RSGB BULLETIN

FEBRUARY 1966
VOL. 42, No. 2

See page 106

JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN

Mk 4 MULTIMINOR

The Mk. 4 MULTIMINOR, the latest version of this famous Avo instrument, supersedes all previous models. It is styled on modern lines, with new high standards of accuracy, improved internal assemblies, and incorporating panclimatic properties.

The instrument is supplied in a black carrying case, which also houses a pair of leads with interchangeable prods and clips, and an instruction booklet. Leather cases are available if required, in two sizes, one to take the instrument with leads, clips and prods, and the other for these and also a high voltage multiplier and a d.c. shunt.

D.C. CURRENT: 100μA f.s.d. — 1A f.s.d. in 5 ranges.
A.C. VOLTAGE: 10V f.s.d. — 1,000V f.s.d. in 5 ranges.
D.C. VOLTAGE: 2.5V f.s.d. — 1,000V f.s.d. in 6 ranges.
D.C. MILLIVOLT range: 0 — 100mV f.s.d.
RESISTANCE: 0—2MΩ in 2 ranges, using 1.5V cell.
SENSITIVITY: 10,000Ω/V on d.c. voltage ranges.
1,000Ω/V on a.c. voltage ranges.

Dimensions (including case):—
$7\frac{3}{4} \times 4 \times 1\frac{5}{8}$ in.
(197 × 102 × 41 mm.) } approx.

Weight (including case):—
$1\frac{1}{2}$ lb. (0.675 kg.) approx.

For full details of this pocket size instrument, write for leaflet.

IMPROVED

STANDARDS OF **ACCURACY** AND **RELIABILITY**

Modern styling in light grey with legible black engraving.

Constructed to withstand adverse climatic conditions.

Ever ready case, including leads, prods and clips.

Improved internal assemblies.

Re-styled scale plate for easy rapid reading. 2 basic scales, each 2.5 inches in length.

New standards of accuracy, using an individually calibrated scale plate: d.c. ranges 2.25% of full scale deflection, a.c. ranges 2.75% of full scale deflection.

Available accessories include a 2500V d.c. multiplier and 5, 10 and 25A shunts for d.c. current measurements.

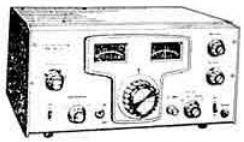
See Avo Electrical Testing Instruments on Stand HH4, A.S.E.E.Exh., Earls Court

AVO LTD AVOCET HOUSE · 92-96 VAUXHALL BRIDGE RD · LONDON, S.W.1 *Tel: VICtoria 3404*

MM16

A

SUPERB LAFAYETTE AMATEUR EQUIPMENT



H.A. 350 10-80 METRE AMATEUR RECEIVER

A superb receiver. Dual conversion with mechanical filter. 12 valves, crystal controlled osc., product detector, 100 kc/s crystal calibrator, crystal B.F.O., A.N.L., 'S' meter. Rock like stability. Brand new and guaranteed. **75 GNS.** S.A.E. for full details.

HA. 230 DE-LUXE GENERAL COVERAGE RECEIVER

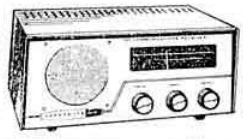
Wonderful value. 8 valves + rectifier. Coverage 550 kc/s-30 Mc/s. I.R.F. and 2 I.F. stages, 'Q' multiplier, B.F.O., A.N.L., 'S' meter, electrical bandspread, aerial trimmer etc. Brand new and guaranteed. **£33** S.A.E. for full details. Also available in easy to assemble Semi-kit form at **25 GNS.**

HA-63 GENERAL COVERAGE RECEIVER

7 valves + Rectifier. 4 Bands 550 kc/s-31 Mc/s. "S" Meter-BFO-ANL-Bandspread Tuning 200/250v. A.C. Brand new. **24 GNS.** carr. paid.

HA-55 AIRCRAFT RECEIVER.

108-136 Mc/s. High selectivity and sensitivity. Incorporates 2 RF stages including 6CW4 Nuvistor, 8 tubes for 11 tube performance, solid state power supply, adjustable squelch control, slide rule dial, built-in 4 in. speaker and front panel phone jack. 220/240V. AC. Supplied brand new and guaranteed. **£19.17.6.** Carr. 10/-.



PRECISION MECHANICAL FILTER

As used in HA. 350 Receiver. For superb selectivity. For 455 kc/s I.F. provides 60db attenuator at 2·5kc either side. Complete adjacent channel rejection **£9.19.6.** post paid.

NUVISTOR GRID DIP METER

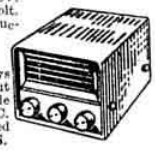
Compact true one hand operation. Frequency range 1·7-180 Mc/s 230V. A.C. operation. Supplied complete with all coils and instructions **£12.10.0.** Carr. 5/-.

TM-59'er "S" METER

Signal strength meter using VTVM principles. Calibrated in S units. Sensitivity and zero adjustments. For any superhet receiver with ACV. Requires 150/200 volt and 6 or 12 volt. Complete with valve and full instructions. **59/6.** Post and packing 2/6.

DE-LUXE V.F.O.

5 bands covering 80-10 metres. Employs high 'Q' series tuned Clapp Osc. High output 10-20 volts to drive any TX. Large slide rule dial. Dual impedance O/P. 230V. A.C. operation. Size 6½" × 5½" × 7½". Supplied complete with all instructions. **16 GNS.** Carr. 7/6.

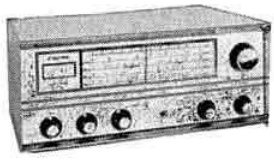


TRANSISTORISED FIELD STRENGTH METER

3 bands 2·5 to 57 Mc/s, permits easy tune up for max. transmitter output. Earphone jack to monitor audio. 200μA meter, cal. 0-10. Supplied complete with battery, telescopic aerial, **£5.19.6** each. P. & P. 3/6.

CODAR AMATEUR RADIO EQUIPMENT

MAIN LONDON STOCKISTS



CR. 70A GENERAL COVERAGE SHORT WAVE RECEIVER

7 valves. 550 kc/s-30 Mc/s.
Only **£19.10.0.**

A.T.5. TRANSMITTER

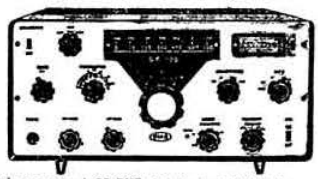
160 and 80 metres. 12 watts.
Only **£16.10.0.**
New T.28 2 band 160/80 metre Transistor Receiver. **£15.10.0.**

PR.30 Preselector	..	£5	10 0
PR.30X Self powered		£7	4 0
R.Q.10 "Q" Multiplier		£6	15 0
R.Q.10X Self powered		£8	8 0
A.T.5 Amateur TX		£16	10 0
A.T.5 Mains P.S.U.	..	£8	0 0
A.T.5 12v. Trans. P.S.U.		£11	5 0

A.T.5 Remote control and Aerial Switching Unit		£2	7 6
C.C.40 Station Control Unit		£6	10 0

Postage Extra.

STAR SR.600 AMATEUR COMMUNICATION RECEIVER



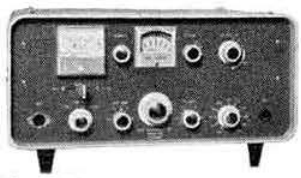
New crystal controlled triple conversion de luxe 80-10 metre band receiver. Extremely high sensitivity, selectivity and stability. Special features include 3 I.F. stages, crystal controlled oscillator, 4 section L/C filter, "S" meter, BFO-ANL, 100 kc/s crystal calibrator, etc. Supplied brand new and guaranteed. **95 GNS.** S.A.E. for full details.

SWAN—350 10—80 METRE AMATEUR TRANSCEIVER

The most reliable complete transceiver available to the Amateur yet. 5 bands-400 watts P.E.P. Price complete with A.C. supply/speaker console **£250.** S.A.E. for brochure.

Appointed London Agents.

APPOINTED LONDON AGENT FOR K.W. EQUIPMENT



K.W. VESPA TRANSMITTER

10-160 metres SSB, CW and AM **£110.** Power Supply **£25.**

IMMEDIATE DELIVERY.

Also available:
K.W. 2,000 .. **£173.** PSU **£32.**
K.W. 600 Linear amp. .. **£105.**
K.W. 2,000A .. **£195.** PSU **£40**

CLEAR PLASTIC PANEL METERS

First grade quality, Moving Coil panel meters, available ex-stock. S.A.E. for illustrated leaflet. Discounts for quantity. Available as follows. Type MR. 38P. 1 21/23in. square fronts.

2mA	.. ..	22/6	3V.DC	.. ..	22/6
5mA	.. ..	22/6	10V. DC	.. ..	22/6
10mA	.. ..	22/6	20V. DC	.. ..	22/6
20mA	.. ..	22/6	50V. DC	.. ..	22/6
50mA	.. ..	22/6	100V. DC	.. ..	22/6
100mA	.. ..	22/6	150V. DC	.. ..	22/6
150mA	.. ..	22/6	300V. DC	.. ..	22/6
200mA	.. ..	22/6	500V. DC	.. ..	22/6
300mA	.. ..	22/6			
500mA	.. ..	22/6	15V. AC	.. ..	22/6
750mA	.. ..	22/6	50V. AC	.. ..	22/6
1-0-1mA	.. ..	22/6	150V. AC	.. ..	22/6
1A.DC	.. ..	22/6	300V. AC	.. ..	22/6
2A.DC	.. ..	22/6	500V. AC	.. ..	22/6
5A.DC	.. ..	22/6	"S" Meter 1mA	..	29/6

"S" Meter	..	29/6	
50μA	.. ..	32/6	
100μA	.. ..	29/6	
200μA	.. ..	27/6	
500μA	.. ..	25/-	
50-0-50μA	..	29/6	
100-0-100μA	..	27/6	
500-0-500μA	..	29/6	
1mA	.. ..	22/6	

POST EXTRA Larger sizes available—send for lists.

MODEL DA-1 TRANSISTORISED FULLY AUTOMATIC ELECTRONIC KEYER

230v. A.C. or Battery operated **£16.10.0.** P. & P. 6/-. also Precision automatic bug keys. **£4.10.0.** P. & P. 3/6.

SILICON RECTIFIERS

200 P.I.V. 200 mA	.. ..	..	2/6
400v. P.I.V. 3 amp	.. ..	..	7/6
1,000v. P.I.V. 650 mA	.. ..	..	7/6
800v. P.I.V. 500 mA	.. ..	..	5/6
400v. P.I.V. 500 mA	.. ..	..	3/6
800v. P.I.V. 5 amp	.. ..	..	7/6
70v. P.I.V. 1 amp	.. ..	..	3/6
150v. P.I.V. 165 mA	.. ..	..	1/-

Discounts for quantities. Post extra.

NATIONAL H.R.O. DIALS

Brand new 27/6. P.P. 1/6.

TRANSFORMER

200-250v. Primary. 600-0-600v. 250mA. 6·3v. 2½ amp. 4v. 7 amp **39/6** Carr. 5/-

GREEN EQUIPMENT

APPOINTED LONDON AGENT

In Stock: TMR5 Communication Receiver **£35.** Speaker and D.C. Unit **£6;** 4m. Conv. **£10;** 2m. Conv. **£12;** 70 cm. Conv. **£18.**

Open:
9 a.m.-6 p.m.
Every day
Monday to
Saturday

G. W. SMITH & CO. (RADIO) LTD.

3 and 34 LISLE STREET, LONDON, W.C.2

Telephone: GERRARD 8204/9/55 *Cables: SMITHEX, LESQUARE*

Part exchanges welcome

Volume 42 No. 2

February 1966

4/- Monthly

R S G B BULLETIN

CONTENTS

Front Cover: Members of the Verulam Amateur Radio Club, Norman Fisher, Michael Slandon, Roy Eave, Derke Purchese, G3LXP, Phil Connolly, G3OFH, and Dave Gibson, G3JDG, prepare to raise their 4m and 70cm aerials during V.H.F. National Field Day 1965. A report on the contest begins on page 106. *(Photo by G3RPA)*

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John A. Rouse, G2AHL

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John J. Adey, A4663

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The RSGB Bulletin is published on the first Wednesday in each month by the Radio Society of Great Britain as its official journal and sent to all members. ***The closing date for copy for the March issue is February 4.***

CODAR

AT5

TRANSMITTER

12 watt miniature transmitter for 160 and 80 metres.

£16.10.0.

P.P. 4/-.

PL259 Co-Axial Plug with mica-filled bakelite, nylon loaded insulation **5/- each.** P.P. 6d.
with P.T.F.E. (Teflon) insulation **7/6d. each.** P.P. 6d.
SO-239 Co-Axial Socket with mica-filled bakelite, nylon loaded insulation **5/- each** P.P. 6d.
UG-175/U Reducer for PL-259. Cable entry 0·21" diameter. **1/3d. each.** P.P. 4d.
UG-176/U Reducer for PL-259. Cable entry 0·26" diameter. **1/3d. each.** P.P. 4d.

CODAR EQUIPMENT

CR70A communications receiver **£19.10.0** P.P. 7/6.
T28 160/80m. mobile receiver **£15.10.0** P.P. 3/6.
CC/40 control unit **£6.10.0.** P.P. 3/6.
PR30 preselector **£5.10.0.** P.P. 3/-.
PR30X (self-powered) **£7.4.0.** P.P. 3/6.
RQ10 Q-multiplier **£6.15.0.** P.P. 3/-.
RQ10X (self-powered) **£8.8.0.** P.P. 3/6.
250/S mains p.s.u. for AT5 **£8.0.0.** P.P. 5/-
12 M/S mobile p.s.u. for AT5 **£11.5.0.** P.P. 5/-.
12 R/C control unit **£2.7.6.** P.P. 2/6.

Leaflets sent on request

MULLARD AUY10 H.F. POWER TRANSISTOR

FB for top band rig (see designs in recent *Bulletins* and *Short Wave Magazines*), **39/-** each. P.P. 9d. 2 for **75/-.** P.P. 1/-.

HAYATO PRINTED CIRCUIT ETCHING KIT PK-1

Complete with polisher, paint, etching liquid, paint eraser, flux, 6" x 4" copper laminate, knife, spatula, etc., etc. Satisfaction guaranteed. **Fantastic value at 19/6.** P.P. 2/-. S.A.E. for illustrated leaflet.

WODEN MODULATION TRANSFORMERS

UM0 (10 watts of audio) **£2 . 19 . 6.** P.P. 3/3.
UM1 (30w.) **£3 . 19 . 6.** P.P. 4/-
UM2 (60w.) **£5 . 10 . 0.** P.P. 5/6.
UM3 (120w.) **£5 . 19 . 6.** P.P. 6/6.

JOYSTICKS

Joystick de-luxe **£5.5.0**
Joystick standard **£4.4.0.**
Joymatch type 3 tuner for receiving **£2.5.0.**
Joymatch type 5 tuner for transmitting **£1.10.0.**

CHANGE OF ADDRESS FROM FEBRUARY 14

We are pleased to announce that we are moving to new premises at

8 HARTFIELD ROAD, WIMBLEDON, LONDON, S.W.19. (Tel: Wimbledon 6063)

Open Monday to Saturday, 9 a.m. to 6 p.m. beginning Monday 14th February.

Our premises at 21 Victoria Road, Surbiton, Surrey (Tel: Elmbridge 2833) will be open for callers, mail orders, enquiries, etc., until final closing at 6 p.m. on Saturday 12th February.

COMING BY CAR

Head for Wimbledon station. We are near the A3, A24, A298 and A219.

COMING BY RAIL

We are 100 yards from Wimbledon station. Trains from Waterloo (11 mins.), Surbiton (7 mins.), etc.

COMING BY UNDERGROUND

Take the District Line to Wimbledon station. Hartfield Road is opposite the station.

COMING BY BUS

Take any of the following buses to Wimbledon station: 57, 93, 77A, 131, 155, 213A, 285 & 200.

SECOND-HAND GEAR

A large number of used receivers, transmitters, transceivers, etc., always in stock.

HIRE-PURCHASE
PART EXCHANGE
DEMONSTRATIONS
DELIVERIES

MICROPHONES

Acos crystal stick mic, 37/6. P.P. 2/-.
Shure 444. Response cuts off sharply below 300 c/s and above 3000 c/s with a rising characteristic to 3000 c/s., **£9.10.0** P.P. 3/-. S.A.E. for illustrated leaflet.
Teisco CM30 crystal mic with on/off switch, **25/-.** P.P. 2/-.
Eagle 200C crystal mic de-luxe with on/off switch, **39/-.** P.P. 2/-.
Harruw BM3 crystal mic de-luxe with on/off switch and neck suspension cable, **39/6.** P.P. 2/-. Desk stand for BM3, **10/6.** P.P. 2/-.

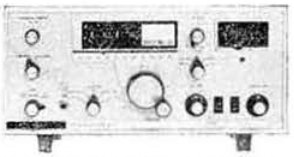
ELECTRONIQUES SMD-2 SLOW MOTION TUNING DIAL

Complete with 6" x 4" escutcheon, 6 : 1 and 36 : 1 two-speed epicyclic drive, 2 scales, 2 pointers, tuning knob, fixing screws, instructions, etc. Excellent value at **30/-.** P.P. 2/6.

NATIONAL

NCX5 MKII

TRANSCEIVER



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Complete 10 to 80 metre station. 200 watts P.E.P. NEW SOLID STATE BALANCED MODULATOR. **NOW ONLY £235 . 10 . 1.** NCX-A p.s.u./speaker console, £48 . 9 . 11. Write for full details. *Undoubtedly the NCX-5 Mk. II is the most outstanding value in transceivers today.*

NATIONAL

HRO500

RECEIVER

Professional solid state receiver, 5 kc/s to 30 Mc/s.

£705

BRIAN J. AYRES & CO.

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100 yards from Wimbledon Station. Tel: Wimbledon 6063 Open Mon. to Sat. 9 a.m. to 6 p.m.

RADIO SOCIETY OF GREAT BRITAIN

INCORPORATED
1926

PATRON — H.R.H. THE PRINCE PHILIP, DUKE OF EDINBURGH, K.G.

COUNCIL 1966

PRESIDENT	R. F. STEVENS, G2BVN
EXECUTIVE VICE-PRESIDENT	F. K. Parker, G3FUR
IMMEDIATE PAST PRESIDENT	E. W. Yeomanson, G3IIR
HONORARY TREASURER	N. Caws, FCA, G3BVG
ORDINARY ELECTED MEMBERS	J. Etherington, G5UG J. C. Foster, G2JF E. G. Ingram, GM6IZ L. E. Newnham, BSc, G6NZ W. A. Roberts, MIEE, G2RO G. M. C. Stone, AMIEE, AMIERE, G3FZL J. W. Swinnerton, TD, BSc(ECON)(HONS). AIL G2YS Louis Varney, AMIEE, AIL G5RV
MEMBERS ELECTED BY ZONES	L. N. Goldsbrough, BSc(OXON), MA, G3ERB J. C. Graham, G3TR A. D. Patterson, BASc, GI3KYP J. F. Shepherd, GM3EGW

GENERAL MANAGER AND SECRETARY — John A. Rouse, G2AHL
ASSISTANT SECRETARY — P. C. M. Smee

REGIONAL REPRESENTATIVES

Region 1.—North Western.	B. O'Brien, G2AMV, 1 Waterpark Road, Prenton, Birkenhead, Cheshire
Region 2.—North Eastern.	Office vacant.
Region 3.—West Midlands.	Office vacant.
Region 4.—East Midlands.	F. C. Ward, G2CVV, 5 Uplands Avenue, Littleover, Derby.
Region 5.—Eastern.	Office vacant.
Region 6.—South Central.	Office vacant.
Region 7.—London.	P. A. Thorogood, G4KD, 35 Gibbs Green, Edgware, Middlesex.
Region 8.—South Eastern.	D. N. T. Williams, G3MDO, Seletar, New House Lane, Thanington, Canterbury, Kent.
Region 9.—South Western.	R. E. Griffin, G5UH, 13 Alexandra Road, Uplands, Bristol 3.
Region 10.—South Wales.	C. H. Parsons, GW8NP, 90 Maesycoed Road, Heath, Cardiff, Glam.
Region 11.—North Wales.	Office vacant.
Region 12.—North-East Scotland.	J. MacIntosh, GM3IAA, Broom Park, Cradlehall, Inverness.
Region 13.—South-East Scotland.	G. P. Millar, GM3UM, 8 Plewlands Gardens, Edinburgh 10.
Region 14.—West Scotland.	Office vacant.
Region 15.—Northern Ireland.	L. M. Lyske, GI3CDF, 63 Church Street, Portadown, Co Armagh.
Region 16.—East Anglia.	P. J. Naish, G3EIX, 6 Mildmays, Danbury, Chelmsford, Essex.
Region 17.—Southern.	L. Southwell, G3JLS, 15 Hollybank Road, Hythe, Southampton, Hants.

QSL BUREAU MANAGER

A. O. Milne, G2MI, 29 Kechill Gardens, Bromley, Kent

News from Headquarters

Nominations invited for the Vacant Offices of Council Members for Zones D and E

Although the Council has power under the Articles of Association to fill casual vacancies on the Society's Governing Body, it has been decided to invite the membership in the Zones concerned to submit nominations by 28 February 1966 to fill the vacancies now existing. The members elected in due course will serve until 31 December 1966.

The vacancy in Zone D has arisen because no nomination was made to fill the vacancy which occurred at 31 December 1965. The vacancy in Zone E results from the resignation of Mr R. H. James, GW3BFH, with effect from 1 January 1966.

Nominations to fill the vacancies for Council Members to represent Zone D (Regions 6, 9 and 17) and Zone E (Regions 10 and 11) are therefore formally invited.

Any 10 Corporate Members resident in the Zone concerned may nominate any other duly qualified person resident in the same Zone by delivering their nomination in a single document to the General Manager and Secretary, together with the written consent of such persons to accept office if elected, but each such nominator shall be debarred from nominating any other person for this election.

Nomination papers must reach the General Manager and Secretary at RSGB Headquarters **not later than 4 p.m. on 28 February 1966.**

In the event of more than one duly qualified person being nominated for either of these vacancies, a ballot will be conducted, details of which will be published in the April 1966 issue of the RSGB BULLETIN.

Zone D comprises the counties of Buckinghamshire (outside London Region), Gloucestershire (excluding Bristol), Oxfordshire (together forming Region 6), Bristol, Cornwall, Devonshire, Dorset, Somerset (together forming Region 9), Berkshire (outside London Region) the Channel Islands, Hampshire, Isle of Wight, Wiltshire (together forming Region 17).

Zone E comprises the counties of Brecknockshire, Cardiganshire, Carmarthenshire, Glamorgan, Monmouthshire, Pembrokeshire, Radnorshire (together forming Region 10) Anglesey, Caernarvonshire, Denbighshire, Flintshire, Merionethshire, Montgomeryshire (together forming Region 11).

Mr F. K. Parker, G3FUR, Executive Vice-President

In accordance with Article 11 of the Articles of Association, the Council has appointed Mr F. K. Parker, G3FUR, to the office of Executive Vice-President for 1966.

Mr Parker has been a member of the Council since 1960 and serves on the GPO Liaison and TVI, Finance and Staff and Mobile committees.

V.H.F. Manager

Mr G. M. C. Stone, G3FZL has been appointed the Society's V.H.F. Manager for 1966, in succession to Mr R. C. Hills, G3HRH.

RSGB QSL Bureau Manager

Mr A. O. Milne, G2MI, has been reappointed Manager of the Society's QSL Bureau for 1966.

Certificates Manager

Mr C. R. Emary, G5GH, has been appointed the Society's Certificates Manager for 1966 in succession to Mr K. A. V. Hurrell, G3NBC.

Claims for certificates should be sent to Headquarters and will be acknowledged on arrival.

Committees of the Council 1966

The following members have been appointed to serve on the Committees of the Council during 1966.

Contests, H.F. *Council Member*: J. C. Graham, G3TR; *Non-Council Members:* D. J. Andrews, G3MXJ, D. A. Findlay, G3BZG, R. L. Glaisher, G6LX, M. Harrington, BRS20249, R. J. Hughes, G3GVV, R. A. Wybrow, G3JVJ, R. G. B. Vaughan, G3FRV. **V.H.F.** *Council Member:* J. C. Foster, G2JF. *Non-Council Members:* M. D. Bass, G3OJE, A. J. Gould, G3JKY, D. Evans, G3OUF, C. Penna, G3POI.

Education. *Council Members:* L. E. Newnham, G6NZ, G. M. C. Stone, G3FZL, J. W. Swinnerton, G2YS. *Non-Council Members:* J. R. Clayton, BRS18352, R. J. Hughes, G3GVV.

Exhibition. *Council Members:* J. C. Graham, G3TR, L. E. Newnham, G6NZ, E. W. Yeomanson, G3IIR. *Non-Council Members:* D. C. French, G3HSE, G. W. Norris, G3ICI, F. F. Ruth, G2BRH, P. A. Thorogood, G4KD, R. G. B. Vaughan, G3FRV, A. J. Worrall, G3IWA.

Finance and Staff. *Council Members:* N. Caws, G3BVG, J. C. Graham, G3TR, L. E. Newnham, G6NZ, F. K. Parker, G3FUR, E. W. Yeomanson, G3IIR.

GPO Liaison and TVI. *Council Members:* L. E. Newnham, G6NZ, F. K. Parker, G3FUR, W. A. Roberts, G2RO, J. W. Swinnerton, G2YS, E. W. Yeomanson, G3IIR. *Non-Council Member:* A. O. Milne, G2MI.

Membership and Representation. *Council Members:* L. N. Goldsbrough, G3ERB, J. C. Graham, G3TR, F. K. Parker, G3FUR, A. D. Patterson, GI3KYP, and J. F. Shepherd, GM3EGW.

Mobile. *Council Members:* J. Etherington, G5UG, F. K. Parker, G3FUR, E. W. Yeomanson, G3IIR. *Non-Council Members:* H. T. Brock, G3FD, M. A. C. McBrayne, G3KGU, N. O. Miller, G3MVV, and D. R. Purchase, G3LXP.

RAEN. *Council Members:* L. E .Newnham, G6NZ, E. W. Yeomanson, G3IIR, *Non-Council Members:* G. A. Allcock, G3ION, P. Balestrini, G3BPT, E. R. L. Bassett, BRS16075, R. A. Ferguson, G4VF, A. C. Gee, G2UK, J. D. Kingston, G3VK, E. A. Matthews, G3FZW.

Scientific Studies. *Council Members:* J. F. Shepherd, GM3EGW, G .M. C. Stone, G3FZL. *Non-Council Members:* W. H. Allen, G2UJ, R. G. Flavell, GM3LTP, C. E. Newton, G2FKZ, D. G. Thorpe, G3OBT. *Corresponding Members:* J. M. Lyons, GM3GUJ, W. D. Oliphant, GM2FLQ, W. E. D. Parker, G6BY.

Technical. *Council Members:* G. M. C. Stone, G3FZL. *Non-Council Members:* W. H. Allen, G2UJ, D. N. Corfield, G5CD, B. Armstrong, G3EDD, G. C. Fox, G3AEX, G. R. Jessop, G6JP, J. W. Mathews, G6LL, B. Priestley, G3JGO.

V.H.F. *Council Members:* N. Caws, G3BVG, G. M. C. Stone, G3FZL. *Non-Council Mmebers:* W. H. Allen, G2UJ, P. Balestrini, G3BPT, D. N. Biltcliffe, G6NB, F. E. A. Green, G3GMY, F. A. Griffiths, G3MED, J. H. Hum, G5UM, A. L. Mynett, G3HBW.

* * *

IARU Working Group. *Council Members:* N. Caws, G3BVG, E. G. Ingram, GM6IZ, L. E. Newnham, G6NZ, G. M. C. Stone, G3FZL, E. W. Yeomanson, G3IIR.

Headquarters ad hoc Committee. *Council Members:* N. Caws, G3BVG, J. C. Foster, G2JF, F. K. Parker, G3FUR, W. A. Roberts, G2RO.

The President, Mr R. F. Stevens, G2BVN, is an ex-officio member of all Committees.

Slow Morse Practice Transmissions Organizer

Mr M. A. C. McBrayne, G3KGU, has been reappointed Organizer of the Society's Slow Morse Practice Transmissions for 1966.

Colour Slides Curator

Mr A. O. Milne, G2MI, has been appointed curator of the Society's newly-formed library of Colour Slides of Amateur Radio interest.

Mr Milne will be pleased to receive offers of suitable slides to add to the collection.

Council Meetings during 1966

Council meetings this year will be held on the following dates: 5 February, 7 March, 1 April, 9 May, 6 June, 11 July, 8 August, 10 September, 10 October, 5 November and 8 December.

Representation

The following Area Representatives have been elected:

GLOUCESTER

E. A. Perkins, G3MA, 40 Calton Road, Gloucester.

GLASGOW

N. G. Cox, GM3MUY, Maxwell Avenue, Westerton, Bearsden, Glasgow.

Affiliated Societies

The following are now affiliated to RSGB:

MALTA AMATEUR RADIO SOCIETY:
c/o C. C. Newman, 9H1Q, Villa Vecca, St. Paul's Street, St Paul's Bay, Malta.

BRITISH TIMKEN RADIO CLUB:
c/o J. B. Johnson, British Timken (Duston) Social and Athletic Club, Duston, Northampton.

BADEN-POWELL HOUSE SCOUT AMATEUR RADIO GROUP:
c/o A. H. Watts, G3FXC, 8 Thornycroft Court, Kew Road, Richmond, Surrey.

COLLEGE OF ELECTRONICS RADIO CLUB:
c/o C. S. Angus, College of Electronics Students' Union, 33 Abbey Road, Great Malvern, Worcs.

SOUTHAMPTON UNIVERSITY RADIO CLUB:
c/o H. M. Davison, The University, Highfield, Southampton.

PORT TALBOT & DISTRICT AMATEUR RADIO CLUB:
c/o H. G. Hughes, GW4CG, 20 Austin Avenue, Porthcawl, Glamorganshire.

R.A.F. DIGBY AMATEUR RADIO CLUB:
c/o D. Milne, N.C.O. i/c Amateur Radio Club, R.A.F., Digby, Lincoln.

BATLEY GRAMMAR SCHOOL RADIO SOCIETY:
c/o J. R. Lamb, 27 Carlinghow Hill, Batley, Yorkshire.

EIL AMATEUR RADIO SOCIETY:
c/o Electronic Instruments Ltd., Richmond, Surrey.

LOUGHBOROUGH AMATEUR RADIO CLUB:
c/o D. A. Winters, 52 Walton Street, Leicester.

OTLEY RADIO SOCIETY:
c/o I. Millward, 15 Queens Place, Otley, Yorkshire.

The following is a correction to the list of newly-affiliated radio societies and clubs published on page 44 of the January 1966 issue of the BULLETIN:

CHILTON RADIO CLUB:
c/o A. P. McGrath, Chilton School, Deyes Lane, Maghull, near Liverpool.

GPO Morse Tests

Provided that there are sufficient applications, Post Office Morse Tests will be held during the week beginning 7 March at the Birmingham, Derby, Manchester, Leeds and Cambridge Head Post Offices. Application forms may be obtained from the Radio Services Department, Radio Branch, GPO Headquarters Building, St. Martins-le-Grand, London, E.C.1.

RADIO AMATEURS' EXAMINATION

Friday, 13 May, 1966

COLLEGE OF PRECEPTORS
2 BLOOMSBURY SQUARE
HOLBORN, LONDON W.C.1.

The examination will commence at 6.30 p.m.

Applications to sit the examination at the RSGB centre, which is near Holborn (Kingsway) Underground station, should be sent to the General Manager, Radio Society of Great Britain, 28 Little Russell Street, London, W.C.1, to arrive not later than **22 February, 1966.**

As accommodation is strictly limited, applications will be dealt with in the order received. A remittance for the City and Guilds of London Institute fee of £1 10s., plus, in the case of non-members of the RSGB, a local fee of 5s., must be enclosed. Cheques and postal orders should be made payable to Radio Society of Great Britain.

The completed application forms, to which the entrance fee of 10s. should be affixed in stamps, must be posted to the Wireless Telegraphy Section to arrive not later than 11 February 1966.

RSGB Amateur Radio Call Book

The following are corrections to the 1966 Edition of the RSGB Amateur Radio Call Book.

G3TLA, D. Pearson, 19 Malwood Gardens, Totton, Southampton.

G3JFY, M. J. I. Lillington, "Whitenap Cottage" Whitenap Lane, Romsey, Hants.

Amateur Licences

On 31 December 1965, the number of amateur licences in force in the United Kingdom was as follows:

Amateur (Sound) Licences A: 11,537
Amateur (Sound) Licences B: 312
Amateur (Sound Mobile) Licences A: 1,962
Amateur (Sound Mobile) Licences B: 3
Amateur (Television) Licences: 173

LONDON LECTURE MEETING

WEDNESDAY, 9 MARCH, 1966 — 7 P.M.

AERIAL FARMING IN A MONASTERY

By Rev Paul Sollom, G3BGL

an introduction to the lecture appears on page 85

Royal Society of Arts, John Adam Street, London, W.C.2. Buffet tea before lecture

A Power Supply for Experimental Transistorized Equipment

By G. D. ROE, B.Sc.(Eng.), A.C.G.I., G3NGS*

MONTH by month, the pages of the BULLETIN contain an increasingly greater proportion of technical articles on transistorized equipment. Power supply arrangements of these devices are generally left to the discretion of the builder and often this entails the use of dry batteries where a mains power supply would be better in many respects.

It is the purpose of this article to describe a high quality mains power supply unit which has been designed to power the majority of transistorized units featured in magazine articles.

The general specification of the unit is as follows:

Output voltage:	0-20V continuously variable in two overlapping ranges.
Output current:	0-1A throughout the voltage range.
Ripple voltage:	Less than 2 mV peak-to-peak at full load.
Overload trip range:	0-1·3A continuously adjustable.
Overload trip switching time:	Less than 30μsec for a short circuit overload.
Output impedance:	Less than 0·1 ohm under all conditions (0·02 ohm at 0·5A load).
Output change with 5 per cent mains voltage change:	0·6 per cent.
Mains current with unit	
(a) unloaded:	70 mA (10V range). 87 mA (20V range).
(b) fully loaded:	150 mA.
Operating temperature range:	20° C to 45° C ambient.
Weight:	7½ lb.
Suitable chassis size:	7 in. × 5½ in. × 2 in.
Suitable case size:	8 in. × 6 in. × 6 in.

Circuit Principles

Unsmoothed d.c. is produced by a bridge rectifier and is stabilized by a series emitter follower driven by a grounded emitter amplifier in a feedback circuit. Control of the output voltage is achieved by supplying the base of the amplifying stage from an adjustable point on a potential divider between the output terminal and a d.c. reference rail. The use of an auxiliary reference rail permits adjustment to be continued down to zero volts output, without loss of loop gain in the amplifying circuit. This reference rail is produced by use of an overwind on the mains transformer in conjunction with a half wave rectifier and series stabilization by an emitter follower. No feedback is used in this auxiliary supply, the emitter follower being driven by a Zener voltage reference diode.

By the use of an external reference facility, leads and plugs between the supply and a remote piece of apparatus may be included inside the feedback loop, with a considerable reduction in supply impedance.

An overload trip facility is provided, the current sensing element being a one ohm resistor in series with one of the supply rails. The trip circuit comprises a Schmitt trigger circuit and amplifier which effectively short circuits the main feedback amplifier in the event of an overload, thereby reducing the output of the unit to zero.

Circuit Details

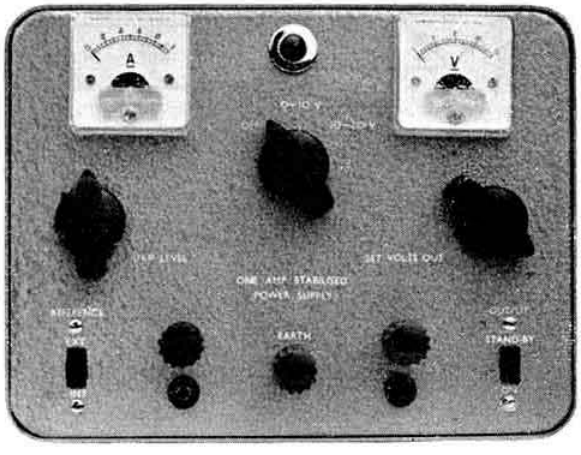
The complete circuit is shown in Fig. 1.

The mains transformer is of the readily available MT3AT variety, the taps on the secondary being such that two voltage ranges can be accommodated to minimize power dissipation in the emitter follower.

A d.c. voltage is built up across the main reservoir capacitor C3 by the bridge rectifier D1 to D4. BYZ10 diodes were used here in the prototype but there is no reason that BYZ13 diodes or a similar type should not be used if these were found more readily available.

The d.c. reference line makes use of the 30V overwind on the transformer, half wave rectification being used to charge the reservoir capacitor C1. The series emitter follower stabilizer is TR1, the base of this being held some 5·5V above the positive output rail by the Zener diode D6. The smoothing capacitor C2 reduces the ripple on the auxiliary line to an acceptable level (about 10 mV).

The main emitter follower stabilizer TR7 is driven by a second emitter follower TR6, R15 being inserted to prevent the output of the unit rising with no load applied, due to collector base leakage in TR7. The potential on the base of TR6 is controlled by the grounded emitter amplifier TR5, d.c. for this amplifier being derived from the reservoir capacitor through R13 and R14. Splitting the d.c. supply path permits a smoothing capacitor C5 to be inserted, this capacitor reducing the ripple in the supply to the small signal amplifying stage. A second important function of C5 is in the standby mode. When S3b is closed, C5 is shorted through a 10 ohms resistor and the base voltage of TR6 is reduced to near zero. Because of the forward base emitter



Front panel view of the power supply.

*16 Dorchester Drive, Herne Hill, London, S.E.24

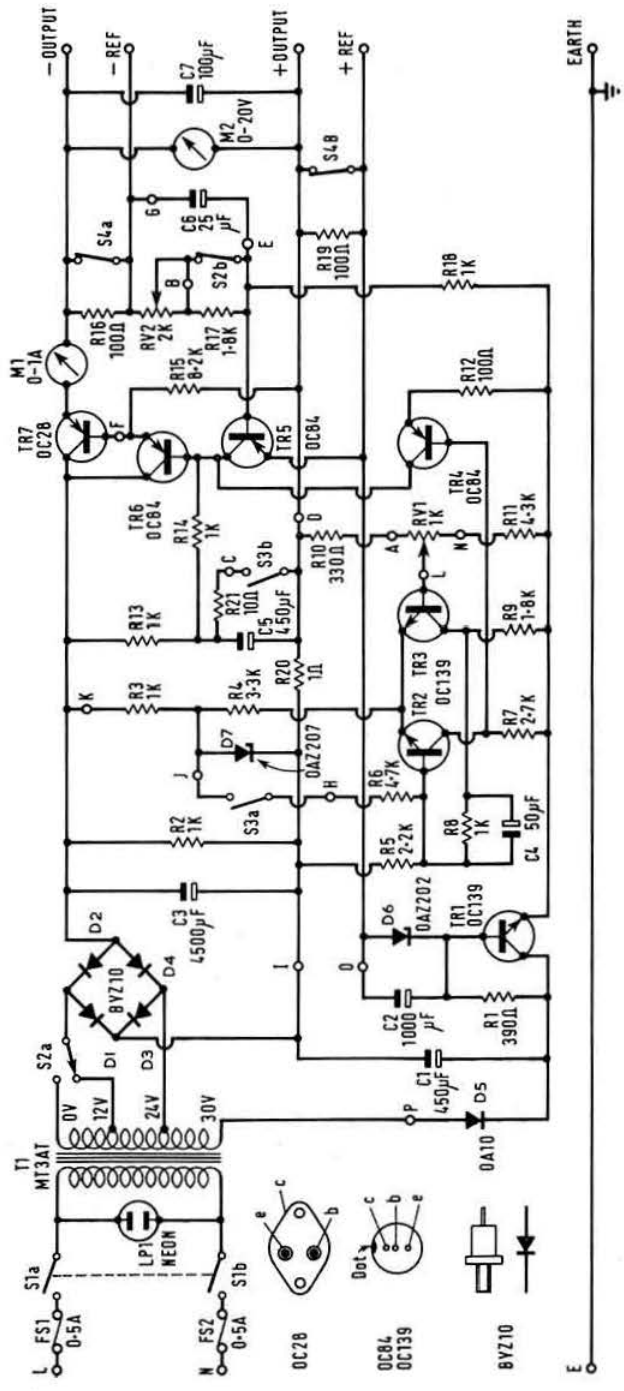


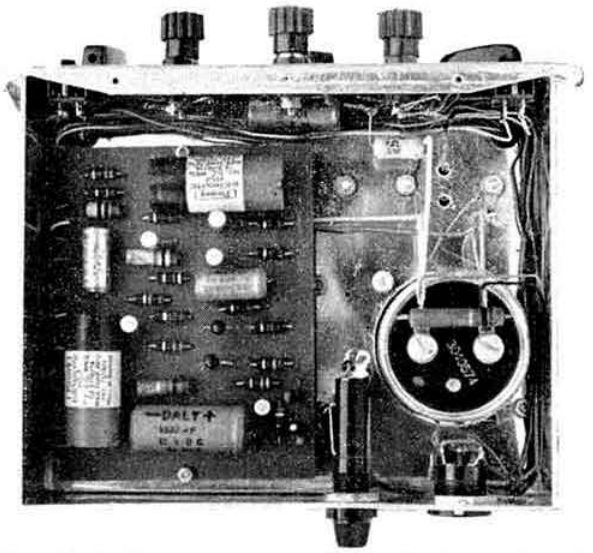
TABLE 1

Parts list for the stabilized power supply

C1.	450μF	25V d.c.
C2.	1000μF	12V d.c.
C3.	4500μF	40V d.c.
C4.	50μF	12V d.c.
C5.	450μF	35V d.c.
C6.	25μF	25V d.c.
C7.	100μF	25V d.c.
D1-4,	BYZ10	
D5.	OA10	Mullard
D6.	OAZ202	
D7.	OAZ207	
F1, F2.	½A anti-surge fuse	
M1.	0-1A d.c.	
M2.	0-20V d.c.	
R1.	390K ohms	½W.
R2.	1K ohms	1W.
R3.	1K ohms	1W.
R4.	3·3K ohms	½W.
R5.	2·2K ohms	½W.
R6.	4·7K ohms	½W.
R7.	2·7K ohms	½W.
R8.	1K ohms	½W.
R9.	1·8K ohms	½W.
R10.	330 ohms	½W.
R11.	4·3K ohms	½W.
R12.	100K ohms	½W.
R13.	1K ohms	1W.
R14.	1K ohms	½W.
R15.	8·2K ohms	½W.
R16.	100 ohms	½W.
R17.	1·8K ohms	½W.
R18.	1K ohms	½W.
R19.	100 ohms	½W.
R20.	1 ohms	3W.
R21.	10 ohms	½W.
VR1.	1K ohms	W.W.
VR2.	2K ohms	W.W.
S1,	2 pole on/off mains switch.	
S2.	2 pole 2 way rotary switch. (May be combined with S1).	
S3, S4.	2 pole 2 way slide switch.	
T1,	30V 2A Mains transformer. Douglas type MT3AT.	
TR1.	OC139	
TR2.	OC139	
TR3.	OC139	
TR4.	OC84	Mullard
TR5.	OC84	
TR6.	OC84	
TR7.	OC28	

All resistors are ± 10% types.
The capacitance and voltage working levels of electrolytic capacitors may be safely increased if supply is difficult.

Fig. 1. The circuit of the 20V 1A stabilized power supply. S2, the voltage range selector, is shown in the 0-10V position. If desired, the switch can be combined with the power switch S1 as shown in the photograph. S3 is the NORMAL position, and S4, the external reference switch, is in the INTERNAL position.



Underchassis view of the power supply, showing the positions of the printed circuit board and C3.

voltages of TR6 and TR7, the output of the unit is exactly zero. Recovery from this condition after opening S3 is regulated by the time constant R13 C5. The slow potential build up caused in this way prevents premature firing of the overload trip circuit due to current surges in the output of the unit.

The emitter of the grounded emitter amplifier is returned to the voltage reference diode used in the auxiliary rail stabilization circuit. The base of the amplifier is connected to a point on a potential divider between the negative output reference and the auxiliary reference rail. Adjustment of RV2 changes the position of the tapping point on the divider and, since the base emitter potential of TR5 remains substantially constant, this results in a change in output voltage. In order to change voltage ranges, a fixed resistor, a little less than the maximum value of RV2 is switched into the divider. C6 improves the loop gain of the amplifier at high frequencies, the value of this loop gain at 1 kc/s being approximately 34db.

The ammeter is placed inside the feedback loop so that the effect of its impedance is reduced by the amplifier, the error in reading due to the drain in the divider being negligible if a 1A instrument is used.

A small electrolytic capacitor C7 is placed across the output terminals of the unit, this capacitance having most effect at frequencies above those at which the feedback amplifier operates; i.e. above 10 kc/s.

The shunt resistor R2 across the main reservoir capacitor is designed to pass a greater current than is flowing in the auxiliary reference circuit. Without this resistor, when the drain on C3 exceeded the current in the auxiliary circuit, the voltage across C1 would change by about a volt, causing a small change in the reference level and hence the unit output. As it is, the effect of increasing load does modify the reference slightly and this may give rise to a negative d.c. output impedance. This negative impedance is not of sufficient magnitude to support oscillation on any practical load.

The Schmitt trigger circuit used in the current overload trip is TR2 and TR3. The emitter supply for this pair is derived from a Zener reference diode D7 in order that the performance should remain unaffected by a change in output range. In the normal state, TR3 is bottomed and TR2 cut off. As the load current increases, the base of TR3 is taken more negative until this transistor begins to cut off. As the collector voltage rises towards the reference rail, TR2 is pulled on by the coupling effect of C4 and R8. Regeneration completes the switching cycle and TR2 becomes fully bottomed, the base of TR4 being pulled negative. TR4 starts to conduct, the collector current being sufficient to pull the base of TR6 to zero with TR5 cut off.

When the output has fallen to zero, the overload current will be zero, but the hysteresis voltage in the trigger circuit is sufficient to hold the unit off. The trigger can only be reset by closing S3a which turns TR2 off after a short time determined by C4 and the magnitude of the hysteresis voltage. This short interval is sufficient to allow C5 to discharge through R21 and S3b, thereby avoiding a pulse of output when selecting the standby mode. The current level at which the trip fires can be adjusted by RV1 in the base circuit of TR3.

If, for sake of simplicity, it was required to construct this unit without the current trip facility, all components associated with TR2, TR3 and TR4 could be omitted without affecting the performance of the unit in any other respect. It would, however, be advisable to put a fuse in the output circuit; a 2A fuse in series with the ammeter would afford sufficient protection to TR7 in most cases.

Construction

Suitable case and chassis sizes for this unit are indicated in the specification for this supply, these components being

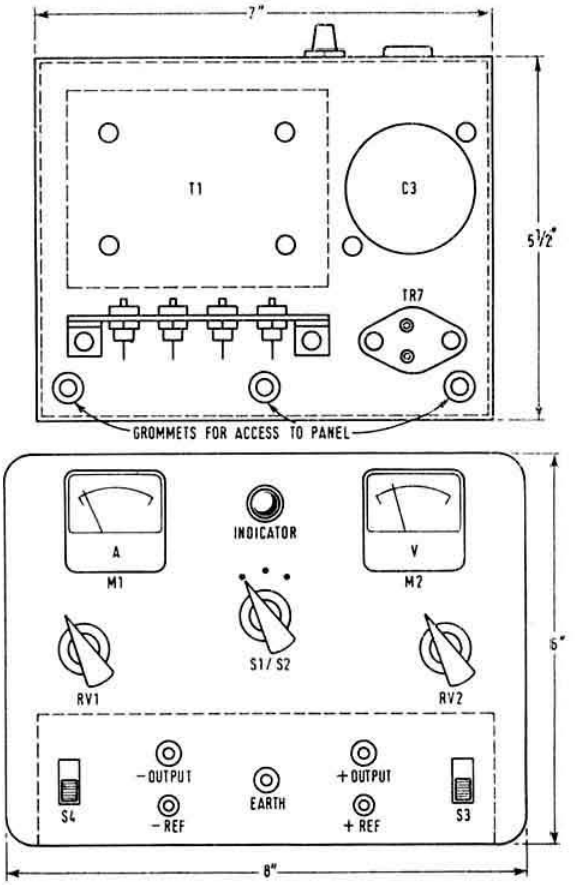


Fig. 2. A suitable panel and chassis layout for the power unit.

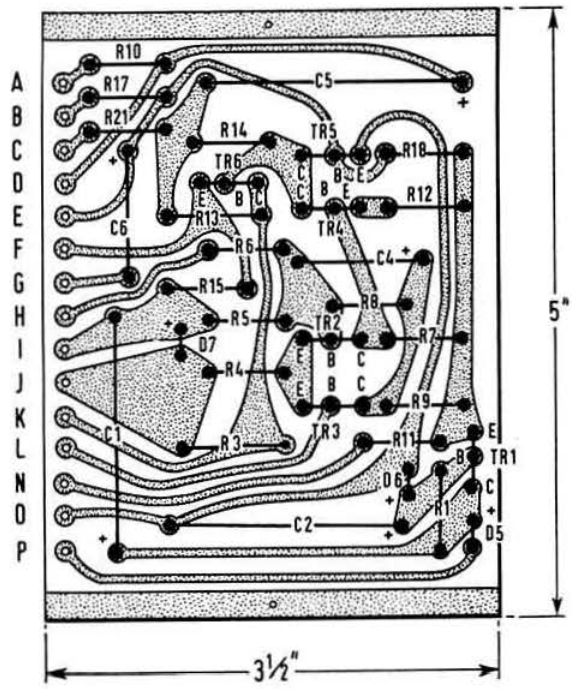


Fig. 3. A component layout suitable where printed circuit or pin-board construction is to be used.

available as standard items from regular advertisers in the BULLETIN.

The BYZ10 diodes need no conduction cooling and may be mounted on a paxolin strip or some other insulating material. The OC28 emitter follower needs an excellent heat sink if the unit is not to fail under low voltage, high current, conditions. If a chassis similar to that specified is used, the transistor may be bolted to this, a mica or anodized aluminium spacer being used to insulate the transistor from the chassis. If some other chassis form is to be used, it should be ensured that an insulated heat sink with a thermal resistance of less than 3° C/W is provided for the OC28.

Full details of a suitable layout for the front panel and chassis are shown in Fig. 2.

The low power sections of this unit lend themselves to printed circuit or pin board construction. All the low power stages can be accommodated on a board 5 in. × 3½ in. which will fit underneath the main chassis. A suitable component layout for this part of the unit is shown in Fig. 3.

TABLE 2

	e	b	c
TR1	+5·4	+5·6	+9·4
TR2	+0·7	+0·5	+5·3
TR3	+0·7	+0·8	+0·7
TR4	+5·4	+5·3	−10·5
TR5	0	+0·1	−10·6
TR6	−10·3	−10·6	−12·9
TR7	−10·3	−10·3	−12·9

Specimen d.c. voltages present in the power supply while it is supplying 10V at 0·5A. All voltages were measured with an Avometer Model 8 on the 25V d.c. range and are with respect to the positive rail.

although it is in no way critical so far as performance is concerned. Connections between the circuit board and other components are identified by letters A to P on the circuit diagram (Fig. 1).

Testing

When the unit has been checked thoroughly for any mechanical faults, it may be tested as follows. Turn RV1 to its maximum position (slider nearest auxiliary rail); RV2 to minimum (shorted); S4 to REFERENCE INTERNAL; S3 to NORMAL and S2 to 0-10V d.c. Switch on the mains supply and check that, on increasing the setting of RV2, an output voltage reading is obtained. If no such output is forthcoming, measuring the voltages across C3 and C1 should give an indication of whether the fault is in the supply circuit or stabilizing circuit. To eliminate the influence of a faulty current trip circuit, it may also be found useful to disconnect the collector connection of TR4.

After a voltage has been obtained on the output terminals, increase RV2 to maximum and check that the output is at, or above, 10V. Now change to the 10V to 20V range and check that RV2 has its expected range.

Return S2 to the 10V range and set the output voltage to 6V d.c. Now reduce the trip level potentiometer slowly to zero. If the output falls to zero, the potentiometer should be very near the low end of its range when the trip fires. Increase RV1 to maximum again and, if in the last test the overload trip was fired, reset the trip by switching S3 momentarily to STANDBY. The output level should be observed to climb slowly back to 6V as C5 charges through R13.

Connect a load of about 10 ohms to the output of the unit and adjust the output voltage until the load current is 0·6A. Now reduce the setting of RV1 until the overload trip fires. RV1 should be near mid range at this time. Reset the trip and RV1 and increase the output to 1A to ensure that the maximum setting of the trip level is sufficient. Any slight discrepancies in the range of RV1 can be removed by adjusting R10 and R11 until the correct range is obtained. Only after the current trip range has been fully checked should any short circuit test be attempted as, if the current trip is faulty, an overload will destroy TR7.

Should any difficulty be experienced in obtaining the expected performance from the unit, the voltages shown in Table 2 may be used as a guide in fault finding. All voltages were measured with respect to the positive output terminal with an Avometer Model 8 on its 25V d.c. range.

Operation

Operation of the unit is generally straightforward but a few notes may help to explain the facilities provided to their best advantage.

Current trip. This should generally be set at about twice the anticipated peak load current, though if only short circuit faults are expected, it may be left at its maximum setting.

Voltage Range. At the overlap point between ranges, it is generally better to use the low range than the high, since a great deal of power is wasted in the OC28 if the high range is used near its minimum voltage setting.

Standby Switch. The standby switch is operated momentarily to reset the current trip and may also be used while making adjustments to an experimental circuit under test. When returning to normal, the output will build up slowly to prevent the overload trip firing due to a current surge into a capacitative load. This slow build up may also give enough time to spot any fault in a circuit under test before any damage is done.

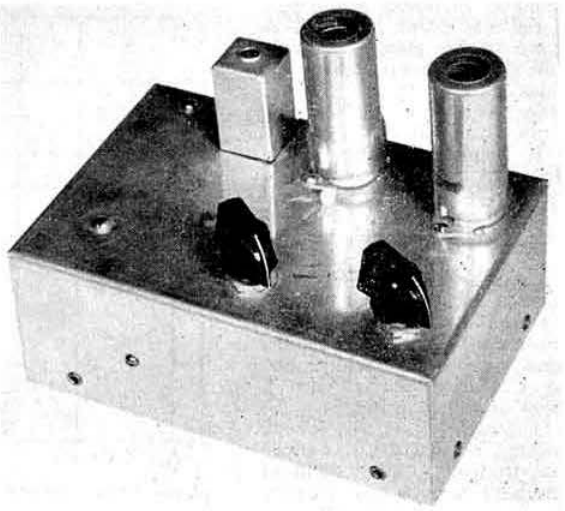
External Reference Switch. The external reference facility may be used in situations where a low source impedance

(continued on page 90)

Converter for 70cm Amateur Television

By JOHN E. CRONK, G3MEO-G6MEO/T*

SINCE the introduction of the G6 and G8 u.h.f. licences there has been a considerable increase in activity on the 70cm band, and it is quite likely that many amateurs and listeners interested in television are within range of a /T station without knowing it. Therefore a converter built with the minimum of metal work may be a great asset in finding out the activity on the 70cm band in one's area, for little is lost if results are negative. Although simple, performance has not been sacrificed. The converter will tune from about 395 Mc/s to 490 Mc/s, but the tuning rate is not excessive, even without a slow motion drive, when it is used as intended into a television receiver. Although it has proved quite satisfactory for reception of local 70cm phone stations it will not be sufficiently stable if a selective communications receiver is used as the i.f. stage.



Top view of converter.

Circuit Description

The r.f. stage is a conventional grounded grid amplifier using an A2521 (V1), with a half wave anode line (L1). An E88CC double triode (V2) is used as a self oscillating mixer and a cathode follower stage. The oscillator is a Colpitts circuit, feedback being through the inter-electrode capacitances of the valve.

The signal is coupled into the cathode of V2 by L2. RFC7, L4 and C7 filter the output from the mixer and select the i.f. signal, which is fed into the cathode follower to give some isolation and a low impedance output. The i.f. chosen was 56 Mc/s (channel 3) to give a reasonable spacing from the London TV transmitter on 45 Mc/s (channel 1). If a different i.f. frequency has to be used it should only be necessary to make a small adjustment to L4.

Construction

The two brass troughs should be constructed first to the dimensions in Fig. 2. The valve holders may then be positioned so that the anode pin (5) of V1 is in line with L1 and the anode pin (1) of V2 is in line with L3. P.t.f.e. valveholders are strongly recommended. The feedthrough capacitors may now be soldered into position and the brass polished or silver plated. With the mixer trough spaced $\frac{1}{2}$ in. from the r.f. stage trough and a small gap left at each end to allow for the wiring, both can be mounted in a 6 in. × 4 in. × 2$\frac{1}{4}$ in. standard aluminium chassis. It is essential that a small screen is

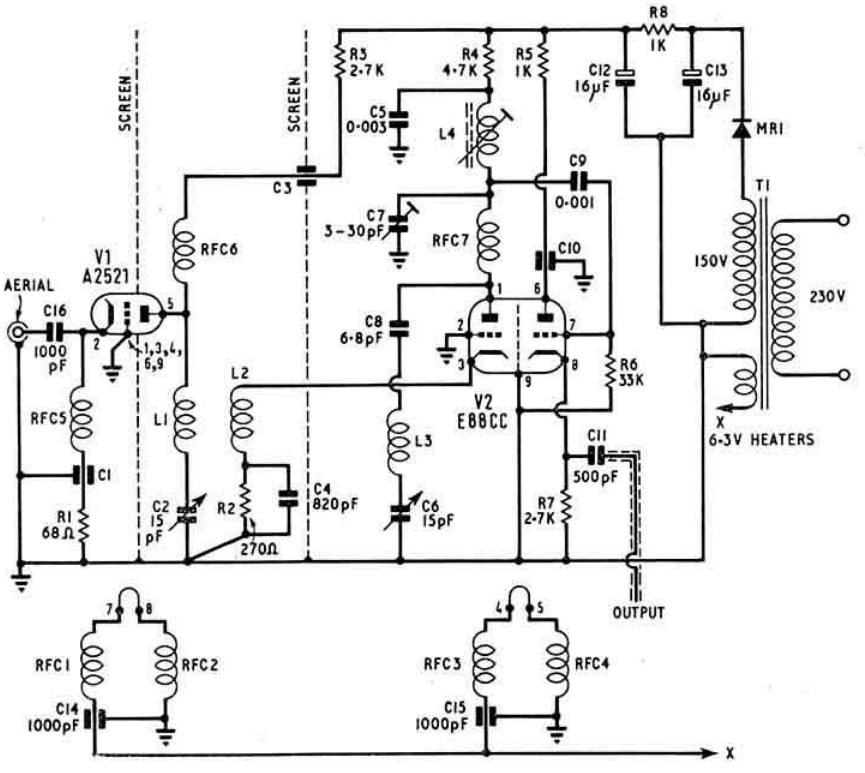


Fig. 1. Circuit diagram of the converter including the h.t. power supply and the l.t. supply line.

*26 Totton Road, Thornton Heath, Surrey.

fitted to V1 holder across pins 3 and 6 as shown in Fig. 3. A scrap of tin plate is suitable and should be soldered to the sides of the r.f. trough. The r.f. stage will become unstable without this screen.

It is suggested that L2 is installed at this stage between pin 3 of V2 and R2/C4. R2/C4 should be earthed to the tag of C2; this part of the capacitor (C2) then forms a common path to the chassis and provides further coupling. The line L1 needs to be bent to accommodate its length of 4½ in. in the space available, the end nearest to C2 being shaped into a hook as shown in Fig. 3a.

The resistors R1 and R3 are located outside the r.f. anode line trough. A small stand-off insulator with a low capacity to ground is used to support the 6·8pF capacitor (C8) and the end of L3. The other components will fit into place if the brass troughs have been drilled as shown in Fig. 2.

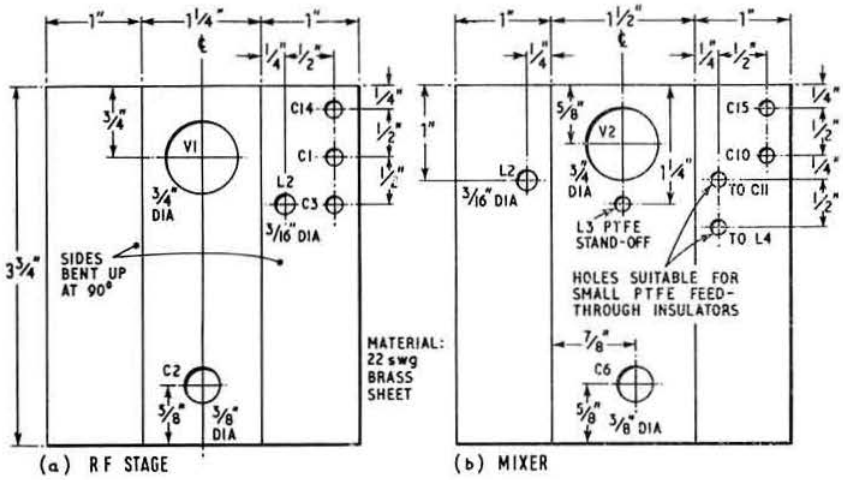


Fig. 2. The dimensions needed for the construction of the brass trough as mentioned in text.

Testing

A 70cm signal is required, the third harmonic from a two metre transmitter will do for those without a signal generator. The mixer (C6) on the prototype tunes 70cm when about 75 per cent open and with the r.f. stage capacitor about 50 per cent open.

When a signal is located C7 should be tuned to peak up the i.f. circuit; a dust core will probably not be needed to tune L4 to 56 Mc/s. A 22K ohms damping resistor may be needed to tune L4 to increase the bandwidth though at the expense of the gain.

Performance

The noise factor has not been measured as the overall noise of the converter and the i.f. receiver will depend on the bandwidth of the receiver. Some re-alignment of the TV receiver to restrict the bandwidth to approximately 2 Mc/s is worthwhile, but this must not be overdone or the rise time of the sync pulses will be spoilt thus preventing the picture locking to say nothing of the effect on quality. Generally it is better to choose a TV receiver without flywheel sync, as amateur signals may not conform exactly with the British 405 line standard. A direct sync model is therefore strongly recommended. Some fringe area models have extra sync amplification and shaping which is useful. With the co-operation of G8AEJ (Penge) pictures have been received from the writer's own QTH with this converter. Although only a three mile path, South Norwood Hill is in the line of

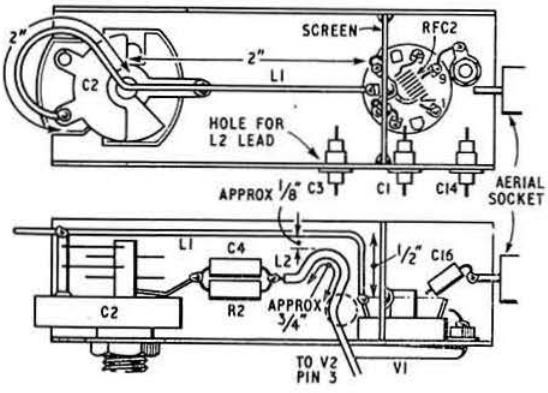
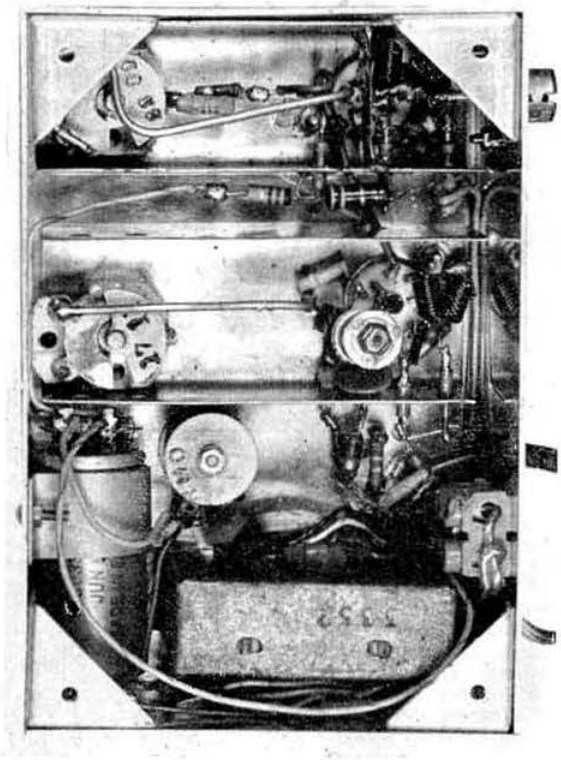


Fig. 3. Line drawing showing the position of components in the brass troughs. The shaping of L1 and L2 is shown.



Beneath the converter chassis showing the position of troughs and power supply.

Components Lists for 70cm TV Converter

Resistors

R1	68 ohms, ½ watt.
R2	270 ohms, ½ watt.
R3, 7	2·7K ohms, ½ watt.
R4	4·7K ohms, ½ watt.
R5	1K ohm, ½ watt.
R6	33K ohms, ½ watt.
R8	1K ohm, ½ watt.

Capacitors

C1, 3, 10, 14, 15	1000pF Radiospares feed through types.
C16, 9	1000pF disc ceramic.
C5	0·003μF disc ceramic.
C8	6·8pF ceramic.
C4	820pF ceramic.
C11	500pF ceramic.
C2, 6	15pF variable (2 moving—2 fixed plates).
C7	3-30pF Philips trimmer.
C12, 13	16μF 200V working.

Coils

L1	4½ in. of 14 s.w.g. tinned copper.
L3	2¾ in. of 14 s.w.g. tinned copper.
L2	3 in. of 20 s.w.g. p.v.c. covered.
L4	5 turns of 26 s.w.g. enamel ¼ in. diameter (Aladdin former).
R.f.c. 1, 2, 3, 4	10 in. of 22 s.w.g. enamel 3/16 in. diameter self supporting.
R.f.c. 5, 6, 7.	10 in. of 26 s.w.g. enamel 3/16 in. diameter self supporting.

T1 small mains transformer. 150V and 6·3 secondary.
V1 GEC A2521.
V2 Mullard E88CC.
2 p.t.f.e. valve holders B9A.

sight and a make-shift aerial was used at the transmitting end. Phone signals are usually just over S9 using the same transmitter.

This converter will give very acceptable results on its own, but the performance of the receiving equipment can be improved fairly simply when it is known that there is sufficient activity to warrant further expense. The next step would then be the addition of a mast head transistor pre-amplifier, the design in the April, 1965 RSGB BULLETIN being eminently suitable.

28·6 Mc/s Test Transmissions

The Newark Short Wave Club is carrying out tests on 28·6 Mc/s every Sunday under the call-sign G3UEB/A. QSO's and s.w.l. reports would be appreciated. The equipment in use is a KW2000 transceiver, KW600 linear and TA33 jnr beam.

Equivalents for US neon lamps types *NE2* and *NE51*

These types of neon lamps are frequently specified in circuits appearing in US publications. Both are general purpose lamps needing a series resistance of 270K ohms for 200-250 volts a.c. or d.c. Type *NE2* is a wire-ended lamp having as an equivalent the *Hivac* type 3*L*, whilst the *NE51* has a MBC or MES base to which the *Hivac* equivalent is the type 7*L*. These lamps have nominal strike and maintain voltages of 80V d.c. and 60V d.c. respectively. The series resistor value is not critical and ½ watt rating with 20 per cent tolerance is adequate.

Aerial Farming in a Monastery

An introduction to the lecture by Rev. P. W. SOLLOM, O.S.B., Ph.D., B.Sc., D.I.C., A.C.G.I., G3BGL

It all began with a four hundred foot long coaxial resonator, with a water cooled centre conductor if you please, known to the uninitiated as an artesian well. If it hadn't become defunct when it did, and who'd blame it—buried like that for umpteen years—there might have been cows or sheep on the farm. But the Amateur Radio possibilities of water piping were overpowering and an aerial farm took root instead.

It is proverbial that old bedsteads will find their way into ditches and canals, but other less well known applications may be found in an enterprising farmyard. "Well, OM, actually I operate here on a flying bedstead, but it gets out all right judging from reports." Of course, the Bursar is none too happy about the way the beds got wrecked but it is better than having to sell them as scrap iron. And there really was some "real DX on ten metres" a few years back in the BULLETIN, remember?

Now it is DX on one and a half, with live TV direct from Lille and doppler QRM from "Green One." One eye is focused on the tropo programme of the Radio and Space Research Station, the other is glued to the possibilities for two or seventy centimetres. One really needs an airline flight schedule for this.

The lecture to be given to the RSGB on 9 March (see separate advertisement) will embrace all aspects of aerial farming: mast erection, interesting constructional details, aerial adjustments, aerials for the amateur bands and research projects in tropospheric propagation, besides giving an insight into monastic life, and the relevance of science in the cloister. The lecture will be illustrated with colour cine film, colour slides, and a microwave demonstration experiment.

Obituaries

Harold James, G5JM

Members will learn with great sorrow of the recent death of Harold James at the premature age of 55, an old-timer of nearly 40 years standing.

He will be remembered for his wide technical knowledge, his strict adherence to amateur ethics on the air, and his pleasing and helpful nature. The writer owes his own introduction to amateur radio to him, and recalls with gratitude the unstinted assistance received dating back from schooldays together.

He operated most of the bands, and was known chiefly for his love of the key. Few would find his equal in his well-nigh faultless c.w. and his abhorence of the purely "rubber-stamp" QSO.

A gap difficult to fill has been left in our ranks, and we extend our deepest sympathy to his widow and daughters.

Rudolph Fleischmann, G3SSV

It is with deep sorrow that we report the passing of Rudolph Fleischmann, G3SSV, a loss that will be felt by his many friends in this country and in Europe.

A Czechoslovakian who settled here, he had led an adventurous life and suffered great hardship, which permanently affected his health, before coming to this country.

Although his interest in Amateur Radio was developed only in the last few years of his life he tackled it wholeheartedly and became very keenly interested.

He took part in and helped to organise the "International QSO", a group of amateurs of various nationalities who hold an annual re-union each year in a different country. He was also instrumental in arranging many exchange visits between British and Czech students. He was a member of RAIBC.

He leaves a widow, Dr S. Fleischmann, and two daughters, to whom we offer our deepest sympathy.

Daily Mail Schoolboys' and Girls' Exhibition

THE *Daily Mail* Schoolboys' and Girls' Exhibition held at Olympia during the post-Christmas period (27 December, 1965 to 8 January, 1966) provided the Society with an opportunity of demonstrating Amateur Radio in a big way to a large number of young people with enquiring minds.

The work-bench around which Associates of the Society were busily engaged in constructing apparatus of all kinds, including superhets to a design by Mr Arnold Mynett, G3HBW, Heathkits and Philips Electronic Engineer and Radio Kits, was placed strategically at the front of the stand. In such a position it attracted much attention and led, inevitably, to a move on to the stand itself where on one side was a well arranged collection of radio equipment built by young members of the Newark and District ARS, the Mount School ARS, the Magnus ARS, Rodney School RS, and Eastney School Radio Club. The stand duty roster was filled by young representatives from a number of other RSGB Groups and Affiliated Societies unfortunately too numerous to mention.

The Wirral Amateur Radio Society Constructional Scheme, featured at the 1965 International Radio Communications Exhibition, was the subject, this time, of a photographic display augmented by an example of the finished product—that belonging to Mr Norman Kendrick, G3CSG.

Main features of the stand were the two transmitting stations, one home-constructed and operating under the special call GB3SBG, and the other a Heathkit station operating under the call GB3RS.

The home-built station, operating on 3·5 Mc/s, was loaned by David Cree, G3TBK, a young member from Newark, Notts. The Heathkit station comprised a SB400/SB200 s.s.b. transmitter and linear amplifier with an SB300 receiver. The aerial system was a Mosley TA33jr rotary beam mounted on top of an SVS 50 ft. lattice mast erected, under the supervision of Mr Frank Bennister, G3COX, on the roof of Olympia to give a total height above the street of 215 ft. The 80m station used a KW trap dipole suspended between the SVS mast and the apex of the Grand Hall. Both stations radiated extremely good signals, one comment received from a W about GB3RS was that it was putting in the strongest signal from Europe. However, the very high electrical noise level made reception very difficult at times, especially during the late afternoons and evenings.

GB3RS and GB3SBG were both operated almost continuously by young members of the Society including David Cree, G3TBK, Lauri Margolis, G3UML, Stuart Yeomanson, G3UNF, and Richard Hall, G3UWB, three of whom have been licensed since they were 14 years of age.

There was a particularly attractive display of Amateur Radio Certificates and Awards offered by organizations and societies in many parts of the world. A large map of the world upon which had been mounted some interesting QSL cards from exotic DX attracted much attention; an arrangement of push-buttons allowing the visitor to see at a glance the location of stations represented by the QSL cards.

RSGB publications were displayed at the enquiry desk which was manned throughout the Exhibition by keen young members of the Society who were kept busy answering an endless string of questions.

The purpose of the Education Committee in organizing a stand at the *Daily Mail* Schoolboys' and Girls' Exhibition was to interest young people in the hobby of Amateur Radio. That it succeeded is certain.

Mr D. C. French, G3HSE, acted as manager of the stand and he was assisted by a great many members to all of whom the Council records its warm appreciation for a job well done. The Council also records thanks to British Insulated Callender Cables Ltd., Daystrom Ltd., Mosley Electronics Ltd., Philips Electrical Ltd. and SVS Masts for the valuable help given in loaning equipment or providing other services: also, of course, to the *Daily Mail* who provided the stand, which was some 30 ft. by 20 ft. and can be seen in the photograph.

Welcome to Q-Five Magazine

Q-Five Magazine is a new radio magazine " for the Irish Amateur Radio enthusiast." Judging by the first two issues it is, however, likely to find a far wider circulation.

The January issue, for example, contains, amongst other interesting items, a constructional description of a 500 watt linear amplifier using four EL38's, a review of the Heathkit HW32 transceiver, v.h.f. notes, a report on the first two-way EI amateur TV QSO, and the Art of QSLing.

Q-Five is edited by Bert McHenry, GI3NSM, and costs 2s. per month. Information on subscriptions may be obtained from *Q-Five Magazine*, 54 Orby Road, Belfast 5.

Delay in Publication

Owing to sudden illness amongst members of the editorial staff, it seems probable that this issue of the RSGB BULLETIN will be published later than scheduled, despite valiant efforts by our printers to make up for lost time. It is hoped that the March issue will appear on the correct date.

Review

THE LAFAYETTE AMATEUR COMMUNICATIONS RECEIVER MODEL HA350

Reviewed by B. D. A. Armstrong, G3EDD*

THE amateur or s.w.l. who wishes to buy proprietary equipment has a bewildering choice. It is hoped to make the choice easier by publishing, from time to time, technical reports on various pieces of equipment. Ideally it is necessary to test a number of identical equipments, but this is not possible. The following report is on one example of one particular receiver; it is hoped that the good things are typical and the poor things exceptional.

Technical Specification—Handbook Figures

Frequency Coverage

3·5–4·0 Mc/s	21·0–21·5 Mc/s
7·0–7·5 Mc/s	28·0–28·5 Mc/s
14·0–14·5 Mc/s	28·5–29·1 Mc/s
WWV on 15 Mc/s	29·1–29·7 Mc/s

Receiving Modes
A.m., c.w. and selectable s.s.b.

Aerial Input
50–75 ohms unbalanced (with coaxial connector).

I.F. Rejection
Better than 40db.

Selectivity
Bandwidth 2 kc/s at 6db down; 6 kc/s at 60db down.

Sensitivity
Better than 1μV for 10db signal-to-noise ratio.

Intermediate Frequencies
First I.F.: Variable 3·5–4·1 Mc/s.
Second I.F.: 455 kc/s.

Audio Output
1 watt (maximum).

Output Impedance
500 and 8 ohms.

Valve Complement
V1–6BZ6 r.f. amplifier
V2–6BL8 crystal-controlled first oscillator and first mixer
V3–6BE6 second mixer
V4–6BA6 v.f.o. second oscillator
V5–6BA6 455 kc/s i.f.
V6–6BA6 455 kc/s i.f.
V7–6AL5 a.v.c. rectifier and noise limiter
V8–6AQ8 product detector and crystal calibrator
V9–6AV6 first audio amplifier
V10–6AQ5 audio output
V11–6BA6 crystal-controlled b.f.o.
V12–0B2 voltage regulator.

Auxiliary Circuits
(1) 100 kc/s Calibrator Circuit
(2) Automatic Noise Limiter
(3) Automatic Volume Control.

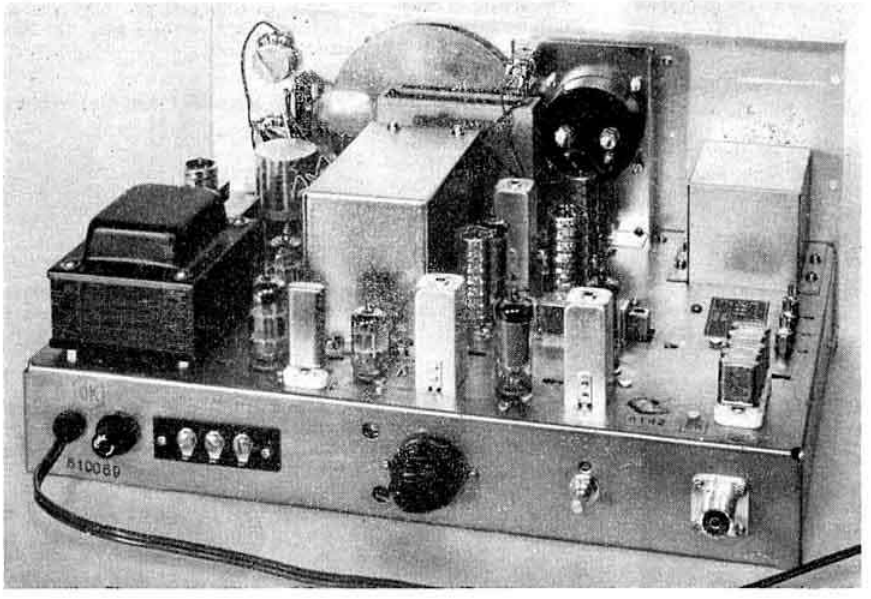
Power Consumption
60 watts.

Power Requirements
110–120 volts, 220–230 volts } 50/60 c/s a.c.

Dimensions
15 in. wide × 7½ in. high × 10 in. deep.

Net Weight
25 lb.

*Member of RSGB Technical Committee.



Upper rear view of the HA-350. The first oscillator crystals are on the right, while the optional 100 kc/s calibrator crystal is close to the mains transformer.

General Description

The Lafayette HA350 receiver is a low cost amateur bands receiver, with crystal controlled front-end. It covers 80 to 10 metres inclusive, with an additional front-end crystal for covering 15 Mc/s WWV. The receiver is manufactured in Japan and marketed in this country by several dealers. The receiver which was subjected to test was loaned by G. W. Smith & Co. (Radio) Ltd. of 3 Lisle Street, London, W.C.2. The retail price is 75 gns.

The tunable i.f. covers 3·5–4·1 Mc/s so that, on the 80m band only, the receiver is a single conversion superhet. Selectivity is provided by a 455 kc/s mechanical filter and the wanted sideband is selected by operating the demodulating oscillator on one side or the other of the i.f. filter.

In order to economize on the number of crystals required for the eight 600 kc/s segments, the first oscillator injection frequency is either h.f. or l.f. of the signal frequency depending on the band. This results in sideband inversion on some bands so that the sideband switch is marked SSB1 and SSB2 rather than u.s.b. and l.s.b. The first oscillator arrangement also results in the direction of tuning differing with band. The tuning dial markings are colour coded yellow and white for the two directions, and the key to the correct calibration is marked on the dial window.

The aerial input impedance is 50–75 ohms with an SO239 coaxial socket.

An optional extra is the provision of a 100 kc/s crystal in the built-in calibrator. A retaining clip for the crystal is provided.

An octal socket at the rear is provided to give external connection to the 500 ohm audio output, a.g.c. line, send/receive switch and aerial terminal.

The a.c. power input is by a twin lead of generous length. The receiver sold in Great Britain has transformer taps for 110V and 230V a.c.

Selectivity

The claimed figures for selectivity are 2 kc/s at the 6db points and 6 kc/s at the 60db points. The measured figures were 1·9 kc/s at 6db and 4·5 kc/s at 60db. There was a small amount of ripple in the i.f. pass band, but less than 2db.

The full selectivity of the i.f. filter is used on a.m. reception as well as s.s.b. Since the total passband is only about 2 kc/s, this means that speech frequencies above 1 kc/s are attenuated. The speech is thus rather "bassy" and not very pleasant. However, a.m. can be received either as a single sideband signal with its own carrier or single sideband with the b.f.o. as the demodulating carrier. By this means, speech frequencies up to 2 kc/s are reproduced and the quality is quite reasonable.

Sensitivity

The signal-to-noise ratio performance claimed is 10db for 1μV. It was assumed that this meant 1μV p.d. and modulated 30 per cent a.m. At this level the specification was met with 1 or 2db in hand. On s.s.b. with unmodulated carrier input the signal-to-noise ratio varied between 19 and 23db for 1μV p.d.

The S Meter

The S meter appears to be calibrated with 4db per S point as the target. Actual figures on 28·5 Mc/s are as follows.

Meter reading	*db rel. 2μV. e.m.f.*
S2	0
S3	+ 6
S4	+10
S5	+14
S6	+20
S7	+26
S8	+30
S9	+36
S9+20	+48
S9+40	+60

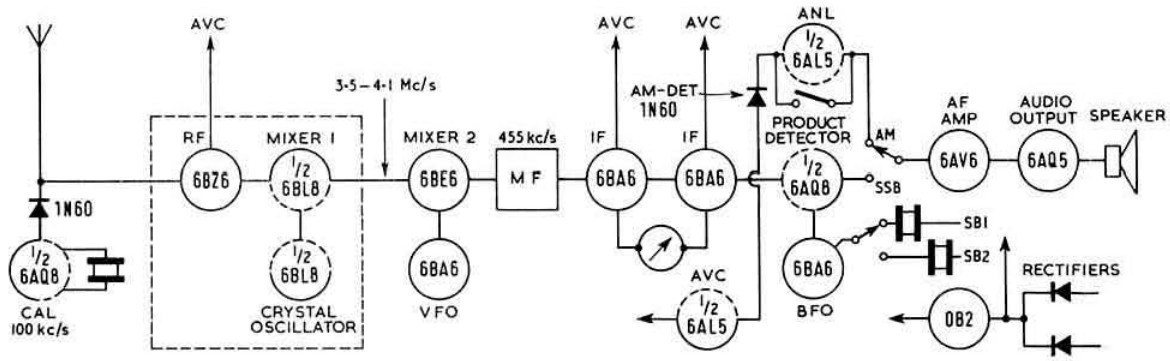


Fig. 1. Block diagram of the HA350 communication receiver.

In terms of microvolt input to the receiver, there was a 26db difference in input between 28·5 and 3·5 Mc/s for the meter to read S9. The actual figures are:

Frequency	*db above 2μV e.m.f. to read S9*
3·5 Mc/s	+14
7·0 Mc/s	+24
14·0 Mc/s	+32
21·0 Mc/s	+28
28·0 Mc/s	+40
28·5 Mc/s	+36
29·1 Mc/s	+30

This wide variation is not unusual on amateur communication receivers and serves to indicate how unreliable S meters can be.

A.G.C. Performance

The a.g.c. is arranged to have fast attack and slow decay on s.s.b. and fast attack and delay on a.m. No figures are claimed for a.g.c. performance and the following figures were recorded on 28 Mc/s with 30 per cent a.m.

Input	*Audio Level*
2μV e.m.f.	0db
20μV e.m.f.	+9db
200μV e.m.f.	+14½db

Unwanted Responses

Since the tunable i.f. is 3·5–4·1 Mc/s, where very strong signals are the rule rather than the exception, the first i.f. breakthrough is of some importance. On 7 Mc/s the rejection to a 3·5 Mc/s signal was 50db on all other bands it was greater than 80db. The claimed figure is 40db.

The first i.f. image occurs about 7 Mc/s away from the signal frequency on all bands except 3·5 Mc/s where it is 910 kc/s away. The figures obtained were as follows:

Frequency	*First i.f. Image Rejection*
3·5 Mc/s	60db
7·0 Mc/s	70db
14·0 Mc/s	67db
21·0 Mc/s	57db
28·0 Mc/s	44db

Cross-modulation, Inter-modulation and Blocking

The receiver was tested for cross-modulation by feeding in two signal generators via a 10db loss combining network. The wanted signal level was such as to produce 14db signal/noise ratio on a.m. A modulated unwanted signal was introduced 20 kc/s away and the level increased until the wanted signal-to-noise ratio was degraded by 3db. It was necessary to have the unwanted signal from 48db to 60db, according to frequency, above the wanted signal. This performance is very good. It means that if one is listening to an S5 signal on 21 Mc/s, it requires at least an S9 +40db signal 20 kc/s away to slightly degrade the signal.

The blocking performance is very similar to the cross-modulation performance. In fact during the cross-modulation test, the 3db degradation was partly caused by desensitization.

The intermodulation performance was checked by feeding in two strong signals 20 kc/s apart and looking for intermodulation signal either 20 kc/s below the lower signal or 20 kc/s above the upper signal. Like the cross-modulation performance, the intermodulation performance was also of a high standard. Two signals at S9 +30 on the S meter produced an intermodulation signal that read S1.

Audio Output

The audio output impedances are 8 ohms and 500 ohms. The maximum power output is 1·4 watts at which level there was heavy distortion. However, at the claimed figure of 1 watt the output is distortion free as seen on an oscilloscope.

The Crystal Oscillators

Harmonics of the optional 100 kc/s calibration oscillator are fed into the aerial terminal and the calibration is available on the front panel. Since the tunable i.f. (3·5–4·1 Mc/s) also has coincident 100 kc/s points, leakage of the 100 kc/s oscillator into the first i.f. will produce a beat in addition to the harmonic at carrier frequency. These beats will coincide provided the first oscillator crystals are exactly on frequency. In the HA350 the crystals were not exactly on frequency and there is no method of adjustment mentioned in the handbook. When calibrating, it was found that two beats could be heard and there was no way of knowing which was correct. On 7 and 14 Mc/s one could assume that the stronger beat was correct, but on 28 Mc/s there were indications that this beat was the wrong one.

The front-end crystal frequencies were checked, with the following results:

Correct Frequency	*Actual Frequency*	*Errors*
11·000 Mc/s	10·998243 Mc/s	−1757 c/s
18·000 Mc/s	17·999604 Mc/s	−396 c/s
24·500 Mc/s	24·499546 Mc/s	−454 c/s
25·000 Mc/s	25·000128 Mc/s (On 21 Mc/s)	+128 c/s
	25·000160 Mc/s (On 28·5 Mc/s)	+160 c/s
25·600 Mc/s	25·598850 Mc/s	−1150 c/s

The error of the 11 and 25·6 Mc/s crystals seemed unreasonably high.

The sideband crystal frequencies were also measured:

Correct Frequency	*Actual Frequency*	*Error*
456·500 kc/s	456·529 kc/s	+29 c/s
453·500 kc/s	453·506 kc/s	+6 c/s

The Main V.F.O.

The drift of the main v.f.o. was checked. The total drift from switch-on was about 850 c/s and a steady state was reached in 20 minutes. Most of the drift, 730 c/s, was concentrated in the first 10 minutes.

The main tuning had some backlash. This was checked by choosing a point on the logging scale, approaching it from l.f. and h.f. sides alternately, and measuring the difference in frequency. The average error was 1 kc/s. The resettability was also measured during this test: provided the tuning point was always approached from the same direction, the tune frequency was within 100 c/s.

The tuning scale was not quite linear. It seems a pity that it was not, since otherwise the logging scale could have been used for very accurate interpolation of frequency. The tuning control, in common with many American receivers, has no flywheel. In spite of this, the "feel" was quite good. It required 4¼ turns of the tuning control to cover 500 kc/s.

The Preselector Control

The front-end circuits are peaked up with the PRESELECTOR control. Calibration of the control was not particularly accurate, but probably adequate. There were two positions in which noise peaked up, on all bands except 3·5 Mc/s. On 7, 14 and 21 Mc/s it was obvious which one was correct, but on 28 Mc/s the correct peak was the lesser one. This could be misleading.

General Observations

It is inevitable in a low cost double superhet that some "birdies" are thrown up. This is a serious design problem when one remembers that when tuning s.s.b. there are three oscillators in the small area.

In this case on 3·5 Mc/s there were "birdies" on 3·65 and 3·63 Mc/s; none on 7 Mc/s; one on 14·06 Mc/s; four on the 21 Mc/s band and ten between 28·0 and 29·7 Mc/s.

The HA350 is not really suitable for use as a tunable i.f. on v.h.f. work apart from 4m. One reason is that it tunes a maximum of 600 kc/s without switching bands, but the main reason is that with no aerial connected, breakthrough is sufficient to spoil v.h.f. reception.

The handbook supplied is very good and liberal use is made of diagrams and photographs. The circuit diagram is easy to follow and the value of every resistor and capacitor is given. Possibly the only omission is a voltage analysis, which would be very useful in fault finding.

The receiver is guaranteed for 90 days and it is interesting to note that there is no labour charge for repairs during this period. In order to make the guarantee valid, the guarantee card has to be completed and sent in within 10 days of purchase.

G. W. Smith & Co. (Radio) Ltd., who kindly provided the receiver for evaluation by the Society, confirm that any work which has to be carried out under the terms of the guarantee will in fact be done by them in this country.

Radio Amateurs' Examination

Applications to sit the Radio Amateurs' Examination to be held on May 13, 1966, may be made at any technical college in the British Isles before 22 February. The fee of 30s. is payable to the college authorities, who will make the necessary arrangements for the examination to be taken on the college premises.

Mobile Column

By E. ARNOLD MATTHEWS, G3FZW*

EDITORIAL comment is normally written to make readers think, and "Why Mobile on Grandad's Band?"† was no exception. Unfortunately, it seems to have aroused a number of rather hostile ideas in the minds of some readers! Let us consider the facts in more detail. There must be some very good reasons why at least 75 per cent of the 2000 mobile operators in this country choose to operate on 160m despite the obvious disadvantages.

Equipment requirements are simple, leading to quick and easy construction with few stability problems for home constructed gear. Alternatively, commercial equipment need not run to great expense. Many operators find aerial design and construction a great fascination and there is great scope for experiment in this field at small expense. Band occupancy is reasonable and the power limitations enable a mobile operator to compete for QSOs on more equal terms than on some other bands. But perhaps the most important advantage is that vehicle electrical suppression can be carried out effectively with normal BC type suppression components at little cost and trouble. Not all mobileers are expert vehicle mechanics!

The big disadvantage of the band seems to be the generally poor ranges attainable at night, owing to high noise levels. But is it not possible that s.s.b. operation would overcome this? Although the usual night-time ground wave fades out at around ten miles, ionospheric reflection ought to enable mobile/fixed contacts at good ranges. It is possible that fixed stations don't listen for the very weak 'phone signals at night or that few mobiles operate in darkness because of obvious difficulties of operating.

Although we hear a great deal on the subject of the relative efficiency of v.h.f. aerials mobilewise, we feel that the lower gain of these is overlooked, and because of their greater physical size the l.f. band aerials are not so ineffective as is often considered when v.h.f. is compared with the lower frequencies.

Moving up the spectrum we come to 80m, a band which, by using s.s.b., will give excellent results for the mobileer by day or night, with average ranges up to 250 miles for the former and 1000 for the latter. Real DX becomes possible in winter. Suppression problems are a little more obtrusive than on 160, but by tolerating some background noise one can still use BC components.

Little appears to be done on 40m, but given reasonable conditions one feels that worth-while contacts ought to be regularly possible.

On 20m, when the band is open the mobileer stands a good chance of working DX, and since many operators use the band the /M suffix seems to facilitate QSOs. There must be many operators now holding WAC and DXCC certificates won with quite modest equipment having an output of 15 or 20 watts of a.m. Suppression equipment needs to be specialized, and will consequently be more expensive. The remarks about 20 can also be applied to 15. Neither band should be used for local working if this is likely to interfere with DX.

One wonders what led G3FUR to say that "10m has been tried and found wanting." Tried for what? When open, this band is surely the mobileers' DX paradise! When dead it gives reasonable local contacts. Obviously, equipment must be more sophisticated than for 160m and this argues against the band if one is only going to use it for local work, but in the coming years of sunspot activity we may expect to find much /M activity on the band.

We don't require loading coils for the aerial, a quarter-wave whip being sufficient. However, electrical noise peaks up on this band and suppression requirements are rigorous owing to the vehicle chassis and the exhaust pipe forming a half-wave dipole resonant around 10m.

Four metres is probably the most used v.h.f. mobile band, and gives about 25 per cent greater range than 2m. Logically, both bands should contain more mobile activity than they do. If one does not want to build, there is plenty of commercial equipment to be bought at reasonable prices, contact is probably more reliable than on any other bands, and aerials are not unsightly or obtrusive. However, we hear plenty of talk about lack of activity, which is not likely to attract mobiles to come on the bands. Yet we must recall that some years ago G3BA and G3LNN went to some trouble to produce a tape recording of a series of mobile/fixed contacts made around Birmingham, using equipment on 160m and 2m under identical conditions, which demonstrated the superiority of the latter band. Although the recording was played to many radio societies, relatively few converts were made to v.h.f.

And so we come back to "square one"! Perhaps the real reason that so many operators use 160m for their mobile activity is that it's easy to get going on, the rig provides a non-essential "second string," and a change would mean too much work. In other words are we unadventurous? Or is it that fixed station operators who speak for the mobile use of other bands do not realize that the average mobile operator is a keen type who has not much time to operate mobile, who cannot pick his times of operation, must of necessity choose a well populated band if he is to get any satisfaction? If the fixed station operators using high powers and multi-element beams complain of lack of activity, how much worse will the mobile operator fare?

* 1 Shortbutts Lane, Lichfield, Staffs.
†RSGB BULLETIN, October 1965, p. 637.

Power Supply for Transistor Equipment

(continued from page 82)

from the power supply is vital to prevent oscillation or some other unfortunate condition. This is often the case where the unit being powered is separated from the supply by a long supply lead and, perhaps, also some plugs and sockets which all add to the supply impedance.

In this case, a pair of leads should be brought back to the power supply from the supply rails in the unit under test, these leads being inserted in the appropriate reference sockets on the power supply. If S4 is now opened, the feedback loop will extend to include the supply leads and hence their effective impedance will be reduced by a factor of up to 50 at frequencies over which the feedback amplifier operates.

Conclusion

The unit which has been described provides a reliable and flexible source of low voltage d.c. for transistorized equipment. The availability of all the components used in this power supply was checked immediately prior to the publication of this article and no difficulty should be experienced in obtaining all of them through regular advertisers in this and other constructors' journals.

The author would be interested to hear from any readers who would like to construct the unit using printed circuit techniques. If sufficient interest is shown in this field, the author will consider approaching a manufacturer to produce some boards to the pattern indicated by the component layout in Fig. 3.

KEEPING TRACK OF OSCAR

PART 2

By W. BROWNING, M.I.A.A., M.I.M.I., F.M.I., G2AOX*

IT will soon become possible to assess the maximum audible range, which in the case of *OSCAR III* was approximately 45° east or west of Greenwich. A simply made Perspex or celluloid protractor of this size, held centred on the station location with the 0° mark pointing due north, will show the audible range, and the times from the marks on the orbit ring and the beam headings for first hearing, time of closest approach and last hearing can be read off. With this protractor it will be seen that any orbit passing between Great Britain and the North Pole is within range, therefore orbits 6 and 7 can be calculated as a " follow-on " to orbit 5, and set up on the globe, with the times adjusted by the minute marks on the ring. Both of these come within range, in each case going from west to east, with beam headings from NW to NE.

As soon as any orbits are heard, a main plot should be started, as Fig. 3, on which time is marked vertically downwards from 00.00 to 24.00 GMT and the days horizontally along the base. It is best to use 21 in. × 28 in. graph paper with 1 in. × $\frac{1}{10}$ in. rulings, when 1 in. vertically equals 1 hour, or 6 minutes per $\frac{1}{10}$ in. division, which gives good accuracy with a fine pencil. The times of orbits should be marked with a dot. Fig. 3 is a copy of part of the writer's plot for *OSCAR III*.

To get this type of plot started, after hearing, say, orbit 8 at 08.14 GMT when crossing lat. 50°N on 10 March, mark this point, and as it has been established earlier from Fig. 1 that the daily change is 9·1 minutes later each day, go ten days ahead, and add 91 minutes to 08.14 GMT, i.e., 09.45 on 20 March—mark this point and draw a fine pencil line through these two points. Where this line crosses the vertical date lines will be the times for the intermediate days. Number each orbit by an increase of 14 each day. Lines for orbits before and after these can then be drawn in by measuring up and down vertically the time of the period, i.e., 103·51 minutes, and drawing parallel lines to the first one, numbering the points on these in the same way.

The central " backbone " lines (the N/S one going from just above orbit 9 to just below orbit No. 243) represent the relative position of the Greenwich Meridian (0° Longitude), and so orbits above them are easterly and all orbits below them are westerly. For example orbit 7 would be 47·4°E, No. 8 would be 21·3°E, No. 9 would be 4·8°W and No. 10 would be 30·9°W (orbit 7, however, was just out of audible range). It should always be borne in mind that as 24 hours equal 1440 minutes, and the world rotation in this period is 360 degrees, this is a 4:1 ratio, and so 1 hour equals a movement of 15° in position.

It has been established that orbit 8 was 21·3°E, and so if a point equivalent to that number of degrees is marked below the timing point for the orbit, which will be 21·3 × 4 in minutes (1 hour 25·2 minutes), this becomes the start of the line. As it has been established that the daily change in position is 5·4° westwards every day, in ten days the position would have moved 54° westwards, so mark another point on 20 March line 54 minus 21·3 (32·7) above the orbit number line in the same way (32·7 × 4=2 hours 10·8 minutes). Produce this line well across the graph as thin as possible, and this will then give the position of all future orbits. To simplify measuring this position, cut a small strip of the graph paper about 6 in. long by 1 in. wide, and make a ruler of it. Mark the centre zero, and each 1 in. up or down will represent 15 degrees. Mark those above the zero as east and those below as west. These position measurements must be made up and down vertically to the paper, and not vertically to the orbit lines.

If dotted lines 45° east and west (3 in. up and down on the scale) are now drawn in parallel to the " backbone " lines, they will represent the limit of audible reception in the case of *OSCAR III*, and so serve as a guide to the orbits that may be expected to be heard.

Continue to mark in the times, corrected to 50°N, of all orbits heard, and the plot can then be continued indefinitely. The orbit numbers will always be correct, and predictable for some time ahead.

Using Official Orbital Data

It will have been noted that all times and positions are for S/N or N/S crossing, and this becomes more obvious when it is realized that it represents a fixed position on the orbit ring, as marked by the points of the two arrows. This predicted time is not the time of closest approach or even the centre time of hearing, as will be noted from Fig. 4, which shows the actual tracks of orbits 168 to 171 going S/N and the Polar orbit 172 going W/E. This is a polar projection; the thick vertical centre line is the Greenwich Meridian, the thick circular line is 50°N latitude, and so the centre point where they cross is actually 1½° south of London. The dotted lines from the orbit tracks to this point show the point of nearest approach, and the small marks represent minutes along the orbit. The dotted ellipse is the range of audible hearing as previously mentioned.

The following table shows the minutes before and after the predicted time for first hearing, T.C.A., last hearing, and how they vary from orbit to orbit. It will be noted that with the minutes marked on the orbit ring as suggested, these times and the beam headings can quickly be read off when the protractor is applied to the globe and centred on the station location. When reading off beam headings, use the figures on the protractor where it cuts the orbit ring for first and last hearings and the T.C.A., but not any of the lines on the globe, which are circular, as the reception is line of sight and a straight line from the location to the satellite.

Orbit	*First Hearing*	*T.C.A.*	*Last Hearing*
168	−6 min.	−2 min.	+2 min.
169	−9 ,,	−1 ,,	+7 ,,
170	−7 ,,	+2 ,,	+10 ,,
171	−2 ,,	+6 ,,	+12 ,,
172	+4 ,,	+10 ,,	+16 ,,

If the orbit ring is therefore set up correctly for each orbit before it occurs, it is only a matter of seconds to form a time

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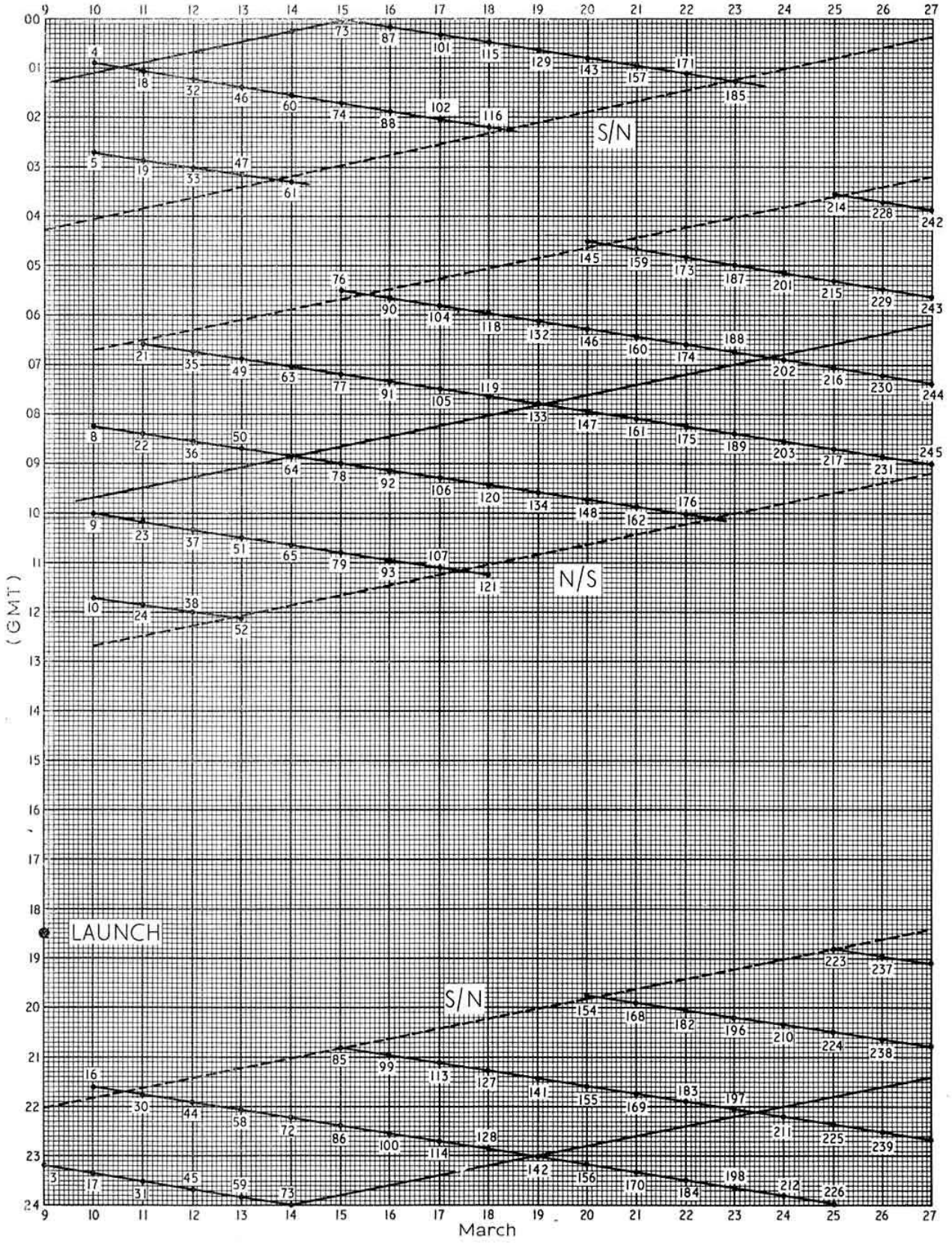
Fig. 3. Plot of the orbits of *Oscar III* within audible range



and position plot, and progress can be followed by co-ordinating the beam rotation with a clock. The circumference of the Earth, measured round the Equator, is 24,902 miles, and so if another strip of paper is cut and calibrated the range in miles can be ascertained, and for this purpose, 10° round the equator equals 691·7 statute miles.

By adapting this method, once the times and positions are established for the S/N and N/S orbits, it is only a matter of a simple day to day addition to predict just those orbits required, ignoring all the rest.

There is, however, another method adopted by the US Space Control Authorities which automatically covers every orbit in all parts of the world, but it means calculating every consecutive orbit continuously, and then making the necessary corrections to the figures obtained to produce those required for the particular location of the station.

In this system, Orbit 1 commences on the first S/N crossing of the Equator, and all times and positions are the time (GMT) the satellite crosses the Equator going S/N and the position is the number of degrees west of Greenwich. It simply involves adding the period and track separation continuously. The following figures apply to one of the seven other satellites launched with *OSCAR III*. After 1800 orbits, this one was only 3·3 minutes behind *OSCAR III*, its position was 0·82° further west, and the mean height was only approximately 580 yards lower than *OSCAR III*.

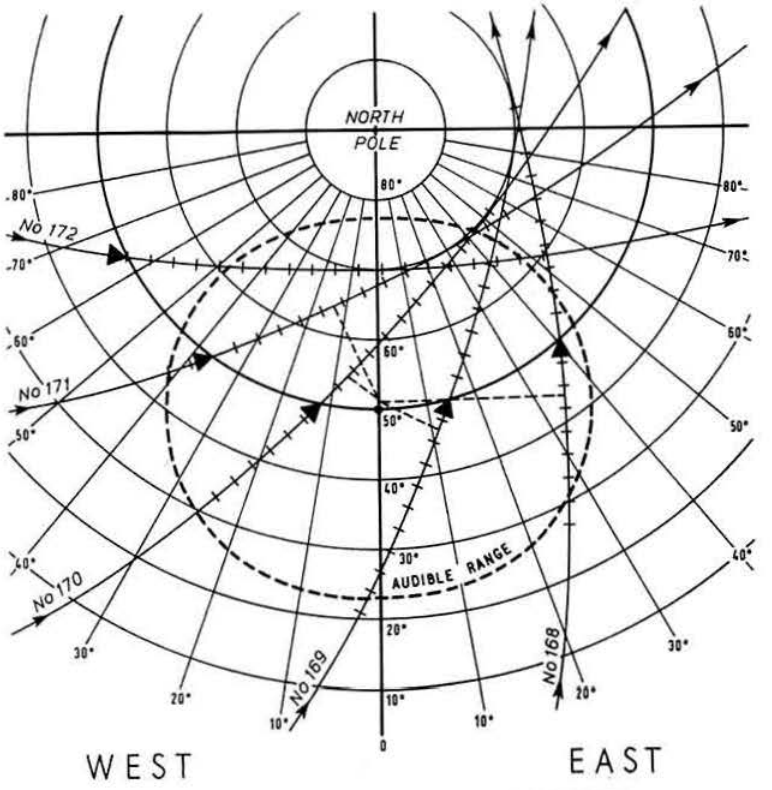


Fig. 4. The actual tracks of orbits 168 to 172 of *OSCAR III*.

Oscar III S/N Equator Crossings

March					
Rev GMT	Long.W	Rev GMT	Long.W	Rev GMT	Long.W
1 19.32·40	301·57°	2 21.15·91	327·67°	3 22·59·43	353·77°
10 March					
4 00.42·95	091·88°	5 02·26·46	045·98°	6 04.09·98	72·08°
7 05.53·49	098·18°	8 07·37·01	124·29°	9 09.20·52	150·38°
10 11.04·04	176·49°	11 12.47·55	202·59°	12 14.31·07	228·69°
13 16.14·58	254·79°	14 17.58·10	280·89°	15 19.41·61	306·99°
16 21.25·13	333·09°	17 23.08·65	359·20°		

The corrections in this method can be approximated by setting up the orbit ring at the position indicated by the prediction, measuring round the globe with the minutes strip previously described, noting the change in position. Correction should, of course, be made for the proportion of the position due to the Earth's rotation in the period involved.

The actual figures for *OSCAR III* for lat. 50°N worked out as follows:

S/N Orbits add 15·7 minutes to time
deduct 21·45° for position

N/S Orbits add 36·26 minutes to time
deduct 145·5° for position

To calculate the time and position when crossing the Equator S/N this is done by the fraction of the orbit covered from the launch to this position, which, being 215°, makes the fraction 215/360. Therefore, the time after launch is $\frac{215}{360} \times 103{\cdot}51$ which equals 61·85 minutes, and to this must be added approximately 0·55 minutes, this being the time taken by the rocket to attain orbit height. A total time correction of plus 62·4 minutes is therefore made to the launch time.

For position, if the orbit ring is set to the original launch position, crossing 120°W at 35°N, it will be seen that the orbit crosses the Equator going S/N at 286·1°W, and the allowance for the world rotation during this period is $\frac{215}{360} \times 26{\cdot}1$ which equals 15·5°. The actual position it crosses the Equator on orbit 1 going S/N is therefore:

286·1° plus 15·5° which equals 301·6°W.

Care should be taken if any International or NASA figures are heard, as they will always be on this sytem, and any heights may be given either in kilometres or nautical miles. A nautical mile is 6080 ft., and 60 are equal to one degree measured up any line of longitude. This means that the distance between 50°N and 60°N is 600 nautical miles.

It should be noted that the examples given are for an inclination angle of 70°, i.e., higher than the relative position of London, hence the alternate S/N and N/S orbits. It will be seen easily, if set up on the globe, that any orbit with an inclination angle of 50° or less will always, in Great Britain, be passing from West to East and South of this country, and so a number of consecutive orbits will be heard, followed by a long period when it is out of audible range. However, the same principles apply for calculating the time and position and running a main plot.

Gem on 80m Phone

" Your modulation is a great deal better now. If I hadn't recognized you, I wouldn't have known it was you! "

Certainly, it gets better as it improves! G8ON

Propagation at 145 Mc/s

With Special Reference to Tropospheric Scatter

By J. C. FOSTER, G2JF*

UNLIKE other amateur frequency allocations, 2m is unique in the assortment of propagation modes which are possible.

Ground wave, normal tropospheric, extended tropospheric, sporadic *E*, radio auroral reflection, meteor scatter, tropospheric scatter and moonbounce are all found on this band frequently.

These notes have been prompted as a preamble to a report on a troposcatter schedule run over a period of time, and it was thought that a practical description of the mechanisms associated with each mode of propagation would be of interest to a large number of v.h.f. enthusiasts.

Ground Wave

The general term ground wave, as its name implies, indicates a radio wave which travels along and over the ground. It is made up of two components, the surface wave and the true ground wave. It is well known amongst 2m adherents that within a certain distance signals do not vary in intensity at a fixed receiving station. This intensity depends to a great extent on the siting of the sending and receiving station and to a lesser extent, on power input and receiver sensitivity. In most instances the ground wave extends up to and around the 30 miles range. Up to this distance the signal is steady and of sufficient strength to cancel out any tropospheric phenomena. Within the ground wave range neither the weather nor the solar system has any notable influence over propagation.

Normal Tropospheric

Normal tropospheric propagation is the mode which increases in significance over the ground wave system as the latter diminishes in signal level, or perhaps it would be more correct to say that as the ground wave gradually diminishes the refracted tropospherical component begins to predominate. From the well-sited and well-equipped station the normal tropospherical range will be in the region of 200 miles.

At this distance, signals can peak up to S9 but will generally vary between plus or minus 4 or 5 S points of S6. Normal tropospheric conditions prevail predominantly over any period of time irrespective of the season and to a lesser extent, time of day and are a direct result of weather conditions in the troposphere. There is usually a diurnal trend, however, which shows itself as an improvement of signal level after sunset owing to the lowering of atmospheric turbulence. This can be most marked during the early hours of the morning until after sunrise.

Extended Tropospheric

Signals in this category can take place at infrequent intervals and extend from around 250 miles and further. Atmospheric conditions have a direct bearing on this mode of propagation and quite often it will be observed that propagation in a selected direction is very pronounced with signal levels comparing very favourably with local signal standards. It should be mentioned that extended tropo signals like the normal tropo signals can and do suffer from violent signal excursion and are, in fact, an extension of the normal tropo caused by favourable weather systems. The frequency of occurrence averages approximately 20 days per annum, generally peaking during the months of August, September and October.

To determine the frequency of periods of extended tropo signals at 2m over the year and also to see if it was possible to relate the findings to any particular factor, a search through the BULLETINS produced the information summarised on page 95 and covers the period from 1949 to December 1965.

Readers will be able to draw their own conclusions after perusing the details, but the most salient point is the gradual annual increase of good extended tropo up to the month of September and then the rather sharp fall thereafter.

It is felt that the figures for the month of August do not indicate a true state of propagation over the years and this is put down to the fact that as August is the peak month for holidays, records have tended to be overlooked.

It will be noticed that 1953 produced the most openings with 41 days whereas 1960 produced only three days. The month of September claims the peak period with 42 openings, closely followed by July and October with 33 openings each; the poorest month would appear to be April.

Sporadic *E*

This phenomenon of propagation is very rare and seldom affects the 2m band. Instances have occurred when this particular system was apparent and records in distances were created; the most likely periods to produce this effect would be June/July. As the term Sporadic *E* indicates, this is due to local regions of the *E* layer being sufficiently ionised to cause reflection.

Radio Auroral Reflection

This method of propagation can be very exciting and produces c.w. signals (A1) of a distinctive characteristic. The best times for the most intense occurrences are around sun spot maxima during spring and autumn. They also occur at other times, at infrequent intervals, but tend to follow the general pattern of sun spot activity. At the present moment we are in a period of very low sun spot activity, and so this particular mode of propagation is rather infrequent. However, this will increase over the next few years and increased manifestations will result. Signals usually come in on a NW to NE bearing, the quality of the tone being of a low order which can be explained by the Doppler shift mechanism. Radio auroral conditions can extend over a few hours, the best times being late afternoon, and just after midnight for Northern Europe. It should be noted that peak visual auroral times are quite different.

Meteor Scatter

This system of propagation calls for precise frequency measurements, high gain narrow beam aerials, high power input to the final stage of the transmitter and also a reasonably good site. As the definition implies, this system of communication depends for its success on reflection from

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Events of Extended Tropospheric Propagation—350 miles plus

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL YEARLY DAYS
1965		2	27,28,30,31	1,2		2		3,4,5,8,12	15,16,21,22,23	7,8,9,10,17,20,21,22			26
		GM	F, GI, LA, OZ	OZ, LA, SM		DL		F, HB, OJ, GM	DL, LX, DM, SM, OZ, SP, F, OK, DE, EA, HB	DL, GM, F, LX, SM, OZ, OK, DM, LA, HB, EA			
1964	3,4,18,19,20,22,23				17	11, 16	30		1, 28, 29	3, 4	8, 9, 24		19
	DL, SM, OZ				DL	EA, F, PX	HB		HB, DL, OZ	GM	DL, HB, F, OZ, SM		
1963			24	26	4	10, 11	19, 21		2, 14, 15	11, 12, 27, 28, 29		27, 28	17
			DL	DL	F	DL, OZ	DL, SM, OZ		DL, OZ, DM	F, DL, SM, OZ, DM, HB		DL, HB, F	
1962				25				30, 31	1, 2	10	26	2, 3, 4, 5	11
				DL				SM, OZ, DM	DL, SM, OZ	DL	DL	LA, DL, SP, SM, OZ	
1961	15, 16	12, 13, 14, 15	4, 5					27, 28, 29, 30, 31	1, 2, 3	12, 13, 14, 15, 16			21
	DL	DL, GI	F, DL					DL, SM, OZ	SM, OZ GM, GI, EI, DL	SM, HB GI, EI, DM, DL			
1960						25				2		17	3
						GM, DL				GM		DL	
1959		17, 18			14, 15, 16, 17, 18	12, 13, 14		23, 26, 27, 28	6, 9, 12, 13, 14	5, 6, 7, 8			23
		SM, OZ, OK, DL			OZ, SM, LA, DL	SM, OZ, DL, GI		GI, EI, DL, OZ, SP	DL, SM, OZ, LA	SM, OZ, LA			
1958									12, 13, 14, 15	27, 28, 29, 23, 24, 25, 26			11
									GM, GI, EI	F, OK, GI, GM SM, OZ, LA, DL, BM			
1957					27	19, 20, 21		2, 3, 4, 8	4, 22, 29				12
					GM	GM, GI, DL, SM, OZ		HB, DE, LX, DL	HB, DL, GM, EI, GI, SM, OZ				
1956	4, 5, 6					24			13, 14, 17	12, 13, 14			11
	GI, EI, DL					DL, SM, OZ			F, GI	DL, GI, F			
1955	25				29, 30, 31		14, 15, 18, 19, 23, 24						12
	DL				DL, OZ, SM		SM, OZ, LA, DL						
1954					31	3, 4	19					3	7
					F	GM	GI					DL, F	
1953	13, 14		1, 2, 3, 4, 5, 17, 21, 22		2, 3	29, 30	1, 2, 3, 4, 5, 6, 7, 20		1, 2, 3, 4, 5, 6, 7, 10, 12	10, 11	15, 16, 17, 18, 19, 20, 21	1, 8	41
	OZ		DM, OK, GI OZ, SM, LA, DL		DL	LA	OE, LA, EI		SM, OZ, HB, EI, GI	F, DL, OZ, SM	F, DL	DL, F	
1952							19, 20, 23, 24, 4, 5, 6, 7, 8, 9, 10	29	13				13
							GM, OZ, SM, F, EI, GI	EI, DL	DL				
1951				17, 18, 19	12, 13, 20, 25	1, 2, 3, 4, 7, 8, 18	21, 22, 27, 28	18	8, 19, 21, 22	8, 9, 15			26
				EI	DL, OZ	DL, OZ, SM, EI, GM	DL, EI	DL	OZ, HB	F, SM, OZ			
1950					11, 12, 13	5, 6, 9, 28			12, 13				9
					DL	DL			DL				
TOTAL MONTHLY DAYS	15	7	15	7	21	28	33	22	47	41	10	9	

meteor showers. A special feature of this system can be the numbers of pings and bursts of *short* and *long* duration. Considerable distances are possible with this particular mode of transmission which calls for patience and long sessions of hearing nothing but noise.

Moonbounce Communication

This system which has recently been making headline news on 432 Mc/s again requires high power input to the p.a. stage and something special in aerials. The location is not at all important as long as the moon is visible to the aerial system. It should be noted that the moon is used as a passive reflector, hence the term moonbounce.

Tropospheric Scatter

Scatter signals are connected with turbulences in the earth's atmosphere due to atmospheric movement in the form of eddies, as well as direction of flow.

These eddies or blobs (of which billions would be encountered in a signal path) are assumed to be spherical in shape and cause discontinuities in the dielectric which results in progressive scattering of the incident wave. This can result in propagations being extended far beyond the horizon up to distances of about 800 miles. Scatter signals depend on turbulence which in turn affects the intensity of the signals.

Following 18 months of research and thrice weekly contacts over a path distance of 400 miles with DJ2BE in Hanover, it seems that signal excursions do not exceed one S point, or plus or minus 3db, except during periods of extended tropo. It has been suggested that seasonal changes as high as 10db have been recorded, but such excursions between DJ2BE-G2JF have not been apparent at any time during the period under review. An interesting point in connection with this schedule is the number of pings and bursts which occur at infrequent intervals and are, no doubt, related to the regular meteor showers which occur from time to time. A ping can be defined as the sudden appearance of a signal, the duration of which will be something less than one second of time, whereas bursts can continue for minutes.

The requirements for a long range tropospheric scatter communication system are:

(a) a well elevated location clear of all obstructions.
(b) a high gain aerial system.
(c) high power input to the p.a. stage (the GPO has issued on an individual basis, special authority to use up to 1 kW input for tropospheric scatter experiments).

The station at G2JF is at a height of 612 ft. above sea level with a clear take off in all directions. The aerial system has two J-Beam 6-over-6 arrays stacked at two wavelengths between centres; the uppermost one is at 50 ft. and the feeding system is that used by G3HRH, i.e. both feeders are brought down the mast to the shack, phased out and paralleled before inserting a quarter wave matched transformer.* The p.a. has a pair of 4X150A valves which run at 400 watts input in A1.

As mentioned previously the signal level at these extreme ranges is governed by location and power. One could say that at 400 miles, with reasonable power and location, signal levels will be in the neighbourhood of S1 with excursions of intensity as previously indicated. Listening to these weak signals requires considerable concentration, lots of practice, and if possible, a means of frequency measurement.

* "A Cubical Quad Array for the 144 Mc/s Band", RSGB BULLETIN, April 1959.

Tracking Down Licence Dodgers

The Post Office television detector cars have proved so successful in tracking down licence dodgers that their number is to be doubled. The nine already in operation throughout the country have been in use since January, 1963, and the additional cars will be taken into service as they become available.

The present detector cars are fitted with over £1,000 worth of electronic and other equipment which makes them capable of tracking down defaulters with great speed and accuracy. They replaced earlier detector cars which had been in use since 1953.

Last year nearly 22,000 people were successfully prosecuted for using unlicensed sets. The maximum penalties to which dodgers are liable are, first offence £10, subsequent offences £50.

Vacancies at Science Museum

Vacancies exist at the Science Museum for Assistants in the Department which includes Telecommunications. The possession of an Amateur Licence would be a valuable qualification for these posts, details of which can be obtained from the Museum Superintendent, Science Museum, South Kensington, S.W.7.

G3HSC Morse Instruction Courses

A heavy duty Admiralty pattern Morse key and a copy of the *Radio Amateurs' Examination Manual* can now be supplied with the G3HSC Rhythm Method Morse Instruction records to provide more tuition and assistance for the enthusiast aspiring to an amateur transmitting licence. The additional cost for both items is 20s. 6d. or 5s. 6d. or 15s. respectively for either one. The cost of the Beginner's Course with the Morse key and book is 81s., and the Complete Course is 104s. 6d. Orders can be handled by RSGB, Publications, and details and prices of the courses can be found on page 124.

Who's for Tennis

The London *Times* published on 2 November an account of the development of organized sport in China. Sport in China is regarded as a means of strengthening the country's defence preparedness and training a vast reserve of potential military specialists. In accordance with this approach the sports which receive most attention from official propagandists and the Press and those with military potential—for instance, parachute jumping, motor-cycle racing, swimming, shooting, mountain climbing and even short wave radio.

Radio has recently been developed and an article in a South China provincial newspaper this month claimed that international records in all 16 events in this sport were held by Chinese "hams"—*Mobile News*, December 1965.

THE MONTH ON THE AIR

By JOHN ALLAWAY G3FKM

THIS month's offering must begin with apologies for the errors which appeared in last month's *MOTA* due to the proofs being delayed in the Christmas mail. At one time it appeared that G3FKM's first effort would go down in history as the one with the largest number of mistakes, but thanks to your Editor's eagle eye the worst of the clangers were not dropped.

With quite a deluge of news about activity overseas this past month, to avoid leaving out interesting information it is necessary to keep the introductory remarks short. Therefore, rather than dwelling on any special topics at length, *MOTA* opens with the usual sections, headed with news of 160m DX.

Top Band News

First, an apology for an error in December's section. It would seem that the station which worked VS9AW in 1952 was VS1EV not EU. This was pointed out by G3JKV who was the owner of the VS1 call at the time.

In view of the fact that he has been receiving many requests for schedules **ZL3RB** has sent along some useful information for those who would like to try to work ZL on 160m during the February/March equinox period. He says that he will be on daily from 06.00 to 07.00 on 1879 or 1881 kc/s, commencing 26 February and continuing until 3 April. He will transmit on the hour for the first five minutes, then listen for five minutes, and so on throughout the period. In each five minute send period he will transmit for two minutes, listen for one minute, then call again for the remaining two minutes. G stations will be looked for between 1800 and 1830 kc/s, and between 1975 and 1999 kc/s. The peak condition lasts for less than five minutes, so please confine the QSO to report exchange only. It is expected that the peak time will be about 06.30 in early March, becoming about a minute earlier each day, and by the end of March it should be about 06.15. Preference will be given to those stations who have never had a QSO with ZL on this band before. The equipment being used by ZL3RB consists of an 813 running 150 watts and feeding a Vee beam 60 ft. high and 560 ft. long on each leg! His receiver is a Drake R4.

Your scribe was most interested to receive a tape recording from one of *MOTA*'s stalwart supporters, **9M4LP**, Bob Snyder. This proved to be most interesting, and contained recordings of the signals of G3LIQ, G3MYI, G3RBP, G3RRJ, G3SED, and G8RQ amongst other European stations, and 9L1HX and 9M6BM. All were recorded between 12 and 19 December in Sumatra. A most interesting piece was a twelve minute CQ by a continental station! Bob hopes to be home for the *CQ 160 Meter Contest*, so be on the look out for him.

Any information concerning the legality of the F stations heard on the band would be appreciated.

News from Overseas

The recent trip to **Bonaire Island** by K0GZN and his XYL K0GXO appears to have been a great success. This was Ginny and Kirk's third appearance in the Netherlands Antilles, but their first from Bonaire. **PJ5BC/BD** had some 2400 QSOs on the h.f. bands, and a few on 40m on which band it was only possible to find an occasional small hole between the broadcast intruders. About 80 DXCC countries and WAS were the result of the trip. The gear consisted of a Swan 350 and 240, and a tri-band beam. Some difficulty was experienced with overheating owing to the fact that the power supply was 50 c/s, instead of 60 c/s for which the equipment was designed. Kirk is full of praise for the help which he received from the authorities, and says that they have already made application to the US for reciprocal licensing to be brought about between the two countries. Before this operation took place there had only been about 125 amateur contacts between Bonaire and the outside world. Apparently Europe was only workable between 11.00 and 12.15.

In a short note to your scribe, Maurice, **VS6BJ**, says how rarely he hears or works UK stations these days. He finds that the rest of Europe has been getting into Hong Kong well since mid-summer, but hardly any Gs. His aerial consists of a half wave dipole on top of an eight floor block of flats (which helps, no doubt!), and the rest of his equipment includes a recently acquired 75A4, and LG300 transmitter. He has a home-built s.s.b. transmitter nearly ready for operation.

Dick Moore, **ZB2AO**, writes to say that he has been having considerable success on 80m in the evenings and early mornings, and has contacted many W, VE and European stations. He is not so pleased with the h.f. bands as he has had hardly any openings to the US on 10 or 15m. Dick is

ZB2AO in Gibraltar runs a Courier CTR-1 transceiver into a TA-3 and an end fed wire. The operator, Dick, holds the call GI3PLL

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* 10 Knightlow Road, Birmingham, 17.

Please send all reports for the March issue to arrive by February 9.

using a Courier CTR-1 transceiver, with a TA32 (up to 50 ft.) on the h.f. bands, and a 110 ft. wire on the l.f. bands. He has worked 95 countries on s.s.b. since June, 1965, and remarks that his QSL returns are very poor—he has sent out 1,000 cards, but only received about 400 in return. As a result of this he now only QSLs on receipt of cards.

News from down under comes from Al, **VK4SS**, who says that DX activity in that part of the world at present is at a fairly low level. However, he reports that **CR8AE** and **AF** are both active on c.w. almost daily at around 12.00. **VK8MA** is active from Darwin sometimes after 08.00 on 14 Mc/s c.w., and **CE0AC** (Easter Island) has been heard at 05.40 on 14,060 kc/s. **9M2YY** (see *QTH Corner*) is very active at the moment, and is hoping to be going to 9M6, HS and other areas in S.E. Asia at some time in the near future. More information will be available about this later.

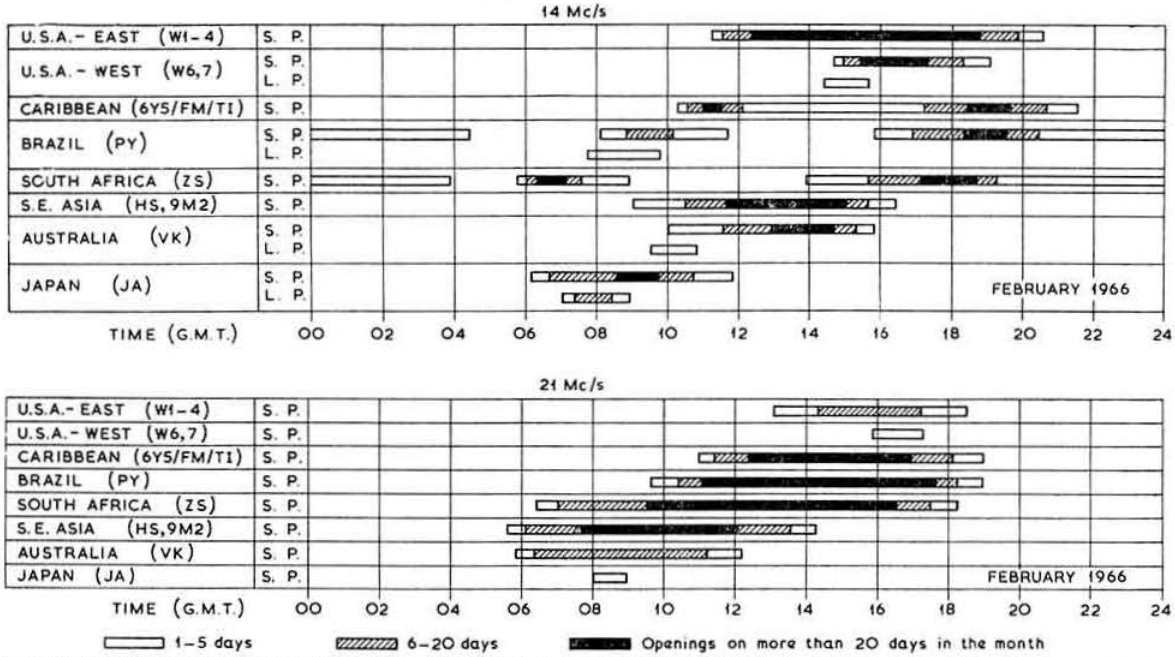
Those who had the pleasure of contacting **Ebon Atoll** recently will probably be interested to read a description of the islands sent to the *Northern California DX Club* by Lloyd, W6KG/KX6SZ/Ebon. He says that Ebon Atoll consists of a number of small islands shaped in a circle with a radius of three miles. If one stands on the shore of any one island it is possible to look across the inner lagoon and see all the others. All of the islands appear to have been once connected together like the top of a large volcano. Even today they are partially connected together by rock formations, which in some cases can be walked across during low tides. There are hazardous reefs offshore, and there appear to be inhabitants on all the larger islands. Ebon has no regular radio communication with the outside world, no electricity, and a ship calls only very occasionally.

The *Bulletin* of the Korean Amateur Radio League draws attention to the fact that **HL5X** and **6N5X** are not licensed to contact other amateurs, only to experiment on certain spot frequencies. Apparently only stations in the series HM and HL9 are ordinary amateur operators. HL9KA-KZ, HL9TA-TZ and the club station HL9US are all legal. There are now six licensed YL stations, HM1AM, 1CC, 1DG, 1DR, 2CA, and 5BG. The prefix HM9 is used by portable stations.

DXCC News

It has been announced that new arrangements have been made for the administration of Chagos, Aldabra, Farquhar, and Desroches Islands, dating from 8 November. In future

Propagation Predictions



As sunspot activity is increasing relatively slowly, 28 Mc/s will be still of little practical use for DX. At present under favourable conditions Central America may be worked on this band from 13.00 to 16.00 GMT, South America from 11.00 to 17.00, Africa from 08.30 to 16.30, and South East Asia from 08.00 to 11.30. During February as winter draws to its close, and the days become longer, the 21 and 14 Mc/s bands will remain open noticeably longer in the evenings than in the previous two months. In view of the low sunspot activity not all continents will be workable with any certainty on 21 Mc/s and only in exceptional conditions will North America and Japan be heard on this band. With respect to the forthcoming ARRL DX Contest, it should be noted that on 21 Mc/s there will probably be no prospects of working Hawaii and Alaska. During strong ionospheric disturbances, accompanied by severe geomagnetic disturbances and the appearance of the Northern lights, DX traffic on 21 Mc/s (Africa and South America excepted) will almost disappear completely and will be severely interrupted on 14 Mc/s. Towards the end of the month the 14 Mc/s band will probably remain open until 20.00 for traffic to Central and South America. Only from about May on this band, will DX be possible through the night. With the approach of the equinoxes (March and September) there will be more opportunities for contacts with various DX zones via the long path on 14 Mc/s. In the forthcoming ARRL DX Contest South European stations will be in a more favourable position for contacts with North America. It is clear that North European stations in equal competition with South European stations cannot win a USA contest. From about 16.45 to 18.00 GMT and only under favourable conditions will contacts with Hawaii and Alaska be possible on 14 Mc/s. On 7 and 3·5 Mc/s conditions will be the same as in previous months. QRM permitting, Eastern North America should be heard on 7 Mc/s from about 21.00, but in the latter half of the night, North American traffic may be interrupted by a drop in the MUF. For other reasons North American traffic on 3·5 Mc/s may be interrupted occasionally in the latter half of the night. Owing to the dead zone local traffic on 3·5 Mc/s (beyond the ground wave zone) will disappear in the latter half of the night.

The provisional sunspot number for December was 17 with the major period of sunspot activity occurring during the second half of the month. The predicted smoothed sunspot numbers for April, May and June are 26, 28 and 30 respectively.

they will have their own Governor and will be called the **British Indian Ocean Territory.** There has been no announcement from ARRL so far, but these changes may well result in alteration in DXCC status of the islands concerned.

In DXCC Notes in January *QST* there was published an important announcement concerning alterations in DXCC administration. The four changes were as follows: (i) After that issue the Honor Roll will only appear in the June and December issues of *QST*. In future, listings at below Honor Roll level will continue to appear monthly, but will be listed alphabetically by call-sign under the appropriate country total. (ii) After 1 March applications for endorsements must consist of 20 or more cards if the applicant has less than 300 and in lots of 10 if more than 300 already. An odd number may be sent to bring a total up to a multiple of 20 or 10 as the case may be. (iii) Honor Roll members may only send in cards during March and September. Those near Honor Roll level may submit cards during these months also, providing that their total equals that of the last place station on the previous Honor Roll listing. (iv) The telephony endorsement will no longer be issued after 31 December, 1966.

It was to be expected that some alterations would have to be made to DXCC, since the greatly increased activity by various DXpeditioning groups has no doubt caused many headaches at ARRL. The telephony award has always been a little unsatisfactory since QSOs for the phone endorsement did not need to be two-way phone, but only needed to be phone from the applicant's station. This would seem to be a good opportunity for the *CQ Magazine* s.s.b. awards to become more popular for they do require two-way s.s.b. QSOs. Unfortunately, the handling of applications for awards by this organisation leaves a good deal to be desired.

Two new countries have been announced in January *QST*. These are (1) **Ebon Atoll** and (2) **Comoran Reef.** Ebon Atoll is located in the Marshall Islands at 167° East, 4° South. Confirmations for operation made under permission from either Ecuador or the UN Trust Territory will be accepted. Comoran Reef is located in the Western Carolines at 134° East, 8° South. Operations from there made under permission of either Costa Rica or the UN Trust Territory will be accepted for credit. Confirmations for contacts with these additions may be submitted for DXCC credit starting 1 March.

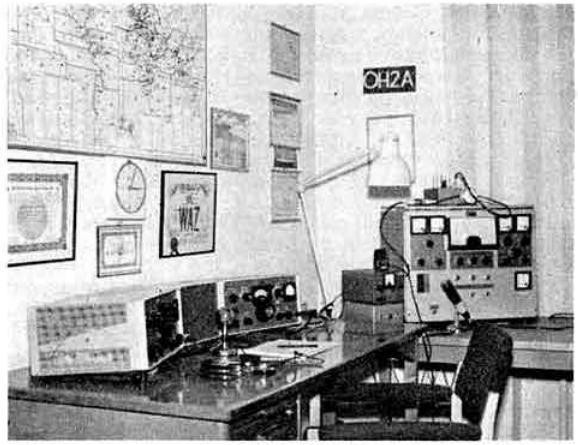
Awards

The Goose Bay Amateur Radio Club QSO Party will commence at 00.01 on 1 April and continue until 23.59 on 30 April. During that period contacts may be made on all bands and modes (except RTTY), and signal strength, names and QTHs should be exchanged. A **Worked All Goose** Award will be sent free of charge to any amateur who contacts four members of the club during the month. Most of the active amateurs in the Goose Bay area are members of the club. Applicants for the award should send their QSLs to GBARC, PO Box 232, Goose Bay, Labrador, Canada.

The **South East Asia Net** is offering an award to any amateur who contacts and exchanges reports with 12 members outside net times. At present active members of the SEA Net include: HS1AK, 1CB, 1HS, 1S. HL9TD, TM, TT, KF. KX6BW. KR6CS, CU, EC, EO, OJ, TW, UD, UL. VK2AOK, 3DH, 3OZ, 9DR. VS6AJ, EK, FM, FO, UA. VS9AFR, AWR, MB, MP. XW8AL, AX, AY, AZ. 4S7IW, 9M2DQ, JR, LO, SR. 9M4ME, MF, MT, MU. 9M6AC, AP, DG. 9M8DR, DS. 9N1MM. Applicants should send QSO details together with four IRCs to: 9M4MT, Flt. Lt. Pain, Box 777, Singapore.

Bob Snyder, **9M4LP,** plans to award certificates to those who have contacted VS1LP, or 9M4LP, in the way listed *during any single major contest.*

(i) Contact on 160m.
(ii) Contact on 80 and 40m.



The Finnish society's headquarters station, OH2A, in Helsinki.

(iii) Contact on 80m plus two other bands.
(iv) Contact on 40, 20, 15 and 10m.

Your scribe has had the pleasure of many QSOs with Bob and will be trying to claim one of these, which, if they are of the same standard as his QSL cards, will be worth having.

The Central Radio Club of Rumania has prepared a leaflet which lists all its awards—some twenty in all. Copies may be obtained by sending a s.a.e. to the writer.

Please note that the fee for the *Wien-Diplom* was incorrectly printed as £1 last month this should have been $1, or 8 IRCs.

Contests

Owing to the early deadline for last month's *MOTA*, information concerning the c.w. section of the **1966 French Contest** (*REF*) missed publication. However, the Telephony section is still to come, and will take place between 14.00 on 26 February, and 21.00 on 27 February. The v.h.f. section will be held during the 24 hour period commencing at 18.00 on 7 May. The number to be exchanged consists of the signal report followed by the number of the QSO. Each contact counts three points, and there is a multiplier of one for each French department or DUF country (except F and FC) contacted on each band. This year there will be simultaneous contest activity from HB, LX, ON, and 9Q5, and QSOs with these stations will count for points. Logs should be sent to: REF, BP42-01, Paris R.P., France. Contacts made during the contest may be used when applying for the DPF, DDFM, DUF, or DTA awards at any time during the two years following the date of the event. The results of the 1965 contest show no entries from the UK on phone, but entrants in the c.w. section scored as follows: **G3EYN** (15,048 points); G3DYY (6510); G6VC (6216); G8TS (5250); **GW3MRI** (3420); G3NSY (3276); G2GM (2856); and G2WQ (1242).

The Tenth **PACC Contest** will take place between 12.00, 23 April, and 18.00, 24 April. All bands between 1·8 and 30 Mc/s may be used, as well as 144 Mc/s and 432 Mc/s, and phone or c.w. may be used. On 1·8 Mc/s Netherlands stations are only licensed to use the segment 1825 to 1835 kc/s, and will only use c.w. on that band. Cross band and cross mode contacts are not permitted. For stations outside the Netherlands there is a multiplier of one per band for each of the eleven provinces, making a total possible multiplier of 88. Each completed QSO counts three points, and numbers exchanged consist of report and serial number of QSO, plus an additional two letter group by PA stations which indicates their province. Entries must be postmarked no later than 15 June, 1966, and should be sent to Mr P. v. d.

Berg, PA0VB, Contest Manager, VERON, Keizerstraat 54, Gouda, Netherlands, together with a signed statement that the participant has observed the contest rules, as well as the amateur radio regulations in his own country. Contacts in this contest may be used towards the attainment of the PACC Award, provided that the stations worked have submitted their logs to VERON. Leaflets setting out fuller details of the contest may be obtained by sending a s.a.e. to G3FKM.

The Long Island DX Association announce that their second DX competition is now under way. It began at 00.01 on 1 January, and will end at 23.59 on 31 December, 1966. The object is to obtain confirmed contacts with as many DXCC countries as possible during the year. Entrants for the 1965 competition should send a list only of confirmed countries to LIDXA Contest Committee, Box 599, Lynbrook, NY 11563, USA, postmarked not later than 15 March. Winners will be announced shortly afterwards.

DX Briefs

Further to the information concerning Tom Christian, **VR6TC,** in last month's *MOTA*, it is now announced (in a bulletin from Dorothy Strauber, K2MGE) that through arrangements made between W4TAJ, W5OLG, and Hallicrafters, a complete sideband station consisting of HT-37, HT-41 and SX 117 is being forwarded to Tom by the first available boat, and should arrive early in February. A TH-3 tri-band aerial is also being sent. QSLs should be sent via W4TAJ, with s.a.s.e. Dorothy also says that an SR-150 and SX 117, plus power supply and spares, was flown out to Reunion, and arrived on the island in time to catch the boat which left on 27 December carrying Henry Charre, who will shortly be operating **FB8WW.** A Hy-Gain beam was also sent and will arrive in Crozet by February even if it did not catch Henry's boat. QSLs for Henry's activity will be handled by K2MGE, who requests s.a.s.e. or s.a.e. plus IRCs.

Activity from **Gambia** is promised in the shape of **ZD3C.** The operator will be VP3CW, who has taken a job with United Nations there. He will be active on s.s.b.

There are still rumours of pending operations by **FR7ZI** from the islands around Madagascar, although no definite information is to hand. It is also said that Jose, **CR7GF,** is interested in making a trip in this area and has unofficial permission, but is awaiting written authority.

A trip to Serrana Bank and Bajo Nuevo is under consideration by **HK0AI.** No details available yet.

Although the status of the islands comprising the new British Indian Ocean Territory is uncertain, Harvey, **VQ9HB,** accompanied by Ted, VQ9TC/W4IBD, are likely to make a trip in February to at least one of the groups. This trip may only last a few days, but further activity is promised later, as is a return trip to Agalega, possibly in March.

Rumour has it that **XV5AA** has been on the air from Vietnam. His QSL manager says that he is operating quite legally and that FCC and ITU have been notified. It should only be a short while until he is " cleared " for contacting Ws.

According to ZS1CZ there is a scientific expedition due to visit **Bouvet Island** sometime in 1966. There is no information available about possible amateur activity.

There now seems to be a spate of activity from **Swan Island.** In addition to W0YKD/KS4, KH6BCB/KS4 has been worked on c.w. on 14 Mc/s, and a station signing KS4AB and asking for QSLs via WA9LCY has been heard on 7 Mc/s c.w. Nothing is known about the genuineness of the two newcomers, however.

Lloyd and Iris (W6KG) were last heard of in mid-January signing **KX6SZ** from Majuro Island in the Marshall Group. They were due to pull out almost immediately in the direction of Nauru.

YJ1DL is now reported to be fairly active at weekends on 14,030 kc/s at 07.00.

OD5EE told VK4SS that he is all set to operate from **YK5A** in the near future. Al also says that **ZL3UY** has been reported on 14 Mc/s s.s.b. from Chatham Island.

From mid-February **VP8CW** will be on the air again from Port Stanley. He will be using his KW2000 mostly on 14 Mc/s to start with, but will use 21 and 28 Mc/s as conditions improve. Apologies are made for the fact that the logs for his operation from Stonington Island have been mislaid and he has therefore been unable to send out any QSLs. John will be there for three years and will QSL 100 per cent.

QTH Corner

CR4AJ	Box 5, Praia, Cape Verde Islands. *Not* via W2VCZ.
EA9IC	via URE Box 220, Madrid, Spain.
FB8WW	Operation by Henri only—K2MGE, 12 Elm Street, Lynbrook, N.Y. 11563.
FW8BF	via W4ECI.
KH6BCB/KS4	PO Box 1148, Miami, Florida, 33148.
TT8AW	via TL8SW, Sydney Wagoner, PO Box 302, Bangui, Central African Rep.
VK9JO	Jim O'Toole, Direction Island, Cocos-Keeling Islands.
VK9WE	via WA6GLD, 13772 E. Danbrook Drive, Whittier, Calif.
VP2VD	Dave Genn, Box 27, St Thomas, British Virgin Islands.
VP2VE	via W2MDQ, 1265 Veedor Drive, Hewlett Bay Park, NY, USA.
VP8CW	via RSGB.
VQ9TC	Box 191, Mahe, Seychelles.
VR5AB	via W4ECI.
VR6TC	via W4TAJ, John Maddox, 1403 Woodside Drive, Johnson City, Tenn.
W4BPD	via Hammarlund.
XV5AA	via W4UWC, 401 Summit View Road, Knoxville, Tenn. 37820.
ZD9BE	via SARL.
ZK2AF	via W4ECI.
ZL4CH	via ZL2GX, Jock White, 152 Lytton Road, Gisborne, New Zealand.
ZL5AA	via ZL2GX.
ZS8K	PO Box 363, Maseru, Basutoland.
ex-5A2CX	Ray Joyce, Isle of Man Broadcasting Co, PO Box 22, Douglas, IOM.
ex-5N2RSB	now G3UDX, R. S. W. Briggs, 18 Whieldon Crescent, Fenton, Stoke on Trent, Staffs.
4S7IW	Ian Wollen, Dickoya, Ceylon.
6W8CW	via W2VCZ, PO Box 15, Ramsey, NJ, 07446.
9M2YY	via W2CTN.

QSL Managers

Hammarlund	Stuart Meyer, W2GHK, PO Box 7388, Newark, NJ, 07107, USA.
W2CTN	156 Ketcham Avenue, Amityville, NY, 11701, USA.
W4ECI	3101 Fourth Avenue South, Birmingham, Alabama, 35233, USA.
YASME	YASME Foundation, Box 2025, Castro Valley, Calif., USA.

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RSGB QSL Bureau: G2MI, Bromley, Kent.

DXpeditions

In future all cards for contacts with Hammarlund DXpeditions must be sent to the new QTH given in QTH Corner. Stu, W2GHK, will continue to direct the programme and hopes to expand the number of stations for whom he acts as QSL manager. In future all outgoing cards will be sent via the world bureaux, except to those who have sent s.a.e. or s.a.s.e. who will receive them direct. Amateurs outside the USA may send the appropriate number of IRCs if airmail reply is desired.

The latest bulletin from W4ECI concerning the future movements of **W9WNV** and **K7LMU** says that two brand new " new countries " have been approved by ARRL and that Don and Chuck will operate from them in the course of the next few weeks. It also mentioned that FW8 and FO8 (Clipperton Is.) would probably be visited. The latest rumour at the time of writing was that Don was in KS6 and about to make a short trip back to the US, but that he would

return to the Pacific in the very near future. The whereabouts of Chuck and Ted are a matter for conjecture, but they are said to be on their way to Wallis Island, where the call **FW8BF** will be used. Ack has asked for all who can to send along a donation, however small, to please do so as funds are very low indeed. The KWM-2 which was used in the BY4SK operation is still in China and looks as though it may have to be put down on the debit side of the accounts. In a letter to PA0FX Don said that when at VR2 he could hear Europe well on 7 Mc/s between 05.00 and 06.30, and also on 3·5 Mc/s at the same time, but was unable to raise anyone! He said that the first 12 places visited had resulted in over 60,000 QSOs in the three month period, and asked for patience from those who await cards from Ack. Don emphasized that it is not (*and never has been*) necessary to be a contributor to get a QSL.

Commonwealth Call Areas Table

	1·8	3·5	7	14	21	28 Mc/s	Total
G3KSH	—	29	33	92	38	—	191
G3DYY	—	13	38	59	30	7	147
5N2AAF	—	6	14	65	43	16	144
G8JM	4	—	3	93	38	4	142
VO1FB	12	18	16	55	20	6	127
G3LHJ	4	5	9	32	34	7	92
G3AAE	—	—	7	57	26	1	91
G3UKI	7	7	9	11	13	1	48
G3JVJ	7	10	15	12	1	1	45
A4038	4	11	10	93	37	21	176
A3633	7	10	20	82	31	10	160
A4048	6	14	14	74	35	9	152
A4452	—	2	—	58	64	12	136
A2498	2	8	10	76	29	7	132
A4431	3	16	8	61	41	5	128
A3942	7	17	34	46	8	—	112
A4311	1	10	2	72	20	5	111
A2340	6	13	22	51	18	1	111
A3699	6	11	14	44	29	7	111
A3902	4	15	5	45	26	11	106

Congratulations to the winners, and thanks to the other participants.

The first of the new 1966 tables will appear next month. The original intention of setting it out by a different band order each month is perhaps a little too complicated for something only lasting one year, so band totals will be grouped, i.e., 1·8 plus 3·5, 7 plus 14, and 21 plus 28 Mc/s, and every fourth month listings will be in order of total band countries.

Band Reports

In spite of the fact that we have just passed mid-winter, a surprisingly large amount of DX has been heard on all bands, although 28 Mc/s has been rather disappointing. All the l.f. bands have produced interesting QSOs, and at times it has been easier to contact the Pacific on 7 Mc/s than on 14 Mc/s. Hal, G3NMH, has been running skeds with the VP8 gang at 21·00 on 14 Mc/s, and in the period 26 December to 14 January there were only four nights with no propagation, as he says this is on a band which is reputed to be dead by this time. He has also worked G3AYL/W4 and wonders whether this could be the first QSO under the new reciprocal licensing arrangements with the USA? G3NUF/CX was also worked on 26 December. VP8IH/MM is G3UFX on board " H.M.S. *Protector* "; his 2000A was soaked with sea water when another ship he was in was trapped in the ice, but all seems to be well again now.

Once again thanks to all those who have sent in news items and reports, and especially to the following: G2BOZ, G2LB, G3HCT, G3HDA, G3KSH, G3NMH, G3SML, G3UJE, G4MJ, G8JM, GW3AX, BRS20317, BRS26325, BRS26928, A3942, A4038, A4134, A4431, A4489, A4641, A4776, and A4955.

1.8 Mc/s C.W.: EP2BK (23.00), EP2IW (22.00), HK4EB (05.30), KV4CI (05.10), DL2CT/LX (20.50), OE1FLW/1 (21.11), OH2YV (21.30), OL5ADO (22.00), VE2UQ (04.30), VE3AGX (07.13), VE3BWY (06.20), VO1FB (05.42), VO1HN (05.50), W1BB/1 (23.30-07.00), W1DCD (06.25), W2EQS (23.40-06.40), WB2MFX (06.21), W3EIS (05.50), W4OEE (06.00), K9IRF/4, W8ANO (06.15), WA8EMJ (07.10), K8HKB (06.44), W9YYG (07.50), W0VXO (06.00 to 08.00), ZB2AJ (21.44), ZB2AM (07.17), 6Y5FH (05.28), 6Y5XG (05.41), 9L1HX (23.00).

1.8 Mc/s S.S.B.: ZB2AJ (21.45).

3.5 Mc/s C.W.: ET3USA (00.25), HI3PC (01.10), JA6AK (22.10), KV4CI (23.40), MP4BBA (00.45), OY2H (00.48), PY5XQ (23.21), UA0AS (01.30), UV9UT (Zone 18, 19.35), 7G1A (06.35).

3.5 Mc/s S.S.B.: Heard between 19.00 and 23.00 unless otherwise stated. CN8AW, EA9IC (23.45), HB0YS, HB0ABS, HK0KL, HS1WL (23.12), KZ5MM (01.04), MP4BBA, OA4PV (23.46), PZ1AX, SM6CKU/MM (off Japan) (22.40), TF3CJ (01.45), TF5TP, UB5KKA (17.45), UM8FZ (23.03), VK2AKB (06.07), VK4FJ, VO1FB, 1FG, 1BD, VP5GC, W5HWR/VP9 (00.15), VP9BO, VP9WB (00.15), VS9AFR (23.10), ZB2AJ, AM, AO, ZL2BCG (05.54), 4X4BL, BO (22.57), 7X2AH (17.45), 9H1AB, 9M2MX (23.30).

7 Mc/s C.W.: CO2BO (00.20), CX7CV (22.35), DU1TA (23.30), DU6TY (13.58), EA6BD (20.05), HK3AVK (07.09), JA8s, 1AEA, 1LWI, 1NSI, 1OHV, 1YQH, 2DAQ, 6AK, 8PZ, 8ZO (07.30-09.20), KH6AGA (15.08), KR6MM (13.52), KV4AA (23.10), OD5AI (18.50), OX3AY (15.00), PX1IR (21.31), UA0KAE (11.35), UA0KCA (08.54), UA0KKC (11.40-15.45), UW0JG (14.00), UA0LH (13.00), VK2NS (19.50), VK3APW (14.20), VK3KF (15.20), VK3RW (14.50), VK7SM (08.50), VP2AA (08.30), VP2AX (21.00), VP2GL (21.05), VP5AR (06.30), VP6AK, 6YF (21.30), VR5AB (07.00, 13.30, 15.00, 16.20), VU2SV (15.12), W6AVD (08.40), W6FSJ (15.00), YV6EE (23.42), ZD7IP (23.30), ZL1AIR (07.05), 4S7DA (14.45), 4S7PG (18.37), 7G1A (07.08), 9F3USA (23.30), 9J2DT (21.10), 9Y4VU (21.06).

7 Mc/s S.S.B.: CO8RA (00.02), ET3USA (21.26), HC2TP (22.37), JA5AAI (22.34), OD5EG (23.12), TF3AP (18.50), VS9PCZ (18.25), WA6SST (01.18), XE1IIW (22.54), ZS5QU (21.13), 7X2AH (22.00), 9M4LP (22.12).

14 Mc/s C.W.: CR6DX (07.56), EA6BD (08.25), FB6XX (18.00), FR7ZD (17.45), FU8AG (08.00), KH6BCB/KS4 (13.00), KX6SZ/Ebon (07.40), KL7FKO (09.50), OR5RK (17.45), SU1IM (07.45), SV5LP (16.30), SV5RPE (15.23, Rhodes), TU2AN (07.40), VK9GN (08.35), VK9NM (08.17), VR5AB (12.20), 9M2YY/VS5 (11.40), VK5RN/WS (17.00, 070.), XE1CM (12.35), XE5L (14.25), XT0H (08.32), ZD9BE (07.50), ZK2AF (12.10-12.40), 5R8AL (18.09), 5T5AD (08.30), 9K2AD (07.38), 9Y4TU (13.18).

14 Mc/s A.M.: FB8WW (16.42), W0YKD/KS4 (15.40).

14 Mc/s S.S.B.: BV1USA (07.17), CR4AJ (09.15), EP2AK (12.15), FR7ZD (16.00), HI7XRB (12.08), HK0AI (14.45), HR1HC (13.10), KG6AC (09.20), KJ6DD (10.11), KX6BQ (10.05), ST2BSS (16.00), TT8AW (15.30), TU2BD (08.00), UA0KBU (08.46), VK6CF (12.30), VK0GW (18.10), VP1HB (15.45), VR5AB (08.10), XE3MF (13.00), XE5L (14.25), XW8BM (12.22), ZD7RH (17.05), ZD8BT (17.05), ZK2AF (12.40), ZL4CH (08.30), ZL5AA (08.00), 6O1AU (18.15), 6Y5XC (14.06), 7X0GL (08.43), 9L1HN (08.19), 9N1MM (08.47), 9Q5MA (19.29).

21 Mc/s A.M.: CR4BD (11.40), CR6BY (10.34), JA2BBC (09.20), VK6QL (09.08), ZS9G (09.25), 7X0BB (11.37), 9G1SC (11.44).

21 Mc/s S.S.B.: CR5SP (17.41), EL8D (15.12), HC100 (16.29), JAs 1AEA, 3BTK, 5AXS, 6RTN, 0BLU (09.30-10.45), KA9PB (09.53), KV4CX (11.55), VK2NN (09.45), VK6MK (12.45), VK9PL (09.54), VP7DI (14.10), VS9AAS

(*Continued on page 108*)

QUA Associates

conducted by "JIX"

OFTEN, in the Amateur Radio press, the old question arises of whether it is the home-made article or the semi-professional commercial gear which distinguishes the true amateur from the "shamateur." On the one hand, the home-made gear does not, in general, look so finished and convenient as its professional counterpart. It may not perform quite so well either. But it does require a greater insight into fundamentals to produce it. It provides a creative and skill-developing activity, and gives many more fruitful talking points. The other point of view enables a "clean" looking station to be assembled quickly. The factory-made gear, using the latest techniques, may enable the user to say that he is keeping up in the forefront of operating requirements on the crowded bands. But the rig, once looked at, has no further attractions. It is not versatile (try "modding" a commercial receiver and see the effect on its value!) and costs a very large sum of money. The last point means that most readers of this column will not be involved with such gear anyway. There are "reversed" cases. Sometimes commercial gear turns out to be shoddy and plays up badly, while amateur-built gear rises to the prizewinning class. (See the gear at the Seymour Hall Exhibition.) There are other points. Sometimes a thrusting and well-to-do operator builds up a station of immense worth, only to find that he no longer appreciates the humble beginner. Often he has the gear—but few friends! Then wonders why this is so. Some beginners feel overawed with powerful, competitive, commercial type stations—and avoid them, feeling a little inadequate with their own efforts, although they shouldn't.

No, the solution, if any, cannot really be found. Once again it is basically human nature we are discussing, not materials, and if we seek to understand our fellow men, then is the truth revealed. And it looks as if we shall all just go on with the hybrid of surplus, homemade, and commercial that has characterized Amateur Radio from the beginning.

This month we have a few topics beginning with G.

G.g.

These symbols are used in radio for the *reciprocal* of resistance. The reciprocal of a quantity means one over the quantity. Written mathematically, this is $\frac{1}{R}$, if R is the quantity being discussed. Why use G ($\frac{1}{R}$) when resistance is quite easily understood? If you remember the formula for resistors in parallel, then you see straight away the use of G turns $\frac{1}{R_1} + \frac{1}{R_2} = \frac{1}{R}$ into $G_1 + G_2 = G$, which is much easier to handle. G is called the *Conductance*. Conductance is often met in valve theory, in the form Mutual Conductance (gm).

Ground

This is an Americanism for our word *Earth*. It is used in one special case in this part of the world, namely, in the valve circuit known as the Grounded Grid Amplifier.

Grid

The first time the term "grid" appeared in radio, was when Lee De-Forrest added the third electrode to Fleming's two electrode, or diode valve. There was a court case involving the patents of the valve, and the ruling went to Fleming, the third electrode was deemed a "modification only" of the original valve. But, we must admit now, that it was some modification!

Ken Smith, G3JIX, 82 Granville Road, Walthamstow, London, E.17.

News this Month

First, an apology for an early (and incorrect!) promotion for Terry, A4577, who was inadvertently recorded as being BRS25192. Also, to those of you who wanted to write to A4585, his address would have been convenient! (It is: 34 Willis Road, Swaythling, Southampton.)

Michael Seaward, A4329 who lives near Bude in Cornwall, writes for the first time and mentions his s.w.l. Club, and the Certificate they have.

Antony Cawkwell, A4869, has written on the topic of a booklet on School Radio clubs. I met Antony at the Show, he is one of the Newark gang. I think it would be a good idea to have a booklet about clubs and running them. You already know my own views on how little is done at the level of Boys' Clubs regarding Amateur Radio.

Eric Molley, A4576 of Liverpool (another one from that area!), says that a club is running in his school. There seems to be a number of receivers available, so the lads there are lucky.

J. Rattray, A4521, writes to me as 23936505, Tpr. Rattray, from BFPO 38. I was pleased to hear from Jim, and perhaps there are one or two of you who would like drop him a line. ("A" sqn. 3 RTR, BFPO 38). Jim has been listening on a l.w., m.w., s.w., transistor BC receiver and is swotting up the RAE studies.

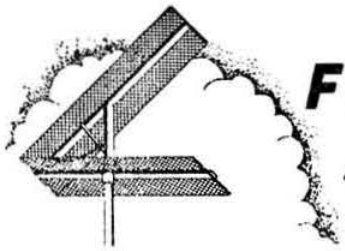
Adrian Dunning, A4835, hopes to have a club going soon in Wellington, where he lives. I hope the RAE result is OK. (That goes for all others who sat in December.)

That is about all for this time, except you may like to amuse yourself with the following:

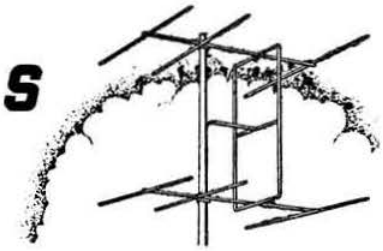
What is the "Odd Man Out" in the following:

(1). CR100, R1155, AR88, TT11, EA12, RA1.
(2). Capacitance, Inductance, Susceptance, Admittance, Reactance, Inertance, Conductance.
(3). Sink, Collector, Suppressor, Base, Drain, Gate, Emitter.

All the best for 1966; as I said last year, may your Amateur Radio ambitions be fulfilled this year. 73. de JIX.



FOUR METRES AND DOWN



By F. G. LAMBETH, G2AIW *

THE operation of the *OSCAR IV* translator, according to a report from G3LTF, appeared to be getting more and more intermittent in mid-January, making it difficult to copy calls through it, as was possible a week or so earlier. This circumstance is confirmed by Project Oscar Association in the USA. Therefore, as it seemed unlikely that any contacts of importance would be made after that date, G3LTF assembled all the information to hand into the following report.

The beacon was first heard on 23 December, through listening " at random " on the correct frequency at 12.00 and 15.00 GMT. The orbit was obtained from Project Oscar Association and G2AOX, and a model was constructed (orbit and earth) in order to predict appearances.

On 24 December, *OSCAR IV* was copied from 12.10 to 19.15 GMT, OK2WCG was heard at 12.46, (WA?) 2WEB at 12.35 and DL9AR at 18.15 GMT. G3LTF's signals also came back, but they were broken up like all the others. On Christmas Day, signals were heard between 07.40 and 16.00 GMT. G3LTF's signals were going through well and at 08.15 he was called by OK2WCG after a CQ, but there was no QSO. On 28 December the satellite was heard, but there was no identification of call-signs. On the following day, G3LTF's own signals were coming back well at 10.50 GMT together with a call from SM7OSC. Both call from him were copied and part of the report (?39). SM7OSC was coming through intermittently all day, and DL9AR was heard at 16.00 GMT. The latter station was also identified on the following day with G3LTF's signals coming back well. On 21 December, K2MWA was clearly heard calling CQ at 17.35 and later, DL3YBA was also heard. On New Year's Day, G3LTF received two of his own call-signs, and at 14.06 copied DL9AR. 8 January, between 08.45 and 11.45 GMT brought hearings, but more intermittent than at the previous weekend, G3LTF's own signals being very broken up but recognizable. The same occurred on 9 January.

If the electronics had worked correctly (says G3LTF) there is no doubt that there would have been some fine QSOs even in the irregular orbit achieved by *OSCAR IV*.

G3LTF heard later that his call has been copied by K2MWA, DL3YBA, OH2DV, OK2WCG and SM7OSC. He has heard all these except OH2DV.

The equipment used by G3LTF is as follows:

The 2m transmitter employs a 4CX250B p.a. with v.x.o. control into either a 10 element Yagi at 40 ft. or two crossed 10 element Yagis, tiltable and connected for circular polarization. The latter was used when the satellite was " well up " in the sky.

The 70cm receiver is a 2N2415 transistor converter (4·5 db noise figure) with an R1475 receiver. A 12-14 Mc/s parametric amplifier was used with the 15 ft. dish.

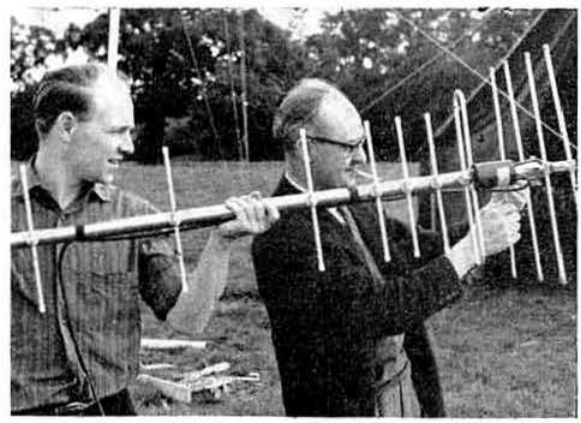
The aerial usually used was a 24 element stack, tiltable at a low height, although the 15 ft. dish was used on some occasions; a 72 element stack at 24 ft. was used for horizon work. Peak signals from the beacon were about 25db over the noise and signals from the translator were at about the same level.

Other reports indicate that many stations have been regularly hearing the beacon and also making contacts; VK7PF copied a QSO between W6GDO and W6FZA on 22 December.

G8ABP (Yardley) received signals on 9 January for a period of 1½ hours on the beacon frequency, and two or three bursts of carriers were received on the translator frequency at S3/5.

Translator Balloons

We can expect intensified efforts on the part of DJ4ZC and his associates in the construction and utilization of *ARTOB* (Amateur Radio Translator On Balloon) which has already been successfully tested on several occasions recently. The apparatus is intended to be the Amateur Radio Translator in an eventual *EUROSCAR* launching and the preliminary operations have amply demonstrated the efficiency of the project. At the V.H.F. Working Group Meeting in Brussels last November, it was agreed to go ahead with the construction of new units for use in *EUROSCAR*, and we are now all awaiting, with very much interest, news of their readiness, which will have a great effect on future v.h.f./u.h.f. operations. The translator receives between 144·080 and 144·120 Mc/s and retransmits between 145·880 and 145·920 Mc/s. There is a beacon on 145·950 Mc/s. Another system already constructed will make it possible to translate



Dave Gibson G3JDG and Graham Bird G2AIA adjusting the 14 element beam used for 70cm on V.H.F. NFD by the Verulam Radio Club. *(Photo by G3RPA.)*

* 21 Bridge Way, Whitton, Twickenham, Middlesex. Please send all reports to arrive not later than 4 February for the March issue, and 11 March for the April issue.

a received 144 Mc/s signal for re-transmission on 431·99 Mc/s. As further tests may take place at any time, may we remind readers that DL0DN will give information on 3780 kc/s s.s.b. around 08.45 on the day that the launch is contemplated.

On Sunday, 9 January another balloon (*ARTOB*) was launched and G2JF came in on the tail end of the excitement at 09.50. This launch was presumably from Hanover and many DJ/DL call-signs were recognised in the cacophony of noise emanating from the transponder. G2JF thinks it might be desirable to limit the modes of signal, i.e., c.w. or s.s.b. to alternate ascents, and we invite comments on this. The suggestion will in any case be made to DJ4ZC.

QSL Card Returns

G3THC (Wolverton) has a grievance about QSL cards and says that since July, 1964, when he was licensed, he has sent out 280 cards for 2m contacts, and thinks that the cards received by him (33, or 11·79 per cent) represent a very poor return, and seem to show that QSL cards on v.h.f. bands are rapidly becoming a thing of the past.

IARU V.H.F. Contest 1965 Results

Section 1, 144 Mc/s Fixed

1.	DJ0ZW	38075	3. DJ1SL	29482
2.	SM7BZX	30321	4. G2JF	27406

Section 2, 144 Mc/s Portable

1.	I1LCK/P	39401	4. G3UHF/P	27773
2.	ON4TQ/P	38166	6. GC3SHK/P	27152
3.	OK1DE/P	28309	23. G3HXN/P	1550

Section 3, 432 Mc/s Fixed

1.	I1SVS	2402	2. HB9SV	1555
		3. I1GU	1265	

Section 4, 432 Mc/s Portable

1.	OK1AHO/P	2895	3. GC3SHZ/P	2130
2.	OK2ZB/P	2168	8. G3MZY/P	321

Section 5, 1296 Mc/s Fixed

1.	HB9SV	326	2. I1SHF	307
		3. G5FK	128	

Contest Reminder

The V.H.F. Contests Committee reminds readers of the 24 hour 144 Mc/s Open Contest, which will be held on 6-7 March from 18.00 to 18.00. At the same time, the 144 Mc/s Listeners' Contest will be held.

Two Metre News

During a period which has been largely characterized by a band usually very dead, one is led to ask sometimes whether the "deadness" is due to conditions or to the fact that stations do not come on. This has been mainly the case in the last month, but things changed somewhat during the first week of the New Year. For instance, G3LIM (Twickenham) heard several French stations on the evening of 5 January, whilst on Friday night (7th) G3JON (Sheffield), who was a very good signal, reported that on the night of the 6th he had worked two PAs and two OZs. Also on the 7th, G6XM (Christchurch) was a very healthy 59+ when calling CQ into what appeared otherwise to be a very empty band!

G2JF (Wye) found conditions considerably improved from 5 January onwards. In fact, on the evening of the 5th his best QSO was with F9NL (Pyrenees). He also believes that OZ stations were worked on the 6th.

V.H.F./U.H.F. BEACON STATONS

Call-sign	Location	Nominal Frequency	Emission	Aerial Direction
GB3GI *	Strabane, N.I.	145·990 Mc/s	A1	
GB3ANG	Craigowl Hill, Dundee	145·985 Mc/s	A1	
GB3CTC	Redruth, Cornwall	144·10 Mc/s	A1	North-East
GB3GEC *	Hammersmith, London	431·5 Mc/s	A1	
GB3LER	Lerwick	145·996 Mc/s	A1	S
GB3LER	Lerwick	70·305 Mc/s	A1	N/S
GB3LER	Lerwick	29·005 Mc/s	A1	N/S
GB3VHF	Wrotham, Kent	144·50 Mc/s	A1	North-West

*Not yet in operation.

RSGB V.H.F. BEACON STATION GB3VHF

The frequency of the Society's v.h.f beacon transmitter at Wrotham, Kent, when measured by the BBC Frequency Checking Station, was as follows (nominal frequency 144·50 Mc/s):

Date	Time	Error
21 December	10.03 GMT	330 c/s high
29 December	12.55 GMT	150 c/s high
4 January	11.50 GMT	20 c/s low
11 January	14·50 GMT	110 c/s high

SCOTTISH V.H.F. CONVENTION
30 April, 1966
MILL HOTEL . RUTHERGLEN

TALKS—DISCUSSIONS—DINNER

Full details next month

ORGANIZED BY W. B. MILLER, GM3PMB

More about the Band Plan

The result of the RSGB questionnaire on the 2m band plan put out at the recent Communications Exhibition showed an overwhelming response in favour of the retention of some sort of plan. This is no reason why discussion should not continue on the subject so that as many viewpoints as possible may be taken into account before any change is made (if indeed any *should* be made).

It may be remembered that the questionnaire disclosed that 85 per cent of opinion favours some form of band planning and that no less than 75 per cent of the 158 members who used the questionnaire favour a plan based on a geographical formula.

For a detailed review of band planning members are invited to re-read the opening page of *Four Metres and Down* last month.

Four Metres

VS9ABL (Aden) writes that he has been granted permission to operate on the 4m band. This is a surprising departure from normal practice, for since the French and French associated countries lost 72 Mc/s, 4m operation has been confined to the British Isles. VS9ABL will be keeping an ear open for UK stations on the band (between 70·2 and 70·5 Mc/s) at various times throughout the 24 hours. If sufficient stations are heard (we should have thought one would be enough!) he will come on with about 100 watts p.e.p. s.s.b.

G3PLX (Liverpool) refers to G2WS's comments on the January BULLETIN, and, on behalf of the group (G3OUF, G3SKR and G3OHH) which designed the plan published in December wishes to explain the reasoning behind what may appear at first sight to be a haphazard plan. G2WS's points are answered in turn:

(i) The "exclusive" parts of the band have been allocated to general areas of the British Isles with no definitely defined boundaries. Stations near boundaries (i.e., the Midlands) will have to decide for themselves where to put themselves, depending on locations.

(ii) The two parts of the band 70·175-70·30 Mc/s and 70·45-70·625 Mc/s are not allocated to any particular area, but were envisaged for *any* type of operation, but mainly to satisfy the majority of 4m operators who use the band for local contacts and mobile work. To these amateurs, who, in general are not interested in DX weak signal work, for which the exclusive zones were designed, a band plan would be a deterrent to single frequency nets. For this reason the exclusive zones only occupy half of the band, meaning that, from the point of view of an operator in any given area, he has about two-thirds of the band (400 kc/s) in which to choose a transmitting frequency, including his own exclusive zone, which he would use only if he wanted to work DX in particular.

(iii) G2WS, living in an area of low activity, may not be aware of the high level of activity in some areas (London, Merseyside, Northern Ireland, etc.). This activity is mainly using equipment not designed or intended for DX working, and few such stations are heard outside their area. The band plan has been envisaged to safeguard the interests of the minority, i.e., the DX operator on 4m, in respect of the QRM which is, even now, a problem in the London area for stations in that area trying to hear distant stations. At the same time, the minimum of crystal grinding, etc., will be necessary by stations for whom the band plan has no value. This plan, of course, has been designed to comply with the differences in licence regulations in force, and does not inhibit the development of v.f.o. and single frequency operations, and local fixed frequency nets using surplus equipment, which have plenty of room in which to expand. After this plan was constructed it was pointed out that it was basically similar to the plan used by 160m operators for intercontinental contacts, where most of the band is free for normal " local " working.

A4038 (Nr. Exeter), with reference to the Exeter activity list published recently, says that much of the credit for local activity must go to G3LMT who has done a tremendous job of work in this direction. There is even a 70 Mc/s Newsletter issued to local club members each month. A4038 is himself equipped with an RF27 into an HE-30 receiver. The aerial is a dipole at present, but a 4 element beam is in prospect. Any other SWLs in and around Exeter who are equipped for 4m are invited to communicate with A4038. There are quite a few, but not many of them attend the local club. This is rather sad, because the locals are very co-operative and encouraging. A4038's address is: P. A. Cayless, 35 Woolsery Avenue, Whipton, Exeter, Devon.

Seventy Centimetres

G8ABP (Yardley, Birmingham) says that the lift in conditions on 5 January permitted reception of F3LP from 20.38 GMT (57) to 21.25 (45). Many calls were made to him, but he repeatedly went back to stations on the South Coast, and it was evident that he was not tuning above 433 Mc/s, and no QSO was possible. Stations worked during the evening of 7 January were as follows: G8AAZ, G3KEQ, G3OWA, G8ADJ, G3PRX and G3PNA, and on the 8th, G3LTF and G3MCS. GB3GEC is received under any conditions from S9+ when they are good, to S2 with QSB under " more normal " conditions.

Twenty-Three Centimetres

G8ABP (Yardley) has now finished his converter, which appears to be working, although no signals have yet been received. A 3 ft. dish is under construction and the feed for this is complete. The 2C39A is awaiting the building of a G2RD-type cavity.

Four Metres and Down Certificates

The following is an up-to-date list of those who have qualified for these certificates. A leaflet giving details of the conditions of issue may be obtained from Headquarters on request.

70 Mc/s Transmitting Section

1 G3EHY	8 G6NB	14 G3SKR
2 G3PJK	9 G8PD/A	15 G3OUF
3 G2AIH	10 G5FK	16 G3BNL
4 G3OHH	11 G3NDF	17 G3PMJ
5 G3KEU/P	12 G3IMV	18 G3PHG
6 G3NUE	13 GI3HXV/P	19 GC3OBM
7 G3IUD		

144 Mc/s Transmitting Section

1 G3HBW	27 G2AXI	53 G3CKQ
2 G3BLP	28 G3JYT	54 G5HZ
3 G3MTI	29 G5UM	55 G3NNK
4 G5YV	30 G3EJO	56 G6GN
5 G3BNL	31 G3PBV	57 G5ZT
6 G3MCS	32 G3FDG	58 G2PL
7 G3LAR	33 G3OSA	59 G3FZL
8 G3CO	34 G3JLA	60 G3SAR
9 G3BA	35 GC2FZC	61 G3NUE
10 GW3MFY	36 G3BOC	62 PA0EZ
11 G3DFL	37 G3MTI/M	63 G3AHB
12 G3NAQ	38 G3OJY (New QTH)	64 G3PTM
13 G3NNG	39 G3JWQ	65 G3LAS
14 G3OJY	40 G3NOH	66 G3RMJ
15 G3KPT	41 G3PSL	67 G2CDX
16 G3JYP	42 G3LBA	68 G3ORL
17 G3KMT	43 G3FUR	69 G2DHV/P
18 G3OHD	44 G2BJY	70 G3FIJ
19 G3BBR/A	45 G3MRA	71 G3CXM
20 G3HRH	46 G3AGN	72 G3HRH/P
21 GM3EGW	47 G3MDH/P	73 G3BDS
22 GI3OFT	48 G3GMY	74 G3FNM
23 G3OBD/P	49 G3GGK	75 G3IMV
24 G2HIF	50 G3MDH	76 G2BQ
25 G3JDN	51 G3NLR	77 G3KHA
26 G8VZ	52 GM3LDU	

144 Mc/s Receiving Section

1 BRS22550	4 BRS15744	6 BRS20108
2 BRS22322	5 NL687	7 A3470
3 BRS15822		

144 Mc/s Senior Transmitting Section

1 G3CCH	4 G3BLP	7 G6NB
2 G3FAN	5 G3CO	8 G3EDD
3 G5MA	6 G3BA	9 G3HRH

420 Mc/s Transmitting Section

1 G3NNG	4 G3BNL	7 G8ABP
2 G3KPT	5 G3MCS	8 G3AHB
3 G3LHA	6 G8AAZ	

420 Mc/s Receiving Section

1 BRS15744

All applicants for these awards are reminded that a duplicated check-list together with a copy of the rules, is available upon request from Society Headquarters. Use of this list makes the recording of a claim and the subsequent checking easier and reduces the chance of a delay resulting from an inaccurate claim.

International V.H.F./U.H.F. Convention

Saturday, 2 April, 1966

Kingsley Hotel, Bloomsbury Way

London, W.C.1

V.H.F. NATIONAL FIELD DAY 1965

THE 1965 V.H.F. National Field Day was held on 4 and 5 September and attracted 59 entries supported by 16 check logs. As usual, the majority of entries were English; one GC, one GI, three GMs and three GWs participated. There was a drop of four non Gs from last year, and again there was no GD entry.

The overall winner was the GB2GC Group operating from Alderney. This team of 11 members from the London area came nineteenth in 1964, but this year they have won easily. On the basis of last year's scoring they would have scored about 78,200 points, which is the highest figure reached in the contest so far.

In second position was the North West V.H.F. Group, with a score of 36,967 points repeating their achievement of 1964.

Results by Countries

Highest scoring G for the second year running was the North West V.H.F. Group, leading the Surrey Radio Contact Club by less than 500 points, with Harwell, Reigate and Crawley very close behind. The closeness of the scores of these five stations serves to emphasize the care needed in preparing and checking entries.

The entry from the GB2GC group is obviously the leader in the Channel Islands, for they did not work any other GC portable and so it must be assumed that they were the only portable representatives of that country.

The leading station in Northern Ireland was a single operator entry by M. J. Noble, GI3UIU, with the Belfast Group second.

Leading GM is a station of the Midlands Contest Club with a score of 21,048; this score, made in the 2m band only, makes the efforts of the indigenous clubs look very small. Their best DX, a contact with GC3SHK/P at 678 km, is some indication of the standard of equipment and operation called for in this contest. They made no less than 20 contacts over 400 km and 14 more over 300 km.

The leading GW in score was the Albright and Wilson Club; this entry was forwarded rather late, for use as a check log, but the score is entered in the table for the record. The award for leading GW goes to a new entrant, the Flintshire Group, while third in the listing is the 70 Mc/s station of the Midlands Contest Club.

Results by Bands

Four Metres. The leading 4m station was the GB2GC group; the Reigate Amateur Transmitting Society was second by 93 points above the Cumberland and Westmorland V.H.F. Group.

The Midlands Contest Club gains another credit by operating the leading 70 Mc/s station in Wales, while Belfast and Dunfermline were again sole representatives of GIs and GMs on this band.

Two Metres. The positions of the leading 144 Mc/s stations follow much the same pattern. The GB2GC Group first, the NW V.H.F. Group second, the Midlands Contest Club third, and the leading GW was the Flintshire group.

Seventy Centimetres. The leading 432 Mc/s station was operated by the Mid-Essex V.H.F. Contest Group with the Surrey Radio Contact Club second. Scores on this band are higher than in 1964 and there is a hopeful improvement in the number of low scoring stations indicating rather more fixed station activity on the band.

Awards for leading stations in their respective countries go to Flint, Dunfermline and the GB2GC Group.

Twenty-three Centimetres. The leading station on 1296 Mc/s was the Surrey Radio Contact Club with AERE Harwell second. By siting the station on the South Downs and then working several fixed stations in the London area of 400+ points a time, Surrey assured themselves of a high score. There were, as usual, no entries outside England on this band.

Summary of Awards

It is now the practice to engrave miniature cups for the principal achievements in the Contest and award certificates of merit for the lesser successes. Thus the leading stations receive one cup and a certificate summarizing their achievements. There are in effect five awards available in each country (overall winner and four band winners); this has been done in the hope that there will be competition within each country but so far the response has been very poor.

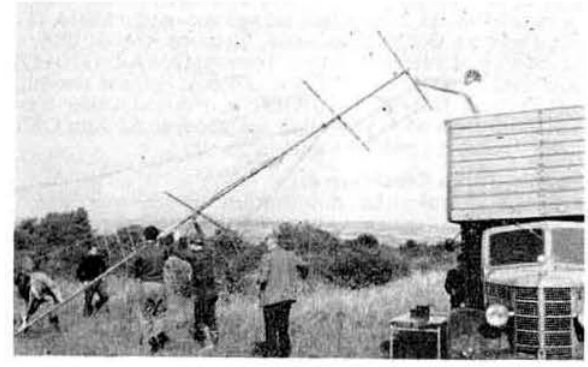
Notes on the Table

Most entrants allocated one call-sign full-time to the 144 Mc/s band and the other to the 70 Mc/s band and such u.h.f. bands as were covered. In the table of results the first call-signs listed were used on 70 Mc/s, 432 Mc/s and 1296 Mc/s and those in the second column were used on 144 Mc/s. The exceptions are marked "+," e.g., G3ENY (Severn Valley) was operated on 70 and 144 Mc/s while G3SVR was used on 432 Mc/s only. As before, the county is shown for entrants showing no club title or local affiliation.

Equipment

While the transmitters, receivers and aerials used in V.H.F. NFD are used in other contests throughout the year, it is apparent that best results are obtained by combining the best equipment from the various members of a group. A brief description of the leading station indicates this technique. GC3SHZ/P on 70 Mc/s ran 25 watts to a QQV06-40A with two OC35s as modulator, a GM0290 transistor r.f. stage was the first stage of a wholly transistorized receiver and the aerial was a 4-over-4-over-4-over-4 at 45 ft. GC3SHK/P on 144 Mc/s ran a similar transmitter and receiver and a 10-over-10 Yagi stack at 30 ft.

GC3SHZ/P on 432 Mc/s ran a DET24 p.a. (no power

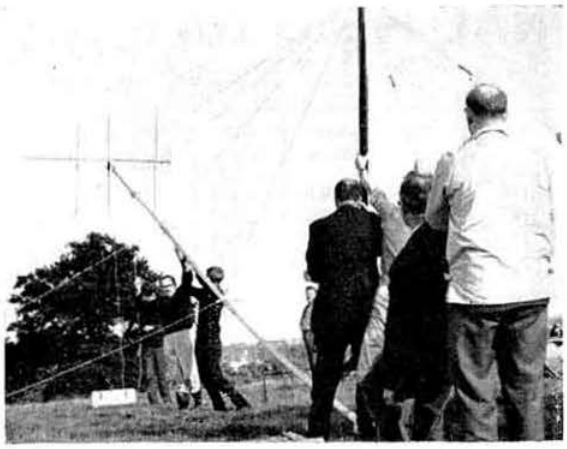


A 24 element 2m stacked array being erected by the Crawley Amateur Radio Club. Left to right, G3FRV, G8RW, G3PHG, G3LHZ, G3TR and G3TIR. *(Photo by G3SGA)*

RESULTS—V.H.F. NATIONAL FIELD DAY 1965

Position	Club	Call "A"	Call "B"	70 Mc/s	144 Mc/s	432 Mc/s	1296 Mc/s	Total
1	GB2GC Expedition Group	GC3SHZ	GC3SHK	**18,928**	**26,940**	**6,471**	Nil	**52,339**
2	North West V.H.F. Group	G3KMS	G3UHF	8,633	**25,736**	2,598	—	**36,767**
3	Surrey Radio Contact Club	G2RD	G3ODY	6,042	15,546	**9,561**	**5,340**	36,489
4	AERE (Harwell) ARC	G3NNG	G3PIA	7,864	15,877	8,709	**3,760**	36,210
5	Reigate ATS	G3REI	G3PNA	13,617	16,647	5,362	—	35,626
6	Crawley ARC	G8RW	G3FRV	10,129	17,639	7,287	400	35,455
7	Cumberland & Westmorland V.H.F. Group	G3RHE	G3BW	13,520	15,087	2,364	—	30,971
8	Mid-Essex V.H.F./U.H.F. Contest Group	G3LTF	G3ORL	4,175	11,723	**10,920**	2,940	29,758
9	Southampton Group	G3SOU	G3MDH	9,925	10,738	9,081	—	29,744
10	Bournemouth-Poole V.H.F. Group	G6XM	G3OBD	10,779	12,684	5,361	530	29,354
11	Midlands Contest Club	GW3MRZ	GM3RUF	**6,724**	**21,048**	—	—	27,772
12	Severn Valley ARC	G3ENY	G3SVR	9,595	10,098‡	7,056	—	26,749
13	Grimsby ARS	G4GX	G3NJF	8,455	15,253	888	—	24,596
14	Welwyn Garden City Group	G5UM	G8LM	4,821	9,374	6,012	390	20,597
15	Radio Society of Harrow	G3EFX	G3PFR	4,361	9,755	6,441	Nil	20,557
16	Loughborough ARC	G3BNL	G3RAL	3,534	9,076	6,629	380	19,619
17	East Cheam Wireless Society	G3OJE	G3OSC	6,350	7,057	4,923	—	18,330
18	RSGB Bristol Group	G3KUJ	G3TND	7,034	6,488	2,901‡	1,460‡	17,883
19	Enfield RSGB Group	G3FD	G3TZZ	4,510	7,380	5,262	—	17,152
20	South Dorset Radio Society	G3EAT	G3SDS	5,137	6,883	4,473	380	16,493
21	Lichfield ARS	G3PLD	G3NLY	3,196	12,703	—	—	15,899
22	Newbury & District ARS	G3TEK	—	—	15,616	—	—	15,616
23	Dorking & District RS	G3LBA	G3CZU	2,650	7,566	5,076	—	15,292
†	Albright & Wilson ARS	GW3TLG	GW3OXD	4,327	10,796	—	Nil	15,123
*	Verulam ARC	G3STA	G3TGE	4,114	9,921	550	—	14,585
24	Clifton ARS	G3JKY	G3GHN	1,985	9,360	3,906	—	14,251
25	Ariel Radio Club	G3GDT	G3AYC	6,084	7,226	—	—	13,310
26	Norwich & District RC	G2YU	—	3,933	6,679	591	—	11,203
27	Worthing & District ARC	G3PUR	—	10,265	—	—	—	10,265
28	Barnsley & District ARC	G4JJ	—	—	10,144	—	—	10,144
29	Cray Valley RS	G3RCU	G3RYV	4,463	5,074	—	—	9,537
30	Burnham Beeches RC	G3AHB	—	—	9,443	—	—	9,443
31	Guildford Group	G3TLM	—	2,591	6,377	—	—	8,968
32	Chesham & Markyate Group	G3JBF	G2CZM	1,941	6,727	—	—	8,668
33	Flintshire RC	GW8ACC	GW3JGA	—	**5,813**	**2,634**	—	**8,447**
34	Purley & District RC	G3KTA	G3GKF	3,439	3,488	879‡	—	7,806
35	Sheffield ARC	G8NN	G3JRL	4,575	3,026	—	—	7,601
*	Reading ARC	G3ULT	—	—	7,355	—	—	7,355
36	Dunfermline Group	GM3EGW	GM3FYB	**1,513**	5,361	**435‡**	—	7,309
37	Crystal Palace & District RC	G3UNF	G2LW	4,599	2,295	—	—	6,894
38	Accrington & District Group	G3PUO	G3EKP	2,087	3,376	873‡	—	6,336
39	Cambridge & District ARC	G3PKF	—	—	5,970	—	—	5,970
40	Chingford Group	G3FEW	—	—	5,874	—	—	5,874
41	NW Durham Group	G3KMG	—	—	5,567	—	—	5,567
42	Stean Group	G3KKP	—	2,874	2,188	—	—	5,062
43	*Essex*	G3NNK	—	—	5,015	—	—	5,015
44	Battersea College of Technology ARS	G3IGQ	—	—	4,070	—	—	4,070
45	*Antrim*	GI3UIU	—	—	**3,605**	**200**	—	**3,805**
46	Stirlingshire V.H.F. Group	GM2TW	GM6XW	219	3,355	—	—	3,574
47	Silverthorn RC	G3SRA	—	—	2,853	—	—	2,853
48	Morden (Surrey) Group	G2CZH	—	—	2,794	—	—	2,794
49	Leyton ARG	G3SDQ	—	—	2,544	—	—	2,544
50	Belfast Group	GI3OIC	—	**2,513**	—	—	—	2,513
51	*Middlesex*	G2AVC	—	2,140	—	—	—	2,140
52	Edgware Group	G3ASR	—	2,088	—	—	—	2,088
53	*Warwickshire*	G2WS	—	—	1,953	—	—	1,953
†	Dundee Group	GM3KYI	—	—	1,288	Nil	—	1,288
54	University of Sheffield ARS	G3MZY	—	—	—	963	—	963

* Incomplete log. † Late entry.
Numbers in heavy type are scores of award winners.



Verulam Radio Club members raising the 4m and 70cm aerials on v.h.f. NFD. The 40 ft. mast was designed and constructed by the members. *(Photo by G3RPA)*

stated) and a transistorized receiver; the aerial was a 24-over-24 at 35 ft.

Comments

Many entrants commented on the rules, and these opinions have been added to those received in the recent questionnaire; it is not proposed to comment here on future changes if any.

Two points appear to require emphasis, however; many club secretaries have obviously been to a lot of trouble getting signatures from all the operators of each station; this is quite unnecessary, for all that is required is a list of names and call-signs on the cover sheet and a brief note of call-sign or initials against each contact (with " ditto " marks or a vertical line where one operator makes a series of contacts). The only signature required is that of the " responsible person " who fills in the Summary Sheet. The other point is that some 432 Mc/s entrants multiplied each distance by the band multiplier and then added up the score; it is much easier to add up the distances first and multiply the total for the band by three. It also saves the Contests Committee the trouble of dividing all the scores by three to get back to the distances for checking!

Some of the more experienced entrants were dismayed by the poor arrangements at some of the u.h.f. stations; many could not change bands quickly and the frequency calibrations of others were quite inadequate. Some entrants were actually refused contacts on 432 or 1296 Mc/s by stations which, though nominally equipped for those bands, were " not warmed up " or whose first operator was absent while the operator present was unable to work the gear. Understandably the decision to operate u.h.f. may be taken at the last minute, but even so many entrants have a dummy run a week or two before the event to settle these difficulties. Furthermore, stations heard in contact on a u.h.f. band and called on that band were subsequently found on a v.h.f. band having changed down without listening on the higher frequency.

Many stations were not equipped for c.w., and some idea of the value of this mode can be obtained from the leader's log: a total of 206 contacts were made with an average value of 254 points of these 26 contacts on c.w. netted 10,840 points, *i.e.*, an average of 409 points each, and this accounts for nearly a fifth of the leaders' score.

G3LIA of the Welwyn Garden City Group with his 23cm dish mounted on half an office chair on the roof of his A40. *(Photo by G5UM)*

Conclusions

The formula for winning this contest is now fairly clear; this is to get as far from the main centres of population as the gear justifies, though exactly how far is a fine balance between optimism concerning the equipment and pessimism concerning conditions (or vice versa). On 70 Mc/s the leading scores came from Alderney, South Downs (Sussex), Cumberland and Wiltshire, on 144 Mc/s from Alderney, Stafford and Lanarkshire, on 432 Mc/s from Essex, South Downs and Berkshire and the same sites on 1296 Mc/s. Typical good contacts from these sites were 200 km on 70 Mc/s, 250 km on 144 Mc/s, 80 to 100 km on 432 Mc/s and 40 to 50 km on 1296 Mc/s. By good is meant reliable contacts at RS57 to 58 not dependent on exceptional conditions or operating ability; the more able operators delving down in the noise for S3 or 4 signals can easily double these figures.

Check Logs

Check logs were received from the following stations and are gratefully acknowledged: G2DHV, G3EHR, G3HWR, G3PMJ, G3SEK/P, G3TEK, G3TYX, G4IB, G5FK, G6XA/B, GM5YK/A, BRS15744, BRS18456, BRS24733, and A3942. Some of the listener logs were entered for the V.H.F. Listeners' Championship and have been credited to that event.

The Month on the Air (Continued from page 101)

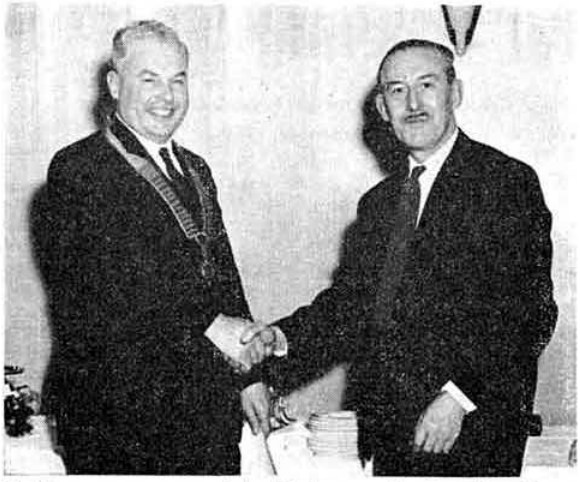
(15.28), XE1RRW (16.15), XW8BD (09.45), YS1AQK (16.19), ZD7RH (10.35), ZL2BCG (09.02), 5N2FMP (12.35), 5Z4JW (11.30), 9M6LX (14.33).

21 Mc/s C.W.: CM2WS (13.20), CR4AE (12.30), CR6JA (09.40), CR7AD (11.35), FL8MC (11.00), FR7ZD (11.00), OD5LX (13.46), PY8TK (11.55), VK3CW (11.24), VQ8AW (10.07), YV6EE (12.30), ZD8WZ (12.05), ZL3IS (10.10), 4U1ITU (11.06), 5R8AL (18.32), 9K2AD (11.31), 9M2OV (12.06).

28 Mc/s C.W.: 4U1ITU (11.50).

28 Mc/s A.M.: CR7FR (11.16), EA8DX (10.14), LU7FAG (18.08), PY7VJS (17.13), UP2ADZ (10.42), ZE2JA (12.26), ZS9G (10.55), 9J2DT (09.00).

Correspondents are thanked for their cooperation, and acknowledgement is made to the *West Gulf DX Bulletin* (W5IEJ), the *LIDXA Bulletin*, (W2FGD/W2MES), *DX'press* (PA0FX), *The DX'er* (Northern California DX Club), *Florida DX Report* (Florida DX Club), and *KARL News* (Korean Amateur Radio League). Please send all items to arrive not later than **9 February** for the **March** issue, and **16 March** for the **April** issue.



Mr Yeomanson congratulating Mr Stevens after installing him as President of the Society.

(Photo by G3NMR)

Presidential Installation

MORE than 100 members and friends attended a General Meeting and Social Evening held at the Kingsley Hotel, London, on 7 January, 1966, at which Mr E. W. Yeomanson, G3IIR, Immediate Past President, formally installed Mr R. F. Stevens, G2BVN, as the Society's thirty-second President.

In the course of a short address, Mr Stevens stressed the importance of a strong and united Amateur Radio movement to defend the frequencies assigned to amateurs. Mr Stevens mentioned that it was now almost certain that the Conference of Region I IARU Societies due to be held in Opatija, Yugoslavia, in May this year would be followed immediately by an informal meeting of representatives of the International Amateur Radio Union from Regions I, II and III. The object of these meetings was to ensure that the interests of amateurs would be effectively represented at the next Administrative Radio Conference at which matters affecting all radio services would be discussed. It was likely to prove one of the most decisive Conferences ever held and it was of paramount importance that the Amateur Radio movement should be as effectively represented as possible.

At the conclusion of his address, Mr Stevens paid tribute to the work of the Headquarters staff and in particular to Mrs Jeanette Mason who was leaving after many years. On behalf of the Council, Mr Stevens presented to Mrs Mason a pen and pencil set and a cheque as a token of appreciation of her excellent work for the Society.

Among the guests were Mr H. G. Lillicrapp, Director of Radio Services, GPO, Mr H. Stanesby, Assistant Engineer-in-Chief, GPO, Mr P. N. Parker of the Radio Branch, Engineering Department, GPO, Mr H. W. Barnard, Editor, *Wireless World*, and Mr Austin Forsyth, Editor, *Short Wave Magazine*.

At the General Meeting and Social Evening on 7 January, 1966, Mr E. W. Yeomanson, G3IIR, presented the G5RV Trophy to Mr W. Browning, G2AOX, left, in recognition of his work in connection with orbital predictions for the OSCAR III translator satellite. Mr Browning was unable to attend the Annual General Meeting in December due to illness.

(Photo by G3NMR)

Applications for Permission to Operate in the USA

With the completion of the reciprocal licensing arrangements between the UK and the USA, applications from UK licensed amateurs for permission to operate in the US can now be submitted to the Federal Communications Commission. Such applications should be made on FCC Form 610-A and sent, with a photo-copy of the station licence, to the FCC, Washington DC, 20554, USA, at least 60 days prior to the date on which it is desired to commence operation. Copies of form 610-A are available from the FCC, and it is hoped that in the near future these documents will also be obtainable from Society Headquarters.

It is strongly recommended that any UK licensee intending to apply for permission to operate in the US should familiarise himself with the relevant regulations. Form 610-A draws the attention of applicants to Volume VI of the *Rules and Regulations of the FCC*, which refers to such operation. A convenient source of these regulations is the ARRL *Licence Manual* which will be available from RSGB Headquarters, price 5/- (including postage).

It will be noted that nowhere is there any indication that the FCC will issue a " licence." Throughout the documents referring to reciprocal operating agreements there is reference only to a " permit to operate." Such permits will normally expire one year after issuance and will cover portable operation at several temporary fixed locations and also mobile use. There is no reference to any fee payable for the issue of a permit. The station identification for telephony operation will be the operator's UK call-sign followed by the words " fixed," " portable " or "mobile," as appropriate, and the US amateur call-sign prefix letter and number appropriate to the location of the station. When using telegraphy the reference to the type of operation is not required.

It is known that there are members who hope to operate from the USA in the near future and Headquarters will be pleased to receive details of any applications which lead to the issuance of a US permit.

Silent Keys

We record with much sorrow the passing of the following amateurs:

J. Dobson, G3HTU, Canterbury, Kent.
E. L. Hunter, G2BZA, Hayes, Middlesex.
F. Pemberton, BRS190, Ex G6PM, London.
P. Robinson, BRS20955, West Bridgford, Nottingham.

Annual General Meeting

Minutes of the 39th Annual General Meeting of the Radio Society of Great Britain held at the Royal Society of Arts, John Adam Street, Adelphi, London W.C.2, at 6.30 p.m. on Friday, 17 December, 1965

Present: The President (Mr E. W. Yeomanson in the Chair), the Immediate Past President (Mr G. M. C. Stone, A.M.I.E.E., A.M.I.E.R.E.), the Executive Vice-President (Mr R. F. Stevens), Honorary Treasurer (Mr N. Caws, F.C.A.), Messrs J. C. Foster, J. C. Graham, R. C. Hills, B.Sc. (Eng), A.M.I.E.E., A.M.I.E.R.E., E. G. Ingram, A. O. Milne, L. E. Newnham, B.Sc., A. D. Patterson, B.A.Sc., J. F. Shepherd, J. W. Swinnerton, T.D., B.Sc. (Econ.) (Hons.) A.I.L., L. Varney, A.M.I.E.E., A.I.L. (Members of Council), Mr John A. Rouse (General Manager and Secretary), Mr P. C. M. Smee (Assistant Secretary), Mrs A. J. Mason, Mr T. R. Preece (Headquarters Staff), Mr John Clarricoats, O.B.E. (Honorary Member) and 60 Corporate Members.

Notice Convening the Meeting

The Secretary read the notice convening the meeting.

Minutes

Mr W. H. Allen moved, Mr L. Varney seconded and it was RESOLVED that the minutes of the 38th Annual General Meeting, as published in the February 1965 issue of the RSGB BULLETIN be taken as read, confirmed and signed as a correct record.

Annual Report

The President moved the adoption of the Annual Report of the Council as published in the December 1965 issue of the RSGB BULLETIN.

The President stated that Mr T. Lyell Herdman had given notice that he wished to ask three questions in regard to technical articles published in the RSGB BULLETIN, and after dealing with these he would invite any other questions from the floor. Mr Herdman was then invited to speak by the President. Mr Herdman put the following questions:—

"(i) What function does the Technical Committee perform in connection with technical articles offered for publication in the BULLETIN?

(ii) What action has Council taken, and what action does Council propose to prevent the publication in the Official Journal of the Society of further articles which are grossly unsound from a technical point of view?

(iii) What action has Council taken, and what action does Council propose to protect the reputation of the Society as a technical body, with reference to the numerous serious technical errors in BULLETIN articles which I (and perhaps others) have been drawing to their attention for more than a year?"

The President then replied as follows:

"I am very grateful to Mr Herdman for his questions as they give me an opportunity to explain how technical articles for the BULLETIN are dealt with.

When an article is received by the Editor, he acknowledges it to the author and sends it to members of the Technical Committee who read the manuscript and advise whether the article should be accepted or rejected. More often than not, of course, the Technical Committee's advice is not quite so definite as that: points are raised which have to be cleared up before a final decision can be made. If there are any points of difficulty which cannot be resolved by the Editorial staff in association with the author, the matter is again referred to the Technical Committee.

The terms of reference of the Technical Committee in regard to publications is to consider and advise on articles of a technical nature submitted for publication.

I hope I have now answered Mr Herdman's first question.

In order to help prevent the publication of inaccurate information, the panel of technical readers has been enlarged so that expert opinions may be obtained on specialized circuits and designs which are becoming a more and more common feature of our hobby. It is also the current practice of the Editor to submit any article on which there is real doubt to a full meeting of the Technical Committee. In addition, several members of the Technical Committee have recently agreed to examine the pre-prints of circuit diagrams prior to blocks being made. This is of course in addition to the checking done by the author and by the Editorial staff.

Incidentally, I should mention that in practically all cases page proofs of BULLETIN technical articles are sent to all authors in addition to the first proofs in galley form.

May I say again that Council appreciates Mr Herdman's interest in raising these questions and are grateful for the helpful comments he has made to the Editor. Both the Council and the Editor regret the errors to which Mr Herdman has drawn attention and we hope that the strengthening of the system I have outlined will prevent similar errors in the future, although in all fairness I should say that I do not know of any magazine which never contains any errors. Nevertheless, we do try!"

Mr Herdman then thanked the President for his reply.

The President invited any other questions.

Mr Clarricoats congratulated the Council on achieving authorization for the Post Office to proceed with reciprocal licensing arrangements, and in particular that agreement had been reached with the United States of America.

Mr Clarricoats also drew attention to the apparent drop in licensed Corporate Members for the year ended 30 June, 1965, and suggested that in view of the issue during the preceding year of some 700 new licences, that this needed the special attention of the Society.

The President replied that although this was true, there had been an overall increase in the year of some 1,000 members, and that the Membership and Representation Committee were actively engaged in all aspects of expanding the Society's membership.

Mr Swinnerton pointed out that in fact the total licensed membership would be somewhat higher as the Society was not always given notice by members obtaining a licence.

The President read a Supplementary Report of the Council covering the period from 1 July, 1965, to early December, 1965.

It was then RESOLVED that the Annual Report of the Council as published in the December 1965 issue of the RSGB BULLETIN be approved and adopted.

Report of the Honorary Treasurer and Audited Accounts for the year ended 30 June, 1965

Before moving the adoption of his Report and the Audited Accounts the Honorary Treasurer (Mr N. Caws, F.C.A.) referred to the various items of income and expenditure and explained the reasons for any major variations compared with the previous year.

Mr Caws then moved, and Mr G. A. Leicester seconded

the adoption of the Honorary Treasurer's Report and the Audited Accounts.

Before putting the motion to the meeting, questions were invited.

Mr C. E. Newton asked to what extent the sale of publications subsidized the members' subscriptions.

Mr Caws replied that prior to the increase in the subscription rate the amount was some 4/8d per member.

Mr A. O. Milne then submitted on behalf of a member a question asking whether it might prove more economical if the BULLETIN were printed abroad, for example, in Holland.

The President replied that lack of speedy liaison with printers would give rise to so many difficulties that it had been considered in the past that the idea would not be feasible.

Mr C. E. Newton commented that from past experience he considered it a fallacy that printing was cheaper on the Continent.

Mr A. D. Patterson then proposed a vote of thanks to Mr Caws, the Honorary Treasurer, and also to Mr Smee of Headquarters Staff in connection with the Accounts; this was endorsed by the meeting.

The motion was then put to the meeting, and it was RESOLVED that the Report of the Honorary Treasurer and the Audited Accounts of the Society for the year ended 30 June, 1965, be approved and adopted.

Election of Council

The President announced that it gave him great pleasure to report that, in accordance with Article 10 of the Articles of Association the Council had appointed Mr R. F. Stevens, G2BVN, to the office of President for 1966.

The President then declared the following members elected unopposed to fill the vacancies amongst those Council Members elected on a Zonal Basis, occurring on 31 December, 1965.

Mr F. K. Parker, G3FUR.
Mr A. D. Patterson, GI3KYP.

The result of the ballot to fill the vacancies which occur among the ordinary Members of Council on 31 December, 1965, were as follows.

Mr J. Etherington, G5UG..... 1602 votes
Mr W. A. Roberts, G2RO ..... 1692 votes
Mr G. M. C. Stone, G3FZL ..... 1934 votes
Mr R. G. B. Vaughan, G3FRV ..... 1527 votes

The President formally declared Messrs Parker, Patterson, Etherington, Roberts and Stone ELECTED.

The President also thanked the unsuccessful candidate.

The following members of the 1965 Council were not required to stand for election in their respective offices:

Mr E. W. Yeomanson, G3IIR, Retiring President.
Mr N. Caws, G3BVG, Honorary Treasurer.

Members of Council

Mr J. C. Foster, G2JF
Mr E. G. Ingram, GM6IZ
Mr L. E. Newnham, G6NZ
Mr J. W. Swinnerton, G2YS
Mr Louis Varney, G5RV
Mr L. M. Goldsbrough, G3ERB
Mr J. C. Graham, G3TR
Mr R. H. James, GW3BFH
Mr J. F. Shepherd, GM3EGW

Auditors

Mr Caws moved, Mr W. H. Matthews seconded and it was RESOLVED that Edward Moore & Sons be re-appointed Auditors for the year to 30 June, 1966, at a fee of 125 guineas.

Lambda Investment Company Ltd.

The President called on Mr Caws to move the resolution approving the investment of funds of the Society in the Lambda Investment Company Ltd., under the terms of Article 88 of the Society's Articles of Association.

Mr Caws first explained that Lambda Investment Company Ltd. had grown out of suggestions made at the last Annual General Meeting, and that the intention was for the Society to have at all times a controlling interest by capital and thus be able to appoint the Company's directors, and that as yet no limitation had been agreed regarding the acquisition of shares by a member. It was considered that no public issue of shares could be made, as it was hoped to keep the interest rate on shares at a fairly low level by inviting applications only from Society members. To avoid the possible acquisition of a large block of shares by outside persons, Article 5 of the Company's Articles of Association provides that the directors may at their absolute discretion refuse to register a transfer of shares.

Mr Caws then read Article 88 of the Society's Articles of Association and moved the proposal. Mr C. E. Newton seconded the motion and questions were invited.

Mr Clarricoats asked what the effect would be regarding the new lease on the present Headquarters should a possible building become available.

Mr Caws replied that the Society could under the new lease sublet or assign the lease.

Mr W. H. Matthews asked what Share Capital the Company had, how the profits would accrue and how members could sell shares.

Mr Caws explained that at present the Share Capital was £100 and would be increased if required. The profits would accrue from rents paid by the Society to the Company and that the rents would depend on the amount of interest payable to members holding shares.

Although the Company was a Public Company, the shares would not be quoted on the Stock Exchange, but members could of course sell shares to each other, subject to Article 5.

Mr S. L. Hill asked how the Society's Investments would be liquidated to provide cash for the purchase of a building.

Mr Caws said that the intention would be to lodge these at the bank as security for a loan.

In reply to a question from Mr R. C. Hills, Mr Caws confirmed that any money invested by members would be reinvested to ensure a return, prior to the purchase of any building.

The motion was then put to the meeting and it was RESOLVED that approval be given to the investment of funds of the Society in the Lambda Investment Company Ltd., under the terms of Article 88 of the Articles of Association.

Other Business

The President announced that in accordance with Article 58, it was necessary to appoint a panel of TEN Corporate Members from whom the scrutineers for the 1966 Ballot for Council would be drawn.

The following members volunteered their services:

Mr G. Leicester, G3IKC
Mr J. D. Kingston, G3VK
Mr C. Sharpe, G2HIF
Mr A. J. Shepherd, G3RKK
Mr S. L. Hill, G8KS
Mr C. R. Bayliss, G8AJU
Mr R. C. Hills, G3HRH
Mr P. J. Naish, G3EIX
Mr A. J. Gould, G3JKY
Mr A. O. Milne, G2MI

* * *

The Meeting terminated at 7.45 *p.m.*

* * *

Informal Session

Mr W. H. Matthews drew attention to the services of Mr F. Ruth as Exhibition Manager for a number of years

who had been taken ill during this year's Exhibition and had since undergone an operation and was now convalescing before possible further treatment.

The President asked Mr Matthews to convey to Mr Ruth the best wishes of the meeting.

Mr Swinnerton then proposed a vote of thanks to the retiring members of the Council, and especially to Mr A. O. Milne who had given long and valuable service to the Society. This proposal was carried with acclamation.

Mr T. J. Brooke suggested that new methods of representation might enable the Society to expand its membership; in many cases amateurs were content to be members of local clubs and that the local AR did not encourage Society membership also.

The President replied that the Society's Membership and Representation Committee were fully conscious of the problem of better representation and on membership, an invitation to join was sent out to every new licensee.

Mr Clarricoats referred to a booklet called " Scheme of Representation " published some years ago, and suggested that this might be used by the Membership and Representation Committee on which to base a new up-to-date scheme.

Mr Graham, as chairman of the Membership and Representation Committee thanked Mr Clarricoats, but also drew attention to the recent nominations for Regional Representatives and said that in some cases no local nominations had been made which showed a general apathy on the part of some members to the Scheme of Representation.

Mr G. Leicester then proposed a vote of thanks to Mr Yeomanson for his work as President over the past year and also to the Council for its continued efforts on behalf of members.

* * *

The informal proceedings then terminated.

Supplementary Report of the Council*

THE Council has pleasure in submitting a brief supplementary report to that published in the December issue of the RSGB BULLETIN covering the period since 30 June, 1965.

The Society's Exhibition

The RSGB International Radio Communications Exhibition at the Seymour Hall in London at the end of October again attracted very large attendances of members from all over the country.

The Society's stand dominated the Exhibition and it is generally agreed that the design was the best we have had so far.

The income from sales of literature was a record.

On the Friday evening the Council and Exhibition Committee again held a reception for overseas visitors to the show.

Licensing Matters

The Council has particular pleasure in reporting that good progress is being made towards the licensing of foreign amateurs to operate in the United Kingdom on a reciprocal basis. The latest country with which agreement has been reached is the United States of America.

There has been some delay in the completion of the administrative details but it is hoped that the Post Office will be in a position to consider applications early next month.

With regard to Maritime Mobile the Council is gratified to be able to report that an entirely new form of United Kingdom licence for amateur maritime mobile operation has now been agreed and the licences are being printed.

The new licence will permit operation in the 7, 14, 21, 28 Mc/s, 144 Mc/s and 21,000 Mc/s bands.

Symposium for Radio Amateurs

A highly successful Amateur Radio weekend course was held at Ollerton, Nottinghamshire, on 11 and 12 September.

The Council records its thanks to the Newark and District Amateur Radio Society for the organization of this event.

Region 11 Meeting

An excellent Regional Meeting was held in Colwyn Bay on 26 September.

The Council records its thanks to the Regional Representative, Mr J. Thornton Lawrence, GW3JGA, and the members who assisted him in the organization of the meeting.

Region 4 Lecture

An excellent lecture on " Microwave Radio Links and Technical Equipments " was given by Mr L. Walton of the Post Office Engineering Dept. Central Training School on 24 September. The meeting was held at the Derby and District College of Technology.

Region 14 Lecture

A highly successful lecture meeting was organized by the Belfast and District Group on 20 November at which Mr Patrick Moore, the well known astronomer, and Mr John Stace, G3CCH, lectured on the Moon and Moon Bounce respectively. Over 70 members attended.

Radio Amateurs' Examination

For the first time, the Society organized a centre for candidates wishing to take the Radio Amateurs' Examination in December.

About 120 took advantage of the facilities.

New Members

The Council is pleased to report that the upward trend in total membership continues.

At last month's meeting of the Council a total of 332 applicants was elected to membership. Last night, a further 182 applications were approved.

Mr D. L. Courtier-Dutton, G3FPQ, received the Colonel Thomas Rose Bowl from Mr E. W. Yeomanson.

* Read to the members present at the Annual General Meeting of the Society held in London on 17 December, 1965.

Award winners at the Annual General Meeting held on 17 December, 1965. Left to right, (A) G3IIR collecting the Ostermeyer Trophy on behalf of Sven Weber, G6SFW/T, (B) an NFD miniature being presented to GI3KYP on behalf of the Belfast and District Group as 28 Mc/s leaders, (C) Mr M. Hawkins, BRS27108, collecting the 1950 Council Cup for the second year running, (D) a worthy recipient of the Calcutta Key, G3VK, Mr S. L. Hill, G8KS, (E) Mr F. A. Robb, GI6TK, collecting the Desmond Trophy, (F) a group of the Trophy winners, (G) Mr J. D. Key, Mr S. L. Hill, G8KS, (E) Mr F. A. Robb, GI6TK, collecting the Desmong Trophy, (F) a group of the Trophy winners, (G) Mr J. D. Kingston, G3VK, receiving the Raynet Trophy on behalf of the Surrey RAEN Group, (H) trophies before presentation, (I) Mr P. Nash, G3EIX, Regional Representative for Region 16, collecting the NFD miniature on behalf of the Chelmsford Group, (J) a group of the prize winners, (K) Mr R. Milton, VS9MG, collecting the BERU Senior Rose Bowl, and (L) Mr W. Blanchard, G3JKV, receiving the Bevan Swift memorial Prize.

Extraordinary General Meeting

Minutes of the Extraordinary General Meeting of the Radio Society of Great Britain held at the Royal Society of Arts, John Adam Street, Adelphi, London, W.C.2, at 8.00 p.m. on Friday, 17 December, 1965 (immediately following the Annual General Meeting of the same place and date).

Present: The President (Mr E. W. Yeomanson, in the Chair), the Immediate Past President (Mr G. M. C. Stone, A.M.I.E.E., A.M.I.E.R.E.), the Executive Vice-President (Mr R. F. Stevens), Honorary Treasurer (Mr N. Caws F.C.A.), Messrs J. C. Foster, J. C. Graham, R. C. Hills, B.Sc. (Eng.), A.M.I.E.E., A.M.I.E.R.E., E. G. Ingram, A. O. Milne, L. E. Newnham, B.Sc., A. D. Patterson, B.A.Sc., J. F. Shepherd, J. W. Swinnerton, T. D., B.Sc. (Econ) (Hons), A.I.L., L. Varney, A.M.I.E.E., A.I.L. (Members of Council), Mr John A. Rouse (General Manager and Secretary), Mr P. C. M. Smee (Assistant Secretary), Mrs A. J. Mason, Mr T. R. Preece (Headquarters Staff), Mr John Clarricoats, O.B.E. (Honorary Member) and 60 Corporate Members.

Notice Convening the Meeting

The Secretary read the notice convening the meeting.

Special Resolution

The President explained the reasons for the resolution and then moved its adoption (see page 717, RSGB BULLETIN, November 1965).

The motion was then put to the meeting and it was RESOLVED that the Articles of Association of the Society be altered in the manner following that is to say:

(*a*) By deleting in Article 24 the word " Thirty " in line five and substituting therefor the word " Forty-five."

(*b*) By deleting Article 54 and substituting therefor a new Article 54 as follows:

"54. Members nominated for election to the Council on a zonal basis must be resident within the zone for which they are nominated and the nominators must be corporate Members resident in that zone provided that where a vacancy among the members elected on a zonal basis occurs other than under Article 27 hereof the Council shall have power to appoint any qualified member to fill the vacancy within the terms of Article 28 hereof subject to the aforesaid restriction on the residence of the member appointed."

(*c*) By deleting the words " Zonal Representatives " in the last line of Article 52 and in lines 12 and 13 of Article 56 and substituting therefor in each case the following words: " the Members who are elected on a zonal basis."

* * *

The Meeting terminated at 8.10 p.m.

ITU Administrative Council

Chairman of the new 29-Member Administrative Council is Mr. Rudolf Rütschi of Switzerland. Mr. P. L. O'Colmáin of Ireland is Vice-Chairman.

Among decisions reached by the Council at its first meeting held on 11 November, just before the Montreux Plenipotentiary Conference ended, was an agreement that the African L.F./M.F. Broadcasting Conference (which met in Geneva during October 1964 but was abandoned for constitutional reasons) should reconvene in that city on 19 September 1966, for three weeks.

The Administrative Council itself will next meet in Geneva from 9 May to 4 June 1966.

Island Atlas

Readers interested in detailed information on islands which they have worked on the DX bands will find that the 383 page *Standard Encyclopedia of the World's Oceans and Islands* edited by Anthony Huxley deals with practically every island or island group in a most absorbing way. The presentation is first class and the volume contains many photographs, some in full colour, together with many maps. The information is up to date, including details discovered during the International Geophysical Year. The book is obtainable at 45s. from Wiedenfeld and Nicolson (Educational) Ltd., 20 New Bond Street, London, W.1.

MULLARD AWARD FOR 1966—NOMINATIONS INVITED

In accordance with Rule 5, the Council invites nominations for consideration for the Mullard Award for 1966. Such nominations should be sent in writing to the General Manager at RSGB Headquarters to arrive not later than February 28, 1966.

The terms and conditions governing the Mullard Award, are as follows:

(i) *The Award is offered annually by Mullard Limited during the pleasure of the Directors of that Company.*

(ii) *The Award will take the form of a gift in kind (preferably electronic or electrical apparatus and/or books) to the value of* £25, *and a plaque.*

(iii) *The Award will be made to the member of the Radio Society of Great Britain resident in the United Kingdom who in the opinion of a Committee consisting of three representatives of Mullard Limited and three representatives of the Council of the Radio Society of Great Britain, has, through the medium of Amateur Radio during the preceding calendar year, rendered outstanding personal service to the community by his own endeavour or by his own example of fortitude and courage.*

(iv) *The presentation of the Award will take place during the month of April each year on a date and at a place to be decided by the Committee.*

(v) *In January of each year, the Radio Society of Great Britain shall, through its official journal, invite nominations for the Award. Each such nomination shall be supported by at least three Corporate Members of the Society and shall be accompanied by a brief factual account of the personal service rendered by the nominee.*

Society Affairs

A Brief Report on the November, 1965 meeting of the Council

THE meeting was held on 6 November, 1965 and was attended by Messrs. E. W. Yeomanson (President), N. Caws, J. C. Foster, J. C. Graham, L. N. Goldsbrough, E. G. Ingram, L. E. Newnham, A. D. Patterson, J. F. Shepherd, R. F. Stevens, G. M. C. Stone, J. W. Swinnerton (Members of the Council) and John A. Rouse (General Manager and Secretary).

Apologies for absence were submitted on behalf of Messrs. H. A. Bartlett, R. H. James, R. C. Hills, A. O. Milne, F. K. Parker and Louis Varney.

US Citizens' Band Equipment

The Council discussed the increasing illegal use of Japanese-made 27 Mc/s transceivers in many parts of the United Kingdom. During the discussion it was stated that because of the practical difficulties involved, the Board of Trade is unable to ban the import of walkie-talkie sets designed for operation in the 27 Mc/s band.

Annual Accounts

In connection with the accounts for the year ended 30 June, 1965, the Honorary Treasurer, Mr. Norman Caws, stated that he had analysed the annual income and expenditure per average member:

Income	£ s. d.	*Expenditure*	£ s. d.
Subscription	1 15 0	Cost of Headquarters Administration, Rent, Heating, Lighting, Telephone,	
Income from sales of publications	4 8		
Interest on Investments	1 10	Postages, etc.	6 8
		QSL Bureau, Contests, Awards, etc.	1 11
		All Meetings	4 4
		Bulletin, including postages	1 6 5
		Income Tax	8
		Surplus	1 6
	£2 1 6		£2 1 6

VERON Banquet

The President reported on his visit to the Dutch Society's twentieth Anniversary Convention and banquet held on 30 October, 1965, at Utrecht. The Convention, which consisted of a series of lively lectures and discussions on a number of subjects including v.h.f., RTTY, contests, etc., was attended by about 250 people.

The banquet, held during the evening at the Hotel Noord Brabant, was attended by about 75 people including Harry Laett, HB9GA, chairman of Region 1 IARU Division Committee, and officials from the Dutch Post Office. The President of the RSGB made a short speech, during which he outlined the necessity for co-operation between all national societies in order to safeguard our frequencies.

Region 11 ORM

The Council received a report on the excellent ORM held in Colwyn Bay on 26 September, 1965. The meeting attracted the highest percentage attendance of the membership in the Region for many years.

Annual Report

The draft of the Council's Annual Report on the Society's Activities was approved for publication in the December issue of the RSGB BULLETIN.

Recommendations of Committees

The Council accepted recommendations relating to proposed family subscriptions (*Membership and Representation*, referred to Finance and Staff), the production of a tape/slide lecture on the Society's scientific activities (*Scientific Studies*), the co-option of a new member to the V.H.F. Contests Committee, the results of the Fourth 144 Mc/s Portable Contest and the 70 Mc/s Portable Contest (*V.H.F. Contests*), the Society's stand at the *Daily Mail* Schoolboys' and Girls' Exhibition (*Education*), honoraria in connection with beacon stations (*V.H.F.*), the co-option of a new member to the Technical Committee, and the award of honoraria in connection with the RSGB QSL Bureau (*Finance and Staff*).

Membership

The Council accepted 332 applications for membership (261 Corporate, 71 Associate) and approved 16 applications for transfer from Associate to Corporate grade.

Life Membership, was granted to Mr P. Craw, G3CCX, and Mr H. E. Perkins, G3NMH, subject to payment of the appropriate fee.

The subscriptions of six members were waived on the grounds that they suffer from blindness.

Affiliation

Affiliation was granted to following societies and clubs:
Chilton Radio Club, Liverpool
Ealing and District Amateur Radio Society
Great Yarmouth Amateur Radio Club
North Ayrshire Amateur Radio Club

Braaten Trophy

The Council awarded the Braaten Trophy for 1965 to Mr C. R. Perks, G4CP.

Milne Trophy

The Council awarded the Milne Trophy for 1965 to Mr D. Gibson, GI3OQR.

Scrutineers for the Council Ballot

The scrutineers, Messrs. John Clarricoats, W. D. Gilmour and P. A. Thorogood, were drawn by lot from the list of volunteers at the Annual General Meeting held in December, 1964.

Society Diary

The Council considered a proposal from a member that a Society diary should be published. In view of reports on the economics of such a publication from the Membership and Representation and Exhibition Committees it was decided that it would not be practicable to publish a diary.

RSGB International Radio Communications Exhibition

The Council received reports on the Society's participation in the Exhibition. It was generally agreed that the stand was the best so far. (A report on the Exhibition was published in the December, 1965, issue of the RSGB BULLETIN.—EDITOR)

NFD Rules

It was agreed in principle that the dissipation of devices used in the p.a. of NFD transmitters should be specified and

that 12 months' notice of the proposed change in the rules should be given. This will be in substitution for the present rule limiting d.c. power input.

Amateur Radio Handbook

A quotation from The Garden City Press Limited for a further printing of the Third Edition of *The Amateur Radio Handbook* was accepted.

Contests within Region I IARU

Consideration was given to correspondence relating to clashes of dates between contests organized by RSGB and other Region I IARU societies. The correspondence had arisen following the decision of the H.F. Contests Committee to hold the RSGB 21/28 Mc/s Telephony Contest on the same date as the Scandinavian Activity Contest.

Minutes of Committees

The Minutes of the following meetings of Committees were received as reports: Membership and Representation (6.9.65), Mobile (8.9.65), Scientific Studies (13.9.65 and 23.10.65), H.F. Contests (16.9.65), Exhibition (24.9.65) and 8.10.65), V.H.F. Contests (6.10.65), Education (9.10.65) and V.H.F. (18.10.65).

In connection with the Minutes of the Exhibition Committee, the Council placed on record its thanks to the Committee and its helpers for their work with the 1965 RSGB International Radio Communications Exhibition.

* * *

The Council was in session for nearly seven hours.

A Brief Report on the December, 1965 meeting of the Council

The meeting was held on 16 December, 1965, and was attended by Messrs. E. W. Yeomanson (President), H. A. Bartlett, N. Caws, J. C. Foster, J. C. Graham, R. C. Hills, E. G. Ingram, R. H. James, A. O. Milne, L. E. Newnham, A. D. Patterson, J. F. Shepherd, R. F. Stevens, G. M. C. Stone, Louis Varney (Members of the Council), John A. Rouse (General Manager and Secretary) and P. C. M. Smee (Assistant Secretary).

Apologies for absence were submitted on behalf of Mr L. N. Goldsbrough, Mr F. K. Parker and Mr J. W. Swinnerton.

Northern Ireland Beacon Station

It was reported that it was hoped to have GB3GI in operation by the end of February, 1966.

Recommendations of Committees

The Council accepted recommendations relating to the co-option of a new member to the H.F. Contests Committee, the results of the D/F Final and other contests (*H.F. Contests*), the May, 1966 Radio Amateurs' Examination and arrangements for the Society's stand at the *Daily Mail* Schoolboys' and Girls' Exhibition (*Education*), reduced subscriptions for members of pension age, staff salaries and the investment of the Headquarters Fund in the Lambda Investment Co. Ltd. (*Finance and Staff*) and the results of V.H.F. National Field Day (*V.H.F. Contests*).

Membership

The Council accepted 166 applications for membership (119 Corporate, 47 Associate) and approved 16 applications for transfer to Corporate grade.

The Council agreed to waive the subscriptions of six members on the grounds of blindness or disability.

Affiliation

The Council granted affiliation to the following societies and clubs:

British Timken Radio Club
Southampton University Radio Club
Malta Amateur Radio Society
College of Electronics Radio Club
Southampton College of Technology Amateur Radio Club
Baden-Powell House Amateur Radio Group
Port Talbot and District Amateur Radio Club
R.A.F. Digby Amateur Radio Club

Tribute to Retiring Members

The Council placed on record its appreciation of the valuable contributions made to the Society by the four retiring members of the Council, Mr Bartlett, Mr Hills, Mr James and Mr Milne. In particular the Council noted that Mr Milne had served for more than 25 years.

Shetland Islands Prefix

It was agreed to support a petition put forward by Mr S. Polson, signed by all other licensed amateurs in the Shetland Islands, that application should be made to the Post Office for a distinctive prefix for the Shetland Islands.

Colour Slides

The Council accepted an offer by Mr A. O. Milne to set up a library of colour slides of Amateur Radio interest.

Printing Charges

The Council noted that the Society's printers had given notice of an increase in printing charges of 3¾ per cent for work carried out after 1 January, 1966. This did not represent the full rate of the increased costs, the remainder of which had been absorbed by The Garden City Press Limited.

Reports of Committees

The Minutes of the following meetings of Committees were adopted as reports: RAEN (25.9.65), Technical (8.10.65), H.F. Contests (21.10.65), Exhibition (22.10.65), V.H.F. Contests (3.11.65), Mobile (10.11.65), Scientific Studies (16.11.65), Education (20.11.65), Exhibition (26.11.65) and Finance and Staff (29.11.65).

* * *

The Council was in session for nearly five hours.

Conference Working Groups

The Radio Society of Great Britain has formed a working group of experienced amateurs for the purpose of laying a solid foundation for the proper representation of the Amateur Radio Service, both domestically and at future international radio conferences. IARU officers had the opportunity, during a recent visit, to meet with this active group, and recommends to other member-societies that similar committees be formed in their own countries. As has been preached many times in these *Calendars*, it is never too early to commence planning for the problems of a radio conference, with particular attention to obtaining a favourable attitude from each national administration. RSGB has shown its own awareness by forming such a group so far in advance, and we hope that other member-societies will take similar action. —*IARU Calendar, December 1965.*

Letters to the Editor

Neither the Editor nor the Council of the Radio Society of Great Britain can accept responsibility for views expressed by correspondents. Letters for inclusion in this feature should be concise and preferably not more than 200 words in length.

An Indoor Pylon Slot Aerial for 145 Mc/s

I would like to thank G8DV for drawing attention to the "Slotted Cylinder" (*Electronics* (USA), February, 1947) type of v.h.f./u.h.f. aerial in his excellent article published in the December, 1965 BULLETIN. Your readers may be interested in brief details of my "Penny Pinching Pylon," constructed from easily obtainable materials on the kitchen table in a few days after reading the BULLETIN article. I used corrugated cardboard, aluminium foil, Evostick, Sellotape and a bit of string to hang it in the loft where it out performs the three element Yagi it replaces!

Corrugated cardboard 60 in. wide was not obtainable locally so I built two cylinders 30 in. long × 10 in. diameter and stuck them together end to end. Ten inch diameter laminated cardboard formers were used to support the cylinders, one former each end and one in the middle, making six in all. Before assembly, a ⅝ in. hole was punched in the centre of each of the cardboard formers. This hole is used as a tie point at the top for the string support and to bring out the feeder at the bottom. A half wave-length of 300 ohm ribbon (33 in.) connects the co-ax balun to the slot. This brings the balun outside the cylinder, reduces the strain on the slot and simplifies the feed arrangements.

I was fortunate in obtaining a length of foil which enabled the cylinder to be covered in one piece. The edges were folded to make a piece 31 in. × 60 in. and this was wrapped around the cardboard cylinder and fixed with Sellotape along each edge of the 1 in. slot, the top and bottom of which were bridged with a 7 in. strip of foil to make sure of good electrical contact.

The ribbon feeder is tapped on to the edge of the slot with crocodile clips by lifting the Sellotape and foil at the tapping point. The feeder goes back inside the slot supported by one of the formers, down through the ⅝ in. holes and out of the bottom of the cylinder. I found the tapping point to be about 2 in. nearer the centre than suggested and the tuning of the 5 pF capacitor to be quite critical for lowest v.s.w.r.

It works extremely well, seems to have all round coverage and is ideal for local net working. Signal reports indicate that it is a half to one S point up on the three element Yagi but more on-the-air tests are needed to confirm this. However, I am very pleased to note that it is at least as good as, if not better than, the Yagi and I no longer have the bother associated with a beam rotating device.

GEOFF ROBERTS, G3ENY

Bridgnorth, Shropshire

P.S. I don't intend to scrap my outdoor 5-over-5 used for DX or the 16 element collnear for field days!

SWL QSLing

Regarding the age old s.w.l. QSL problem. Recently, a card from an OE drew my attention to the following: If an amateur has no QSL of his own, and is not interested in s.w.l. reports anyway, all he need do is sign and date the back of the s.w.l. card, re-address it, and place it in his envelope to the bureau, or into the s.a.e. provided. This can also be used for confirming QSO's.

S. SHAW

Stockport, Cheshire.

The Short Wave Listener

I was very interested in last month's article by G3UKI about Short Wave Listeners and took particular notice of the comment about the lack of s.w.l.s in northern clubs. I would like to explain why many s.w.l. friends and I resigned recently from such a club.

As we had no licence we were considered by many to be very inferior and absolutely useless. I personally had spent many months saving up for an Eddystone EC10 receiver, but at the clubhouse I was not even allowed to touch the old HRO "in case I damaged it!" If this is the way s.w.l.s are treated in other northern clubs is there much wonder that most of them decide to try and pursue their hobby without the help of the "friends" we are always being told we make through the medium of Amateur Radio?

This letter is, of course, as unfair as all other sweeping generalizations and I met some very friendly and helpful amateurs at the club, but on the whole the bad outweighed the good by far in my experience.

R. WALKER, A4287

Sheffield 11.

National Field Day

Following the last meeting at which NFD was discussed, members of the Ayrshire Group of the RSGB wish to record their disappointment at the lack of mention of Scottish stations and of the Group's success in the text of the December NFD article. This is the third year running that Ayrshire has won the Scottish Trophy.

Another point of concern was the use of a 32 ft. tower at a Field Day site. NFD is supposed to be operated under emergency conditions and, as one member put it, "who is going to erect a lattice tower with 2 ft. of water pouring down the main street."

On a more serious note it was suggested that new awards be provided for single station entries. NFD is a six band, two station event and awards at present available should be confined to groups operating on all bands.

R. D. HARKESS, GM3THI,
Hon. Secretary,
Ayrshire RSGB Group

Auchincruive,
Ayr, Scotland.

C.W. Segment on Two Metres

May I add my strongest support to this suggestion. Like many other keen c.w. operators I find that any interest I may have in v.h.f. is killed stone dead by the constant references to lack of c.w. activity (except, of course, when the real experts are crossing new frontiers by moonbounce or similar means. Our finest mode of transmission then comes into its own as always). However, if a 100 kc/s c.w. segment were brought into operation on 144 Mc/s I am sure that many experienced c.w. operators would be attracted sufficiently to have a go on the band and there is little doubt that the influx of new blood and new ideas would be of value.

A. D. TAYLOR, GW8PG

Wirral, Cheshire.

GB2SM

The Science Museum radio station, GB2SM, has been off the air for nearly six months while the room has had the addition of bass absorbers and special tiles fitted to the walls and ceilings to correct the acoustic characteristics of the room which were previously unsatisfactory.

The work has been completed and GB2SM is expected to be on the air again early in February. The usual times are 11.30 and 16.00 GMT and contacts will be welcome with both new and old friends.

GB2RS SCHEDULE

RSGB News Bulletins are transmitted on Sundays in accordance with the following schedule:

Frequency	Time	Location of Station
3600 kc/s	9.30 a.m.	South East England
	10 a.m.	Severn Area
	10.15 a.m.	Belfast
	10.30 a.m.	North Midlands
	11 a.m.	North West England
	11.30 a.m.	South West Scotland
	12 noon	North East Scotland
145·10 Mc/s	9.30 a.m.	Beaming north from London
	10.00 a.m.	Beaming west from London
145·8 Mc/s	10.15 a.m.	Beaming south from Belfast
145·30 Mc/s	10.30 a.m.	Beaming north west from Sutton Coldfield
	11.00 a.m.	Beaming south west from Sutton Coldfield
145·50 Mc/s	11.30 a.m.	Beaming north from Leeds
	12 noon	Beaming east from Leeds

News items for inclusion in the bulletins should reach Headquarters not later than first post on the Thursday preceding transmission. Reports from affiliated societies and from non-affiliated societies in process of formation will be welcome.

CONTEST NEWS

RESULTS — REPORTS — RULES

Second 432 Mc/s Contest (Open) 1965

The Contests Committee is very pleased to report a total entry of 42 logs in this event held on 13-14 November, which is more than double that of the comparable event in 1964. This particular contest would appear to be as popular as events which take place in the 2m band. Looking down the entry list one is immediately impressed by the number of entries, 15 in all, from the recently licensed amateurs in the G8 three letter category.

Congratulations are extended to G. L. Desborough, G3NNG/P, of Faringdon, Berks., who leads the list, followed by D. N. Biltcliffe, G6NB, of Brill, Bucks., and in third place, W. R. Hawthorne, G3MCS, near Aylesbury, Bucks. Recommendations to Council for the appropriate awards will be made on behalf of the three leading stations.

Competitors

It will be noticed that G3MCS made the highest number of contacts, his longest distance contact being 97 miles.

During the first hour G3NNG/P made operation at 432 Mc/s look like any comparable 2m event by working 20 stations, which is truly a phenomenal effort at this frequency and a feat which should encourage v.h.f. operators to join in.

Gerry Jeapes, G2XV, of Cambridge, made the longest distance contact in the contest of 188 miles which, under the prevailing propagational conditions, was excellent. Fifteen stations made a contact or contacts in excess of 100 miles.

It is felt that a special mention should be accorded to the low power exponents, that is, those entrants running 10 watts or less to their p.a. stages; in particular G3OWA, Coulsdon, Surrey, with 3 watts input, and G3RZG/P, near Dorchester, with 4·5 watts input.

According to the logs everybody went to bed by 2 a.m. and stayed there, the first station to re-appear on the band doing so around 6 a.m. In the circumstances the Contests Committee feels that perhaps contestants would like the contest to close down at 24.00 GMT and re-open at 06.00. Views on this point would be appreciated so that the necessary action can be taken for the 1966 event. This amendment to the timing has, incidentally, been suggested by at least two contestants.

Check logs are acknowledged with thanks from G8AAF and R. A. Ham, BRS15744, whose log will be credited in the V.H.F. Listeners' Championship.

General Rules for RSGB Contests 1966

Rule 12 of the General Rules published in the January 1966 RSGB BULLETIN should read as follows:

Rule 12. Contacts via any form of repeater or reflector devices will NOT count for points.

RESULTS

Position	Call-sign	Location	P.A.	Input	Aerial	Best QSO (miles)	Number of Contacts	Points
1	G3NNG/P	Nr. Wantage	DET 24	10	2 × 8/8	106	83	4,525
2	G6NB	Brill, Bucks.	6-40A	30	14 ele. Yagi	116	90	4,336
3	G3MCS	Aylesbury, Bucks.	4CX250B	100	10 ele. Yagi	97	91	3,974
4	G8PD/A	Wembley, Middlesex	3-20A	29	6/6 slot	90	79	3,604
5	G3HAZ/P	Licky Hill, Worcs.	3-20A	30	14 ele. Yagi	118	64	3,344
6	G3OXD/A	Oldbury, Birmingham	DET24	25	8/8 slot	129	57	2,819
7	G8ABP	Birmingham	6-40A	60	14 ele. Yagi	114	62	2,769
8	G2XV	Cambridge	6-40A	100	40 ele. stack	188	38	2,600
9	G8ADC	Nr. Luton	3-20A	28	14 ele. Yagi	117	49	2,058
10	G8AKM	Basingstoke, Hants.	—	45	8/8 slot	106	45	1,900
11	G3OBD/P	Salisbury, Wilts.	3-20A	24	32 ele.	128	32	1,702
12	G8ACB	Nr. Wolverhampton	3-20A	8	2 × 14 ele. Yagi	104	43	1,504
13	G8AGS/A	Romsley, Worcs.	2-6	6	10 ele.	100	42	1,498
14	G8AAZ	Wimbledon	3-20A	20	8/8-14 ele.	104	52	1,116
15	G3UOS	Nr. Sheffield	6-40A	80	64 ele. stack	122	20	1,138
16	G8AEK	Hemel Hempstead	3-20	24	8/8 ele. Yagi	50	48	1,098
17	G3ORL	Bristol	4X150A	80	40 ele. stack	130	17	1,063
18	G2HDJ	Ashford, Middx.	3-10	12	4 × 11 ele. Yagi	85	47	1,038
19	G5UM	Knebworth, Herts.	3-20A	25	2 × 6/6	91	38	1,036
20	G8ACI	Fareham, Hants.	3-20A	50	14 ele. Yagi	93	32	1,018
21	G3AHB	Slough, Bucks.	3-20A	35	2 × 10 ele. Yagi	70	44	1,008
22	G8ADS	Dunstable, Beds.	3-20A	24	10 ele. Yagi	84	29	994
23	G3EGV	Nr. Weymouth	3-20A	25	24 ele. stack	95	19	954
24	G8ACJ	Barnet, Herts.	3-20A	40	8/8 stack	88	34	839
25	G8AAY/A	Poole, Dorset	3-20A	28	14 ele. Yagi	90	21	789
26	G3OWA	Coulsdon, Surrey	2-6	3	6/6 Yagi	60	29	756
27	G3MEO	Nr. Croydon	6-40A	42	2 × 8/8	63	31	690
*28	G3OJE	Nr. Warlingham, Surrey	6-40A	40	14 ele. Yagi	68	36	667
29	GW3ATM/A	Chepstow, Mon.	6-40	25	16 ele. stack	118	13	659
30	G8AEJ	Penge, S.E. London	6-40A	25	8/8 slot	68	35	640
31	G3UCU	Bunhill Row, E.C.1	2-6	6	14 ele. Yagi	68	29	550
32	G3NTT	Southampton	3-20A	24	7 ele. Yagi	63	16	484
†33	G5DF	Reading, Berks.	—	—	—	60	19	455
34	G8AKA	Bournemouth	6-40A	30	6/6 slot	66	15	426
35	G3RZG/P	Nr. Dorchester	2-6	4·5	10 ele. Yagi	65	10	409
36	G2WS/P	Nr. Daventry	3-20A	20	6/6 slot	55	15	400
‡37	G5FK	Wembley, Middx.	2-6	8	10 ele. Yagi	41	27	387
38	G8ADH	Ringwood, Hants.	3-20A	28	14 ele. Yagi	73	14	370
39	G3PKT	Rainham, Kent	2-6	15	10 ele. Yagi	74	9	354
40	G3SXK	Danbury, Essex	6-40A	40	13 ele. Yagi	35	8	199
41	G3ADU/A	Malvern, Worcs.	3-20A	15	14 ele. Yagi	51	6	169
42	G8ACK	Hampstead, N.W.3	3-20A	10	8/8 slot	26	7	84

* Member of V.H.F. Contests Committee. † No cover sheet detail. ‡ Late entry.
Valve types QQV02-6, QQV03-10, QQV03-20A and QQV06-40A have been abbreviated 2-6, 3-10, 3-20A and 6-40A respectively.

80 Metre Field Day 1965

The 80m Field Day 1965 was held on 21 September, with 14 portable stations submitting entries. The winner was G3HS/P with a total of 198 points, followed by G3PGM/P and G3IPL/P with 159 and 141 points respectively.

Whilst log-keeping was of a good standard, every entrant was awarded fewer points than he claimed. Inaccuracies in call-sign, signal reports, or QTHs meant that deductions had to be made. From the table of results, it will be noticed that there was little variation in the number of portable stations worked by competitors. It was contacts with fixed stations which affected the final scores.

Aerials of half-wave length were used by all competitors, except G3JVJ (270 ft. end-fed) and G6GH (16 ft. vertical). Only one transistorized transmitter was employed (G3HS/P, with a pair of AUY10s in the p.a.); G3AGX/P and G3PSB/P were both operating home-built transistorized receivers—one competitor had his AR88 with him, though this would not be called " portable " by most amateurs.

Comments included the following: " Although not more than 28 portables were logged, I feel sure that if more publicity were given in the BULLETIN to contests, the response would be better " (G3HS/P). " Eight young scouts and the Skipper immediately offered to feed us for the day " (G3PGM/P). " Suggest the 20 lb. limit be brought back " (G3JKY/P). " Quite a good contest if no complaints. . . . The rules on aerials seem a bit open " (G3BZM). " A very enjoyable contest, from a non-contestant's point of view, but I feel I must remark on the extremely lax time-keeping at some of the stations " (G3IDG). " Sorry I could not go but age and awful weather were against it " (G3BH).

Helpful checklogs were submitted by G3IDG, G3BY, GW3TKZ, G3KAY, G3RKW and G3LLM.

RESULTS

Position	Call-sign	Portable QSO's	Total QSO's	Points
1	G3HS/P	26	82	198
2	G3PGM/P	27	60	159
3	G3IPL/P	23	57	141
4	GW3HGL/P	24	54	138
5	G3VW/P	24	55	136
6	G3UDQ/P	23	58	135
7	G3AGX/P	22	46	131
8	G3PSB/P	22	43	124
9	G3JKY/P	20	39	119
10	G3JVJ/P	21	33	114
11	G3BZM/P	21	38	113
12	G3GDW/P	17	28	89
13	GM3TKV/P	14	29	80
14	G6GH/P	5	7	27

Second 70 Mc/s Contest (Open) 1966

The rules remain unchanged from those for 1965.

1. **When:** 18.00 GMT on **Saturday, 16 April**, to 18.00 GMT on **Sunday, 17 April, 1966.**

2. The **General Rules** for RSGB contests published in the January 1966 issue of the RSGB BULLETIN will apply except as superseded by the rules of this contest.

3. **Eligible Entrants.** Multiple operator entries will be accepted in Section B.

4. **Sections (A).** Single operator, fixed stations. **(B)** other stations.

5. **Contacts** may be made on any mode permitted in the Amateur (Sound) Licence except A2 (m.c.w.).

6. Scoring will be on the basis of one point per mile.

7. **Contest Exchanges.** RST or RS reports followed by the contact number and location (e.g. RST 599001, 4 north Macclesfield, Cheshire). This location must be identifiable without ambiguity on the Ordnance Survey " Ten-mile " map. It is the responsibility of the receiving operator to obtain the information necessary to calculate his distances correctly.

8. **Entries. (a)** Logs should be tabulated in column headed in this order: " Date/Time (GMT) "; " Call-sign of station contacted "; " My report on his signal and serial number sent "; " His report on my signal and serial number received "; " Location of station received "; " Call-sign of operator " (Multi-operator entries only); " Distance in miles ".

(b) The cover sheet must be made out in accordance with General Rule 4 and the declaration signed. The section for which entry is being made must be shown. The QTH as sent, QRA if used, and the NGR full six-figure reference should be recorded. Stations outside the area of the National Grid should show latitude and longitude.

(c) Entries must be post-marked not later than **Monday, 2 May, 1966.**

10. **Awards.** At the discretion of Council, the V.H.F. Manager's Trophy will be awarded to the overall winner and a miniature cup to the leader in the other section. Certificates of Merit will be awarded to the runner-up in each section.

CONTESTS DIARY

February 12–13	– ARRL DX Contest (Phone) (see page 123)
February 13	– First 70 Mc/s (Open) Contest (see page 825 December, 1965)
February 19–20	– First 1.8 Mc/s Contest (see page 825 December, 1965)
February 26–27	– ARRL DX Contest (C.W.) (see page 123)
March 5-6	—Second 144 Mc/s (Open) and 144 Mc/s Listeners' Contests* (see page 48, January, 1966)
March 12-13	—ARRL DX Contest (Phone) (see page 123)
March 19-20	—BERU (see page 609 September 1965)
March 26-27	—ARRL DX Contest (C.W.) (see page 123)
April 3	—Low Power Contest
April 16-17	—CQ WW DX SSB Contest
April 16-17	—Second 70 Mc/s (Open) and 70 Mc/s Listeners' Contests*
April 23-24	—PACC Contest
April 24	—D/F Qualifying Event *
May 8	—Third 144 Mc/s (Portable) Contest
May 22	—D/F Qualifying Event
May 28-29	—First 420 Mc/s (Open) Contests*
May 29	—1296 Mc/s Contest*
June 4-5	—CHC/FHC/HTH QSO Party
June 4-5	—National Field Day
June 19	—D/F Qualifying Event
July 3	—Fourth 144 Mc/s (Portable) Contest*
July 9-10	—1·8 Mc/s Summer Contest
July 17	—D/F Qualifying Event
July 24	—Third 70 Mc/s (Portable) Contest*
July 31	—D/F Qualifying Event
September 3-4	—V.H.F. NFD*
September 11	—80 Metre Field Day
September 18	—D/F Final
October 16	—Second 1296 Mc/s Contest*
October 15-16	—21-28 Mc/s Telephony Contest
October 15-16	—Second 420 Mc/s Contest*
October 29-30	—7Mc/s DX (Phone) Contest
November 12-13	—7 Mc/s DX (C.W.) Contest
November 19-20	—Second Top Band Contest
December 4	—Fourth 70 Mc/s (C.W.) Contest*

* Qualifying contests for V.H.F./U.H.F. Listeners' Championship

70 Mc/s Listeners' Contest 1966

The following are details of a contest for listeners on the 70 Mc/s band. Entries to this event, which coincides with the Second 70 Mc/s Contest (Open) will be automatically credited to the Listeners' Championship.

1. **When:** 18.00 GMT on Saturday, 16 April, to 18.00 GMT on Sunday, 17 April, 1966.

2. **Eligible Entrants:** The contest is open to all fully paid up members of RSGB resident in Europe. Only the entrant may operate his receiving station for the duration of the contest. Holders of amateur transmitting licences are eligible to take part if they do not own transmitting equipment for the 70 Mc/s band.

3. **Scoring:** Entrants will be required to log amateur stations operating in the 70·1 to 70·7 Mc/s band, but each station may be logged once only in column (ii). Points are to be scored for each complete log entry, with bonus points for each new county received and for c.w. reception as follows. For each station logged in the entrant's own *county* or an adjacent *county*, 10 points; for each station logged in other *counties* in the entrant's *country*, 20 points; for each station logged in any other *country*, 30 points; for an incomplete entry or an entry for a station not taking part in the contest, half points to be scored.

Bonus points: for an entry of a telegraphy transmission double points are to be claimed; for each British Isles county received an additional 20 points may be claimed (the whole of the London Postal Districts will count as one county only).

4. **Entries:** (*a*) To count for points logs must show in columns (i) Date and time (GMT); (ii) Call-sign of station heard; (iii) Report and serial number sent by station heard; (iv) My report on station heard; (v) County of station heard; (vi) Call-sign of station being worked; (vii) Points claimed.

(*b*) Entries must be set out on RSGB Contest Log Sheets available from RSGB Headquarters or on one side only of foolscap paper.

(c) The cover sheet must be made out in accordance with RSGB Contests Rule 4 and must certify that the entrant does not possess transmitting equipment for the 70 Mc/s band.

(*d*) Entries must be postmarked not later than **Monday, 2 May, 1966.**

5. **Awards.** At the discretion of the Council, certificates of merit will be awarded to the leader and runner-up.

BERU Contest 1966

It is regretted that ZD7 was omitted from the list of Commonwealth call areas for the BERU Contest 1966.

CLUBROOM

A Monthly Survey of Group and Club Activities

For further information on membership or the activities of a particular club, application should be made to the person whose Call-sign is indicated at the end of the item. Full addresses may be obtained from the RSGB Call Book.

AS the number of contributions received for this month is rather less than usual, it gives us an opportunity to address one or two remarks to the secretaries and chairmen of clubs who do normally forward items for inclusion. The object is to clear up one or two points, give a little guidance, and in so doing, increase the value to *your* club of this feature.

The publication of any magazine works to a very tight schedule indeed. Every item, no matter how small, needs editorial attention, galley proof checking, layout positioning and arrangement, page proofing, after which it is locked into the printing matrix. Each item in Clubroom goes through this process, but, unlike a feature article, as we are concerned with "news" items, every step is left to the last minute. To allow just sufficient time for the various processes, a *deadline date* is always given. With the best will in the world, contributions arriving just one day late cannot be included, for, to attempt to do so would set back the date of distribution. From time to time we receive complaints that X or Y has not been included, and investigation invariably shows that the copy arrived after the deadline date, usually because it has been posted on the previous day on the assumption that it would arrive at HQ on time. To be quite sure of inclusion, contributions should be despatched *at least three days* prior to our deadline date.

What of the contributions themselves? Often they are a catalogue of history rather than a membership-tempting menu of the goodies to come. This is not to say that past events are of no interest, for such is not the case. There is a balance between past events and future items. Particularly frustrating are cold statements that A, B, C and D have been elected as officers followed by " Yours faithfully." Since all members of a club would normally be advised of their officers, to include this in *Clubroom* seems rather pointless. This feature *can* be a shop window for clubs which not only helps to keep alive interest amongst members, but of greater importance and worth, it can stir those who " do not belong " and tempt them to join *your* club.

From time to time errors do creep in. Whilst we cannot claim to be blameless, the greater proportion stem from handwritten contributions, especially where names are involved. If your contribution is handwritten, these could be avoided if names or venues are *printed*. The few extra seconds involved would do much to avoid " clangers." While on this point, because many clubs have identical initial letters, please do be sure to print the *full title* of your club or group at the head of your contribution. This is particularly important where in a large town more than one club may exist.

Although for some time we have asked that a call-sign be given with each contribution so that, through a *Call Book*, interested persons may find out more about a club and its activities, contributions are still received where no such call-sign is given. It is naturally appreciated that where the club secretary does not hold a transmitting licence, then he cannot quote a call-sign. In such cases may we suggest that the call-sign of another officer or member is given. In this way your club will secure full value from its item.

So much for our preamble. If attention is given to the points raised, it will do much to " help us to help you."

AERE (Harwell) ARC takes an objective look backwards at 1965 in the current issue of *QAV* under review. Items of particular note were the appearance of a 6 ft. dish aerial for 1296 Mc/s, which took four strong men to hold it down in the face of a determined breeze; increased support for " extra-mural " activities and events sponsored by the RSGB and others, and last but by no means least, owing to the good husbandry of G3NNG, an increase in the balance of the funds carried forward to 1966. *G2HIF.*

Auchenharvie and District ARC is making good progress on the club's transmitter which it is hoped will be fully operational soon. The club has been asked to give a second show of equipment and a talk on Amateur Radio in Stevenson High Kirk. *GM3DJS.*

Basildon and District ARS will be given a lecture by G3DGN on " Communication by Light," illustrated by a working gas laser, at a meeting on 15 February to be held in the restaurant of Van Gogh, Paycocke Road. The meeting will start at 8 p.m., and all RSGB members, as well as other interested persons, will be particularly welcome. *G8AAO.*

British Amateur Television Club's publication, *CQ TV*, issue No 51 serves to illustrate just how " way out " are valves these days, and " in " are transistors. Every circuit evolves around semiconductors. Of particular general interest is a description by N. Salmon of the use of closed circuit television in school activities. *G6OUO/T.*

Bromsgrove and District ARC will be holding its next meeting on 11 February when an auction of members' surplus equipment will take place. Prior to this, and starting at 7.30 p.m., a slow Morse lesson will be given. *G2CLN.*

Burslem ARS will be holding a meeting on Tuesday, 15 February when Mr. H. D. Hemmer will give another of his illustrated talks. The meeting on 15 March will be a film show when two Mullard films entitled " The Junction Transistor in Radio Receivers," "From Us To View " will be shown. *G3UHV.*

Cambridge and District ARC has two members who are now regularly sending slow Morse on 1970 kc/s. On Tuesdays, G3TAG undertakes the transmissions, followed by G3PTQ on Wednesdays. Transmissions start at 19.30 clock time. Visitors are always welcome at the Club HQ in Victoria Road. *G2CDX.*

Clifton ARS reports that its club station G3GHN is again QRT on 2m owing to aerial troubles. However, all is not lost, as operation still continues on 160m. Commencing in February, a series of talks and demonstrations based on the RAE are being arranged. *G3OGE.*

Cornish ARC reports that an increasing number of stations are using 4m for local nets. Thirteen calls are listed, plus another six in East Cornwall and Plymouth. All in all a very fine show indeed. One point of particular interest noted by your conductor is that it appears that vertical polarisation seems to have gained favour over the horizontal mode. *G3NKE.*

Crawley ARC will be having a lecture by Geoff Stone, G3FZL, at the meeting to be held on 23 February on the subject of " V.H.F. Equipment." All members should make a special note in their diaries against the date 18 March when the Crawley Annual Dinner is to be held. *G3FRV.*

Cray Valley RS in the current issue of *QUA* takes a hard look at S meters through two correspondents, G2AQB and G6HD, and seem to arrive at the conclusion that Alec D. Vance, in his *Radio Terminology Simplified* (Nov. 1964 BULLETIN), was pretty near the truth when he defined " S " as meaning *suspicious*. In looking forward to 1966, the chairman, G3JJC, places his finger deftly on the crux of the problem which faces most clubs. Quote " The chap with the ' ticket ' can give pleasure to himself and his listeners from the comfort of his shack, and he cannot always be persuaded to leave his lonely existence to take up a communal one. It is the essence of club activity that people will come along and share their skills, abilities and social attributes in the company with other kindred souls, and so work for the good of their own organization." While it is probably true that the successful clubs have found the magical formula which attracts the lone wolf, it must always be remembered that it is the attitude of each individual member, and his ability to " get on " with the others which finally knits the club together. Ridicule, and Holier-than-thou attitudes are the real killers. *G3KYV.*

Crystal Palace and District RC held in December a Junk Sale combined with what, in the wartime days, used to be described as a BYOG party. For those of tender years, it should perhaps be explained that BYOG stands for Bring Your Own Grub. With all food pooled, a fantastic spread usually results, often to the extent of having enough left over for another party. *G3FZL.*

Ealing DARS held a successful " Junk Sale " on 11 January.

The Belfast and District RSGB Group held a successful Amateur Radio "Teach-in" on 20 November at Girton Lodge Hotel, Belfast, which provided an extremely interesting afternoon and evening for many amateurs, their wives and friends present. The party particularly appreciated two excellent lectures: Mr Patrick Moore, the well-known astronomer and Director of the Armagh Planetarium, enthralled the audience with a very fluent and witty talk "The Moon, Meteorites and the like," and following the afternoon tea, the main party attended a remarkable lecture by Mr John Stace, G3CCH, on "Moonbounce and Meteor Scatter." After an interval, the party sat down to an enjoyable dinner, and the evening dance finally concluded at midnight.

(Photo by GI3XXG)

The Society has now purchased a 150 watt all-band transmitter which should be on the air shortly. *G3SGT.*

East London District will be holding a meeting on 20 February at the Ilford Town Hall commencing at 3 p.m. when G6NR will give a talk on aerials. *G2ABC.*

Echelford ARS will be holding its main meeting in February on the 23rd, when there will be a film show on transistors. The meeting is at the Links Hotel, Ashford, commencing at 7.30 p.m. All visitors will be welcome.

Grafton RS has now installed a new rotor-indicator for the h.f./v.h.f. beam assembly, and the club station G3AFT is now fully operational on all bands 160 through to 2m. The club's weekly 'phone net continues to be held on Top Band on Wednesdays at 10.30 p.m., and all stations within hailing distance are invited to participate. *G3SIL.*

Havering and District ARC is holding a Junk Sale on 16 February, so arrive with wheelbarrows to cart the stuff away, and loaded down with lolley to purchase it. *G3TUW.*

Liverpool University ARS entered for the 4m C.W. Portable Contest, but after only four hours, snow was falling so heavily that, blue with the cold, operation had to cease. Thus did the weakness of the flesh overcome the determination of the spirit. Despite the curtailed activity, a good score was obtained. The society is now fully active on 4m, 2m, and 70cm, and claims to have the highest system of v.h.f. beams in the City of Liverpool. *G8AHQ.*

Magnus Grammar School RS has a full programme of events planned for the Spring Term, and is looking forward to more good work and progress. *G3JNK.*

Midland ARS has been invited to take part in the Birmingham Boat Show to be held at Bingley Hall between the 11 and 26 February, and has set up a small sub-committee to organise the society's exhibit. Under the heading second 432 Mc/s Contest Report, the issue of MARS *News Letter* under review contains the details of the intrepid explorers' adventures under freezing conditions. However, having worked 72 stations, their reward should be a good score. *G3JDJ.*

Mid-Warwickshire ARS has now resumed meetings on Monday evenings at 7.45 p.m. Constructional projects night for a 2m converter and a g.d.o. is each Thursday, while RAE classes take place each Tuesday evening.

Northern Heights ARS will be meeting on 16 February for a showing of members' slides. To their Annual Dinner, they were pleased to welcome the Secretary of the Spen Valley RC and his wife. *G3MDW.*

North Kent RS is another club which takes a backwards glance at 1965, and what it finds is good. While membership has not increased very much, a greater number are actively supporting the club, a higher proportion now hold licences, and best of all they look forward to 1966 with confidence. *G2FNT.*

Portsmouth and District RS held its AGM in January. Members have been busy rebuilding the club station, and giving attention to the club meeting room. Meetings are now held every Wednesday, commencing at 7.30 p.m., in Room 5 at the Twyford Avenue Community Centre, Portsmouth. Visitors and potential members are always welcome. *G2CNO.*

Purley and District RC will be meeting on 4 February for an informal get-together. On 18 February, G3OGO will be giving a talk on the BBC's External Services, and this will be followed a week or two later by a visit to Bush House, London, to see the BBC in action. Prospective members are welcome at all the club's meetings. *G3FTQ.*

Plymouth RC has a red letter day on 12 February, when its Annual Dinner will be held at the Davie Hall. Don't miss this event, and make your reservations early. Quite rightly the club is very proud of its achievement in attaining ten new call-signs during the past year, and, as the Chairman observes, this should give considerable encouragement to the s.w.l. members. The special station GB2USA, collected 250 QSOs, and this really made all the effort worthwhile. *G3UKI.*

Radio Amateur Invalid and Bedfast Club has put out a general CQ which we are happy to be able to repeat here, and which we hope will result in some action in the true ham spirit. At 4 Laburnum Close, Gurnos, Merthyr Tydfil, Glam. live Mirien and Esther Thomas, both of whom are housebound. Now Amateur Radio is obviously the ideal companion for them, and could bring to them companionship, and extend their horizons beyond the limits of the walls of their house. Mirien and Esther first contacted the club in September, but despite the efforts of the club and GW2FOF in particular, so far it has not been possible to get anyone to visit them. It seems to your conductor that here is one of those rare golden opportunities for a local club, or a local amateur, to demonstrate in no uncertain way that the spirit of Amateur Radio really does exist even in 1966. It has worked in the past, so how about it? If *you* live within striking distance of Gurnos, will *you* spare the time to set Mirien and Esther on the road to securing a licence, and, in co-operation with the club, so widen the outlook of these good people? *G3LWY.*

Reading ARC. The highlight of the meeting held on the 4 January was a demonstration by Mr Gale of the complete alignment of a communications receiver incorporating a crystal filter, and from which much practical "know-how" was acquired. Arrangements for NFD are to be discussed on 1 March. *G2FRQ.*

Reigate ATS reports that its membership at the end of 1965 stood at 46, of whom 30 hold licences. On 17 February, the meeting will feature the recorded and illustrated talk by W1BB on "Top Band DXing." This meeting, held at the George and Dragon, will commence at 7.30 p.m. sharp. The Annual Dinner and Dance is to be held on 25 February, and early application for tickets is advised. *G3NKT.*

Saltash and District ARC is now entering its second year of activities with a wide and varied programme. On 11 February G3UBY is giving a talk entitled "Anything Goes," followed by a general natter on the forthcoming Mobile Rally. On the 25th the Mullard Film "From us to View" will be screened together with two supporting items. *G2DFH.*

Spalding and District ARS is holding a Junk Sale on 11 February at the White Lion, and to which it is hoped to arrange talk-in facilities on 1980 kc/s. Both Buffet and Bar will be open. Visitors —especially those with items for disposal, and particularly those loaded with lolley—will be very welcome. The club still meets at the Grammar School, but are on the look-out for premises where they will be able to install a club station. *G3TRO.*

Surrey Radio Contact Club is meeting on 8 February when the time will be divided between G3BCM with his transistorized receiver, and G3MVZ and his transistorized s.s.b. exciter. This should prove a very interesting meeting indeed. *G3KGA.*

Sutton and Cheam RS will be holding a constructional contest on 15 February, when it is hoped that friends from the Thames Valley Radio Club will undertake the judging. A special date to note is 5 March when the Annual Dinner and Ladies Festival will be held. *G3HSK.*

Thames Valley ARTS held its AGM in January and is now looking forward to another year of progress. On 2 February, G3MED talked on "Slow Scan TV." *G3JKA.*

Verulam ARC members are of the opinion that their Top Band net on Saturday evenings is in need of a bit of a shake-up, as some of the overs tend to be rather on the long side. With his

(Continued on page 123)

Forthcoming Events

Details for inclusion in this feature should be sent to the appropriate Regional Representatives by the first of the month preceding publication. A.R.s and club secretaries are reminded that the information submitted must include the date, time and venue of the meeting and, whenever possible, details of the lecture or other event being arranged. Standing instructions cannot be accepted.

REGION 1

Ainsdale (ARS).—2, 16, February, 2 March, 8 p.m., 77 Clifton Road, Southport.
Allerton (Liverpool) (SRHS).—Thursdays, 8 p.m., 3rd Allerton Scout Group Headquarters, Church Road, Woolton, Liverpool.
Blackburn (ELARC).—3 February, 3 March, 7.30 p.m., YMCA, Limbrick, Blackburn.
Blackpool (B & FARS).—7 February (Open Evening), 14 February (Questions & Answers), 21 February (Open Evening), 28 February (AGM), 8 p.m., Morse tuition from 7.30 p.m., Pontins Holiday Camp, Squires Gate.
Bury (B & RRS).—8 February, 8 March, 8 p.m., Old Boars Head, Crompton Street (private room).
Chester.—Tuesdays, 8 p.m., YMCA, except first Tuesday in each month.
Crewe & District.—7 February, 7 March, 8 p.m., Earl of Crewe Hotel, Nantwich Road.
Eccles (E & DAC).—Tuesdays, 8 p.m., Patricroft Congregational Schools, Shakespeare Crescent, Patricroft, Eccles. Thursdays Club Top Band net 20.30 GMT.
Liverpool (L & DARS).—Tuesdays, 8 p.m., Conservative Association Rooms, Church Road, Wavertree.
(LARS).—Alternate Thursdays (details of dates to be announced), 7.30 p.m., Students' Union, 2 Bedford Street North, Liverpool 7.
Macclesfield.—15 February, 1, 15 March, The George Hotel, Jordongate.
Manchester (M & DARS).—Wednesdays, 7.30 p.m., 203 Droylsden Road, Newton Heath, Manchester 10.
(SMRC).—Fridays, 7.45 p.m., Rackhouse Community Centre, Daine Avenue, Northenden.
Morecambe.—2 February, 2 March, 125 Regent Road.
Preston.—8, 22 February, 8 March (all meetings start with a Morse practice at 7.30 p.m.), St. Paul's School, Pole Street.
Southport (SRS).—Wednesdays, 8.30 p.m., Sea Cadets Camp, The Esplanade.
Stockport.—9, 23 February, 9 March, The Blossoms Hotel, Buxton Road, Stockport.
Wirral.—2, 16 February, 2 March, Harding House, Park Road West, Claughton, Birkenhead.

REGION 2

Bradford.—1 February ("Top Band DX-ing," W1BB recorded lecture), 15 February (Members' Colour Slides), Bradford Technical College, Great Horton Road.
Catterick.—Every Tuesday, Thursday, 7.30 p.m., Clubroom, Vimy Road.
Durham.—10 February (" NMR " by G3PUF), 24 February (S.S.B. Project by G3KMG), Vane Tempest Community Centre, Gilesgate.
Northern Heights.—2 February ("S.W.R. Bridge by Mr. J. T. Riley G3TCS), 16 February (Members' Slides), 7.30 p.m., Sportsman Inn, Ogden.
Scarborough.—Thursdays, 7.30 p.m., Rear of 3 Trinity Road.
Spen Valley.—10 February (Wide Diffused Hi-Fi), 24 February (Receivers for s.s.b.), Heckmondwike Grammar School.

REGION 3

Birmingham (MARS).—15 February, 7.45 p.m., Birmingham Library, Margaret Street, Birmingham, 1.
(Slade).—11 February, 25 February, 7.30 p.m., The Church House, Erdington.
(South).—17 February, 8 p.m., The Scout Hut, Pershore Road, Birmingham, 29.
Cannock (CCARS).—3 February, 8 p.m., The Bridgtown Social Club, Walsall Road, Cannock.
Coventry (CARS).—Mondays, 8 p.m., T.A. Centre, Westfield Road, Coventry.
Dudley (DARS).—Fridays, 8 p.m., Art Gallery, Dudley.
Leamington Spa (MWARS).—Each Monday, 7.30 p.m., Regent Grove, Leamington Spa.
Redditch (EWARG).—10 February, 8 p.m., Redditch Old People's Centre, Park Road, Redditch.
Salop (SARS).—10 February, 7.30 p.m., Morris Hall, Bellstone, Shrewsbury.
Stratford-upon-Avon(S-u-AARS).—4 February, (Film " Semi-Conductors "), 7.30 p.m., Masons Arms, Sanctus Road, Stratford-upon-Avon.
Stourbridge & District (STARS).—1 February, 1 March, (AGM) 8 p.m., The Library, Longlands School, Stourbridge.
Wolverhampton (WARS).—Mondays, 8 p.m., Neachells Cottage, Stockwell Road, Tettenhall.

REGION 4

Derby (D & DARS).—2 February (AGM), 9 February (Competition—Component Quiz), 12 February (Annual Dinner and Dance), 16 February (General Discussion on 1966 Mobile Rally), 23 February (Visit to Rolls Royce Electronics Department), 2 March (Surplus Sale), 7.30 p.m., Room No 4, 119 Green Lane, Derby.
Heanor (H & DARS).—1 February (AGM), 8 February (Films), 15 February (Glass Fibre—" What it is and how to use it "—A. Hitchcock G3ESB), 22 February (Transmitting Evening), 1 March (Surplus Sale), 7.30 p.m., Heanor Technical College, Ilkeston Road, Heanor, Derbyshire.
Loughborough (LARC).—4 February (Photonight), 11 February (Night on the air), 18 February (Illustrated tape lecture—"Semiconductor devices"), 25 February (A Four Metre Contest—Lecture by D. H. Watson, G3PXP), 4 March (Field Day Films), 7.30 p.m., Club Room, Bleach Yard, Wards End, Loughborough.
Magnus GS (ARC).—Tuesdays, 3.50 p.m., The Junior Physics Laboratory, Magnus Grammar School, Newark.
Melton Mowbray (ARS).—17 February (Any questions night—especially for beginners), 7.30 p.m., St. John Ambulance Hall, Asfordby Hill, Melton Mowbray.
Newark (NSWC).—Mondays, Thursdays, 7.30 p.m., The Hall, Guildhall Street, Newark.
Nottingham (ARCN).—Tuesdays, Thursdays, Room No 3, Sherwood Community Centre, Woodthorpe House, Mansfield Road, Nottingham.
Worksop (NNARS).—Tuesdays (RAE Class), Thursdays (Lecture Night), 7.30 p.m., Club Room, 13 Gateford Road, Worksop.
Spalding (S & DARS).—11 February (Junk Sale and Social), 7 p.m., White Lion Hotel, High Street, Spalding.

REGION 6

Cheltenham.—First Thursday in each month, 8 p.m., Great Western Hotel, Clarence Street, Cheltenham.

REGION 7

Acton, Brentford & Chiswick (ABCRC).—15 February (Film Show), 7.30 p.m., at AEU Club, 66 High Road, Chiswick.
Ashford (Middx.) Echelford (ARS).—9, 23 February 7.30 p.m., Links Hotel, Ashford.
Bexley Heath (NKRS).—10, 24 February, 7.30 p.m., Congregational Hall, Chapel Road, Bexley Heath, 26 February (Annual Dinner), Falconwood Community Centre, Welling.
Chingford (SRC).—14, 28 February—alternate Tuesdays, G3RYF, 17 Forest Drive East, Leytonstone, E.11.
Croydon (SRCC).—8 February, 7.30 p.m., Blacksmiths Arms, South End.
Dorking (D & DRS).—8 February (Informal Meeting), 8 p.m., Wheatsheaf, 22 February (Club Development & Activities for 1966), 8 p.m., Star & Garter, Dorking.
Ealing (E&DARS).—Tuesdays, 8 p.m., Northfields Community Centre, Northcroft Road, Ealing, London W.13.
East Ham.—Tuesdays fortnightly, 7.30 p.m., 12 Leigh High Road, East Ham.
East Molesey (TVARTS).—First Wednesday each month, Prince of Wales, Bridge Road, East Molesey.
Edgware & Hendon (EADRS).—14, 28 February, 8 p.m., John Keble Hall, Church Close, Deans Lane, Edgware.
Enfield.—15 February, 8 p.m., George Spicer School, Southbury Road.
Gravesend (GRS).—16 February, 7.30 p.m., R.A.F.T.A. Club, 17 Overcliffe Road.
Guildford (G & DRS).—11, 25 February, fortnightly, 8 p.m., Guildford Model Engineering Society in Stoke Park.
Harlow (DRS).—Tuesdays & Thursdays, 7.30 p.m., Mark Hall Barn, First Avenue.
Harrow (RSH).—Every Friday, 8 p.m., Roxeth Manor School, Eastcote Lane.
Havering (H & DARC).—9, 23 February, Romford.
Holloway (GRS).—Monday & Wednesday (RAE & Morse) 7.30 p.m., Friday (Club), 7.30 p.m.
Hounslow (HADRS).—7, 21 February, Canteen Mogden Main Drainage Department, Mogden Works, Isleworth.
Ilford.—Thursdays, 8 p.m., 579 High Road, Ilford (nr. Seven Kings Station).
Kingston.—10, 24 February, fortnightly, 8 p.m., YMCA, Eden Street, Fridays (Weekly Morse classes), 2 Sunray Avenue, Tolworth.
Leyton & Walthamstow.—8, 22 February, 7.30 p.m., Leyton Senior Institute, Essex Road, London, E.10.
London U.H.F. Group.—3 February (Preamplifiers—Aerial or RX), 7.30 p.m., Bull & Mouth, Bloomsbury Way, Holborn.
London Members' Luncheon Club.—Third Friday every month, 12.30 p.m., Whitehall Hotel, Bloomsbury Square, Holborn.
Loughton.—11, 25 February, alternate Fridays, 7.30 p.m., Loughton Hall (nr. Debden Station).
New Cross.—Wednesdays, Fridays, 8 p.m., 225 New Cross Road, S.E.14.
Norwood & South London (CP & DRS).—20 February (AGM), C.D. Centre, Catford, S.E.6.
Paddington (P & DARS).—Wednesday, 7.30 p.m., Beauchamp Lodge, 2a Warwick Crescent, W.2.
Purley (P & DRC).—18 February (Malcolm Nesbet G3OGO, "The B.B.C. World Service"), 8 p.m., Railwaymen's Hall (Side Entrance), 58 Whytecliffe Road, Purley.
Reigate (RATS).—17 February (Top Band DXing by W1BB), 7.30 p.m., George and Dragon, Cromwell Road, Redhill. 25 February (Annual Dinner & Dance), Lakers Hotel, Redhill.
Romford (R & DRS).—Tuesdays, 8.15 p.m., R.A.F.T.A. House, 18 Carlton Road.
Scout (ARS).—17 February (Visit to Science Museum Station GB2SM), 7.15 p.m., Baden Powell House, Queens Gate, South Kensington.
Science Museum.—15 February (Exhibition of Members' constructional work), 1 March (Piezo-Electric Devices—Microfilm, Crystals etc., by Alan Nash of Cosmocord Ltd), 6 p.m., Science Museum, South Kensington.
Sidcup (CVRS).—3 February, 7.30 p.m., Congregational Church Hall, Court Road, Eltham.
Slough (SARS).—First Wednesday every month, 8 p.m., United Services Club, Wellington Street.

LONDON MEMBERS' LUNCHEON CLUB

will meet at the White Hall Hotel, Bloomsbury Square, London, W.C.1.

at 12.30 p.m. on Fridays, 18 February and 18 March, 1966

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

South London Mobile Club.—J. R. Doughty, 17 Hookham Court, S.W.8.
Southgate & District.—10 February, 7.30 p.m., Parkwood Girls School (Behind Wood Green Town Hall).
St. Albans (Verulam ARC).—16 February (G3JDG on "Aerial Timing Units & Aerials"), 8 p.m., Marconi Service Works, Hedley Road
Sutton & Cheam (SCRS).—15 February, 8 p.m., The Harrow Inn, High Street, Cheam.
Welwyn Garden City.—10 February (Bring & Buy Sale), 8 p.m., Vineyard Barn, off Digswell Road.
Wimbledon (W & DRS).—11 February ("A Blind Person's approach to Amateur Radio"), 8 p.m., Community Centre, St. Georges Road, Wimbledon, S.W.19.
Wembley G.E.C. (ARS).—11 February-Visitors ring ARNold 1262, first.

REGION 8

Crawley (CARC).—Wednesday, 9 February (Informal), Wednesday, 23 February (Judging Contest." V.H.F. Equipment," by G. M. C. Stone, G3FZL). 8 p.m., Trinity Congregational Church, Ifield, Crawley.
Worthing (WARS).—14 February "Power Stations"), 28 February (Ragchew, Club Station and Morse Practice). 8 p.m., Adult Education Centre, Union Place, Worthing.

REGION 9

Bath.—21 January, 7.30 p.m., RNR Training Centre, James Street West, Bath.
Bristol.—Fourth Friday each month, 7.15 p.m., Small Physics Theatre, Royal Fort, Bristol University, Woodland Road, Bristol 8.
Burnham-on-Sea (B-o-SARS).—Second Tuesday in each month, 8 p.m., Crown Hotel, Oxford Street, Burnham-on-Sea.
Camborne (CRAC).—First Thursday in each month, Staff Recreation Hall, SWEB Headquarters, Pool, nr. Camborne.
(CRAC V.H.F. Group).—First Thursday in each month, 7.30 p.m., The Coach and Horses, Rydar Street, Truro.
Exeter.—First Tuesday in each month, 7.30 p.m., George & Dragon Inn, Blackboy Road, Exeter.
Plymouth (PRC).—Tuesdays, 7.30 p.m., Virginia House, Bretonside, Plymouth.
Saltash (S & DARC).—11 February (Talk by Alan Clark, G3UBY "Anything Goes"), 7.30 p.m., 25 February (Film Night "From us to view," etc), 7.30 p.m., Burraton Toc H Hall, Warraton Road, Saltash.
South Dorset (S & DRS).—First Friday in each month, 7.30 p.m., Labour Rooms, West Walks, Dorchester.
Torquay (TARS).—Last Saturday in each month, Club HQ, Belgrave Road, Torquay.
Weston-super-Mare.—First Friday in each month, 7.15 p.m., Victoria Hotel, Weston-super-Mare.
Yeovil (YARC).—Wednesdays, 7.30 p.m., Park Lodge, The Park, Yeovil.

REGION 10

Cardiff.—14 February (Lecture on construction o s.s.b. transmitter, GW3HCH), 7.30 p.m., T.A. Centre, Park Street, Cardiff.

REGION 11

Conway Valley (ARC).—Thursday, 10 February (Junk-sale including some of the gear of the late GW5UO), 7.30 p.m., Cross Keys, Llandudno.

REGION 14

Ayrshire.—Third Sunday in each month, 7.30 p.m., Conservative Club, Sturrock Street, Kilmarnock.
Glasgow.—Second and fourth Fridays in each month, 7.30 p.m., in the Christian Institute, Bothwell Street, Glasgow.

REGION 15

Belfast Group.—Third Friday in each month at 8 p.m., Ulster Tape Recording Society Clubrooms, 44 Dublin Road, Belfast.
Mid Ulster Group.—First Friday in each month at 8 p.m., Portadown Civil Defence HQ.

REGION 16

Basildon (BDARS).—5 February (Communications by Light (lasers), Mayflower Restaurant. 1 March (Social). Details from G3IJB.
Chelmsford (CARS).—1 March (Talk on Eddystone Receivers), 7.30 p.m., Marconi College, Arbour Lane, Chelmsford.
Great Yarmouth (GYRC).—Friday, 7.30 p.m., the Manager's Office, the Old Power Station, South Quay, Swanstons Road, Great Yarmouth. Details from G3HPR.
Ipswich (IRC).—Last Wednesday in each month, 7.30 p.m., Red Cross HQ., Gippeswyk Hall, Ipswich. Details from G3UJR.
Norwich (NARC).—Mondays 7.30 p.m., the Club Centre, 140 Oak Street, Norwich. Details from G3TLC.
Southend (SDARS).—Meetings in the Executive's Canteen, E. K. Cole Ltd, Priory Crescent, Southend-on-Sea. Details from G3NPF.

LOOKING AHEAD

2 April.—International V.h.f./U.h.f. Convention.
24 April.—RSGB National Mobile Rally.
30 April.—Scottish V.h.f. Convention.
12 June.—RSGB National Mobile Rally.
10 July.—South Shields Mobile Rally.
14 August.—Derby Mobile Rally.
11 September.—RSGB National Mobile Rally.
9 December.—RSGB Annual General Meeting.

Clubroom (Continued from page 121)

tongue in his cheek, the editor of the *News Sheet* makes a sideways suggestion that egg timers might not be a bad idea. *G3SKB.*

West Kent ARS will be having a talk on 11 February by G6QB on "DX," followed on 25 February by G3TXZ talking on "Logic Circuits." The idea of a club constructional project has been very well received, and from the many ideas put forward one will be chosen fairly soon. *G3PAH.*

Wimbledon and District RS has plans afoot for participating in the local Handicrafts Exhibition to be held in May, at which event they hope to have a station operational. The club looks forward to a bumper 1966, and especially welcomes membership enquiries. *G3DRN.*

Is your club, society or group getting the fullest advantage from the publicity which it can secure from this column? Those contributions which are associated with a call-sign do. Does yours? If not, why not?

Deadline for the **March** issue will be **7 February.**
Deadline for the **April** issue will be **11 March.**

Can You Help?

● P. Brisbar, G3JHZ, Avenida Espana 9, Ibiza, Isies Baleares, Spain, who wishes to correspond with anyone who has built the Deltahet by VK2AZN?

● M. Kidman G3SDK who requires information on the Pye transistor Ranger Transceiver?

● J. Douglas, ON4ZD, Maurise Leytens Straat No. 4, Wilrijk, Antwerp 2, Belgium, who requires technical manuals for the 62 Set and R209 receiver?

● E. H. Trowell, G2HKU, "Hamlyn" Saxon Avenue, Minster, Isle of Sheppey, Kent, who would like to contact anyone who built the G2DAF Mk 2 s.s.b. transmitter using a McCoy 9 Mc/s s.s.b. filter?

● D. J. Locker, GW3TKG, 7 Pandy View, Cimla, Neath, Glamorgan, who requires information on the Canadian Wireless Set type 58 Mk 1?

● E. Brown, G3CSP, 89 Tideswell Road, Sheffield 5, Yorks who requires the circuit diagram and other information on the Panda Cub Transmitter?

ARRL DX Contest 1966

The following is a summary of the rules for this year's ARRL DX Contest.

1. The contest periods are: **Telephony, February 12-13, and March 12-13; C.w., February 26-27, and March 26-27.**

2. The commencing time in each instance is **24.00 GMT Friday,** and the finishing time **24.00 GMT Sunday.**

3. **The object** is to work as many W-K-VE-V0-KH6-KL7 stations as possible in as many different call areas as possible **per band.**

4. **DX stations** will send the RS and RST report followed by a three-digit number representing power input. USA-Canada stations will send a number consisting of the RS or RST report followed by an abbreviation of the name of their state or province.

5. **Repeat contacts** on additional bands are permitted. The multiplier is the total call areas contacted on each band (maximum of 21 per band). Each completed QSO counts three points and an incompleted contact two points. The final score is the number of QSO points times the multiplier.

6. **Logs** should contain calls, dates, times (GMT), bands, exchanges and points. The summary sheet should indicate the sections of the contest, name, address and call-sign of the entrant, equipment used and power input, number of W/K/VE/V0 call areas worked on each band, number of contacts on each band, number of hours' operation, names and call-signs of assisting persons, points claimed, multiplier and claimed score. A declaration stating "I certify, on my honour, that I have observed all competition rules as well as all regulations established for amateur radio in my country, and that my report is correct and true to the best of my belief. I agree to be bound by decisions of the ARRL Award Committee" is required. Logs and accompanying summary sheets should be sent to ARRL DX Contest, 225 Main St., Newington, Conn. 06111, USA, and should be postmarked not later than **23 April, 1966.** Free log forms are available on request from ARRL.

PUBLICATIONS MORSE COURSES

AMERICAN MAGAZINES TIES BADGES

RSGB PUBLICATIONS

Amateur Radio Handbook	36/6
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