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R.S.G.B. BULLETIN

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Current Comment

Rising Costs

HOT on the heels of the announcement made by the Chancellor of the Exchequer in his Autumn Budget that postal charges were to be increased as from January, 1956, came news that printing charges generally were to be increased by at least 10 per cent from the same date.

The effect of the increased postal charges means that it will cost the Society another £300 to £400 a year to post the BULLETIN to members living in the United Kingdom. Previously it cost 1½d. to post a 48 page issue; today it costs 2½d. The BULLETIN postage bill for the month of January, 1956, was £85.5.11 compared with £52.7.9 for December, 1955.

The effect of the increase in printing charges means that if we maintain 48 page issues it will cost the Society another £350-£400 a year to print the BULLETIN.

In addition to these two major increases in running expenses the Society is faced with big increases in postage charges on the despatch of QSL cards—an estimate suggests that the increase may exceed £100 a year.

As from the beginning of 1956, telephone charges generally were increased.

Reluctantly the Society has been compelled to pass on increases in postal rates to members who purchase books and other items from Headquarters. Purchase tax too had been increased in certain directions, all of which has had to be passed on to members.

Where will it all end? What can we do to keep the Society's financial position sound?

It is any one's guess where it will all end but it needs little imagination to suggest at least one way in which the Society's financial position can be made more secure. The answer is to increase our membership. If we could, a year hence, report a net increase of 1000 Corporate Members, most if not all, of the additional revenue required to meet the rising costs of 1956 would have been met from new subscription income.

There must be at least 5000 potential members in the United Kingdom alone, to say nothing of thousands who reside in the Commonwealth and Empire. Then too there are many U.S. amateurs who would, no doubt, join the Society if invited. At three dollars a year, R.S.G.B. membership represents excellent value for money.

The Council appeal to all present members to make a serious effort to build up the strength of the Society to a figure of 10,000 within the next three years. By so doing it will be possible to maintain all present services with a certainty of providing new ones.

How can we increase the membership? How can we obtain the support of those who are interested in Amateur Radio but are not yet members? The correspondence columns of the BULLETIN are available to those with useful suggestions to put forward.

Shall we be hearing from you OM?—J. C.

Emergency Issue

In common with other magazines and periodicals printed in London, this issue of the *BULLETIN* has been unavoidably delayed in production owing to the dispute in the printing industry. As a result, most of the usual features have had to be considerably shortened if not omitted entirely, while many display advertisements and the Exchange and Mart Section have been held over to our next issue. The Editorial staff hope that conditions will soon permit the resumption of full-size issues.

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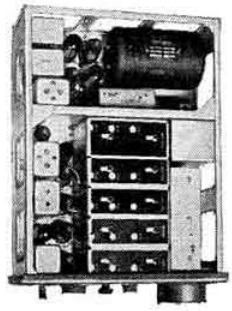

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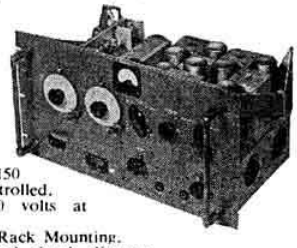

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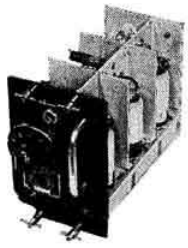

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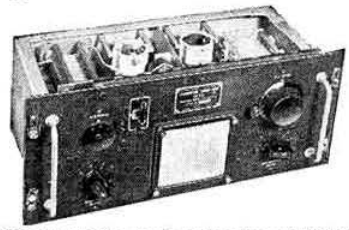

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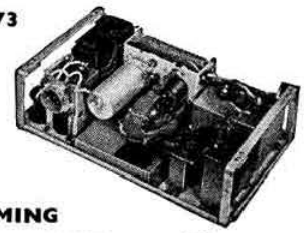

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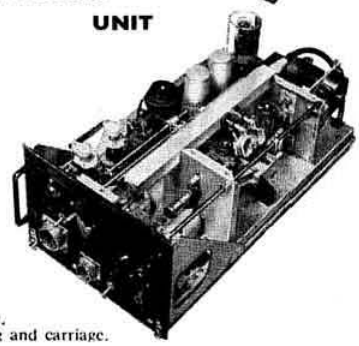

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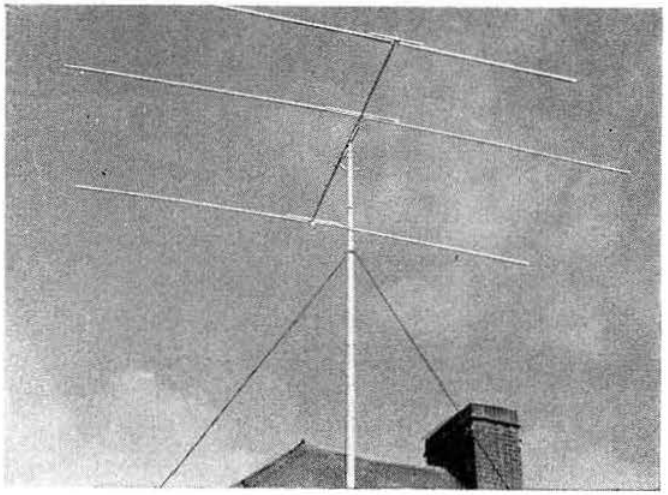
THE G4ZU THREE BAND MINIBEAM†

Details of a Compact New Array for 14, 21 and 28 Mc/s

By G. A. BIRD (G4ZU)*



The Minibeam at G4ZU.

The design of the aerial system described here has been protected by a British Patent Application (No. 33589/55) but this does not prevent individual amateurs employing the system for their personal use. Sole rights to manufacture and sell aerials of this pattern have been granted to the Panda Radio Co., Ltd., to whom thanks are recorded for permission to publish this article.

THE G4ZU three band Minibeam described in this article was designed with the object of providing a high gain directional aerial for 14, 21 and 28 Mc/s. A single feed line to the transmitter is used and no adjustment is required when changing bands. The performance on each band is equal in every way to that of a comparable single band array.

In designing the Minibeam particular attention was directed to keeping the weight and physical size as small as possible to permit its use even in a very small back garden. The longest element is 24ft and the total weight of the beam in use at G4ZU is only 10 lb. It is therefore possible to use a cheap and simple supporting structure such as a 30ft scaffold pole.

The beam consists of three basic elements—a driven element, a director and a reflector. The elements are split at the centre so that on 28 Mc/s the array becomes a five element beam. On 21 Mc/s it operates as a three element array with an extended driven element giving somewhat greater gain than a conventional three element beam, and on 14 Mc/s as a two element array with shortened elements, thus achieving a worthwhile reduction in size and weight.

The aerial is normally fed with 300 to 450 ohm balanced line but a matching unit has been designed for converting to 75 ohm coaxial feed where this is preferred. The three band matching unit is automatic in operation and does not require re-tuning when changing from band to band as would be necessary when using a normal type of aerial tuning unit. In practical operation the station transmitter or receiver can be switched to any of the three bands covered by the system with the assurance that a high gain directional aerial with a good front-to-back ratio will be instantly available. The advantages this offers for contest work cannot be over-estimated. Provision has been made in the matching unit for operating the aerial and feeder as a top loaded vertical on 3.5 Mc/s when operation is required on this band.

Design of the Elements

The method employed for obtaining three band resonance is rather unusual and merits some detailed description. It is fundamentally a system of inductive loading with electronic switching by means of quarter-wave stubs. To illustrate the principles involved it is necessary to consider first of all the design of the director. There are two ways of altering the resonant frequency of a parasitic element. One is to change its physical length, the other, less commonly employed but equally effective, is to insert inductance or capacity at the centre of the element (Fig. 1).

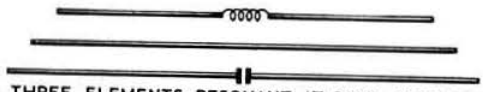


Fig. 1. Three methods of resonating beam elements to the same frequency.

Inductance will lower the resonant frequency. Capacity will make the resonant frequency higher.

In this particular application the director (Fig. 2) is 16ft long and is loaded with inductance at the centre to permit operation as a director on the 21 Mc/s band. If this inductance were shorted out by some form of switch or relay we should be left with a plain element 16ft long, correct for operation on 28 Mc/s.

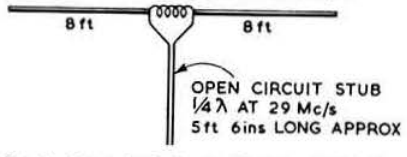


Fig. 2. A two-band director for 21 and 28 Mc/s.

†*Based on a lecture delivered to the Society at the Institution of Electrical Engineers, London, on November 11, 1955.*

**94 Shirley Way, Croydon, Surrey.*

To obviate the need for mechanical switching advantage is taken of the rather unusual properties of a quarter-wave stub. If a piece of twin feeder is cut to be a quarter-wave resonant length at 29 Mc/s and one end is left open, the other end will appear like an electrical short circuit at this frequency. At 21 Mc/s, however, it will no longer behave like a short circuit but will behave electrically like a small capacity. If this stub is connected across the 21 Mc/s loading coil it will perform the switching function automatically. On 28 Mc/s the loading inductor will be shortened out by the stub. On 21 Mc/s the stub will merely appear like a small capacity across the loading coil. The condition for automatic two band resonance has thus been satisfied as far as the director is concerned.

A somewhat similar approach is used for the reflector, the physical length of which is 23ft (Fig. 3). It is loaded with inductance for operation on 14 Mc/s, a quarter-wave stub automatically shorting out the inductor for 21 Mc/s operation. The reflector also performs a useful function on 28 Mc/s. On this band its behaviour is similar to that of two half-wave reflectors in phase. Due to the relatively wide spacing the tuning is quite broad and no critical adjustments are necessary. The reflector is spaced 7ft from the driven element and 12ft from the director.

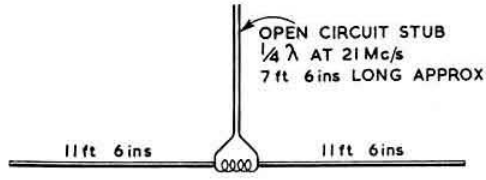


Fig. 3. Three-band reflector for 14, 21 and 28 Mc/s.

Coming now to the driven element, it would have been quite possible to employ stubs and inductors in a similar manner to the parasitic elements but it was felt that this would unnecessarily complicate the system. As will be seen later, the design finally decided upon provides several incidental advantages. It should perhaps be explained at this stage that although half-wave driven elements are normally employed in parasitic arrays this is by no means essential and in certain cases there may be definite advantages from the point of view of gain and radiation resistance in using a length other than a half-wave. The length finally decided upon, 24ft, was selected with three objects in view:—

(1) To permit operation as a five element beam on 28 Mc/s the driven element being effectively two half-waves in phase on this band.

(2) To improve the band width and radiation resistance on 21 Mc/s.

(3) To minimise reactance changes when switching from band to band.

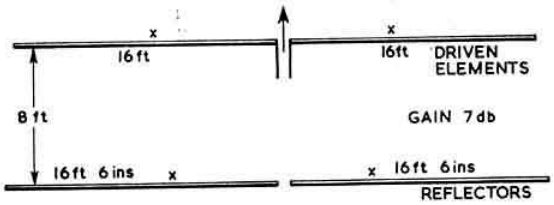


Fig. 4. Four element beam for 28 Mc/s.

The residual reactance changes are usefully employed in resonating the automatic matching unit described later.

The design of the aerial as far as 28 Mc/s is concerned was influenced to some extent by an article in the April, 1955, issue of *QST*. In this article W6AJF showed that a four element beam—Fig. 4—could be replaced by a three element array using a shortened driven element and a single director (Fig. 5). He claimed

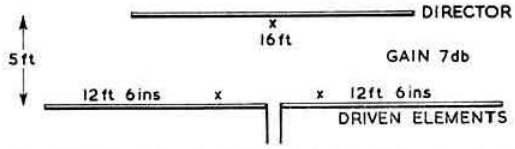


Fig. 5. Three element array using a shortened driven element and a single director.

that this arrangement gave a higher front-to-back ratio and resulted in no loss of gain, although the saving in size and weight was considerable (forward gain 7 db).

In the Minibeam an arrangement of this nature has been backed up by a reflector giving a further 2½ db gain (Fig. 6). The beam on 28 Mc/s is effectively a five element array and gives more gain and greater bandwidth than could be obtained with five elements in line. The band-width is probably sufficient to cover the American 27 Mc/s band so that in the United States the array could be correctly described as a four band beam.

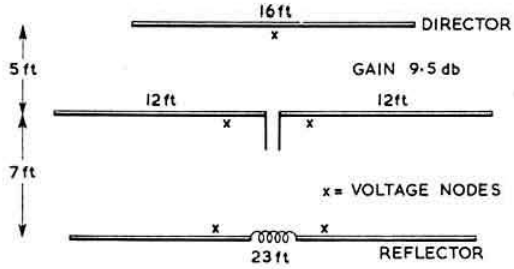


Fig. 6. The Minibeam for 14, 21 and 28 Mc/s.

Feeding the Minibeam

The matching unit is located at the lower end of the feeder. This means that all matching adjustments can be made at ground level with the beam in its final working position. This overcomes the difficulty commonly experienced with parasitic beams of a change in feed impedance as the aerial is raised to its final working height with a consequent increase in standing wave ratio. This can often entail serious loss with coaxial type feeder.

The feeder recommended for use with the Minibeam is 300 to 450 ohm open wire line. This value was selected because it gives the lowest average standing wave ratio over the three bands covered. Losses due to standing waves are extremely small with this type of feeder. It is not always appreciated how much power is lost with the normal type of coaxial cable. With low impedance feeder and a T- or Gamma-match it is often found, due to changes of reactance, that the standing wave ratio may rise to 3.5:1 or more at the band edges even when the s.w.r. at the band centre has been reduced to a satisfactory figure. The writer is convinced that in many amateur aerials much of the power is lost before it ever reaches the radiator. With open wire feeder, however, reactive components can be largely ignored and may even be put to some useful purpose. This is what led to

the idea of a matching unit which could resonate automatically on each band.

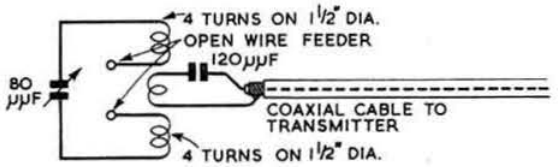
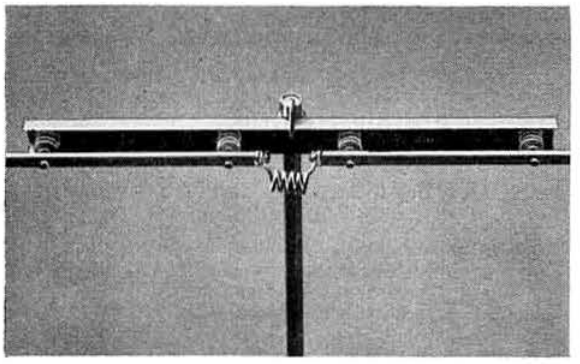


Fig. 7. The Minibeam automatic aerial matching unit.

The impedance, as seen at the bottom of the feeder on 21 Mc/s, is arranged to be largely resistive. A series tuned circuit approximately resonant at 21 Mc/s is connected across the end of the feeder. If the driven element and feeder length are suitably chosen an inductive component will appear at the lower end of the feeder on 14 Mc/s. Providing the L/C ratio is correctly chosen this inductive component appearing in series with the tuned circuit will automatically de-tune it to a lower frequency, i.e., 14 Mc/s.

On 28 Mc/s an opposite effect occurs. On this band a capacitive reactance appears at the bottom of the feeder automatically shifting the tuned circuit to a higher frequency, i.e., 28 Mc/s. It will be apparent that if the series tuned circuit is coupled to the transmitter with a coaxial link it is possible to have an aerial tuning unit which will resonate automatically on three bands without adjustment. To make up any random variations that may occur in practice a trimmer condenser can be provided on the tuning unit but with the model constructed by the writer this condenser, once set, requires no further adjustment when changing from band to band.

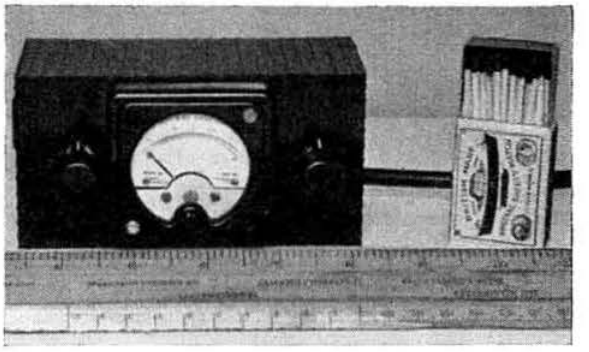
With a two turn coupling link correct transmitter loading was obtained on 21 and 28 Mc/s but on 14 Mc/s coupling was found to be slightly less than optimum. To correct this the reactance of the link at 14 Mc/s was tuned out by a series condenser of approximately 120 $\mu\mu$F. This provided tighter coupling on this band without affecting the other two bands to any marked extent.



A close-up of one of the loading coils with the stub tucked into the hollow boom.

The automatic matching unit (Fig. 7) is not, of course, an essential part of the beam. The 450 ohm balanced line can, if desired, be connected directly to any aerial tuning unit of normal pattern. With an ordinary parallel tuned circuit it is probable that all three bands could be covered with a single coil providing the tuning condenser has a sufficiently large maximum capacity.

For correct operation with the automatic matching unit the feeder should be cut to a length of between 38 and 40ft. If a normal type of aerial tuning unit is used



Front view of the automatic aerial matching unit. Its size may be judged by the box of matches to the right of the picture.

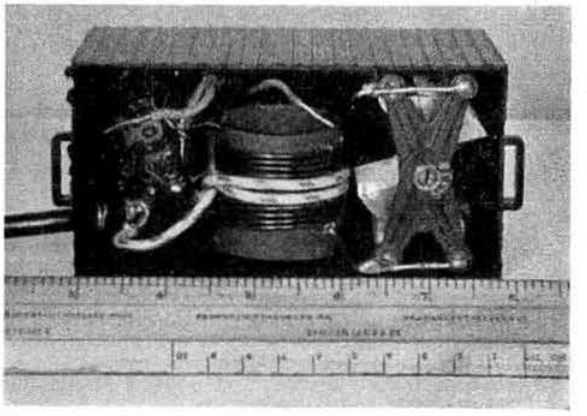
the system can be operated with almost any length of feeder, but in order to maintain a resistive termination on all three bands a feeder about 56ft long is recommended.

If the two feeder legs are strapped together the aerial will operate quite efficiently as a top loaded vertical on 3.5 Mc/s. A switch is provided on the Minibeam matching unit for selecting this condition when 3.5 Mc/s operation is desired.

The circulating currents in the matching unit are relatively low, with the result that power loss is negligible, and quite small coils can be used without fear of over heating. The circuit tunes most sharply on 14 Mc/s, and once it has been resonated on this band by means of the trimmer condenser the band-width on 21 and 28 Mc/s will generally be found adequate to accommodate these two bands without further adjustment.

Comparison with Full-sized Arrays

On 21 Mc/s the array is a normal three element Yagi except that the radiation resistance and gain are somewhat higher than normal due to the extended driven



Interior view of the automatic matching unit.

element. On 14 Mc/s the gain is about 1 db less than a full-sized beam due to the use of shortened elements. It was decided not to make the director resonant on this band as it would have resulted in too great a loss of band-width and radiation resistance. It does, however, help to improve the front-to-back ratio and lower the angle of radiation by a small amount. A number of checks against full-sized three element beams on 14 Mc/s have resulted in surprisingly favourable comparisons on the score of signal strength.

The writer would like to express his appreciation of the help given by Mr. A. Woolvern (G3HLS) and many other amateurs in checking the performance of the system on 14 Mc/s. Matched against the three element wide-spaced beam at G3HLS which weighs about 700 lb. it was found that the Minibeam could put a signal into Australia, New Zealand and the United States which was in most cases of identical strength and rarely more than one "S" point down. ZD3BFC in Gambia rates the loudest signals from England on 14 Mc/s in the following order:—G6BS, G2AMG, G3AWZ, G3HLS, G4ZU, etc.

On 21 Mc/s numerous checks were conducted with the help of G2CDI, G5SD, G3GKF, G2CCD and G3HCU, to mention only a few of the many willing helpers. The array seems to be capable of holding its own with all comers on this band and the same applies to 28 Mc/s. During poor conditions on the latter band the signal from the Minibeam is often reported as the only one getting through the noise in Australia and New Zealand. With 28 Mc/s wide open the large number of replies to a CQ call can sometimes become rather embarrassing.

On the score of front-to-back ratio, measurements made on site were checked against on-the-air reports. G2MI at a distance of about 5 miles provided the following reports:—

Band	Front of Beam	Back of Beam
14 Mc/s	S9 + 60 db	S3
21 Mc/s	S9 + 60 db	S6
28 Mc/s	S9	S3 (listening on 21 Mc/s aerial)

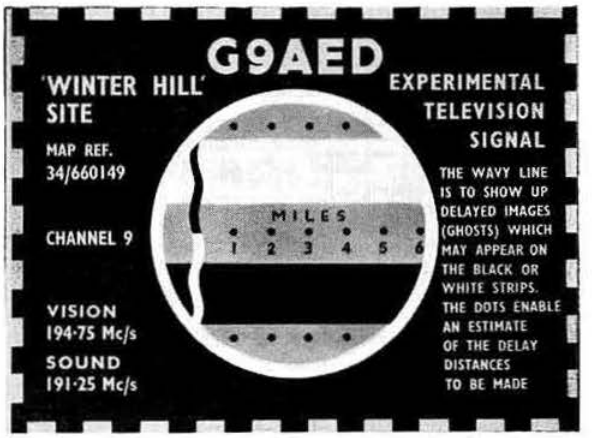
Checking simultaneously with G2CDI, 60 miles to the west and G5SD, 10 miles to the east, provided these results:—

Band	Station	Front of Beam	Back of Beam
21 Mc/s	G2CDI	S9 + 40 db	S4
	G5SD	S9 + 10 db	S3
28 Mc/s	G2CDI	S9 + 20 db	S3
	G5SD	S9 + 10 db	S4

The front-to-back ratios obtained in this way are noticeably greater than measurements made on site but serve to indicate that the discrimination is more than adequate for all normal purposes.

* * *

The principle of stub switching can, of course, be applied to other types of array and the writer is experimenting at the moment with a compact two band beam, a two band ground plane and a three band beam where loading coils can be eliminated. It is felt, however, that the arrangement described herein is likely to be generally most attractive, and it is hoped that many amateurs who have so far been deterred from erecting a beam, due to lack of space, may be encouraged to try the system. Its use should enable them to compete successfully on the crowded DX bands of today.



This test card will be transmitted from the Belling-Lee Experimental Band III television station at the I.T.A. site on Winter Hill, Lancashire. Transmissions are expected to commence this month, the hours of operation being as follows: Weekdays 10 a.m. to 1 p.m. and 2 p.m. to 5.30 p.m.; Saturdays 10 a.m. to 1 p.m. It is hoped that it will eventually be possible to commence transmissions at 9.30 a.m. There will be no operation on Sundays or Bank Holidays. G9AED is a Belling-Lee transmitter and the Independent Television Authority is not responsible for the quality or material. The transmitter was built by Belling & Lee Ltd. to prove certain technical points and to provide a service to the radio industry.

(Photo by courtesy of Belling & Lee, Ltd.)

Holiday in Italy

MEMBERS are no doubt aware that an I.A.R.U. Region 1 Conference is to be held in Stresa, Italy, next June.

Mr. Frank Glynn (G3GVZ), who is connected with a Travel Agency, has notified the Society that he is making arrangements for a party of radio amateurs, with their ladies and friends, to spend a holiday in Stresa during the Conference period.

The duration of the holiday will be 14 days (June 10 to June 23) and the inclusive cost will be 37 guineas. For parties of four or more persons (e.g., from the same town group or club) reductions will be made.

Further details can be obtained from Mr. Glynn at 13 Station Road, East Grinstead, Sussex (Telephone: East Grinstead 3667).

Birmingham District Meeting

to be held on

SATURDAY, APRIL 7, 1956

at

THE MIDLAND INSTITUTE

PARADISE STREET, BIRMINGHAM

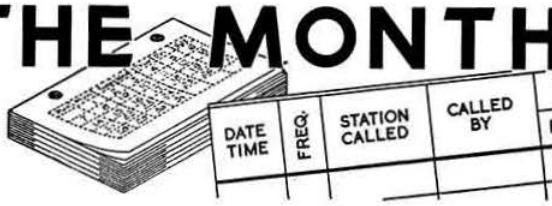
Programme

Assemble	2.15 p.m.
Business Meeting	2.30 p.m.
Lecture: "The Antennamatch" by Council Member F. Hicks-Arnold (G6MB)	3.30 p.m.
Film Show	5.00 p.m.
High Tea	5.30 p.m.

Tickets, price 7/6 each, may be obtained from G. A. Swinnerton Esq. (G6AS), The Staithe, Grange Road, Olton, Solihull, not later than April 2, 1956.

The Executive Vice-President (Mr Douglas Findlay, G3BZG) and Mr Leon Newnham (G6NZ) will be present as representatives of the Council.

THE MONTH ON THE AIR



By S. A. HERBERT (G3ATU)*

THE past month has brought a mixed bag of DX for the delectation or otherwise of the faithful. Ten, and indeed fifteen, have suffered a set-back of late and the people who specialise in those two bands must have had rather a thin time. However, the sun-spot count is increasing in a gratifying way, so there is no need for alarm or despondency on that score. As to the other bands—forty and eighty seem much poorer than they were a year ago, probably on account of the migration to higher frequencies. Top Band has been fair to good, with some welcome activity from the Central American area. As for twenty, it has varied from downright poor to positively brilliant. In short, it was very much a matter of being on at the right time.

Twenty Metre DX

Which seems as good a way as any of opening the monthly proceedings. The most interesting happenings have taken place after dark when, on occasion, a goodly selection of the more "rabble rousing" kind of DX has shown up. ZL signals have been coming through during the evenings for some time, although weakly for the most part, but when VR2s pop up and even YJ1DL appears briefly above the noise level, things are happening. To add fuel to the flames, good signals have been arriving from the Antarctic and sundry lucky types have worked a new country in VP8BK (South Georgia), who has been active on c.w. from about 19.15 onwards. Happy is the owner of a TVI—proofed rig!

G3AAE (Barnet) made the most of an opportunity to work FP8AP (19.15), FO8AD (09.30), FB8BS (17.30), I5AAW and VP8BK (19.15), all new ones. John remarks that for real DX, 14 c.w. has his money. He is still in the queue for FB8ZZ (New Amsterdam) and VK1RA, who appear most days (16.00-17.00) and would like to hear YA1AM. **G6CJ** (Stoke Poges) raised YJ1DL after watching him for two or three days and carefully choosing the moment to "strike". The YJ is on 14010 most days up to about 08.15 and is blotted out from time to time by the awful teleprinter noise near him. Dud called him during one such period and immediately got a reply! **G3KBH** (Gravesend) spent most of his last vacation repairing damage to the beam and pylon which suffered during the October gales. A strainer parted and the whole lot collapsed—on to the greenhouse, of course. So Mike and his father (G3ILA) are using a dipole while the damage is being righted. DX working was hampered by masses of S9 Europeans calling "CQ DX" on top of it, but PI1LS (Weather Ship *Cirrus*), VE8WN, VK6EJ, VP6GC and YI2AM were hooked. The YI is always in demand and one QSO he had with a G was interrupted by a YU2, who called '2AM every time he stood by for the G. Then, every time the YU finished up came an SM6 calling XU2. Ah well!

B.R.S.20106 (Petts Wood) heard 119 countries in 18 days, which convinces him that conditions are much better on the whole than in 1955. Norman still prefers twenty for consistent DX and found the tea-time period good. Later, he noted openings to the Pacific and logged YJ1DL, VR2AD (16.51-R5S6; W2HJH answered his "CQ") and VP8BK. At the same time, FB8, VQ4 and YI were heard calling FK8AC. Various times of the day produced VP5DC, 3W8AA, FB8ZZ, 8BS, 8BR, FY7YE (09.45), YA1AM (14.20), VK7UW, OY2H, LU3ZH (Antarctica), ZS9G, VS9AS (G3ANK), PZ1BS, YI2RP, UH8KAA and UA0SK, all on c.w. On phone, an interesting catch was SV6FP (Crete, 18.37 on January 17). **B.R.S.19107** (Beckenham) has been hearing ZS2MI (Marion Is.) almost nightly on phone, while FB8ZZ and VK1RA are frequently there on c.w. YA1AM was logged at 14.05, which seems a good time of day for Gs to work him. John was pleasantly surprised at receiving a QSL from JZ0AG, but thinks a little pressure applied by a Dutch friend of his helped to do the trick. **B.R.S.20317** (Bromley) unearthed ZL4BQ (18.40), ST2NG, VEs '4RO, '7HB, '7JV, '7XM, '8WN, LJ3D (Norway!), ZS3HW, '7D, ZD2FNX, FB8ZZ (14052, 18.20; 14026, 15.40 to 16.20), VP8BK (up to 20.35), LU9ZB, FP8AP, VP4LW, '6UN, '7NS, '9BM, KH6ES, FY7YF, PZ1LO, VR2BZ (14056, 20.50), VQ8AG and XE3AY for an impressive c.w. tally, while hearing phone from ZS3AH, FF8AK and '8AP, ZS2MI, OQ5HH and KG6AFX. **B.R.S.20416** (London, S.E.12) found some good phone openings to Africa around 17.00-18.00 and logged ZS2MI, ZS2, 3, 5 and 6, ET2AG, ZD3BFC, VO6AE, VE7JB and LX1DC. **B.R.S.20135** (Newport, I.o.W) had an unfortunate start to the New Year as he was without his SX28 for much of the time and had to fall back on Sunday morning use of the domestic receiver, which covers most of the amateur bands, but which misses ten and twenty metres. Before the SX28 left, he logged VKs '4TT, '4MK, '5HW and '6FD, VE7, ZE6JJ, ZS2MI and ZD3BFC. **B.R.S.20669** (Brighton) is doing well with a miniature "all dry" 1-V-1 portable, on which he logged ZS2MI, ZS1JA and ZS4CA. **A.1328** (London, W.1) has added a 6SA7 converter to his AVR-20 receiver and is busy adjusting it. 5A and CN8 phones heard so far should be the prelude to better things.

G2BPJ (Leeds) was the G station who worked ZA1ZO mentioned last month and he sent his QSL via the Bureau as requested only to have it returned marked "Unlicensed station". Hardly surprising, but very annoying for '2BPJ, who could have used a ZA confirmation to add to his 96 already collected on phone. **G3ATU** came across some odd items on c.w. LA3OF/E turned out to be in Lillehammer and explained that /E was used by Norwegian portables. ELES/MM pops up from time to time, operating from a ship on the Atlantic route. With a call like that he would seem more suited to operation on the shipping frequencies. As for KH4EV, whose appearance one lunch time caused an unwarranted stir, his QTH—Gentrusben (try to find *that*

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

one on your atlas) and name—Solos—should be fishy enough to deter all but the most dim-witted!

VK3WIA was very active from the Pan-Pacific Scout Jamboree at Clifford Park, but had difficulty in hearing Europe. '3ATU raised him after trying for three days and was his first G, but as he was working strings of Ws, his Vee beam must have been in that direction. VS9AS is very active from Aden and is dealing as best he can with the devotees of that well known DX working technique which lays it down that the rarer the DX the longer and slower you call him. One plea of his—"Why don't you boys make *short* calls? You'll never work DX with three minute calls"—could be used with profit by most DX stations. Eventually, it may produce results—two minute calls, for instance! **ZD9AD** on Gough Island seems to have been hanging fire, at least nobody seems to have heard of him since G5GK reported two stations working him some weeks back, so he may have had trouble. However, PY2KT was calling him at 20.30 on January 25 (14015 kc/s) on an almost dead band—no sign of the ZD9 here—so we hope he will be active from now on. **LU3ZY** was on South Sandwich and is believed still active.

Fifteen Metres

Fifteen has had more poor days than good ones of late, but **G3AAE** expects an improvement this month. On c.w., he contacted OX1TR, MP4QAL, ZB2I, KG6AFY and LU0AAW(/MM), while on phone he talked to YN1AA, HC1PL, VS2BD, MP4s 'BBF, 'BBW, 'BBX and 'KAC, KR6NP, 4S7HM and K5CTN/VE8. **B.R.S.20106** mentions ZL and VK, including VK7WA (12.50) and VK9XK (Papua), VS6s 'CO, 'CW, 'DE, 'DG, CR9AH, EL2P, JA1CX and VU2MD on the key. On phone, he logged ST2DB, ZD3BFC, CR9AH, VP2DL, ZD4BR, CX2AX, CE3CZ, ZS3G, DU7SV, EA9AA, TF3MB and VS6CL. **B.R.S.19107** hears KR6NP, KR6PI and VS6 regularly on phone and VE8NK is also active, while CR9AH and VK9XK are c.w. regulars. **B.R.S.20135** pulled in phone signals from VK, ZL, VU2CW, HR3HH and PZ1RM, then turned to the b.c. receiver and logged DU7SV, MP4BBW, VQ3ES, 5EK, VP6JK, UQ2AN, VK and ZL3FV.

Ten Metres

The ten metre story is a short one as we hinted earlier; as usual, phone takes pride of place in its wide-open spaces. **G3AAE** managed QSOs with VQ3ES, CX2AX, '6BM, TI3LA, ZE3JD, ZS3AB and LZ1KDP, while **B.R.S.20106** had to be content with ZS3B, ZD3BFC, ZS and VQ2. **B.R.S.19107** found the band folding somewhat but came up with ZL3JM, VS6CL and some VKs on phone and UA9KCC, UJ8KAA on c.w. **B.R.S. 20135** heard MP4BBW, ZD4BR, HC1TV, OD5BR, VP6HR, CO2TV, ZS3B and ZS4H. Nyasaland is represented on c.w. every Sunday morning by ZD6RM, who is looking for QSOs before and after his weekly "sked" with GM.

Forty Metres

B.R.S.19107, with conditions "not a patch on the past few years", still found VP2GW, VP6GC, CX6CM, OY4XX and UM8KAA, but a Dutch friend of John's heard 4S7NG (01.15) and VQ6LQ (04.00) on the c.w. end. **B.R.S.20106** kept digging through the layers and was rewarded by c.w. from UM8, KP4ADW, VP4LF (7088, 00.00), OX3LD (18.00), CM8RM, CX6CM, 4X4, ZC4 and LU. **B.R.S.20317** spent the early hours listening to VP8BR (Hope Bay, Grahamland), KG4AO, VP4LJ, CT2BO, KP4, CO and UF6, but missed HK, UL7 and UA0GF. Late news from **G3FKH,** who heard **ZD9AD** on 7060 at 20.00 G.M.T. Good work.

Eighty Metres

G6LB (Chelmsford) drew a blank on Top Band W DX and was delighted when a "CQ DX" on 3.5 Mc/s at 02.00 brought a reply from VQ2J, who seemed quite genuine, and who could perhaps make a "first" on the band. **B.R.S.20416** hears that DJ2UC on phone, claiming to be in Dusseldorf, is a pirate. A note from the real DJ2UC in Mettman/Rhld confirms this. An unusual one mentioned by **A.1328** is 9S4AC, heard on phone. **B.R.S.20106** heard 9S4CH on c.w., with VE1ZZ, UA and UB5, while **B.R.S.19107** found 4X4CJ (04.00) the only interesting signal.

French DX Contest

THE telephony section of the French Society's (R.E.F.) DX Contest will commence at 12.00 G.M.T. on March 3 and end 36 hours later. The telegraphy section will be held during the same period on April 14 and 15.

Entries should be sent to Lucien Aubry (F8TM), Traffic Manager, R.E.F., P.O. Box 42-01, Paris R.P., from whom further details may be obtained.

Motor Tour of Denmark

MR. F. G. Hoare (G2DP), of 6 Dunheved Close, Thornton Heath, Surrey, will be pleased to hear from members who would like to make up a motoring party to visit Denmark during the coming summer. The suggested period is the last two weeks in July.

Radio Amateurs' Examination

MEMBERS who wish to sit for the Radio Amateurs' Examination, set by the City and Guilds of London Institute, to be held on Friday, May 4, 1956, from 6.30 to 9.30 p.m., should apply without delay to their local technical colleges who will make the necessary arrangements with the Institute. The closing date for such arrangements is March 1, but in exceptional circumstances entries may be accepted, subject to a late fee, up to March 31, 1956. In cases of difficulty candidates should apply to the Director of Education for the county concerned.

The fee for the examination is £1.

Northampton Mobile Rally

From G2HCG come details of the Northampton Short wave Club's Mobile Rally to be held at Overstone Solarium, six miles north-east of Northampton (between the A45 and A43 roads) on April 8 from 12 noon to 6 p.m. Overstone Solarium is a lido which is being specially opened for the Rally and there will be an entrance fee to the grounds of sixpence per head. Among the interesting items on the programme are a Treasure Hunt for radio equipped cars (D/F aerials not allowed!) and a contest for the mobile station with the greatest field strength. All in all, it is hoped to make the event a pleasurable family outing with something for everyone. Meals, if required, may be booked by writing to the Hon. Secretary, Northampton Short Wave Club, 8 Duke Street, Northampton, at least seven days in advance. Lunch will be served at 1 p.m. (8/6 per person) and tea at 5 p.m. (2/6 per person). The lunch may seem expensive but it is more in the nature of a real Sunday dinner and can be thoroughly recommended.

Rally stations for "talking in" will be in operation on 1.9, 3.65 and 144.66 Mc/s using the call-signs G3GWB/A and G2HCG/A. The emergency telephone number in case of breakdowns will be Northampton/Moulton 324411. A postcard to the organisers as soon as possible to say you will be there would be a great help.

TWO METRES AND DOWN

By F. G. LAMBETH (G2AIW)*

IN an effort to track down the real reason for the grave dearth of active stations on the v.h.f. and u.h.f. bands at this time of the year, it has become evident that a large part of the defection can be traced to the impact of television. Although it is obvious that such a public service must inevitably increase its appeal to the general public as time goes on, a sense of proportion is nevertheless necessary in our reaction to it. It has been said with much reason that TV is the "greatest time-waster ever invented"—that, of course, is not the fault of television but rather of the public approach to the service. Many operators regularly state that they will be on "after TV" and it used to be thought that this implied TVI to a greater or lesser degree. In view, however, of the fact that there is no real reason for TVI from a 2m or 70 cm transmitter if properly designed and operated, another and more potent reason is not far to seek—they are probably looking at the pictures! No one would grudge this but please spare a little time in order that the v.h.f. and u.h.f. bands may remain populated. The magnetic—nay, rather hypnotic—influence of the television screen should not be permitted to tear us away too often from an activity which we should all cherish at least as much, and almost certainly more. We need the v.h.f. and u.h.f. bands and *must* continue to inhabit them, during TV hours as well as at other times.

Conditions on Two

The period January 4 to 6 was marked by very good propagation conditions due to a temperature inversion. The extremely foggy weather which usually (but not always) heralds such openings was, this time, a good omen. The open paths spread from Ireland (North and South) to Central Germany and probably further still. Scotland appears to have missed it, unfortunately, but PE1PL, at least, was heard in the West of England. Lancashire and Yorkshire stations were rock steady at great strengths for hours on end. We usually get one of these high-lights during the winter and they are very encouraging. Apart from this period conditions were, as noted last month, sometimes very dead, but with usually at least one G-DX station audible, and nearly always PE1PL.

We had a very detailed report from PA0FB (The Hague) on his experiences during the recent opening. The good conditions started on the evening of January 4 and went through fairly solidly until January 6. On January 4 many PA0s were in contact with Belgian stations as well as a few Germans. The ON4s were very strong and the DLs good. PA0FB himself worked G5KW/M that evening. DL1SE ('SEA) is reported to have worked GI3GXP (not yet confirmed); he certainly worked ON4BZ and G6NB. ON4LN had contacts with 11 different Gs on January 5 while PE1PL worked 22 Gs, twenty ON4s and DJ1VK (near Bonn). ON4BZ heard EI2W with much QSB. PA0FB worked many Gs in the Midlands; after 22.00 G.M.T. London stations began to come through and a Shropshire station was heard. G stations were not so well received in East Holland, but there DL stations were very strong. On January 6 conditions to Britain were still very good with G6LI (599) and G8MW (589) heard at midday. G2FJR was S8 (phone) at the same time.

GM6WL (Glasgow) regrets somewhat low activity, but the usual call-signs appear regularly enough, both on 2m and 70 cm. **GM2FHH** (Aberdeen) is QRT for the moment with no other local activity. **GM4QV** (Bonnybridge) will shortly be on 2m again with a 6 element beam and, by the late spring, hopes to be on 70 cm as a midway link between Glasgow and Edinburgh.

Seventy Centimetre News

F3SK (Asnières) reminds us that every Sunday at 14.00 G.M.T. the following Parisian stations call "CQ 70" beaming north-north-west: F9MX (434.7), F3JN (434.94), F3FS and F8LO (near 434.98), F9TV (434.99), F8OL (435.00), F3SK (435.06) and F8MX (435.25). F8GH (Beauvais) is usually on beaming, south-south-east to hear the Parisians.

G2BVW (Rearsby) gives details of his 70 cm gear in which the driver is the 2m transmitter at very low input into a QQV03/20 tripler driving a QQV06/40 straight through on 70 cm. A 4X150A p.a. has been used experimentally to very good effect. Tests at present indicate that 40 to 50 watts of 435 Mc/s r.f. reaches the 32 element stack. The receiver uses a 446A lighthouse r.f. stage with the crystal frequency changer built into the grid anode line into the common cascode i.f. (28 Mc/s).

G3KHA (Knowle) is trying to evolve a converter for 70 cm which is efficient without involving plumbing. **G2XV** (Cambridge) hopes to have the new 70 cm p.a. on test by the time these notes appear. **G5UM** (Knebworth) has now worked '6NB. Both were pleased to make this S7 QSO, because it marked the defeat of the Chilterns as a barrier. A subsequent schedule has shown that contact can be maintained even in bad conditions. Special recognition ought to be paid to Clem Tucker (G5DT, Wallington) for his sustained activity on the band. **'5DT** had no fewer than 1205 70 cm QSOs during 1955. In 1954 the total was 835 and in 1953 672. G5UM states that '5DT has probably done more than anyone elsé to foster enthusiasm for the 435 Mc/s band, and his consistent signal night after night is a tremendous encouragement to anyone on the band.

G8PX (Oxford) has had contacts with G3FP, '3KEQ, **'3HBW**, '5DF and '6NB making 6 counties worked. Further construction work has been done on the QQV06/40 tripler and p.a. rig, now running 30 watts input. Modification to the aerial matching stub should improve the r.f. transfer. Results so far are pleasing and more contacts are awaited.

1250 Mc/s

A very interesting report has been received from **F3SK** who is regrettably indisposed and to whom we wish a speedy recovery. '3SK thinks that the situation in Europe, judging from his recent reading of the various

*21 Bridge Way, Whitton, Twickenham, Middlesex.

Amateur Radio magazines, is lawless. International QSOs would be difficult or impossible because of the great range of frequencies used, stations being widely dispersed in this very broad band.

'3SK achieved last year a very satisfactory QSO with F8OL (who is one of their authorities on 1250 Mc/s work) using crystal controlled gear at both ends. Since then '3SK has designed and built a similar and cheaper converter effective however for the same frequency plus or minus approximately 2 Mc/s. F3JN and '8GH will also soon be active on about the same frequency.

It is noticed that some DLs are experimenting around 1250 Mc/s while some Gs are using 1290 Mc/s, others 1296, and a few appear to be designing for around 1314 (which is not in the band). F3SK considers that s.e.o. equipment is of very little use on 23 cm (or even 12 cm) because it is impossible to achieve a good noise factor on a receiver having a broad enough i.f. to receive s.e.o. transmissions—it would also be difficult or impossible to read a weak signal not crystal controlled. It is however easy to find and read a very weak signal if it is stable (crystal controlled) and its frequency is known. Whilst it is easy to QSY on transmitters from 1250 to 1300 Mc/s it is not so easy with receivers, for it is highly preferably to have the first two conversions crystal controlled, and also to use the same crystal for both to avoid " birdies." Under such conditions it is impossible to get good reception in a band wider than about 2 to 4 Mc/s; the provision of many converters would be expensive. The vicinity of 1260 Mc/s has been chosen by French amateurs for many reasons, especially because the efficiency of many 2C39s falls rapidly above 1250 Mc/s; but also because 1250 is not harmonically related to an amateur band. Accordingly, they are using 1260 which is a harmonic of 420 Mc/s. Many 435 Mc/s transmitters, if well designed, will tune to 420 with a convenient crystal, so that the output can be tripled to 1260 in a cavity using a 2C39, DET 24 or other suitable valve.

This summer it is hoped to attempt long-distance QSOs working /A on top of a hill or if possible from the summer QTH of F9CQ, who is also very interested. However, it would be necessary for the DX signals to be in the band covered by the receiver and not 30 to 40 Mc/s higher or vice versa! British amateurs are asked to co-operate by making known their views.

President's Private Address

MEMBERS are asked to note that the private address of the President (Mr. R. H. Hammans, G2IG) is 34 Crofton Lane, Orpington, Kent, and not 28 Tudor Way, Petts Wood, Orpington, Kent, as shown in the first printing of the 1956 *R.S.G.B. Amateur Radio Call Book*. Mr. Hammans' address is shown correctly in the second printing of the current edition of the *R.S.G.B. Call Book*.

London Lecture Meeting

Friday, March 23, 1956

"COLOUR TELEVISION"

by

P. CARNT, B. Sc. (Eng.), A. M. I. E. E.

(Research Laboratories, The General Electric Company Ltd.)

at the

Institution of Electrical Engineers

Savoy Place, Victoria Embankment

Buffet Tea 5.30 p.m. **Lecture 6.30 pm.**

R. A. E. N.

By C. L. FENTON (G3ABB)*

ELSEWHERE in this issue will be found the results of the R.A.E.N. Rally. Every log has been most carefully scrutinised and checked. Thanks are due to those who, although not participating, sent in check logs, and to all who submitted many helpful suggestions and criticisms, which will be borne in mind when planning the next Rally.

On Sunday, December 18, the R.A.E.N. Committee Chairman, Lt.-Col. A. C. Dunn (G2ACD) accompanied by G3ABB and G2AHL visited the British Red Cross Society's Training Headquarters at Barnett Hill, near Guildford in Surrey. During the visit G2ACD lectured to the Red Cross representatives on Amateur Radio in general and on the history and aims of R.A.E.N.. While the lecture was being given G5KW arrived with mobile 2 m equipment, which was rapidly installed in the lecture theatre. The equipment was then used to contact G6AG/M and G8KW/M, who were en route to Barnett Hill. Contact was established at over twenty miles range at RS59, and the two cars were then directed to their destination, contact being maintained throughout the rest of their journey. This very convincing demonstration of amateur mobile equipment was of very great interest to the Red Cross authorities, and discussions are now taking place to ensure close liaison with them in the future. Details of any such arrangement will be published as soon as possible. Thanks are recorded to G5KW, G6AG and G8KW, for having made this demonstration possible.

R.A.E.N. In Action

During January, the East Coast (particularly Yorkshire and Lincolnshire) experienced exceptionally bad weather. Full-force gales lashed the coast and many ships had to run for shelter behind Flamborough Head and in the Humber. Five amber warnings and one red warning in seven days! On land, blizzards isolated villages, and telephone communications were disrupted.

On January 8, F. R. Petersen (G3ELZ), the County Controller for Lincolnshire and his group went into action. G3ELZ's aerial came down in a 50 m.p.h. gale but despite snow and sleet he soon had his station back on the air to contact G2FT in Mablethorpe. Listening watch was then maintained as circumstances permitted. On January 9, G3ARX/A at Anderby, using a rig powered by a motorcycle battery, reported no water or electricity in the village which was isolated by snow drifts. Schedules were arranged with G3ARX/A in case help was needed. The following day G3ARX/A reported the situation unchanged but asked for news of a man who had been landed during the weekend from a Grimsby trawler and taken to hospital. The man's wife was unable to obtain news as all telephones were out of order. A full report was later obtained from the hospital which had been trying to get an urgent message through to Anderby without success.

Watches and skeds were maintained until the situation improved. All will agree that G3ELZ and the Lincolnshire group did a grand job. Had they had full official co-operation they might well have done even more.

New Appointment

P. C. Ives (G3ASQ), 10 Welsford Road, Eaton Rise, Norwich, has been appointed County Controller for Norfolk.

**Niarbyl, Gay Bowers Road, Gay Bowers, Danbury, Essex.*

Society News

Presidential Address

NO less than six Past-Presidents of the Society were present at the Institution of Electrical Engineers, London, W.C.2, on Friday, January 27, 1956, when Mr. R. H. Hammans (G2IG) delivered his Presidential Address on "The Communication Aspects of Single Sideband." Before beginning his Address Mr. Hammans was invested with the President's Chain of Office by the Immediate Past-President, Mr. H. A. Bartlett (G5QA). Other Past-Presidents in attendance were Messrs. A. O. Milne (G2MI), L. Cooper (G5LC), W. A. Scarr (G2WS), V. M. Desmond (G5VM), and A. D. Gay (G6NF).

The Address was recorded on tape by Mr. Eric Yeomanson (G3IIR) for inclusion in the R.S.G.B. Recorded Lecture Library.

Messrs. Cooper, Hicks-Arnold, Davie, Dedman, Milne, Spencer and Babbs took part in the discussion. A précis of the Address and the discussion will be published in an early issue of the BULLETIN.

Council Ballot

THE following is the result of the ballot for the election of four Ordinary Members to serve on the Council:—

F. Hicks-Arnold	(G6MB)	893 votes.	Elected
W. H. Allen	(G2UJ)	888 ,,	,,
L. E. Newnham	(G6NZ)	769 ,,	,,
K. E. S. Ellis	(G5KW)	709 ,,	,,
F. G. Lambeth	(G2AIW)	551 votes	
D. Deacon	(G3BCM)	528 ,,	
A. C. Dunn	(G2ACD)	492 ,,	
F. A. Russell	(G3BHS)	392 ,,	
S. L. Jacobs	(G3AAQ)	319 ,,	

Number of Ballot Papers Accepted ... 1,431
Number of Ballot Papers Not Accepted ... 14

The Ballot was scrutinised on February 1, 1956, by Messrs. F. W. Fletcher (G2FUX) and G. A. Leicester (G3IKC).

V.H.F. Convention

APPRECIATING the very great interest which is being shown in v.h.f. and u.h.f. work throughout the country the Council has decided to hold a V.h.f. Convention in London on Saturday, May 26, 1956. The venue will be the Bonnington Hotel, W.C.1.

A special Committee under the Chairmanship of Past-President and Council Member W. A. Scarr, M.A. (G2WS) has been set up to organize the Convention. Others serving on the Committee are the Chairman of the London U.H.F. Group (Phil Thorogood, G4KD) and the Society's I.A.R.U. V.H.F. Liaison Officer (Fred Lambeth, G2AIW).

The Convention is being arranged in co-operation with the London U.H.F. Group

It is anticipated that features of the Convention will include an exhibition of members' equipment, technical lectures, discussions and a dinner in the evening. The Committee will, however, be pleased to receive suggestions from v.h.f. enthusiasts as to other features that could usefully be introduced. Letters intended for the Committee should be sent c/o the General Secretary.

Note the date—Saturday, May 26, 1956.

Morse Examinations

THE G.P.O. have informed the Society that because of rising costs the fee for the Morse Test will be increased to 10s. as from April 1, 1956.

The 7 Mc/s Band

THE Society has been advised by the G.P.O. that the international implementation of the Atlantic City high frequency broadcasting bands is now under consideration and that the International Telecommunication Union proposes to recommend a target date of March 1, 1956, for clearing other services from the bands allocated exclusively to broadcasting. This will necessitate withdrawing from amateurs the use of the band 7150-7300 kc/s and restricting their 7 Mc/s operations as from March 1, 1956, to accord with the Atlantic City allocations, i.e.:

7000-7100 kc/s exclusive use.
7100-7150 kc/s shared with broadcasting (broadcasting has priority).

The formal amendment of existing licences will be carried out nearer to the time when the new allocation comes into force.

Slow Morse Practice Transmissions

THE following changes have been made to the schedule of Slow Morse Transmissions published on page 340 of the January, 1956, issue of the BULLETIN.

In the Wirral, G3CSG has ceased transmissions and has been replaced by G2FNI, G3EGX and G3ERB who will operate on rota on Friday evenings from 8 to 9 p.m.

G3JMP (Bristol) has ceased transmissions and has been replaced by G2HDR on 1860 kc/s at 19.00 G.M.T. on Tuesdays.

G3JBU (Northampton) has also ceased transmissions. In Yorkshire, G3KLZ, G3INW (or G3KSS) and G3KEP operate on 1860 kc/s at 21.30 G.M.T. on Fridays.

Silent Keys

FRED BOAD (G8IF)

The death occurred on December 26, 1955, of Mr. Fred Boad (G8IF) of South Shields.

Mr. Boad was Honorary Treasurer of the South Shields and District Radio Club for many years, and although not very active recently he was a keen supporter of local R.S.G.B. activities.

The sympathies of all members are offered to Mrs. Boad and her family.

J. O.

DR. E. C. S. MEGAW (EX-GI6MU, G6MU)

We record with deep regret, the death, suddenly, on January 25, 1956, at the age of 48, of Eric Christopher Stanley Megaw, M.B.E., D.Sc. Dr. Megaw was chief officer in the Royal Naval Scientific Service.

When still a schoolboy Eric Megaw became prominent among radio amateurs in Northern Ireland. Licensed as 6MU about 30 years ago, many old timers will remember working him under the call XG6MU when he was en route to and from the United States. He contributed many important articles to the BULLETIN, including one of the first descriptions of the Magnetron oscillator. He frequently lectured to the Society prior to the war.

While employed in the Research Department of the General Electric Co. his work attracted the attention of both Rutherford and Marconi. It was owing to his research that seagoing communication equipment, using resonator-stabilized magnetrons, was available at the beginning of the last war.

In 1933 his work on methods of generating very short waves gained him the Duddell Premium of the Institution of Electrical Engineers. In 1940 he helped to produce the pulse magnetron which provided the transmitter for the first 10 cm radar sets on both sides of the Atlantic. He was appointed an M.B.E. in 1943. In 1946 he joined the Admiralty as Superintending Scientist of the Radar Branch of the Signal Establishment. He was a Past-Chairman of the Radio and Communications Section of the I.E.E.

Dr. Megaw, who had been a member of the R.S.G.B. continuously for 30 years, is survived by his wife and two sons, to whom we offer our deepest sympathy.

Tests and Contests

D/F Meeting

A MEETING between members of the R.S.G.B. Contests Committee and representatives of local societies and R.S.G.B. groups interested in D/F work was held in London on December 4, 1955.

Following a discussion on the working of the 1955 programme it was agreed that the rules should remain the same for 1956, with the addition of two later scheduled transmissions in qualifying events. Mr. Fryer (Hon. Secretary, Contests Committee) explained to the meeting the difficulties experienced by the Committee in organizing the National Final outside the London area. After discussion it was agreed that the number of qualifying events should be reduced to four and that the National Final should be organised by one of the active groups not holding a qualifying event.

In view of the reduction in the number of qualifying events it was decided that the first four successful entrants in each event should qualify for the Final.

The 1956 programme was arranged as follows:—

May 6—Slade Radio Society.
June 10—Edgware and District Radio Society.
June 24—South Manchester Radio Club.
July 8—High Wycombe.
September 9—National Final (BTH Rugby Group).

Due to pressure on BULLETIN space it has been decided not to re-publish the rules in full this year, but a copy may be obtained by anyone interested upon application to Headquarters.

Results—R.A.E.N. Rally 1955

Call-sign	Points	Call-sign	Points	Call-sign	Points
G3ISZ	1880	GI3BHX	390	GI3DZE	104
G2ABR/P	1800	GI3GGY	390	G2YS	103
G2FT/P	1680	GI3ILV/P	370	G2CPS	99
G3ELZ/P	1410	G3GMN/P	362	G3JMJ/A	90
G3JCT/M	1270	G5VO	340	G3JYH	86
G3EGX/P	1110	G3JXF	330	G3GBH	85
G3DML/M	925	G3FOO	320	G3CNO	80
G3EHM	800	G3ERB	279	G3INQ	79
G3HVI	775	G2ACZ/P	260	G3FVP	75
G5LL	660	G3UD/P	252	G3ATI/M	50
G2ADR/M	645	G3GYV	250	G3COY	48
G3EFA/P	575	G3ARX	250	G3CGD	40
G3GZX	548	G3EBH	235	G3DPH	37
G3HSZ/M	501	G3IIH	195	G3MC	6
G8PG	460	G2FNI	175	G5RQ	4
G3JOH	420	G3HRK	135	G3IUG	2
G3FZW	400	G3GVM	130	G3GJY/M	Nil
G3FVW/P	400	G2ABK	128		

Results—R.A.E.N. Rally 1955, Receiving Section

Name	Location	Points
K. L. B. Dalby	Louth	113
D. G. Fowler	Scarborough	54
R. J. Bruce	York	36
D. Smith	Grimsby	26
G. E. Austin	Birkenhead	11

The following are thanked for submitting check logs: G3AWM/M, G3DJD, G3DQ, G3IMP, G3JKV, G3JOO, P. Smith, J. Beavis, G. Foulser, J. Goldfinch, and S. J. England.

R.S.G.B. News Bulletin Service
GB2RS 3600 kc/s
Sundays—10.00 G.M.T.

Representation

THE following are additions to the list of Town or Area Representatives published in the December, 1955, issue of the BULLETIN:—

Region 1—Cheshire
Stockport
D. J. Birch (G3AOO), 106 Nasmyth Street, Denton, Manchester.
—Lancashire West
Southport & Formby
N. Horrocks (G2CUZ), 32 Sandbrook Road, Ainsdale, Southport.

Region 2—Northumberland
Hexham & District
F. J. U. Ritson (G5RI), Red Lion House, Hexham.
—Yorkshire East
Scarborough
P. B. Briscombe (G8KU), "Roseacre," Irton, near Scarborough.
—Yorkshire West
Bradford
A. W. Walmsley (G3ADQ), 6 Hilton Road, Legrams Lane.

Region 5—Bedfordshire
Luton
F. W. Tyler (G3CGQ), 94 Alexandra Avenue.

Region 7—London East
East Ham
W. H. Peek (G2ZZ), 180 Lathom Road, East Ham, E.6.
Harlow
H. Ivan Wright (G3IVA), Restharrow, Hart Road, Harlow, Essex.
—London South-West
East Molesey
A. Mears (G8SM), 4 Broadfields, East Molesey, Surrey.
—London West
Edgware & Hendon
P. A. Thorogood (G4KD), 35 Gibbs Green, Edgware, Middlesex.
Slough
F. J. T. Tuckfield (G2HOX), 13 Quaves Road, Slough, Bucks.

Region 9—Devonshire
Plymouth
W. W. Smith (G3GOV), 62 Cobbett Road, Honicknowle.

Region 13—East-, West- & Mid-Lothians
Edinburgh
G. P. Millar (GM3UM), 8 Plewlands Gardens, Edinburgh 10, Scotland.

Region 15—Northern Ireland
Belfast
R. Barr (GI5UR), 4 Dunkeld Gardens.

* * *

Vacancies

Messrs. G. B. Moser (G3HMR) and J. R. Petty (G4JW) have resigned as Representatives for the Counties of Westmorland and Yorkshire respectively. Mr. Petty is now Region 2 Representative.

Mr. J. B. Walker (G3CYS) has resigned as representative for the town of Pontefract.

Nominations for their successors should be made in the prescribed form and sent to reach the General Secretary not later than March 31, 1956.

N.F.D. IS COMING!

Only about 90 Town Representatives have so far been appointed for the current term of office. Remember—only properly appointed T.R.'s or A.R.'s may submit N.F.D. applications. Has **your** group nominated a new T.R. yet?

N.F.D. entries must be postmarked not later than March 31, 1956

Regional & Club News

Army Wireless Reserve Amateur Radio Society.—Membership of this new society is open to any serving or past member of the Army Wireless Reserve Squadron or any other Royal Signals unit and to serving members of any other non-Signals unit interested in Amateur Radio. Society activities are entirely non-military in character. Full details may be obtained from the Chairman, A. D. Taylor (G8PG), 37 Pickerill Road, Greasby, Wirral, or from the *Hon. Secretary:* J. A. Bladon (G3FDU), " Madresfield," Jack Lane, Davenham, Northwich, Cheshire.

Bristol.—On January 20, L. G. Froud, Officer-in-Charge of the P.O. Radio Station, Highbridge, spoke about the " Post Office Ship-Shore Radio Services." At the same meeting the " G5FS Memorial Challenge Trophy " was awarded to E. C. Halliday (G3JMY) who was judged to have delivered the best local lecture during 1955. On March 17 at the Royal Fort, Frank Hicks-Arnold (G6MB) will give a lecture and demonstration on " The Antennamatch." This special meeting will be open to all members in the south-west, further details of which may be obtained from the *Hon. Secretary:* D. F. Davies (G3RQ), 51 Theresa Avenue, Bishopston.

British Amateur Television Club (Midland Group).—At the January meeting G3KBA/T gave an excellent closed circuit demonstration of telecine equipment. Meetings are held on the second Thursday in each month. All interested in Amateur Television, particularly optical experts, are invited to contact the *Hon. Secretary:* F. J. Rawle (G3FHZ), 16 Kings Road, New Oscott, Sutton Coldfield, Birmingham 23.

Crystal Palace & District Radio Club.—At the January meeting George Hicks (G4JP) demonstrated the new R.C.A. High Fidelity Amplifier. Among the records used was one with a dynamic range of approximately 50db. The A.G.M. of the Norwood R.S.G.B. Group and the inaugural general meeting of the club (which incorporates the Group) will be held at Windermere House, Westow Street, S.E.19, on February 18. Following the business meetings, the contest for the Ann Cup and Trophy for home constructed equipment will take place. Further details may be obtained from the *Hon. Secretary (pro tem):* G. M. C. Stone (G3FZL), 10 Liphook Crescent, Forest Hill, London, S.E.23.

East Kent Radio Society.—A room for permanent headquarters has been obtained and meetings are held regularly. A social evening is planned for the end of February. At the A.G.M. 28 members were present. *Hon. Secretary:* D. Williams, " Llandogo," Bridge, Canterbury.

Edgware & District Radio Society.—The headquarters of the society are now at Canons Park Community Centre, Merrion Avenue, Stanmore, where improved facilities are available. Meetings are held on Wednesday evenings. The Centre is adjacent to Stanmore Station on the Bakerloo Line. *Hon. Secretary:* E. W. Taylor (G3GRT), 99 Portland Crescent, Stanmore.

Lothians Radio Society.—Meetings at 25 Charlotte Square, Edinburgh, have been arranged for 7.30 p.m. on February 23 (" Police Radio," by Chief Inspector Bruce, B.E.M.), March 9 (" Two Metres Again," by Rev. W. M. Ferrier, GM3BDA), March 22 (Brains Trust) and April 5 (Bring and Buy Sale). The society's Annual Social will be held at the Scotia Hotel on April 6, commencing at 7.30 p.m. *Hon. Secretary:* John Good, 24 Mansionhouse Road, Edinburgh 9.

North Kent Radio Society.—At the A.G.M. the following were elected: *President:* A. K. Wall (G2YZ); *Chairman:* Mr. Gemmell; *Hon. Secretary:* F. C. Beadle (G3KLI); *Assistant Hon. Secretary:* H. E. Duthie (G3JBK); *Hon. Treasurer:* Mr. Clinch; *Committee Members:* R. G. Crowther (G3FJU), D. W. Wooderson (G3HKX), G. S. Garrett (G3IJW), E. C. Hastead (G3BHF), C. J. Leal (G3ISX) and Mr. Cochrane. The society meets on the second and fourth Thursdays of each month at the Congregational Hall, Clock Tower, Bexleyheath. Visitors and new members are always welcome. Further information may be obtained from the Hon. Secretary at 56 Balliol Road, Welling, Kent.

Nottingham & District Amateur Radio Society.—At the January meeting, R. Bilham of Rediffusion (East Midlands) Ltd. gave an excellent lecture on " Wire Broadcasting." A film show is arranged for February 17. *Hon. Secretary:* M. Dransfield (G3JKO), 1 Cavendish Crescent South, The Park, Nottingham.

QRP Society.—E. Banks (GC2CNC), President of the society, won the Kaleveld Cup Contest for the third year running in 1955 and the trophy has accordingly been awarded to him permanently. During the last five years, GC2CNC has won the cup four times and come second on the other occasion. *Hon. Secretary:* John Whitehead, 92 Rydens Avenue, Walton-on-Thames, Surrey.

Ripley Amateur Radio Club.—The club, which was formed in September, 1955, meets at 7 p.m. on Tuesdays at Shirley Road Schools, and already has more than 40 members. Lectures and demonstrations are features of the meetings. Prospective members are invited to obtain further information from the *Hon. Secretary:* T. Darn (G3FGY), 42 Laurel Avenue, Ripley, Derbys.

Shefford & District Amateur Radio Society.—The society meets on Friday evenings at Digswell House where refreshments are available. Technical lectures are arranged for February 17, March 2 and March 16, while a film show will be given on February 24. A Mullard Filmstrip Lecture will take place on March 9. Prospective members and visitors will be welcome at all these meetings.

Slade Radio Society.—Meetings will be held at Church House, High Street, Erdington, on February 17 (Junk Sale), February 24 (D/F Meeting), March 2 (" Characteristics and Application of Selenium Rectifiers," P. Barker and J. A. Browning of S. T. & C. Ltd.), and March 16 (" Electronic Musical Instruments," D. Wilson). All will commence at 7.45 p.m. *Hon. Secretary:* C. N. Smart, 110 Woolmore Road, Erdington, Birmingham 23.

Southgate & Finchley.—Recent lectures have been given by G5DJ (Compressed 14 Mc/s Beam) and G3GZB (Transmitters). Information regarding future activities may be obtained from the *Town Representative:* S. N. Radcliffe (G3GZB), 56 Crescent Road, London, N.22.

Stockport Radio Society.—D. J. Birch (G3AOO) is the new Chairman of the society. There will be a visit to the pantomime in Manchester on February 20. The A.G.M. will be held at the Blossoms Hotel, Buxton Road, on March 14. R.S.G.B. members are planning to take part in both N.F.D. and Region 1 Field Day this year. *Hon. Secretary:* G. R. Phillips (G3FYE), 7 Germans Buildings, Buxton Road, Stockport.

Sutton & Cheam Radio Society.—The annual Christmas Junk Sale on December 20 was a great success and much gear changed hands at ridiculous prices. The Eighth Annual Dinner and Ladies Festival will be held on March 10. Tickets may be obtained from the *Hon. Secretary:* F. J. Harris (G2BOF), 143 Collingwood Road, Sutton, Surrey. At the meeting on February 21 at 7.30 p.m. at the Harrow Inn, Cheam Village, there will be a film show which will include the R.S.G.B. Bristol Convention Film and the Sutton & Cheam 1947 Field Day film. Visitors and prospective members are invited to attend.

Torbay Amateur Radio Society.—At the January meeting F. J. Charman's (G6CJ) recorded lecture on " Antennas " was much appreciated. Another R.S.G.B. Recorded Lecture —" Hints on Mobile Operation " by C. H. L. Edwards (G8TL)—will be given at the meeting in the Y.M.C.A., Torquay, on February 18 at 7.30 p.m. *Hon. Secretary:* L. H. Webber (G3GDW), 43 Lime Tree Walk, Newton Abbot.

Can You Help ?

● E. R. Ward (B.R.S.18301), Ward's Electrical Services, Westergate, near Chichester, who urgently requires details (particularly frequency range) of the ex-R.A.F. transmitter type T.1661/Q Serial No. 45 (10D/16341) ?

● W. Smith (B.R.S.19744), 22A Thistle Street, Edinburgh, 1, who requires information on the Peto-Scott Trophy 8 Communications Receiver ?

● G. H. Taylor (A.1330), 80 Grosvenor Road, Rugby, Warwickshire, who requires informaion on the Identification Unit R.D.F. No. 1 (Z.C. 13312 M.R.) ?

● R. F. Stevens (G2BVN), 51 Pettits Lane, Romford, Essex, who requires the circuit diagram of the R.C.A. TE-149 wavemeter?

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21.2	22.8	24.4	26.4
21.4	22.9	26.0	27.0
21.5	23.2		

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1G6	6/6	6BE6	10/-	7H7	8/6	805	35/-	KT61	10/-
1R5	7/6	6V6G	7/6	7B7	8/6	813	105/-	KT66	12/6
1S4	7/6	6V6GT	7/6	7S7	10/-	866A	12/6	KT2	5/-
1S5	7/6	6V6M	10/-	8D2	4/-	872A	21/-	PEN25	6/6
1T4	7/6	6J6	9/-	9D2	4/-	9001/2/3	6/-	PEN46	7/6
1A7GT	10/-	6AK5	9/-	4D1	4/-	9004	6/-	QP25	6/6
1A5GT	10/-	6U5G	7/6	12A6	7/6	9006	5/-	QP21	8/-
1H5GT	10/-	6J7G	6/6	12C8GT	7/6	954	5/-	QP230	8/-
1N5GT	10/-	6J7M	8/6	12H6	7/6	956/7	6/-	SP61	4/-
1C5GT	10/-	6K7G	6/6	12K7GT	8/6	1299A	4/6	SP41	4/-
1Q5GT	10/-	6K7GT	6/6	12AH7GT	8/6	ATP4	4/-	TP22	8/-
1L4	7/6	6K7M	7/6	12K8GT	8/6	CV66	5/-	TH233	10/-
1LN5	7/6	6K6GT	8/6	12Q7GT	8/6	CK510AX	5/-	U17	5/-
1LD5	7/6	6G6G	6/6	12SA7GT	8/6	D1	5/-	U19	10/-
2X2	5/-	6H6GT	4/-	12SQ7GT	8/6	D41	5/-	U22	8/6
3A4	9/-	6H6M	5/-	12SG7	8/6	D42	5/-	U52	8/6
3Q4	9/-	6K8GT	9/-	12SH7GT	7/6	D63	5/-	VP23	6/6
3V4	7/6	6L6G	10/-	12SC7	10/-	EA50	2/-	VP41	7/6
3S4	7/6	1622 (6L6)		12JSGT	7/6	EB34	3/6	VU133	4/-
3Q5GT	10/-		11/-	12SJ7	8/6	EBC33	6/6	VU120A	4/-
5U4G	8/6	6L7M	8/6	12SK7	8/6	EF36	6/6	VT501	7/6
5Y3GT	8/6	6N7GT	7/6	12SR7	7/6	EF39	6/6	VR105/30	8/6
5Z3	8/6	6Q7GT	8/6	14A7	8/6	ECH35	12/6	VR150/30	8/6
5Z4G	8/6	6R7M	8/6	25A6G	10/-	SP13C	4/-	STV/280/40	
6A7G	8/6	6R7G	8/6	25Z5	8/6	VP13C	4/-		15/-
6A6	10/-	6SC7M	10/-	25Z6GT	8/6	FC13C	10/-	5I30	7/6
6C6	6/6	6SS7M	7/6	35Z4GT	8/6	EF91	9/-	VS70 (7475)	
6D6	6/6	6SG7M	6/6	35Z5GT	8/6	EB91	9/-		7/6
6AC7	6/6	6X5GT	8/6	35L6GT	8/6	EF50 (ex units)	5/-	XH (2V)	4/-
6AG7	10/-	6SH7	6/6	50L6GT	8/6			XP (1.4V)	4/-
6B8	7/6	6SA7	8/6	50B5	10/-	EF50 (Red Syl)	10/-	Y63	8/6
6C4	7/6	6SQ7	8/6	50C5	10/-			TZ40	35/-
6C5M	5/-	6SN7GT	9/-	42	8/6	EF54	6/-	R3	8/6
6J5GT	5/-	6SL7GT	9/-	46	10/-	EL32	7/6	OZ4	7/-
6J5M	5/-	6SJ7	8/6	75	8/6	GU50	12/6	OZ4A	7/-
6AM6	9/-	6SK7	7/6	80	8/6	KTW61	7/6	OD3W	8/6
6AG5	7/6	7C5	8/6	807E	7/6	KTW62	7/6	CV172	7/6
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