Amateur Radio as a means of bringing the peoples of the Earth together in friendship. Each paragraph was translated as I spoke. These few remarks brought tumultous applause and I was then followed by George Zafaris (SV1SP) speaking on behalf of Greek amateurs, soon to receive official recognition and then by speakers from Germany, Austria and Denmark.

Then came the Council's report, including an account of the Region I Conference in Lausanne last year, after which the foreign delegates withdrew, as the remainder of the session was concerned solely with S.R.J. business.

The rest of the morning was spent in the company of Mirko (YU1AD), George (YU1AG) and Bob Thompson (YU1GM/W4GMP) in an attempt to counteract the effects of the summer heat. (Sorry, chaps, but the wx was gorgeous.)

Amateur Camp

Associated with the Congress, a Summer Camp had been organised just outside the city and late that afternoon we were conveyed there to the accompaniment on the motor-coach radio set of a half-hour programme about the Congress, over Ljubljana Radio Station. This programme came on each day at the same time and was only one example of the excellent publicity given, both locally and nationally.

The Camp was well organised, with water and electricity laid on and a v.h.f. telephone link working into the public network. A Congress station, YU0A, was on the air, mainly on 7 Mc/s.

The Camp was the centre of many activities, including a DX competition and a hunt for a hidden transmitter on 144 Mc/s. Much amusement was caused by earnest-looking people stalking around carrying 3-element beams but the biggest laugh was on a couple of youngsters, from remote Dalmatia, who, misunderstanding the advertised " Fox Hunt," came armed with rifles!

Yugoslavs have much in common with Welsh people. Someone has only to sing a note for everyone to join in with the correct part song, quite naturally. That summer evening, so far from home, round the blazing camp-fire, with nothing but the stately trees between us and the stars, listening to the haunting sadness of folk songs and the rousing jollity of songs of the Partisans of wartime days, will linger in my memory.

The Exhibition

Another important feature of the Congress was an Amateur Radio Exhibition, which was opened that afternoon by the President of the Slovenian Amateur Radio Society. I was impressed by the remarkable workmanship. This was especially striking when one remembers how desperately short of gear these fellows are.

From the Exhibition, we went to a Press Conference where representatives of the local and national press were

G2MI presents an R.S.G.B. Pennant to the President of S.R.J., Mr. Naceniovic.

" It's nice to have a beam over our head!" Yugoslavian "Fox Hunt "—with apologies to the famous advertisement.

invited to fire questions. I was asked to speak about Region I Bureau and its significance. The other foreign visitors were also invited to speak. Everything was tape-recorded and duly went out over Ljubljana Radio, besides taking up several front-page columns of the Press!

It was interesting to find how many Yugoslavs speak English and everywhere I found a deep-rooted admiration and affection for Britain. Even if we ourselves sometimes forget that Britain stood alone in 1940, the Yugoslavs do not!

Civic Reception

On the following day, the Council of S.R.J. and the foreign visitors were officially received by the Lord Mayor at the City Hall and we were regaled with light refreshments and Slivovitz (the national beverage), a particularly potent form of plum brandy, possessing a kick several db over S9! The Mayor, a jovial man of immense stature made us most welcome and asked many questions. Then followed a visit to Slovenja-Vino, the largest wine factory in the state, where we were shown what is claimed to be the largest barrel in the world, capable of holding well over 10,000 gallons of wine! The afternoon was taken up with a visit to the Castle, which stands on a hill in the centre of the city, from which there is a wonderful view of the distant mountains and where we were shown the 90 Mc/s f.m. broadcast transmitter. Here the party was joined by another Britisher, G5NU. This visit was followed by a conducted tour of the studios of Ljubljana Radio Station.

The Radio Industry

On Saturday morning, we visited Telecommunicacie Radio factory, which turns out broadcast receivers for the home and export market. This visit was of great interest for not only did it show the progress already made in turning what the Yugoslavs themselves refer to as a " backward " country into an industrial entity but also provided a fascinating microcosm of the Radio Industry in its entirety, for at this factory, apart from the valves, which are imported, radio sets and everything in them are fabricated from basic raw materials.

A Visitor from Britain

After lunch, back in Ljubljana, we had a short stroll in the beautiful Tivoli Park, right in the centre of the city and then, was I dreaming? No! the wording down the side of the motor-coach drawing up outside the hotel opposite really was " Maidstone and District Motor Services, Ltd.! "

Postojnaska Jama

That afternoon, a few of the foreign visitors were given a special treat, being taken by car some 50 miles to Postojna to visit the limestone caves. No mere words can really

Grand Hamfest, Ljubljana. The President presents gifts from British manufacturers. George Borosic (YU1AG) receives a Mullard QV05-25.

begin to describe the fantastic beauty of this place nor its tremendous size. Imagine Goff's caves at Cheddar magnified a hundred times. Thirteen miles of them, about four of which are covered by train! One cave, called " The Concert Hall," is 150ft high, has an area of more than 3000 sq yds and can accommodate 10,000 people The age of these caves is staggering. One inch of stalactite takes about 1000 years to form. At one point an immense one hangs from the ceiling, less than a ¼in. from its opposite stalagmite, yet no person now living, nor their fourth generation of progeny will ever see those two points meet! This simple, majestic fact of creation taught its own lesson on the insignificance of even the most " important " of men.

The " Grand Ham Festival "

That evening, after a hair-raising dash over the mountains, we arrived back for the Grand Festival. Several hundred members, with their wives and families were gathered together for a buffet meal and cabaret entertainment, followed by dancing to a personal appearance of the Ljubljana Radio Dance Band. It was here that I presented a number of items of British-made equipment, kindly donated by Messrs. Stratton and Mullard. After some discussion, an Eddystone automatic key was presented to the winner of the DX contest at the Camp station; an Eddystone transmitting condenser to YU3AB, being by common consent the person who had done the most towards the organisation of the Congress; a Mullard QV05-25 to YU1AG and a similar valve to a youngster who had just got his licence. New gear like this is akin to gold dust in YU-land and the gifts caused quite a sensation. One item, an Eddystone v.f.o. condenser remained. This, I suggested, should be a " Spot Prize " in the next dance. No one had ever heard of it! The introduction of this strange English custom into a Yugoslav night-out completely brought the house down.

Exchange of Views

On Sunday morning, at the request of the S.R.J. Council, I gave them a detailed account of the history and organisation of the R.S.G.B., how our licence system works and our relations with the G.P.O. The S.R.J. differs from us in that it is devoted to radio generally, and not exclusively to Amateur Radio, as we understand it. It has some 50,000 members but many are youngsters at a very elementary level. Tremendous efforts are being made to improve the technical standard of the people and S.R.J. is concerned, with Government assistance, in running classes and holding examinations. All three-letter call-signs belong to Clubs. There are three degrees of individual licence; 25 watts with a Morse speed of 12 w.p.m., 50 watts and 18 w.p.m. and 150 watts and 25 w.p.m. Before transfer can be effected, proof must be shown of having worked a specified number of countries. This rather strange requirement would seem to militate against the v.h.f. man and I expressed the view that it should be dropped. Every amateur has to build his own receiver and transmitter and have them approved!

There is no " snob " division between amateur and professional and leading national figures in the radio profession take a keen interest in S.R.J. and many are holders of YU calls.

After this exchange of information, SV1SP and I were shown over the Technical Institute by Mr. Jancar, its Director and a member of the S.R.J. Council. In the afternoon he drove us to Bled, a delightful little town on a mountain lakeside where Marshal Tito has his summer residence.

Au revoir YU

On Monday morning came the time, reluctantly to bid farewell to my Yugoslav friends. My acquaintance with this lovely country and its warm-hearted people was but five days old, yet I felt I was leaving old friends. Their hospitality was truly amazing and, at times, almost embarrassing. To any intending visitor to this friendly land, who might be deterred by any consideration, I can only say that, during my entire stay, I went where I willed, talked to whom I pleased, photographed anything that took my fancy, wandered about alone if I wanted to and was not subjected to the slightest restraint of any kind. I was received with an open-handed hospitality such as I have never before experienced. There is no doubt that British visitors are thoroughly welcome and that my own happy experience was not entirely due to my being the President of a friendly foreign radio society but also because I came from Britain.

An international group taken in the Tivoli Park, Ljubljana. Left to right: Mr. Yuvanovic, Editor and Hon. Treasurer, S.R.J., YU1AF, YU1AG, OZ1FM, YU1AD, YU1GM W4GMP, SV1SP and OE5HN.

City of four-element beams

Later that day, I reached Venice where, under a scorching Italian sun, I was greeted by George Pasquali (I1ALK) and later by Dr. Walter Bocchi (I1BW) and boarded the "Vaporetto" for my first trip along the Grand Canal. One might be pardoned for thinking that Venice is populated exclusively by radio amateurs! Television has come to Italy in a big way, with a rather incongruous effect for above almost every palace lining the canal rises a lattice tower bearing anything up to a double four-element beam, giving the impression that interest in the 144 Mc/s band is at an astonishing level. This impression of a population entirely devoted to Amateur Radio is heightened by the presence of three massive 14 Mc/s rotaries, within a stone's throw of the Rialto Bridge!

Roberto Sesia (I1FA), President of A.R.I., with Arthur Milne (G2MI), President of R.S.G.B. A picture taken in Milan.

Once again, in a new country, I was to realise that the "Ham Spirit" is truly international. A café table in the San Marco Square soon became an amateurs' rendezvous, where we were joined by I1FC, I1SPD and others. Late into the night and all next morning, I1ALK devoted himself to showing me around and came to the station at lunch time, where we were joined by I1BGD, to see me off to Vicenza, the home of I1BW, who had arranged to meet me. In his place, however, were I1ZHU and his car, Renato Balboani (I1TG) and his sister Lolly (I1BL). It transpired that Walter had been called away and had asked them to look after me. This they did with characteristic charm and generosity. We went to their home for lunch, followed by an inspection of the station, home-built, 813 in the final. After lunch, I1BL took me on a sightseeing tour of the quaint old city, with its magnificent Picture Gallery and unique Greek theatre, finishing up at the radio shop which she and her brother keep in the main square, whence I1ZHU took me to the station to continue my journey to Milan. I would like to place on record my thanks to these kindly folk, who gave up so much of their time to a foreigner, dropped on them at a moment's notice.

Day in Milan

Arrived just before midnight, I found my friends Guilio Schiff (I1AXD), Secretary of A.R.I. and Mario Giganti (I1CWZ), Chairman of the local group there to meet me. Before leaving England, I had written to I1AXD saying that I would be in Milan for a few hours and would welcome the opportunity of a chat. The practical outcome was that I was accommodated at Milan's finest hotel, the Grand Continental, owned by I1II, entertained royally, shown round the sights, driven to Pavia by Roberto Sesia (I1FA), President of A.R.I., to see the famous Certosa, finishing up with a complementary dinner in my honour and not being allowed to contribute a single lira towards the cost.

Cake and wine!

I had given I1AXD as a forwarding address for mail, so it happened that on the morning after my arrival he brought me a handful of letters. It was August 25 and my birthday and I made some casual remark about it being nice to receive letters from home. Immediately, I was offered congratulations and asked my age. I thought the matter forgotten. After dinner that evening, however, in staggered the head-waiter, bearing a huge iced cake carrying 47 lighted candles and followed by the wine steward with a bottle of vintage champagne and all my good friends stood and toasted my good health. This happy function, incidentally, took place at my Hosts' club at 10 Via San Paolo, on the top floor of which are the offices of the A.R.I.

Dr. George Pasquali (I1ALK), Venice.

To sum up

What were my general impressions? Well, first of all, there is no doubt of the very high prestige of the R.S.G.B. in the eyes of our friends on the continental mainland. In every country also I found a cordial feeling for Britain and a desire to forge even closer links with this country. The Yugoslav society has suggested a G-YU Day each year when amateurs in each country try to work one another. They already run one with Denmark. The idea is to be considered by the Council. Despite their difficulties, they have some very efficient stations and some first-rate operators, but how I would like to be able to run in a few truckloads of gear, which we tend to take so much for granted, and just say "Here you are chaps, take your pick."

LONDON MEETINGS

Programme 1954-5

November 19, 1954: **Wing Commander W. E. Dunn, O.B.E. (G2LR)**
TECHNICAL FILM SHOW.

December 17, 1954: **Annual General Meeting.**

January 28, 1955: Presidential Address followed by Lecture by **Mr. Frank Hicks-Arnold (G6MB).**
"ANTENNA MATCHING WITH THE ANTENNAMATCH"
(with practical demonstrations).

February 25, 1955: **Mr. R. C. Jennison.**
(Jodrell Bank Experimental Station)
"RADIO ASTRONOMY AND THE RADIO AMATEUR."

March 25, 1955: **Mr. Maurice Child.**
"THE HISTORICAL DEVELOPMENT OF WIRELESS COMMUNICATION."
(with demonstrations of early apparatus).

All meetings are held at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2. Buffet Tea from 5.30 p.m. Meetings commence at 6.30 p.m.

Bristol Amateur Radio Exhibition

A FEATURE of the Bristol National Convention was the Amateur Radio Exhibition which ran concurrently with the three-day programme. Staged in the main galleries of the Royal West of England Academy, other rooms and side galleries of which served as the Convention "headquarters," the Exhibition not only provided a continuous attraction to members attending Convention, but also proved of considerable interest to the public at large.

Officially opened by the Deputy Lord Mayor of Bristol (Alderman K. A. L. Brown) on Friday, September 17, the exhibition displayed a complete cross-section of amateur and professional radio equipment.

R.S.G.B. Displays

A particularly popular exhibit was the Exhibition Amateur Radio Station, GB3NCB, which was assembled from equipment loaned by local amateurs. Following are brief details of the transmitter, which operated on 3.5, 7 and 14 Mc/s, with separate equipment for 1.8 Mc/s. The v.f.o. consisted of an EF50 e.c.o. followed by two buffer stages. The exciter, with the line-up 6AG7-TT11-TT11-807 (the latter acting as buffer on all bands with 6Y6 screen clamper) fed through a pi-tank circuit to the final 813 (also with screen clamper) modulated by 807s in class B. All sequences for operating the transmitter were switched from the main control panel, with monitors for r.f., modulation and frequency checking. The receiver was a BRT400 communications receiver loaned by The General Electric Company, Limited.

Amateur equipment displayed on this and other stands included a complete TV camera and associated amplifiers (unfortunately a last-minute mishap prevented this exhibit being operated as a "live" display), receivers and converters, high and low power transmitters and measuring equipment of all kinds. Wide interest was shown in examples of gear developed especially for R.A.E.N., among which were beautifully produced mobile transceivers and an incredibly small transmitter incorporating transistors.

Information on Society matters and a complete range of publications by the R.S.G.B. and A.R.R.L. could be obtained from the Headquarters' stand.

Competition Winners

The exhibition was particularly well supported by members of the radio industry, who together demonstrated the variety and excellence of the specially designed equipment now available to amateurs. Cranbrook Radio, Ltd., of Bristol, organised a competition in connection with the event in which visitors were invited to estimate the total attendance figures. The official total was 1514 and the first prize ("Eddystone" 740 Communications Receiver) was won by Mr. L. N. Goldsbrough (G3ERB) of 54 Kings Lane, Bebington, Cheshire. Four tied for the second prize (Smith's World Time Electric Clock) and the winner, determined by ballot at the October meeting of the Bristol group, was Mr. R. E. George, c/o Englands, Woodhouse Down, Almondsbury, Glos.

Public Service Stands

The South-Western G.P.O. exhibit included a street of model houses with various types of aerials for differing locations and methods of fixing for both sound and television reception as well as a representative display of apparatus for the location and measurement of interference, with frequency ranges from 135 kc/s to 600 Mc/s.

The City and County of Bristol Fire Brigade showed the many types of radio apparatus now in use by their department, from a fixed station to various kinds of mobile and walkie-talkie equipment.

Trade Stands

It is not possible to give full descriptions of all the trade stands and the following are brief comments on these exhibits:—

Adcola Products, Ltd. displayed their lightweight soldering instruments.

Anglo-Netherland Technical Exchange, Ltd. featured "Antex" soldering irons.

Switches for all purposes comprised the theme of *Arco-electric (Switches), Ltd.*

Electrical and electronic measuring and test instruments for workshop and laboratory were shown by the *Automatic Coil Winder and Electrical Equipment Co., Ltd.*

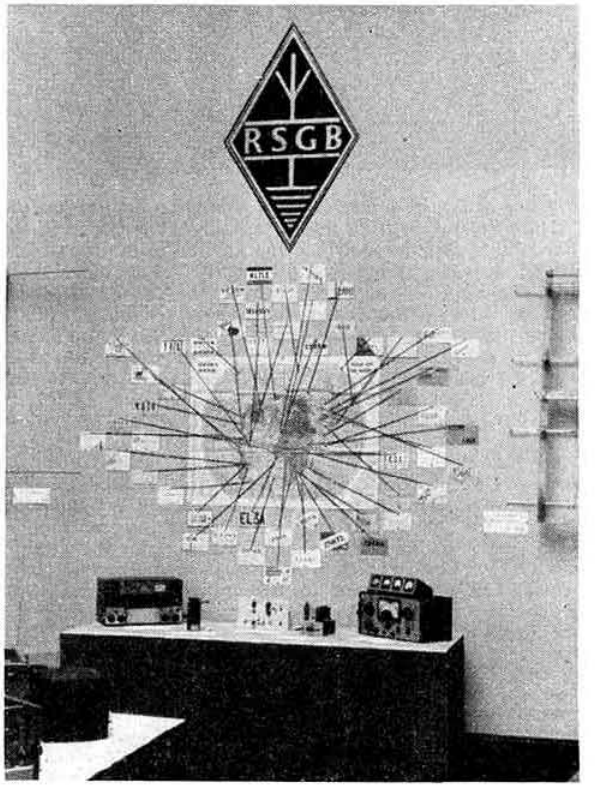
Barton Radio, Bristol, presented a very complete exhibit which included almost every type and make of radio component for the home constructor.

Black & Decker Ltd. exhibited their popular "Utility" portable electric tools.

The complete range of their well-known headphone sets could be examined at the display by *S. G. Brown, Ltd.*

High-fidelity tape recorders were the speciality of the *Bristol Magnetic Recorder Co.*

Cranbrook Radio, Ltd. made a special display of Eddystone receivers and equipment and Acos microphones and pick-ups.



The Society's badge and a world map surrounded with QSL cards, mounted on the wall at the far end of the Exhibition hall attracted much attention. Examples of home-constructed gear were displayed on tables. (*Ref.* 390/14A)

E.M.I. Institutes exhibited literature and home constructor kits associated with their postal courses.

Dominating the exhibition was the upper section of a 32ft tower by *Francis & Lewis, Ltd.*, complete with a dual 14/28 Mc/s rotary beam.

McMurdo moulded valveholders and components were displayed by *Cyril French Holdings, Ltd.*

W. T. Henley's Telegraph Works Co., Ltd. showed their well-known " Solon " soldering irons.

A newcomer to the field of soldering, the " Litesold " range, was shown by *Light Soldering Developments, Ltd.*

A massive display of marine radio equipment, aids to navigation, radar and echometers, was to be found on the stand of *The Marconi International Marine Communication Co., Ltd.*

Taylor Electrical Instruments, Ltd. exhibited their well known electronic test equipment, with five entirely new additions to the range.

Southern Radio & Electrical Supplies showed a comprehensive range of components and receivers and aroused interest with their new Sorad 541 Transmitter, with its " unit-constuction " feature.

Exhibition Manager in charge of the general arrangements was Mr. R. M. Sharp (G3GON).

Convention Dinner Draw

In recording sincere thanks to everyone who helped to make the Bristol Convention and Exhibition the success they were, mention should be made of the following firms and individuals who so kindly donated prizes for the Convention Draw: Adcola Products, Ltd.; G. W. Allen, Esq.; Anglo-Netherland Technical Exchange, Ltd.; Arcolectric (Switches), Ltd.; Arvin Electric, Ltd.; Automatic Coil Winder & Electrical Equipment Co., Ltd.; British Insulated Callender's Cables, Ltd.; British Physical Laboratories; S. G. Brown, Ltd.; Chapman & Hall, Ltd.; Cosmocord, Ltd.; Cranbrook Radio, Ltd.; Denco (Clacton), Ltd.; Edison Swan Electric Co., Ltd.; Egen Electric, Ltd.; Enthoven Solders, Ltd.; Erie Resistor, Ltd.; General Electric Co., Ltd.; Gillette Industries, Ltd.; Goodmans Industries, Ltd.; Goya, Ltd.; Hamrad Wholesale, Ltd.; W. T. Henley's Telegraph Works Co., Ltd.; Jackson Brothers (London), Ltd.; S. Kempner, Esq.; Light Soldering Developments, Ltd.; Measuring Instruments (Pullin), Ltd.; Minnesota Mining & Manufacturing Co., Ltd.; Mullard, Ltd.; Multicore Solders, Ltd.; Osmor Radio Products, Ltd.; Painton & Co., Ltd.; Partridge Transformers, Ltd.; Salford Electrical Instruments, Ltd.; Sifam Electrical Instrument Co., Ltd.; Smiths English Clocks, Ltd.; Standard Telephones & Cables, Ltd.; Stratton & Co., Ltd.; A. R. Sugden & Co. (Engineers), Ltd.; Telegraph Condenser Co., Ltd.; Telegraph Construction & Maintenance Co., Ltd; Vitavox, Ltd.; Webbs Radio; Westinghouse Brake & Signal Co., Ltd.; Westradio, Ltd.; Whiteley Electrical Radio Co., Ltd.; H. L. Wilson, Esq.; Woden Transformer Co., Ltd.; Wolf Electric Tools, Ltd.; Wright & Weaire Ltd.

Convention V.H.F. Meeting

DURING Convention at Bristol an informal meeting of those interested in v.h.f. and u.h.f. matters was held under the chairmanship of Past President W. A. Scarr (G2WS). Twenty-one members were present including GM3EGW, EI2W, EI5Y and ZB1BZ when four main topics were discussed. These were: " 70 cm Receivers "; " Co-operation on the V.H.F.s "; " The Use of V.F.O.s on the V.H.F.s " and " Questions on Contests.

Are R.F. Stages Worth While ?

G2WS expressed the view that, in his experience, r.f. stages were generally useless at 70 cm. Although he had constructed a number of different designs he had still to build—or hear—one with which signals were audible that were inaudible without it. G3HBW said that disc-seal types were the only worthwhile valves for the r.f. stage at these frequencies. G6HD had obtained good gain from a cascode arrangement employing an A.1714 and ½ 12AT7, but had not measured its noise factor. G2BVW gave his experiences with " lighthouse " valves in this service. Out of a batch of 24 tested only two gave a measured noise factor of between 3 and 3.5 db, the remainder ranging from fair to very bad; all the static characteristics appeared similar. The performance of crystals as mixers also varied over a wide range and to obtain optimum results it was necessary to select a suitable one from a large number. G2BVW quoted the case of a 70 cm converter built to a design of G3BKQ which, with a first rate crystal gave as good results as another converter with a good " lighthouse " r.f. stage. The bandwidth was, however, much less and the best performance was confined to the centre of the band. Several of those present considered an r.f. stage advantageous even if the noise factor was not improved thereby, in order to reduce radiation from the local oscillator and the pickup of harmonics from lower frequency bands. G6HD quoted a case where an r.f. amplifier with similar noise factor to an unaided mixer stage could show an improvement as the bandwidth, and hence the noise, would be reduced by the additional selectivity.

Increased Interest on 70 cm Wanted

The discussion then turned to means for increasing interest in the 70 cm band. G2UJ made the point that the publication of lists of " permanent " skeds could be misleading as there was no proof that they were invariably kept, but pointed out that all details of v.h.f. skeds were mentioned in *Two Metres and Down* as they were reported to him. In view of the fact that some London stations already try to operate on 70 cm from 7 p.m. in the evening—G5DT (Wallington, Sy.) was quoted as one of the most regular—it was agreed that this time be regarded as a daily activity period when as many stations as possible *transmit*. To aid identification of weak signals calls should be sent on the key even when the remainder of the transmission was on 'phone. Agreement was also reached upon 10 a.m. to 1 p.m. for the Sunday activity period.

V.F.O. Operation on 2 m

The somewhat vexed question of v.f.o. operation on 2 m was next tackled. G2BVW considered that any attempt by operators to use v.f.o.s to work other stations on their frequency, as on the lower frequency bands, should be discouraged; their use should be confined to finding a clear spot *and staying there*. G8KZ agreed but said that in his opinion the 2 m Band Plan led to congestion in certain parts of the band. It was obvious from general experience that attempts to work at the h.f. end of the band were useless as practically no stations searched that part of the allocation.

V.H.F. Contests

Several questions and suggestions were put to G6HD, a member of the Contests Committee, concerning v.h.f. events. G2DDD requested that the maximum distance worked by each competitor should be shown in the write-up. G2WS felt that the scores of disqualified stations should not be shown in the results. G6HD pointed out that this was only done when disqualification resulted from some technical error on the competitor's part such as omitting to sign his entry form. —W.H.A.

Society News

Society Trophies

SOCIETY Trophies have been awarded by the Council for the current year to the following:—

Rotab: Mr. C. R. Perks (G4CP), for outstanding and consistent DX work over a period of many years.

Wortley Talbot: Messrs. R. L. and J. Royle, G2WJ/G2WJ/T, for outstanding experimental work in connection with Amateur Television.

Founder's: Messrs. D. F. Davies (G3RQ) and R. T. Poeton (G3CTN), in recognition of their valuable services to the Society in connection with the Bristol National Convention.

Calcutta Key: Mr. John Clarricoats (G6CL) for outstanding service to the cause of International Friendship through the medium of Amateur Radio.

* * *

B.E.R.U. Senior Rose Bowl:* Mr. R. G. Henwick (ZS2A). Winner Senior Contest.

B.E.R.U. Junior Rose Bowl:* Mr. J. C. Van Wyk (ZS6R). Winner Junior Contest.

B.E.R.U. Receiving Rose Bowl:* Mr. A. R. Gilding (ex-G3GZP). Winner Receiving Contest.

Col. Thomas Rose Bowl: Mr. F. J. U. Ritson (G5RI). Leading U.K. station in B.E.R.U. Senior Contest.

N.F.D. Shield and Replica: Bristol Group.

N.F.D. Shield Replicas: East Molesey and Croydon Groups.

Scottish N.F.D. Trophy: Aberdeen Group.

1930 Committee: To be awarded to the Winner of the Low Power Contest.

Somerset: Mr. J. Banner (GW3ZV). Winner of the First 1954 Top Band Contest.

Desmond: To be awarded to the Winner of the Second 1954 Top Band Contest.

Houston-Fergus: Mr. T. J. Brooke (G3GHC/P). Winner of Low Power Field Day.

Mitchell-Milling: Mr. N. H. R. Munday (GW5MA/P). Winner of Two Metre Open Contest.

Watts: To be awarded in connection with 70 cm Tests.

1950 Council: Mr. G. T. Peck (B.R.S.15402). Winner of D/F Contest.

Edgware: Stourbridge and District Amateur Radio Society. Winners of Affiliated Societies Contest.

Braeten: Mr. F. J. U. Ritson (G5RI). Leading English R.S.G.B. Member station in 1954 A.R.R.L. DX Telegraphy Contest.

Milne: Mr. C. F. Sherritt (GM3EOJ). Leading U.K. R.S.G.B. Member station, other than English, in 1954 A.R.R.L. DX Telegraphy Contest.

Miniatures: Mr. P. J. Pollard (G3DIV/P) and the Northampton Short Wave Club (G3GWB/P). Winners of First and Second Two Metre Field Days respectively.

The Council has decided not to award the Courtenay Price Trophy for the current year. The Trophy is awarded for outstanding technical developments.

Trophies will be presented at the Annual General Meeting on December 17, 1954.

* *Due to the risk involved in sending the Silver Rose Bowls abroad, miniatures only will be forwarded to the winners. Their names will, however, be engraved on the respective Bowls.*

Subscriptions Paid By Banker's Order

NOTWITHSTANDING the notice published in the August, 1954, issue of the BULLETIN, there are still a very large number of members who have failed, in spite of requests from Headquarters, to remit the balance due for their subscription. In all cases the members concerned normally renew their subscription annually by means of a Banker's Order.

The Council is most anxious not to remove the names of such members from the Register but this course of action will become inevitable unless the balance is paid within three months of the subscription becoming due.

The Council hope that this further appeal will bring forth an immediate response from the 475 Corporate Members who have not, so far, carried out their full financial obligations to the Society for the current year.

Associates

ASSOCIATES under 21 years of age are reminded that in accordance with the terms of the Society's Articles of Association they are required to apply for transfer to Corporate grade immediately they obtain an Amateur Licence.

Associates over 21 years of age are also reminded that they are required to apply for transfer to Corporate grade as soon as their current subscription becomes due for renewal.

London Meeting

THERE was an attendance of nearly 100 members at the Institution of Electrical Engineers on Friday, October 22, 1954, when Mr. B. R. Bettridge, A.M.Brit.I.R.E., of the Osram Valve and Electronics Department, General Electric Co., Ltd., lectured on "Transistors and Crystal Valves in Radio."

The lecture was profusely illustrated with slides and accompanied by a number of interesting demonstrations. For business reasons Mr. Bettridge is unable to contribute a paper to the BULLETIN based on his lecture but a number of the circuits which he described are reproduced in a new book (of which he is the author) which will be on sale at the Amateur Radio Exhibition.

The Chair at the meeting was taken by the President, Mr. A. O. Milne (G2MI), who was supported by Council Members R. H. Hammans (G2IG) and F. Hicks-Arnold (G6MB). A vote of thanks to the lecturer was proposed by Mr. Douglas Walters (G5CV),who was a pioneer in the field of transistor applications to Amateur Radio.

R.S.G.B. Tape Library

PAST-PRESIDENT W. A. SCARR, M.A. (G2WS) has recorded a lecture entitled "Interplanetary Travel" which is now available on loan to R.S.G.B. Groups and Affiliated Societies. It runs for approximately 50 minutes.

Although not a radio subject, the lecture should prove of great interest to the scientifically minded. It deals with the many problems that will face the pioneers who will make the first trip to the Moon.

Applications to borrow the tape, which must be played back on a Scophony Baird Mark II Twin Track Recorder, should be addressed to the Hon. Curator, R.S.G.B. Tape Library, Mr. E. Fish, 107 Eaton Road, Ilford, Essex.

"Low Power Portable Transmitter-Receiver"

ON page 108 of the September, 1954, issue of the BULLETIN, the weight of the receiver shown in the picture should have been given as 11b 15oz.

"807s in Zero Bias Class B"

IN the caption to Fig. 1 in the above article, published in the October, 1954, issue of the BULLETIN, the value of R2 should have been given as 1500 ohms and not 1.5 Megohms.

Certificates of Proficiency

THE Council has decided to amend the rules governing the award of the W.B.E. certificate and British Empire Radio Transmission Award to allow club stations to qualify.

In the case of clubs affiliated to the R.S.G.B. no charge will be made for these certificates. Non-affiliated clubs will be required to pay the sum of 2s. 6d. per certificate.

The Hon. Secretary of the club or the licensed operator of the club station must certify in writing that the power for which the station is licensed was not exceeded in effecting the contacts upon which the claim is based.

A copy of the leaflet setting out the rules governing the award of R.S.G.B. Certificates can be obtained on application to R.S.G.B. Headquarters. Claims must be addressed to the General Secretary, Radio Society of Great Britain. New Ruskin House, Little Russell Street, London, W.C.1.

Readership Survey

MEMBERS will recall that the results of a survey of the views of non-transmitting readers of the BULLETIN were published in the January, 1954, issue. Those results proved so informative that a further survey, this time of the views of a number of licensed members, whose names were selected at random, was carried out during the early summer. The replies received have proved most helpful, confirming in broad outline the views expressed by B.R.S. and Associate members.

A new question asked concerned the popularity of articles published during the period from July, 1953, to April, 1954. Heading the list in popularity were "TVI *can be cured!*" (96 per cent), "*The Elizabethan*" (84 per cent) and "*The R.S.G.B. Two Metre Converter*" (82 per cent). Only one article failed to interest the majority of members: "*Radio on Stamps*" (20 per cent) which was also the only article singled out for particular mention as a "dislike." Of the regular news features, "*Regional and Club News*" (36 per cent.) and "*The Social Side*" (32 per cent.) secured the lowest ratings. The most popular "activities" feature was "*Month on the Air*" with "*Amateur Television*" bottom of the poll. "*Letters to the Editor*" confirmed its position.

The most surprising answer, given in reply to a personal question regarding operation during television hours, revealed that over half those questioned are on the air during television. On the other hand, more than a third suffer from TVI. As might be expected, watching television programmes affects only a relatively small number.

The views and opinions expressed by those who so carefully completed and returned the questionnaires sent to them will enable the Editorial staff, with the assistance of the Technical Committee, to frame future BULLETIN policy.

Those who co-operated are warmly thanked.

Convention Film

FOLLOWING the Annual General Meeting at the Institution of Electrical Engineers, London, W.C.2, on Friday, December 17, 1954, it is hoped to screen, for the first time in public, the film taken during the Bristol Convention. It is also hoped to play-back a recording made during Convention of the proceedings at the presentation of the Society's new Chain of Office to the President.

Single Sideband Conventionette

THE Second Annual Single Sideband Conventionette will be held on November 27, 1954, the last day of the R.S.G.B. Amateur Radio Expedition. The arrangements are: lunch 1 p.m.; meeting commences 2 p.m.; tea 5 p.m. Full details, including venue, can be obtained from E. A. Dedman (G2NH), 75 Woodlands Avenue, New Malden, Surrey.

London Members' Luncheon Club

IN addition to the regular monthly meeting of the London Members' Luncheon Club, which will take place at the Bedford Corner Hotel, Tottenham Court Road, on Friday, November 19, 1954, at 12.30 p.m., a special meeting of the Club will be held at The Royal Hotel, Woburn Place (venue of the R.S.G.B. Amateur Radio Exhibition) on Friday, November 26, 1954. Members and their ladies who plan to visit the Exhibition on that date are cordially invited to attend the Luncheon which will take place in the main Dining Room.

It will greatly assist the management if those who intend to be present will notify Miss May Gadsden at R.S.G.B. Headquarters by not later than 10 a.m. November 25, or leave a message for her on the Headquarters' stand at the Exhibition.

The First Class Operators' Club

MEMBERSHIP of the First Class Operators' Club (FOC) continues to rise. The aim of the club is "to foster and encourage a high standard of operating ability and behaviour on all amateur bands." Membership is restricted to those able to send and receive Morse at not less than 18 w.p.m., to change frequency as required and prepared to assist and advise newcomers over the air.

The President of the Club is Gerald Marcuse (G2NM) and the Vice-Presidents are A. M. H. Fergus (G2ZC) and J. E. Catt (G5PS).

The Club's Annual Dinner will be held on November 27, full details of which can be obtained from the Hon. Secretary, S. G.Mercer (G2DPY), 160 Old Shoreham Road, Shoreham-by-Sea, Sussex.

R.S.G.B. Stamp Club

FOLLOWING his letter in the July, 1954, issue of the BULLETIN, Mr. N. Horrocks (G2CUZ) received replies from many members, mostly in the Commonwealth and U.S.A., supporting the revival of the R.S.G.B. Stamp Club.

A simple exchange plan has since been worked out, the system being as follows: A few sheets of "swaps," made up to fit QSL size envelopes, are sent to the Hon. Organiser at 32 Sandbrook Road, Ainsdale, Southport, Lancs., together with similar sized stamped addressed envelopes for returns in the same way as the QSL Bureau. Any special "wants" are noted on a separate sheet of paper for record purposes. Exchange values are marked at current catalogue prices against each stamp on the "swaps" sheets to ensure fair exchanges.

Cash transactions are settled at half current catalogue values or less, subject to individual approval.

Additional members of the club, particularly from the Commonwealth and overseas, will be most welcome.

Emergency Calling Frequencies for R.A.E.N.

The following calling frequencies will be used by R.A.E.N. stations in the event of an emergency:

1980 kc/s	14100 kc/s
3600 kc/s	21150 kc/s
7050 kc/s	28200 kc/s

145 Mc/s

These frequencies are published as calling frequencies for use in emergency only. Stations will call CQ QRRR DE G..... and QSY to a mutually agreed frequency immediately after establishing contact. Contacts should not be continued on emergency calling frequencies. All frequencies should be monitored as much as possible.

Amateur Television

By M. BARLOW (G3CVO)*

NOW that the G.P.O. allows a sound channel to be used in connection with vision experiments under the Amateur (Television) Licence more /T call-signs should be heard (and seen!) in the near future. Research is in hand on suitable transmitters. Due to the wide bandwidth of vision receivers, *slight* drift in the transmitter can be tolerated, and for this reason an m.o.-b.a.-p.a. similar to those used on the l.f. bands is a distinct possibility at 430 Mc/s and above where the stability of the line circuits can be made very good. A. Sale (Rayleigh) reports that the 12AT7 in a P.T.F.E. valveholder will give a shade over 2 watts output as a push-pull oscillator at 430 Mc/s. The QQV06/40 or QQE03/20 is the obvious choice for the p.a., but at present the difficulty is the b.a. stage. Apart from the STC33B/152M, there is no really suitable valve, and to use this or another QQV03/20 is an expensive business. Nevertheless, a 12AT7 m.o. driving a 33B/152M is putting 30 mA drive into a pair of 8012s, which is no mean feat. Further developments are awaited with interest.

Activity continues in widely scattered areas, but as ever, the amount of work involved in putting out pictures is sufficient to make progress rather slow. To encourage activity, and particularly to help at exhibitions and lectures, demonstration teams are being organised. The first, in the London area, is being run by G3AKJ. Besides camera equipment of varying complexity, studio equipment not normally constructed by the amateur is being built. Already a four-channel vision mixer, a complete intercommunication system and lighting and programme sound system are to hand, whilst a distributlon amplifier (as described in the September, 1954, BULLETIN), switchable to any of the five Band I TV channels and giving up to 10 outlets, is under construction. This unit will also feed programme sound at the corresponding sound frequency. Enthusiastic support is required to further the scheme, and interested readers should write to G3AKJ at 56 Burlington Gardens, Chadwell Heath, Essex.

Camera Developments

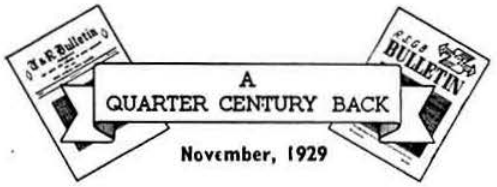
G2WJ/T has added a viewfinder to the camera which. with all his other equipment, will be on show at the R.S.G.B, Amateur Radio Exhibition. A. Sale's 5527 camera is now in running order. G2DUS (Baldock) is radiating bars and test spikes at week-ends on 432 Mc/s; a monoscope pattern generator is being brought into use soon. C. Dixon (Ross-on-Wye) is building a three-cell colour slide scanner for exhibition use; J. Watts (Bristol) is busy overhauling the camera after the breakdown on the eve of the Bristol Convention. By the time this appears in print, G3AKJ's exhibit at the Walton-on-Thames show will have been seen by many visitors. G5KS (Bradford) has completed his 5527 camera.

F9MN (Tourcoing) has a novel idea for an even simpler flying spot scanner; black paper is pasted over the scanner c.r.t. after the call-sign, etc., has been cut out to form a silhouette. The " picture " is then covered with yellow gelatine, and just outside this yellow filter, slits are cut along the bottom and down the right-hand side. When scanned, these slits generate the synchronising signals, whilst the picture eventually appears as black letters on a white ground. The method has the advantage that no mixing of pulses is required, the output of the photocell amplifier being a complete composite signal.

* * *

Readers may like to know that a monthly series of lectures on " Amateur Television " (with demonstrations) is being given by G3CVO at his home; visitors are welcome.

* *10 Baddow Place Avenue, Great Baddow, Essex.*



THE Editorial commented on the decision of the Council to allot B.E.R.U. Numbers to receiving stations in the British Empire and referred to it as another step forward in a far-reaching policy to extend the benefits of membership of R.S.G.B. to amateurs all over the world. " The British Empire Radio Union stands for the Radio Society of Great Britain overseas—both the Society and the Union are one body working for a common cause—with such a body—amateur regulations could be framed by the respective Governments viewed through the perspective of Empire rather than isolated countries."

* * *

Thirty-five members—a record number for the Northern area—were present at a meeting in the Melton Hall, Deansgate, Manchester on October 26, 1929. The chair was taken by G6CL who had the support of G5JF (now G5GK), G5BR and G6TW.

* * *

J. Croysdale (G5US) described a three-valve receiver employing PM12, 210 RC and PM2 valves. " The excuse for penning this eulogy is the hope that it will encourage others to ' rediscover ' the S.G. (screened grid valve) if they have not already done so. On 7 Mc/s with 6ft of wire slung indoors the continentals fairly rattle the cans."

* * *

A. C. Simons (G5BD), who lost an arm in World War I, described how to drive a " hand " generator by foot.

* * *

H. W. Dowsett's Convention lecture, published as an article, described recent developments in the field of Commercial Short Wave Communications.

* * *

Maurice Gibson, F.T.S., began a series of articles entitled: " The Science of Television." The principles of Noctovision and Stereoscopic Television were explained by means of sketches. " In 1910 Ekstrom developed a method of scanning by means of a moving beam—chief investigators in England have been—Campbell Swinton on the cathode-ray tube system and Baird who has invented the only really successful true television system."

* * *

The station of J. W. Mathews (G6LL) was described by " The Rover." An Osram SW DET 1 was used in the final amplifier for 7 and 14 Mc/s operation.

Congratulations

TO Peter Bond (G3BEG), who recently announced his engagement to Miss Margaret Mouchemore of Melbourne, Australia. Peter, who is on the staff of the B.B.C., met Miss Mouchemore, a radio actress, while she was visiting the B.B.C. Visitors to the R.S.G.B. Amateur Radio Exhibition will have an opportunity of congratulating Peter personally on the Headquarters' stand where, once again, he will be one of the helpers throughout the period.

THIS ISSUE CONTAINS 64 PAGES AND 23 PAGES OF PAID ADVERTISING

Council Proceedings

Resumé of the Proceedings at a Meeting of the Council of the Radio Society of Great Britain held at the Grand Hotel, Bristol, on Sunday, September 19, 1954, at 10.30 a.m.

Present.—The President (Mr. A. O. Milne in the Chair), Messrs. H. A. Bartlett, L. Cooper, C. H. L. Edwards, D. A. Findlay, A. C. Gee, R. H. Hammans, F. Hicks-Arnold, J. H. Hum, L. E. Newnham, N. F. O'Brien, R. L. Varney and John Clarricoats (General Secretary).

Apology.—An apology for absence was submitted on behalf of Mr. I. D. Auchterlonie.

* * *

Membership

Resolved (a) to elect 100 Corporate Members and 13 Associates, (b) to grant Corporate Membership to 25 Associates who had applied for transfer.

Resolved, unanimously, to waive for a period of one year, the subscription of Mr. G. McCracken (G3GST) on the ground that he suffers from blindness.

The Secretary reported that of the 585 members whose subscription became due on June 1, 1954, 233 became overdue on August 31, 1954. The Secretary submitted details of the reasons given by the 53 members who had written to resign during the four weeks ended September 11, 1954. Only 6 had resigned on financial grounds. Of the remainder 20 had lost interest, 21 gave no reason and 6 gave various reasons.

President's Visit to Yugoslavia

The President reported on his recent successful visit to the S.R.J. Convention in Yugoslavia and displayed souvenirs which had, that day, been presented to him by the S.R.J. representative to Convention.

Mr. Maurice Child

It was reported that Mr. Maurice Child (a Vice-President of the Society) had offered to present his original licence (dated 1907) to the Society and to have the same framed for display at Headquarters.

Resolved to accept with thanks the offers made by Mr. Child.

National Radio Show

The Secretary reported that 5800 copies of the *Amateur Radio* series of technical booklets and 720 copies of the new *Guide to Amateur Radio* were sold at Earls Court. Total revenue taken at the stand amounted to £436. The Secretary expressed the opinion that the full cost of organising the Society's stand at Earls Court would probably be met by the sale of the *Amateur Radio* series of technical publications alone. He reminded the Council that these publications had previously been written-off in the Society's accounts.

Resolved to record the thanks of the Council to all concerned in the organisation of the Society's stand at Earls Court, and in particular to Mr. C. H. L. Edwards. It was agreed that the stand had proved to be a first-rate shop window for the Society.

" Sunday Chronicle " and the TVI Problem

The Secretary reported verbally on the steps which were taken as soon as his attention was drawn to the article published in the *Sunday Chronicle* dated August 22, 1954.

Resolved to endorse the steps taken by the Secretary in connection with the *Sunday Chronicle* article. (This matter was reported upon in the September, 1954, issue of the BULLETIN.—EDITOR).

G.P.O. Matters

The Secretary reported (a) the receipt of an official statement from the G.P.O. on the presence of " intruders " in exclusive amateur bands. (The statement appeared in the September, 1954, issue of the BULLETIN.—EDITOR); (b) that the G.P.O. were not yet in a position to give a reply to the Society's request for permission to operate a News Bullletin Service. The G.P.O. had explained that the proposal raises issues of rather wide importance which need careful study; (c) that the G.P.O. propose to review the whole basis on which Maritime Mobile licences are issued; (d) that the G.P.O. are looking into the basis of exemptions from the Morse Test and Radio Amateurs' Examination, and hope shortly to arrange a further meeting with representatives of the Society when the views of the Service Departments are known.

Wirral N.F.D. Entry

The Secretary read a letter from Mr. B. O'Brien (Region 1 Representative) in which he protested against the decision of the Contests Committee to disqualify the Wirral Group entry for N.F.D. The entry had been disqualified because the input power was declared to exceed 5 watts.

Resolved to send a copy of the letter to the Contests Committee and to authorise the President to take such action as he may deem to be necessary upon hearing from the Committee.

Reports of Committees

R.A.E.N.

Resolved to accept and adopt as Reports the Minutes of Meetings of the R.A.E.N. Committee held on August 7 and 21, 1954.

The Recommendations contained in the Minutes of the Meeting held on August 7 had been dealt with at the meeting of the Council held on August 10, 1954. The Minutes of the Meeting held on August 21, 1954, contained no recommendations to the Council.

Exhibition (Home Constructors' Section)

The Secretary reported that a Report dealing with the Exhibition (Home Constructors' Section) Committee's participation in the Earls Court Exhibition had been prepared and would be circulated prior to the next meeting of the Council.

Cash Account

Resolved to accept and adopt the Cash Account for August, 1954, as prepared and submitted by the General Secretary.

Convention

Mr. Edwards congratulated the President on the excellent speech which he had made at the Dinner when replying on behalf of the Society.

Mr. Milne thanked Mr. Edwards for his kind remarks and in turn expressed his thanks to Mr. Bartlett and to the General Secretary and Miss Gadsden for their efforts in connection with Convention. He suggested that an opportunity would be provided at the next meeting to record formal appreciation to Messrs. Poeton, Davies and their colleagues on the Organising Committee.

The meeting terminated at 11.40 a.m.

Forthcoming Events

IN order to avoid mistakes and misunderstandings and to conform with the instructions of the Council, details of meetings for inclusion in Forthcoming Events will, in future, be accepted only from the Regional Representatives or appointed Scribes.

T.R.s and Hon. Secretaries of clubs affiliated to the R.S.G.B. should send details of forthcoming events to the appropriate R.R. so that they reach him by not later than the 18th of the month preceding publication.

Radio Amateur Emergency Network

REPORTS from groups all over the country suggest that now the holiday season is over interest in R.A.E.N. is again rising. No doubt the recent bad weather has also served to remind members of the urgent necessity for making all possible preparations before the winter really sets in. Although it is to be hoped it will not, the first real test of the usefulness of the Radio Amateur Emergency Network may well come in the next six months.

" Operation Lifeline " in the East Riding of Yorkshire is an example of the type of test all groups should aim to carry out. A report of this outstanding exercise appears elsewhere on this page.

Group Reports

Lichfield is considering standardising on 144 Mc/s equipment for short range work in view of the number of local groups already doing so. Because the area covered is rather larger than that implied at present, the group will in future be known as **Mid-Staffordshire.** The E.C.O. (G3FZW) was due to give a talk to the Bradford Amateur Radio Society on November 10. An interesting form of co-operation with the Territorial Army is to be tried by **Middlesbrough.** It will take the form of an outdoor exercise with Army and R.A.E.N. operators working side-by-side. The R.A.E.N. stations will, of course, only handle R.A.E.N. messages. Members of the group helped the local Civil Defence authorities during recent Civil Defence Week when, on official frequencies, the R.A.E.N. operators provided consistent communication over a radius of two miles, a considerable improvement over that previously obtained. G3GUV, the E.C.O., reports that members were very impressed by what they heard of " Operation Lifeline " on the air. The group hitherto referred to as Huddersfield is now known as **Barnsley,** and at the moment also includes members living in Sheffield. Portable equipment for Top Band and 3.5 Mc/s is under construction. The E.C.O. (G3ABS) says that 100 per cent communication is possible at all times on these bands in the area served. The **Romford** group is now being led by G3IMP, who has been testing a small 2 watt portable phone transmitter. Using an aerial about 100ft long slung over any convenient tree, a range of about 25 miles is possible without difficulty. The E.C.O. for **Godalming** and district (G3DBB) reports that efforts to form an active group in the area have so far met with a cold, even hostile, reception. Nevertheless, he is continuing his efforts despite the general complacency. An R.A.E.N. meeting in **Reading,** called by G3EJA who is forming a group in the area, was also attended by amateurs from Basingstoke, Maidenhead and Wantage.

Simulated Emergency

Another simulated emergency exercise was carried out by **Oxford** group during the evening of October 6. G3HYZ acted as base control, G3GCS and G3HIQ were the fixed outstations and G3GJX/M a mobile outstation. Lessons learned include the need for short transmissions, quick changeover from send to receive and clear diction for efficient traffic handling on phone. **Wirral** reports continued progress, recent activities having included a test with GW8BG/P, manned by personnel of the Army Wireless Reserve Squadron, who were in camp at Chester at the time. The control station, G2AMV, is almost complete; three receivers can be operated simultaneously. The emergency powered transmitter and receiver has aroused much interest in Region 1. The E.C.O. (G3ERB) is working on mobile equipment for motor cycle and car use.

The E.C.O. for **Aberystwyth** (GW3FRK) reports slow but steady progress. In view of the mountainous country Top Band is considered best for mobile operation. From Northern Ireland, the E.C.O. for **Belfast** (GI2DZG) reports that the group's midnight practice net on Saturdays continues on 3.5 Mc/s. At a recent meeting it was decided to concentrate on the use of 3.5 and 28 Mc/s equipment.

Standard Power Plugs

G2ACT has suggested that all R.A.E.N. equipment should be fitted with international octal plugs and sockets for power connections, wired as follows: l.t. and h.t. negative to pin 2, h.t. positive to pin 4 and l.t. positive to pin 7. As he points out this would enable power to be obtained from most broadcast and communications receivers (with all valves removed) by simply plugging into the output valve socket, in addition to the obvious advantages of standardisation.

R.A.E.N. Appointments

T. F. Wareing (G3EFA), 105 Shellfields Road, **Southport,** Lancs., has been appointed an E.C.O. and A. R. Mee (G3ERV), 20 Greendrift, **Royston,** Herts., an Acting E.C.O A F. Dennis (G3CNV) has resigned as E.C.O. for **Romford** on moving to Sutton Coldfield.

Special Procedure Signals

To avoid confusion with certain recognised Aeronautical Signals in the QN— group the R.A.E.N. Committee has decided that the special procedure signals set out in R.A.E.N. operating procedure shall not be used. The exception is QRRR.

* * *

Reports

All E.C.O.s are asked to send reports to the Hon. Secretary, R.A.E.N. Committee (C. L. Fenton, G3ABB), Niarbyl, Gay Bowers Road, Gay Bowers, Danbury, near Chelmsford, to arrive not later than the 20th of the month.

" Operation Lifeline "

R.A.E.N. was brought home to the people of Yorkshire in no uncertain terms on October 17 when the County Controller for the East Riding, Lt.-Col. A. C. Dunn (G2ACD), ran the first full-scale test of emergency communications in the area. Full reports appeared in local and national newspapers and the B.B.C. featured R.A.E.N. in the previous day's *News from the North* programme. Eight reporters and photographers witnessed the test in addition to representatives of H.M. Coastguards, local councils, voluntary organisations and essential services.

For the purpose of the exercise, it was assumed that the wireless station at Flamborough Head had broken down. To replace it went G2CPS/P, whose team, watched by three reporters and a photographer, established a low power station in H.M. Coastguard station. The object was to establish radio telephony communications from Scarborough to Spurn, up the Humber, thence *via* Hull to Howden and back across the Yorkshire Wolds to Scarborough. Despite some difficulty in loading up the transmitter at G2ACD (who acted as control)—it was later found that a telephone wire had fallen across the aerial—the exercise went " like clockwork." Altogether, 22 fixed, portable and mobile amateurs took part, including G3GBH, G2YS, G3DQ, G2ACD, G3CC, G3ALD, G3ABR, G6XX, G5GX, G6UJ, G6WJ, G2CNX, G4IH, G2FCY, G3JOH, G3GAW, G6CP and G2KO.

In writing about the exercise, G2ACD stresses the excellent spirit displayed not only by those taking part but also by those who so scrupulously kept clear of the frequencies in use by a handsome margin.

Can You Help?

● R. Stringer (G3IOZ), " The Gables," Kilsley, near Rugby, who requires the manual and any modification details for the BC454B?

● J. D. Smith (B.R.S.18820), " Craigroyston," 46 Queens Road, Cheadle Hulme, who requires the manual for the Hallicrafters SX28 receiver?

Tests and Contests

Low Power Field Day, 1954

NO doubt the comprehensive conditions of the new licence are at least partly responsible for the increasing interest in this event. On this occasion 27 stations are known to have been active, though only half of them submitted entries. Our thanks are due to G2WS/P and G6AH/P for their check logs.

Once again the weather was ideal and the Contests Committee humbly accept the thanks offered for this fact, whilst pointing out that identical weather arrangements are made for all outdoor contests.

The new licence also caused a minor complication in that some of the portable stations operated under /A call-signs. This point will require careful consideration before next year's field events.

G3CGD/P's equipment for Low Power Field Day was carried on a bicycle to the portable site.

Contacts were wholly in the 3.5 Mc/s band, though 7 Mc/s was given a trial by some entrants. Opinion is somewhat divided as to whether 7 Mc/s should be retained, or 1.8 Mc/s substituted, an argument in favour of the latter being that it would encourage the use of transistors. Supporters of the 7 Mc/s band consider that more points will be accumulated here, when the band does liven up again. On one point, however, all agree: "This little contest must continue."

From third position last year G3GHC/P has risen to the top with 87 points from 39 contacts, using a v.f.o./p.a., 0.6/0.7 watt input and a superhet receiver with the following line-up: 1R5 frequency changer, two ARP12 i.f. stages (230 kc/s), AR8 detector/b.f.o. and two a.f. stages (ARP12 and 1T4). The 90 volt h.t. battery experienced its second outing. Total weight of the equipment was 19¼ lb. Last year's winner, G3CGD/P, is runner-up with 84 points from 37 contacts, using v.f.o./f.d./p.a. and a 1-V-1 receiver. In third position is a newcomer to the event, G5SX/P, who made 27 contacts for his 70 points with an input of 1.2 watts and an 0-V-1 receiver.

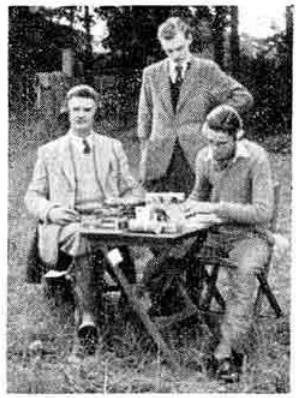
Aerials were mainly end-fed and varied in length from 100ft to 270ft plus 90ft counterpoise.

The manner in which various competitors tackled the problem of operating a Low Power Field Day Station can be seen in the photographs.

G3JRD/P operated from Firle Beacon, near Lewes, Sussex, during the Low Power Field Day. In this picture, G4IB is at the key while G2UJ turns the hand generator. G3AXV stands by.
(Photo by G3JRD)

Results of Low Power Field Day

Position	Call-Sign	Location	Points
1	G3GHC/P	Kinver, Staffs.	87
2	G3CGD/P	near Cheltenham	84
3	G5SX/P	near Barnet	70
4	G4FC/P	Chobham, Surrey	67
5	G3HQQ/P	near Worthing	62
6	G3ISU/P	London, W.5	57
7	G3IEE/A	Epsom Downs	45
8	G3DTA/P	Terrington, Yorks	33
9	G3GDW/P	Newton Abbott	31
10	G3IEY/P	near Warwick	30
11	G3NA/P	near Hereford	21
12	G3JRD/P	near Lewes	18
13	G8NN/P	near Sheffield	7



G3IEE/A during Low Power Field Day. From left to right, R. Henson, G3JKA and G3JNB.

A.R.R.L. DX Contest, 1954

FOR the eighth year in succession, S.R. Kharbanda (G2PU) has received the English Telephony award in the A.R.R.L. DX Contest. The leading English station in the Telegraphy section was F. J. U. Ritson (G5RI) with 60,840 points. In the same section GM3EOJ scored 6132 and in the Telephony section 117 points. GI4RV led the Northern Ireland stations in the Telegraphy section with 3432 points. The only Welsh contestant was GW3JI who scored 21,096 points on c.w.

F.T.T. Award

OWING to a change in the Administration of the Free Territory of Trieste, all reference to AG2 and MF2 stations has now been deleted from the rules for the "Free Territory of Trieste Award" issued by the Amateur Radio Association of Trieste. Contacts with such stations before the change in Administration will, however, be accepted as /Trieste stations under the new regulations.

Details of the award were published on page 571 of the June, 1954, issue of the BULLETIN.

Can You Help?

● J. B. Armstrong (G3EJR), 40 The Oval, Mirehouse, Whitehaven, Cumberland, who requires a suitable "S" meter circuit for the American TCS receiver?

CONSTITUTION

Region I Division of the International Amateur Radio Union

THE Executive Committee of Region I Division of the International Amateur Radio Union have drawn up the following Constitution:

Article 1

The name of the organisation is the Region I Division of the International Amateur Radio Union, hereinafter called the Division.

Article 2

The objects of the Division are to promote the general interests of all the I.A.R.U. Societies in Region I (as defined by the International Telecommunications Union and set out in the Appendix) and to represent their interests at I.T.U. Radio Administrative Conferences.

Article 3

The membership of the Division shall consist of Member Societies of I.A.R.U. in Region I.

Article 4

A Conference of Member Societies shall be held at an interval of not more than three years in one of the countries within Region I.

Article 5

Every Member Society of the Division is entitled to appoint representatives to attend Region I Conferences and each Member Society shall have one vote at Plenary Meetings.

Article 6

The President of each Region I Conference and the Chairmen and Secretaries of the Committees set up at the Conference shall be elected at the first Plenary Meeting and shall act only for the duration of the Conference.

Article 7

At each Conference an International Executive Committee, consisting of a Chairman, Vice-Chairman, Honorary Secretary and at least two (2) members shall be elected by the Member Societies present. The Committee shall have full executive powers between Conferences.

Article 8

The Honorary Secretary of the Executive Committee shall act as the Conference Secretary.

Article 9

The Chairman of the Committee shall have general supervision of the affairs of the Division and shall preside at meetings of the Committee.

Article 10

The Vice-Chairman of the Committee shall act in the absence or disability of the Chairman.

Article 11

The routine affairs of the Division shall be undertaken by a Secretariat, hereinafter known as the Region I Bureau.

Article 12

The Honorary Secretary of the Committee shall be responsible for all funds belonging to the Division and for the management of the Bureau. He shall deal with all general correspondence appertaining to the Division and shall maintain a record of all actions taken and shall keep Minutes of all meetings of the Committee. He shall maintain a close liaison with I.A.R.U. Headquarters and shall forward to the Secretary I.A.R.U. reports on the proceedings of the Division.

Article 13

Neither the Division nor the Committee shall make decisions which are contrary to the Constitution of the I.A.R.U. and they shall not interfere with the internal affairs of Member Societies.

Article 14

Member Societies at a Conference may represent and submit proxy votes on behalf of Member Societies not present.

Article 15

Decisions taken at Conferences shall be by a simple majority of votes; decisions regarding financial matters require a two-thirds majority.

Appendix

Definition of the boundaries of Region 1

Region 1

Region I includes the area limited on the east by line A (Lines A, B and C are defined below) and on the west by line D, excluding any of the territory of Iran which lies between those limits. It also includes the part of the territory of Turkey and the U.S.S.R. lying outside of those limits, the territory of the Mongolian People's Republic and the area to the north of the U.S.S.R. which lies between Lines A and C.

Line A

Line A extends from the North Pole along Meridian 40° East of Greenwich to parallel 40° North; thence by Great Circle arc to the intersection of Meridian 60° East and the Tropic of Cancer; thence along the Meridian 60° East to the South Pole.

Line B

Line B extends from the North Pole along Meridian 10° West of Greenwich to its intersection with parallel 72° North; thence by Great Circle arc to the intersection of Meridian 50° West and parallel 40° North; thence by Great Circle arc to the intersection of Meridian 20° West and parallel 10° South; thence along Meridian 20° West to the South Pole.

Line C

Line C extends from the North Pole by Great Circle arc to the intersection of parallel 65° 30′ North with the international boundary in Bering Strait; thence by Great Circle arc to the intersection of Meridian 165° East of Greenwich and parallel 50° North; thence by Great Circle arc to the intersection of Meridian 170° West and parallel 10° North; thence along parallel 10° North to the intersection with Meridian 120° West; thence along Meridian 120° West to the South Pole.

Letters to the Editor

The Early Days

DEAR SIR,—Answering, entirely without rancour, Mr. Rush's comments on the " Old Timer " aspect of the BULLETIN, let us be reasonable. Ham Radio has something for everybody, hasn't it? Well then, a little of that " everybody " is the " Old Timer."

I admit that I, personally, find television, s.s.b. and novice articles " useless " (although s.s.b. forms a major part of my professional life) but these are for yet another part of the " everybody " so I don't complain —I just don't read 'em. *CQ* and *QST* are no different in this respect and any publication catering for a wide variety of interests cannot please everybody. Attempts to do so usually end up with a decreasing readership and, possibly, extinction.

G3HBZ should not overlook the fact that there are very many active Old Timers in key positions in the Telecommunications Industry, the Services, Ministries of Communications, Operating Companies and the G.P.O., the foundation of whose jobs was their early Ham experience. He surely doesn't imagine that any of us would command high salaries and considerable responsibility if we had any tendency to get left behind? But look back we do, frequently, with profit.

Failure to " look over one's shoulder " occasionally is the biggest curse of the rising young Development Engineer today and the chief reason why a poor devil of a Telecommunications Systems Engineer like the writer is old before his time. The man who exclusively looks ahead may not know he's wearing blinkers but it comes out in his work! And we know it all right when the job's on site and the customer points out that to make a certain adjustment one should either dig a hole to stand in or be amputated just below the armpits! Of course, it looked all right on the drawing and was probably easy enough in the Lab. where it was up on blocks to accommodate cabling normally underground. The same bloke, on a new equipment, will never look to see if there is a current item he can use for a job. It's always—straight to the manufacturer with yet another specification for yet another special item. (I admit the Ham can't do this, normally). Living in the past is yet another vice, just as pernicious as not looking back at all and equally to be avoided.

Of course one must look back. It's the only means of assessing one's progress. What's any sort of history for, otherwise? No, Ham Radio is a widely diverse hobby, which exactly explains its present power and scope. Selfishness and parochialism will do more to achieve its utter ruin than anything else. If G3HBZ doesn't believe me, let him read his letter in 15 years' time. If he's a good Ham—I would have ignored his letter if I thought otherwise—I think he will agree.

Yours faithfully,
E. J. ALLEN (G5ZD).

DEAR SIR,—May I be granted a little space in which to reply to the letter from Anthony Rush (G3HBZ) in your October issue, wherein a case is presented for discontinuing " Retrospect " and " Quarter Century Back " articles? I am not an " Old Timer " in the Amateur Radio world although nearing the half-century in years, but I have pleasant recollections in assisting with the operation of an amateur built short-wave station as far back as 1926, when the said station was pressed into service to clear priority " traffic " because the normal and then existing means of Service communication had failed. Was anyone reading this at the " Villa Victoria " H.Q., R.A.F., M.E., Cairo in 1926?

I do not believe that the "Old Timers" now active on the amateur bands are still using the equipment shown in those old photographs! Nor do I think that they are so out of touch with present techniques, in fact it is possible that they can both enjoy the pleasure of looking back and still manage to keep up with (and sometimes be a little ahead) of their younger brethren. It is also possible that some of the younger fraternity may find the references to earlier efforts an inspiration to keep trying.

Is it because I am growing old that I seem to notice less of the pioneer spirit abroad today? Oh well, let me read that *History of the Work of the Amateur Transmitter on Short Waves* again whilst the soldering iron warms up.

Yours faithfully,
J. H. LORD (G3BIA).

Twickenham, Middx.

DEAR SIR,—With reference to G3HBZ's letter in the October issue of the BULLETIN, may I suggest that the " Quarter Century Back " and " Retrospect " articles show just how far we have progressed. Were it not for TVI, I think that some of us would still be using the techniques of 1929. Of course, if the main interest is DX perhaps this is of no account. However, I share G3HBZ's opinion that ours is, or should be, a progressive hobby, with constant experimentation in new techniques, not the slavish following of old ones. It may well be that /M and R.A.E.N. operation will provide scope for fresh ideas but in my opinion there is still room for such ideas in our normal work.

Yours faithfully,
B. PRIESTLEY (G3JGO).

Rudheath,
Northwich, Cheshire.

DEAR SIR,—So Mr. Rush (G3HBZ) finds " Retrospect " and " Quarter Century Back " useless . . . and this after favourably commenting on the " comprehensive contents " of the new style BULLETIN!

I write, not as a grey-bearded Old-Timer, but as the possessor of a comprehensive library of Amateur literature, dating from 1923, and I can assure G3HBZ that the history of Amateur Radio in those days is very interesting and colourful.

If Mr. Rush could only peruse some of the early copies of the " Bull " I'm certain he would reverse his opinion.

Those articles may be uninteresting to you, Mr. Rush, but don't be narrow-minded and condemn them as useless as a result!.

Yours faithfully,
F. ALLAN HERRIDGE (G3IDG),
(Life Member).

Balham, London, S.W.12.

R.A.E.N. Procedure

DEAR SIR,—Having just completed my reading of the instructions and operating procedure drawn-up for operators of R.A.E.N. stations published in the October BULLETIN, I would like to pass my opinion thereon.

As my call-sign shows, I am comparatively new to Amateur Radio, although I most certainly was the first R.A.E.N. volunteer in the Glasgow area. I am left wondering who on earth dreamed up such a document? Granted one must have some semblance of order and regularity in procedure, but the very essence of R.A.E.N., in my interpretation, is EMERGENCY. Therefore, if I, as a R.A.E.N. volunteer, am ordered, or asked, to set up my emergency station by an appropriate authority for traffic handling, then I shall do so without any flagwaving or form filling, all that can come later, if deemed necessary.

It would seem, though, that it is not going to be possible to have an emergency without the delightful and typically British mania for procedure and form filling. By virtue of the fact that I hold an amateur licence I feel perfectly competent to handle any emergency circumstance which may arise but I most certainly do not intend, as a volunteer, to be pushed around by a committee telling me how I ought to run my station—and no one more than I knows what discipline is after a lifetime of it!

In conclusion, I wonder why a few pages of word abbreviations were not included so that operators would know how to condense a message into the space provided on the sample message form.

The above, Sir, is entirely my own opinion naturally, and if it doesn't start a storm I shall be surprised.

Yours faithfully,
CHAS. P. CALLANAN (GM3HLQ)

Strathaven,
Lanarkshire.

DEAR SIR,—I was most interested to read the new R.A.E.N. procedure in the October issue. This is obviously the work of somebody who is familiar with traffic handling and perhaps service procedures also, but I should like to raise a few points where improvement might be made.

(*a*) *No word count*: This could cause difficulty in the handling of long messages involving other than plain language groups. On the other hand, if a group count were adopted, the rates for counting must be simple and concise.

(*b*) The use of the word UNCLASSIFIED as a priority classification as this has a different meaning to members who have met Service procedure. Why not use NORMAL (NOR) or something similar?

(*c*) The use of the word NIL, why not QRU which is listed in the Q Signals?

(*d*) The use of the signals QNE, QNH and QNT which have meanings used in reporting meteorological conditions. For the latter I suggest QAR " May I stop listening on watch frequency for.....minutes? "

Apart from these minor points, I feel the authors should be congratulated on a simple and easily understood procedure.

Yours faithfully,
JOHN A. BLADON (G3FDU).

Davenham,
Northwich, Cheshire.

Predjudicial to Good Manners

DEAR SIR,—On Sunday, October 17, 1954, I commenced what might have been an interesting and enjoyable QSO with a mobile station G8TL/M who was proceeding from Ilford to Theydon Bois in Essex.

I maintained communication with this station until the signal was about S3 but readable when, without preamble, a station in Loughton came up on the frequency, broke into the QSO and took it from me. This station continued to work G8TL/M until he in turn was interrupted by a station in Chelmsford who then dominated the QSO calling his Chelmsford friends into the QSO and inviting them to make contact with the mobile station.

I was, therefore, unable to finish my QSO and after listening for a while, closed my station down. It is rare that I am able to operate these days and I deplore the above conduct which, in my opinion, is prejudicial to good manners and the " ham " spirit.

Yours faithfully,
E. J. WILLIAMS (G2AKY).

Dagenham, Essex.

LONDON U.H.F. GROUP

will meet at the Bedford Corner Hotel, Bayley Street, Tottenham Court Road,

at 7.30 p.m., on December 2, 1954.

All u.h.f. enthusiasts welcome.

Forthcoming Events

REGION 1

Bury.—December 9, 7.30 p.m., 52 The Drive, Seedfield, Bury.
Chester (C. & D.A.R.S.).—Tuesdays, 7.30 p.m., Tarran Hut, Y.M.C.A., Chester.
Crosby.—Tuesdays, 8 p.m., over Gordon's Sweetshop, St. John's Road, Waterloo.
Ise of Man.—December 1, Broadway House, Douglas.
Lancaster (L. & D.A.R.S.).—December 1, 7.30 p.m., George Hotel, Torrisholme.
Liverpool (L. & D.A.R.S.).—Tuesdays, 8 p.m., St. Barnabas Hall, Penny Lane, Liverpool 15.
Manchester (M. & D.R.S.).—December 6, 7.30 p.m., Brunswick Hotel, Piccadilly, Manchester.
Preston.—November 19, December 3, 17, Belle Vue Hotel, New Hall Lane, Preston.
Rochdale (R.R.T.S.).—Fridays, 7.45 p.m., 1 Law Street, Sudden.
South Manchester (S.M.R.C.).—Fridays, 7.45 p.m., Ladybarn House, Mauldeth Road, Manchester 14.
Southport.—Thursdays, 8 p.m., Y.M.C.A., off Eastbank Street, Southport.
Stockport.—November 24, December 8, 22, 8 p.m., The Blossoms Hotel, Buxton Road, Stockport.
Warrington (W. & D.R.S.).—November 18, December 2, 16, 7.30 p.m., King's Head Hotel, Winwick Street, Warrington.
West Cumberland.—December 2, 7 p.m., Kells Community Centre, Whitehaven.
Wirral (W.A.R.S.).—November 17, December 1, 15, 7.45 p.m., Y.M.C.A., Whetstone Lane, Birkenhead.

REGION 2

Barnsley.—November 26, December 10, 7.30 p.m., King George Hotel, Peel Street.
Bradford.—November 23, December 14, 7.30 p.m., Cambridge House, 66 Little Horton Lane.
Catterick.—Wednesdays, 7 p.m., Loos Lines, Catterick Camp.
Darlington.—Thursdays, 7.30 p.m., 129 Woodlands Road.
Doncaster.—December 8, 7.30 p.m., Y.W.C.A., Cleveland Street.
Gateshead.—Mondays, 7.30 p.m., Mechanics Institute, 7 Whitehall Road.
Hull.—November 30, December 14, 7.30 p.m., "Rampant Horse," Paisley Street.
Leeds.—Wednesdays, 7.30 p.m., Swarthmore Educational Centre, 3 Woodhouse Square.
Middlesbrough.—Thursdays, 7.30 p.m., Joe Walton's Boys' Club, Feversham Street.
Pontefract.—November 18, December 2, 16, 8 p.m., "Fox Inn," Knottingley Road.
Rotherham.—Wednesdays, 7 p.m., "Cutlers' Arms," Westgate.
Scarborough.—Thursdays, 7.30 p.m., B.R. Rifle Club, West Parade Road.
Sheffield.—November 24, 8 p.m., "Dog and Partridge," Trippit Lane; December 8, 8 p.m., Albreda Works, Lydgate Lane.
Slaithwaite.—Fridays, 7.30 p.m., 3 Dartmouth Street.
Spenborough (S.V. & D.R. & T.S.).—November 17, December 1, 15, 7.30 p.m., Temperance Hall, Cleckheaton.
York.—Thursdays, 7.30 p.m., Club Rooms, Y.A.R.S., Fetter Lane.

REGION 3

Birmingham (South).—December 6, 7.30 p.m., Friends Hall, Watford Road, Cotteridge. **(M.A.R.S.).**—November 16, 6.45 p.m., Imperial Hotel.
Coventry.—November 26, 7.30 p.m., Priory High School, Wheatley Street. **(C.A.R.S.).**—November 22, December 6, 7.30 p.m., 9 Queens Road.
Kenilworth, Leamington & Warwick.—November 18, 7.30 p.m., Dalehouse Lane, Warwick.
Malvern.—December 6, 8 p.m., "Foley Arms."
Solihull.—November 26, December 10, 7.30 p.m., Old Manor House, High Street, Solihull.
Stoke-on-Trent.—November 24, 8 p.m., "Lion's Head," John Street, Hanley.
Stourbridge (St. A.R.S.).—December 7, 8 p.m., King Edward VI School.
Rugby.—December 2, 7.30 p.m., B.T.H. Recreational Hall, Hillmorton Street, Rugby.
Walsall.—November 24, December 8, 8 p.m., Technical College, Bradford Place.
Wolverhampton.—November 22, December 6, 8 p.m., Stockwell End, Tettenhall.
Wrekin.—December 6, 8 p.m., Wrekin Services Club, Roseway, Wellington.

REGION 4

Alvaston.—Tuesdays, Thursdays, 7.30 p.m., Sundays, 10.30 a.m., Nunsfield House, Boulton Lane, Alvaston, nr. Derby.
Chesterfield.—Tuesdays, 7.30 p.m., Bradbury Hall, Chatsworth Road.
Derby (D. & D.A.R.S.).—Wednesdays, 7.30 p.m., Derby College of Arts and Crafts, Sub-basement, Green Lane.
Leicester (L.R.S.).—November 22, December 6, 20, 7.30 p.m., Holly Bush Hotel, Belgrave Gate.
Lincoln (L.S.W.C.).—November 22, December 6, 7.30 p.m., Technical College, Cathedral Street.
Mansfield (M. & D.A.R.S.).—December 14, 7.30 p.m., The Denman's Head Hotel, Market Place, Sutton-in-Ashfield.
Newark.—December 5, 7 p.m., Northern Hotel, Appleton Gate.
Northampton (N.S.W.C.).—Fridays, 7 p.m., December 3, 6 p.m., Club Room, 8 Duke Street.
Nottingham.—November 19, December 17, 7.30 p.m., Sherwood Community Centre, opposite Woodthorpe Drive, Sherwood.
Peterborough.—December 1, 7.30 p.m., 21 Hankey Street.
Worksop.—December 6, 7 p.m., King Edward Hotel.

REGION 5

Chelmsford.—December 7, 7.30 p.m., Marconi College, Arbour Lane.
Lowestoft & Beccles (L. & B.A.R.C.).—November 24, December 8, 7.30 p.m., Y.M.C.A., Lowestoft.

REGION 6

Cheltenham.—December 2, 8 p.m., 128 Prestbury Road.
Gloucester (G.R.C.).—Thursdays, 7.30 p.m., The Cedars, 83 Hucclecote Road, Gloucester.
High Wycombe.—November 23, 7.30 p.m., G3DQC, 218 Totteridge Hill, High Wycombe.
Portsmouth.—Tuesdays, 7.30 p.m., British Legion Club, Queen's Crescent, Southsea. (Clubroom open every evening.)
Southampton.—December 4, 7 p.m., 1 Prospect Place.
Stroud.—Wednesdays, 7.30 p.m., Subscription Rooms.

REGION 7

Acton, Brentford & Chiswick.—Tuesdays, 7.30 p.m., A.E.U. Rooms, 66 Chiswick High Road, W.4.
Barnes, Putney & Richmond.—December 3, 337 Upper Richmond Road, S.W.14.
Bexleyheath (N.K.R.S.).—November 25, December 9, 7.30 p.m., Congregational Hall, Chapel Road, Bexleyheath.
Bromley (N.W.K.A.R.S.).—December 3, 8 p.m., "Shortlands Tavern," Station Road, Shortlands.
Chingford.—November 19, December 3, Venue from G4GA (SIL 5635) or B.R.S.19765 (SIL 6055).
Chislehurst & Sidcup.—December 8, "Seven Stars," High Street, Footscray.
Croydon.—December 14, 7.30 p.m., "Blacksmith Arms," 1 South End, Croydon.
Dorking.—Tuesdays, 7.30 p.m., 5 London Road.
East Ham.—November 16, 30, 8 p.m., 12 Leigh Road.
Ealing.—Sundays, 11 a.m., A.B.C. Restaurant, Ealing Broadway, W.5.
East London District.—November 21, 2.30 p.m., Town Hall, Ilford ("Soft Soldering," H. C. Watkins, A.I.M.).
Enfield.—November 21, 3 p.m., George Spicer School, Southbury Road, Enfield.
Finsbury Park.—November 23, 7.30 p.m., 164 Albion Road, Stoke Newington, London, N.16.
Guildford & Woking.—November 28, 3 p.m., Royal Arms Hotel, North Street, Guildford. (Bring-and-Buy Junk Sale.)
Hendon & Edgware.—Wednesdays, 8 p.m., 22 Goodwins Avenue, Mill Hill, N.W.7.
Hoddesdon.—December 2, 8 p.m., "Salisbury Arms."
Ilford.—Thursdays, 8 p.m., G2BRH, 579 High Road.
Kingston (K. & D.R.S.).—Alternate Wednesdays, 7.45 p.m., Penrhyn House, Penrhyn Road.
Lewisham (R.A.R.C.).—Wednesdays, 8 p.m., Durham Hill School, Downham.
Norwood.—November 20, December 18, Windermere House, Weston Street, Crystal Palace.
Southgate & Finchley.—December 9, 7.30 p.m., Arnos School, Wilmer Way.
Sutton & Cheam (S. & C.R.S.).—November 16, December 21, "The Harrow," Cheam Village, Surrey.
Welwyn Garden City.—December 7, 8 p.m., Council Offices, Welwyn Garden City ("The Oscilloscope and Amateur Radio," G. A. C. Watts, Murphy Radio Electronics Lab.).

REGION 8

Brighton (B.D.R.C.).—Tuesdays, 7.30 p.m., "Eagle Arms," Gloucester Road.
Chatham (M.A.R.T.S.).—November 22, December 6, 20, 7.30 p.m., Services Rendered Club, 14 High Street, Brompton, Chatham.
Hastings (H. & D.R.C.).—November 23, December 7, 21, 7.30 p.m., Saxons Café, Denmark Place.
Isle of Thanet (I.O.T.R.S.).—Fridays, 7.30 p.m., Hilderstone House, Broadstairs.
Maidstone (M.K.A.R.S.).—Tuesdays, 7.30 p.m., Elms School, London Road.
Worthing (W. & D.R.C.).—December 13, 8 p.m., Adult Education Centre, Union Place.

REGION 9

Bath.—November 22, 7.30 p.m., 12 Pierrepoint Street. (Details from G3FBA, Telephone No. 3861.)
Bristol.—November 19, December 10, 7.15 p.m., Carwardine's Restaurant, Baldwin Street, Bristol 1.
Exeter.—December 3, 7 p.m., Y.M.C.A., St. David's Hill, Exeter.
North Devon.—December 2, G3BO, "Rosebank," Westcombe, Bideford.
Plymouth.—November 20, December 18, 7 p.m., Tothill Community Centre, Tothill Park, Knighton Road, St. Jude's.
Torquay.—November 20, December 18, 7.30 p.m., Y.M.C.A., Castle Road.
Weston-super-Mare.—December 7, 7.30 p.m., Y.M.C.A.
Yeovil.—Wednesdays, 7.30 p.m., Grove House, Preston Road.

(Continued on page 260)

Regional and Club News

ABERDEEN.—The first of a new series of monthly meetings will be held at 93 Craigton Road, Mannofield, Aberdeen, on November 25 at 7.30 p.m. Potential members are invited to attend.

ABERDEEN AMATEUR RADIO SOCIETY.—At the Eighth A.G.M. the following were elected: *President*: B. McK. Davidson; *Vice-President*: E. G. Ingram; *Hon. Secretary*: A. G. Knight, 6 Blenheim Lane, Aberdeen; *Committee Members*: W. Beaton, J. Gall, S. D. Morrison and C. Sherrit.

BLACKPOOL & FYLDE AMATEUR RADIO SOCIETY.—Great interest was shown in the Amateur Radio stand manned by members of the Society at the Hobbies Exhibition organised by Cleveleys Rotary Club. The equipment displayed was entirely home built and included a complete all-band 150 watt c.w./phone transmitter, an oscilloscope, 150 watt p.a., 144 Mc/s transmitter and receiver, 420 Mc/s transmitter and receiver, 20 watt all-band TVI-proof phone/c.w. transmitter, standing wave indicators, frequency meters, impedance matching units and power supplies. The display was under the direction of S. Horsfall (G3GXX).

BRIGHTON & DISTRICT RADIO CLUB.—The club continues to meet on Tuesdays at the Eagle Inn, Gloucester Road, Brighton. Young members are especially welcome and help is given with simple equipment and learning Morse. A new 100 watt transmitter is under construction. *Hon. Secretary*: T. J. Huggett, 15 Waverley Crescent, Brighton, Sussex.

BRITISH TWO-CALL CLUB.—Membership continues to increase, new members being G2AMX/VE3BUU and VQ4EG/M131M. Full details may be obtained from the *Hon. Secretary*: G. V. Haylock, A.M.Inst.E. (G2DHV), 63 Lewisham Hill, London, S.E.13.

CAMBRIDGE & DISTRICT AMATEUR RADIO CLUB.—"Ionosphere Research at the Cavendish Laboratory," by B. H. Briggs (G2FJD) and "TVI Suppression," by Louis Varney (G5RV) have been subjects for recent lectures. On November 22 a film show arranged by Mullard, Ltd., will be given at Milton Road Primary School whilst "Colour TV" will be discussed by C. H. Babbs (G5IG) at the meeting on December 3 at Club Headquarters—The Jolly Waterman, Chesterson Road. *Hon. Secretary*: F. A. E. Porter, 38 Montague Road, Cambridge.

CHELTENHAM.—The combined efforts of the R.S.G.B. Group and the Cheltenham Amateur Radio Society made the Amateur Radio stand at the Cheltenham Hobbies Exhibition—attended by 10,000 people—a great success. The exhibition station (GB3GPW) was active on 3.5 Mc/s practically non-stop. G5BM exhibited his 2 m equipment. G3GMM/M, who was directed to the exhibition by GB3GPW, demonstrated the usefulness of Top Band and 3.5 Mc/s mobile working. Radio enthusiasts from as far afield as Droitwich and Kemble visited the stand in addition to a large number of local amateurs.

CHESTER & DISTRICT AMATEUR RADIO SOCIETY.—Recent activities have included an auction, a film strips show, and a lecture on "Radio Mechanics," by D. Rickers (GW3HEU). Details of meetings, which are held on Tuesdays at the Tarran Hut, Y.M.C.A., Chester, may be obtained from the *Hon. Secretary*: N. Richardson (B.R.S.19678), 23 St. Mary's Road, Dodleston, near Chester.

COVENTRY AMATEUR RADIO SOCIETY.—The following officers were elected at the A.G.M.: *President*: L. Gardner (G5GR); *Chairman*: D. W. Harries (G3RF); *Hon. Treasurer*: K. Barber (G3HDP); *Hon. Secretary*: J. H. Whitby (G3HDB), 11 St. Patrick's Road, Coventry.

DERBY & DISTRICT AMATEUR RADIO SOCIETY.—Arrangements for the immediate future are as follows: November 17—Film Show; November 24—talk on "Wired Wireless"; November 27—organised visit to the R.S.G.B. Amateur Radio Exhibition; December 1—Junk Sale; December 8—talk on "TV Fault Finding"; December 15—discussion on "Interplanetary Flight." The club contest for the "G5YY Trophy" will take place on Top Band (Telegraphy only) on December 12 from 0800 to 1200 and from 1800 to 2200 G.M.T. *Hon. Secretary*: F. C. Ward (G2CVV), 5 Uplands Avenue, Littleover, Derby.

EAST LONDON.—Despite a bus strike, fifty members attended the meeting on October 17 when Past President W. A. Scarr, M.A. (G2WS) lectured on "Interplanetary Travel." So many questions were asked that the meeting had to be closed before all could be answered. The lecture was recorded on tape and details will be found elsewhere in this issue.

HARLOW & DISTRICT RADIO SOCIETY.—Meetings are held on Tuesdays at 8 p.m. Members gather at G3ERN, 6 High Street, before moving on to a local hall for the formal meeting. Details from the *Hon. Secretary*: H. I. Wright, "Follys," Cock Green, Great Parndon, Harlow, Essex.

ISLE OF MAN AMATEUR RADIO SOCIETY.—During the winter meetings are again being held at the Manor Guest House, Victoria Road, Douglas, by kind permission of the Society's President, on the first and third Wednesday in each month. Further information from the *Hon. Secretary*: R. S. Trickey (GD3DRB), 35 Sunningdale Drive, Onchan, I.o.M.

LEICESTER RADIO SOCIETY.—In recognition of 25 years' unbroken service to the Society, L. Ridgeway (G2RI) was elected *Honorary Founder President* at the recent A.G.M. Other officers elected were: *President*: R. Frisby (G2CFC); *Chairman of Meetings*: W. McQueen (G3DVP); *Hon. Secretary*: W. N. Wibberley, 21 Pauline Avenue, Belgrave, Leicester; *Hon. Treasurer*: D. Holl (G3AWM). An inter-society Top Band contest has been arranged with Derby Radio Society for December 12 and it is hoped that all Midland stations will take part. At the meeting on November 22, G3BKQ will give a talk on "V.H.F. Equipment." The Transistor Group, under the guidance of G3CCA, continues to make progress.

MIDLAND AMATEUR RADIO SOCIETY.—The first meeting in the Society's new headquarters at the Birmingham Midland Institute, Paradise Street, Birmingham 1, will be held on November 16 at 6.45 p.m. Visitors will be welcome. *Hon Secretary*: D. Hall, 144 Hill Village Road, Four Oaks, Sutton Coldfield.

MIDLAND AMATEUR RADIO SOCIETY.—Mr. J. Timbrell (G6OI), Region 3 Representative and President of the Stourbridge Society, was among the many guests at the Annual Dinner of the Society held on October 23, 1954, at The Imperial Hotel, Birmingham. The Chair was taken by the newly-elected President of M.A.R.S., Mr. H. Barry Bligh (G3HBB) who had the support of the Immediate Past President, Mr. Garnett Lapworth (G6DL), and several other Past Presidents. Mr. Leslie Gardner (G5GR), President of C.A.R.S., and Mr. Bob Palmer (G5PP), Warwickshire C.R., were also present.

The General Secretary of the R.S.G.B. (who had been a guest at the Slade Radio Society Dinner the same evening) arrived just before the proceedings finished to greet a number of old friends including Mr. F. W. Miles (G5ML), Mr. C. A. Young (G2AK), Mr. Wilfred Butler (G5LJ), and Mr. Howard Littley (G2NV).

NORWOOD.—The October meeting was well supported although no public transport was available. The N.F.D. Committee for 1955 was formed and there was also a junk sale. At the November meeting, Lyell Herdman (G6HD) will be the lecturer. The Group's Annual Dinner will be held on December 10 at the Half Moon Hotel, Herne Hill.

RAVENSBOURNE AMATEUR RADIO CLUB.—At the A.G.M. Bert Emerton became the club's first Honorary Member and the following officers elected: *President*: J. H. Miller; *Vice-President*: F. W. Gibbs (B.R.S.20159); *Chairman*: G. V. Haylock (G2DHV); *Hon. Secretary*: J. H. F. Wilshaw (B.R.S.18936); *Committee Members*: B. Underwood, P. G. Murphy (G3FTI), C. R. Underwood, A. Crisp, H. J. Keene, and G. Haynes. The club station, G3HEV, is active on Wednesdays.

READING RADIO SOCIETY.—F. J. H. Charman, B.E.M. (G6CJ) will give a talk and demonstrate his aerial models at the Annual Hamfest to be held on November 21. *Hon. Secretary*: L. A. Hensford (G2BHS), 30 Boston Avenue, Reading.

ROMFORD & DISTRICT AMATEUR RADIO SOCIETY.—Details of the Society's winter programme of film shows, junk sales, lectures and discussions can be obtained from the *Hon. Secretary*: N. Miller, 18 Mascalls Gardens, Brentwood, Essex. Meetings are held on Tuesdays at R.A.F.A. House, 18 Carlton Road, Romford, commencing at 8.15 p.m.

SLADE RADIO SOCIETY.—The Annual Dinner held on October 23, 1954, at the Market Hotel, Birmingham, was supported by some 70 members and friends. The chair was taken by the President, Mr. Walter Chilvers, who is the last Founder Member, having joined the Society in 1927. Guest speakers were Mr. H. F. Smith, Editor, *Wireless World* and Mr. John Clarricoats, General Secretary, R.S.G.B., both of whom are Vice-Presidents of Slade Radio Society. The Harcourt Trophy was presented to Mr. G. C. Simmonds for outstanding work in connection with D/F Contests.

SOUTHEND & DISTRICT RADIO SOCIETY.—"Radio in the Antarctic" by G. Collop (G3AXN), who recently returned from the Antarctic on board the Survey Ship *John Biscoe*, and the "Function of Crystals" by K. F. Crispin (G6MH) were subjects for recent talks. *Hon. Secretary*: J. H. Barrance, M.B.E. (G3BUJ), 49 Swanage Road, Southend-on-Sea.

SOUTH MANCHESTER RADIO CLUB.—"Communications Receivers" is the subject of the talk to be given by D. Atter (G3GRO) on November 19. An R.S.G.B. recorded lecture on "Receivers" by

"Garden City Hamfest." Even though the Annual Dinner of the Welwyn Garden City Group was primarily a "ladies' night," it was impossible to prevent a few items of technicalia from creeping in. Here is one of them being thoughtfully surveyed by Eric Shapton (G3JMS) while J. Watts, B.R.S.10546 (right) expounds on its merits or otherwise, and B.R.S. Palmer (left) registers intense concentration. At the rear, the two members who stand amused are Dave Gibson (G3JDG) on the left, and L. E. Currington, B.R.S.4741 from Hertford.

R. H. Hammans (G2IG) is arranged for December 3. At the A.G.M. the following were elected: *Chairman*: N. Potter (G3GNC); *Vice-Chairman*: M. Denny (G6DN); *Hon. Secretary*: M. Barnsley (G3HZM), 17 Cross Street, Bradford, Manchester 11; *Hon. Treasurer*: N. Ashton (G3DQU); *Committee Members*: J. R. Knight (G3JRK), G. Kenyon (G3HMF), D. Woodward (G3JYQ) and J. H. White. G3JYQ is only 16½ years old and is the latest member to receive his licence.

SPEN VALLEY RADIO & TELEVISION SOCIETY.—Subjects for forthcoming lectures are " Oscilloscopes " by G. F. Craven of Craven Electronic Instruments on November 17 and " T.R.F. Receivers " by J. E. Church (G2BMC) on December 1. The full syllabus may be obtained from the *Hon. Secretary*: N. Pride, 100 Raikes Lane, Birstall, near Leeds.

SUTTON & CHEAM RADIO SOCIETY.—Frank Hicks-Arnold (G6MB) will be describing his " Antennamatch " at the meeting on November 16 at the Harrow Inn, Cheam. Visitors will be welcome. *Hon. Secretary*: F. S. Harris (G2BOF), 143 Collingwood Road, Sutton, Surrey.

THAMES VALLEY AMATEUR RADIO TRANSMITTERS' SOCIETY.—Louis Varney, A.M.I.E.E. (G5RV) is to lecture on Narrow Band F.M. at the meeting of the Society to be held at 8 p.m. on Wednesday, December 1, at the Carnarvon Castle Hotel, Hampton Court. A cordial invitation is extended to all R.S.G.B. members in the area to attend this important meeting, further details of which can be obtained from the *Hon. Secretary*: Ken Rogers (G3AIU), 21 Links Road, Epsom, Surrey.

TORBAY AMATEUR RADIO SOCIETY.—At the October meeting, G3GDW gave a short account of Low Power Field Day. The recently formed TVI Committee has successfully dealt with its first complaint. At the meeting on November 20 members' radio queries will be answered by a team formed for the purpose.

WARRINGTON & DISTRICT RADIO SOCIETY.—" Converters " will be the title of the talk by G. Leigh at the November meeting. The Society's Annual Dinner will be held at the Tower Restaurant on November 26. A visit to a local automatic exchange is being arranged. *Hon. Secretary*: G. H. Flood, 32 Capesthorne Road, Orford, Warrington.

LONDON MEMBERS' LUNCHEON CLUB

will meet at the Bedford Corner Hotel, Bayley Street, Tottenham Court Road,

at 12.30 p.m. on November 19 and December 14, 1954.

Telephone table reservations to HOL 7373 prior to day of luncheon. Visiting amateurs especially welcome.

Representation

MR. O. M. DERRICK, GM3OM, has resigned as Representative for the Town of Falkirk (Region 14). Nominations for his successor should be made in the prescribed form and sent to reach the General Secretary by not later than December 31, 1954.

Forthcoming Events (continued from page 258)

REGION 10

Cardiff.—December 13, 7.30 p.m., " The British Volunteer," The Hayes, Cardiff.

REGION 13

Dunfermline.—Mondays and Thursdays, 7.30 p.m., behind 34 Viewfield Terrace, Dunfermline.

Edinburgh (L.R.S.).—November 18, December 2, 16, 7.30 p.m., Chamber of Commerce Rooms, 25 Charlotte Square.

REGION 14

Falkirk.—November 26, December 10, 7.30 p.m., The Temperance Café, High Street, Falkirk.

Glasgow.—November 24, December 29, 7 p.m., Institute of Engineers and Shipbuilders, 39 Elmbank Terrace, Glasgow, C.2.

London Meeting

Friday, November 19, 1954

TECHNICAL FILM SHOW

arranged by

Wing-Commander W. E. DUNN, O.B.E. (G2LR)

The programme will include

" RADIO ANTENNA FUNDAMENTALS "

" V.H.F./D.F. EMERGENCY PROCEDURE IN THE U.K."

Additional Films will be shown if time permits

at the

Institution of Electrical Engineers, Savoy Place, Victoria Embankment

Buffet Tea 5.30 p.m. **Film Show 6.30 p.m.**

Slow Morse Practice Transmissions

Organiser: C. H. L. Edwards (G8TL)*

G.M.T.	Call	kc/s	Town
Sundays			
09.00	G3GYV	1900	Whitley, near Warrington
09.30	G3BKE	1900	Newcastle on Tyne
10.00	G6MH	1990	Southend-on-Sea
11.00	G2FXA	1900	Stockton-on-Tees
11.00	G3GZA	1837.5	Bristol
12.00	G3LP	1850	Cheltenham
12.00	G3JBU	1850	Northampton
12.00	GI5UR	1860	Belfast
14.00	G5AM	1900	Witnesham, Ipswich
21.00	G2FIX	1812	Nr. Salisbury
23.30	GI3CFI	1900	Coleraine, N.I.
Mondays			
19.00	G3NC	1825	Swindon
19.00	G3JBU	1850	Northampton
19.15	G2FRX	1850	Plymouth
21.00	G3BLN	1900	Bournemouth
21.00	G3FSM	1900	Brentwood
22.15	G2BRH	1900	Ilford
22.30	G8TL	1900	Ilford
Tuesdays			
18.30	G2FXA	1900	Stockton-on-Tees
18.30	G3JMP	1875	Bristol
20.30	G3GDZ	1905	Kingsbury, N.W.9
21.00	G3EFA	1855	Southport
21.30	G3DBP	1915	Nottingham
23.30	GI3CFI	1900	Coleraine, N.I.
Wednesdays			
19.00	G3GZA	1837.5	Bristol
19.00	G3HUB/A	1902	Chelmsford
22.30	G3FBA	1910	Bath
23.30	GI3CFI	1900	Coleraine, N.I.
Thursdays			
19.00	G3NC	1825	Swindon
19.15	G2FRX	1850	Plymouth
20.00†	G2CPS / G2CNX / G3GWT	1910	Hull, Yorks.
20.30	G3JQM	1878	Barwick, Yeovil
22.30	G3ADZ	1940	Southsea
23.00	G3LA	1915	Brentwood
23.30	GI3CFI	1900	Coleraine, N.I.
Fridays			
18.00	G3GEN	1900	Gloucester
19.00	G3BLN	1900	Bournemouth
20.00	G3IIH	1900	Wirral
20.30	G3IMP	1920	Romford
Saturdays			
13.00	G2FXA	1900	Stockton-on-Tees

† *Alternately.*

Members using this service are requested to send listener reports to the stations concerned.

* *10 Chepstow Crescent, Newbury Park, Ilford, Essex.*

Can You Help ?

● H. Edge (GW6GD), Cor-Y-Llwyn, Glyn Ceirlog, Wrexham, who requires details of the connections for the United Transformer Co. modulation transformer type VM2?

● E. A. Bovey (B.R.S.19530), 1 Chapel Lane, Dartmouth, Devon, who urgently requires to buy or borrow *QST* for March, 1950, which contains an article on calibrating the BC-221?

● E. O. Wright (G3ICX), 65 Fox Hollies Road, Walmley, Sutton Coldfield, who requires the circuit diagram of the 12 Vibrator unit No. AM110D/207 manufactured by the Jefferson-Travis Co. of U.S.A.?

● F. L. Nunn (G2DT) 8 Blinco Grove, Cambridge who requires the circuit diagram and alignment instructions for a pre-amplifier using 6D6s (plus 80 type rectifier) which covers all bands from 10 to 160 metres? It is of American manufacture, the only marking being " Miller Quality Products " on the dial. The input voltage is 110.

● K. Boddy (G3JRX), 4 Colwall Avenue, Priory Road, Hull, who wishes to borrow the manual for the receiver type DST100, Mark III?

EXCHANGE AND MART SECTION

ADVERTISEMENT RATES. MEMBERS' PRIVATE ADVERTISEMENTS **2d.** per word, minimum charge **3s.** **Trade Advertisements 6d.** per word, minimum charge **9s.** (Write clearly. No responsibility accepted for errors). Use of Box number **1s. 6d.** extra. Send copy and payment to **National Publicity Co., Ltd., 36-37 Upper Thames Street, London, E.C.4,** by **22nd** of month preceding date of issue.

ANYONE going QRO? Specially made transformer 1000V 100 mA plenty filaments, 40H smoothing choke, separate HV transformer 4V 3A, all Permeko, £4. Two GU50, one T55 P/W included. G5DM, 27 Beeston Fields Drive, Beeston. (350

A R88 in excellent condition, 540 kc/s to 32 Mc/s continuous with new matching speaker, £50. Panda PR-120-V 1953 model, also excellent condition complete with A.T.U. and low-pass filter unit by Panda, £80. Class " D " wavemeter modified for 6 volts a.c., £6. Brown (GM3EYP), c/o Will, 32½ King Street, Dundee, Angus. (388

AVOMINOR Universal, factory overhauled, £4/10. Weston 3in. A.C. 0–15V, 15/-. 0.5–1.5 Mc/s Command set, £7. TCS cabinet, 5/-. (3) Variable p.a. inductances 22T silver tube, 10/- each. 100W dummy non-ind loads (4), 7/6 each. (6) 1μF 1500V U.S.A., 1/6 each. (6) Amphenol coaxial plugs, 2/6 each. Valves: VR137, 2/6SN7, 2/154, 12SL7, 7C5, 2/6SJ7, 6N7, 4/- each. 6Y6G, 12/6. Casson, " Wycollar," Pedders Lane, Ashton, Preston, Lancs. (393

BARGAINS to clear: 20/- 832 (new, unused); 7/6 each, new, 1616 (2); 6/- 6L7M; 5/- 6K7M, 6F5M, 6C5M, VT52 (EL32) (2); 3/6 EC52 (2), EF50 (2), 9002; 10/- lot, 6L6G, 6L6M, SP61, 354V, 807. 92 *Bulletins*, June, 1933 to Nov., 1939; April, 1949 to Oct., 1950, 3/- doz. or offer lot (av. wt. 12=4 lb). 18 *Short Wave Magazines*, May, 1948 to Dec., 1949, 9/-. Parmeko transformer pri 105–110V sec 550–0–550 at 150 mA 7.5V, 5.5V, 4V all C.T., 25/-. Transformer 200–250V sec 350–0–350, 100 mA 450V, 50 mA, 6.3V 2A twice, 5V 2A, 12/6. Postage please. Wanted: KT33C, KT36, EY51, 12 SN7GT, B36. G6CB, 7 Caxton Road, Wimbledon, London, S.W.19. (390

BC348H with power pack, speaker, £16/10. 813 (2), 829, 30/- each. New, unboxed guaranteed. Free delivery within 50 miles. G3GHB, 31 Road, Birmingham 30. (377

BOUND to satisfy. BULLETINS bound 6/6 per volume, post free. Attractive low-priced QSL cards supplied. Sample: H. W. Robinson (G2BBT), 35 Forty Acre Road, Canterbury. (361

B28 good condition, £20. What cash offers for: Transmitter T1403A 2–7 Mc/s phone/c.w. less valves; Oscilloscope Type II with handbook; Taylor 81C Universal testmeter 20,000 ohm/volt just overhauled by L. Glaser, Ltd., Moore, Sunnybank House, Princes Road, Windermere. (369

B2 Minor with modulator, £8/10. BC348 with modified 453, £14. Two TCS receivers, good working order, £5/10 each. 522 transmitter, complete, less audio valves and one 832, £3/10. 12 and 24 volt Genemotors 6/6. 3-valve T.U. transmitter 80 metres, 35/-. Several dozen valves at 3/- each. Exchange new miniature valves for 453, 454, 455 receivers and 2 metre converter. S.A.E. details. Carriage extra. No Dealers. Box 389, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (389

B2 transmitter and receiver with set coils. Unused, £5. Box 376, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, C.4. (376

CANADIAN VRL receiver, with bandspread, £35. Modulator, 75 watt, £10. R1155F complete P.U. and Speaker, £8. QRP modulator, £5. Many small items. Wanted: B2 complete in suitcase, exchange any above. G3JGM, 17 Tettenhall Road, Wolverhampton. Tel.: 22694. (341

COMMUNICATIONS receiver wanted, reasonably priced. Please state valve line-up. Johnson, 35A Bird Hill Road, Woodhouse Eaves, Loughborough. (368

COMPLETE 150 watt phone transmitter in standard rack with remote v.f.o. and control unit, £19. 9-valve communications receiver covering 7–30 Mc/s, 2 r.f. stages, b.f.o., noise limiter, " HRO" type dial drive, £9. Partly built wavemeter with BC221 dial drive and compensated condenser, £3. Various other gear. G3JG, 23 Meadow Road, Claygate, Surrey. (375

CRYSTAL controlled two metre convertor. Excellent signal to noise, nylon 12AT7 holder for r.f. stage. Built to get the most out of the two metre band, £6/15. Box 380, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (380

DST 100. Fine condition, £20. Army 19 working order, £6. Box 359, National Publicity Co., Ltd., 36–37 Upper Thames Street, London, E.C.4. (359

EIMAC 4X150A (2), 50/-. 4–65A (5), 60/-. Klystron 726 (2) with special base, 50/- the pair. 832 (5), 20/-. 832A (2), 25/-. 813 (4), 40/-. 6J4 (6), 12/6. 9003 (10), 3/-. 6AG5 (10), 4/-. Barker and Williamson 6 band turret (150W), 40/-. Hallicrafters H.T.17 frequency standard, less crystal, £5. Will exchange any above for first-class semi-automatic key, components for 750V d.c. power supply, SSB gear and what have you. GM3JXP, The Observatory, Lerwick, Shetland.

ET 4336 transmitter, Wilcox-Gay v.f.o., for sale. Unmodified, perfect; price £110. Purchaser collects. Malcolm, " Inversnaid," Windmill Hill, Allesley, Coventry. (362

FOR SALE: BC.454 perfect and unmodified, £3/5. MCR1 with four coil sets, £3/10. Box 345, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (345

FOR SALE: HRO Senior, 9 coils, 3 bandspread, p.p., £30. G3JUZ, AMQ 1 (CB) R.A.F., Finningley, nr. Doncaster. (356

FOR SALE: Janette Rotary Converter, 220V d.c./230V a.c. 350 watts continuous rating, £15. Power pack 600V at 250 mA and 350V at 200 mA on one standard chassis with 10½in. panel, £10. Both items carr. paid U.K. Also valves and other components. S.A.E. list. Wanted: 3AP1 with mu-metal screen. GM3BCL, Helford, Pitfodels, Aberdeen. (342

FOR SALE: R.A.E.N. gear—modified No. 22 Set, excellent condition, complete with accessories and circuit, £15. No. 46 Set, unmodified, coils for 40 and 80 with accessories and manual. Similar set modified for mains (no valves) with power unit, microphone, coils and aerial. The pair, £15. View by appointment. Carriage extra. G3HTC, 84 Twining Avenue, Twickenham, Middlesex. (373

FOR SALE: Standard rack transmitter, 40 assorted transmitting valves, 1 pair 813s; weight 7 cwt. Large box spares. Best part CR 100 with valves. Best part Williamson. Avo valve tester, new. Must be sold, £70 lot. Will divide any part. W. G. Penrice, 105 Mandeville Road, Aylesbury, Bucks. (383

FOR SALE: SCR 522 transmitter, mint condition, 2–2 kW. Variacs, good condition, 1–2 kW. Variac slightly damaged but O.K. Hallicrafters HT.7 frequency standard with power supply. Type A Mark III transreceiver, a.c. or 6 volts complete, also Type A Mark III transreceiver a.c. but less vibrator pack. Receiver R2/ARR3 with 28 volt Rotary supply. Type 18 Walkie-Talkie complete, less batts. Offers for any of the above to: GM4PW, " Sunnybank," Ayr Road, Prestwich, Scotland. (347

GOING /MM. Receiver CR100, EF91 r.f. stages, n.l. VR tube, " S " meter, relay switching, black crackle case, 75A2 type dial template, chrome fittings, 60 kc/s to 30 Mc/s, works well; exchange lighter set 740, 504, 750 or other with 550 kc/s to 30 Mc/s, or £25. Box 365, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (365

HALLICRAFTER'S SX71 communications receiver, one of America's latest, two HF signal generators type 804 and 222A, Lampkin Laboratories freq. meter, all American, offers each or lot. Box 355, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (355

HAMMARLUND Super-Pro receiver, rack mounting, 8 watts audio, Jensen speaker to match, power unit, 230V auto-transformer. Good condition and performance, £22/10. Rack 19in., 5ft 6in. high, ex-R.A.F., 15/-. Transformer 865–0–865 at 500 mA, 230V primary, tapped for 760V or 670V output, £2/10. Valves, HK24G (4), U19 (4), 12/6 each. All items carriage or postage extra. Box 343, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (343

HIGHEST prices paid for: BC-221 frequency meters, BC-348 Receivers. RA-62 Rectifiers. T-17 Microphones and any other American test gear. Box 364, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (364

HRO—MX receiver, eight coils, power pack, £27/10. Command receiver 1.5 to 3 Mc/s, modified but new, £4. Nunn, 8 Blinco Grove, Cambridge. Telephone: 87024. (387

HRO Senior and Cossor double beam oscilloscope offered in exchange for AR88D or LF. Fenton, Niarbyl, Gay Bowers, Danbury, Essex. (382

HRO 20, 40, and 80 Bandspread Coils wanted; also B2 receiver and plug for B2 transmitter; also want BC221. Rimmer, British Railways (W.R.) Hostel, Old Oak Common Lane, London, N.W.10. (378

HRO Senior. Power pack, speaker, four bandspread, on general coverage coils. Offers: Kenny, c/o 108 Clumber Street, Newcastle 4. (374

METALWORK.—All types cabinets, chassis, racks, etc., to your own specifications. Philpott's Metal Works, Ltd. (G4BI), Chapman Street, Loughborough. (99

NATIONAL FBXA. All coils, crystal, power pack. Peto-Scott preselector, all-wave, complete. RF27 units, as new, 25/-. 32 watt modulator or p.a. unit with Woden transformer for speaker, £8. Potted chokes .3A, 10/-. Filament transformers: (1) For p.p. 100ths; (2) 10V. 3A. Gardner auto transformer 200V input. Relay ex-1154. New transmitting condensers. QRO. 100 pF. Labgear. 60+60 Eddystone 25+25 for G2NH 2 metre transmitter. Transmitting Valves: New 829B, 45/-; 832, 20/-; 1625, 10/-; T55, 20/-; 35T, 20/-; 808, 20/-; 866A, 15/-. Receiving valves: 9002, 5/-; 955, 4/6; 6J6, 7/6; 6C6, 5/6; SP41, 3/6. New chassis (G4BI) 17×10×2. Universal test meters, a.c./d.c., choice of three. Offers to: G. Kay, 106 Warbro Road, Torquay. (386

PATENTS and Trade Marks, Handbooks and advice free. Kings Patent Agency, Ltd. (B. T. King, G5TA, Mem. R.S.G.B., Reg. Pat. Agent), 146A Queen Victoria Street, London, E.C.4. Phone: City 6161. 50 years' refs. (98

QSL.s and log book (P.M.G. approved). Samples free. State whether G or B.R.S. Atkinson Bros., Printers, Elland. (772

RA.F. 29ft galvanised cigar mast, sectionalised, unused but dirty. Buyer collects, East London. Offers: G3BYY, 48 Haydon Hall Drive, Eastcote, Pinner, Middlesex. (385

R.S.G.B. 2 metre converter, with built-in power pack, black crackle cabinet; 5 valves f.b. performance, £12. o.n.o., 44 Hazell Road, Farnham, Surrey.

R1392A for sale. Good condition. Recently professionally re-aligned. Offers—Box 370, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (370

SALE or exchange: Wavemeter Class D No. 1 Mk II, 6.3V a.c. input; manual. Eddystone 640, matching speaker, manual. R208, 10–60 Mc/s, manual. Cash offers, or willing exchange all or part for CR100 in first-class condition. Cash adjustments if necessary. Box 357, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (357

SX.24, £15; Oscillator 37, £5; with manuals; Woden 60-watt amplifier, £6; Offers or exchange tape recorder. Edwards, 89 Victoria Road, Birkenhead. (353

(Continued on page 264)

EXCHANGE AND MART SECTION

(*Continued from page 263*)

S640 as new, £21. S38 Hallicrafter good condition, £15. Viewmaster 9in. console TV less cabinet, £15. BSR motor turntable with crystal Rothermel pick-up, £2/10. Pair Tamsa high imp record/playback and erase heads with osc. coil and can, new, £3. All above o.n.o. Wanted: SX28. Smith, 95 Mulgrave Street, Liverpool. (371

TWO metre receiver, a.c. 12 valves also 3-element Yagi with 18/20ft co-ax., c/p, £14. Box 360, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (360

UTAH wire recorder, as used by U.S. Forces for monitoring, £50. Hallicrafter S22R receiver 1.5 to 17 Mc/s built-in speaker, re-aligned, £20. Ex-Admiralty 3in. scope, complete with p.p., good order, £15. Marconi record-player, mains, £10. W. R. Metcalfe, 12 Cliff Street Bridlington, E. Yorks. (394

WANTED: HRO coils, receivers, power packs, AR88Ds, AR88LFs, SX28s, BC348s, AR77s, and many other types, also laboratory test equipment and R54/APR4, TN17, TN18 and TN19 units. Details please to R. T. & I. Service, 254 Grove Green Road, Leytonstone, London, E.11. (LEY 4986). (1010

WANTED: BC610 Hallicrafters, ET4336 transmitters AR88 D's and LF's, receivers and spare parts for above also BC221 frequency meters. Best prices. P.C.A. Radio, Beavor Lane, Hammersmith, W.6. (351

WANTED: BC 221 wavemeter. Please write details of condition and price asked. G6PD, Old Lane, Knebworth, Herts. (384

WANTED by Amateur, good class American communications receiver, transmitter, freq. meter, 809, TZ40, 6SQ7 valve. Box 354, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (354

WANTED: BULLETIN, July, 1926. *CQ*, January, March, April, June, November, December, 1945, May, 1946. *Radio* before 1936. *R/9* before April, 1935. *QST* before 1924. *Radio Ref*, April, 1935. Any *QTC*, *Ham Chatter*, *Radio ZS*. Many *Amateur Radio*, *Break-In*, *Xtal*, *I.R.T.S. News*, *QRV*, *QMF*, *R.S.G.B. Guide*, 1934, *Hints/Kinks*, Vols. 1-2. *Calling CQ* (de Soto). G3IDG, 95 Ramsden Road, London, S.W.12. (372

WANTED: Cabinet for R1155 receiver. Any condition. Reasonable offer. Pegler, 2 Shaftesbury Villas, Mutley, Plymouth. (381

WANTED: Command receivers covering each amateur band 1.8 to 28 Mc/s. Will purchase or exchange for RF27, R1155, R1355, valves, other gear, etc. if desired. Details to: G4LX, 31 Harley Terrace, Newcastle-on-Tyne 3. (379

WANTED, please: HRO 14 Mc/s, bandspread coil and co-ax. relay. Have CR100 tuner, coil pack, i.f.s. crystal, etc. Handley, 89 Parrenthorn Road, Prestwick, Manchester. (358

WANTED: RCA speech amplifiers type M1-11220 J or K, and aerial tuning units BC939a. Offers, stating quantity and ptice to P.C.A. Radio, Beavor Lane, Hammersmith, W.6. (352

WANTED: Vibroplex or Lionel bug key heater Tranny 6.3V 6A 500 mA choke. G3HLI, 18 Newey Road, Coventry. (346

WANTED: 1st i.f. transformer for AR88D receiver. Will purchase or exchange for 4th ditto, new and unused. G5YY, 82 Edward Avenue, Leicester. (348

WILCOX-GAY v.f.o. MI19467A with instruction book, £5. Prefer buyer collect. Swift, 54 Mozley Drive, Illingworth, Halifax, Yorks. (363

WINDMILL tower for rotary beam. Galvanised steel. Fitted ladder and platform. Centre tubular mast providing variable height up to 50ft. Easily erected. Set of three 20 metre band elements included, £25. Box 366, National Publicity Co., Ltd., 36/37 Upper Thames Street, London, E.C.4. (366

APPOINTMENTS SECTION

Situations Vacant

ASSISTANT SIGNALS OFFICER required by the SIERRA LEONE Government CIVIL AVIATION DEPARTMENT for one tour of 18–24 months with prospect of permanency. Salary scale (including expatriation pay) £742 rising to £1177 a year. Outfit allowance £60. Liberal leave on full salary. Free passages for officer and wife. Assistance towards cost of children's passages or grant up to £150 annually for maintenance in U.K. Candidates should be experienced in MF, HF, VHF and VHF/DF and ancillary equipment and should hold the P.M.G. Certificate in Wireless Telegraphy or equivalent. Write to the Crown Agents, 4 Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/30353/RC. (367

LABORATORY ASSISTANT required for making-up prototype test equipment. Applicants must have a keen interest in radio and electronics. Apply: Hatfield Instruments, Ltd., 175 Uxbridge Road, Hanwell, London, W.7. Telephone: EALing 0779/9857. (338

RADIO TECHNICIAN required as SIGNALS ASSISTANT INSPECTOR OF POLICE by NYASALAND GOVERNMENT for one tour of 2–3 years with prospect of permanency. Salary scale (including present temporary allowance of approx. 13 per cent of salary) £651 rising to £1103 a year. Commencing salary according to experience. Outfit allowance £50. Uniform allowance £10 a year. Free passages. Liberal leave on full salary. Candidates must be between 21 and 30 years of age, of good education and physique, not below 5ft 7in. in height, normal vision without glasses. They must have a sound knowledge o H.F. and V.H.F. fixed and mobile simplex and duplex radio telephone systems and low power petrol/electric chargers and alternators. Knowledge of morse and ability to instruct trainees in radio subjects desirable. Write to the Crown Agents, 4 Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote MI/36023/RC. (349

WIRELESS STATION SUPERINTENDENTS required by the NIGERIA Posts and Telegraphs Department for one tour of 18 to 24 months in the first instance. Option of appointment (a) on temporary terms with salary scale (including Expatriation pay) £864 rising to £1392 a year. Gratuity at the rate of £100/£150 a year, or (b) with prospect of pensionable employment with salary scale (including Expatriation pay) £750 rising to £1175 a year. Outfit allowance £60. Free passages for officer and wife. Assistance towards cost of children's passages or grant up to £150 annually for maintenance in U.K. Liberal leave on full salary. Candidates must have had wide practical experience of modern radio techniques and equipment, in particular V.H.F. equipment, and preferably also V.H.F. multi-channel equipment. Write to the Crown Agents,. Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/30086/RC. (344