

# BULLETIN

A JOURNAL FOR  
RADIO EXPERIMENTERS

Vol. 16 No. 1

JULY 1940 (Copyright)

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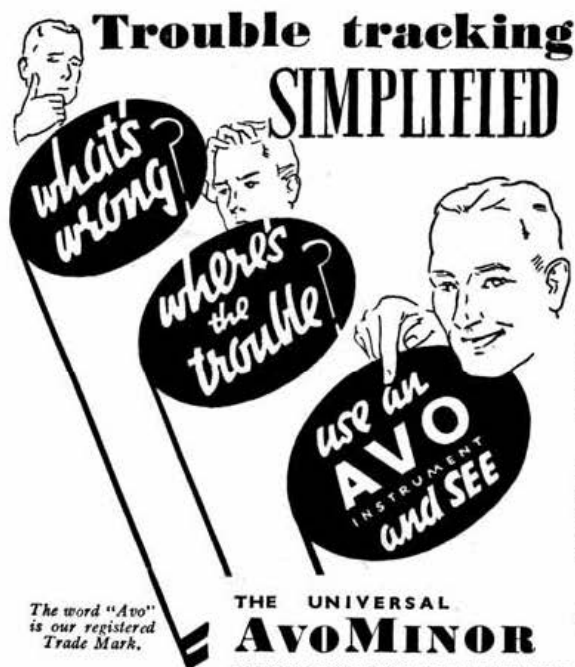
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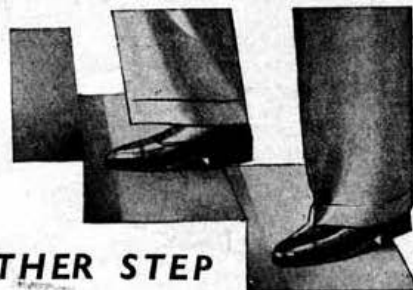
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or general interest. Intending contributors are requested to indicate in advance the scope to be covered by the article under consideration.

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# THE T. & R. BULLETIN

OFFICIAL JOURNAL  
OF THE  
RADIO SOCIETY  
OF GREAT BRITAIN



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SCIENCE  
AND ADVANCEMENT  
OF AMATEUR RADIO

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Vol. XVI. No. 1.

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### IF INVASION COMES

WITH the possibility of invasion ever before us, it is not surprising that certain public-spirited members should have asked what steps have been taken by the Society to offer the services of civilian radio amateurs if official communication channels become disrupted. To all such enquiries we have stated that the Government have advised us that they have formulated plans which they consider are entirely satisfactory. We shall not comment on this view, but we believe members in general may appreciate some advice which does not in any way conflict with official arrangements.

Every radio amateur outside H.M. Services should, unless already engaged on government work,

1. Immediately acquaint his Town Clerk, or similar Local Authority, with the fact that he has specialised technical skill and morse knowledge, and volunteer to co-operate with the Local Information Committee which has been set up under Government direction in his Town or Urban District.

2. Take steps to ensure that his receiving gear is in first-class working order, and if possible arrange for its operation from an auxiliary power source which is independent of mains supply.

3. In collaboration with other local amateurs, see that sufficient material, in the way of aerial wire and accessories, is available for the prompt installation of emergency receiving stations, in case it may be required by the Local Information Committee.

4. If employed in a large factory or office, advise his management of his radio knowledge, and offer to instal, maintain, and operate receiving equipment.

These suggestions, if followed up, will ensure that a reserve organisation exists for the collection and dissemination of official information if the need arises.

We should do well to remember that if an invasion is attempted the first attack will probably be against official Government lines of communication. Anything which we, as radio amateurs, can do to aid the Authorities will be a step towards the defeat of the invader.

J. C.

# THE IONOSPHERE & RADIO TRANSMISSION\*

## PART I.

*We have pleasure in publishing, by the kind permission of the U.S. Department of Commerce, extensive extracts from Letter Circular 575. The subject matter covered is of considerable importance to all radio experimenters.*

### The Ionosphere

**I**N the high atmosphere, above about 50 kilometres (30 miles), the air particles are separated so far that collisions between them are far less frequent than in the lower atmosphere, and when an air particle is ionised by ultra-violet radiation from the sun it remains ionised for a considerable time. Therefore at any given time a large proportion of the air particles are in an ionised condition. This does not occur much below about 50 kilometres (30 miles), because the ionising radiations from the sun are largely absorbed in the higher regions of the atmosphere. Likewise there is not very great ionisation density above about 400 kilometres (250 miles), because the air is so rare at such heights that there are not enough atoms to provide for great ionisation density. The region in which the ionisation is great—great enough in fact to affect radio wave transmission—is thus between 50 and 400 kilometres (30 and 250 miles) above the earth's surface, and this region is called the "ionosphere."

higher than these values.) The fourth layer, which is semi-permanent, is the D layer; it exists only in the daytime, and its height is of the order of 50 to 90 kilometres. Little has been done on the determination of the quantitative characteristics of the D layer, its effects being largely inferred rather than directly observed. Existing knowledge covers mainly the E, F,  $F_1$ , and  $F_2$  layers.

The structure of the ionosphere may be visualised in an elementary way from Fig. 1, which is for a typical summer daytime condition, the E,  $F_1$  and  $F_2$  layers all being present. This diagram is drawn to scale, so the angles of reflection of radio waves from the layers may be estimated correctly. The three layers are shown as mere thin lines, for simplicity. The layers have in fact a certain thickness, and the density of ionisation varies somewhat in this thickness. At the right of the diagram is a rough illustration of a possible distribution of ionisation density with height.

Dotted lines indicate two of many possible paths

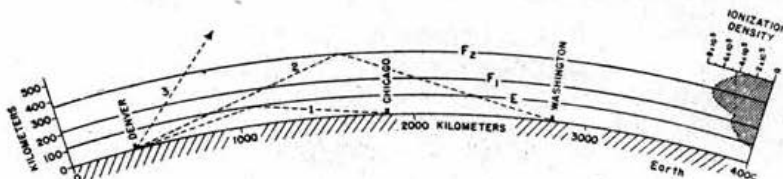


Fig. 1.

The structure of the ionosphere for a typical summer day condition:—

- (1) A low frequency wave reflected by the E layer.
- (2) A wave of higher frequency reflected by the  $F_2$  layer.

The ionisation in the ionosphere is not uniformly distributed with altitude, but is stratified, and there are certain definite layers in which the ionisation density is such as to reflect radio waves. These layers do not remain always at the same height but vary diurnally, seasonally, and otherwise in both height and ionisation density. There may be a considerable number of such layers at a given time. There are two principal ones, called the E and F layers. The E layer is at a height of 90 to 140 kilometres at different times, usually about 110 kilometres. The term "F layer" is ordinarily reserved for the other layer as it exists at night; in the daytime during most of the year it divides into two layers, which are called the  $F_1$  and  $F_2$ . The night F layer is at a height of about 180 to 400 kilometres. The  $F_1$  layer exists in the daytime, at a height of about 140 to 250 kilometres. The  $F_2$  layer exists in the daytime, at a height of about 250 to 350 or more kilometres in the summer, and about 150 kilometres in the winter day. (The "virtual" heights, defined later, are somewhat

- (3) A wave which passes through the ionosphere because its frequency is too high to permit reflection from the layers.

of radio waves from a transmitter to a receiver as transmitted by reflection from the ionosphere layers. This picture, simple as it is, does in fact represent the basic mechanism of radio wave transmission over long distances. When we consider the variations of ionisation and height of the layers with time, and the effects of the ionisation upon the received intensity and the limits of transmissible frequency at any particular time, the picture loses its simplicity. However, most of the phenomena of long-distance radio transmission are completely explainable in terms of the ionosphere.

### Ionosphere Characteristics

The principal ionosphere characteristics which control or determine long-distance radio transmission are the height and the ionisation density of each of the ionosphere layers. Since each layer has a certain thickness it is necessary to define the sense in which the term "height" is used. When a ray or train of waves is reflected by a layer, it is slowed down as soon as it starts to penetrate into the layer. The process of reflection thus goes on from the point at which the waves enter the layer until they have

\* Letter Circular LC575 of the Department of Commerce, National Bureau of Standards, Washington, U.S.A.

been fully turned down and leave the layer. This is true whether the waves travel vertically or obliquely to the ionosphere. It is illustrated for the oblique case in Fig. 2. The waves follow a curved path in the layer until they emerge at the same vertical angle at which they entered. The time of transmission along the actual path BCD in the ionised layer is the same as would be required for transmission along the path BED if there were no ionised particles present. The height  $h$  from the ground to E, the intersection of the two projected straight parts of the path, is called the virtual height of the layer. This is the important quantity in all measurements and applications.

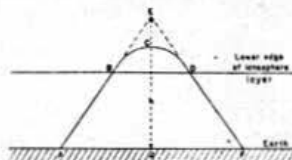


Fig. 2.

Illustrates the relationship between virtual height ( $h$ ) to the height actually reached by the wave in reflection from the ionosphere.

The virtual height of a layer is measured by transmitting a radio signal from A, and receiving at F both the signal transmitted along the ground and the echo, or signal reflected by the ionosphere, and measuring the difference in time of arrival of the two. The signal is a special, very short pulse, in order that the two may be separated in an oscillograph, as the time differences are mere thousandths of a second. The difference between the distance  $(AE + EF)$  and  $AF$  is found by multiplying the measured time difference by the velocity of light. From this and the known distance  $AF$  the virtual height  $h$  is calculated. It is usual to make  $AF$  zero, i.e., to transmit the signal vertically upward and receive it at the same place (and it is for this case that the term "virtual height" rigorously applies). The virtual height varies somewhat with frequency.

The effectiveness of the ions in reflecting the waves back to earth depends on the number of ions present in a unit of volume, i.e., the ionisation density. The higher the frequency, the greater is the density of ionisation required to reflect the waves back to earth. It has been shown that, for electron ionisation, the relation (for the ordinary ray, explained below) is:—

$$N = 0.0124 f^2,$$

where  $N$  is the number of electrons per cubic centimetre and  $f$  is the highest frequency in kilocycles per second at which waves sent vertically upward are reflected back to earth. Waves of all frequencies higher than this pass on through the ionised layer and are not reflected back to earth, while waves of all lower frequencies are reflected. This frequency is called the critical frequency, and measurement of it is, with the equation just given, a means of measuring the maximum ionisation density in an ionised layer. (Waves of higher frequencies than the critical are sometimes reflected by another mechanism—see discussion of "Sporadic E," later.)

Measurements of critical frequency are usually made by means of vertical or nearly vertical transmission (i.e., with the transmitter and receiver not far apart). The process is to measure the virtual

height, by the method described above, repeating the determination at successively increasing frequencies until the waves are no longer received back from the layer. The highest frequency at which waves sent vertically upward are received back from the layer is the critical frequency of the layer. Typical results of such measurements are illustrated in Figs. 3, 4 and 5 for different times of year, day and night. They show critical frequencies as sharp increases in virtual height.

In Fig. 3, starting at a frequency below 2,000 kc., the virtual height is found (in this example) to be about 110 kilometres, and remains at about this height until about 3,300 kc. The critical frequency of the E layer at the time of this measurement is thus 3,300 kc., i.e., this is the highest frequency at which vertically incident waves are reflected back to earth; all such waves of higher frequency penetrate through the E layer and go on up to a higher layer, the  $F_2$ . The  $F_2$  layer has a greater ionisation density, and so it reflects back waves of frequency greater than 3,300 kc. It is not until frequencies greater than 11,500 kc. are used that the  $F_2$  layer fails to reflect them in the case illustrated.

Near the critical frequency the waves are excessively retarded in the ionised layer, which accounts for the rise of the curve at the critical frequency. At the right of the curve appear two critical frequencies for the  $F_2$  layer. This is an indication of double refraction of the waves due to the earth's magnetic field, two components of different polarisation being produced. One is called the ordinary wave, and the other the extraordinary wave. The symbols  $o$  and  $x$  respectively are used for these components. The critical frequency of a layer  $n$  is represented by the symbol  $f_n$ , and to such symbol the  $o$  or  $x$  is added as a superscript. Thus the critical frequencies of the  $F_2$  layer for the ordinary and extraordinary waves are indicated by the respective symbols

$$f_{F_2}^o \text{ and } f_{F_2}^x.$$

In the case of the E layer the ordinary wave usually predominates, and the extraordinary wave is so weak it does not affect radio reception. At

(Continued on page 23.)

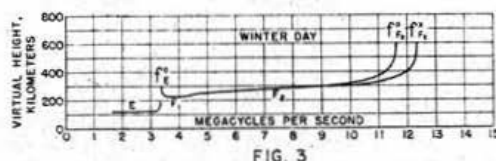


FIG. 3.

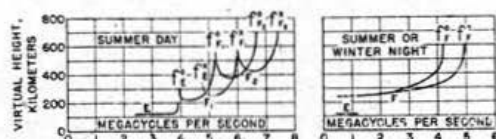


FIG. 4.

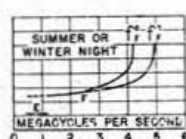


FIG. 5.

Fig. 3.—Virtual height plotted against frequency for a typical winter day. Critical frequencies are indicated.

Fig. 4.—Representative summer day conditions.

Fig. 5.—Summer or winter night conditions. Critical frequencies are lower at night than during the day.



# THE WINDOM AERIAL.

## A QUESTION, ANSWERED

*Some authorities state that the length of the feeder to a Windom type of aerial is immaterial within reason, whilst others mention lengths of 33 and 66 ft. as being correct. Is any definite advantage to be secured from the employment of these particular lengths of feeder and if so, why?*

### The Answer

In order to ensure successful operation of a Windom single-wire fed aerial, it is essential, in the first place, to have the radiating element (the top) in resonance with the frequency of the transmitter, and this particular adjustment must be completed before any success can be obtained from alterations to the position of the feeder wire. The degree of accuracy necessary is questionable but it would appear to be greater with this type of aerial than with some others. The actual adjustment can be carried out by a number of methods, particulars of which are to be found in *The Amateur Radio Handbook*, but the experimental procedure calls for patience and may involve cutting of the wire. The employment in the feeder of a length of wire accommodating an exact multiple of a quarter-wavelength (e.g., 33 or 66 ft.) simplifies the adjustment of the top to resonance, although it may hinder, rather than help, the correct final operation of the system as a whole.

When the top is in resonance, the familiar standing waves appear on it, with high voltage at the ends and zero at the centre. The impedance at any point along the top may be defined as the ratio of voltage to current at that point and it obviously varies from a high value at the ends, to zero at the exact electrical centre. With a resonant aerial, this impedance is of the nature of a pure resistance at all points but if the top is not in tune, then it can be likened to a resistance which has a certain amount of inductance or capacitance in parallel with it, analogous to the way in which a closed tank circuit might require capacitance or inductance to bring it into resonance at a given frequency.

Now the essence of the Windom aerial is that all the radiation should take place from the top and none from the feeder. If the latter radiates, the top is deprived of its supply of energy and the resulting overall radiation may be at a high angle or may be wasted in local objects. Radiation from the feeder is prevented by finding a position for the tap at which the impedance is equal to the characteristic impedance of the feeder itself. When this is done the top absorbs energy at the same rate as it is supplied and there is none reflected from the junction to cause standing waves on the feeder. In other words, a position is found such that the feeder is correctly matched. In this condition, the feeder may be of any convenient length and it will always present only a resistive (or "in tune") load to the transmitter.

The characteristic impedance of a single wire feeder is of the order of several hundred ohms and, at high frequencies, it is a pure resistance. Obviously therefore, the top must be in resonance because otherwise no tap could be found which would prevent

radiation off the feeder. The properties of a transmission line or feeder are such that, when it is matched, the impedance at the sending end is always a pure resistance, no matter what the length. If it is not matched, then this impedance is no longer purely resistive but involves also more or less reactance, inductive or capacitive, *except* (and this is the important point) when it is a multiple quarter wavelength long, such as would be the case with the 33 and 66 feet wires quoted. Under the latter circumstances, the impedance once more becomes a pure resistance.

If the feeder is first made of a length such that, when suspended free, it would in itself be resonant, it may subsequently be used for tuning the aerial proper, irrespective of the position of the tap. With the tap placed approximately in the position recommended in the various published charts and tables, it is only necessary to adjust the length of the top until the anode current meter indicates that the maximum amount of radio-frequency energy is being transferred, when one can be sure that the aerial is in tune with the frequency of the transmitter.

On the other hand, if the feeder remains of the specified length, it will be found difficult to determine the correct tapping point. Once the top has been correctly adjusted, the length of the feeder should be altered by several feet before proceeding to locate on the aerial the correct feeder tapping point.

Care should also be exercised to ensure that the total length of the feeder, plus one arm of the aerial, is not such as will be resonant to the transmitter frequency. For instance, if the arms of the aerial are 22 and 44 ft., feeder lengths of like measurements must be avoided, as also must lengths incorporating additional quarter waves, e.g., 55 and 77 ft., or the feeder will act as part of the radiating system.

Summarising, the employment of a length of feeder which, by itself, would be resonant, is helpful to the adjustment of the radiator but tends to obscure the determination of the correct feeder tapping point, whilst also lends itself to radiation off the feeder. The process described, using first a resonant length and then a non-resonant length, makes possible the correct adjustment of the whole system from tank circuit observations only.

### Pocket S.W. Portable

We have had several enquiries for an article describing a pocket portable short-wave receiver, capable of bringing in long distance stations with only a short aerial. The receiver should be operated from a dry battery supply carried in another pocket.

The Secretary-Editor will be pleased to hear from any member possessing, or willing to experiment with the construction of, a pocket portable.



# SIX MONTHS AND NO HAM SIGNALS

By AN EARLY BIRD

*Here is a story we have all been waiting to read—an account of the happenings of those R.A.F. Civilian Wireless Reservists who found themselves in France within a few days of the outbreak of hostilities.*

**A**GES ago, or so it seems to the writer, an article appeared in this Journal entitled "Four Years and No Signals." Due apology is made to the earlier contributor who, we hope, will forgive us for assimilating his title in the present instance.

For obvious reasons our story must be vague as to details and lacking in those tit-bits of technical information which many of our readers would like to know something about. Further, we shall deal not with ham experiments in days of peace, but with ham experiences in days of war—vastly different in some ways but very similar in others.

As the war clouds gathered during those first two days of September last, R.A.F. Civilian Wireless Reservists from far and wide reported for duty in London; but how different was that gathering to those which we normally associate with the month of September! Here was no Ham Convention, but a mobilisation of a goodly portion of the amateur fraternity of Great Britain, ready to put to the test their pre-war experience.

Little did they realise as they stood in groups, speculating and ragchewing, that within a matter of days many of them, who were wearing R.A.F. blue for the first time, would be amid strange surroundings in a foreign land.

The method adopted of selecting that first B.E.F. draft of "wireless blokes" must remain a mystery; suffice it to say that it brought together more than two score men from all parts of the country, who were to be the vanguard of that vast body of hams who have now seen service abroad. Some were old-timers who had been through the last war—many were not born when the Armistice was signed.

The night of Saturday, September 2, found them trying to snatch a few hours' sleep on the very hard floor of an enormous hangar at a certain R.A.F. aerodrome, while a terrific thunderstorm raged outside, and more than a little rain found its way inside. The next day (the fateful Sunday when Britain and France declared war on Germany) was more than fully occupied in "kitting up," and all that that term implies.

## The Departure to France

Passing over that hectic week-end (for that is a story apart), a departure was made from a south coast port on Monday night, and the next morning, September 5, found the contingent—many of them for the first time—standing on a French quayside. Stores were transferred from the heavily-laden troopship to the train alongside, and in the late afternoon a start was made for an unknown destination.

The period of waiting was enlivened by the sudden appearance, and equally sudden disappearance, of various oddly assorted varieties of merchandise, ranging from a large sack of pea-nuts to a consignment of tinned crab. All who were present will doubtless remember their amusement at the sight of the portly French railway official, who subsequently searched beneath each seat with the aid of a petrol lighter, without finding a single pea-nut!

The rather slow journey continued until about 10.30 p.m., when the party's destination was reached, and it appeared to come as a surprise to some that after such a lengthy trip they were not within sight and sound of the Maginot Line!

For what seemed a week, but which was, as a matter of fact, only a day or two, the staple fare was bully and biscuits, or biscuits and bully. Those in a shopping party detailed to effect purchases for the rest of the contingent told how one of the finest meals ever eaten was partaken in a small café in a few brief minutes snatched from their task. Thus is appreciation learnt of those things so often taken for granted.

The first evening, when general leave was granted, proved interesting, not to say embarrassing, for wherever a group of R.A.F. men walked there walked after them a small crowd of French people.



G4IB, GM3SW, G5OQ and GM3HY are serving together as Wireless Operators at an R.A.F. station somewhere in Scotland.

On every street corner Poilu gave an enthusiastic welcome, enquired the age of everybody not possessing facial adornment—it appears the "done thing" not to shave in the French army while on active service—and insisted on exchanging cigarettes. After a few such meetings we soon found ourselves in possession of a motley collection of almost unsmokeable "Caporal" and with an extreme dearth of English brands.

## Shaking Down

In the days that followed, the majority of the party moved a few miles out to an extensive chateau which was being fitted out as the Head-quarter of an R.A.F. wing. Here the stores were unpacked and the task of testing the radio equipment begun. A vast number of accumulators had to be filled and charged, and the terrific din made by more than a dozen portable petrol-charging units was only too plainly audible from morning to night.

There was plenty of work for ali, but when this was finished for the day, there could be heard in billet or café the old familiar arguments: DX—QSL's (or the lack of them!)—QRO v. QRP—CW v. Phone, and the comparative merits of commercial as opposed to home-built receivers, all of which went to show that, even if your ham is forcibly transplanted from G to F, he still remains a ham.

In due course the gear for the various stations was transported in vans to the sites which had been chosen "out in the blue," and scenes reminiscent of N.F.D. became of almost daily occurrence.

It must be conceded, we think, that the R.A.F. equipment, even if it did at first glance receive scathing comment from the "efficiency brigade," went together easier, and was in working order quicker, than all but a few field day stations of past years.

Those who took part in the erection of stations will remember "Bill," who always shone on those occasions by his ability to climb anything. As soon as the usual argument as to aerial position and direction had been settled to the C.O.'s satisfaction, Bill would appear as if by magic, astride a roof or at the top of an apparently unclimbable tree—a real godsend was Bill.

With memories of N.F.D. mast erections and the often difficult manœuvres encountered in the past, a word of appreciation can here be said for the R.A.F. portable tubular mast gear with which each station was equipped. Sections measuring about 4 ft. 6 in. were used, and these could be made into aerial supports of convenient length which, with their eight guy ropes, could be erected easily.

Anyone who has had experience of service gear will agree that it differs in many ways from that used by amateurs, not the least difference being that M.O. drive is almost, if not quite, universal. It was to be expected that the average ham, relying as he does on a crystal for his frequency control, would find himself more or less at sea when faced with the problem of tuning an unfamiliar type of transmitter to a spot frequency and keeping it there. This was not the case, however, and in a matter of a day or two T8 was the worst report that could be given the majority of stations, while many sounded quite CC. Frequency stability was excellent, and the hams seemed to acquire "the hang" of the unfamiliar gear after only scanty instruction and without access to the "book of the words." Dark tales of the complete disembowelment of both Tx and Rx at many stations "after hours" probably accounted in no small measure for this state of affairs!

Many were the tales, in the early days, of how the V.R.'s scandalised the "regulars" by their apparent disregard for some of the finer points of Service etiquette, but these lapses were in almost all cases unintentional, and in a very short time mutual understanding was reached. The ability of the ham cheerfully to turn his hand to most jobs, whether connected with radio or not, earned him considerable praise from more than one quarter, and it may be said that now "V.R." is definitely not a term of reproach.

#### "Peter the Hermit"

One ham was put in charge of a control station and, in some way best known to himself, contrived to get the gear installed in his billet in a certain small French village. For a goodly portion of the

time that this station was in operation he was the sole operator, and was in fact the only English speaking person for some five miles around. Among the gang he became known as "Peter the Hermit," and after a few months of more or less isolated existence it was rumoured that he spoke English with a French accent! Those who saw the "shack" said that the only way it differed from its pre-war predecessor was the absence of cards on the wall.

"Peter" slept above the shack, fed with the family and put out a nifty signal *via* a half-wave Hertz in the back garden. After a few months of more or less peaceful existence, this particular station was moved and installed in a still-occupied chateau of quite imposing appearance, situated in a considerable expanse of parkland. The "shack" this time was a large bedroom *avec* bed, easy chairs, a thick pile carpet, and central heating! It became known among the others as "the boudoir," and it was generally considered that some considerable wangle had preceded its acquisition.

One day a perfect galaxy of "brass hats" appeared on the scene, and it was pointed out to the "garrison" that, beyond any shadow of doubt this chateau belonged to the Army, and had, in fact, been picked for the local H.Q. A colonel arrived, complete with a plan of the place, and came to inspect his bedroom and office. This proved to be the "boudoir," liberally besprinkled by this time with "Peter's" kit and much radio gear. The colonel, of course, won and the unit retired in haste, if not disorder, taking with them everything, including the kitchen stove, a highly coloured and much prized possession.

And here this rather scrappy record must end, in the early days of March, 1940. It is hoped that at a later date a further survey may be written, but naturally the full story cannot be told until peace is with us again. When that tale comes to be told it will be revealed that the R.A.F.V.R. Radio Section worthily upheld the best traditions of their comrades in the regular R.A.F. both during the comparatively calm first eight months of the war and afterwards.

### Society Functions

In view of prevailing circumstances, we would urge all members who propose attending advertised R.S.G.B. functions to notify the organiser in advance so that if cancellation becomes necessary advice can be forwarded.

## ARTICLES Urgently Required

IN ORDER TO MAINTAIN THE PRESENT SIZE OF *BULLETIN* A STEADY FLOW OF TECHNICAL AND TOPICAL ARTICLES IS REQUIRED. MEMBERS ARE URGED TO CO-OPERATE BY COMMUNICATING THEIR OFFERS TO THE SECRETARY-EDITOR WITHOUT DELAY

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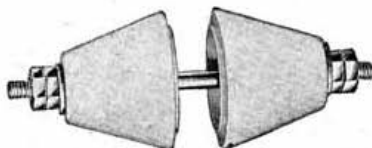
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No. 1095

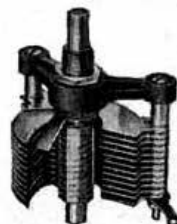
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No. 1129. 40 m.mfd. high-voltage type. Minimum, 3.8 m.mfd. Maximum, 40 m.mfd. D.C. flash-over, 2,300 volts 4/9  
No. 1093. 60 m.mfd. high-voltage type. Minimum, 4 m.mfd. Maximum, 59.5 m.mfd. D.C. flash-over, 2,300 volts. 4/11  
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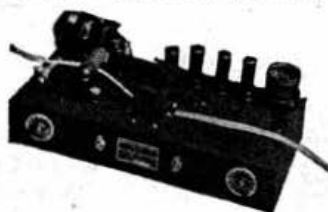
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## KHAKI AND BLUE

*A topical feature in which we publish information concerning our members serving in H.M. Forces. Items for inclusion in future issues should reach the Secretary-Editor not later than the first day of the month preceding date of publication.*

The many friends of Lt. Bill Brigden, R.N.V.R. (G6WU), will be glad to hear that he is making a good recovery after being wounded recently in a North Sea engagement. Letters, which will be very welcome, may be sent via his home address, "Taliens," 131 Winchmore Hill Road, London, N.14.

Charlie Kirk, G4CL, and ex-ZB2A (not ZB1A as incorrectly quoted in our last issue), writing from Yorkshire, expresses the hope that it will be possible to arrange local meetings. He sends greetings to all old friends in and out of the Services.

G2MI, 6CL, 6LL, 8DN and 8IG were pleased to entertain Charlie Miller, VK2ADE, when he was on leave in London early in July. Charlie tells us that a number of VK's are in England. If this should catch their eye we would ask them to get in touch with Headquarters.



C. W. Kirk, G4CL, who is serving as M.S.M. in the R.A.S.C., is better known to the DX fraternity as owner-operator of ZB2A—the first official amateur station in Gibraltar.

Apropos the publication of a note in our last issue concerning VK amateurs on service, Mr. Leslie Morgan, 2HNO, of 45 Parkwood Road, Bournemouth, advises us that he will be particularly pleased to welcome any Australian who finds himself in that town. Mr. Morgan is a native of VK.

W. D. Kieller, G6HR (photo herewith), who is serving in the R.N.V.W.R. at Gosport, sends greetings to the many "ham" Reservists who have been trained by him in past days. He also wishes to be remembered to G2MI, 2UV, 5KW and 6LL, as well as to other old-timers. His present brothers in arms are G2HV, 3PA and 2AFA, all of whom look forward to reading each issue of THE BULLETIN, and to this feature in particular.

Writing from the Hendon area, A.C.I Gordon Zedy, BRS3732, expresses his gratitude and pleasure at still being able to read THE BULLETIN. He is interesting several of his friends in Ham radio, and has enjoyed numerous chats in the canteen with other amateurs. He will be pleased to hear from friends, who should write via his home address, 6 Norfolk Park Cottages, Maidenhead, Berks.

J. E. Thomson, G3RY, having returned from France and Flanders after a spell of duty with the R.E.'s, tells us that he was always on the look-out for radio gear. Many times, feeling like Alice in Wonderland, he walked into radio shops which stood in the line of the enemy and which would be blown sky high in an hour.

The best he could do in the souvenir line was a pair of headphones plus a morse key, which, after knocking the sand out, have taken pride of place in the shack. Trust an R.E.—who is also a ham—to collect something useful!

Lt. John Swinnerton, G2YS, who returned unscathed from the Hell at Dunkirk, sends greetings to the Coventry gang. Whilst in France he went into a radio shop in Amiens to purchase a small receiver. Whilst awaiting his turn to be served he spotted an "hours of opening" card which on closer examination turned out to be a QSL—the owner of the shop being F8YH. A visit to the shack was quickly arranged and an enjoyable evening spent yarning over the good old days.

During the "blitzkrieg" he came upon another ham shack in much less happier circumstances—the deserted shop of F8HV in the suburbs of Lille. Here, it was just as the owner had left it, with newly opened letters and cigarette ends still lying about. John wonders whether some D4 amateur went into that shop in very much the same way and thought the same things as he did. We also wonder.



W. D. Kieller, G6HR, who is an R.N.V.(W.)R. instructor attached to H.M.S. Vincent.

At a meeting of the R.A.F. Amateur Radio Society held in a Lincolnshire village on May 29, Denis Furzley, BRS3783, was elected No. 1 E. & W. School representative.

Members of the Club have been kept busy building receivers for a competition which it is planned to hold next month. A silver trophy will be awarded to the winner.

Although G8FC is closed down several members including BRS3747 and 3783 frequently listen to DX in the wee small hours.

Older members of the Society send greetings to G3OI, 6LU, 8PI and 8PQ, and all others who have in past years been associated with the school.

The present members extend their sympathies to Mr. Dickenson, BRS3747, who has recently been bereaved by the death of his father.



Canadian hams think our policemen are wonderful, especially when they also turn out to be hams. Here is pictured G8RQ, of Chesterfield, welcoming VESZM during his recent visit to the town of the twisted spire.

L.A.C. F. H. Lane, G3GW, whose home address is "St. Austell," Bartons Hill, Minster-on-Sea, Sheerness, Kent, would like to hear from old friends worked on 1.7 Mc. At present he is serving at an R.A.F. Training Station in Bedfordshire, but with the exception of BRS3788 he has met no other amateurs. He sends special greetings to G3WP and wonders whether he remembers the contacts with portable G3GW last summer.

AC1, Richard Thornley, 2DAF, just back from France, tells us that from the time he left G until his return he had not met a single service ham. He wishes to get in touch with Alec Heathcote, G3JR, who until recently was at No. 2 E. & W. S. He had the misfortune to lose his collection of Bulls during the evacuation, but in common with others who have advised us of similar losses, the deficiency has been made up free of charge from Headquarters.

2DAF can be reached c/o his home address, 15, Blundell Road, Fulwood, Preston, Lancs.

Staff Sgt. Norman Landles (GM2LQ), who is serving with the R.A.O.C. at a Royal Military College of Science in the Lancashire area, sends greetings to all old friends. Letters will be forwarded to him *via* 43, Netherhill Avenue, Glasgow, S4.

W. James, G6XM is now serving in the R.A.O.C. as a Wireless Instrument Mechanic. He would be glad to hear from friends, who should write *via* his home address, 65 Osborne Road, Farnborough, Hants.

## Correspondence

### The "Bulletin" at Dunkirk

To the Editor, THE T. & R. BULLETIN

DEAR SIR,—I recently arrived back in England from Belgium, and upon reaching my home on short leave was delighted to find the June "Bull" awaiting me. Unfortunately a few of the last copies forwarded to me went astray and I thought perhaps publication had had to cease. Congratulations for carrying on and for such an excellent issue under almost impossible conditions.

When I first went to France in January, I took with me a few old "Bulls." Thank goodness I did, because they were absolutely invaluable to me at Dunkirk. I was waiting to get off for nearly four days and I read them from cover to cover during that period. Conditions were slightly trying and the "Bull" took me back into the past for a brief while. Unfortunately these valued copies had to remain on the beach with the remainder of my kit. (A new set has now been sent.—Ed.)

I should like to send my best wishes to all old friends in Liverpool and elsewhere, whilst letters, which can be forwarded *via* 4, West Albert Road, Liverpool, 17, will be appreciated from any amateur with whom I had a QSO in peace-time.

Once more my personal thanks for making the "Bull" so interesting.—Yours faithfully,

L. FRANK (G4NU),  
Wireless Mechanic 1st Class R.A.O.C.

### Naval Contacts

To the Editor, THE T. & R. BULLETIN

DEAR SIR,—I have been greatly interested in your "Khaki and Blue" feature which has been appearing each month. To the uninitiated it must seem strange that we can contact so many "Hams" in the course of our Service duties, but such is the magnetism of Amateur Radio.

Following G3UF's invitation to correspond, published in your February issue, I wrote him. Shortly afterwards I was told of enquiries being made for me on the liberty boat. It turned out to be none other than friend Prince, both of us operating in trawlers from the same base! Needless to say not long elapsed before a tea and ragchew were arranged. I met G4PT there too, so in spite of being stationed at one of the remote outposts of Northern Scotland, the spirit of our all-absorbing interest carries on.

Later I spent seven days at a Naval hospital in the South Eastern Counties and out of the nine members of the ward, one was C. Shutt, 2HGA, with whom I had spent three months in barracks training during the early days of the war. Wherever we go we meet our colleagues and might be pleased we are of it—believe me, for immediately we are at home among strangers. A comforting thought.

Yours very truly,

RONALD P. MUNN (2FUV),  
Telegraphist, R.N.V.(W.)R.



## ON ACTIVE SERVICE

## TENTH LIST

WE publish below our tenth list of radio amateurs on active service. Additional details and corrections should be advised to Headquarters as early as possible. The present list contains information received up to July 1, 1940.

Rank and Name	Regiment or Branch	Pre-war Call or B.R.S.
A.C.2 D. Barlow ...	R.A.F. ...	2HBG
A.C.1 G. F. Barrett ...	" ...	G8IP
Tel. N. J. Bevan ...	R.N. ...	G8IH
A.C.2 F. N. F. Bewley ...	R.A.F. ...	G8HX
P/O H. Brabrook ...	" ...	G5ZD
Cpl. C. E. Brooks ...	" ...	3811
Sig. G. L. V. Butler ...	R.C. of S. ...	2BUL
A.C.2 J. H. Cant ...	R.A.F. ...	G6FU
Pte. G. R. Chiffey ...	A.M.P.C. ...	G3ZJ
A.C.2 J. R. Collier ...	R.A.F. ...	3672
A.C.2 J. W. Dean ...	" ...	2AZT
P/O J. O. Dykes, B.Sc. ...	" ...	2AIJ
P/O J. H. Emmerson ...	" ...	G8HA
L.A.C. D. J. George ...	" ...	G2UA
A.C.2 A. Goode ...	" ...	2DTQ
Spr. C. J. Greenaway ...	R.E. ...	G2LC
P/O S. Henton ...	R.A.F. ...	G5VU
L.A.C. L. Herrington ...	" ...	G5QL
Lt. A. G. Hills ...	R.E. ...	G2KG
P./O. G. A. Houghton ...	R.A.F. ...	G3RG
— W. James ...	R.A.O.C. ...	G6XM
St./Sgt. N. Landles ...	R.A.O.C. ...	GM2LQ
L.A.C. F. H. Lane ...	R.A.F. ...	G3GW

## "73"

Acting on a suggestion made by Mr. Stan. Granfield, G5BQ, our Home Counties D.R., we are inaugurating with this issue, a new feature entitled "73." Its purpose will be to enable members at home or in the services to send greetings to their pals.

Lists, which must be restricted to not more than 12 calls, should follow the style set out below.

\* \* \*

**G5BQ** (47 Warren Road, Cambridge), to G2PX, 3DJ, 3GS, 3JN, 3NA, GM2NG, EI2N, ON4HS.

**G6CL** (16 Ashridge Gardens, London, N.13), to VK3HM, ZL3AZ, 3CC, W11KT, W2IXY, W6QD, VS1AA, VU2FO, VU2LJ, ZS6BT, ZS6CX and all North London hams in the services.

\* \* \*

## G8ZD

Mr. Peter Bradley, G8KZ, advises us that the call G8ZD was issued to *Hamrad Wholesale Ltd.*, and held on their behalf by Mr. E. P. Appleby, his Co-director in the Company. In our last issue we inadvertently recorded in the Active Service List, that the call G8ZD was held by Major Carpenter. Mr. Bradley states that Major Carpenter held the call 2DFJ.

Rank and Name	Regiment or Branch	Pre-war Call or B.R.S.
Sig. A. E. Mercer ...	R.C. of S. ...	2CUX
L.A.C. H. J. Miller ...	R.A.F. ...	2CVX
Gnr. G. I. McHale ...	R.A. ...	3261
L.A.C. T. Nisbet ...	R.A.F. ...	GM3SW
A.C.2 H. W. Parker ...	R.A.F. ...	2ADZ
Sig. L. Parnell ...	R.C. of S. ...	G8PP
A. B. T. Rennie ...	R.N. ...	GM4NR
— C. Sharratt ...	R.C. of S. ...	G4CJ
— P. C. Shenton ...	R.A.M.C. ...	2DSL
L.A.C. J. Stace ...	R.A.F. ...	2952
L./Cpl. H. C. P. Stacey ...	R.C. of S. ...	3810
Capt C. H. Stoneley ...	East Africa Signal Corps	VQ4 CHS
Gnr. E. Sutcliffe ...	R.A. ...	2BSF
P./O. C. H. Targett ...	R.A.F. ...	G6PG
Cpl. W. H. Thomas ...	" ...	3808
Officer/Cadet J. V. Warner	R.C. of S.	G2WR
Pte. J. N. Webb	Worcester- shire Regt.	3626
Sig. S. H. G. Weeden	R.C. of S. ...	3812

*Correction.*—In the June issue the call recorded against the name John Garner should have read 2BGG and not 2BGO.

## Sgt. Cyril Shewry

Many members of the regular R.A.F. will learn with regret that Sgt. Cyril Shewry, who was stationed at No. 1 E. & W. School a few years ago, was killed in action in May. He was rear gunner in a bomber at the time of the action which brought about his death. Although not a member in recent years he continued to show interest in our work. He was 21 years of age.

## Every Renewal Reminder

COSTS MONEY AND WASTES

TIME AT HEADQUARTERS

PLEASE PAY YOUR SUBSCRIPTION

PROMPTLY WHEN DUE

# AUSTRALIANS ON ACTIVE SERVICE

## LIST NO. I

WE are indebted to our old friend Eric Trebilcock for sending us privately the following list of Australian amateurs who are serving in the Royal Australian Air Force. We hope to publish a further list shortly.

Rank and Name	Pre-war Call Sign
L.A.C. C. Bischoff ...	VK2LZ
Cpl. M. Brown ...	VK2OR
A.C.I. E. Catt ...	VK2FU
L.A.C. E. Clune ...	VK2LK
L.A.C. R. Corthorn ...	VK2VG
Ft./Lt. R. Cunningham ...	VK3ML
L.A.C. G. Curle ...	VK2AJM
A.C.I. D. Dawson ...	VK2DD
L.A.C. J. Evans ...	VK2CX
L.A.C. G. Fenton ...	VK2GV
F./O. J. A. Furze ...	VK2HF
L.A.C. L. Gibson ...	VK2GH
L.A.C. J. Graydon ...	VK2AIS
L.A.C. H. Hansen ...	VK4FH
Ft./Sgt. F. Hine ...	VK2QL
L.A.C. R. Howe ...	VK4RH
L.A.C. G. Hume ...	VK2AMD
L.A.C. V. Jarvis ...	VK2VJ
A.C.I. R. Jones ...	VK3BG
L.A.C. A. H. Llewellyn ...	VK2AH
Cpl. S. Madden ...	VK6MN
F./O. V. Marshall ...	VK3UK
A.C.I. E. Marsella ...	VK2AEZ

Rank and Name	Pre-war Call Sign
L.A.C. J. Mead ...	VK6LJ
A.C.I. C. Miller ...	VK2ADE
Ft./Sgt. D. Millen ...	VK2LQ
L.A.C. W. M. Moore ...	VK2HZ
Cpl. J. Moyle ...	VK2EZ
Sgt. W. Murden ...	VK3TY
L.A.C. M. Myers ...	VK2VN
Sgt. J. McCarthy ...	VK2VM/ VK3FX
L.A.C. N. McNaughton ...	VK2ZH
A.C.I. M. Orr ...	VK3OR
L.A.C. J. Parris ...	VK2DN
Cpl. J. Perooz ...	VK2PE
L.A.C. R. Prowse ...	VK3XS
Sgt. B. Randall ...	VK2ALN
A.C.I. K. Rankin ...	VK3KR
L.A.C. A. Reynolds ...	VK2AP
Cpl. A. Robinson ...	VK2GR
Ft./Sgt. H. Sinfield ...	VK2TZ
W./O. A. A. Slight ...	VK2ZA
L.A.C. W. Smith ...	VK2BS
A.C.I. N. Templeton ...	VK3HG
A.C.I. J. Traill ...	VK2XQ
Cpl. A. Wallbridge ...	VK2UI
A.C.I. J. Walters ...	VK2ALW
A.C.I. S. Weston ...	VK2AJH
A.C.I. K. J. Williams ...	VK2XD
L.A.C. E. White ...	VK2HA
L.A.C. J. H. Woodman ...	VK2ZE

## Silent Key

### F./Lt. George Zech, R.A.F.V.R. (GM8TT)

It is with very deep regret that we announce the death, during the evacuation at Dunkirk of Flight-Lieut. George L. P. Zech GM8TT of Glasgow. Born in Belgium thirty-nine years ago Mr. Zech first came to the British Isles in 1915 following the German invasion. For some time prior to the outbreak of the present war he held a commission in the R.A.F. Civilian Wireless Reserve, and shortly after hostilities commenced he was posted to London for special duties which his perfect command of French, Dutch, Flemish and German fitted him to undertake.

During October of last year he was a welcome visitor to the first war-time meeting held in North London, his ready wit and cheery disposition contributing largely to the success of that gathering.

Those who attended the never-to-be-forgotten Glasgow Convention in September, 1938, will remember GM8TT for the part he

played in the arrangements made for the entertainment of visitors from London and elsewhere.

It can now be revealed that it was Flight-Lieut. Zech who handed the Society a substantial cheque shortly after hostilities commenced with an instruction that it was to be used at Headquarters' discretion for the payment of subscriptions for R.A.F.V.R. members who had been hard hit by the war.

Mr. Zech was a son of Mr. Paul Zech-Dupont, Vice-Consul for Belgium in Glasgow. After being educated at Glasgow Academy and Glasgow Royal Technical College, he joined his father in the business of Sandeman's Varnish Ltd., Glasgow.

On behalf of all members who shared his friendship, we extend to his parents, wife and twin daughters our deepest sympathies.

G6CL.

# VIVE LA FRANCE!

## A Miniature Ham Comedy in Two Scenes

*To sceptical readers the author would point out that the facts in this little story are absolutely true.*

### SCENE ONE.

A STREET CORNER "SOMEWHERE IN ENGLAND."

A.A. man encounters G2—. After a discussion on crystal receivers and DX conditions on 350 metres (!) the conversation turns to the subject of the French soldiers staying in the town.

Says the A.A.: "Must be some radio men amongst 'em!"

G2—: "Oh, certainly!"

A.A.: "Tell you what, I'll go out and find a French signaller, and then we shall be able to collect some useful dope."

G2—: (Scornfully) "Oh, sure. . . . Don't forget to get hold of a couple of Generals whilst you're about it."

A dramatic pause follows. Then: "By the way, how does one collect French signallers OM?"

A.A.: (Sarcastically) "Why, you just whistle a few Vs, and I suppose they congregate like flies."

G2—: "Really. I must try that. Cheerio for the present!"

A.A.: "Bye-bye, old man."

Exit the A.A. and the G2 in opposite directions, each frantically whistling Vs, carefully watched by the local inhabitants, who are suspiciously murmuring things about "Fifth Columnists." A few French soldiers are to be seen deep in thought. . . . "These mad Englishmen!" . . .

### TWO DAYS LATER.

During the time which has elapsed the A.A. actually manages to find a French Telegraphist, who was a Radio Engineer in Civil Life. The Op. gratefully accepts an invitation to stay with the A.A. until his return to *La Belle France*, and some very enjoyable rag-chews follow. The very proud A.A. extracts full dope on French Army rigs, and gives the Poilu a busman's holiday by presenting

him with the Freedom of the Shack. Very naturally the G2 is informed post haste, and he arranges to come and see for himself (he is rather suspicious, but hopes the Op. is more genuine than some of the "junk" he has recently heard on 20!) Accordingly, he polishes up his Army French, and prepares himself for the fray. . . .

### SCENE TWO.

OUTSIDE THE HOUSE OF THE A.A. MAN.

G2— arrives, bearing a carload of war souvenirs and French QSL cards (I said QSL cards). The A.A. regretfully informs him that the Telegraphist has gone out for a walk, but that if he would like to meet a Sergeant in the French Tank Corps, there was one inside having tea with his younger brother. At this, G2— tears his hair and says that he wants to meet Radiomen, and not "blue-pencilled" Tank Corps N.C.O.'s. So he trots back to his car, murmuring sweet nothings about soldiers in tin cans. Having carefully replaced the Big Ends, which had been removed to prevent Parachute Troops using the 'bus, G2— loads up again and drives off into the distance.

The A.A. goes back into the house with the disappointed look of the ham who has been visited by the bailiff just before he was going to display his latest rig to the boys. On entering the house, however, the Tank man is nowhere to be seen.

A.A. asks his mother. "Where has he gone to?"

A.A.'s mother. "Oh, he's just gone up to the shack. He's a *Short-wave Listener* . . . !!"

### EPILOGUE.

It is now reported that G2— is progressing very favourably. . . .

L. J. J. M.

## Book Review

PHILATELY. By L. N. and M. Williams (Pitman). (Available from R.S.G.B. Sales Dept. Price 4s. 6d. Postage extra.)

For two reasons we are reviewing this non-radio book. First because the co-author, Maurice Williams, was for many years our QRA Manager, and operator of G6PP, second because the hobby of philately holds a fascination for many radio amateurs who find that their contacts with overseas amateurs provide an invaluable means for augmenting their collections.

The authors in presenting a modern outline of the elements of Philately have succeeded in breaking away from the somewhat stereotyped methods of many earlier writers, by including a comprehensive collection of full page plates. These excellent

illustrations enable the reader more readily to appreciate the force of a specific argument.

Beginning with a discussion of Early Posts (itself a most absorbing subject) the reader is introduced in succeeding chapters to the methods of producing stamps, including descriptions of types of Paper and Gum, Watermarks, Printing, Perforation and Roulettes.

In later chapters, Postmarks, Forgeries, and Condition are discussed, whilst the concluding pages deal with the Arranging, Mounting and Writing-up of collections—subjects sadly neglected by the average collector. J.C.

### Philatelic Section

The new R.S.G.B. Philatelic Section is now in operation under the direction of G2M1. Interested members, especially those who were associated with the original section, are invited to join. All communications to Mr. A. O. Milne, 29 Kechill Gardens, Hayes, Bromley, Kent.



## Ham Hospitality

The following members extend hospitality to any amateur who finds himself in their locality. The names in the present list are additional to those published in our June issue. Members wishing to avail themselves of hospitality should, when possible, write or telephone in advance.

**London.**—J. Hunt (BRS3695), 2 Parkhill Road, N. Chingford, E.4 (Silverthorne 2451). H. D. Cullen (G5KH), 164 West Hill, Putney, S.W.15 (Putney 0645).

**Billingham, Co. Durham.**—G. A. Patrick (G8CL), 4 Stokesley Crescent.

**Bishops Stortford, Herts.**—T. A. St. Johnston (G6UT), "Normandale," New Barn Lane, Little Hallingbury (Bishops Stortford 785).

**Bournemouth, Hants.**—L. J. J. Morgan (2HNO), 45 Parkwood Road, West Southbourne (Southbourne 1118).

**Bradford, Yorks.**—C. A. Sharp (G6KU), 316 Poplar Grove, Great Horton.

**Croydon, Surrey.**—D. T. Blunden (G8IN), 560 Purley Way (Croydon 4016).

**Haslemere, Surrey.**—P. W. Gammon (G3VB), "Sunnyside," Fernhurst (Fernhurst 33).

**Leeds, Yorks.**—P. H. Wade (2BPJ), 8 Ancaster Crescent, West Park, Far Headingley (Leeds 52363).

**Luton, Beds.**—A. G. Tearle (G3KG), 26 Farley Avenue.

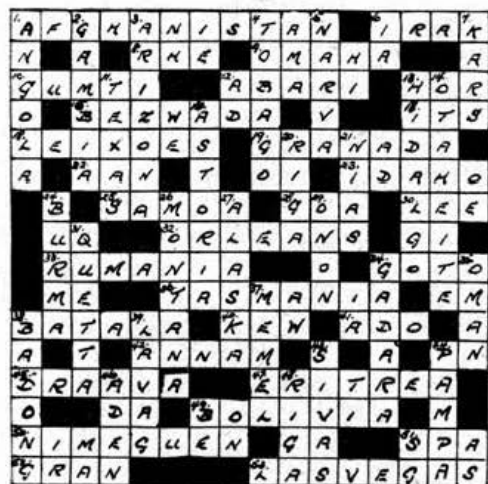
**Manchester (Prestwich).**—H. N. Walls (G2DH), 6 Pine Grove (Prestwich 3045).

**Manchester (Whitefield).**—C. Turner (G8NL), 4 Moreton Avenue, Whitefield (Whitefield 2599).

**Northwich, Cheshire.**—J. Buckley (BRS1965), 16 Wallerscote Road, Owley Wood (Weaversham 24).

**Teignmouth, Devon.**—A. R. Drake (2ARA), The Talbot Hotel (Teignmouth 468).

## "HAM-RADIO" CROSSWORD No. 4 SOLUTION



## Ham Coincidence No. 5

Here's one to cap them all!

Vic Sims, G5VS, who is a naval telegraphist stationed in Ceylon, was recently transferred to a new station in the island. Shortly after arrival one of the "ops" came along and said "I know a ham named Sims—used to work him quite a bit on 40—you don't happen to know him I suppose." For confirmation of this mazing coincidence the reader is referred to Mr. Wyburn, of Weymouth, the ham who made the enquiry! They now do duty watches together and talk of all things bar the war.

## Scotland's Luck

Capt. Leslie Dixon of *Messrs. Electradix Radios*, 218 Upper Thames Street, has most generously offered to present free of charge to Scottish members, on active service, 50 copies of the "Geographia" Road Mileage Map of Scotland complete in case with Index (a 45s. production). Applicants should forward 6d. for postage to the address given above.

This very kind gesture is but another example of the co-operation extended to the Society by Capt. Dixon, one of our oldest members.

Incidentally *Electradix Radios* have an amazing stock of keys, test-sets, buzzers, meters, etc. Their new catalogue is worth a lot more than the 2½d. stamp needed for the request to be supplied with a copy.

## The Late Walter H. Candler

It is with deep regret that we have to announce the death of Mr. Walter H. Candler, founder of the *Candler System Company*.

Mr. Candler not only devised and left as a heritage to literally thousands of satisfied students in almost every part of the globe his extraordinary systems, but, characteristic of his wisdom and foresight, he planned for the continuation of his work by training and preparing thoroughly qualified successors who, according to Mr. Candler's ideals and plans and in strict accord with his principles of efficiency and personal supervision, will continue the work of teaching the various courses embraced in the *Candler Systems*.

Mrs. Walter H. Candler, who has been the business secretary of the *Candler System Company* since 1924, and who prior to that time was a student of telegraphy and a Candler trained commercial operator, is assuming the responsibilities of the institution and, with the aid of the present thoroughly qualified instructors, will perpetuate the world-wide services instituted by Mr. Candler.

The London office will, as hitherto, be managed by Mr. H. Freeman, 121 Kingsway, W.C.2.

## Trade Note

We are advised that three valves in the Mullard range are now reduced in price. The types affected are as follows:—

- EB4. "E" Series Double-Diode with separate Cathodes, from 10s. 6d. to 5s. 6d.
- EAB1. "E" Series Triple-Diode, from 7s. 6d. to 5s. 6d.
- EL50. Output Pentode, from 25s. to 20s.

# THE MONTH "OFF" THE AIR—June, 1940

By ARTHUR O. MILNE (G2MI)

## U.S. Ban all Foreign Contacts

NEWS has come through that the Federal Communications Commission has placed a ban on all contacts between United States amateurs and those in foreign countries. It is not clear whether this is part of a neutrality code which the U.S.A. obviously no longer either practises or believes in, or if it is intended as a check on possible "fifth column" activity. Whatever the reason, it puts a large sized spoke in the wheel of the German "amateurs" so active on our bands at present. U.S. amateurs may work their own colonies and dependencies but it is understood that they may not contact anyone who is not a United States citizen.

## Here and There

G3PM badly needs a card from VP4TQ; if this should catch his eye, perhaps he will do the needful. 3PM also tells us that VQ2FJ put his gear in store at the outbreak of war and took the first boat to England to join up.

2HIK reports several new Germans, bringing the total so far reported by our members to 42 separate calls.

G8PR although in the R.A.F. still finds time to do a bit of "off duty" listening. He reports a number of PY's on 7 Mc. and has heard HH2MC working "EP2C."

A large packet of cards has been received from VU7BR covering all who had not received a previous confirmation. Most of these have been distributed but a few are still awaiting envelopes. VU7BR says, he has sent a further consignment of cards to W8GER for a number of American stations. He sends 73 to all his radio friends and wishes everyone the best of luck.

From *Break-in* the official organ of the N.Z.A.R.T. we glean the following item of interest. Four New Zealand amateurs, ZL1AI, IGC, 1HJ, and 1NH were recently requested by their Government to assist in the arrangements for the broadcast from Waitangi Centenary Exhibition. Their gear was released from bond and for one crowded hour of glorious life, they went on the air in the Exhibition grounds. Like all good things, however, it had to come to an end, and next day the "perkers" were safely back in pawn once more.

G8UO reports hearing HB3AF and wonders how they think of them all! 14 Mc., he says has not been at all good recently.

BRS3789 finds time to do some listening even in these busy days and gives the QRA of XU5LT as Box 61, Kunming, China. We can't find this on the map. He badly needs a card from VQ2CM; don't lose hope o.m., there may be delays in the post and also, no doubt he is very busy at present.

BRS3695 says TA1AA worked ES8D on June 15, and that YN1GU was heard on May 31 (C.W. 14 Mc.)

## WCFT

The schooner-yacht, "Yankee," call-sign WCFT, is on a world cruise, and is at present visiting the South Sea Islands. The radio operator is W1FTR

and schedules have been kept with W1AW since the start of the cruise some months ago. The station which has an easily recognisable 500 cycle note on 8,280 kc. for general traffic also works amateurs on 7,280 kc. around 05.00-06.00 G.M.T.

The itinerary is Samoa, Gilbert and Ellice Is., New Guinea, Singapore, Indian Ocean, Africa, South America and then home, though whether this plan will be adhered to in view of present circumstances, is not known. The "Yankee" picked up VR6AY's transmitter at Panama and re-installed it at Pitcairn, but Andrew Young must not use it because of the war, consequently anyone calling himself VR6AY on the air is a pirate.

## American News

According to QST, VP7NT's log is with the A.R.R.L. so that DX.C.C. claimants on this station may now seek confirmation from West Hartford direct.

W8JFC has just received a card from ZU9AC, worked on 28 Mc. telephony way back in 1936! Yes, believe it or not, he really was in Tristan da Cunha at the time. It will be remembered that there was a Norwegian scientific expedition out there that year.

Many members who had the pleasure of meeting Jim Lamb, W1AL, in London, a few years ago will

## RADIO PERSONALITIES—No. 1



A. D. Gay, G6NF, Executive Vice-President and Calibration Manager, R.S.G.B. Braaten Trophy holder for 1937, 1938 and 1939, awarded to the British Zone winner in Annual A.R.R.L. DX Contests. Member of DX Century Club and holder of W.A.S. certificate.

be as delighted as we were, to know that once more he is writing for QST after his serious illness.

'2CLD who forwards a long list of calls heard, which includes every W district, PY, LU, CM, CX and K5 gives the following interesting information:—

On the evening of June 10, he overheard one American amateur telling another about a talk to be given from WRUL at 8 p.m. E.S.T., that evening, on the subject of Amateur Radio. Accordingly, 2CLD listened on the 25 metre band at 01.00 B.S.T. and heard Mr. George Bailey appeal for amateur assistance in forming an anti-fifth column corps. He stressed the good relations between A.R.R.L. and the F.C.C. and indicated that the two bodies were working in close co-operation in the national interest. He made it plain that the ban on foreign contacts was brought about by the activities of the German amateurs at present on the air. He advised U.S. amateurs to turn their attention ever more to the ultra-high frequencies and announced the formation of emergency corps, in co-ordination with the police and Red Cross, and the reservation of certain frequencies for the purpose. Finally he impressed the desirability for everyone to improve his code operation to the maximum of his ability. To this end special morse practice transmissions were to be made from WIAW.

All this is most significant, to say the least, and indicates a very satisfactory appreciation of the value of amateur radio by the American Government.

### Appreciation

The following letter has been received from the Port Amenities Liaison Officer at one of H.M. most isolated Naval bases.

"Just in case you have not received any official acknowledgment (we had, Ed.), of the four battery

sets so kindly sent for sea-going ships on this base, I can assure you they are well placed and very very popular. I have quite a long waiting list for wireless sets and though I do not wish to appear an 'Oliver Twist,' if any time you have more for disposal, please remember the men in this outlandish spot—any for shore stations also very welcomed."—Signed. Lieut. R.N.V.R.

It is difficult to imagine the difference that a receiver must make to the lives of some of these lonely men who are doing so much for us; once again may we appeal for that old junk which is cluttering up the cupboards the wife has coveted for years! If you have no gear, what about a 6d. postal order? Although the receivers mainly needed are for battery or D.C. mains operation, we have had two appeals for A.C. receivers. Has anyone, an old, but serviceable, A.C. mains set for which he would like to find a good home, and earn the heartfelt gratitude of brave men?

### QSL Matters

VU2LJ has offered to take over the Indian Bureau once more. He suggests that all amateurs who have sent cards to India and who have received no reply should send duplicates to the R.S.G.B. bureau whence they can be distributed either to him or to our Indian members direct. QST please copy.

In short, all cards sent to the late QSL Manager should be regarded as lost. This opinion appears to be held by many of the other leading amateurs in India.

We are informed by the G.P.O. that the sending of QSL cards to all censorable countries is now banned. This does not apply to the Americas or to British possessions.

## From the Channel Isles to England

Martin Bourke, 2AOU, one of our foremost B.E.R.U. Contest participants, writing from 25, The Burgage, Market Drayton, Shropshire, tells us that he has left his old QRA at Jersey. Unfortunately he had no opportunity of taking with him his world-famous collection of QSL cards representing 140 countries heard.

He looks forward to hearing from 2DUP, and other old friends of the hey days when DX rolled in.

\* \* \*

News has also reached us from three other Channel Isles members who have come over to England. These are Mr. A. G. Cole, G3CG now at 27, Grange Road, Hook, Surbiton, Mr. H. A. Linay, BR53673, now at 2, West Avenue, Hayes, Middlesex, and Mr. E. Banks, 2CNC, (Aurora G. C.), who is living at 26, Selwyn Avenue, Hatfield, Herts. We hope it will not be long before they all return to their Island homes.

\* \* \*

### Canadian News Reel

Two interesting events are due to be recorded this month. The first concerns the go-ahead VE Operators Association who have recently elected their new executive for 1940-1. Tom Powell,

VE3ZE, becomes President in place of Fred Saxon, VE3SG, who takes on the onerous duties of Hon. Secretary. Stan Trainer, VE3GT, is the new Vice-President, whilst E. Bartiman, VE3VD has been appointed to take care of the money box. It is pleasing to record that although the Association has recently reduced its annual subscription to 25 cents., a great many members have insisted upon paying a full dollar, whilst one public-spirited ham attached a five dollar bill to his invoice.

The second item of current interest concerns the Key Klick Klub who conceived the brilliant idea of cutting a record of greetings to the Canadian amateurs serving abroad. The record begins with a rousing chorus, followed by an introductory speech by Fred Saxon, who expresses his pleasure at being able to bring to the mike many well-known local personages in the Ham world. Later Tom Powell says his piece in great style, followed by the whole of the Key Klick Klub members present.

The record has been lodged with G6CL who is hoping to make an arrangement whereby as many as possible of the VE's in G can hear it. The record must be run at a speed of 33 1/3 r.p.m. and special needles used. Recording is from the centre.

For the information of Canadians abroad, all communications for the VE Operators Association should now be sent to 302, Lee Avenue, Toronto, the private address of VE3SG.

# FOR EVERYONE INTERESTED in SHORTWAVES



—We offer this

## EDDYSTONE ALL-WORLD TWO

YOU can get first-class headphones reception of World-wide short-wave broadcast transmissions, News Service, etc., etc., with this Eddystone battery operated "All-World Two." It will consistently receive many American, European, Australian and other long distance short-wave stations at good volume and quality. It is fitted with special "Eddystone" bandspread tuning. Wave range 15.5 to 52 metres. Price, with valves and coils, guaranteed aerial tested and ready for immediate use.

**PRICE ONLY £4-5-0 for All-World Listening  
RECEIVERS BOUGHT FROM OUR SERVICE DEPOTS (SEE BELOW)  
CAN BE OBTAINED ON MOST FAVOURABLE EXTENDED TERMS**

WRITE NOW TO

**STRATTON & Co. Ltd.**

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**BROMSGROVE STREET, BIRMINGHAM**

OR FROM SERVICE DEPOTS

**WEBB'S**

LONDON: 14 Soho St., W.1.  
BIRMINGHAM: 133 New St., 41 Carr's  
Lane, 23 Shirley Rd., Acocks Green.

### COUPON

To STRATTON & Co., Ltd., EDDYSTONE  
WORKS, BROMSGROVE ST., BIRMINGHAM  
Please send me full descriptive details of the  
Eddystone All-World Two Short-wave Receiver and  
address of my nearest stockist. (I enclose 1d. stamp)

Name .....

Address .....





**THE LANGUAGE OF THE AIR IS  
PLAYING A VITALLY IMPORTANT  
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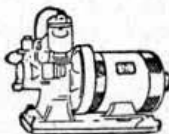
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## EXPERIMENTAL SECTION

By A. M. H. FERGUS (G2ZC)

WITH the first issue of a new volume before us, it may not be out of place to review in brief our present position. Acting on the advice of the Section Committee, the Council agreed at the commencement of the war to continue the Group method of operation. This policy is still being maintained but, due to the calls of National service, the ranks of all Groups have been sadly depleted until to-day we find that in certain groups less than six members remain active participants. The Aerial and Transmitter Groups are quiescent, the Receiver and Propagation Groups are carrying on valiantly under conditions of great difficulty, and so long as a nucleus of any Group remains the Section will continue to operate.

This policy seems necessary because if, as we hope, the war is not to be of long duration, we shall need an Experimental organisation to bring to light many of the new ideas and developments caused by war-time conditions. Further we can anticipate a big increase in members from the ranks of those who have been associated with our existing members while on active service, therefore, a live organisation is essential. Our aim then is to continue E.S. with the aid of all who can assist.

It is refreshing to find that even under the stress of war several new members have joined the Section in recent weeks. Perhaps even more surprising is the fact that many of these members are on active service.

To all E.S. members, past and present, we send our greetings and good wishes. In the words of last month's editorial—*please Maintain Contact.*

G2ZC.

### Propagation Group

A new sub-group has been formed from some of the members of the old "Aurora" sub-group and a few newcomers to the Propagation Group. 2CNC, Mr. E. Banks, late of the Channel Islands, and now located at 26, Selwyn Avenue, Hatfield, Herts, has taken charge and although the interests of its members will probably cover a diversity of topics it has been decided to continue it under the old name of "Aurora." Members who are in a position to participate in the work of the new sub-group are invited to write to Mr. Banks immediately.

A paper read by Harlan T. Stetson before a joint meeting of the International Scientific Radio Union (American Section) and the Institute of Radio Engineers at Washington April 26, 1940, gave the results of field strength measurements made on a frequency of 770 kc., during periods around auroral displays, the transmissions being from Chicago to Boston. This showed that the field strength was usually abnormally high during the preceding week, the maximum occurring on the average four days before the aurora, while the week subsequent to the display showed low field strengths, the minimum being on the average two days after the aurora. Observations on higher frequencies involving F layer transmission showed a minimum disturbance four days before the aurora and a maximum disturbance one-half day after. This leads to the conclusion that the F layer is affected about one day earlier than the E layer.

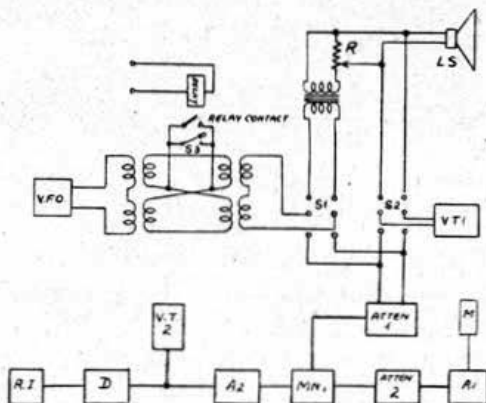
Of interest to those engaged in trying to correlate weather and radio phenomena is a paper in the Proceedings of the Royal Society for February, 1940. Observations in Australia have shown that large day-to-day fluctuation in the electron density of the F<sub>2</sub> region are associated with meteorological changes at the ground. High values of F<sub>2</sub> region ionisation are associated with a freedom from "frontal" conditions.

Another paper which may interest some members concerns echoes, and appears in the *Phys. Review*, January, 1940. This suggests that delayed echoes are returned from regions where there is a marked curvature of the F layer. Such a condition exists at the edge of the sunlit zone and may turn back rays which have travelled many thousands of miles on the dark side of the earth.

G2XC.

### Receiver Group

One of the chief difficulties encountered in the measurement of microphone and loudspeaker characteristics is that of eliminating the effects due to reflected sound waves and outside noises. An attempt has been made by Hayashi in Japan, to overcome these difficulties by interrupting the current to the loudspeaker, by the means shown in the block diagram. V.F.O. is a variable frequency oscillator connected to a coupling transformer, across which is placed a high speed interrupting relay and an auxiliary switch (S3). S1 and S2 are change-over switches for reading input and output voltages on the vacuum tube voltmeter Vt1.



Block diagram showing method of measuring frequency response using interrupted audio frequency.

VFO	Variable frequency oscillator.
LS	Loudspeaker.
R	Gain control.
ATTEN. 1 and 2	Attenuators.
M	Microphone.
MN	Matching network.
A1 and A2	Amplifiers.
Vt 1 and 2	Vacuum tube voltmeters.
D	Detector.
RI	Resonance indicator.

The microphone current is amplified, rectified and applied to a Resonance Indicator which has a resonant frequency equal to the interruption frequency. The deflection on the Resonance Indicator shows the output picked up by the microphone and the response of either the microphone or the loudspeaker may be obtained. When the interruptor is used it is claimed that outside noises of fairly large amplitude have little effect on the indicator and the response curves, for a given set of conditions, show remarkable similarity between this method and the usual continuous wave method.

The interruptor can be a rotary commutator or light source which opens or short circuits the connection between two transformers whose secondaries are connected in opposite phase; in this way good waveform may be obtained. A frequency of 50 cycles per second has been chosen as a suitable interrupting frequency although frequencies as low as 5 cycles per second have been found to give response curves which are in excellent agreement with the higher interruption frequencies. On the whole the effects of the side band wave which is generated by the interruption may be overcome by increasing the interruption frequency.

Although it is doubtful whether many amateurs will be able to put the above method into practice it is of great theoretical interest for it leads one to suggest that it might be possible to apply some similar principle to radio receivers in an effort to minimise static, man-made interference and jamming. It would of course be necessary to arrange that the interrupting frequency at the receiving end be of the same frequency and phase as that at the transmitting end but this should be made possible by the transmission of pulses which can be made to control a local oscillator on the receiver.

G5HF.

## Cosmic Notes

By E. J. WILLIAMS, B.Sc. (G2XC)

**D**ATA is available this month for the period April 14 to May 25.

### Sunspots

The provisional mean daily sunspot number for April is given as 60.6. Comparative figures for recent years are as follows: April 1937, 109.3; 1938, 101.0; 1939, 109.1.

No unusually large groups of spots were reported during the period under review but Tokio Observatory counted over 100 spots on May 14 and 15. Large prominences were observed on April 16, May 1 and 8.

### Magnetic Elements

A minor disturbance was recorded from the early hours of April 20, continuing until midday April 21. A short disturbance was also recorded during the morning of April 22. A more intense storm occurred on April 25. This was actually two storms, the first beginning at 02.05 G.M.T. and lasting a few hours only, while the second began at 17.22 G.M.T. and lasted until the afternoon of the following day. May 18 was a slightly disturbed day and further disturbances of varying severity were recorded from May 22 to 25. The observatory at Sitka, Alaska, rated the K-index as 9 during the morning of May 24

but the average index of seven observatories was only 6

### Radio Conditions

Measurements at Washington, U.S.A., show that the critical frequencies for the  $F_2$  layer extraordinary ray have been as follows: April 10, 10,600 kc.; April 17, 8,800 kc.; April 24, 9,200 kc.; May 1, 8,200 kc.; May 8, 8,600 kc.; May 15, 7,200 kc.; May 22, 6,600 kc.

Observations on WGEA and other stations indicated an ionosphere storm on June 24 and 25.

### National Book Council

The Society has been invited to co-operate with the National Book Council in preparing a Book List dealing with Radio and Telecommunications publications.

Headquarters therefore, invites all members to submit names of British publications which they consider worthy of inclusion in the N.B.C. list.

In submitting lists the following information should be included:—

Author's surname and initials, full title of book, date of publication (or preferably date of latest revised edition), number of volumes if more than one, price if still in print.

The style adopted in setting out the lists should conform to that of the example given below:—

*Radio.*

WITTS, ALFRED T. THE SUPERHETERODYNE RECEIVER (PITMAN, 1939) 4/6

Members in a position to co-operate are asked to write to the Secretary-Editor.

## RADIO BOOKS

### Cathode Ray Oscillographs

By J. H. REYNER, B.Sc., A.C.G.I., D.I.C., A.M.I.E.E., M.Inst.R.E. The information given in this book will prove of value to all who have occasion to use the cathode ray oscillograph, as it enables the user to apply the apparatus to the solution of any problems which he may encounter. The book is strongly recommended as a textbook for students and teachers. 177 pages. 128 illustrations. 8s. 6d. net (by post 9s. 1d.).

### Modern Radio Communication (2 Vols.)

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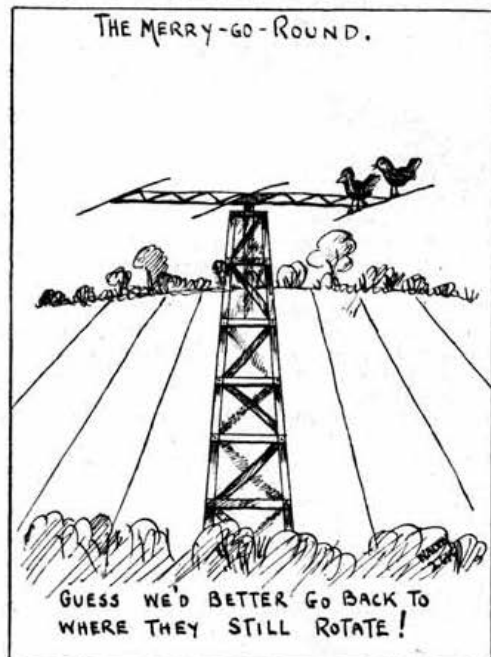
GET ONE OF PITMAN'S

## The 28 Mc. Band

By NELLY CORRY (G2YL)

WITH amateur activity and propagation conditions in their present state it is not surprising that only three reports have been received for June. Only six amateur signals were reported, but these originated, rather surprisingly, in four continents.

BRS3003 logged OQ5AB and PY7VB at 20.00 G.M.T. on June 1 and 5 respectively, and on the latter date G4MR heard an unidentified CE station. On June 2, 2BVU heard W3FJS and LU1DJ around 19.45 G.M.T., and the only European amateur, D3DSR, at 18.00 G.M.T. on June 21. Weak carriers were also heard in the amateur band during the evenings of June 4, 11, 12, 21 and 23.



From June 5 to 27 no amateurs except D3DSR were reported, but judging by reception of commercial harmonics this was not entirely due to poor conditions. European commercials between 27 and 32 Mc. were logged on at least 12 days and included the following:—DFI/DGC, DFC/DGO, EAK, EAM, EAX, FYC2, HAS2, IBX, IEP/IEQ/IER, IQA/IDM, IRS and ODD. BRS3003 reported that FYC2, heard at S6/7 on 29 Mc., at 19.45 G.M.T. on June 22 was the strongest signal of the month.

From South America, G4MR heard LSA, 31.5 Mc., on June 1, 5, 11, 12, 14, 19, 21 and 27, and LSA2, 27.5 Mc. on 14 days out of the 23 on which he was able to listen.

Anyone who hears anything at all on 28 Mc. during the next few months is earnestly requested to send a report to the writer. The closing date is the 28th of each month. Many thanks in anticipation.

We are indebted to G4MR, 2BVU and BRS3003 for keeping these Notes going for another month.

## The Ultra-High Frequencies

By CONSTANCE HALL (G8LY)

THE 56 Mc. Band has produced great activity recently, and all who have kept a constant watch must feel slightly rewarded. . . . It was with these words that the writer began her first contribution to these notes exactly a year ago, and judging from the reports received recently it seems that the sentiments can be repeated this year in spite of everything.

G3YY and BRS1151 send seven pages of detailed log between them, and it is interesting to note that they live as far apart as Brighton and Yorkshire. It is quite impossible to give more than a brief résumé of each report, but even these will prove that the ultra-highs are still very much "alive."

On May 27, G3YY heard two telephony stations on 56 Mc. between 19.28 and 21.00, on May 28 a constant T9 carrier at 21.15, and on May 31, between 18.10 and 19.45 21 stations were received, including 12 which were unidentified, "ITK ZAN DA IBX," RTV and IRX. A fade-out of all signals occurred at 20.00. On June 1 between 53 Mc. and 56 Mc., 13 signals, with many more unidentified ones of various descriptions, were logged.

BRS1151 who heard French duplex from 13.45 to 14.00 at the L.F. end of the band, records the fact that as the band opened for this signal, support is given to the contrasting weather theory, which up to now he had been sceptical about, as he had never observed any support for it during three months daily listening last summer. June 1 was overcast and cold, the previous week being cloudy and close, and from June 2 to June 9 it was very hot, with no cloud whatever. June 2 produced one telephony signal on 55 Mc. for 3YY, June 7 another on 56 Mc. and a commercial harmonic on 53 Mc., June 8 gave five signals between 14.35 and 14.42 (50 to 54 Mc.) June 9 two signals, whilst on June 11, BRS1151 found a very noisy band between 15.45 and 16.05, when IRX was heard sending press in Italian. On June 12, IRX was heard again for a few minutes at 12.15, fading out quickly and was not heard again until 19.45 and then with severe fading. Weather was cooler with bright periods.

June 16 gave 3YY two signals, and June 18 five. June 16 to June 20 proved a dead period with BRS1151, but a modulated carrier with Italian or Spanish telephony livened things up at 17.20 on June 21, fading out at 18.20. On June 22 one bad AC carrier was heard at 19.45 for five minutes which sounded like a television transmission with rapid fading S.7/2. June 19, 21 and 22 were poor days with 3YY, but June 23 produced 21 signals between 53 and 58 Mc., including commercial harmonics, carriers, Italian scrambled telephony and a harmonic of EAN, whilst BRS1151 discovered an Italian broadcast harmonic, with rapid fading S.8/0, at 11.45. He remarks that the weather was cold and dull on June 22 and 23, being a complete change from previous days. He recalls that this time last year weather was similar and the band open for DX.

G8OS reports, quite casually as if an everyday occurrence with him, hearing a television type

(Continued on page 28.)



# BRITISH ISLES NOTES AND NEWS

## DISTRICT 1 (North Western)

The District Scribe would like to thank those members who have written to him in support of the proposal to hold a North-Western PDM this year. Unfortunately the response has not been sufficient to justify the holding of the meeting, and it is clear that we shall have to abandon the idea for the present. A great many members are with the Forces, while others are engaged on special duties and cannot say in advance whether they would be free to attend the meeting; therefore in the circumstances it has been considered inadvisable to proceed with the arrangements.

For the same reason reports are very difficult to obtain, but it is believed that members are making personal contacts whenever circumstances permit.

G2OI reports that members in the Manchester area have very little time to spare, and he is not in a position to forward any reports.

G4KT (Blackburn) reports that out of a total membership of 30 only six remain, the rest being with the Forces or engaged on official duties. He suggests that a stamped addressed envelope should be enclosed with all letters to members who are with the Forces. This seems a very good idea.

G6TW via G6CX.

## Returned Bulletins

Last month over two dozen *Bulls* were returned because members had moved without advising Headquarters.

•

**IF YOU MOVE  
PLEASE NOTIFY CHANGE OF  
ADDRESS PROMPTLY**

## DISTRICT 4 (East Midlands)

*Mansfield.*—As the T.R. (G8SA) has been called for service with the R.A.M.C. local arrangements for the duration are now in the hands of G8MR (Sutton-in-Ashfield) and G3XA (Mansfield). Meetings will carry on as usual and members are advised to contact the above members as often as possible.

*Derby.*—The D.R. is anxious for an enthusiastic member to assume responsibility for the supply of news from this town. Offers please to G2RI.

*Northampton.*—G3PZ tells us that while actual activity is low the spirit remains. 3RF is still with the R.N.V.W.R., 2HCG has joined the R.A.F. as Radio Mechanic. 2CW was in the town recently, but has now moved further east. VE3KE spent some hours with 3PZ a week or two ago and they have fixed up some 14 Mc. skeds after the war!

G5LP is sending reports to those stations still on the air.

*Leicester.*—Members still meet weekly at 8.30 each Friday and any visiting ham is assured of a hearty welcome. Please 'phone Leicester 24295 any time you are near.

The D.R. acknowledges with thanks letters received during recent weeks and will be more than glad to hear from members as often as conditions permit.

G2RI.

## DISTRICT 7 (Southern)

*Aldershot and Farnborough.*—Owing to unsettled conditions the attendance at the June Gathering was not quite up to earlier standards. This was unfortunate as it turned out to be the most interesting of the series, for talks on Amateur Radio in New Zealand and Canada were given by Lieut. Patterson, ZL1BO, and Bill Wadsworth, VE5ZM, respectively. Those present were particularly pleased to welcome Lieuts. Frame and Patterson of the New Zealand Expeditionary Force, and it is to be hoped that at the next Gathering to be held on July 21, at the Y.M.C.A., Camp Road, North Camp, at 2.30 p.m., we shall meet more members of the ZL ham fraternity. All are welcome. Please pass on the word to others who you think may not have seen this notice—in the meantime you Gs, if you want to know how your signals really sounded around the Empire in the past, arrange to come along and meet the chaps who can tell you!

*Bournemouth.*—Due to the co-operation of a newcomer to this area, we are able to present the first news from Bournemouth for a very considerable period. 2HNO has kindly consented to forward notes in future, so please help in the good work by sending any item of interest to him at 45 Parkwood Road. 2CXP is now an LAC in the R.A.F.V.R., 4IJ and 4MY are both building crystal receivers. 2NS has been teaching 2HNO to "copy behind." 3BM and 2HMX are active in various ways.

*Portsmouth and Southsea.*—Members of the South Hants R.T.S. have decided to endeavour to attend the July Ham Gathering at Farnborough. At the June meeting 8WC gave a talk on the subject of eliminating hum from mains receivers. Members will be notified by post of the date of the August meeting. G5WP.

## DISTRICT 8 (Home Counties)

The D.R. takes this opportunity of acknowledging the receipt of newsy letters from G8ST, 2NJ, and 3KG. It is good to hear from the boys, for other members away from the District *pro tem.* are always interested to have news of their activities.

*Cambridge.*—G2XV still listens round the bands, but reports poor conditions. 5DQ, now serving with the Suffolk Regiment, is stationed in that county. 5BQ is occupied—literally night and day—with A.R.P. duties. 5PU has been home on leave from the R.A.F., after a hectic time in France. 8FF also had a rough time over there, and was recently on a visit to 8ST at Wembley. The latter was called up with the Officer Cadet Reserve, but was released to continue his work with G.E.C.

*March.*—The "twins," 3WW and 3BK, were recently encountered by 2XV, on one of his visits to the town. They reported "All well."

*Peterborough.*—We understand that 3DY is a Parashot. (Let them have it, Colin.) He also does duty at the A.R.P. Control Centre. In his letter, 2NJ says some very complimentary things about the Cambridge A.R.P. personnel, but to this 5BQ can only reply, "They also serve who only stand and wait." 6LX, who is at an experimental air defence station, has now been joined by his old colleague 6PD, who has been on research work at Birmingham for some years. 5NP is busy with A.R.P. work.

*Luton.*—That super-optimist, G3KG, is fitting out his radio room, and hazards a forecast of when it will be in use again, but we won't give the information away to the enemy! His address is now 26 Farley Avenue.

*St. Ives.*—G5RL has recovered from his recent operation, 6WA has joined the R.A.F., 4AZ continues to listen around the bands periodically.

Once again we appeal to members for postcards telling of their whereabouts and activities. If you are lazy ring Cambridge 54644!

G5BQ.

## Forthcoming Events

- |         |  |
|---------|--|
| July 21 | Scotland "A" District, 2.45 p.m.<br>at Y.M.C.A. Residential Club,<br>100 Bothwell Street, Glasgow. |
| " 23    | District 14 (East Essex Section),<br>8 p.m. at G2SO, "Pen Cuckoo,"<br>Linksway, Leigh-on-Sea.      |
| " 27    | District 13 and S.L.D.R.T.S.,<br>3 p.m. at Brotherhood Hall,<br>West Norwood.                      |

### DISTRICT 10 (South Wales and Monmouth)

Reports continue to arrive from members in the District, and those who have not received acknowledgment will do so as time permits.

The monthly meetings at Cardiff are continuing to be well supported, in spite of the fact that many members are engaged on work of national importance. Those who attend take this opportunity of thanking the ladies of the town for the work they put in to make things comfortable at the meetings.

G5FN.

### DISTRICT 12 (London North and Hertford)

The "Garden Party" held at G6LL on June 16 was attended by 16 members and ladies, but the weather was a little unkind during the morning, a fact which probably kept several away. G5RV and 6LB were especially welcomed from the Chelmsford area, as was our D.R. "Buck" (G5QF), who came over from Ware Park for the day.

After a ragchew and visit to the "local" for darts, etc., the party lunched indoors at G6LL, the rain having spoiled the proposed picnic. An enjoyable afternoon was spent viewing future N.F.D. sites and taking lessons from G5RV, who demonstrated

how easy it is to bag a starling when shooting at rabbits! After tea the sun really shone, thereby enabling the old and young to indulge in such sporting events as rounders and raising the elbow!

We record our grateful thanks to Mr. and Mrs. Mathews for their hospitality, and regret that the lady of the house was unable to join in the fun, as she was only that day back from hospital after an appendix operation. We also thank Mrs. G5RV and Mrs. G6LB for so kindly stepping into the breach as chief chefs.

Letters have been received from BRS3734 and 3760. The former is training as a radio operator in the Royal Navy, and is half-way through a six months' course, while the latter is in the R.A.F. as a radio mechanic. BRS3760 would welcome any technical magazines which members may have to spare. His present QRA may be obtained from G5FA. News has reached us that G3GX, 8GC and 8NV are safely back from France. We were very sorry to hear that Lt. Bill Brigden, G6WU, had been wounded, but we understand he is progressing favourably.

A small party attended the Edgware Short Wave Society Hamfest on June 29, when "Clarry" upheld the honour of District 12 by running a very close second in the Morse Contest with a speed of just over 30 words per minute.

G5FA.

### DISTRICT 13 (London South)

The meeting held at West Norwood on June 22 was unfortunately not well attended. G2JK who had promised to give a talk was unable to be present and the D.R. was also absent owing to pressure of business. It appears that members are finding it increasingly difficult to get to West Norwood on Saturdays and it might be found advantageous to alter the meetings to one evening in the week. If members feel that a weekday would be more suitable the D.R. would be glad to hear from them.

News from members would also be very welcome by the D.R., who finds that a 13-hour day leaves little time for collecting notes and news for these columns. May we therefore appeal to everyone who can do so to send a post card occasionally to the D.R.?

G2WV.

### DISTRICT 14 (Eastern)

*East Essex.*—Cyril Greenaway, G2LC, late of District 14, has joined the R.E.'s and we wish him luck. G3WP, who has been one of our "service" visitors for some months, has been moved to a southern area. The pre-war T.R. for Southend, G5XI, is recovering from a bout of malaria contracted whilst in Ceylon on service. After waiting for four years, G2SO has at last received his W.B.E. and W.A.C. certificates. The meeting arranged at G6NB had to be cancelled at short notice, G6UT.

### DISTRICT 15 (London West, Middlesex and Buckinghamshire)

The attendance at the June meeting was the smallest since District gatherings were restarted. Letters were read from five serving members, G3XI, 4AR, 4PA, 8VM and 2DZD, and duly passed to others, for reply. Discussion took place regarding the cigarette fund and in view of recent events it has been decided to send a small supply to two or three members each month. They will be selected

from among those sending letters or from the hat. It was also agreed that instead of keeping the funds in cash, cigarettes shall be purchased, and by kind consent of Mrs. Green she will arrange for their dispatch as required. We take this opportunity of thanking her for this help. This month G3XI, 4AR and 4PA will be the lucky ones.

It was with interest that we noted the exploits of our old friend, G8MK, as recorded in last month's issue. The D.R. recently met G8WR who wishes to be remembered to all. He is still serving somewhere near his home town. While it is known that interest is still being shown by quite a number of members no reports have come to hand. We expect that events have diverted many.

In view of the amount of trouble taken by Mr. and Mrs. Green (G5LN) to make our meetings a success may we appeal to all who possibly can do so to attend in future?

It is whispered that G5JL has entered matrimony—if so we offer our congratulations.

G6WN.

### DISTRICT 16 (South Eastern)

Now that the holding of meetings in the District has become increasingly difficult, the D.R. would like individual members who are unable to get in touch with their T.R.'s and who are anxious to record their continued interest and support, to write direct to him. The D.R. will also welcome letters from members who are with the Forces and will be more than pleased to acknowledge them in THE BULLETIN.

Incidentally, a letter from certain T.R.'s would be helpful, for again this month, G3WR (Brighton and Hove) is the only one to report—thanks for your consistent work, O.M.

*Brighton and Hove.*—At the meeting held in June, Capt. Houghton was unable to attend owing to pressure of work, but a general discussion among the eight members present was followed by a talk on the propagation of signals, kindly given at short notice by G6OW. No meeting will be held in August but members are particularly urged to keep in touch with 3TR and to inform him of their activities.

G2WS.

### DISTRICT 18 (East Yorkshire)

Activity reports are scarce, but various members are known to be busy one way or another. 6TG between spells on the receiver can be found bathing on some remote spot on the N.E. Coast. 6SO is again with us, after a holiday in No. 1 District. 3KS is still attached to the Services in the capacity of Civilian Driver. 2TK is building a small 2-valve receiver in readiness, should he receive orders to proceed abroad.

No reports have been received from Bridlington, but it is known that 6OO is active.

The D.R. received a welcome surprise visit from 6OS who is now hearing that impossible DX! 8KU/4BP, who is in Sierra Leone, was delighted to hear that a fellow member was in the Protectorate. Here's wishing you early contact. 2CP is active on 56 Mc. when in port.

G8UL tells us that BRS 1948 is serving with the R.A. on the radio side, and that 3PL is home, no longer a soldier (we trust he will soon be fit and well again.—D.R.)

It is noticed with regret that many members have

allowed their subscriptions to lapse. Strength and strength alone is our salvation when peace does come. Renew now.

Welcome to two new members, BRS3805, of Whitby, and 2HMJ, of Scarborough.

The D.R. again asks that members should endeavour to give him news. Our Service members, in particular, look forward with keen interest to reading District Notes. So what about it? Our flag must be kept flying.

G5MV.

### Scotland

*"A" District.*—There was a fairly good attendance at the June meeting when Mr. David Niven (2CHN) delivered his second and final talk on the application of the Mullard Red "E" valves to superhet receivers. The lecture, which was of a practical nature, was made doubly interesting because Mr. Niven brought along his receiver. The receiver, which was of excellent construction and a credit to his workmanship, displayed some new and interesting features in design.

Members will join the D.O. in offering congratulations to Mr. J. Emmerson (GM8HA) on his appointment to a commission in the R.A.F.V.R. Jim will be missed on account of his breezy talks to the district. Jim Stove wishes to be remembered to local members. The next meeting will be held on Sunday, July 21, at the usual place and time. May we repeat that Society members serving with the forces who find themselves in Glasgow on that date will be made welcome? It is hoped to arrange for a lecture at the July meeting.

*"B" District.*—Welcome letters have been received from Mr. Stewart McKay, 2FTN (the first news from the district for some time), who has now received orders to report for duty in the R.A.F.V.R.

GM6ZV.

### Sound Advice

We are indebted to "Thermion" for some interesting observations in a recent issue of our esteemed contemporary, *Practical Wireless*. Referring to the fact that a certain amateur had been "swooped" upon by the local police because misguided neighbours had imagined him guilty of fifth column activities, "Thermion" stresses the importance of every genuine amateur joining a properly organised society. In mentioning the R.S.G.B., he referred to the fact that THE T. & R. BULLETIN continues to provide an important link between all members.

"Thermion's" optimistic view that there will be a great increase of interest in amateur transmitting after the war is shared by ourselves. Judging by the numerous letters we receive from members on active service it would seem that the spirit behind our old motto, "Think Amateur Radio, Speak Amateur Radio," is as much in evidence to-day as it was when it was coined 10 or more years ago.

Thanks, "Thermion," for your interest in our activities.

### Whitstable Radio Amateurs

Mr. I. B. Clark, 2BIB, advises us that the above Club has ceased to function for the duration as all members except one are on active service.



# HEADQUARTERS CALLING

## American Publications

We regret to announce that due to a further substantial fall in the sterling exchange rate on the American free market, it has become necessary to increase our charges for all American publications and subscriptions.

The following are the new rates :—

A.R.R.L.		s.	d.
Annual Subscription	... ..	17	6
A.R.R.L. Handbook	... ..	8	6
A.R.R.L. Antenna Handbook	... ..	4	0
Radio		s.	d.
Annual Subscription	... ..	21	0
Two Years' Subscription	... ..	35	0

Members are advised that these rates are subject to alteration without previous notice.

According to "Radio" their 1940 Handbook is now out of stock.

\* \* \*

The opportunity is here taken of thanking those members who responded promptly to our invitation to forward additional amounts for publications ordered. Their co-operation has minimised the loss incurred by the Society as a result of the fall in sterling exchange.

## Kilocycles-Metres Conversion Tables

Copies of this very useful 64-page publication, in vest pocket booklet format, are available from Headquarters, price 1s. 4d. each, post free.

## New Postal Rates

With the introduction of new postal rates it now becomes even more important than hitherto, that unnecessary correspondence with Headquarters should be avoided. Members will be assisting the Society in a practical manner by paying subscriptions promptly on receipt of their statement of account. This will obviate further applications being made, thereby preventing a waste of Society monies.

## Northern Ireland & Eire

As from July 15, Northern Ireland and Eire become censorable countries. The effect of this decision means that copies of this Journal sent to our members in Ireland must in future be sent *via* the Military Censor.

The new arrangement should not cause serious delays in the delivery of THE T. & R. BULLETIN but members in the countries affected should notify us if they fail to receive a particular issue after a reasonable time—say, one week from publication day—has elapsed.

Members in Northern Ireland and Eire who have ordered, or propose ordering, our new Handbook, will appreciate that delays may occur due to the fact that parcels must now be sent *via* the Censor.

## Civil Defence

In order to effect economies it is not proposed in future to send formal acknowledgment to members advising us that they are engaged in Civil Defence work. The information will, as hitherto, be recorded at Headquarters against future possible use.

## C.O.D.

Due to the fact that Headquarters is being operated by a greatly reduced staff, it is regretted that Society publications and Sales Dept. items can no longer be sent C.O.D.

## New Members

### HOME CORPORATES

- S. J. MAYHEAD (G311), 6 Buckingham Road, Kingston-on-Thames.  
 T. G. RENNIE (GM4NR), 6 McVicar's Lane, Dundee, Angus.  
 A. R. STREET (G4QG), Roslea, Carlton Road, High Park, Ryde, I.O.W.  
 K. W. DRUMMOND (2CRD), 7 Hill Close, Riddlesdown, Surrey.  
 W. H. THOMAS (BRS3808), The Cadogan Arms Hotel, Ingham, Bury St. Edmunds, Suffolk.  
 J. C. SUTHERLAND (BRS3809), 214 Amulree Street, Sandyhills, Glasgow.  
 H. C. P. STACEY (BRS3810), 3 Woodgrange Avenue, Bush Hill Park, Enfield.  
 C. E. BROOKS (BRS3811), 52 Rutland Road, Southall, Middlesex.  
 S. H. G. WEEDEN (BRS3812), 38 Felsberg Road, Brixton Hill, S.W.2.  
 J. H. HANLEY (BRS3813), Ivy House, Holborn Hill, Liverpool Road, Ormskirk.  
 D. H. TOMLIN (BRS3814), 32 Moorsyde Avenue, Sheffield 10.  
 J. P. GRANTHAM (BRS3815), Mellor Knowl, Wincle, Macclesfield, Cheshire.  
 R. A. STELP (BRS3816), R.A.F.  
 J. E. FARNELL (BRS3817), 39 Horse Fair, Rugeley, Staffs.  
 DOMINION  
 C. A. MILLER (VK2ADE), R.A.A.F., *ol.* active service in England.

## Returned Bulletins

Readers are asked to assist us in tracing the present whereabouts of the following members who have moved from the addresses given below without advising Headquarters :—

- G. E. Chisholm (2CYC), c/o. 6 Shirley Road, Roath Park, Cardiff.  
 A. G. Colley (G5QC), "Westfield," Halloughton Road, Four Oaks, Warwicks.  
 G. S. Dee (G8RG), "Alderclose," Egham Hill, Egham, Surrey.  
 R. J. Dolman (BERS465), 20 Sutton Dene, Lambton, Hounslow.  
 W. A. Giles (BRS3707), "Northfield," Wymondham, Norfolk.  
 I le D. Hughes (G2IH), "Silver Birches," Mudeford, Hants.  
 K. D. Jackson (G3KJ), 55 Berkeley Avenue, Reading, Berks.  
 T. O. I. Pick (G8GL), Laburnam House, Culgarth, Nr. Penrith, Cumberland.

## The Handbook goes on the Air

Mr. W. E. Russell, G5WP, our D.R. for Southern England tells an amusing story which is worthy of record. One evening recently, whilst listening on a very top band, he heard a service station testing on phone. Thinking the matter sounded familiar, something prompted him to pick up a copy of the Handbook. His guess was correct—for the op. was reading extracts from Dud Charman's classic chapter on Aerials!

Rusty has only one complaint to make, why did the speaker not give us a free advert by mentioning the source of his quotation?

QUERY—who was behind the mike?



## THE IONOSPHERE AND RADIO TRANSMISSION—

(Continued from Page 5).

Washington the critical frequency for the extraordinary wave is about 750 kc. higher than for the ordinary wave (for frequencies of 4,000 kc. or higher). The difference in frequency is proportional to the intensity of the earth's magnetic field at the place of reflection, and is therefore different at different places on the earth. In reporting results of measurements of critical frequency it is now customary to give the values for the ordinary wave; practice varied in the past.

Besides the virtual heights and critical frequencies, the absorption of the energy of radio waves by the ionosphere is an important factor in limiting radio transmission. This absorption exists because the ions set in motion by the radio waves collide with air molecules and dissipate as heat the energy they have taken from the radio waves. Consequently the energy thus absorbed from the radio waves is greater the greater the distance of penetration of the waves into the ionised layer and the greater the density of ions and air molecules in the layer, and hence the greater the number of collisions between ions and air molecules. Absorption is especially great in the daytime, and it occurs chiefly in the low ionosphere, in the D or E layers. It also occurs in the high ionosphere, near critical frequencies. Much of the low-layer absorption disappears with the decrease of low-layer ionisation at night. Higher frequencies are less affected by absorption than are lower frequencies for waves passing through the same ionised layers.

(To be continued next month.)

## THE ULTRA-HIGH FREQUENCIES—(Continued from Page 23).

signal on June 23 at 14.30, stopping abruptly at 14.39 with slow fading on approximately 100 Mc.

The writer's anticipation of good reports around the June full moon certainly seems to have been fulfilled, and as these listeners have "wedged in" their observations whenever they could spare the time between "duty calls" they must surely be congratulated on their enthusiasm. Incidentally G3YY's receiver is four years old, the aerial consisting of sixteen feet of electric light cable running vertically for 2 ft. 6 in. on to a rafter in the shack and then sloping down to the N.S. side, being 6 in. underneath the lead roofing along its length. SU1RD and 2AXP are also thanked for reporting.

American amateurs are now permitted to use 58.5 Mc. to 60 Mc. for frequency modulated transmissions.

Good luck everyone and "sweet dreams" of 56 Mc. NFD and GW Contest!

## A New Receiver Design

A possible modification of technique for Service receivers is visualised in Prov. Pat. 29209/39.

A separate frequency is reserved for emergency or priority messages, and the receiver achieves an automatic watch on this frequency.

A priority message silences the circuits in use by the operator, ensuring immediate attention to the emergency frequency. The automatically watched frequency can be varied to suit changes in requirements.

## ZQI

We have been advised by Mr. John Grinan that the call of the broadcast station which was originally operated under his amateur sign, VP5PZ, has been changed to ZQI. The station works on 4.75 Mc. with an input of 250 watts. Reports will be greatly appreciated and will be acknowledged over the air and by mail. ZQI is on the air every Friday from 5.30 p.m. to 6.30 p.m. (local time).

Mr. T. Myers, Hon. Secretary, Jamaica Amateur Radio Club, also sends us information concerning the activities of ZQI, and says that certain members of his club are very busy in unspecified directions, whilst others are building and experimenting with receivers.

The J.A.R.C. greatly appreciates having been granted affiliation with R.S.G.B.

## EXCHANGE AND MART.

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## PATENTS AND TRADE MARKS

**KING'S Patent Agency Ltd.** (B. T. King, G5TA, Mem. R.S.G.B., Reg. Pat. Agent), 146a, Queen Victoria Street, London, E.C.4. Handbook and Advice on Patents and Trade Marks free. Phone: City 6161. 50 years refs.

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