

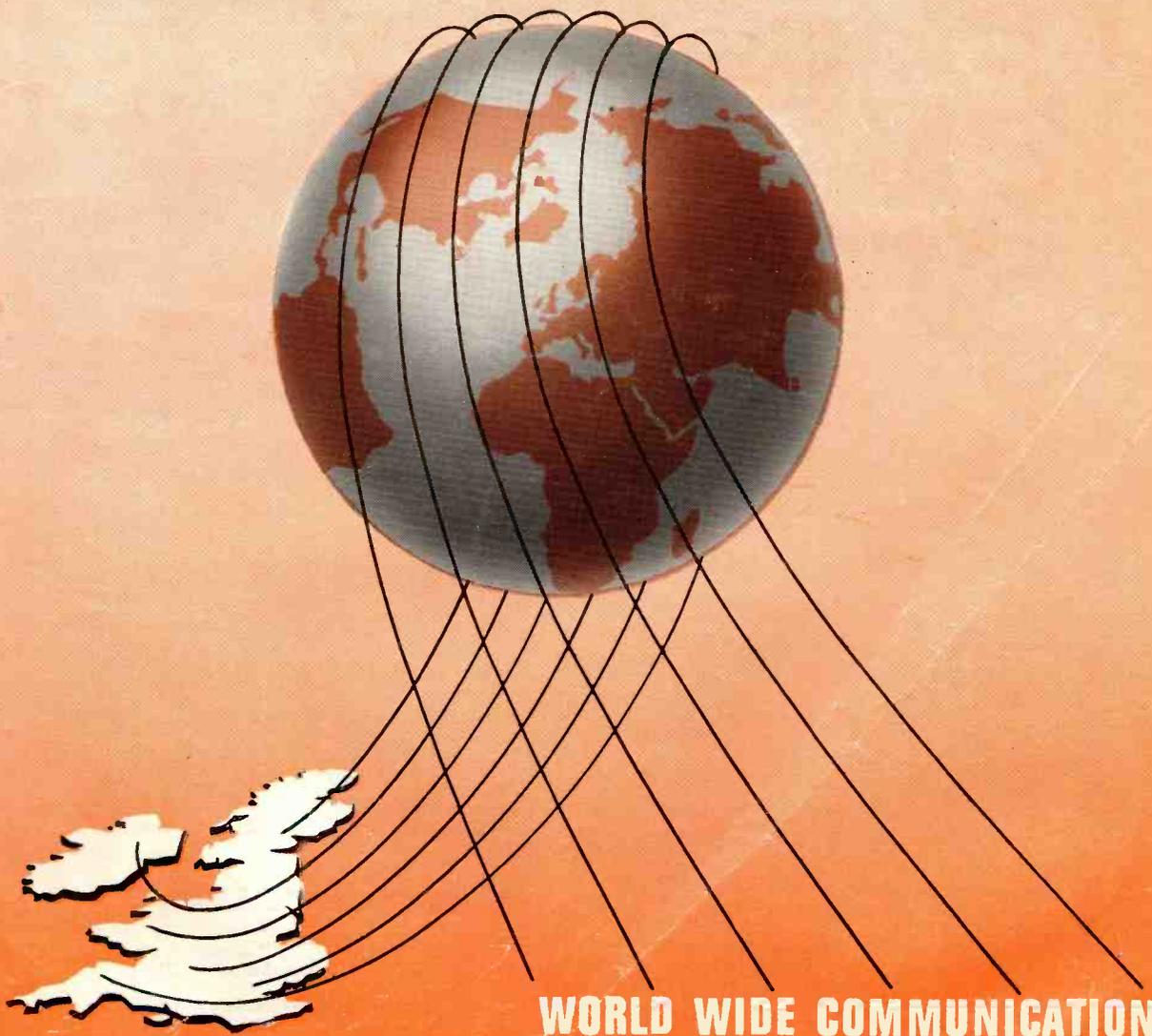
*The*  
**SHORT WAVE**  
*Magazine*

4/-

VOL. XXVII

JUNE, 1969

NUMBER 4



**WORLD WIDE COMMUNICATION**

# Announcing another world beater from

# KW

## THE NEW KW 2000B

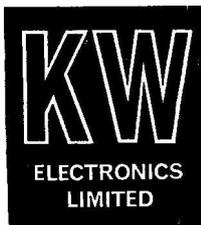


SSB TRANSCEIVER: 180 watts P.E.P. 10-160  
Metres complete with AC PSU, VOX,  
P.T.T., I.R.T./I.T.T.

plus the usual KW Quality and Reliability

- TWO-SPEED VFO DRIVE
- IMPROVED VFO READ-OUT
- NEW, PRECISE METERING
- ATTRACTIVE PANEL LAYOUT

Other KW Products:  
KW Antenna Switch  
(3 position), KW E-Z  
Antenna Match Unit, KW  
PEP Meter, KW Match SWR  
Indicator, KW Low-Pass  
Filters, KW Trap Dipoles,  
KW Dummy Load, KW  
Q Multipliers



Write for illustrated detailed specifications on the KW 2000B; KW  
Atlanta; KW Vespa Mk II; KW 201; KW 1000 and our list of KW  
Tested Trade-ins.

### K. W. ELECTRONICS LTD

1 HEATH STREET, DARTFORD, KENT

TEL: DARTFORD 25574 CABLES: KAYDUBLEW DARTFORD

# RADIO SHACK LIMITED

LONDON'S AMATEUR RADIO STOCKISTS

## CLEARANCE SALE

In order to have a little more space in the shop, we are offering the following items. We prefer buyers to inspect and collect but we will ship on payment, including carriage. The equipment is offered as it stands, without guarantee.

	£	s.	d.
Hallcrafters S36A Receiver. 27-150 MHz ... (30/-)	12	10	0
Hallcrafters CHL 46193 Receiver. AM/FM. 130-210 MHz ... (30/-)	10	0	0
AR88D Receiver. Rough appearance but working. (30/-)	25	0	0
Tiger TR-60 Transmitter. AM/CW. Good order (30/-)	20	0	0
Pye Marine TX/RX PTC 791. 8 Crystal control channels with about 14 crystals. 24v. power supply. Charging panel and ballast resistor. Including handset (60/-)	60	0	0
GEC VHF Transmitter. Needs a bit of attention to get on 2m. In cabinet with power supply. 10 channel. AM/FM/CW. Fan cooled. Complete with separate, unmodified matching Receiver ... (60/-)	30	0	0
Remscope type SOI 5 inch oscilloscope with memory store. Six knobs and valves pinched ... (30/-)	20	0	0
Triumph U.S. Navy Oscilloscope/Wobbulator (10/-)	10	0	0
Cossor 1049 Oscilloscope ... (20/-)	12	10	0
Tequipment Serviscope ... (10/-)	17	10	0
Pye Closed Circuit TV Equipment, comprising 2 x 12" picture monitors, type 2818B (valves missing), 1 picture monitor type 2803, complete. Two special transmitters and camera control unit, type 2316, with 2 manuals ... (80/-)	40	0	0
Furzehill Valve Voltmeter V200 ... (10/-)	12	0	0
U.S. Army R.F. Amplifier, 100-225 MHz, fan cooled 4 x 150A in final, needs power supply ... (20/-)	20	0	0
R.F. Amplifier T-464/ALT-7, 19-140 MHz, fan cooled 2 x 4X150A in final, needs power supply ... (20/-)	20	0	0
PYE RANGERS, dash mounting, low band, unmodified with microphone ... (10/-)	15	0	0
Heathkit Mohican Receiver ... (10/-)	22	10	0
Creed 5445 Morse Perforator, 230v. ... (20/-)	10	0	0
Hamgear PMI Preamp. ... (5/-)	5	0	0
AVO Electronic Testmeter, not working ... (10/-)	3	10	0
Advance DI Sig. Generator, 9-300 MHz ... (10/-)	10	0	0
General Radio U.S. Navy Sig. Gen., 30 KHz-30 MHz (20/-)	15	0	0
Marconi VF Bridge RB 150/2 ... (15/-)	3	0	0
Four Ex-govt. Collapsible Aerials in carrying bags, the lot for ...	3	0	0
Marconi TF1449 Sig. Generator ... (30/-)	20	0	0
Wobbulator Scope with 6" tube switchable, 465 KHz/468 KHz ...	15	0	0
Servomex DC voltage stabilizer, 1-15v., 0-25A. (40/-)	10	0	0
Marconi Portable Lifeboat set TX/RX, type 110B (30/-)	10	0	0

\* \* \*

### REGULAR USED EQUIPMENT

Heathkit Mohican (American Model) ...	27	10	0
Eddystone EC10 Receiver ...	35	0	0
Heathkit RA-1 Receiver ...	27	10	0
Star SR200 Receiver ...	29	10	0
Swan 410 VFO ...	55	0	0
B-41 LF Receiver ...	7	10	0
Eddystone S740 ...	25	0	0
AR88D Receiver with S meter ...	45	0	0
Eddystone 770R/1 Receiver, 19-165 MHz, works reconditioned, choice of 2 ...	175	0	0
Eddystone 770U/2 Receiver, 150-500 MHz, choice of 3 ...	125	0	0
Hammarlund HQ170A Receiver ...	125	0	0
Racal RA-17, as brand new inside and out ...	240	0	0
Collins 30L-1 Linear ...	200	0	0
B-40 Receiver, used ...	20	0	0

### COPAL DIGITAL CLOCKS

	£	s.	d.
Copal 101 24 Hr. (Desk Model) ...	13	15	0
Copal 201 12 Hr. (Desk Model) ...	13	15	0
Copal 601 24 Hr. (Desk Model) ...	21	0	0

### TEST GEAR

Hartley CT 436 Oscilloscope ...	85	0	0
Cossor 1052 Oscilloscope ...	40	0	0
Heathkit 10-10 DC Coupled American 3" Oscilloscope ...	55	0	0
Marconi TF762 B UHF Sig. Gen., with Manual ...	35	0	0
Crompton Parkinson AC/DC WATTMETERS ...	7	10	0
Marconi TF 144 G Sig. Gen., with Manual ...	25	0	0
Marconi TF 329 D 3ircuit Magnification Meter, with Manual ...	20	0	0
Marconi TF 329 G Circuit Magnification Meter, with Manual ...	30	0	0
Marconi TF 329 G Circuit Magnification Meter, with Manual (Brand new) ...	45	0	0
Marconi B.F.O. TF 195L, with Manual ...	15	0	0
Marconi Video Oscillator TF 410C ...	15	0	0
Marconi Impedance Bridge TF 373D ...	10	0	0
Airmec 206 Phase Meter ...	50	0	0
Airmec 723 Oscilloscope ...	30	0	0
Microcell VSWR Selective Amplifiers ...	7	10	0
Electronic Corporation of America VSWR Selective Amplifier ...	5	0	0
Sanders VSWR Amplifier Mk3 and Manual ...	45	0	0
BC221 Frequency Meter with Charts ...	25	0	0
Solartron Precision AC Millivoltmeter ...	40	0	0
Marconi TF 455E Wave Analyser with Manual ...	75	0	0
AVO 40 Testmeter without leads ...	8	0	0
Airmec Radivet Test Set 211 Oscilloscope, Audio and Sig. Generator, VTVM and Calibrator, in one case, with Manual ...	47	10	0
Marconi TF 340 Output Power Meters, with Manual ...	10	0	0
Racal Digital Frequency Meter SA 520, 0-300 KHz, transistor ...	85	0	0
AVO 2 Sig. Gen. AM/FM ...	45	0	0
Marconi Spectrum Analysers, 0-30 MHz, price on application ...	---	---	---

### NEW STOCK

Now in stock, the new			
KW Atlanta ...	250	0	0
KW 2000B ...	232	0	0
KW EZ Match ...	12	10	0
KW SWR indicator ...	8	10	0
SWAN 500C and P.S.U. ...	345	0	0
SWAN 350C and P.S.U. ...	295	0	0
And the latest model			
SWAN 260 CYGNET Transceiver ...	199	0	0
DRAKE L-4B Linear ...	415	0	0
DRAKE R-4B Receiver ...	240	0	0
DRAKE T-4XB Transmitter ...	250	0	0
DRAKE TR-4 Transceiver ...	315	0	0
DRAKE 2-C Receiver ...	130	0	0
DRAKE SW-4A ...	185	0	0
Lafayette HA-350 Receiver ...	67	10	0
Radatec Mobile Radar Detector ...	13	0	0
Omega T Noise Bridge ...	13	10	0
Omega T TE 702 Extended Range Noise Bridge ...	19	10	0
Shure 201 Microphone ...	5	12	6
Shure 444 Microphone ...	12	15	0
Shure 510 B Microphone ...	1	10	0
Shure 510 SB Microphone (with switch) ...	2	0	0
Coax 4 Way Switches ...	4	5	0
HY-Gain Antennas. Full range in stock, send large s.a.e. for catalogue.			
18AVQ. 5 Band Vertical ...	35	10	0

# RADIO SHACK LIMITED

182 BROADHURST GARDENS, LONDON, N.W.6

Telephone: 01-624 7174

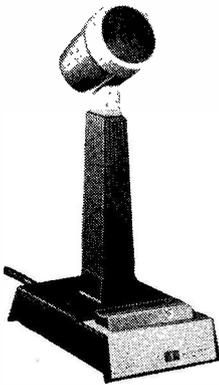
Cables: Radioshack London N.W.6

Giro Account No.: 588 7151

# You can depend on Shure quality MICROPHONES For amateur radio communications

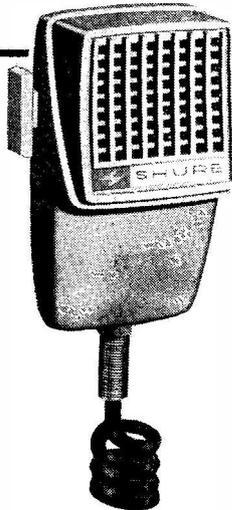
## Shure Model 444 Controlled Magnetic Microphone

Specially designed for radio communications, giving optimum performance from single sideband transmitters as well as AM and FM units. Response cuts off sharply below 300 c/s and above 3,000 c/s, with a rising characteristic to 3,000 c/s. This results in optimum speech intelligibility and audio punch to cut through noise interference. High impedance. Dependable under all operating conditions. Complete with switch for instantaneous press-to-talk or VOX operation; finger-tip control bar; long-life switch; adjustable microphone height; sturdy, high-impact base and case; 7 ft. two-conductor shielded cable.



## Shure Model 201 Diaphragm Type Ceramic Microphone

- \*Provides clear, crisp, natural voice reproduction of high intelligibility
- \*High impedance \*Ideal voice response and omni-directional polar pickup characteristics
- \*No humidity or temperature problems
- \*Light, strong and compact
- \*Heavy duty push-to-talk (non-locking) switch
- \*Frequency response: 200 to 4,000 c/s
- \*3-conductor retractable cable.



# SHURE

Setting the  
world's standard  
in sound

SHURE ELECTRONICS LTD.  
84 Blackfriars Road, London, S.E.1. Tel.; 01-928 3424

## AIR/SEA TRANS/REC. RESCUE

Compact V.H.F. Trans./Rec. Fits in the pocket. Consists of Mike/Speaker, amplifier, aerial, transmitter and receiver. Were made to operate up to 100 miles depending on terrain. Operates from dry batteries. Completely self-contained. Cost Govt. over £50 each. Regulations state must not be operated in U.K. so please mention "For Dismantling purposes only" when ordering. Price £2.10.0 each, p. and p. 10/-. Two sets for £5, post free. Four sets £8, carriage free. Bulk sale of 10 sets £15, carriage £1. Export enquiries invited.



## AIRCRAFT POLICE BAND BROADCAST REC.

Listen to the thrills of aircraft, pilots and airports at work. Also Civil Depts., Fire and Ambulance services. Also taxis, Gas and Electricity services. Ideal for receiving 2 metre amateurs. Gives super reception within the range of all transmissions. A fully transistorised receiver covering 97-147 mc/s. VHF broadcasts. Robust attractively finished metal cabinet size approx. 7 x 7 x 4in. Operates from a 9 volt internal battery. Speaker or Earphone output. Price only £8.19.6, carr. and insurance 10/6.

### RECTIFIER SALE

All 6/12v. D.C. output. Full wave bridged. 4 amps. Brand new manufacturers surplus. Only 4/6 each, p. p. 1/6. Two for 10/- post free.

### MINIATURE MOVING COIL SPEAKERS

1½" dia. Only 3/6 each, p.p. 1/6. Two for 8/6, post free.

### MORSE PRACTICE OSCILLATOR SET

Complete with "Hints on Learning morse" manual. Fully Transistorised, 19/6, p. and p. 3/6.

### WHIP AERIALS

One foot interlocking sections. Only 2/6 each. Four for 7/6, p. and p. 2/6. Eight for 15/-, post free.

## WE BUY ALL TYPES OF SCIENTIFIC & ELECTRONIC EQUIPMENT AND TEST GEAR

Please send details of anything you may have for sale. An offer will be made by us by return. S.A.E. please.

## TOP BAND SPECIAL

These excellent superhet radios were made for the Govt. by a famous manufacturer. Octal valve line up. Freq. coverage brings in Top Band amateurs, Marine Stations, etc., etc. Slow motion tuning. Built-in power pack for 6 volt operation, but easily modified for mains use. Robust cabinet with self-contained high quality speaker. As new. Few only price £4/19/6. Carriage and insurance 10/-.

Mail orders to:

**GLOBE SCIENTIFIC LTD.** Dept. SW26.  
24 Cawoods Yard, Mill Street, Marsh Lane, Leeds, 9.

### RUN YOUR 19 SET TX and RX FROM A.C. MAINS

We manufacture a brand new unit ready to operate all 19 set Trans./Rec. direct from the mains. Complete with full leads and connectors. Contained in a handsome steel cabinet. With full instructions. Price £6/10/-, carr. and Insur. 10/-. Mains unit to supply 19 set Receiver section only. Self contained in a cabinet as above. Price £4/10/-, carr. and insurance paid.

### MINIATURE B.F.O. UNIT

A miniature fully transistorised tunable B.F.O. that will be a valuable addition to any receiver. A compact unit with single hole fixing that will fit anywhere. Ideal for all ex-Govt. and commercial receivers. Complete with installation instructions, 49/6, post free.

### No. 19 SET ACCESSORIES

19 Set control boxes. Brand new and boxed, 10/-, p.p. 2/6. 19 Set headphones and mike. Not new but working, 7/6 per pair, p.p. 4/6. 2 sets for £1, post free. R.F. amplifiers. No. 2 Mk. III. Only £5/10/-, carr. 10/-.

### TANNOY MIKES

As new. Ideal for mobile or P.A. work. Only 9/6 each p.p. 4/6.

### MATCHING P.S.U.

For R.1132 and 1392 receivers. Only 59/6 each. Carr. 10/6. Brand new in makers cartons.

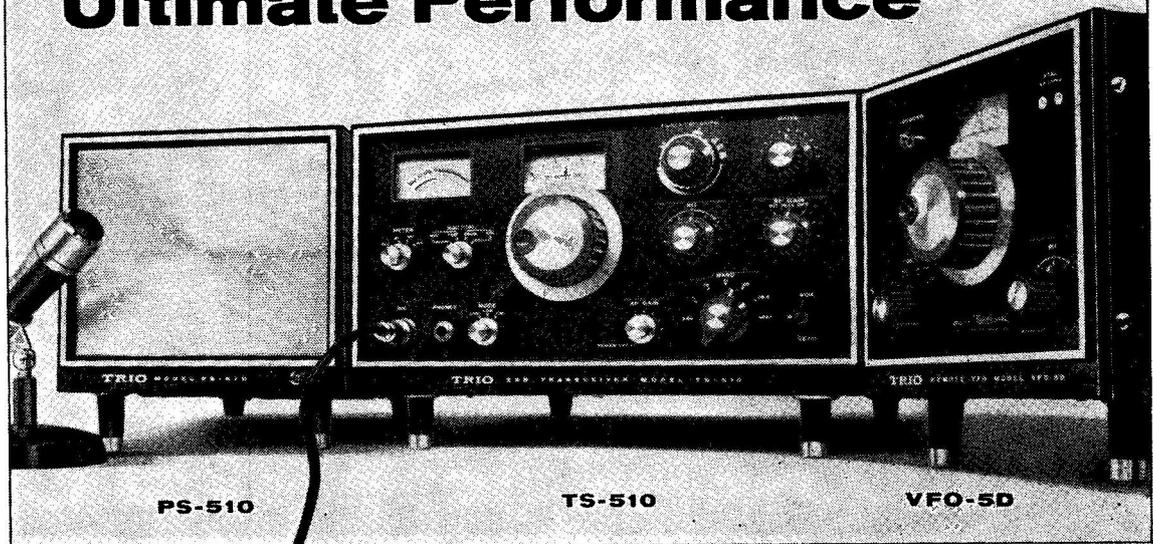
### R.F. AMPLIFIERS No. 2 Mk. III

Increase the output from your 19 set TX. Price only 79/6 each. p.p. 10/6. Few only.

HANDBOOKS and  
MANUALS WANTED  
ON ALL BRITISH and  
AMERICAN  
WIRELESS EQUIP-  
MENT. TOP CASH  
PRICES PAID.  
W.H.Y.

# SSB

## TRIO's TS-510 Brings Ultimate Performance



TRIO's TS-510 is the definitive instrument especially engineered for complete "SSB ERA" function. It's a high power, high stability product of imaginative design that fully lives up to the renowned "TRIO" name. Extremely stable VFO, a new development that is built around 2 FET's and 13 transistors, guarantees stable QSO's during entire use, an accurate double-gear tuning mechanism and a linear tuning capacitor produce a 1 kHz direct reading on all bands. There's easy tuning in of SSB signals because the TS-510's frequency coverage has been compressed to 25 kHz for one complete rotation of the dial. Sharp cutoff for both reception and transmission is achieved by a sharp factor frequency filter built just

for this 510 series model. Combined with the TS-510's superb features are the distinctive, top quality PS-510 (Power supply and speaker) and VFO-5D (Variable frequency oscillator). With an AC power supply that operates a built-in 16 cm speaker, the PS-510 has been created as an exclusive companion instrument for the TS-510. It can be installed at any location with the PS-510 because the power supply is regulated on or off at the TS-510. The VFO-5D can match the TS-510 in performance and design. Its reading accuracy is unusually high since a double-gear dial covering 25 kHz per revolution is also used, as in the TS-510.



TO: B.H. Morris & Co., (Radio) Ltd. SW

Send me information on TRIO COMMUNICATION  
RECEIVERS & name of nearest TRIO retailer.

NAME  AGE

ADDRESS

**TRIO KENWOOD ELECTRONICS S.A.** 160 Ave., Brugmann, Bruxelles 6, Belgium

Sole Agent for the U.K. **B. H. MORRIS & CO., (RADIO) LTD.** 84/88, Nelson Street. Tower Hamlets, London E. 1, Phone: 01-790 4824

# J. B. LOWE

50-52 Wellington Street, Matlock, Derbyshire

Tel.: Matlock 2817 (2430 evenings)

I will never cease to marvel at you chaps—I just don't understand you! I dig you not, as they say! I have the only FT-250 in the country, (possibly the only one outside Japan). The JA's are raving about it and talk of nowt else, the DL's are licking their lips in anticipation of its arrival, forming queues to buy. So, I display this little world beater at a couple of mobile rallies—no need to advertise it, or plaster blurb around it, it will be the star of the show—everyone will fight to touch it, to even look at it from afar. John said, "I wouldn't display that—you'll be mobbed." Yeah? Apart from a visiting DL who thrust wads of fivers at me and said "You sell, ja?" to which I replied "Nein, zwei month delivery," hardly anyone gave it a second glance. Well, one or two did—the sort of chap who is in electronics professionally, who travels all over the world and who knows the score. He looks at it, the circuit diagram and the price and goes away. Some days later, when he's flogged his own rig privately he sends a cheque. Apart from these chaps who know whats what, hardly anyone looked at it. Fantastic!

Stop moaning, Bill, start flogging. Talking of moaning, we all moan about rising prices and falling value of the pound. In this business, though, we don't do too badly—looking at the April 1959 *Short Wave Magazine*, a nice new Tiger TR300 AM rig and a 888A to go with it set you back £310. SSB Tx's of course, were much more expensive then!! Think what you can get today for that kind of money and you'll agree that Amateur Radio prices haven't done too badly.

For example, cheaper than the TR300 AM rig by itself, I can flog you a complete Inoue. £180 to be exact for Rx, Tx and PSU. At least I think I can flog you one—at long last it is beginning to dawn on you chaps that this Inoue is pretty good and I can forsee shortages, but another shipment is imminent. Failing the complete rig, how about the Rx by itself for £85.

Thinking of mobile? Then how about the Sommerkamp FT-150 at £215. Please note that this rig is not just the bare bones but has all mod. con. Something with a bit more poke? Well man, dig the Sommerkamp FT-500 at £250. Crazy, man! Or evening swingier, or cooler, or hotter or more hep or whatever, the FT-250. £160 less psu.

Prefer separates? Then the FR500 Rx and FL500 Tx are worth a butcher's hook. Or the Star series, SR700 and ST700. With these you shouldn't need a linear. In fact I advise all my customers that spending the linear loot on a good tower and beam gives much better value for money. (Fool that I am, I don't sell towers, beams, etc.!) But if you must have a linear, I can flog you a Sommerkamp FL2000.

Incidentally, I should make it plain that the above stuff (except the Sommerkamp FT-250) is all ex-stock for immediate delivery at the time of writing. We have 'em in stock—we may even have the FT-250 in stock by the time you read this.

If your wallet won't stretch to a new rig, we usually have a pretty good stock of second-hand stuff—and as we are very fussy about what we sell, it will be excellent, fully recommended stuff at a reasonable price. I make no claims for "fantastic bargains" or "stupendous value"—just reasonable prices. You get what you pay for. If it is rubbish, I'll tell you so and it will be reflected in the price. Anyway, if you want something second-hand, give us a yell.

In the line of "goodies," I would just mention that the following are especially singled out for praise—2m. converters, Katsumi keyers, Teisco mikes, Medco L.P. filters.

All the lovely new stuff can also be inspected at Alan Whitford's, G3MME, 37, Chestnut Drive, Polegate, Sussex. Telephone No. Polegate 4659, evenings and weekends for those who can't get over to Matlock. If you can't get over to either Alan or myself, send me a s.a.e. and I'll send you my latest lists.

POSTAGE : PLEASE ALLOW LOTS FOR POSTAGE, WE WILL REFUND ANY EXCESS.

## SUNDRIES :

Katsumi EK-9X keyer, 5-30 w.p.m. ...	£7 15 0
Bug keys ... ..	£4 0 0
CW Monitor, the output relay has a spare contact for Rx muting ... ..	£7 15 0
AR88D manual reprints ... ..	15 0
VHF/UHF 50 ohm dummy loads (new surplus) ... ..	£2 10 0

Tubular trimmers, either  $\frac{1}{2}$ -5pF or 3-15pF 1/- each, 10/- doz. Feedthroughs, 1000pF screw type, 1/- each, 10/- dozen : disc ceramics, .001 3/6 doz., .01 5/- doz. Standard coax sockets, 1/- each, standard coax plugs 1/4 each. Plugs (OCTAL, B7G, B9A) 2/6 each. Electrolytics, brand spanning new can types, complete with mounting clips, 100mF 350v. 5/6 each : 100-100mF 350v. 6/8 each : 100mF 450v. 7/2 : 40-40mF 500v. 7/3 : 100mF 500v. 7/9. 100-100mF 450v. 13/2 : Silicon rectifiers, current manufacture, not surplus, not seconds, you can rely on these. SE-05 1000piv 500mA 4/6, panel indicator lamps for standard lilliput bulbs, red or green, 2/6 each, switches, jack plugs, miniature tantalum electrolytic  $\frac{1}{4}$ W sub miniature metal oxide resistors, etc. PL259 plugs 5/- each. 100kHz crystals, series resonant, very accurate to mil. spec. £2. 300 ohm ribbon, 6d. yard.

**NEW SURPLUS** resistors, most values from 2d. each. Capacitors from 2pF to 150mF from 2d. each. Mica trimmers, 1000pF 1/- each, 2,800 solid dielectric variables, ideal top band loading.

Morse key with buzzer, 15/-. Teisco DM-501 dynamic microphone, high impedance, £2 15s. Converters, 21 mc/s. or 28 mc/s I.F. out 5 mc/s., £7 10s. 2m. Converters 28 mc/s. I.F., £10.

**SPECIAL** : COLLINS V.F.O.'s, 2.0-4.2 mc/s. readout to 5 cycles, phase loaded from 100 kc/s. xtal (in oven) and divider chain. No drift, 22 valves. The ultimate VFO complete with p.s.u., £35.

**SPECIAL** : 30mHz LOW PASS FILTER (British made). The filter comes in 3 types, FL50A, 50 ohm impedance with Belling Lee sockets, £4 10s. FL50B, 50 ohm impedance with SO239 sockets, £5. FL75A, 75 ohm impedance with Belling Lee sockets, £4 10s.

73, The Bandit,

VE8DP/G3UBO.

# SWAN Cygnet

**A 5 BAND 260 WATT SSB  
TRANSCEIVER WITH BUILT-IN  
AC AND DC SUPPLY AND  
LOUDSPEAKER**



**£199**

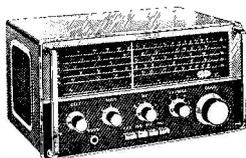
The new Swan Cygnet is a complete SSB transceiver, with self contained AC and DC power supply, microphone and loudspeaker in one portable package. The Cygnet features full frequency coverage of the 10, 15, 20, 40 and 80 metre bands with a power input rating of 260 watts P.E.P. in single sideband mode, and 180 watts CW input. A crystal lattice filter at 5500 Kc is used in both transmit and receive mode, and provides excellent selectivity with a 2.7 Kc bandwidth at 6 dB down. Superior receiver sensitivity of better than ½ microvolt makes it easy to pull in those DX signals, and with the Cygnet, if you can hear them, you can work them. Audio fidelity is in the well known Swan tradition of being second to none; providing smooth, natural sounding voice quality. The Cygnet is temperature compensated on all bands, featuring solid state oscillator circuitry with zener regulation which permits wide variation in supply line voltage without frequency shift.

Unwanted sideband suppression is 45 dB, carrier suppression 60 dB, and distortion products are down approximately 30 dB.

The new Cygnet is designed to provide efficient, high quality communications in the 5 most commonly used amateur bands. Its low cost is a tribute to Swann's well known techniques in value analysis, and simple, direct circuit design. Above all, these techniques lead to a high degree of reliability and foolproof performance. Dimensions are: 13" wide, 5½" high, and 11" deep. Weight is 24 lbs.

The transceiver comes complete with AC and DC input cords, and carrying handle; thus making it the most versatile and portable set on the market, and certainly the best possible value.

**PETER SEYMOUR LIMITED, 410 BEVERLEY ROAD, HULL, YORKSHIRE Tel.: 41938**



## GEORGE FRANCIS G3TWV

**FULL SERVICE FACILITIES ON KW, EDDYSTONE, SWAN, TRIO.**

The same excellent service as given by us for last 11 years.

**FRANCIS for EDDYSTONE**

EB35	...	...	...	£66	13	4
EC10	...	...	...	£53	0	0
EA12	...	...	...	£195	0	0
830/7	...	...	...	£195	0	0

Diacast boxes and dials in stock.

**FRANCIS for KW ELECTRONICS**

KW2000A	...	...	...	£232	0	0
KW Vespa	...	...	...	£135	0	0
KW201	...	...	...	£110	0	0
New KW Atlanta	...	...	...	£250	0	0

**FRANCIS for TRIO**

9R-59DE	...	...	...	£37	15	0
JR500SE	...	...	...	£61	0	0
Matching Speaker	...	...	...	£4	7	6

**FRANCIS for JOYSTICK**

Standard	...	...	...	£4	15	0
De Luxe	...	...	...	£5	19	6
3A Tuner	...	...	...	£3	12	6
4 Tuner	...	...	...	£4	4	0

**BRITISH MADE MORSE OSCILLATOR.** Transistor, only needs Morse key and battery, 49/11; with pitch control and earphone socket, 59/11.

NO ORDER TOO SMALL

GOODS DISPATCHED BY RETURN, POSTAGE EXTRA

**93 Balderton Gate, Newark, Notts.**

Tel. 4733 ; after 6 p.m. 2578

Dialling Code 0636

**FRANCIS for SHURE**

201	...	...	...	£5	0	0
444	...	...	...	£10	0	0

**FRANCIS for PARKAIR ELECTRONICS**

Skybandit	...	...	...	£23	10	0
Concorde	...	...	...	£17	15	0
2 metre Tx	...	...	...	£80	0	0

**FRANCIS for COAX CABLES**

52 ohm, low loss	...	...	yd.	2	3
52 ohm, ordinary	...	...	yd.	1	10
75 ohm, ordinary	...	...	yd.	8	
75 ohm, low loss	...	...	yd.	1	6
75 ohm, twin	...	...	yd.	6	6
300 ohm, twin	...	...	yd.	6	6
Egg Insulators	...	...	ea.	6	

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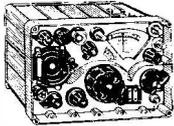
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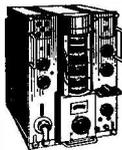
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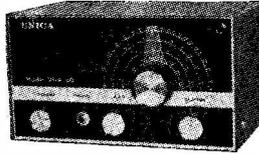
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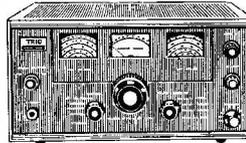


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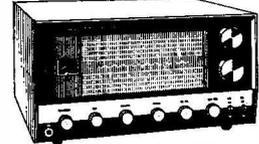
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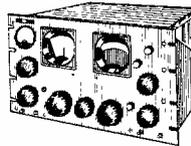
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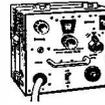
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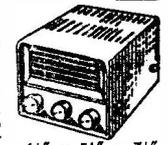
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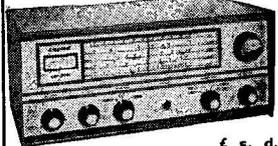
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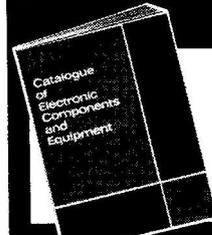
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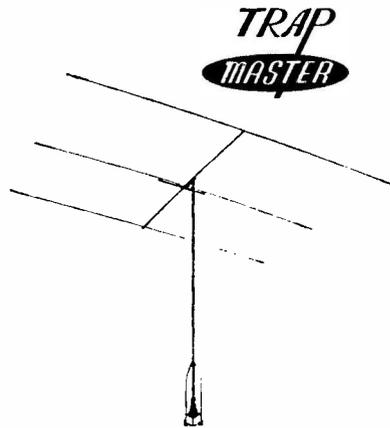
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FOR THE RADIO AMATEUR AND AMATEUR RADIO

# The SHORT-WAVE Magazine

## E D I T O R I A L

### **Competition**

*With the Contest season upon us once more, it is worth considering one of the less-obvious aspects of contest activity. It can be argued that competition would be unnecessary—and even undesirable—in that perfect state to which, but for the frailties of human nature, we might already have succeeded. For two thousand years of recorded history, clever men have been trying to change human nature, with no signs of success. Therefore, it is reasonable to suppose that the competitive element will remain one of the dominant factors in nearly all fields of human activity and endeavour, of which Amateur Radio is but one.*

*There are those who maintain that in Amateur Radio the competitive spirit should be discouraged; and they can advance many good arguments to support their contention. But as in any other sphere, in Amateur Radio it is competition that is the spur to progress. Indeed, it can be shown that the competitive element has always been a good thing for progress. For thus is the practice of the art improved and developed to the ultimate benefit of all concerned—including those who have no particular interest in competitive activity for its own sake. Therefore, do not let us deride nor denigrate those who take a serious part in contest activity on the amateur bands.*

*Austin Forsyth,  
G6FO.*

---

WORLD-WIDE COMMUNICATION

## DESIGN FOR AN AMATEUR-BAND RECEIVER

THE "BHIM-TAL" — SOLID-STATE,  
ALL SILICON — DOUBLE  
CONVERSION—TOP BAND TO TEN  
METRES—FULL CONSTRUCTIONAL  
DETAILS

### Part I

D. A. HOLLINGSBEE (G3TDT)

**T**HE *Bhim-Tal* experimental receiver was built for use on the HF bands. It follows a fairly conventional pattern of double conversion with a crystal controlled front end, tunable IF of 5.0 to 5.5 mc and a final IF or 455 kc.

Each functional stage of the receiver was designed and built as a separate unit, mostly on home-made printed circuit of *Veroboard*, so that any part could be re-modelled without upsetting the general pattern. Extensive use has been made of field-effect transistors, both dual-gate and "triode" types, as well as of integrated circuits. All semi-conductors are of the silicon variety.

Only the first 500 kc of the ten-metre band is covered. This is not from lack of interest in this part of the spectrum but from a purely economic point of view on what is essentially an experimental project!

It must be emphasised that this receiver is experimental and that although it is offered as a complete instrument it is by no means complete as far as the author is concerned. In fact, it is the latest of a long line of receivers built over several years, all of which lasted just as long as it took to read up or think up some new system.

It is assumed that anyone constructing this Rx will have had at least some experience in building, or is able to call on the assistance of an experienced hand. Alternatively, anyone who can use a soldering iron should be able to make the pre-amplifier and having gained confidence, proceed to the first mixer and crystal oscillator for use as a converter with a general coverage receiver tuning 5 to 5.5 mc.

After an introduction to the special components and run down on the block diagram each section will be described in detail, together with notes and thoughts for possible future development. That is not to say that this receiver is incomplete; it can hold its own with anything that has crossed the Pacific Ocean, but it is rather like grandfather's hatchet—the same one he had as a boy—just had three new heads and five new handles!

In the March 1967 edition of *SHORT WAVE MAGAZINE* there was a short introduction to Field Effect Transistors in which the virtues of the device were discussed. A brief mention was made of the MOSFET, or Metal Oxide FET, a semi-conductor with exceptional input impedance and, consequently, self-destroying capabilities

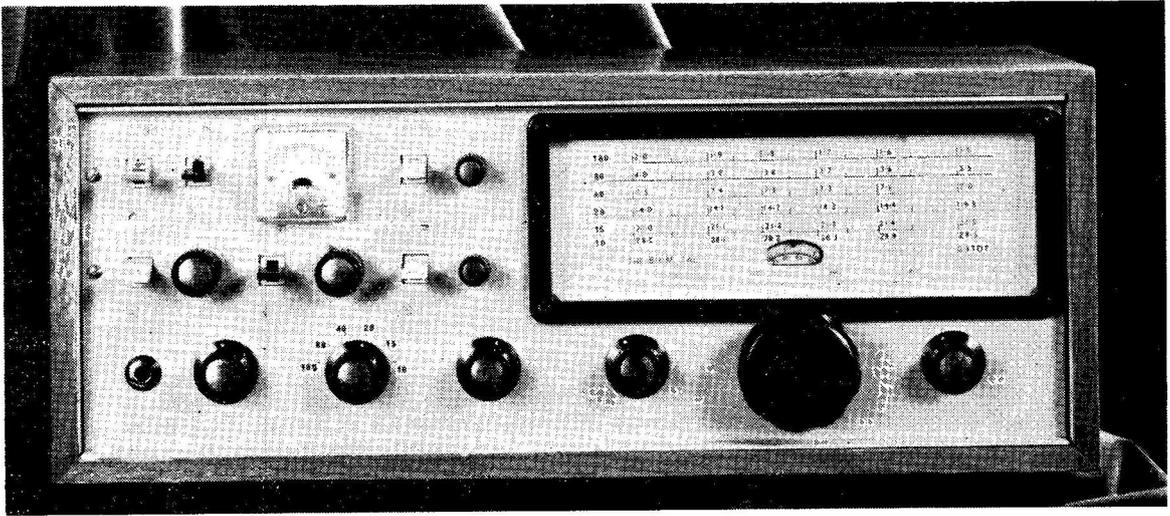
if not handled correctly. In the period since that article was published there have been big strides in this sphere, one of the more significant of which has been the introduction, by R.C.A., of a pair of dual-gate MOSFETS, designed as an RF amplifier, (not used in the prototype) and a mixer. They are offered at a price that is bound to ensure their popularity—being advertised in the trade press at 11s. each in lots of 100.

During the same period there have been significant developments in the field of integrated circuits. These devices have been described in detail in numerous articles and although by far the largest percentage have been developed as logic (switching) elements, quite a few linear types are available. In brief, each package contains a complete stage of several transistors, resistors and diodes, the whole thing being contained in a standard medium-sized transistor can. Usually, capacities are external.

This receiver was designed round these two elements. Needless to say they are expensive compared with conventional transistors and, consequently, cheap silicon bi-polar transistors have been used in non-critical parts of the circuit, as indeed have normal FET's.

During the "sketch and think" stages of the design, consideration was given to the possibility of building a transceiver, but the author has always considered this a rather awkward system except for net operation. At least 50, for preference 100, kc deviation is needed at the HF end of the spectrum and that is enough to merit a separate VFO! On the other hand, filters and crystals are expensive, so some consideration has been given to the possibility of using them for transmitting, but reception was always given first priority.

The choice of double conversion and a 455 kc IF may seem out of date to some people, but quite frankly the author has not heard a 9 mc crystal filter that compares with the Brush ceramic filter used. A further point is that a single conversion receiver requires separate local oscillators for each band—not a good thing when maximum stability is being sought. Of course, a crystal oscillator/VFO mixer arrangement could be used, but this would introduce as many "birdie" problems as double conversion. On this subject, a frequency synthesiser was considered to the design point of block diagram and sequential operation but it



Front panel view of the completed Receiver.

was not deemed a practical proposition for more than a small minority of readers. Perhaps one day it will be possible to produce a do-it-yourself design and the technical press is being scoured for a lead in this direction.

One further point before discussing the block diagram: Digital read out instead of a dial is a popular method these days with the more expensive equipment. Technically this would not present a major problem, but even at trade prices it would add some £30 to the cost.

**Circuit Description (Fig. 1)**

The signal from the ATU is fed via a 5 mc trap to a pre-amplifier consisting of a single grounded-gate FET. This is coupled by a low impedance link to the first gate of a MOSFET 3N141 mixer stage.

The crystal controlled oscillator input for the mixer is obtained from two 2N3819 FET's in a Butler con-

figuration. This is coupled to a two-stage buffer employing DC-coupled 2N2925 transistors, the mixer output being taken from the emitter of the second stage.

No isolating stage is used between the two mixers and the tunable first IF of 5 to 5.5 mc is coupled to the second mixer, also a 3N141, by a broad-band transformer. This can be either a double-wound transformer with inductive coupling between the windings, or two separate tuned circuits with link coupling. The choice is dependent on chassis layout. The variable oscillator for the second mixer tunes 5.455 to 5.955 mc, plus overlap, and employs a 2N2925 in a Colpitts circuit. The buffer stage is untuned and identical to that used in the front mixer.

The mixer signal on 455 kc is passed through a Brush Clevite filter type TL-2D5A to the first IF amplifier. This is an integrated circuit, CA-3005, and AGC is applied. The output is inductively coupled to the

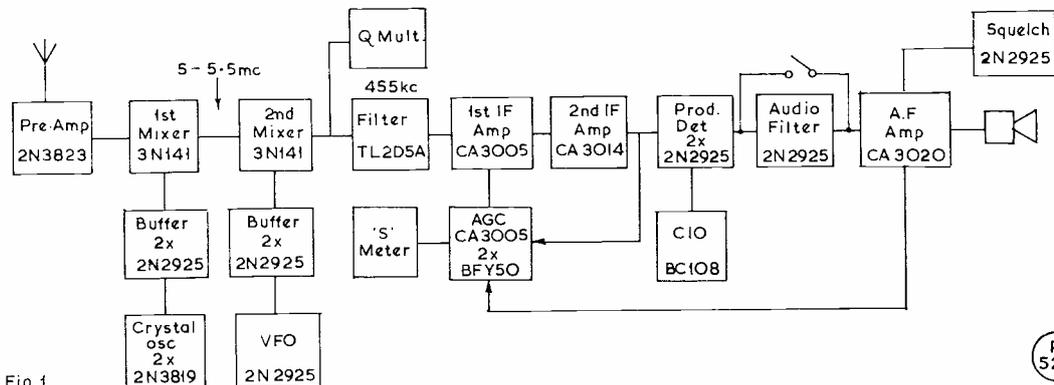


Fig. 1

R 520

Fig. 1. Block diagram of the G3TDT Solid-State Receiver.

second IF amplifier, also an integrated circuit, type CA-3014. This is the main amplifying stage, but no AGC is employed, the input being held more or less constant by the first IF.

The product detector utilises two 2N2925 transistors in a cross-balanced circuit. One transistor is grounded to AC for AM reception. The carrier insertion oscillator uses a BC108 in a tuned collector circuit, fine adjustment being by a variable capacity diode. (The choice between tuned and crystal oscillator is discussed later.)

An AF regenerative filter, for CW reception, follows the product detector and can be switched out if not required. The audio amplifier employs an integrated circuit type CA-3020 to give a little over 500 mW output.

The AGC system is a hybrid HF/AF configuration and uses a CA-3005 integrated circuit and two BFY50 transistors.

Auxiliary circuits include a Q-multiplier, S-meter and squelch. A noise limiter has not been included as the AGC has considerable limiting action in conjunction with the IF gain control. Incorporating ANL to work with the squelch should not prove too difficult. Leaving out a crystal calibrator was a local decision as one is available as normal shack equipment. However, there is a spare knob on the front panel and one will be fitted if a crystal comes along.

It is not unusual at the beginning of a receiver article to quote performance figures in terms of bandwidth and signal-to-noise ratio. The bandwidth is, of course, that of the ceramic filter and is quoted by the makers as 2 kc at 6 dB down and 5 kc at 60 dB. This gives a

shape factor of 2.5 : 1. Noise measurements have not been made as the only signal generator available at the moment is not calibrated as to output and leaks RF so badly that the only way to adjust the signal level is to move the beast further from the receiver! However, a more sophisticated instrument is to be available shortly and the figures should appear in the continuation article.

And so to the circuit in detail:

#### The Pre-Amplifier

The pre-amplifier is built as a separate unit for no particular reason save convenience of construction. If it were made in part with the first mixer stage it would be possible to gang the switches and tuning capacitors. If this method is adopted, then slug-tuned coils will be needed for the second (mixer) stage and trimmer capacitors will be required on both stages.

The grounded-gate configuration is more usual at VHF than HF and was chosen for several reasons. In the first place, the extra gain is only needed at the higher frequencies. Secondly, it does not require neutralisation providing a reasonable layout is used. The third reason is that input tuning can be left to the aerial tuning unit. In the writer's experience a receiver designed with a low input impedance is embarrassingly sensitive to what the aerial is offering and some form of tuning, or a tuned aerial, is absolutely essential. A random length of wire plugged straight into either the pre-amp. or main receiver will produce disappointing, if not misleading, results.

On an academic point, a high or medium input

COIL WINDING TABLE

	USAGE	WINDING DETAILS	LENGTH ins.	LINK	FIXED C	CORE
L1	Fig. 2, Fig. 3	45 turns, 28 swg, $\frac{3}{4}$ dia., close wound ... ..	0.75	2½ T	220µF	No
L2	„ „	23 turns, 28 swg, $\frac{3}{4}$ dia., double spaced ... ..	0.75	1¾ T	200µF	No
L3	„ „	16 turns, 26 swg, $\frac{3}{4}$ dia., double spaced ... ..	0.64	1 T	75µF	No
L4	„ „	12 turns, 22 swg, $\frac{3}{4}$ dia., double spaced ... ..	0.75	1 T	nil	No
L5	„ „	10 turns, 26 swg, $\frac{1}{2}$ dia., double spaced ... ..	0.4	1 T	nil	No
L6	„ „	8 turns, 26 swg, $\frac{1}{2}$ dia., double spaced ... ..	0.36	1 T	nil	No
L7	Fig. 3	17½ turns, 26 swg, 0.3 dia., close wound ... ..	0.33	3 T	220µF	Yes
L8	„	17½ turns, 26 swg, 0.3 dia., close wound ... ..	0.33	2½ T	150µF	Yes
L9	„	15 turns, 26 swg, 0.3 dia., close wound ... ..	0.3	2½ T	75µF	Yes
L10	„	14 turns, 24 swg, 0.3 dia., close wound ... ..	0.33	2 T	50µF	Yes
L11	„	12½ turns, 22 swg, 0.3 dia., close wound ... ..	0.38	2 T	33µF	Yes
T1	Fig. 3, Fig. 4	42 turns, 34 swg, 0.3 dia., close wound ... ..	0.43	6 T	100µF	Yes
T1	Alternative	As above but two identical windings spaced 1/32in. ... 12K ohms across primary ... ..	0.43 each	None	100µF each	Yes
Trap	Fig. 2	42 turns, 34 swg, 0.3 dia., close wound ... ..	0.43	None	100µF	Yes

**Table of Values**

Fig. 2. The Pre-Amplifier

R1 = 150 ohms	L1—L6
R2 = 100 ohms	Trap = See winding table
C1 = .001 $\mu$ F	Tr1 = 2N3823 (Texas)
C2 = .05 $\mu$ F	Sa-Sc = 3-pole, 6-way with shorting ring on Sa.
C3 = 0.1 $\mu$ F	
VC1 = 100 + 100 $\mu$ F	

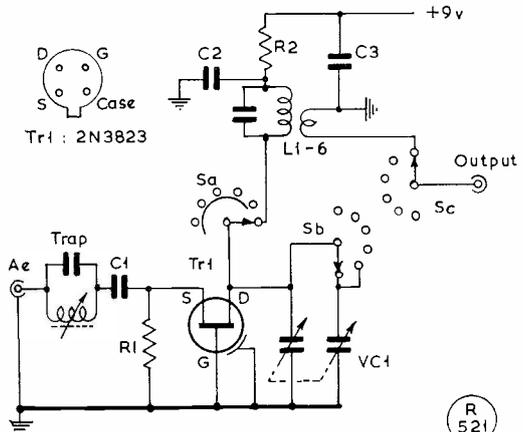


Fig. 2

R 521

receiver is a lot less critical with regard to the aerial, as is proved by the many amateurs who use HRO and AR88 receivers on the same ATU as they use for transmitting. But there is no doubt that a low-impedance (current fed) system gives the best results. As a simple example, for the first tests on 80 metres a short quarter-wave aerial was tied to a clothes post about seven feet from the ground. Almost the first signal heard was a VE1 on SSB coming through a good 5 and 5 (0600 hrs., early November). This without the pre-amplifier.

Back to the pre-amplifier. One disadvantage of the simple system is that of incorporating AGC or manual gain control without spoiling the noise figures. One thought is to use a dual-gate FET, say a 3N140 and to apply the control signal to the second gate, but as yet, this is just a thought.

It is possible to adjust the padding capacitors on the 80 and 160 metre coils to permit tuning with a single 100  $\mu$ F capacitor, but this will cut things a little tight and restrict accurate tuning to the amateur part of the available 500 kc. Note that the coax feed cable is not earthed at the pre-amp., otherwise an earth loop exists. With some layouts and cable lengths, this may not matter but results are not predictable, it is even just possible that grounding both ends will reduce noise!

In practice, the use of a pre-amplifier has proved essential not only to raise the weaker signals on 10 and 15 metres but to help keep breakthrough on 5.0-5.5 mc under control. Without the IF trap and pre-amp. signals can be heard on all bands and are intolerable on Eighty. Furthermore, second-channel breakthrough can be a real problem although, as mentioned earlier, the aerial

**Table of Values**

Fig. 3. Circuit of 1st Mixer and Crystal Oscillator

C1 = 0.1 $\mu$ F	L1—L6 - RF Coils
C2, C3, C4, C5, C8 = .01 $\mu$ F	See winding table
C6 = 1000 $\mu$ F	L7—L11 - Oscillator Coils
C7 = 160 $\mu$ F	See winding table
VC1 = 100 + 100 $\mu$ F	X1 - 7 mc crystal, Series Resonant (160m.)
R1 = 120 ohms	X2 - 9 mc crystal, Series Resonant (80 and 20m.)
R2, R14 = 10,000 ohms	X3 - 12.5 mc crystal, Series Resonant (40m.)
R3 = 100 ohms	X4 - 16 mc crystal, Series Resonant (15m.)
R4 = 1,500 ohms	X5 = 23 mc crystal, Series Resonant (10m.)
R5, R7, R9, R12 = 470 ohms	Tr1 - 3N141 R.C.A.
R6 = 56 ohms	Tr2, Tr3 = 2N2925, 2N2926, BC108, etc.
R8 = 6,800 ohms	Tr4, R45 - 2N3819 Texas
R10 = 3,300 ohms	
R11, R13 = 150 ohms	
RFC = 10 $\mu$ H	
Sa-Sf = 6-pole, 6-way, shorting link on Sb	
T = 5 mc wide-band transformer	See winding table

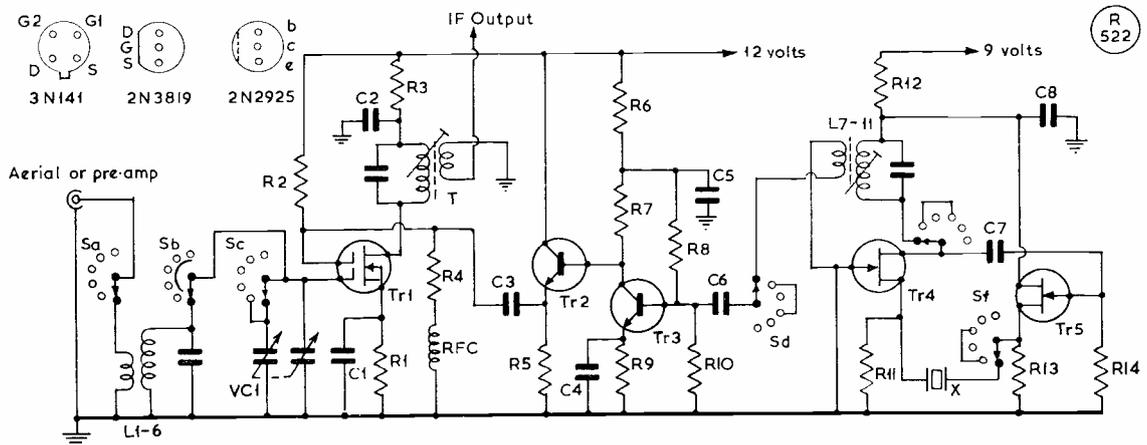


Fig. 3

R 522

is the real answer. Some experiments were carried out on 10 metres. Without the pre-amp. and using a badly matched aerial strong broadcast signals were received that were traced (with a general coverage receiver) to the 17.5 to 18 mc band. This, of course, is the crystal oscillator *less* the first IF.

Fitting either the pre-amplifier or tuning the aerial reduced the signals below an audible level and both together even held the signal generator at bay.

#### First Mixer and Crystal Oscillator

An R.C.A. 3N141 is used for the first mixer. This is a dual-gate metal oxide field-effect transistor and is one of the very few semi-conductors designed specifically for mixer service. It should not be confused with other four terminal FET'S, in which the substrate is brought out and sometimes used as a control element. With the 3N141 the construction resembles two FET's in series but is unique in so much as the signal on the second gate is used to modulate the transfer characteristic of the input gate. The makers claim this method to be superior to conventional modes and results confirm this.

With an input impedance so high that it can be considered infinite, high-Q coils are a natural choice and it would be a pity to use miniature ferrite cored types—but a word of warning. If you use a different L and C system do not allow the input to become open circuited to AC when switching or you may well find that transients have destroyed your mixer. On this subject the now familiar warning must be repeated.

- (a) Never handle the device unless all four terminals are shorted together. (An inch or two or 5 amp. fuse wire wrapped round, just under the case, is a good scheme—but don't forget to remove it after mounting).
- (b) Make sure the tip of your iron is earthed.
- (c) Make sure all power is off when inserting or removing the device.

The crystal oscillator was first described in the March 1967 SHORT WAVE MAGAZINE and is a transistorised version of the Butler oscillator. There are plenty of simple transistor circuits for crystal oscillators but very few that give such a low-distortion output. This may not sound important, but if the output of a mixer is analysed it seems a miracle that it is possible to extract the required frequency at all, and don't forget that a lot of unwanted signals are going to be present at the mixer input and can only be kept out of the passband by making sure that there are no harmonics or spurious signals available for them to mix with.

The oscillator is followed by a simple buffer-amplifier and a direct coupled emitter follower. This gives a low-impedance output that is ideal to feed the mixer and produces about 2 volts peak-to-peak depending on the crystal output.

Almost any n-p-n silicon transistors with a reasonable gain and average characteristics should work as well as the 2N2925. A few ohms (decoupled) in the collector of the output transistor might be a good idea if experiments are envisaged—one or two BC108's found their way to an early grave when using the same circuit for another

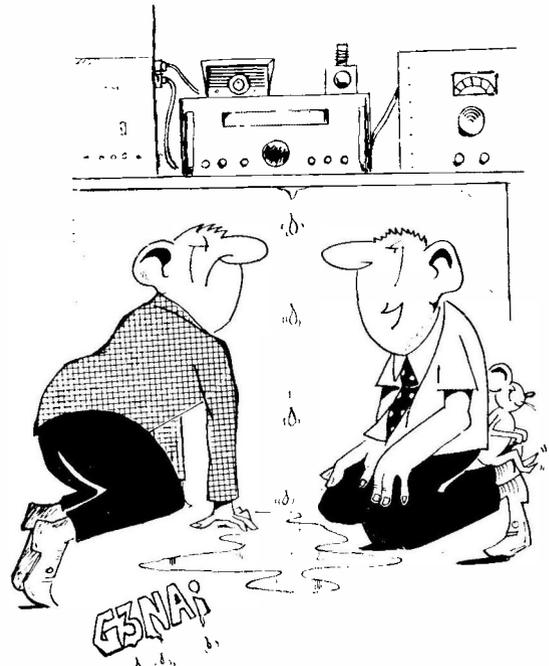
application.

The output from the mixer is selected by a broad-band tuned circuit. Of course, variable tuning perhaps ganged to the local oscillator would be ideal but in practice this is not easy to achieve and in any case the gain only amounts to the odd dB. It would permit a higher-Q circuit to be used and some constructors may wish to adopt this method.

Output to the second mixer is by link coupling to a second and similar tuned circuit and staggered tuning is used to smooth out the passband.

There is no doubt that it is better to have the crystal oscillator higher than the incoming RF signal. This receiver follows the now almost universal practice of operating above the signal for 160, 80 and 40 metres and below for 20, 15 and 10 metres. Apart from keeping the sidebands the right side up, there is considerably less difference between the local oscillator frequencies and the problems of equal drive on all bands are simplified. One annoying disadvantage is that the RF stages and the tunable oscillator work in reverse directions for three of the bands! There is, however, one advantage that is often overlooked. If the crystal is to be above the incoming signal on 20 metres, a frequency of 19.5 mc is required. Some of this is bound to find its way out and the ITA television channel, No. 9, is on 195 mc (194.75 to be exact). If anyone cares to doubt the result, the author will demonstrate with pleasure—providing they answer the door to the irate neighbours. Like most TVI it can be overcome and those seeking the *'nth* degree of perfection will no doubt find a way.

(To be continued)



“... Must be that grid leak again ...”

## EASY TWO-METRE CONVERTER

SIMPLIFIED DESIGN FOR THE  
BEGINNER ON VHF

F. G. RAYER, A.I.E.R.E. (G3OGR)

YOU won't work 2-metre DX with this converter, nor find that it has crystal-controlled frequency stability. But assuming that a surplus or communications type receiver capable of tuning around 10 mc is available (as is most likely) this converter will offer a simple, cheap and easy means of finding what two metres is about. Actually, tuning coverage is about 120-165 mc, which brings in one of the "space bands" in the 136 mc region.

Referring to Fig. 1, L1 and trimmer T1 are for some measure of impedance matching, with input to the cathode of the grounded-grid triode V1A. RFC2 and RFC3 reduce losses from heater-cathode capacitance.

Output from V1A is to the coil L2, broadly tuned by the 8  $\mu\mu\text{F}$  beehive trimmer T2. Signal-frequency input to the triode mixer V1B is through C3.

There is no crystal-controlled oscillator or lower frequency oscillator with multipliers. Instead, the VHF triode V2 operates at 10 mc away from the signal frequency (for 10 mc IF output). VC1 tunes this circuit. Coupling to the triode mixer is by Cx, a looped insulated wire round the lead to tag 2.

L4 is tuned to the chosen IF by adjusting its core. A screened lead from L5 couples signals into the main receiver.

It is in theory possible to leave the receiver tuned permanently to the chosen IF of 10 mc. Tuning is then with VC1. But in view of the sharpness of tuning with VC1, it is better to use VC1 only to select a range of wanted frequencies, such as a portion of the two-metre

(144 to 146 mc) band, and then to tune a narrow band around this with the main receiver operating as a tunable IF.

Since L3 can be changed, any feasible IF can be chosen to suit the receiver. Generally, 10 mc will be available. If the receiver covers up to 30 mc or so, something in the 20-30 mc range can be chosen, probably with less chance of direct pick-up at IF. As coil values are for 10 mc, it is suggested this IF be tried first. [over

### Table of Values

Fig. 1. Circuit of Two-Metre Converter

C1, C2 = .002 $\mu\text{F}$ , disc cer.	VC1 = 30 + 30 $\mu\mu\text{F}$ , or similar butterfly variable
C3, C6 = 47 $\mu\mu\text{F}$ , silver mica	R1 = 330 ohms, $\frac{1}{2}\text{w}$ .
C4 = 150 $\mu\mu\text{F}$ , s/m	R2, R5 = 10,000 ohms, $\frac{1}{2}\text{w}$ .
C5 = .01 $\mu\text{F}$ , 350v.	R3 = 2.2 megohms, $\frac{1}{2}\text{w}$ .
C7 = 5 $\mu\mu\text{F}$	R4 = 33,000 ohms, $\frac{1}{2}\text{w}$ .
T1 = Trimmer, 30 $\mu\mu\text{F}$ air-spaced beehive	R6 = 47,000 ohms, $\frac{1}{2}\text{w}$ .
T2 = 8 $\mu\mu\text{F}$ , as T1	V1A, B = 12AT7
	V2 = 6C4

Notes: Coil and choke values and construction are given in the text. For building the converter, a 7in. x 3in. universal chassis runner, 7in. x 5in. chassis, 7in. x 6in. panel, and 5in. x 5in. brackets can be used (see photographs) as obtainable from *Home Radio, Mitcham*. Additional items such as  $\frac{1}{16}$ in. insulated rod and shaft coupler, slow-motion ball drive and knob, B9A and B7G valveholders, tag strips, etc. can also be obtained from the same source.

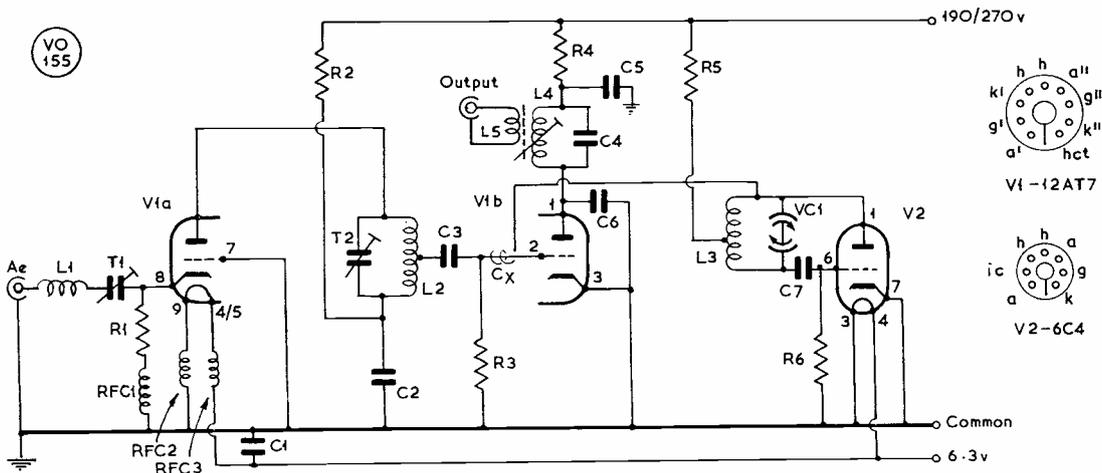


Fig. 1

Fig. 1. Circuit of the SEO two-metre Converter

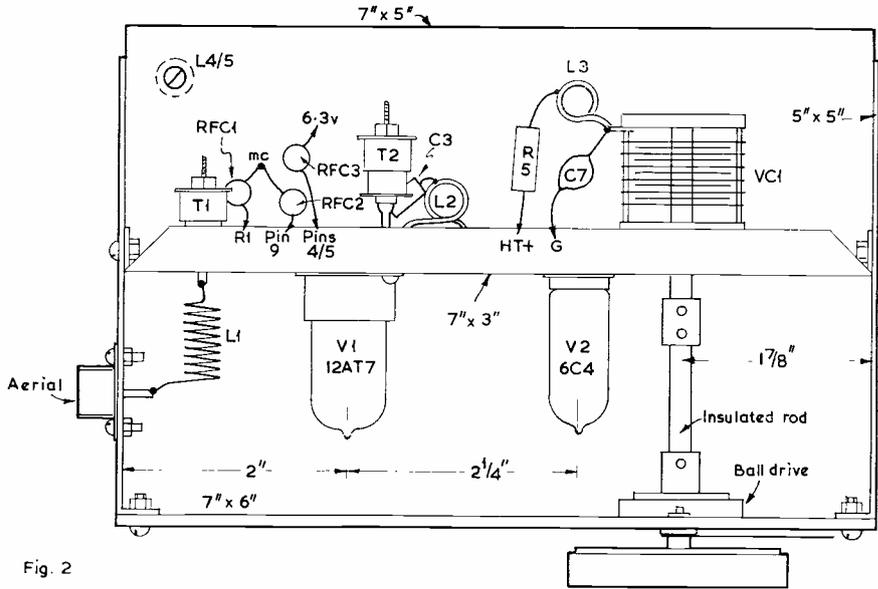


Fig. 2

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Above, Fig. 2, showing general constructional layout—compare with photograph opposite. Below (Fig. 3), placement of parts at back of mounting panel and under chassis.

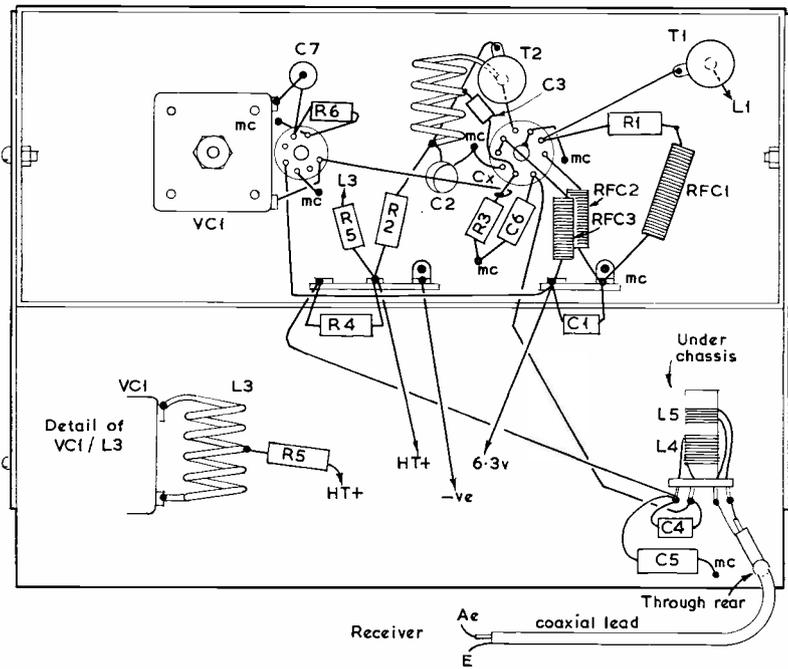
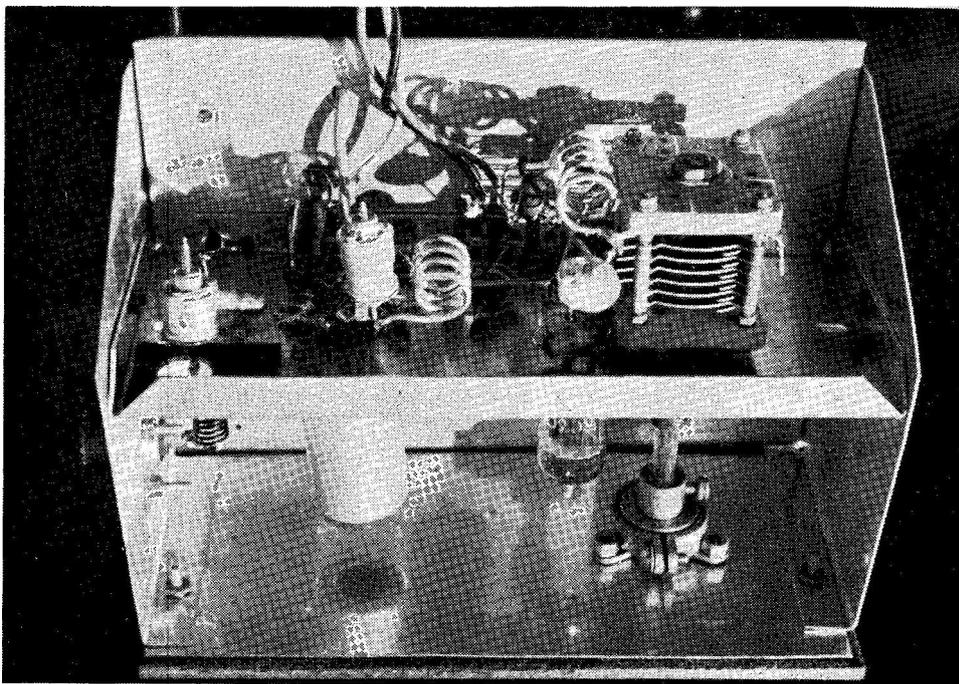


Fig. 3,

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Construction of SEO two-metre Receiver.

### Coils and Chokes

If no means of checking frequency are immediately available, the coils should be made as nearly as possible as described. A grid dip oscillator is useful for checking resonant frequency, or for adjusting the coils, or alternative windings.

L1, L2 and L3 are self-supporting. Anchor the wire to some firm support, and stretch it. Make the required number of turns by rotating some object of suitable diameter in the hands, keeping tension on the wire. Take the coil off its temporary former, and separate the turns as required.

L1 has seven turns of 22g. wire, and is  $\frac{3}{8}$  in. long and  $\frac{3}{8}$  in. outside diameter. L2 has four turns of 16g. wire, tapped  $1\frac{1}{2}$  turns from the anode end, and is  $\frac{1}{8}$  in. long and  $\frac{1}{2}$  in. outside diameter. L3 is five turns of 16g.,  $1\frac{1}{8}$  in. long and  $\frac{1}{2}$  in. outside diameter. It is centre-tapped for R5.

RFC1 is 50 turns close-wound, of 24g. enamelled wire, and  $\frac{7}{32}$  in. outside diameter. RFC2 has 30 turns of 22g. enam., again close-wound, and is of  $\frac{7}{16}$  in. outside diameter. RFC3 is the same as RFC2.

L4 and L5 are both on a  $\frac{9}{32}$  in. diameter cored former, of the *Aladdin* type. L4 is  $11\frac{1}{2}$  turns of 24g. close-wound, and L5 is 6 turns of 32g. wire, put on immediately adjacent to the HT end of L4.

L4 must be resonant at the main receiver tuning frequency, which is of course the IF chosen—in this case, 10 mc. This is checked by adjusting the core of L4 for maximum signal strength or noise.

### Constructional Points

The converter is built almost entirely on a 7 x 3 in. plate with  $\frac{1}{2}$  in. flanges, afterwards mounted vertically on a 7 x 5 in. chassis. Brackets about 5 x 5 in. support the 7 x 3 in. plate and panel. The whole must be rigid—see photographs.

Fig. 2 shows the arrangement of the 7 x 3 in. plate, and Fig. 3 the construction on it. Tag strips help support RFC1 and RFC2/3, with C1, and R2, R5. Coils and chokes should be kept at least  $\frac{1}{2}$  in. from the metal. Coils, also C2, C3, C7, trimmer T2 and other elements of the tuned circuits must have the *shortest possible* leads.

VC1 is mounted with its spindle through a clearance hole, and is controlled through a length of insulated rod, having a flexible coupling of the usual type.

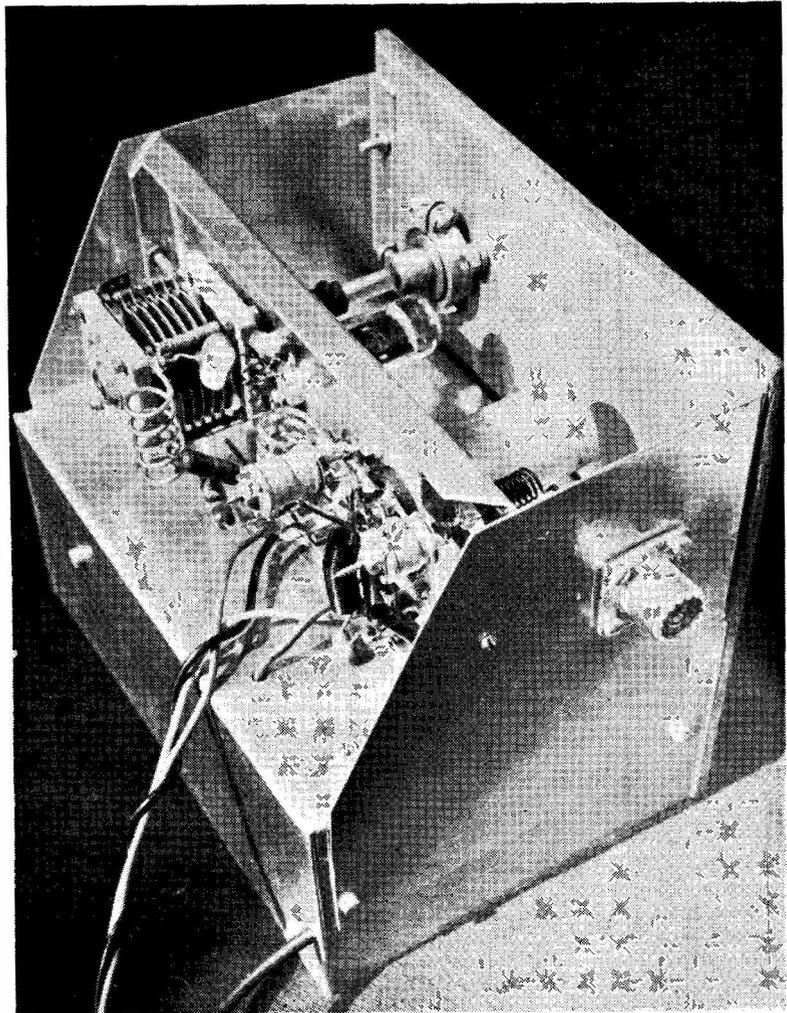
C3 is soldered to L2 after fitting L2. Cx is one full turn of insulated connecting wire round the lead to tag 2. With L4 under the chassis and a co-axial lead from L5 to the receiver, pick-up at the intermediate frequency of 10 mc was not found to be troublesome. Any strong signals near the 10 mc IF can be dodged by slight adjustment on VC1.

### Power Supply

The valve heaters require 6.3v. at 0.45A. If this cannot be taken off the main receiver, a separate power pack can be used, or a heater transformer for the converter only.

The HT supply can be about 190v. to 270v., at 10-12mA or so. If the converter is only occasionally

Another view of the constructional layout of the G3OGR two-metre converter—compare with drawings on p.218 and photograph, p.219. The socket on the near side of the supporting bracket is for aerial input—it could just as well be the standard-type Belling-Lee coax socket.



used and draws heater current from the receiver, a switch should be placed in the heater circuit.

#### Aerial

With a short vertical aerial (about  $\frac{1}{4}$ -wave) standing directly from the converter aerial socket, fairly strong signals were received up to about 25 miles.

A half-wave dipole gave much improved results. It was made with stout wire, to an overall length of  $38\frac{1}{2}$  in. (for 145 mc). Rods or tubes would be better. Each can be 19 in. long, mounted with their inner ends  $\frac{1}{2}$  in. apart on insulated material. A co-axial feeder or twin lead feeder runs to the converter. This aerial is easy to make, and can be raised on a light pole or lath, or may be used indoors. It can be easily rotated, or its polarisation changed, *e.g.* horizontal or vertical. Directors and a reflector could be readily added. The "best DX" reception of amateur signals with this simple dipole, 20 ft. high out-of-doors, was over a distance of 200 miles. Normally, something more like an "optical range"

(10-50 miles) is expected. For a first test it is probably as well to choose a probable high activity period, such as a weekend.

Those readers within a range of 25 miles or so of Wrotham, Kent—and perhaps as far as 50 miles in a north-westerly direction—will find a very useful, continuous marker signal at 144.5 mc, under the callsign GB3VHF. This is a reliable beacon signal, identifying itself in Morse at short intervals. Other such beacons are GB3CTC, Redruth, Cornwall, on 144.13 mc; GB3GW, Swansea, 144.25 mc; and GB3GM, Thurso, 144.995 mc. All these signals are, of course, in the two-metre amateur band of 144-146 mc.

#### Receiver Connection

Most communications type receiver have around 75 to 300 ohm input. A short piece of co-axial cable runs from L5 to the receiver. The outer brading is earthed at the receiver. An unscreened receiver or lead is *not* recommended.

### Adjustments

The main receiver tuning should be set to avoid unnecessary pick-up of signals direct. This is in fact easier with a variable oscillator such as V2, because if wanted signals fall on a "dirty" frequency, VC1 can be slightly adjusted, to bring them into a clearer IF channel.

L4 may, if wished, be peaked by removing HT from the converter, attaching a *short* temporary wire as aerial to tag 1 of V1B, and tuning the core of L4 for best reception of some 10 mc or adjacent transmission. Subsequently, peak L4 when operating through the converter in the usual way.

Trimmer T1 should be about half closed, and T2 nearly fully open. An insulated tool is necessary to suit these trimmers. When rotating VC1 brings in signals in the wanted band, T1 and T2 are adjusted for best results.

VC1 is not normally used for continuous tuning, but is employed to bring the converter output within the range of frequencies it is convenient to tune with the main receiver. L3 may be operated above or below the signal frequency. With 10 mc IF, the 2nd channel shows up at 20 mc separation.

Satisfactory results should be expected without changes to the circuit, though L1 could be modified

for best results with a particular aerial or feeder. The working frequency of L2 and L3 can be raised by stretching the coils, or lowered by compressing them to bring turns more closely together. This has quite a significant effect on coverage. VC1 could also be  $8 + 8 \mu\mu\text{F}$ , with a pre-set across L3, or L3 modified to suit.

R4 and mixer injection can be modified. For most signals, weak mixer injection (Cx too small) will degrade performance more than having a little too much injection. Increasing Cx, reducing C3, increasing R4, or raising the voltage to V2 all increase the relative injection level.

*Editorial Note:* Though VHF converters having self-excited oscillators do not find much favour these days among serious workers, in fact, if the oscillator can be made reasonably stable and drift-free, they have certain advantages: Simplicity, making it quick and easy to get going on the band; the facility of being able to pick a clear IF channel; and wide frequency coverage at full sensitivity. Indeed, a transistorised version of the converter described here, using for its oscillator one of the modern, highly stable VHF transistors, should give excellent results with the minimum of complication.

## BOOK REVIEW

### AMATEUR RADIO DX HANDBOOK

(by Don Miller, W9WNV)

**M**ENTION of W9WNV (the author of this book) inevitably brings out arguments of quite remarkable heat between DX addicts all over the world—but it is necessary to put aside any strong personal views either way when considering this volume in terms of its true worth to the avid, or indeed anti-, DX chaser.

While one can debate some of the points W9WNV brings up as being more applicable to the Stateside operator than the U.K. station, it is also true to say that anyone who reads and thoroughly digests the contents of the *Amateur Radio DX Handbook* cannot but become a better operator.

Quite apart from the comments on the operating methods which should be used (as seen from the point of view of the chappie at the "sharp-end" of the pile-up), there is no doubt at all that Dr. Miller has "done his homework" before discussing the various factors that go into the making of a successful DX-chaser in a populous area such as the U.K. or United States; in discussing in far more detail than is possible within the orbit of the R.A.E. the technical and ionospheric imponderables; and the ways and means by which the intending entrant in a contest may so get organised as to offer himself the best chance of putting up a high score.

Apart from the matter of DX-ing from the home station, there is also much interesting and useful material for the keen type who proposes to make himself into a wanted DX operator by going off on an expedition—

and, incidentally, he points up vividly the reasoning which makes responsible people in the world of Amateur Radio feel that the organised DX-pedition is a help to the cause of our hobby when the frequency allocation arguments come round every so many years.

A comprehensive list of world QSL Bureaux and their addresses, and of the addresses of the more popular QSL managers, is extremely useful, and saves much time hunting up the required information from the current issue of the *Callbook*. Full rules for some of the major contests and awards are very handy, and the selection includes only the ones which are of major international importance and interest.

The discussion on aerials for DX is quite definitely of interest, and includes dimensions of several good arrays which can be pre-cut to give results, also some comment on the Quad-vs-Yagi arguments. About phone, his observations about speech-clippers and their usefulness in working DX is surprising but very thought-provoking.

To sum up: This book is a very worthwhile buy indeed for anyone remotely interested in DX—and who among us is not, to some extent?—on any of the bands between 1.8 and 30 mc, and its contents, if properly digested, cannot but improve the station results and the ability of its operator. For the real DX enthusiast, whether licensed or SWL, there is an enormous amount of useful information that will make it one of the most-used shack aids. *E.P.E.*

**EDITORIAL NOTE:** The "Amateur Radio DX Handbook," by Don Miller, W9WNV, of DX-pedition fame, costs 42s. post free and is available, immediately from stock, by order on our Publications Dept., Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

## LINEAR AMPLIFIER FOR TWO METRES

### CONTROL UNIT—CONSTRUCTION —SETTING UP, TESTING AND OPERATION

#### Part II

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**B**EFORE carrying on with further details, and reference the PSU diagram Fig. 2 on p.158, May, please note that there should be a connection to earth from the junction of C5, R12 (top, pos. side)—also that the elements R3, D1, C2 and C3, D2, R4 are each *times* 6, as explained on p.159, May.

Turning now to where we left off last time: For the bias control, one could of course use a more conventional circuit with a potentiometer across a fixed negative supply, but this generally involves the use of high wattage, and therefore expensive, variable resistors for comparable results. Any low-impedance triode valve capable of passing 5 mA or so will serve in this position.

It will be noted that the HT is on all the time that the linear is in use. This was deemed preferable to switching it by p-t-t to Vox operation, as the surge current is high, and for this reason also, a sturdy relay with high current contacts was used to connect the primary to the supply source.

Panel meters measure bias voltage and HT, and a small signal lamp indicates when the HT is switched on.

#### CONTROL UNIT

As indicated under "General Considerations," the linear was to be operated remotely, and some indication of performance at the operating position was therefore required. The control unit to be described fulfils this function. The circuit is shown in Fig. 3, opposite.

Mains switching is arranged in such a way that potentials can be applied only in the correct time sequence—that is to say that the blower, heaters and bias supplies must be on before HT can be applied, and small mains neons indicate this. Grids are individually monitored by a switched 5 mA meter so that the two valves can be correctly balanced for grid current and/or screen current by means of the differential capacitor in the grid circuit. A switched centre-zero meter is required for the two screens since the screen currents can be negative under some operating conditions. The type of construction used for the anode circuit makes it impossible to indicate balance of the two valves by metering individual anode currents, and equality of screen current is possibly the best indication, although with this particular design, it was found that balancing the grid currents resulted in equal screen currents in any case. Small thermometers placed in front of the air outlets from the anode lines showed equal temperatures and indicated reasonable RF and DC balance. A single 600 mA meter measures total anode current.

The variable bias control was incorporated in the unit as a matter of convenience, but this requires little adjustment in use and it could be built into the power supply chassis alongside the valve if desired. Relay switching supplies are also routed through the control unit.

After application of the correct operating potentials to the valve electrodes, control of the linear is *via* a key switch at the operating position and the p-t-t or Vox switches in the prime mover. The sequence of operations is as follows: In the neutral position of the keyswitch, the receiver is operative and cut-off bias is applied to the 4X150's by means of the open contacts on RLY2 on the power supply chassis. Moving the keyswitch to the next position transfers the antenna from the receiver to the transmitter and shorts and earths the input to the converter *via* coaxial relays in the transverter. The receiver is muted. The third position of the keyswitch makes RLY2 contacts and applies operating bias to the valves. Operation of the Vox or p-t-t circuits in the prime mover then supplies drive to the linear from the transverter. A reverse sequence applies when switching off.

#### CONSTRUCTION

General layout of the amplifier is shown in Fig. 4, p.224. The only critical part of the construction is that adopted for the amplifier, and if this is varied it is possible that changes will be required in the neutralising and output coupling arrangements. If an open chassis is used there will be considerable radiation loss from the anode lines, apart from the possibility of RF circulating around the shack with attendant feedback problems. The tuning discs cover from 135 mc to 150 mc with the dimensions given, so there is plenty of latitude here, but close or greater spacing of the chassis cover will cause this range to vary, so if some other box depth than the 4½in. specified is used, the size of the discs may need adjustment. The valveholders are spaced 3½in. centre-to-centre and are mounted halfway up the vertical screen separating the grid and anode compartments.

The anode lines are constructed from "Yorkshire" 1½in. diameter (internal) copper tube to the dimensions given in Fig. 4. The short is made from two T-pieces of the same material, cut and soldered as shown in the diagram, and is supported on a stand-off insulator to which connection is made by a 2 BA rod dropping down through the tube and to which the HT supply is connected

via the decoupling resistor. The lines are a tight push fit over the anodes. They may need a little skimming out or, alternatively, light saw cuts at right angles to each other in the ends.

The tuning discs are made from  $\frac{1}{8}$  inch brass and are 2 $\frac{3}{4}$  in. in diameter. They are carried on O BA studding, passing through locking nuts soldered on to the anode lines in the case of the fixed plate, and through tapped bushing for the variable plate. It is essential that there should be good contact between the movable disc and the associated anode line. A flexible coupler and quarter-inch polystyrene rod are used to carry the shaft and front panel knob.

Output coupling is by Pawsey stub, dimensions and construction being shown in Fig. 5, overleaf. The shorted ends of the lines are set into a strip of polystyrene bolted to the chassis and supported  $\frac{3}{8}$  inch above the anode lines and anchored at the far end by polystyrene straps, the height of which is adjusted by means of the 2 BA rod on which they are mounted. This spacing is *critical*, affecting as it does both the output power and the tuning of the anodes and the stub, and it is recommended that the effect of varying it should be investigated during the line-up process. The stub tuning capacitor

is soldered directly on to the ends of the lines with the shaft coupled to bevel gears to permit operation from the front panel. Maximum possible spacing is used between the horizontal shaft and the bottom of the anode lines, and in order to achieve a symmetrical front panel layout, the shaft is coupled by Meccano gears and chain to an idler in an appropriate location on the side of the chassis. Other layouts may permit screwdriver adjustment of this control through a hole in the top cover of the amplifier, in which case a slot may be cut

**Table of Values**

Fig. 3. Control and Monitor Unit

R1, R2,	SKT2 = 7-pin Belling-Lee, ♀
R3, R4 = 100 ohms, $\frac{1}{2}$ watt	SKT3 = 10-pin Belling-Lee, ♂
R5 = 50,000 ohms wire-wound	SKT4 = standard three-pin
SW1-6 = DPDT mains type	SKT5 = standard two-pin
P1-P4 = Miniature mains neons	SKT6 = three-pin mains Belling-Lee
F1, F2 = 50 mA cartridge fuses	M1 = 25-0.25 mA centre zero
F3 = 5A do.	M2 = 5 mA FSD
F4 = 2A do.	M3 = 500 mA FSD
F5 F6 = 5A do.	
SKT1 = 7-pin Belling-Lee, ♂	

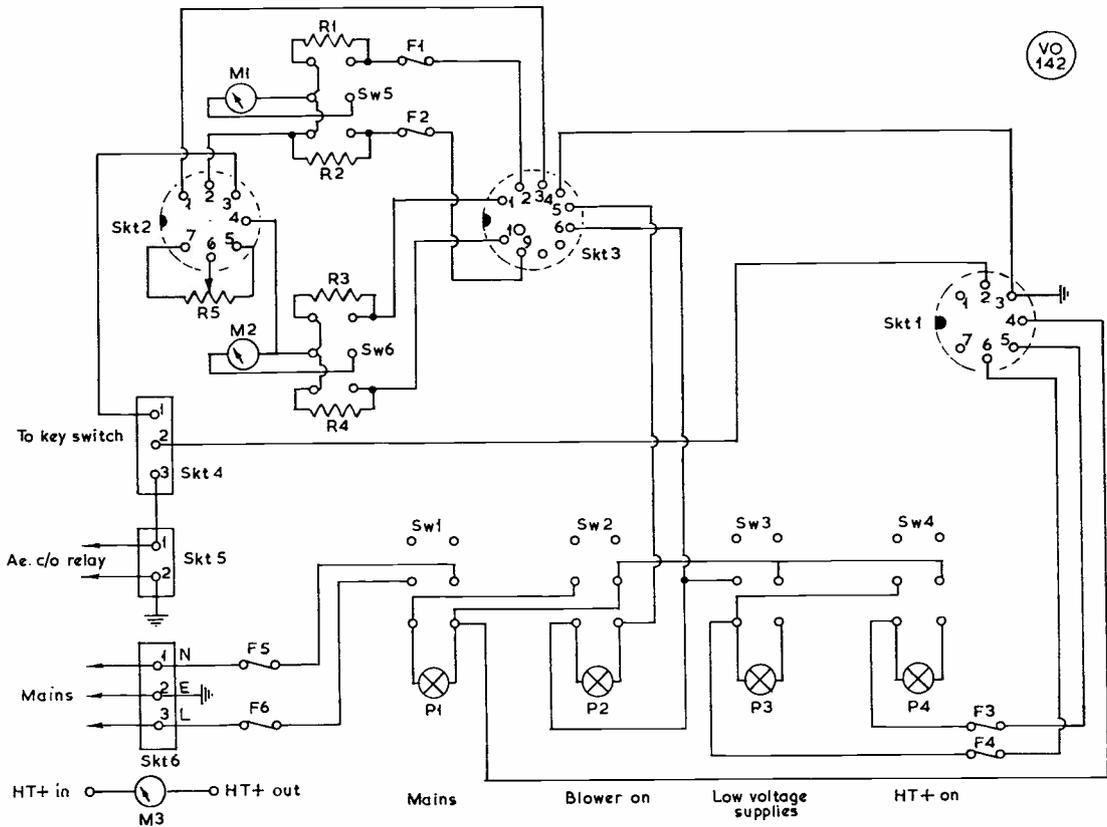


Fig. 3

Fig. 3. Circuitry of the Control Unit—see text.

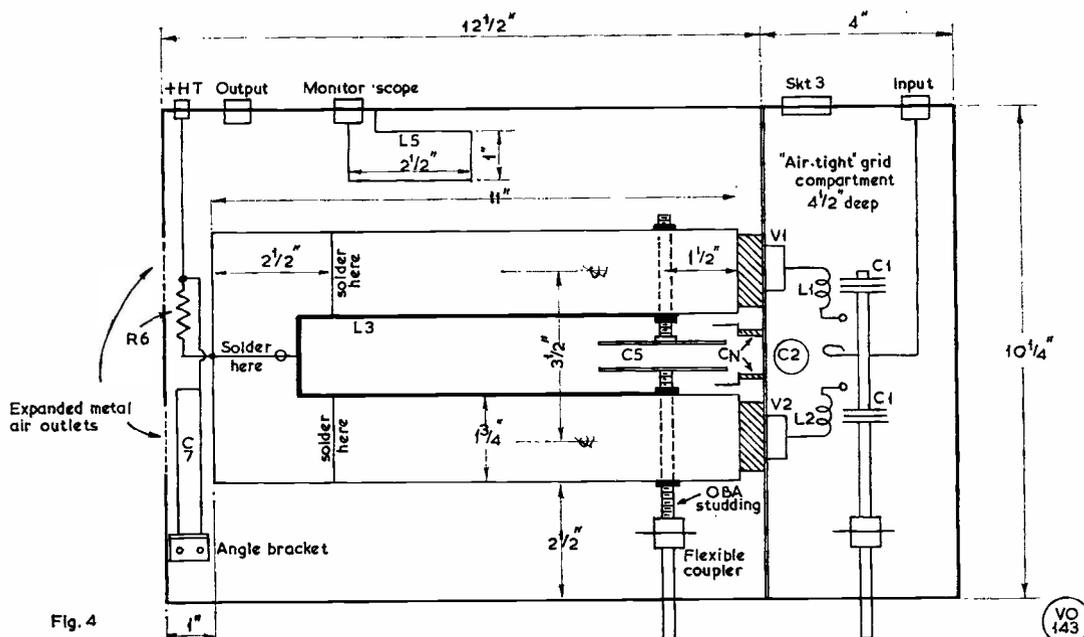


Fig. 4. General constructional layout of the Two-Metre Linear Amplifier—see text pp.222-223.

in the top of the capacitor shaft and an insulated tube slipped over it and brought up through the cover.

The grid compartment is made airtight by sealing with *Isopon*, and the blower is secured to the removable cover through a rubber gasket, the air entering the compartment through a hole two inches in diameter immediately above the tuning capacitor, and exhausting through the valve sockets and the anode tubes.

The power supply is built on a 19in. x 10in. chassis and follows normal practice. A point to watch is that the smoothing capacitor cases must be adequately insulated from each other and from earth, and that their working voltage rating must exceed 1.4 times the half secondary r.m.s. voltage rating.

The control unit construction calls for no special comment.

The completed installation is housed in a frame made from one-inch angle iron, the front panel, which carries the bias and EHT meters and an indicator lamp, being of 18 gauge tinplate, and the sides and back of expanded metal. A shelf above the power supply carries the amplifier with the blower projecting downwards into the power supply compartment. Panels are finished off with *Holt's* Car Enamel spray which gives an attractive finish and is very easy to use.

#### INITIAL SETTING-UP

The first step in the setting-up process is to check that the valves are receiving the correct heater voltage measured at the electrodes *with the blower on*. This done, the amplifier must now be neutralised. Any of the usual methods may be employed for checking this. The writer

used a sensitive RF meter loosely coupled to the anode lines. With the blower and heaters on and the DC leads at anode and screen broken, the grid bias was reduced to about ten volts and a 144 mc carrier of an amplitude sufficient to give a reading on the grid meter was fed in. The grid circuit was tuned to resonance and the differential capacitor adjusted to give equal grid currents in each valve. Main grid tuning and balance adjustments are interdependent and correct settings a little tricky to achieve. The anode circuit was then resonated as indicated by maximum reading on the RF meter. Very little neutralisation will be required if the layout is followed. The cross-connected grid wires brought out through the screen between the grid and anode compartments projected some one inch and were pointed towards the valve anodes. Small, equal amounts were then trimmed off each until neutralisation, as indicated by the RF meter and grid current meter, was complete. The lid was then placed in position on the anode compartment of the chassis and a further check made. A slight change in the spacing of wires, now just half an inch long, completed the adjustment. It cannot be stressed too strongly that a linear amplifier *must* be neutralised most carefully and completely, even though tetrodes are used. Unlike Class-C stages (in which most multi-grid valves can be operated without oscillation being apparent in the absence of neutralisation) the input capacitance of the linear will be affected by the amplifier gain, which varies over the RF cycle, and severe distortion is bound to result. A final check on the neutralisation with the amplifier operating at full power into a dummy load showed no further adjustment to be necessary.

ADJUSTMENT AND OPERATION

Before proceeding with a description of this next step, it might be helpful to say just a few words about the choice of operating potentials. As already mentioned, these are not critical and can be anything between 1000 and 1600 volts on the anode and 250 to 350 volts on the screens, with grid bias around 50 volts depending on the mode and the valve characteristics. Screen voltage must be stabilised and the anode supply should be stiff to avoid flat-topping at modulation peaks. Raising the screen volts will decrease the amount of drive voltage required, the limit being the rated screen dissipation. Lowering the screen volts will require more drive voltage, the limit then being the rated *grid* dissipation. Change of grid and screen potentials will have a considerable effect on the anode current of the valves, but changing the anode potential virtually none, since the tetrode is essentially a constant current device. For this reason tuning a linear by anode dip is not feasible. If changes are to be made in the applied potentials, then currents will change in accordance with the three halves law. For example, if the screen volts are doubled, then to retain the shape of the dynamic characteristic, anode and grid volts should also be doubled and the anode current will then become  $2^{3/2}$  or 2.8 times the previous value.

The same factors must be applied if the screen volts are halved. Raising the screen volts can lead to an undesirably high value of standing anode current which cannot be reduced except by lowering the anode volts with subsequent reduction of output power, or raising the grid volts with the possible introduction of bottom-bend distortion. Final choice of values may be dictated by the availability of components for the power supplies, but should not differ significantly from the limits quoted here, which represent an acceptable compromise, unless due consideration is given to these factors and close attention paid to the manufacturer's recommendations.

Since operation as an AM linear calls for the most critical adjustment, the amplifier was first lined up in this mode. A change to another mode then calls for nothing more than alteration in bias and drive potentials. Efficiency in this mode is around 35%. Not very high, but all that can be expected without distortion.

A dummy load and power meter were now connected to the output and the oscilloscope to the designated socket. The loading control was set with the plates half meshed and the grid bias high, at about -65 volts. The screen and anode volts may now be applied. The writer, who is a firm believer in Murphy's well-known law, applied reduced voltage by using a Variac in the transformer primary in the first instance. This is quite safe

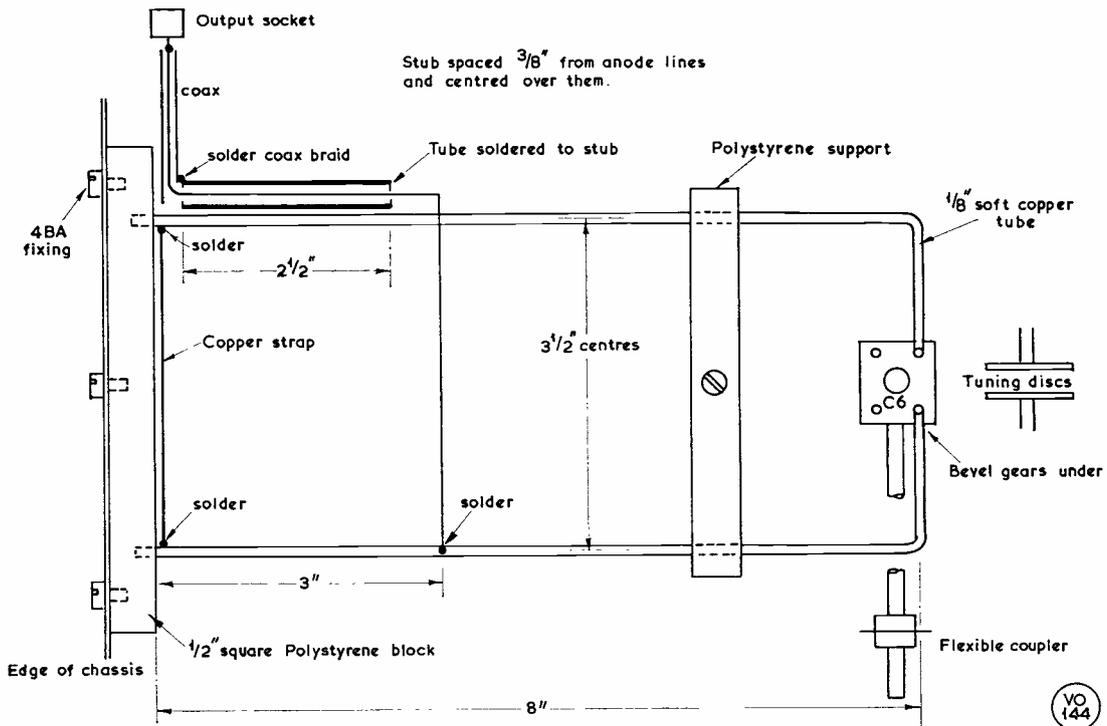


Fig. 5

Fig. 5. The Pawsey stub output coupling for the Linear Amplifier.

as the screen potential rises from zero in step with the anode voltage until the stabilisers operate, at which time the anode volts are about 800 and the screen current slightly negative. More confident, and competent, operators may prefer to apply full potentials immediately. A word of warning here. *Never* operate the linear without a load and *never* apply the screen volts without the anode volts. The bias may now be reduced until a standing current of 50 mA is shown on the anode meter. Sine-wave modulated drive is now fed in until there is a small rise in anode current. Tune the grid circuit for maximum, adjust balance with the differential capacitor and then resonate the anode circuit to obtain maximum reading on the output meter. Observing the oscilloscope, adjust drive, tuning and loading controls for maximum undistorted output. It should be noted that a linear amplifier requires heavier loading than do Class-C stages. Light loading will result in reduced undistorted output and dangerously high positive screen current, which should be slightly *negative* if adjustments are correct. It will be observed that the plate current is controlled mainly by the amount of excitation applied and that the dip at resonance is very small, too small in fact to be a reliable indicator of resonance, and that the tuning and loading controls are interdependent. These adjustments made, full voltages may now be applied to the anodes and screens, the grid bias set to -55 volts and the drive, tuning and loading controls adjusted to give 100 mA of anode current with no grid current and maximum undistorted output. The screen current will be about 2 mA negative under these conditions. With light loading the modulated envelope will show peak flattening long before the rated output is reached. If the loading is too heavy, an increase in input power will not be accompanied by an increase in output power and there is a danger that the anode and screen dissipations may be exceeded. The screen current, in conjunction with the oscilloscope, is the most sensitive indicator of correct operation conditions, and the aim should be to set up the linear that maximum undistorted output as shown on the 'scope coincides with the rated screen current for the other operating parameters. Maximum current in the anode and maximum output shown on the power meter do not necessarily represent maximum *undistorted* output. For 150 watts of input, the output should be just under 50 watts. It is just possible to get 100 watts of carrier out, at the potentials specified, by careful adjustment, but is not recommended for continuous operation.

The sine wave modulation should now be replaced with speech. If all is well, the anode and screen currents, and the output as indicated on the power meter, will remain constant, or at most will show *very* slight upward kicks on modulation peaks. Under no circumstances should there be any indication of grid current flow, and any downward deflection of the meters will usually indicate incorrect drive or incorrect loading, or both.

So far, so good. SSB operation can now be considered. To this end, the grid bias voltage should be reduced to -50 volts to give a standing no signal current for the two valves of 56 mA. If both these conditions cannot be met simultaneously, the bias should be adjusted to the value required to give the correct anode current. A two-tone source should now be connected to the mic. input socket on the prime mover and a quick check

made with the oscilloscope to see that the output is distortionless. Take care not to exceed the valve ratings while this test is in progress. Apply drive to the linear and run the anode current up to 200 mA. Retune all circuits, including the loading control, for maximum undistorted output on the 'scope. Replace the two-tone oscillator input with speech. Adjust the input by means of the drive control in the transverter until grid current just begins to show on the grid meter on speech peaks and then back it off slightly. Modulation should now kick the anode meter up to about 250 mA and the screen meter to about 4 mA. At this input level the oscilloscope should still be showing a good clean signal with no flat-topping. A very small amount of grid current will quickly ruin this state of affairs. Obviously, rather more output will be obtained from 4CX250B's, and it should be possible to reach the full power output of 400 watts p.e.p. as permitted by the Licence. It is not possible to do so with the 4X150A's operated under the conditions described for this amplifier.

#### Finally—

The design, operation and adjustment of linear RF amplifiers is not always as easy as it sounds and they are very intolerant of maladjustment. To those who would like to know more about the subject, the writer recommends that they consult *SSB Principles and Circuits*, by Pappenfuss, Bruene and Schoenike published by McGraw-Hill, and *Amateur Single Sideband* published by Collins Radio Company and available in this country from SHORT WAVE MAGAZINE.

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## BOOK REVIEW

### VHF-UHF MANUAL

THE new *VHF-UHF Manual* prepared by G. R. Jessop, C.Eng., M.I.E.R.E. (G6JP), and published by the Radio Society of Great Britain is good value for money. Subjects covered by various authors include propagation mechanisms, circuitry, antennae and test gear.

Although much of the material included has already been published, there is much that is new and which can add substantially to the state of the art. Notable omissions are references to modern methods of generating SSB at four metres and 70 centimetres, and details of suitable transmitters and receivers for frequencies above 23 centimetres.

The text and diagrams are commendably free from errors and present a well-balanced whole which compares very favourably with similar American publications.

A.H.D.

EDITORIAL NOTE: The cost of the new *VHF-UHF Manual* is 22s. 6d. post free, and is obtainable ex-stock from the Publications Dept., Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

## EASTER JAUNT ON TWO METRES

WITH CAR AND CARAVAN IN THE  
WEST COUNTRY

G. MEACHEN (G8APO)

AS mentioned in "VHF Bands," G8BPY and the writer undertook this little expedition in order to work some of the West Country stations—and perhaps a little GDX—not normally within reach of the home QTH's in London.

At the outset we found that a Minivan will tow the half-ton of a loaded *Sprite* 400 caravan a lot easier than was feared! The ball was set rolling from Emborough, on the north-west slopes of the Mendip Hills in Somerset, on Good Friday night. Conditions at the time seemed to be quite good, and after a few local contacts G8AUE was heard booming in from Derbyshire at 5 and 9 as usual, and shortly after Surrey appeared in the shape of G8BEJ. Buckingham (G8BQH) and Leicestershire (G3SML) were very strong, though G3WFZ in Shropshire was down to 5 and 7. By the end of our second night at Emborough we had raised fifteen counties, the longest haul being up to Lancashire (G3UQK).

Sunday, April 6, saw the stakes pulled and a course set for Sticklepath in Devon—the first mistake. Down in a bowl of hills, we would have needed a beam on a skyhook to get out. So, on Monday morning, on to a caravan site near Dartmouth, and to a great improvement in take-off. The Channel Islands were heard for the first time ever, and an old acquaintance was renewed in the form of G38AAZ/P, with GC8BMO, on Guernsey,

leaping in with a call as soon as we signed with Lawrence.

Tuesday saw the mobile shack arrive at Falmouth in Cornwall—Wednesday saw it depart again rather unhappily—radio conditions from the available caravan sites were very poor. Back to Devon, to Teignmouth, breathing down the neck of G8ADP, who kindly came up to pay us a visit on our cliff-top site. Our thanks are due to him for very thoughtfully going QRT when we found that we couldn't work to the East when beaming straight through his 30 watts. GC's are really a classic case of armchair copy from this site, and the occasional GW can be heard round Dartmoor.

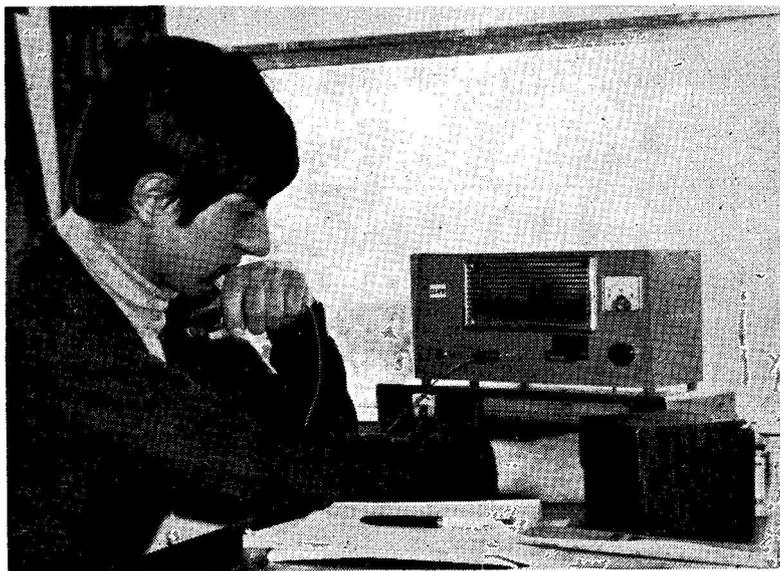
From Devon we moved on to Dorset, and also the end of the good weather. They say that Lulworth Cove is a beauty spot worth seeing—but we couldn't say! The cloud base was down to fifty feet, visibility down to fifty yards, and we really did not know whether we were in the clear or beaming into a hill. Still, we did manage to work into the opposite corner of London, a rather weak but solid contact with G8APJ. We paid a visit in the afternoon to G2CAT, one of the strongest Dorset signals to reach London, and were welcomed very kindly, appearing as we did out of the blue.

The last day of our travels was spent in Wootton Bassett in Wiltshire, with the van parked in the back yard of a local hostelry—very convenient. Wales comes in very well in Wiltshire, though with the Marlborough Downs on the line, London was rather a write-off. The caravan was returned to the Midlands, and a course set for London down the A5. Just after a mobile-to-mobile QSO of about 40 miles into Warwickshire, a very strong signal came in that completely blocked the receiver. We stopped and backed into a gateway to try and resolve it—another mistake. Peter informed me that fifty yards behind us up the drive was a hundred-foot tower with a two-metre beam on it . . . On sorting out the signal it was of course G8BBY. "Would you rotate your beam a

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G8BPY operating the two-metre gear inside the caravan—see picture overleaf. Site here was at Emborough, in the Mendip Hills, Somerset.

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The G8APO/P caravan set-up at Dartmouth. They had good gear and an interesting two-metre schedule, resulting in 105 contacts made in 26 counties, and (to them) 73 new callsigns worked. Who could ask for more on an Easter Jaunt—but these boys, G8APO and G8BPY, plan to do better.

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little, Cyril?" we asked and thus found out that FET's will take an awful lot at very close range and still survive. Of all the gateways to pick. . . .

#### The Log

Back in London we held a post-mortem on the trip, and decided that we had not done too badly—26 counties, 73 new callsigns worked, and 105 contacts made—when we took into consideration the two factors that we had only operated in the evenings after tea, and from caravan sites which rarely command the best radio vantage points.

Yes, we could do better. In August G8APO/P will again be heard from the West, and this time the car will be the mobile QTH unless a *very good* caravan site presents itself. The beam goes up to 11 feet on the car when static and the car goes up on the best hill available.

QSL's are going out 100%, mostly through the Bureau, so if anyone wants one in a hurry, send a card to G8APO, *QTHR*, and the return post will carry the appropriate QSL. Our thanks are due to all those folks who called us and thus helped to make this holiday a very enjoyable one.

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## SPECIALLY ON THE AIR

This looks like being one of the busiest seasons yet for Amateur Radio activity covering—or laid on in connection with—local events of special interest to the general public. And, of course, it provides some opportunity to show what our particular sort of radio is all about. The operators of the stations concerned naturally look for the sort of contacts that can be put on speaker, so that visitors can follow what is going on. Usually, a special QSL card is minted for the occasion.

Following is the list to date. Any further notices to appear under this heading should be sent in good time, with all relevant details in the style given here, to: Editor, SHORT WAVE MAGAZINE, BUCKINGHAM.

- GB3YMC/A, June 1:** At the "Y" Sports Centre, Melrose Close, Loose, Maidstone, in connection with their Mobile Rally on that day, and as part of the YMCA Anniversary Celebration. QSL's via W. E. Kent, G3YCN, 72 Bower Mount Road, Maidstone, Kent.
- GB3FC, June 5-7:** Station to be provided by staff members in connection with the Forestry Commission exhibition in Bush Estate, Edinburgh, for the 15-20-80-160m. bands. A special QSL card will be issued for all contacts and reports. Organiser: W. A. Lindsay-Smith, G3WNI, 22 Kingswood Crescent, Copthorne, Shrewsbury.
- G3VGQ, June 6-8:** For the Steam Engine Fair, in Gayton Road, Kings Lynn, the station of the local YMCA Radio Club will be operating AM on 160m. and two metres, also SSB on all bands 10-80m., from the Friday evening until late on Sunday.—N. Rodgers, G8CLC, 26 Seabank Way, North Lynn, Kings Lynn, Norfolk.
- GB3TSS, June 7:** Operated by the Southend & District Radio Society on the occasion of a gala day and opening of a new swimming pool locally, running SSB on all HF bands and AM on 2-4-160m.—A. C. Wadsworth, G3NPF, 130 Ashingdon Road, Rochford, Essex.
- GB2SMT, June 20-22:** Organised by the Cray Valley Radio Society in connection with the Military Tattoo and Trade Fair, Sidcup Place, Sidcup, Kent, operating on all bands 10-160m., also 4 metres. Contacts will be confirmed on receipt of QSL cards, which should be sent to: D. Buckley, G3VLX, 234 Halfway Street, Sidcup, Kent.
- GW3YBN/A, June 21:** At Ynysygharad Park, Pontypridd, for a large Scout gathering at which the Chief Scout is to be present. Operation will be on 80m. AM and 20m. SSB, and contacts with Scouts or other Scout stations will be specially welcome.—C. M. Parry, GW3PHH, 34 Cae'r-Gwerlas, Tonyrefail, Porth, Glam., South Wales.
- G3WQK, June 27-29:** For the Polegate Steam Engine Rally, a station is to be put on by the Southdown Amateur Radio Society. It is hoped to operate AM/CW/SSB on all bands 10 to 160 metres, 11 a.m. to 9 p.m. daily. It is expected that there will be a high local noise level, electrical and otherwise. QSL cards are being overprinted to cover the event.—A. R. Seabrook, 6 Harebeating Gardens, Hailsham, Sussex.
- GB3RCS, June 28-29:** Operated by the Royal Signals Amateur Radio Society, to coincide with the annual Signals Reunion weekend. Two stations are being put on the air, to cover all bands 10-160m.—R. A. Webb, G3EKL, QTHR.
- GB2MHW, June 29:** Operated for the British branch of the Loyal Order of Moose, from Winscombe, Somerset, to work the Moose Convention station K9VWJ/9, at Mooseheart, Illinois, U.S.A. Licensed brothers interested and able to help with equipment or operating are asked to get in touch with: Bro. R. F. Vowles, G3PFD, 14 Railway Terrace, Fishponds, Bristol (659515), BS16-4LP.
- GB2HRH, June 28-July 6.** For the occasion of the Investiture of the Prince of Wales, at Caernarvon Castle on July 1, station will offer SSB contacts on all bands 10 to 160m. Schedules are invited in all parts of the Commonwealth, and particularly with Welsh-speaking operators. Details (include s.a.e., pse) from: J. G. Evans, G3WET, 22 Sheerfoot Lane, Four Oaks, Sutton Coldfield, Warwickshire, England.
- GB3SFW, July 6-13:** Operating from the Cathedral City of Southwell (Nottinghamshire) during the Festival Week celebrations, running AM/CW/SSB on all bands 10 to 80 metres.—P. A. Scragg, G3YCT, 38 Norwood Gardens, Southwell, Notts.
- G3SFG, July 10-12:** Put on by the Southgate Radio Club for the annual Finchley Carnival, in Victoria Park, London, N.3. Activity will be on all bands 10 to 160m., also on 2m.-4m.—A. G. Edwards, G3MBL, 244 Ballards Lane, London, N.12.
- GB3SUA, July 11-13:** For the 700th anniversary celebrations of the Guild of the Holy Cross in Stratford-upon-Avon; this Guild was the forerunner of the present Borough, which was granted a charter in 1553. The station is being staged at the invitation of, and with assistance from, the Borough Council. Operation will be AM/CW/SSB on 10-15-20-80m. Organisation is by the Stratford-upon-Avon & District Radio Club, and special QSL cards will be issued.—M. J. W. Webb, G3OOQ, 14 Townsend Road, Tiddington, Stratford-upon-Avon, Warwickshire.
- GB3RGD, July 13:** For the annual gala day of Redifon, Ltd., at the Redifon Sports & Social Club, near Crawley, Sussex. Operation is to be on 10-80m., SSB only, and all operators will be employees of the firm.—M. Bath, G3YAB, 54 Barrington Road, Crawley, Sussex.
- GB3WRA, September 6:** Operating from the annual Wycombe Show on The Rye, High Wycombe, Bucks., running all bands 4m. to 160m., AM/CW/SSB. Visiting amateurs will be specially welcome.—A. C. Butcher, G3FSN, 70 Hughenden Avenue, High Wycombe, Bucks.

# VHF BANDS

A. H. DORMER (G3DAH)

ALTHOUGH the four and two metre bands have been fairly quiet during the period under review, the same cannot, fortunately, be said of 70 cm. The night of April 8 saw excellent propagation to the Continent, with PAØ and ON coming through at such strength that several stations were able to exchange good-quality video with them. The North/South path in this country was also open, the reception from stations in the Norfolk area being particularly strong on the South Coast. On May 12 there was another good Continental opening on both 70 cm and two metres, although reception was difficult at times in some areas due to persistent and violent thunderstorms. By 8 p.m. the two-metre band was so full of PAØ in the South and Midlands that it was difficult to get a QRM-free contact. The interesting point about this second opening is that it could have been, and indeed was, forecast with some accuracy by a study of the pressure situation. The high was coming up from the ESE and there was, therefore, a possibility that this would be of the T4 type, which occurs only rarely, but which produces excellent VHF/UHF propagation conditions when it does appear. With the front lying across the Midlands and extending well into the Low Countries, the result was predictable.

Conditions during the May two-metre contest were only average, and most DX paths were subject to severe and prolonged fading. From the point of view of Continental working, the best direction appeared to be towards France, the Dutch and Belgian activity being low and spasmodic. In the U.K., there was little to choose between N/S and E/W, although there might have been a marginal bias in favour of E/W, since five of the GW portables and G3GZJ in Cornwall were worked within the hour at G3DAH (Kent.) A few PAØ were audible at low levels in the Midlands. G3MAX/P (Buxton) worked two F's and four PAØ, and G6CW (Notts) reports hearing an OZ. By and large, though, there seems to have been little to shout about, unless it be the inevitable (?) spate of grossly overmodulated portables on the South Coast and the Pennine Ridge. The Continental stations did not take very kindly to the fact that, although the Contest was timed to coincide with the Region 1 event, it only lasted half the time. One wonders what the portable stations thought of this, too, since having reached their sometimes almost inaccessible locations with much blood, sweat, toil and tears, they were only operating for a few hours on the Sunday.

#### Four-Metre Results

G3JHM, secretary of the South Coast VHF Group, reports two more "Firsts." On March 20, between 1925z and 2025z, ZE1AZC was heard by G3JVL peaking to 559 in 100 c.p.s. bandwidth. This was an example of transequatorial propagation and is the first recorded case of reception in the U.K. at this frequency (50 mc) in this mode.

On April 4 at 1350z, G3JVL was checking 50 mc and to his amazement heard ZS3B in Windhoek calling CQ at 599+! Further signals were heard at 1407z and 1425z, when ZS3B was working ZB2BC on six metres, and his SSB was audible shortly afterwards at just above the noise level. This was the first recorded reception of ZS3 on 50 mc in this country, and certainly the first 50 mc F2/TE

reception during the present solar cycle.

There should be more activity from Gibraltar this year as, in addition to ZB2VHF, ZB2BC, ZB2BO, ZB2BL and ZB2BS will all be QRV on 70 mc. With the June Sporadic-E season almost here, some useful frequencies to note are the following: ZB2VHF (Beacon) 50-009 mc, 70-37 mc, 145-13 mc; ZB2BC, 50-042 mc, 70-26 mc, 70-48 mc; ZB2BL, 70-28 mc; ZB2BO, 50-038 mc, 70-198, 70-258, 70-47 mc and 144-053 mc (manual); TF3EA, 70-25 mc.

ZB2BO and ZB2BC will be able to operate on 50 mc and 70 mc and will welcome crossband QSO's, so dust off the RF-26's. ZB2BL will be a new station on 70 mc this season, and will have a Pye Reporter at a QTH with a fair take-off for the U.K. ZB2BC will have a new 70 mc JXK converter which should give better results than were possible with the gear used last year.

All the ZB2 stations will monitor 70-26 mc for openings, but once the path is established, they ask that stations spread out over the whole of the band, leaving 70-26 clear for mobiles.

9H1BL (ex-G3MOJ), is awaiting a converter from the U.K., and will then also monitor four metres, probably from the beginning of June for crossband contacts with U.K. stations on 28-260 mc. The antenna there is a two-element Quad at 60ft. a.s.l.

TF3EA in Reykjavik will be active again this season, so it will be worth while looking North for an *Es* contact there. The link station in the Faroes on 70-49 mc may well be a good pointer to conditions on this path.

G3JHM will be particularly grateful for reports of *Es* contacts, and especially reports of "double-hop" reception, as part of the current research programme. Stations at "double-hop" distance from the U.K. are in Cyprus on 70-00 mc, 70-2 mc, 70-4 mc and 70-6 mc, and the Canaries on 70-1 mc.

#### VHFCC Awards

Awards this month go to G8BQX, G8APZ, G8BQH and

G8APJ—all for operation on two metres, and to G8ARM for his work on 70 cm. Congratulations!

John Ridd, G8BQX, St. Leonards-on-Sea, Sussex, has a Pye Base station running 25 watts to a QQV06-40A. The antenna is a *J-Beam* Parabeam at 30ft. On the receiving side, the converter is a JXK feeding a B.40. Although the QTH is reasonably high, some 200ft. or so a.s.l., it is badly screened to the North by hills rising to 450 feet within a mile. However, the ground slopes away towards the Channel, and this accounts for the excellent results achieved in that direction. The writer has had a QSO with John from F2XO in Boulogne, and although the QRK is not quite up to G2JF standard, it is pretty potent, as witness also the fact that some 90 French stations have now been worked with the best DX as F9NL in the Pyrénées. The QSL rate on the band follows the normal pattern, it seems, with 342 stations worked and only 102 confirmations — about a 30% return rate! One thing of which one can be pretty sure is that John is not having any TVI problems—he works in the Radio Investigation Branch of the GPO!

G8APZ, Robin Lucas, gains his Award for operations from Hounslow in Middlesex. The transmitter runs 35 watts input to a QQV03-25, an improved version of the QQV03-30A, and this feeds into an 8-ele Yagi at 34 feet. The QTH is 70 feet a.s.l., and so not all that good for VHF. The home-built converter has an AF239 pre-amp into a 2N3819 and tunes 3-5 mc into an R.107. The QSL return rate seems to be above average, with 240 stations worked and 107 confirmations, getting on for the 50% mark.

Possibly while the ploughman was homeward plodding his weary way, Mike Marsden was knocking off the DX from his Stoke Poges QTH, to gain an award for G8BQH. He has now worked over 200 stations on two metres, and although every contact had been QSL'd, the return rate is only about 50%. The transmitter runs a QQV03-10, in the final, modulated by a pair of EL84's. The 8-element Yagi is at 34ft. and

the QTH at 260ft. a.s.l. A tunable converter is in use, and produces an IF of 10.25 mc into an R.1155 receiver. Mike seems to go in for lengthy QSO's, the latest with G8CAI lasting for seven hours, during which time 'BQH built himself an inverter, and 'CAI sorted out the trouble on a modulator.

From Leyton in London, G8APJ runs 18 watts to a QQV03-10, also with an 8-ele Yagi, at 35ft. The receiving gear includes a 6CW4 converter and an R.107 tuning 4-6 mc. Modulation is by an EL84. Ken Punshon is also interested in 70 cm operation, and has a QQV02-6 tripler driven by the two-metre transmitter, and uses the same modulator. The receiver is either a JXK converter tuning 12-14 mc, or a wide-band tuner feeding the TV set. The beam, which is at 45ft., is a 8/8 slot-fed Yagi. He will be con-

centrating on the higher frequency band from now on.

Finally, the Award for 70 cm operations comes to Brian Pickrell of Blackheath, London, who runs a DET-24 in a co-axial cavity with 18 watts to the 2 x 18 element Parabeams, the top section being 37ft. up. The site at 150ft. a.s.l. has a fine take-off across the Thames Valley to the NW. The modulator is transistorised with bass and treble cut/boost and a roll-off at 6 kc by means of a feedback network, the output stage being a pair of OC28's. The converter has two BF180's in the preamp and a FET mixer; IF strip is a Mohican Rx. Brian has paid much attention to the antenna feeder and now uses *Aerilite 363* which is  $\frac{1}{2}$ in. in diameter and has a loss of only 1.75dB/100ft. The new Tx uses transistors up to the 216 mc stage (BSX19's) and runs from a 72 mc xtal operating in

### THREE-BAND ANNUAL VHF TABLE

January to December, 1969

Station	FOUR METRES		TWO METRES		70 CENTIMETRES		TOTAL pts.
	Counties	Countries	Counties	Countries	Counties	Countries	
G3DAH	9	1	44	12	10	1	77
G3COJ	10	2	36	7	17	4	76
G8BMD	—	—	39	6	21	3	69
G8AUE*	—	—	39	2	21	4	66
G3LAS	20	1	36	4	—	—	61
G2AXI	15	2	32	5	4	1	59
G8APZ	—	—	29	5	12	2	48
G3EHM	—	—	35	7	5	1	48
G3ADP/A	—	—	32	3	6	5	46
EI6AS	—	—	22	12	—	—	34
G8AUN	—	—	27	6	—	—	33
G8AYN*	—	—	12	1	15	4	32
G3AHB	—	—	20	4	3	1	28
G8APZ	—	—	19	3	5	1	28
GC8AAZ/P	—	—	22	4	—	—	26
G3EKP	8	4	7	3	—	—	22
G8ARM*	—	—	—	—	14	4	18
G3TDH	16	1	—	—	—	—	17
G8BJC	—	—	11	1	—	—	12

\*NOTE On 23 cms, G8AUE has 4+1, G8ARM 2+1 and G8AYN 1+1. This Three-Band Annual Table shows total claims to date from the year commencing January, 1st, 1969. Claims should be sent as here-to-fore to: "VHF Bands," SHORT WAVE MAGAZINE, BUCKINGHAM. Summaries by bands will be published at suitable intervals.

ninth overtone. He is also active on 23 cm.

### Conventions and Exhibitions

The Fifteenth International VHF Convention took place at the Winning Post Hotel, Twickenham, on Saturday, April 26, 1969, and was attended by approximately the same numbers as last year. Some 140 people were at the Dinner.

The Convention this year was characterised by two lecture streams, one for the comparative newcomer to the bands, the other for the more advanced worker. Readers may recall that this idea has been tried before and subsequently discarded in deference to popular request. However, on this occasion, the system appeared to work well, and a good attendance was noted at both sections. An outstanding presentation was that given by SWL Ron Ham, who chose as his subject "Listening on VHF," and illustrated his talk with recordings made over a period of years at his Storrington, Sussex home. In recognition of his work in this field, he was awarded the G5RV Trophy. The 1962 VHF Committee Trophy went to Dietrich Dall, G5AHK, for his home-constructed two-metre SSB equipment.

A point emphasised by after-dinner speakers was slogan-like in its brief pungency—"Use or lose the VHF Bands." This was not just an exhortation by another amateur, but a clear warning from those in high places, which endorses the previously expressed opinion in this Column, that while the new impetus given to activity on two metres by the advent of the G8/3's is very welcome, the wide open spaces of 70 cm are all the more vulnerable to attack by frequency-rapacious authorities, civilian and military alike.

Exhibitors at the Convention included *J-Beam Engineering*, showing examples of multi-element antennae for the amateur, and *Burns Electronics*, a newcomer to the field, had a good-looking crystal calibrator, the CC10, on display. From a 1 mc xtal, a series of dividers produces outputs at 500 kc, 100 kc, 50 kc,

10 kc, and 5 kc, and these up to a frequency of 600 mc. The inclusion of a diode mixer and an audio amplifier enables the gear to be used as a heterodyne wavemeter, and as a monitor for an AM transmitter. An absorption wavemeter covering from 1 mc to 470 mc was another item which must have considerable amateur appeal.

Late flash from the organisers of the Midlands UHF/VHF Convention on June 14 at Wolverhampton: G2HIF, Cliff Sharp, will assist G3NNG during the lecture period, and will be exhibiting his solid-state transmitter. Tickets may still be obtained from J. R. Hartley, 3a Salop Street, Bridgnorth, Shropshire.

### Group Activity

The Leicestershire VHF/UHF Group continues to flourish, and they have organised a (temporary) visit to the County Police Control Room for June 19. For their Summer Supper on July 17, they have selected the Blakeshay Farm Tearoom near Newton Linford, and all interested should contact Jack Hum, G5UM, QTHR, as soon as possible. The Group Friday night net operates between 145.05 mc and 145.3 mc from 8 p.m. and QSY to 433.1 mc to 433.3 mc at about 9 p.m.

The South East UHF/VHF Group May Meeting at Wye College, University of London, saw an attentive audience of some fifty souls listening to Peter Blair, G3LTF, who expounded on the mysteries of MS and EME work, and brought along his paramp. to show how it is done. The next meeting is scheduled for June 20 at Keynes College, University of Kent, Canterbury, at 7.30 p.m.

Next meetings of the South Bucks VHF Club are on June 2, July 2 and August 5, at Bassetsbury Manor, Bassetsbury Lane, High Wycombe, Bucks. Hon. secretary, R. Barton, G3PQH, QTHR.

### DX-Peditions

The G8APZ/G8AZU expedition to Snowdon took place under very unfavourable conditions. Propagation was poor at the time and the weather appalling. The team start-

ed the climb on the Saturday morning, April 12, using the Watkin Path. There had been some snow during the night and when the 2,000ft. contour was reached, they came to the snow-line and the cloud base, reaching the summit at just before noon. The wind was then Force 6 and the cloud was freezing on anything it touched, including hair and beard! Visibility from the top was limited to about ten yards, and so the gear was set up in the shelter of the railway station and then transferred in a rucksack to the trig. point at the top of the mountain, where the four-element beam was anchored down with rocks, and the first CQ call made at 12.20 p.m. Contact was quickly established with stations in Lancashire, but nothing further South than Wolverhampton was heard. The beacons at Wrotham, Redruth and Swansea were not audible at all, and since by this time some half an inch of ice had formed on the aerial, it was decided to call it a day at 1340z. The transmitter was also misbehaving, due to the cold, the temperature was 10° below, and the batteries were not giving full output, presumably for the same reason. Operation at 3,560 feet under those conditions cannot have been much fun, and it is to be hoped that the next trip, which is planned for July, will meet with more success. A great effort, though, to give the county chasers Caernarvon.

Still on expeditions, and the trials and tribulations of the expeditioners, G18AYZ seems to have his fair share of them. As noted in April "VHF Bands," he, G13RXV and G18BDR, went up to the site at Slieve Galleon for the two-metre contest on Saturday, May 3, reckoning that with 35 watts at 1,600 feet, they should be able to knock off some DX. In the event, the only contact they had was with G15AJ, although they did hear G3EKP off the back of his beam. By 2330z they had had enough and called it a day. However, conscience pricked, and 'AYZ decided to return to the fray the following day. The Sunday dawned wet and muggy, with visibility down to a matter of yards only at the foot of Slieve

Galleon. However, after a fairly hairy ascent, he reached the summit and checked with the anchor man, GI3RNY, before getting down to serious contest business. But, alas, the sum total was only three G and one GM for his pains. No wonder Ian asks how many operators announcing that they are tuning from the top end down, really start at 146 mc. He was on 145.98 mc, and it seemed to him that 145.8 mc was the starting point for many. Had he worked all he heard, he would have been a happy man indeed. Best DX was G8ARQ/P at 320 km. Very strong signals were received from G3MAX/P near Buxton, and from G6NB, Aylesbury, who can usually work anything that can hear him and who was blocking the 'AYZ Rx at times, but no contact resulted. Apologies are offered to those who may have called GI8AYZ between 144.6 mc and 144.9 mc without getting any reply, but a TV set about 1½ miles down the valley was re-radiating like fury and blotting out signals in that area. However, now that the gear has been tested, it is likely that either GI8AYZ or GI3RXV will be out portable from the Slieve Galleon site (or from Fir Mountain, some 4m. SW of Tyrone) twice a month. There is also a site at 1,100ft. in Antrim, with a clear take-off towards G, and Ian is willing to oblige with a sked for anyone who wants those counties. Incidentally, he now has an 8/8 slot at the home QTH, and so is looking for G from there also.

G3VRW and G3XAC will both be operating portable from GD over the period July 5 to 13, on Four, Two and 70 cm. Some 25 watts of CW and AM will be available on all bands, and possibly SSB on Four and Two if suitable power supplies are ready in time. Exact sites have yet to be selected, but further details will be given when they become available.

One also hears that Clive Penna and Co. will be operating from GD with the call GB2GD during the September Contest.

**Firsts**

The lists of "Firsts" on two

metres and 70 cm were prepared originally to show only those contacts made by tropospheric or extended tropospheric propagation, and specifically excluded QSO's where satellite, *ARTOB*, *Oscar* or other artificial propagation *media* were involved. However, it has now been decided to broaden the scope by including contacts made *via* Sporadic-E and Aurora, since these do not involve any special equipment or techniques. To the list of Two-Metre "Firsts," published last month, may be added, therefore, a claim by G3EJA for the first G/HG contact; this was with HG1KZC on July 4, 1965, and was made during the phenomenal Sporadic-E opening on that day. Can anyone better this? The G5NF/I1KDB contact took place on the same day. Other "Firsts" to be included in the two-metre list are: GC2FZC/LX1XI on October 11, 1963; GC2FZC/OK2AEI, June 27, 1965; and GC2FZC/GM3FYB on September 26, 1966. There are undoubtedly other records, so may we have your claims in order that a complete list may be produced?

**News Items**

Peter Blair, G3LTF, Galleywood, Essex, has been at it again. He arrived back from the Twickenham Convention on the Saturday night, and on spec. switched on the EME gear, and there was W1FZJ/KP4 at 7½ dB over noise in 100 c.p.s. bandwidth *via* the 2½ dB NF preamp, the paramp. being out of commission at the time. On the following evening, between 2300z and 0130z, a QSO was completed with WB6IOM, whose signal was 12½ dB over noise, and who gave Peter 5 dB "Over audible threshold," whatever that may mean precisely. WB6IOM has organised a series of world-wide EME tests, to have taken place on May 24, and it is hoped to have an analysis of the results in time for the next issue of **SHORT WAVE MAGAZINE**. G3LTF is designing a new dish for 23 cm EME work, and this will be a 15ft. model with an F/D ratio of 0.5 which should give a worthwhile improvement over the present antenna, which has now seen some five years ser-

**70-CENTIMETRE FIRSTS**

G/DL	G2WJ-DL3FM	10/8/53
G/EI	G5YV-EI2W	14/7/55
G/F	G3DIV/A-F8GH	6/9/51
G/GC	G5ZT-GC2FZC	23/9/64
G/GD	G2JT-GD3DA/P	26/8/51
G/GM	G5YV-GM3FYB	30/8/62
G/GW	G4LU-GW2ADZ	3/9/50
G/HB	G3LQR-HB9RG	Date unknown
G/LA	G3LQR-LA9T	4/12/62
G/LX	G3LTF-LX1SI	11/10/63
G/OK	G3LTF-OK1DE	Date unknown
G/ON	G3DIV/A-ON4UV	15/10/51
G/OZ	G3JMA-OZ9AC	3/12/62
G/PA	G3DIV/A-PA0PN	15/10/51
G/SM	G2XV-SM6ANR	17/5/59
<hr/>		
GC/GW	GB2GC-GW3FMY	28/8/66
<hr/>		
GD/EI	GD8AGY/P-EI2W	7/66
GD/GI	GD3DA/P-GI3QOB	17/6/53
GD/GM	GD8AGY/P-GM3FYB	7/66
GD/GW	GD3DA/P-GW5MQ	29/7/51
<hr/>		
GI/GM	GI3QOB-GM6WL/P	7/9/53
GI/EI	GI3KYP/P-EI2W	24/10/64
<hr/>		
GM/EI	GM3FYB-EI2W	16/10/62
GM/GW	GM2JT/P-GW6DP/P	8/10/49
GM/OZ	GM3FYB-OZ7SP	10/11/64
GM/SM	GM3EGW-SM6ANR	1/9/64
<hr/>		
GW/DL	GW2ADZ-DL3FM	1/3/53
GW/EI	GW2ADZ-EI2W	10/7/54
GW/ON	GW2ADZ-ON4UV	1/3/53
GW/PA	GW2ADZ-PA0PN	1/7/53
<hr/>		
EI/F	EI2W-F8MX	9/8/56

vice.

Bill Jarvis, G8APX, is back on the two-metre air from Bushey, having now acquired an XYL, a TW Communicator and a halo. He is moving to Rannoch School, Perthshire, in September and would like to hear from any local GM's with whom he might manage a contact. He plans to be out mobile and/or portable in the mountains for some of the time, so may be able to make it with G from there. Roger Taylor, G8BBB, also newly-wed, is back on from the new QTH just north of Cambridge. Operations are confined to 70 cm at present, but will be extended to 23 cm shortly.

G3BNL and G3MCS have completed a successful contact on 13 cm between Cleeve Hill and High Wycombe, a distance of some 55 miles. His friends will be pleased to know that Vic Hartopp of *J-Beams* has now been allotted the call G8COB. Wonder what antenna he is using? G8CKO is now active on two metres from the Norwich area and would like to arrange afternoon skeds. The address is 74 Earlam Road, Nor-

wich.

Gerald Lander, HB9AJU/G3OOH, takes this Column to task for a statement in the April "VHF Bands" to the effect that of the first hundred stations worked by G3BNR on two metres, eighty were Europeans, and asks what the remaining twenty were. Fair enough, and goes to show how careful one must be with phraseology. So, to the hon. sec. of the International Radio Club and member of the staff of the ITU, our regrets, and thanks for drawing attention to this unfortunate error in terminology!

G8ASR (London) is off the air for a short time during extensive rebuilding of all his gear. He has completed the two-metre installation, which now comprises a 4CX250B in the transmitter final, a fully transistorised receiver and an eight-element beam. The 70 cm gear has yet to be tackled, but will probably have a QV06-40A in the final, with a 24-element beam. The 23 cm tripler using a 2C39A, is complete but the receiver is not yet ready. The beam for the latter band is a 3ft. dish. The QTH is 150ft. a.s.l., so some fairly potent RF should be heard from there before too long. Plans are in hand for portable operation from a site in Oxfordshire, and will include transmissions on four metres with the help of G3NJV. More details later.

G3PQR is now active on 23 cm. He has been receiving signals for the past two years and has finally got the varactor going. First QSO was with G3LQR at 35 miles, although power output was only one watt. The antenna is a five ft. dish, and the QTH is 25ft. a.s.l. PQR is a firm believer in transistors, and receivers on all bands from 70 cm to 13 cm are fully transistorised, and all transmitters except those for 70 cm and 13 cm are also solid state. He would welcome reports and skeds.

G3COJ (High Wycombe) makes a habit of monitoring the WWV transmissions every night for Aurora warnings and this seems a very good idea. The full Table of Geo-alert symbols appeared in the March 1968 issue of *QST*, and is rather too complex to reproduce here, but the thing to look for is

the broadcast every five minutes which takes the form of the letter "U" followed by a number between 1 and 9. This indicates *Unusual* conditions, and the lower the following number, the greater the disturbance, and the higher the possibility of an Auroral opening. The letter "N" followed by a figure, indicates *Normal* conditions.

G8ATK seems to be doing very well from his new QTH in Farnham, Surrey. During the March opening on two metres, he worked 44 F, 11 PAØ, five ON, three DL and two GC. Nice going indeed.

G8BAX (Bradford, Yorks.) is now G3YKD, thanks largely, he says, to the efforts of G3NVE, who has been sending him slow Morse on two metres. These transmissions are continuing on Tuesday and Thursday evenings from 8.30 p.m. onwards, so, for G8/3's and SWL's in the area, the example is there for you.

G6ADZ/T (Rainham, Kent) has now completed a rebuild of the video gear and has already exchanged good pictures with G2WJ/T near Great Dunmow, Essex, G6ADB/T in Hockley, Essex and with a neighbour, G6ADK/T. He is "... in desperate need" of scan coils for a Plumbicon camera, and wonders if any reader can assist. He can be contacted *QTHR* or on 144.57 mc most evenings from about 8 p.m. onwards.

For those who would like to have a go at a cross-channel video QSO, PAØHJC in Delft is now fully equipped with the 4X150A on 70 cm and would welcome skeds.

G8BMI (Keighley, Yorks.) has been occupied of late on matters unconnected with Amateur Radio, but hopes to be operating shortly from Ilkley Moor, with or without headgear!

G8KQF, G3XIY, G8BAV and G8AUE are all QRV on 23 cm from Derbyshire, and G8GGX is building for the band. All operators are also preparing for 13 cm.

### IARU Region 1 Contest

The results of the IARU Region 1 Contest in September, 1968, have now been announced—by the Pol-

ish authorities who on this occasion were adjudicating the event. Although the full results are not yet to hand, it is pleasing to record that the overall winner of the two-metre section was G2JF with a score of 89,043 points, which gave him a clear lead of about 34,000 over the runner-up, PAØHVA, and some 21,000 over the leading portable station, SM7BZX. Although Jim Foster has led the fixed-stations on previous occasions, and so won the PZK Cup, this is the first time that the Region 1 VHF Trophy for the overall top score on two metres has been brought to this country, an achievement which should not be overlooked, and which will take a lot of effort to equal.

British stations were also very successful in the 70 cm and 23 cm portable sections. On 1296 mc, G3LTF and G3NNG shared the first place, followed by G2RD and G3OBD, while on 70 cm, British stations took the first seven places, led by G3LTF and followed by G3NNG once more. Congratulations to all concerned.

### Other Contests

An RTTY contest is being arranged by the British Amateur Radio Teleprinter Group for Saturday and Sunday, September 13/14. Bands to be used are Four, Two and 70 cm, and details may be obtained from Ted Double, G8CDW, *QTHR*, on receipt of an s.a.e.

The Pennine VHF Group are organising a four-metre contest on July 26/27. Details are available from G3RIK, *QTHR*. It may be noted that the Group are offering prizes of Scotch whiskey to the leading stations (!).

During the May two-metre contest, G2JF worked 80 F, 40 G, 25 PAØ, 10 ON, two DL, and two GW. Conditions were only ordinary, he says!!

The two-metre foxhunt organised by G3EMU and G3TDP in Kent on May 11 resulted in a win by the G3DAH/M team after a good run in clear conditions. These events are becoming quite popular in the South and offer a pleasant change from normal Club routine. Further hunts are being arranged, and details can be ob-

tained on request (with s.a.e.) from either G3EMU or G3TDP, *QTHR*.

Forthcoming Contests are the Third 70 mc Portable on June 22, and the Fifth 144 mc (Open) during July 5/6, the latter coinciding with the IARU Region 1 event.

#### They say . . .

This appears to be the season for the wild rumour, so it will be appropriate to scotch one of them

straight away. The suggestion that G8/3's are to be permitted to use only one megacycle of the two-metre band is just too silly for words. It seems to have started at the Manchester Convention in April, and to be derived from comments by one speaker to the effect that, *if our amateur bands are not used to the full we may lose part of them*. This is most certainly true, and the warning has been given loud and clear on many occasions, but a minimum of thought will show how ridiculous

any other interpretation is.

#### Deadline

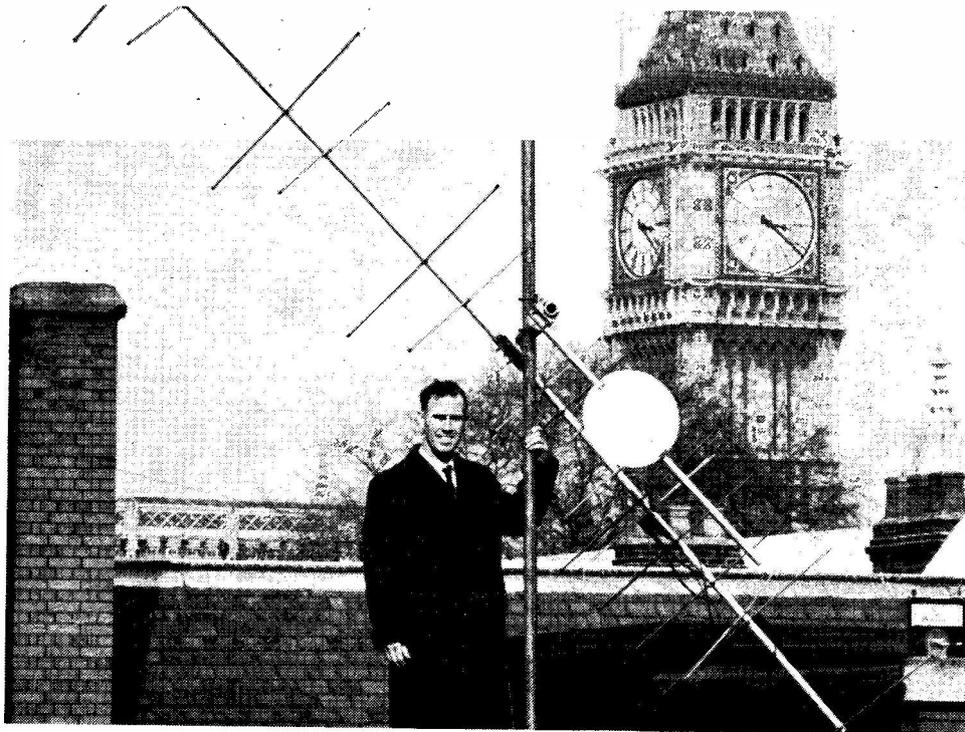
Deadline for the next issue is **June 7**, and the address for news, claims and comment is: "VHF Bands," *SHORT WAVE MAGAZINE* BUCKINGHAM. Cheers for now and *73 de G3DAH*.

**Stop Press:** There was an Aurora on the afternoon of May 15, and although two metres was to some degree affected, the phenomenon was not particularly widespread nor intense.

#### FARADAY MEDAL, I.E.E.

At their January meeting, the Council of the Institution of Electrical Engineers made the 47th award of the Faraday Medal, to Dr. Philip Sporn, C.Eng., F.I.E.E., for his "outstanding pioneering work in the development of the generation, transmission and distribution of electrical power." The Faraday Medal—one of the most sought-after dis-

tinctions in the fields of communications and electrical engineering—is only awarded once a year, for outstanding achievement, without restriction as to nationality, country of residence or even membership of the Institution. The new holder is of Austrian birth, now aged 73, who became an American citizen, and has spent his working life in the U.S.



John Osborne, G3HMO, on the roof of Westminster School, London, S.W.1, with their satellite tracking antenna—a J-Beam crossed Yagi—covering the 137 mc band, in which most of the "working" satellites operate. The transit times and other bearing data have been calculated by computer, and Wx pictures from the American satellites making these regular transmissions are being successfully received. Other apparatus in view includes a large S-meter (bottom right), the inclinometer (central disc), for elevation—and a reliable BST indicator in the background! It will be remembered that when at Stowe School, G3HMO did a lot of original work on amateur radio astronomy, reported in "Short Wave Magazine" at the time.

# COMMUNICATION and DX NEWS

*E. P. Essery, G3KFE*

IN the years since your conductor has been writing this piece, the accusation has often been thrown at him that he is biased in favour either of phone, or CW—depending on just how the particular correspondent read the words used. This is a cross all columnists have to bear. However, without any question of bias, but dealing purely in hard fact, it is possibly instructive to consider just what the relative relationships are as between AM, SSB, and CW, assuming in each case a normally competent operator who is as capable as can reasonably be expected at reading the stuff.

It is a proven fact that the human ear can detect the presence of a single tone at a level of 20 dB below noise. Under the same sort of conditions, slow CW of the order of 5-10 w.p.m. can be copied to around 90% accuracy with a signal as low as 10 dB under the noise. A phone signal usually requires to be at a level at least 4-6 dB above noise for the same degree of readability. If we assume the phone signal to have a 2 kc bandwidth—which is cutting it a bit fine, even for SSB—then it is equally true that our slow CW signal has plenty of room within a 100-cycle bandwidth. If the receiver bandwidth is made as narrow as the circumstances will stand—and there is no need to do otherwise with modern techniques—then there is clearly an advantage of a further 13 dB on the basis of the reduced bandwidth alone. Furthermore, if we make the assumption that the advantage of SSB over AM is the oft-quoted 9 dB—which in practice, as any AM operator of savvy who has changed over to SSB can substantiate, is extremely conservative—then we end up with a situation where, in relative terms, if we assume the weakest CW signal that can be read with our receiver is 0 dB, then we need a signal of +27 dB for similar readability on SSB, and +36 dB in the AM phone case. At a rate of 4 dB per S-point this means the Sidebander

is 7 S-points down on the CW man, and nine on the AM operator, always assuming a clear channel.

What is all this getting at in terms of practical DX working? Just this: That for the average SSB operator with a good aerial system, or the AM chap with a beam, working the VK's and ZL's is really no trick at all provided he comes on at the right time and the band is open. However, for the fellow who has not got a gainy or directive aerial system, but is prepared to work on his receiver and transmitter to obtain the best out of them, then a poor aerial and relatively low power need not debar him from the DX. The criterion is then the ability of that bit between the headphones. Many people never make any serious attempt at working DX, simply because they think they have no chance, even when the TV is not laying down its enormous wet blanket on organised pleasure—but those who do try it, and are ready to spend time on perfecting their *techniques* of operating, will soon find differently. And in the foregoing discussion note the overwhelming advantage of CW!

## Top Band

So much news here that some compression is necessary. On the international front, we have W1BB's admirable *DX Bulletin*. After the January 25 CQ WW affair the bottom dropped out as regards conditions, and things were nothing like as good as they could have been. However, the DX-peditions certainly gave value for money, though PYØDX, St. Peter and St. Paul Rocks, was unsuccessful in terms of 160m. because of equipment damage, landing difficulties and other snags. PJØCC was a lot more successful, and gave out quite a few contacts. DL9KRA came up again from CE3CZ, and Gus, of course, tried Top Band from 6W8, ZD3A and VP8CPR, the first-named giving a little success. Malpelo, HKØTU, has already been covered at some

length in a previous piece, and we can now add KV4FZ at VP2KK (St. Kitts), and VP2VI (Tortola); plans are afoot for Dominica, St. Lucia, Haiti, and others. Add to that VP2GBR (Grenada), TA2E, and VP8KF. W1BB had the most appalling luck with his aerials, but as a consolation prize the "impossible was achieved" when he was heard by JA2CLI—a path which has always been considered out of the Top Band question.

On the question of aerials, a convincing demonstration of the truth of the claims for the DDDR design, a form of which is mentioned in the recent ARRL *Handbooks*: W2RAA constructed one, 80 feet in diameter and only *four feet* above ground and made both CW and SSB contacts on it with G3CFV at 589, CW and SSB.

On the European Trans-Continental Tests with JA, which were not, frankly, very hopeful, it does seem as though at least one European hearing occurred, of JA3BDQ, on January 18 at 2140 local time, when the JA was calling CQ.

W1BB's Alice, W1DQF, is at last on the mend after her serious heart attack last autumn, almost normal but still very weak. Our best wishes to her for a full and complete recovery of health.

On a more local note, G3SED (Portchester) has been using a loaded vertical of forty feet with a goodly supply of radials, and reports that although next to useless for inter-G working, with S7 about the best report, it rather surprised him by producing contacts with K2ANK, WA4LDM, KV4FZ, ZB2AY and TA2E, all with 589 reports. As far as the DX is concerned this is saying that the forty-foot vertical was as good as the previous inverted-Vee at 65 feet—even though pretty useless for U.K. working over GDX distances.

Various people have written TA2E off as a phoney, but the cards are coming through; however a lot of confusion has arisen due to an

incorrect QTH for his QSL manager, VE3ABG. Cards for TA2E should therefore be sent to VE3ABG, J. Caberlin, Box 35, STN "S," Toronto 20, Ontario, Canada.

In view of the wails of people who found Oxford and Hereford to be rare ones, it is interesting to notice that G3VUE/P and G3SVK chose it for their "dummy run" for the more interesting activities to come. The first Saturday evening, some horrible noises were appearing on the signal and G3VUE mentioned generator trouble; then he disappeared just as your scribe was ready to call him, and in seconds GM3NKO/P popped up on the frequency dispensing Arran to all and sundry. The following weekend there was no mistake, the gear was working perfectly, and when G3KFE called them, G3VUE/P came back first call. On the Hereford front, G3RJB says the lads at the Club will be there on Friday evenings, signing with their own call G3YDD from June 6 onwards.

Reverting to the G3VUE/G3SVK set-up, the intent is to do GW, GD, and GM. For the GW outing, the dates are firm, as follows; June 17/18, *Pembrokeshire*; June 19/20, *Cardiganshire*; June 21/22, *Radnorshire*. QSL's this time either direct with s.a.c.—*QTHR*—or *via* Bureau. If no request for a direct return card is requested then cards will automatically go through the Bureau. And the old maestro reminds that no multiple QSO's, no butting-in, no long overs, no rag-chews, and no tuning-up on the frequency—or into the black book you go!—(what *me* too??).

Just as encouragement to the flea-power types, G3YDX recounts how he put a quarter-wave wire up in Somerset with the useful bit in a six-foot gap between houses. The result in a week of evening operating was summed up as 19 countries and five countries.

Nice to hear from G3XGD (Sheffield) with whom your scribe had a near-QSO once which came to an abrupt end when the output of the /M receiver packed up. Glyn, who used to be a follower of our regular "SWL" feature, has spent a lot of time at University and has not only neglected the transmitter but even this *Magazine*—until a batch of cards came in from the

Bureau to lift his enthusiasm and his score in the Tables. The result was a new country, by way of DL9KRA, and a new county—Somerset, G3CQE.

G3XDY (Cleethorpes) has made an improvement by adding a G2DAF transmitter to the shack, and goes up in the tables accordingly; on phone, he rang the bell with G3VUE/P, Oxford; GW3SVY, Carmarthen; GB2GM in Wigtown, Bute and Inverness; GM3PIP, Aberdeen; GM3BQA, East Lothian; GM3YCB, West Lothian; GM3JVC/M, Stirling; GM3WIG, Roxburgh and several others, while CW yielded GM3VJ in Ayr, and G3SVK/P for Oxford. Outside U.K. the most notable was ZB2AY.

Sheppey shelters G2HKU, who had quite a good time on the band, CW giving ZB2AY, G13JEX,

GM3NKO/P on Arran, G3XRZ EI9BG, all around 2100z. Phone yielded GB2GM on Wigtownshire, Bute and Inverness, and PA0PN.

Cyril of G13WSS (Hollywood, Co. Down) had a pretty fair month, with Oxford filled in well and truly thanks to G3VUE and G3SVK, also OL2AKS, OL6AKP, GM3JIJ (Ross and Cromarty), GM3NKO/P on Arran for Buteshire, GB2GM for Inverness, and a couple of GW's in GW3XGP/A and GW3YGH in the same QSO for Carmarthen and Merioneth. Cyril now wants some activity from the rare GM counties and the Scillies to fill in his blanks—your scribe, too!

#### Here and There

A prize miscellany of this-and-that to comment on this month. First, a note from an SWL—Peter

SIX-BAND DX TABLE  
(All-Time Post War)

Station	Countries	28 mc	21 mc	14 mc	7 mc	3.5 mc	1.8 mc
G3DO	336	199	234	329	90	83	9
G3NOF	312	173	210	296	34	39	2
G2DC	336	169	308	328	165	112	20
G3LZQ	254	138	155	201	72	38	8
W6AM	348	131	140	347	116	54	7
G3IGW	204	127	152	168	122	89	42
G3IAR	221	126	161	193	91	73	12
G3PQF	159	103	46	96	84	57	12
G3EJA	106	100	23	51	22	12	2
G3XBY	154	86	105	88	55	50	5
9H1BL	126	83	60	99	40	41	—
G3IDG	122	74	89	55	27	19	11
G3RJB	163	63	45	149	59	37	8
G3VDL	145	59	105	101	53	31	—
G3MDW	116	47	66	83	20	15	7
G3KOR	163	40	57	135	52	39	23
G3NYQ	147	35	70	107	40	30	21
G3SED	136	31	26	66	43	40	39
G3VPS	123	27	42	104	50	36	14
G3WPO	72	11	13	43	45	21	21
G3WJS	61	—	8	47	35	40	14

Note: Placings this month are based on the "28 mc" Column.

Webb (Tiverton)—who is at 319 countries confirmed, but is finding it more difficult to hear the rare ones due to the increasing number of rat-race operators failing to use correct callsigns, sitting on the DX frequency calling him, and generally making themselves a nuisance. This used to be the prerogative of certain countries of Mittel-Europa but more and more G's are branding themselves as lids—and not just new boys at that. Hear, Hear!

Secondly, an award for working Afghanistan. Contacts since January 1, 1966 count, Europeans and

Africans have to work three YA's, Asians four, and the rest of the world two. Any bands can be used but the QSO's must be made on at least two bands—a couple on Twenty and one on Forty, for instance, for G's. Send the cards, and 10 IRC's to Wolfgang Renner, PO Box 279, Kabul, Afghanistan; the award and the cards will be mailed by air. Should registered airmail be desired, another couple of IRC's.

Next, a Convention is announced, to be held in Santa Cruz de Tenerife, Canary Islands, September 12 to 17. Details from Union de Radioaficionados Espanoles, PO Box 215, Santa Cruz de Tenerife, together with a booking-form. The programme looks quite interesting.

Royal Navy A.R.S. announce their new Hampshire County Award, and remind us of the Mercury Award. In addition there are of course the invaluable Code Practice runs, which are at 1800z on 1875 kc, and 1900z on 3520 kc, Wednesdays only, incidentally, and the transmissions from G3BZU go from 20, 25, 30, 35, and 40 w.p.m., with stickers on the basic award for the higher speeds. All details from G3RFH, *QTHR*.

RAIBC are to benefit from the Worked All Britain Award for which the custodian will be G3ABG. The scheme is to divide the U.K. into 10 km. squares all-same Ordnance Survey, and work 400 of the 3960 areas in at least 40 counties. For all details on this one (which are quite complex) contact G3ABG, *QTHR*.

A note from VS9MB (Maldives) indicates that they are now back in business though under some considerable difficulties. The climate has "done wonders" to the equipment, and it is hoped soon to be able to replace most of it—the air-conditioner arrived too late to stop the humidity doing its fell work. The beam is aimed permanently on the U.K. and is at 65 feet; the reason for the permanent aim is simply that the rotator is u/s.(!) G3XGY who is now the operator, is most upset by the characters who have busted up his QSO's—sitting on him calling CQ is mild to some of the stuff he has had to put up with!

A humorous note is again struck by 9H1BL (Paola, Malta, G.C.) who had an apology from the lady

in the flat below a few days ago. "Twould seem the lady had heard Alan in her record player, and thought that this meant *she* must be pumping her "Theme from Lawrence of Arabia" record into the 9H1BL receiver!

G3XZB has been noticing the number of schoolboy amateurs who have appeared in this piece from time to time, and is rather interested in the idea of getting in touch with them all. Drop him a card if you are fully licensed and still at school, and say whether there is a school radio-club. Address: Nicholas Edwards, G3XZB, 99a Wilton Crescent, Southampton SO1-2QF.

G3ING says he will be on as GW3ING/P from Montgomery in the first three days of June, and Radnor during June 5-7, along with a KW-200A, SWL Janet and SWL Derrick, the latter being a mighty man, like the smith of the story, when it comes to the important matter of putting up the masts! Operating will be Top Band, from about 8.0 p.m. each evening.

The Club group from the R.M.A., Sandhurst will be mounting a fortnight's expedition to Sicily during the latter part of August, using the appropriate local c/s. Full details later are promised.

### Eighty and Forty

Dropped back, quite unjustifiably, into their previous state of neglect. Forty, in particular, is capable of giving world-wide DX if you have a good stable receiver with adequate stability and freedom from cross-modulation, aided and abetted by something suitable in the RF generating line and an aerial system which accepts and does not fritter away the RF. Not very stringent requirements really, and then you can go on and chase DX at times when the rest of the world is blinkered down to the Idiots Lantern. Disregard the QRM and do a bit of digging—and sometimes you will find the digging surprisingly simple! As witness what *can* be done just take a look at some of the scores which have been entered into the Table.

G3XBY (Wombourne) comes in with a bang and a first table entry for the Six-Band, with, hopefully, a Zones and Prefixes one next time round. His 3.5 mc SSB produced

### TOP BAND COUNTRIES LADDER

Station	Confirmed	Worked
<i>Phone and CW</i>		
GM3OXX	98	98
G2NJ	98	98
GM3UVL	98	98
G3APA	97	97
G2HKU	96	96
G3SED	93	96
G13WSS	81	88
G3WPO	80	86
G3WQQ	74	87
G8HX	72	81
G3VLX	70	91
G3WJS	56	83
G3RFB	55	78
G3IDG	55	61
G3XTL	53	67
G3XDY	50	80
G3XGD	42	55
G3XTJ	39	69
G3KFE	31	49
G3VPS	27	53
<i>Phone only</i>		
G2NJ	98	98
G3SED	91	92
G3VGB	82	93
G3WPO	69	76
G3MDW	67	82
G3PQF	64	82
G3RFB	36	47

(Failure to report for three months entails removal from this Table. Claims may be made at any time. Six months of "Nil" reports will also result in deletion.)



John Hey, G3TDZ, 8 Armley Grange Crescent, Leeds 12, combines business with pleasure by tucking in an FL-200B and RA-1 amongst the instruments in his audio development workshop. Operation is mainly SSB on 10-15-20m. Out of the picture, behind G3TDZ, is a stereo multiplex generator and transistor tester, and strewn around the shack are several prototype speaker enclosures. The bench lamp doubles as microphone boom. In the past, G3TDZ has worked AM/CW on the LF bands, and also on 4 metres using portable equipment as described in "Short Wave Magazine." Professionally, G3TDZ is engaged in the development of hi-fi and other audio equipment for a well-known firm in Leeds. And as a second hobby, he is actively interested in the world under the microscope.

CN8AW, CR1's; CT2's AK, AT, AS, AP; EP2BQ, OA8V, OD5BA, PY2DGB, PY7ASQ, UO5BS, VO1FG, VO1FX (at well over S9), YV, ZB and ZL, plus LG5LG, who was SK9WL during the WPX Contest; on CW, W's were raised. Turning to Forty, we find CO2DC, HK3AES, HP1JC, YV5BPG, ZB2BS and 9Y4KR, all Sideband, with CW being used to produce JX2BH, PY4BJL, UH8KBC, UO5AW, UJ8AQ, ZD8Z and assorted 4X4's.

If you really love staying in bed, and work Eighty, then these lighter mornings are a bit of a bind, since all the best stuff tends to show up at the times of change from light to dark, or *vice versa*. G2AYQ (St. Agnes, Cornwall) felt that an earlier start was not worth the trouble and so he only worked VE1AFY, ZL2BCG and EA4LH, and turned more to 14 mc as we shall see later.

Not much actual activity is reported from G3PQF (Farn-

borough) who is at the moment dredging radials into the back garden, and will in due course think up some sort of vertical aerial to go above them.

A most interesting letter from K1UHY, who is with the National Radio Company—the folk who virtually invented the communications receiver as we know it with their HRO—detailing some of the local activities. For the benefit of those who contend that New Hampshire is hard to find, Carl mentions various stations that are on and active. As far as Eighty is concerned, K1UHY himself has a CE-100V with NCL-2000 linear driving a sloping dipole. W1SWX is somewhat of an 80-metre CW specialist, with a score of 160 countries on the band; he has four phased verticals plus sloping dipoles.

One of the marvellous things about the LF bands is the way that the QRM seems not to obey the seasonal

laws of propagation—it just gets stronger! Humber Radio (GPO Coast Station) has now obtained allocations at 3525 and 3528 kc, says G2DC (Ringwood), who is quietly praying that they are not taken up! Jack made it with CR6AI and OD5LZ for new ones on Eighty; others worked included UD6AW, UL7GW, 9E3USA, W's in all but the fifth, sixth and seventh call areas. Forty is less and less useful to the CW man because of the SSB QRM which is gradually creeping lower and lower, being heard quite often as low as 7020 kc. Nonetheless, mornings around 0700 have given the VK and ZL contacts as always, and indeed the mornings are always of interest.

An interesting oddity reported by G2NJ (Peterborough) was a CW contact with YO4AJE/MM on Forty, who reported his position as being near Liverpool. G3IGW (Hipperholme) reports CW contacts on

Eighty including UD6BD, UG6AD, UL7PA and VP2MK. On the SSB side Mike booked in EP2BQ, OH0NC and U05BS.

G2HKU found GC3UML in Guernsey, OH0NC, EP2BQ, VO1FX, OY6NRA, all of which were new ones for the band, to Ted's pleasure. CW gave another new one in the form of UN1KAL. Forty SSB connected with 4U1TU, and early-morning CW with GD3HQR and CO3DB.

As we have already commented G3XDY (Cleethorpes) has recently obtained a new rig to give him, as our W friends would have it, "multi-band capability"—a facility which has received a tentative airing on Eighty and approval from various G and European stations. CW is the only mode used by G3VDL (Chalfont St. Giles), with 60 watts to dipoles, which were used to raise UC2, UP2 and UR2 on Eighty, plus 7 mc QSO's with UL7, UA9, 9H1BV and GD3FBS.

Over at 9H1BL, Alan has found all the LF bands as flat as can be, with only a couple of contacts worth mentioning on 3.5 mc Sideband, namely EP2BQ and OH0AA.

#### Among the /MM Chaps

Only one actual letter to comment on this time, from G3UOF/MM who was writing from the Persian Gulf. Various points from his log will be discussed as they come, but one is of sufficient importance to be mentioned here. That was the 21 mc operations of W4BPD from VQ8CP. Once a DX station is established on the band, it is a good idea to have some idea where he is listening. However, at 1814z, when Mike was in the general area of Cocos Is. on April 3,

#### FIRST YEAR OPERATOR'S LADDER

##### TOP BAND ONLY

Call	Counties		Countries
	CW	Phone	
G3XTL	67	—	14
G3XTJ	59	52	13
G3XVC	37	24	11
GM3YCB	1	57	9

Note: A first entry for this Table must be accompanied by a statement of the date of first licensing. The same county may be claimed for both Phone and CW. Placings will be by taking a different column each month; this time it is based on the "Countries" column.

## Reporting the HF Bands

he heard G3SYC and G3UPY both calling VQ8CP. Now, if Gus was QSX "U-5" then it was a bit pointless calling him on his own frequency—but both these calls were quite strong with Mike desite at least one of them being a QRP merchant.

#### QSL Cards— or Where Have They Gone?

It used to be a point of honour to reply to a card, knowing the station one worked wanted it; and substantially that still is the case today, albeit with the widespread use of the bureaux for QSL'ing run-of-the-mill QSO's one can hardly expect the card back in much under a year—after all is said and done, when one only sends out a few cards each year the envelope may sit on the operating table for months before it even becomes full enough to justify posting it!—but that is far from explaining a wholesale absence of QSL cards in reply to those sent either direct or to QSL managers. G3VDL has a whole list of non-QSL'ers, including the cards supposed to be sent *via* "Yasme." For the latter, G3VDL has about fifteen cards in, and nary a one has ever come out again.

#### Twenty

This band still produces more good solid DX than all the others put together, particularly if you are one of the lucky ones who are not afflicted by TVI.

A relatively short list from G3XBY, Dale obviously being keener on other bands. CW accounted for CT2BO, HB4FD, JA3API/MM off Guatemala, KH6SP, UN1KAI and 5Z4KL, while Phone produced CE6CA, CR6IV, HK3RQ, HS3RT, KV4FZ, MP4BHQ, OH0NI, TA1MGP, TG9GF, UG6AU, VK's, VP7NA, ZB2AY, ZL's, 7Z3AB and 9V1NV.

Incidentally, talking of TA1MGP, K1UHY mentions in his letter that he is quite legit., and in fact Carl is his QSL manager.

The "NCX-3 and 5RV" set up at G2AYQ was used to good effect

on 14 mc to contact a fair old string of VK's, including VK2EK, VK3BW, VK2SG, VK2AHV, VK2BPN, VK3ZE, VK3TG, VK3AIA, VK3AQI, VK3AKP, VK3ARR, VK4SD, VK5MO and VK7RX; also W0CKC, W4GD, K5TGA, W5RER, WA4QBX, K4JC, K6ILG, K2RBT/P/6, WA6AHF, W7HQC, LU5DNT, KZ5KN, ZL3UY, HK3VA, HC2GU and JA4BVH /MM were brought to book in the morning sessions of operating.

"As brash and noisy as ever," says G2DC, with quite a few good openings in the period 0700 to 0800z, and some quite decent spells in the early afternoon and early evening periods. One all-time new one was worked, by way of VK0WR, plus AP5HR, CR6AI, F08BY, HPIIE, KG6AAY, MP4TAF, MP4TCQ, TG9GF, VK1-5, VK6AI, VK7AZ, VQ8CPR, YA2HWI, 9M2DQ, 9V1NV and 9Y4KK.

G3UOF/MM does not seem to have listened much on Twenty, but does comment on the net with G3RSP/MM, G3RSF, and G3VDO /MM which comes up on 14150 kc around 1830z. 9H1BL has also little or nothing to say about the band, other than a few affectionate digs at its unpredictability, and a cry of anguish over his gotaway of the month, JT1AG, who was calling CQ on SSB for quite a while but not responding—Alan reckons the RF generated by his own calls was just dropping straight into the sea.

On to G3VDL, who worked CW with 3V8AD (QSL's *via* DL1DA) and KP4. A short list indeed but G3RJB (Hereford) has a longer one despite the TVI. Brian took a chance on the latter problem and hooked XW8AX, HS3RT and TA1KT with successive QSO's. Other ones on SSB were out of TVI times, and included CT3AW, F9UC/FC, ZB2AY, ON0NI, SK9WL, 4Z4HF, 3A0CU (for whom cards go to DL7FT), UG6SG and UA9KAA. Keying the transmitter resulted in contacts with VK2PBN, VK3NR, CE8CF, UI8IZ, UI8BI, DL4QQ/PX, UF6CR, 5Z4KL, YS1AG.

That transmitter at G3XDY was also sampled on 14 mc, and so far has resulted in the odd W and HK3RQ, raised with 40 watts p.e.p. input—seems strange to think that this was about the level we could expect to get from a full-power rig in terms of talk-power in the old AM days—and the darn thing was probably a full-sized rack-and-panel job at that!

Only-SSB-on-14 mc was the formula for G2HKU, which is a little unusual, but it gave ZL2KP, ZL3JQ and ZL3SE on the sked; W2DHO/7 in Arizona; VK2ARZ, KH6GPM and WB2IQ/MM on the survey ship *Eltanin* at 50°S, near MacQuarie Island. Interestingly enough, when he gets to 60°S he changes his callsign to KC4AAA.

Pressing on to G3VPS, we find Peter has not been quite so active as of late on any band—though on 14 mc CW OY4OV, UI8LK, UJ8AR, UA9's, and 4S7EC were accounted for, plus sideband-mode workings with CT3AW, EA6BG, OH0AA, UA9's, 3A2EE/M, and the sked contacts with 9H1BL.

Anyone in Kirkcudbrightshire interested in Twenty or Fifteen? W2QHH has been looking for British Counties for some time now, and in fact has completed the whole lot with this one as the only exception. Naturally enough, he is now dead keen to exchange CW reports with someone in Kirkcudbrightshire. Incidentally, W2QHH, it may not be realised, is himself an Ex-G Club member; skeds on 14 or 21 mc may be arranged by writing to him at 66 Lebanon Street, Hamilton, New York State. Talking of Ex-G's, G2FUX passes on the information that they now have another net going, Sunday mornings 0600 GMT on 14290 kc, with WA6GLF or WA0UJO as Net Control, all welcome, especially from the Pacific area.

G3NOF (Yeovil) comes into the story now, with his mention of SSB with AP5HQ, I0ARI, KH6SP, KP4CL, KV4FZ, KZ5KN, UF6CR, VK/ZL, 9E3USA and 9V1NV, although Don is rather of the opinion that the band is down on what it was at this time last year.

That beam overhaul has helped a lot at G3XYP (Navenby) but, like your scribe and 9H1BL he has trouble with the birds—in his case



During a weekend of Amateur Radio at St. Dunstan's, Ovingdean, Brighton, on March 15, GB3STD was on the air with two stations, running a Swan-350 and KW-2000. Many contacts were made with stations in the U.K. and overseas, among them other war-blinded amateurs. Here, G3MTX of Bexhill (on microphone) is assisted by G3SEJ of Wallasey, who is logging on a typewriter specially adapted for the use of the blind. (Another picture on p.245.)

the starlings, who perch on the elements waiting for the "hand-outs" from David's mother. Originally, all that was needed to shift the blighters was a touch on the rotator, but now they seem to enjoy the ride! As if that were not enough, a couple of large crows are adding insult to injury by sitting, one on each end of an element and bouncing up and down, although these birds are still not keen on being rotated. One of the more interesting facets of living in the country and studying Nature?

#### Fifteen Metres

Overhauling the beam at G3XYP had the result of bringing the VSWR of the system, on this band, down from 3:1 to 1.3:1, with a consequent general improvement. DUIFH,

EP2BQ, KV4FZ, SUIJW, VK9XI, VP2MF, VS9MB, XW8AX, YB0AAB, ZF1OW, 3V8AC, 4S7PB, 5R8AX, 5U7AK, 5Z4LS, 9Q5IA, and 9X5LM, all on SSB.

Although the 15-metre band has often been pretty poor during the day, one wonders whether this is to some extent illusory; as G3NOF says, there have been occasions when it still was holding up after midnight! SSB QSO's were made with KR6JT, KV4FZ, OD5BZ, VK2AVT, VK2FA, VK5BB, VP2LX, VP7NA and VU2DK.

As for G3XBY, he seems to have had quite a good month, though he did not seem to get out too well during the WPX affair, for some reason. Sideband produced DUIHR, DUIZAG, EA6AS, EP2BQ, HS3DR, loads of JA's, KR6NT,

KR6BX, PZ1DB, SV0WN, VK9XI, VP2MF, VS6AL, VU2VZ, XW8AX, YA1AB, ZB2BS, ZP5HZ, 6W8AL, 9K2CF and 9V1OG. On the CW side, another lot of JA's, KR8BY, UA0CA and UA0LL (both in Zone 19) and 5Z4KL were booked in.

G2DC reckons that 21 mc is the best band of them all for working DX, particularly on SSB, although it has been pretty late opening up and the best period has been the early afternoon and evening. One new one for the band was VK9XI, and others worked were A2CAU, CR7BO, EP2BQ, HS1CB, HS3AL, KR6JT, UM8AP, MP4BGX, UD6CW, UH8KBC, VQ8CPR, VQ9A, VS6AJ, VS6AL, VU2DK, VU2OLK, XE1RV, XW8AX, YA1SG, ZS3YK, 5N2AAU, 9E3USA, 9V1PA and 9U5DS.

March 31 saw G3UOF/MM off Cocos, and from this spot, he heard YB0AAB working the world at 1330z, and giving his QSL address

as APO, San Francisco, 96536. It is understood this one will soon appear on 80 and 40 metres with good inverted-Vees for each band.

For G3VDL there were CW contacts to report with TJ1AJ, ZS3AW, UA0KAR (on Dickson Island in Zone 18), 4L3A in UF6-land, UA0OM and KS6CX, who is QSL'd via K4ADU and is looking for CW contacts with EU most mornings.

Oddly enough, 21 mc is the only band on which G3RJB is free of TVI, albeit it has to be admitted the dipole is only six feet off the ground. Nevertheless, it gave him contacts with VP8HJ, VE4ZX, 9J2MX, WA7KUW, W6NJU and K6ERT—which must go to prove something or other!

Our 15-metre specialist, GM3JDR (Golspie) found things rather variable this month with nothing much to report other than an assortment of new PX in the contest emanating from PY—and some

87 JA's were accounted for; some days not a sign, and the next a CQ would bring forth 20 of them in a row, at lunch-time. Compressing Don's list down a little, we find JA4VX/MM near DU1; G3RSP/MM near CT1; JA4HAX/MM near 4S7; JA4GCV/M near 9V1; VQ8CP, VQ8CPR, VS6AA, VP2MQ, OA4ED, OA4DX, 9V1PD, ZS3AW, VK's, MP4MBJ, UL7GJ, ZE1DC, KZ5NG, CR6AI, a couple of HL9's, CE8AA, KR8's, PY and YV, SV0WN, HP1XHG, VQ9A/A, 5Z4LS, all W call areas, ditto all JA areas, and VE1-7, as the CW crop, while as far as SSB went, the field of battle made prisoners of VQ8CP, UV9PP, PY, ET3REL, UA9, ZL, ZB2BC and ZB2BS, KV4FZ, XW8AX, 9V1PA, 9E3USA, DU1ZAG, VP2MF, CR6, VK9XI, LA0AD, PU2ERS, PQ2DFR, PR1MB, PU2DTV, PT1CAD, EP2BQ, ZD8AR, HS3AL, HS3MB, CT2AT, LU8BKA, 4X4RQ /AM (over the Mediterranean),



Radio room of the "Queen Elizabeth II," GBTT, when fully manned. The officer at centre rear is operating one of the remote-controlled high-power transmitters for long distance working, the control panel for these Tx's being to his left. The ship-shore VHF telephone position is to the right. The teleprinters can be switched to transmitters giving direct connection into shore circuits, to provide Telex service. The satellite navigation system used by the QE2 enables the ship's position to be determined to within one-tenth of a mile.

VQ8CPR, OD5FV, HI3AGS, all W and all JA call areas.

G3DO (Sutton Coldfield) added to his 21 mc band score with VP2MF, and VK9XI, as the table shows.

### Ten Metres

As well as the new ones on Fifteen, Doug of G3DO rustled up 9N1MM, VQ9EP and UQ8BQI for new ones on Ten, which practically means a very good month for one with such an elevated total score as Doug has.

All those weird PQ, PR, PS, PT and other P variations that appeared in the GM3JDR log seem also to have been worked on Ten by G3XBY; they were on only for the Contest as far as we can make out. He includes AP2MR, CE, CR6, CR7, EP2BQ, FG7XX, HS3DR, JA's, KA2RM, KZ5EK, LU, assorted MP4's, OD5's, PY's both normal and with the odd prefixes aforementioned, SVØWM, UAØAEM, UH8BO, UI8MN, UL7AJG, UO5, VK's, VK9XI, VP8KD, WB2NCS/VP9, VQ9L, VS6FZ, VU2OLK, ZD8AR, ZE1BP, ZS's, 4S7PB, 5A1ITN, 5L2AK, 5N2ABG, 9E3USA, 9K2CF and 9M2DQ. To add a little to the haul, CW was used to angle, successfully, for LU7FAG and TA2E.

Patchiness is always the keynote of Ten, particularly at the CW end, but just let a DX-pedition open up there and the illusion is soon shattered, as G2DC remarks in his letter. He worked UM8AP, VQ8CPR, ZS3AW, W1-5 and W8-Ø.

G3UOF/MM spent quite a lot of his off-watch time recording the events on Ten. For instance, on March 31, at 1000z he heard G2XK in QSO with YA1YB. 9M2RH called in but was not replied to by G2XK, although the latter was 53/42 according to the information he passed on to YA1YB later. 9M2RH, the club station of the 28th Commonwealth Infantry Brigade, is on and looking for U.K. contacts. G3KS was on 28-55 mc working SVØWM, and a little later G2KO failed to raise the SV although he was 59 near the Cocos. On April 1, G3MXQ managed VK6CT and on the 3rd, G2CCD was 57 calling CQ and finding no takers. On the same afternoon, within a few minutes, G3YAG was heard in QSO with KP4DEY, then G5RP, and GW3AQV calling CQ, as was



Station of JA2AMD, Akira Kobayashi, whose QTH is Fujimi, Inuyamam, Aichi, Japan. He has a fine modern station and is a keen DX operator, working CW and Sideband phone.

G3UGK a moment later. At 1755z G3DCV and G3OHP were in QSO, with G3KMO trying unsuccessfully to break in.

Quite a lot of new countries have been raised on CW by G3RJB, to the benefit of his band score, among the best being 5H3LV, VS6AA, MP4BFO, 5Z4SS, ZS3AW, UA9VK and 9J2VB.

Ten metres is quietening down for the summer, according to G3XYP, but it still pays to keep an ear lifting for an opening. EP2BQ, HI8XJP, DL4QQ/PX, VP2AA, VP7NA, VQ9C, YA1AR, ZD8AR, ZS3LU, 5H3MA, 9M2RH and 9Q5CP were snapped up in this manner.

The comment is echoed, but in rather different words, by G3NOF, who nevertheless managed to find and work AP2MR, CE6CA, CR6BX, CR6GA, EP2BQ, HK3RQ, HS3RT, JA3IVC, KZ5MB, MP4BGX, MP4TAF, OD5BA, UA9KOI, UF6CW, UW9CR, VK's (including VK9WD) VP8KO, VQ9C, VS6AJ, VU2OLK, VU2VZ, XE3LK, YA1YB, ZC4IM, ZD8AR, ZD9BE, ZS's, W's, ZA1AA(?), 4X4HF, 5Z4JH, 8R1G, 9E3USA, 9J2DT, 9M3RH and 9X5AA.

For G2HKU, it was a case of one VK—VK3OG who gave him a new country on this band. Quite a thin report too comes from 9H1BL, who raised ZS3AW, 4S7PB and ZS2 for new ones on the band, but on the

debit side failed to connect with YBØAAB.

### Gus Browning Story

It has been a little difficult to piece together just what has happened, other than to say it has been quite an exercise. Starting from April 13, when he was signing VQ8CPR from Rodrigues, the next stop appears to have been as VQ9A from Mahé in the Seychelles Is., trying to fix up transport to the next one. A week later it was reported that the boat he had hoped to charter to Agalega had been wrecked and two people killed. May 6-8 saw him signing VQ9/A/D from Desroches, but generator troubles put a spanner in the works and forced an early return (but not till after 1300 contacts had been made). By the time this is in print he hopes to be either back there, or to have arranged transport to Agalega, where VQ8CPA will be the call. Among the stops planned are Chagos, Blenheim Reef, Farqhar, Aldabra and, it is hoped, Geyser Reef.

### Deadline

And there it is. Quite a lot of letters, quite a lot of news, and so inevitably, quite a lot of compression. For next time, closing date is first post **Monday, June 9**, addressed as usual to: CDXN, SHORT WAVE MAGAZINE, BUCKINGHAM, and please note that this is the *only* address to use for this feature.

# THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for July Issue: June 6)

(Please address all reports for this feature to "Club Secretary," Editorial Dept., SHORT WAVE MAGAZINE, Buckingham.)

RECENTLY, in this space we mentioned the need for protection of equipment owned by the Club; and this time it is possibly worth while to talk about another aspect, the Club premises—that is, their appearance. A thing you can do little or nothing about if you are in a room used by all sorts of groups and which you hire by the evening. However, it is surprising how many, particularly in the smaller towns, have their own place, with Club station installed, workshop, and what-have-you. Your scribe has, in his time, been to many clubs around the country, and he knows how important first impressions are. One of those is the state of the place—even if it has been recently given a lick of paint, it will not look very attractive to a potential new member if it has obviously not been "mucked-out" for weeks on end. A clean and tidy club-room and a good welcome to any visitors are the key to the recruitment of new members. It is not the slightest good spending time and money on a special effort at some local event, if all those so attracted are to be repelled the first time they enter the Hq.

## The Reports—by Regions

This being the way we propose to do things this month, let us bring to the top of the pile those organisations whose terms of reference are wider than the purely local context. **Civil Service** come within this definition; they have a delightful London Hq. in the Civil Service Sports Centre, Monck Street, with a place for their lectures and similar meetings, and a fine shack, plus facilities for all sorts of other things—for instance, eating and drinking!—all available at very reasonable rates in the Centre. By the time this reaches print, the lads will just be through the work of putting on a show at the inauguration of the Civil Service Sports Club pavilion on the ground at Chiswick, which was to be formally opened on May 28 by the Duchess of Gloucester. Main meetings, at Monck Street Hq., are on the first and third Tuesday of each month.

**British Rail** next; as its name implies, a group whose members are employed in British Railways and their subsidiaries. For all the details, subscription rates, and so on, contact the Hon. Sec. at the address we show in the Panel on p.246.

Also fairly evident is the function of the **ex-G Club**—all members are qualified for their membership by being British by birth but resident overseas, plus, of course, the interest in the hobby of Amateur Radio. Contact is

maintained by way of the *Ex-G Bulletin*, and various nets. For all the details, contact the U.K. hon. sec., G2FUX.

What we have been saying—and sincerely meant—about the good work being done by the **RAIBC** committee and supporters resulted in a very nice letter from G3LWY, who points out the things that others do to help the group along. If *you* know of anyone who is either blind or disabled and has an interest in Amateur Radio, you should get them to join as members. In addition, if you can possibly spare a little time, either to visit, or to provide transport, or to service equipment, or whatever, you should join as a supporter; and show that support at your local group meeting by getting the lads to make a donation either by way of the proceeds of a raffle, a whip-round, or a more formal effort at the AGM. The honorary secretary of the **RAIBC** also mentions that they can always do with old *Call Books*, of the DX Listings and U.S.-only variety, that are not too out-of-date.

**Royal Navy** is the name of the society which looks after the serving and ex-Navy types, and they have recently broadened their base quite considerably to let in members of overseas navies. On June 14 they are running a Bring-and-Buy Sale at H.M.S. *Mercury*, Leydene, with talk-in from 1100 BST, the sale being timed to start at 1430 BST. Members please to let the Hon. Sec. know of their intention to be there—see Panel.

## Wales, the West Country—and Further West

The latter can only mean GD or Ireland, and on the top of the clip is **Bangor** (N.I.) and District, who normally have the first Friday in every month, albeit the June affair has been pulled forward somewhat due to NFD preparations, which at the moment are taking precedence over the other matters. In July, there is the intention to run a DX-pedition to Fermanagh or Tyrone one weekend, details to be notified next time round. For latest gen. on this active and lively group, contact the Secretary, address as in Panel.

**Cornish** covers a large county, and hence there is not only the parent Club, but also separate VHF and SSB groups, and a section at Newquay. The main meeting Hq. is at the SWEB clubroom, Poole, Camborne, on the first Thursday in each month; June sees G3OCB giving a talk about frequency counters; the "Potted talk" which rounds off the programme is practical, when

The highly successful GB3STJ set-up for the St. Dunstan's radio amateur weekend on March 15—another picture, p.241. One of the DX stations worked was ZS2PY, Iris de Reuck, of Port Elizabeth, herself a St. Dunstaner, who was blinded during the last War while serving with the South African Women's Auxilliary Army Service.



G3OFN proposes to check coax cable, and defies anyone to bring a known length with a fault in it he cannot find! Over at Newquay, the venue is Treviglas School, alternate Tuesdays, and they have 23 members. For all these, the contact is G3UCQ—see Panel.

At **Hereford** June 6 is down for a portable trip, to Dinedor Hill, while at the weekend they will be out on Field Day. June 20 is a film Show, and on the 29th they have an organised trip to Longleat for the Rally. Hq. is at County Control, Civil Defence Hq., Gaol Street, Hereford.

Recently, the **Plymouth** crowd had their AGM, and several changes were made in the "top table" due to illness and other things. Thus, the new hon. sec. appears for the first time in the panel—and we hope to see it there often! As for the important question of finding them, look on the first and third Tuesday in each month, at Virginia House, Bretonside, Plymouth, the start being made at 7.30 p.m.

Every Wednesday at Yeovil Youth Centre, Park Lodge, the Park, Yeovil, is the form for the **Yeovil** crowd; once in each month one of the members is "conned" into giving a talk on his pet subject.

At **Saltash**, Burraton Toc H Hall is still the venue, and on June 13, the talk is of DX/TV, and will be given by Reg Roper. June 25 sees them setting off for a trip to Goonhilly—there is a reserve list for this one just in case one of the places, which are all at the moment booked, becomes free. On to June 30, when there is to be a talk, but the details are not yet finalised.

For the date of the **Exeter** get-together, you will have to talk to G3HMY—see Panel—but we can say it will be at St. Sidwells Methodist School Hall, Sidwell Street, Exeter. A most important subject—Electrical Safety—will be dealt with by Mr. L. G. Bolton.

A new Secretary takes over at **Chippenham**, where the recent AGM saw both the old hon. sec. and the chairman

change, due to the imminent prospect of a move overseas, one to EI, and the other Saudi Arabia. The lads assemble at Chippenham High School for Boys, Hardenhuish Lane, Chippenham, each Tuesday evening, and a warm welcome is assured.

At **Salop**, there is a markedly outdoor slant to the activities, with June 14 and June 21 both out in the sun. On the former day, meet at 1000 BST at the "Grapes" (complete with wife and family, if desired) for a forest walk with 144 mc intercom. as a sideline; on the latter, the excursion is to the Long Mountain, about 4 miles to the east of Welshpool. On June 5 and 26, they are at home and operating the Club station.

**Wirral** have Hq. in the old Civil Defence place in Upton Road, Birkenhead, where they have dates on June 4, 18, and July 2. The first will be the last-minute NFD preparations, the second the inquest on what, in the event, went wrong, and on July 2 G3KEN gives a talk on the Inoue equipment.

Now to **Wessex**, where the lads meet at the Cricketers Arms, Windham Road, Bournemouth, on the first Friday and the Monday seventeen days later, in each month. The members generally are not too keen on a formal programme as such, and so for the next few evenings nothing definite has been arranged. However, they are intending to run a couple of stations for Field Day, for the first time for several years. Full details from the hon. secretary—see Panel.

At **Torbay**, the QTH is in Bath Lane, rear of 94 Belgrave Road, Torquay. Here they get together for the formal meeting on the last Saturday in each month. In addition there is an R.A.E. session running on Tuesday and Friday evenings at Hq., and various other activities. We were sorry to note that the PRO, G3LKJ, who has given the group several years of hard work, has had to pack up due to ill-health, and we add our own to the club members' good wishes to him.

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### The South of England

This, of course, excludes the London area, which for ease we identify as having London telephone numbers.

Loughton first, where on the day we publish, May 30, they will be hard at work in preparation for the show stand they are putting on at Loughton Hall on the following day. The object of the exercise is the opening of the new Sports Hall by the Lord Lieutenant of Essex. Incidentally, Loughton Hall, which is in Rectory Lane, is the place where these chaps foregather each week.

Not so very far away is the **North East Essex Technical College and School of Art**, Colchester, who appear to be going overboard, as a group, for D/F Hunts. In addition, they have a firm date on July 6, when the Mobile Rally comes off at Colchester Zoo.

At **Bishops Stortford**, G5AAN is booked to talk about Impedance Matching and the VSWR Problem—June 16 is the date to put by for this one, at the British Legion Club, Windhill, Bishops Stortford.

The second Thursday in each month is booked at the Civic Centre, Prospect Place, Old Welwyn, by the **Mid-Herts** group for their meeting. This means June 12, and the lecture will be given by Leslie Currington, who will discuss Colour Television; he has built, and will demonstrate at the talk, his own colour receiver.

If you live anywhere near Ashford, you are in the "catchment area" of the **Echelford** crowd. They meet at the Hall, St. Martins Court, Kingston Crescent, Ashford, Middlesex, the next date to reserve being June 26.

A change of Hq. is notified by the **Verulam** crowd, who have even grown out of the Cavalier Hall—so now the place to look for them is the Council Chamber in the Town Hall, St. Peters Street, St. Albans, no less. As far as June is concerned, there is an informal get-ready-for-NFD affair at Salisbury Hall on June 3, with the Council Chamber venue used for June 18, when G3LXP takes as his theme "Making that Wire Work."

**West Kent** have a change of president, where G2UJ has stepped down after no less than 21 years in office. June 13 is booked for a talk on Transistors and their Uses, while on the 27th the lecture will be "Audio." All the dates are to be filled at the West Kent Hq. at the Adult Education Centre, Monson Road, Tunbridge Wells, Kent.

Weekly it is at **Shefford**, with the last-minute work for NFD being dealt with on June 5. June 12, naturally, is devoted to the question of "who forgot to bring the receiver," and on the 19th G3OLY talks about the Systems approach to VHF. As for June 26, it will be

### Names and Addresses of Club Secretaries reporting in this issue:

ACTON, BRENTFORD & CHISWICK: W. G. Dyer, G3GEH, 188 Gunnersbury Avenue, Acton, London, W.3.  
 BANGOR: J. W. Campbell, G3OLJ, 48 Abbey Drive, Bangor, Co. Down, N.I.  
 BISHOPS STORTFORD: A. Stanley, G3WUR, 43 Havers Lane, Bishops Stortford, Herts.  
 BRITISH RAILWAYS: H. A. J. Gray, Eleven, Swanton Drive, East Dereham, Norfolk.  
 BURY & ROSSENDALE: A. Cooper, G3VVQ, 411 Holcombe Road, Greenmount, Nr. Bury.  
 CIVIL SERVICE: D. McLennan, G3KGM, 52 Pinewood Avenue, Sidcup, Kent. (01-300 0767.)  
 CHIPPENHAM: P. Strand, G3UTO, Brookwell Close, Chippenham (3723), Wilts.  
 CORNISH: J. Farrar, G3UCQ, Elm Cottage, Ventonleague, Truro, Cornwall.  
 COVENTRY: C. Jaynes, 20 Belgrave Road, Wyken, Coventry CV2-5AY.  
 CRAY VALLEY: D. Buckley, G3VLX, 234 Halfway Street, Sidcup, Kent. (01-850 6945.)  
 CRYSTAL PALACE: G. M. C. Stone, G3FZL, 11 Liphook Crescent, London, S.E.23. (01-699 6940.)  
 DERBY: F. C. Ward, G2CVV, 5 Uplands Avenue, Littleover, Derby (21931) DE3-7GE.  
 DERBY (Nunfield House): N. Gregory, G3LCV, 21 Back Lane, Chellaston (3516), Derby.  
 DORKING: R. Greenwood, G3LBA, 8 Deacon Close, Downside, Cobham, Surrey.  
 EAST WORCS: R. J. Mutton, G3EVT, Summerhayes, Mill Lane, Alcester (2041).  
 ECHELDFORD: M. Clift, G3UNV, 45 Fordbridge Road, Ashford (59628), Middx.  
 EDGWARE: E. H. Godfrey, G3GC, 15 Oxenpark Avenue, Preston Road, Wembley, Middx.  
 EXETER: G. Wheatcroft, G3HMY, 27 Lower Wear Road, Countess Wear, Exeter, Devon.  
 EX-G: F. W. Fletcher, G2FUX, 53 St. Ives Park, Ringwood, Hants.  
 GRAFTON: T. Coleman, 14 Norman Court, London, N.4.  
 HARTLEPOOL: J. W. Thompson, G3NWU, 42 Furness Street, West Hartlepool, Co. Durham.  
 HEREFORD: S. Jesson, 181 Kings Acre Road, Hereford.  
 HULL: Mrs. Mary Longson, 4 Chester Road, Wold Road, Hull.  
 LOUGHTON: J. Atkinson, G3OPA, 6 Rochford Drive, Loughton, Essex.  
 MID-HERTS: H. Thornton, G3PKV, 43 Fordwich Road, Welwyn Garden City (23163), Herts.  
 MIDLAND: R. Partridge, G3SGC, 42 Maxstoke Road, Sutton Coldfield, Warwickshire. (021-354 5921.)  
 MID-SUSSEX: E. J. Letts, G3RXJ, 87 Meadow Lane, Burgess Hill, Sussex.

MID-WARWICKS: J. F. Coggins, G3TFC, Market Corner, Coventry Road, Baginton, Warwicks. (Toll Bar 3688.)  
 N. E. ESSEX (Tech. College): R. C. Greenleaf, G3VAG, 27 Ernest Road, Wivenhoe, Essex.  
 NOTTINGHAM: A. L. Paterson, 15 Bayliss Road, Gedling, Nottingham (249896) NG4-4JE.  
 OXFORD UNIVERSITY: D. Emerson, G3SYS, Hertford College, Oxford.  
 PETERBOROUGH: D. Byrne, G3KPO, Jersey House, Eye (351), Peterborough.  
 PLYMOUTH: J. H. Peters, G3YDU, Treetops, 43 Holbrook Road, Plymouth (77878), Devon.  
 PUDSEY: P. Conway, G3XLV, 719, Scott Hall Road, Leeds, 17.  
 PURLEY: A. Frost, G3FTQ, 62 Gonville Road, Thornton Heath, Surrey CR2-6DB.  
 R.A.I.B.C.: Mrs. F. Woolley, G3LWY, 331 Wigan Lane, Wigan, Lancs.  
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 SALOP: W. Lindsay-Smith, G3WNI, 22 Kingswood Crescent, Copthorne, Shrewsbury.  
 SALTASH: J. A. Ennis, G3XWA, 19 Coombe Road, Saltash, Cornwall.  
 SHEFFORD: M. B. Goodwin, G3WKR, 16 Roe Close, Stotfold, Hitchin, Herts.  
 SILVERTHORN: D. Standley, G3XSA, 212 Westward Road, Chingford, London, E.4.  
 SOLIHULL: J. Lester, G3VXV, 173 Damson Lane, Solihull, Warwickshire. (021-705 3060.)  
 SOUTH BIRMINGHAM: R. Brice, 60 Coralin Close, Chelmsley Wood, Birmingham, 37. (021-770 4265.)  
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 SOUTHDOWN: L. E. Tagliaferro, 9 Tugwell Road, Hampden Park, Eastbourne (54244), Sussex.  
 SOUTHGATE: A. F. Hydes, G3XSV, 6 Glenbrook North, Enfield.  
 TORBAY: Mrs. G. Western, G3NQD, 110 Truro Avenue, Hele, Torquay.  
 VERULAM: W. C. Dennis, G3NCK, 129 Colney Heath Lane, St. Albans, Herts.  
 WAKEFIELD: M. E. Garner, G3XVU, 13 Kingsdale Avenue, Drighlington, Bradford.  
 WEST KENT: R. Trevitt, G3SSE, 28 Delves Avenue, Tunbridge Wells, Kent.  
 WESSEX: A. G. Emery, G8AVE, 7 Brunel Drive, Preston (3177), Weymouth, Dorset.  
 WIRRAL: A. Seed, G3FOO, 31 Withert Avenue, Bebington, Wirral, Cheshire L63-5NE.  
 WORCESTER: R. L. Avery, G3TQD, 24 Alexander Avenue, Droitwich (3943), Worcs.  
 YEOVIL: D. L. McLean, G3NOF, 9 Cedar Grove, Yeovil, Somerset.

filled by a short series of talks by various junior members.

**Mid-Sussex** covers the area around Burgess Hill, and in fact the Hq. is at Marle Place, Leylands Road, Burgess Hill. June 5 is still "to be arranged" although it will almost surely have been finalised at the time you read this. On June 19, they have a Mobile Evening at "Jack and Jill Windmills," Clayton, near Hassocks.

Oddly enough, G3SYS, who figured largely in the Mid-Sussex newsletter, is the compiler of the next one, from **Oxford University**; he is glad to be able to say that the lads have been able to find a home for their own station, G3OUR, at the Outdoor Activities Club in Keble Road.

On to **Southdown**, who have the AGM on June 2, at the usual venue, the Victoria Hotel, Latimer Road, Eastbourne.

At **Dorking**, the chaps get together at the Wheatsheaf on June 10 for an informal. On June 24, there is an informal and some activity on the VHF bands while on the way to the Plough at Coldharbour.

#### London Area

**Crystal Palace** first in this group, and here we find that the meeting is given as June 21, with a Field Day evening. For the details, it is suggested you contact the Secretary, G3FZL, either by letter or 'phone, at the address given in the Panel, opposite.

At **Acton, Brentford and Chiswick** there is to be a debate on June 17, at Chiswick Trades and Social Club, 66 High Road, Chiswick, the subject of the battle being a thorny one—"Why go VHF?"

At **Edware** stocktaking is regarded as a better term than "post mortem" for the session which comes after NFD, on June 9. A D/F is fixed for June 22, for details of which the club net or the meeting should be consulted. June 23 is down for the *Veroboard* talk. The main net is on Thursdays, after the Slow Morse transmission from G3ASR/A between 2030 and 2130 clock, the frequency being as near as may be to 1875 kc. In addition, on those Mondays when there is no Club meeting there is another net, this time about 2200 clock, a little higher in the band, around 1915 kc. Venue for meetings is St. George's Hall, 51 Flower Lane, Mill Hill.

**Cray Valley** have two evenings in June; on the 5th Mr. C. Jones of Mullard will be talking about some aspects of transistors, and on the 19th there is a surplus sale. The meetings are held at the Congregational Church Hall, Court Road, Eltham, London, S.E.9.

At **Grafton**, the date of their field day has been put back to 28/29 June. The reason for this change is simply the arising of a problem over the loan of tents for the exercise. They are going to Tumulus Hill, Hampstead Heath, and will have G3VUE on 144 mc, the club call G3AFT on the HF bands, and Top Band SSB provided



F5PD/G5AMB (left) with F2XO, at the Thanet Radio Society dinner, held at Ramsgate on March 28, for which members and their guests totalled 89.

by the president, G2CJN.

**Southgate** have changed their venue since the days, many moons ago, when your scribe was a member, and so we have to hang our head in shame and admit we don't know either the date or the place—but we do at least have a clue as to what is on! G3SVK of DX-pedition fame is going to talk—and no doubt play some of his collection of tapes of interesting DX signals. For the rest, a line to the hon. sec. is indicated—see Panel.

At **Silverthorn**, the lads have obtained permission to put up a VHF beam for the club station; the Hq. for this gang is at Friday Hill House, Simmons Lane, Chingford.

A Natter Nite for **Purley** on June 6 will be given over—naturally—to sorting out the last-minute details for NFD, in the light of the couple of dummy runs they have already had this year. As for June 20, they have the large hall for the AGM. Both meetings, of course, at the Railwaymen's Hall, 58 Whytecliffe Road, Purley.

#### Midlands and the North

And, appropriately enough, it is **Midland** who head the clip. They have the third Tuesday in each month booked at the Midland Institute in Margaret Street, Birmingham 3. What is planned is not, at the time of writing, known, but if the programme arranged for the spring period is anything to judge by, it should be of considerable interest.

Successful clubs, like Midland and **Derby** (with no less than 204 members) do not necessarily seem to be in areas where electronics as a business is very prominent, and the getting of lecturers easy—but there are many clubs who excuse failure by saying "Oh, but we are too small to ask anyone to come and give us a talk." What they *really* mean is that the responsible official in the Club is to often afraid to try! There are far too many things going on at Derby to cover all of them

#### TO GET INTO THE NEWS

Club Scribes and Secretaries should note these dates: June 6, for the July issue; July 4, for August; and August 8, for September. Pse note also that reports must include the name/QTH of the Club secretary. Address for "Month with The Clubs" is simply: Club Secretary, Short Wave Magazine, Buckingham.

adequately, but they are at home on June 4, for a Surplus Sale, away on a visit on June 11, out playing D/F on June 18—but with an event laid on at Hq. for those not taking part—and in the clubroom discussing various matters on June 25. Hq. is Room 4, 119 Green Lane, Derby, starting at 7.30.

After a couple of old clubs—indeed Derby were one of the first, as any BBC-2 watcher of the “Yesterday’s Witness” series will know—**Solihull** are very much in the “bouncing babe” stage by comparison, but growing fast. They get together at the Old Manor House, 126 High Street, Solihull, and the regular booking is for the third Tuesday in each month. For June that means the 17th, and the evening is to be devoted to a Junk Sale.

Every Wednesday and Saturday evening the **Worcester** clubroom is “open for business” at 35 Perdiswell Park, Droitwich Road, Worcester, albeit at this moment it is not known just what they will be doing. Perhaps the best way to find out would be to go along and see for yourself!

At **Peterborough**, the locals are busy trying to work their secretary, G3KPO, from various parts of the States where he is on a business trip. Their notes however, do not mention any details of other doings for the next month or so.

**East Worcs.** group have Hq. at the Old People’s Centre, Park Road, Redditch, where they are to gather on June 10 for the final arranging of their forthcoming trip to the Birmingham Post Office Tower. Incidentally, we gave their hon. secretary’s phone number wrongly last time out.

After all the time your scribe has been compiling this piece, he would have thought his file of addresses was near-complete. But, to prove this assumption wrong, we have a note in from **Hartlepoons**. They get together at the rear of 42 Murray Street, every Monday evening, under the chairmanship of Gladys, G3XWE, and for the near future there are at least three lectures arranged, with dates to be firmed up. May 19 is a definite one, with a talk on Panoramic Reception.

Quite a full programme at **Coventry**. June 6 is down for a trip to BBC Radio Leicester, with Field Day over June 7/8. On June 13, the lads are out playing D/F, and on June 20 they are at home again. June 27 will see them having an evening on the air with the Club Station.

On to **Pudsey**, which continues to thrive, with their weekly meetings given over to lectures, R.A.E. instruction, constructional evenings, and what-have-you. At the moment, though, it is fair to say that all sights are set in the direction of making their first Mobile Rally on July 17 a real success.

Back to Derby where there is a group at the **Nunsfield House** Community Association, Nunsfield House, Boulton Lane, Alvaston. This outfit is recently re-formed after a period of non-activity, and appears to be going like the proverbial bomb. A D/F run on June 1 starts the month, and on June 6 there is to be a technical film show. June 13 is for on the air with the Club call and KW-2000.

For a change, and it should be a very interesting change, one of the members of a party which went on a safari to India and the surrounding countries is coming over to talk about the trip, and will be showing quite a lot of film of the various interesting things which were seen.

At **Mid-Warwickshire** things seem to be going well again after a period a little time back when the luck did not run their way. For June, G3HCM is down to talk about test gear (on the 2nd), and on the 9th there is to be a tape talk on Transmitter Design and TVI. June 16 is for remote control of Radio and TV receivers. Hq. is at 28 Hamilton Terrace, Leamington Spa, where they are to be found every Monday evening, whether a lecture is mentioned or not.

Eddystone Radio are visiting the **Bury and Rossendale** crew on June 10, and the lads feel this is going to be of so much general interest that they are throwing the doors open to any of the local groups or individuals who care to come along; 8 p.m. is the starting time, and the George Hotel, Bury, the place.

**Nottingham** have recently had an AGM and a change in the slate of officers, which, of course reflects itself in the Address Panel. However, the new secretary must really have something up his sleeve, because he says that if your scribe cares to write he will then send a copy of the programme for the future! (With so many clubs reporting each month . . . !) However, you can find out all about it on Thursday evenings, at Woodthorpe House, Mansfield Road, Nottingham.

For **Hull**, June 6 is down for NFD preparations; June 13 for a talk on Transistor Power Supplies by G3PQY; the 20th for the ritual investigation of the corpse of NFD hopes, and on June 20 G3SSA takes as his subject the whole question of Mobile Equipment. All are at Hq., 592 Hessle Road, Hull.

**South Birmingham** have their sessions on the first Wednesday in each month, and for June it looks rather like the old favourite, a Surplus Equipment Sale. They get together at the Scout Hut in Pershore Road, Birmingham 29.

A change of secretary is reported from **Wakefield**, the address of the new inhabitant of the hot seat being as shown in the Panel. The gang still get together at the Wakefield Youth Centre, Zetland Street, on alternate Tuesdays. June 3 is slated for a Junk Sale; June 17 for a talk on “Basic Electronic Circuits” by G3MGB; and on Basic Transistors by G3WWF on July 1. This sort of programme planning, such that each talk complements others on the programme, is a thing greatly to be desired, particularly from the point of the younger—or rather, newer—members.

### Sign-Off

So that’s it for another month. Please let us have your reports for next time, with dates and plans for July, as soon as possible—but in any case not later than **Friday, June 6**, first post, addressed as usual to: “Club Secretary,” SHORT WAVE MAGAZINE, BUCKINGHAM. 73.

## THE MOBILE SCENE

### FIRST RALLY REPORTS— NEWS AND PICTURES

ONE of the biggest and most important of the Mobile Rallies is that which takes place earliest in the season—the North Midlands, at Drayton Manor Park, near Tamworth, Staffs., this year on April 20 last. Drayton Manor is, of course, a show place, attracting thousands of visitors over a sunny weekend; it has all the amenities for a family outing. On the strictly radio side, the Rally was organised by the Midland and Stoke-on-Trent Amateur Radio Societies, under the chairmanship of G8ADV, with G3JDJ (president of M.A.R.S.) as the opener. By mid-afternoon, the two exhibition rooms were packed with visitors, milling round the 40 or so stands, all doing good business. At the close, the large signing-in board carried no less than 684 callsigns, with another 100 or so SWL names—some 80 of the visitors were found to have travelled over 100 miles to be present. This Rally has undoubtedly established a success-pattern, and next year's event has already been booked for April 19, 1970.

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On quite a different scale, we have a report on a meeting, proposed over the air by two or three people who wanted to meet, which unexpectedly turned into a miniature rally—on May 4, at Trinity Hill, near Axminster, Devon, when 20 cars turned up, many of them /M, from Weymouth, Torquay and Exeter. According to the report from G3HMY, the spirit and feeling of the occasion could not have been bettered—possibly because it was just a get-together, with no pre-publicity nor high-powered organisation behind it.

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Touching on the general topic of /M operating, an

interesting report from G3OZN (Worksop, Notts.), who finds that one way of avoiding TVI while keeping in touch with the DX is to work it mobile! He runs a KW-2000A in a mini-van, with a Tavasu whip aerial, and within the last couple of months or so has been raising some real DX on 10-15-20m., including ZL, VK6, TF, ZC4, W's in most districts, PY and KG6—all during afternoon and early evening sessions, as appropriate to band conditions. Indeed, in six weeks G3OZN worked no less than 47 different countries and made his WAC/M. Nice going!

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The number of U.K. amateurs licensed for mobile now stands at 2700+, representing nearly 19% of the total of British licences in issue. The additional charge made by the G.P.O. for a /M licence is 30s.

\* \* \*

It is much to be regretted that we did not receive earlier notification of details for the annual Amateur Radio Mobile Society Rally, to be held this year at The Airfield, Old Warden, near Biggleswade, Beds., off the A.1. This is the home of the famous and unique Shuttleworth Collection of vintage aircraft (most of which are in flying condition, incidentally) together with original cars and other transport of an earlier epoch. This Rally takes place on Sunday, June 1—which will be about the day after you see this! There is an entrance charge of 4s. (made by the Shuttleworth Trust, not A.R.M.S.), half-price for juniors.

### THE MOBILE CALENDAR

**June 1:** Amateur Radio Mobile Society's annual Rally—*see above.*

**June 1:** For the YMCA 125th anniversary celebrations, at the Sports Centre, Melrose Close, Loose, Maidstone, Kent, signing GB3YMC/A on Top Band

A section of the car park for the big Mobile Rally at Drayton Park on April 20, with somebody's two-metre halo in the foreground.



and two metres, AM/SSB. A big effort is being made to ensure that this Rally will be specially interesting and successful.—W. E. B. Kent, G3YCN, 72 Bower Mount Road, Maidstone (S7634), Kent.

**June 22:** Annual D/F Hunt to be held by University College of Swansea, over the National Park in the beautiful Gower Peninsula of South Wales.—D. West, GW3TYI, Neuadd Gilbertson, Clyne, Abertawe, Morgannwg.

**June 29:** South-West of England Mobile Rally at Longleat Park, near Warminster, Wilts., the home of the Marquis of Bath, off the A.362, Frome-Warminster. Picnic beside the lovely lake, in the grounds of this magnificent house, with all its well-known attractions—lions, apes and the rest. Rally is to include a Trade Show, surplus equipment sale and other side-shows. Talk-in will be given on Top Band and two metres. Actual Rally site, which will be sign-posted, is beside the exit from the Lion Reserve, by the lake.—J. Thorn, G3PQE, Jessamine House, Chapel Allerton, Axbridge, Somerset.

**July 6:** South Shields & District Amateur Radio Club's annual Mobile Rally, at Bents Park, Coast Road, South Shields, Co. Durham, opening at 2.0 p.m. Talk-in stations will be operating on 160m. and 2m. from 11.0 a.m. There will be a trade exhibition, with light refreshments available on site. Free car parking tickets can be obtained by application to: D. Forster, G3KZZ, 41 Marlborough Street, South Shields, Co. Durham.

**July 6:** North-East Technical College Radio Club's Mobile Rally at Colchester Zoo, signing GB3ZOO for the talk-in.—R. C. Greenleaf, G3VAG, 27 Ernest Road, Wivenhoe, Essex.

**July 13:** Wessex Amateur Radio Group's mobile picnic at Stoney Cross Airfield, near Cadnam in the New Forest. Talk-in by G3FVU/P on 1880 kc and G8AVE/P, 144.20 mc. It is hoped to make this a pleasant and informal get-together for anyone caring to attend.—A. G. Emery, G8AVE, Windrush, 7 Brunel Drive, Preston, Weymouth, Dorset.

**July 13:** At the Hill County Secondary School, Upon-on-Severn, Worcestershire, Rally organised by the Worcester & District Amateur Radio Club, venue one-mile west of River Severn, on the A.4104. Talk-in will be on 2-4-160m. There will be an amateur RTTY demonstration and a display of model aircraft. Refreshments will be on sale.—R. L. Avery, G3TQD, 24 Alexander Road, Droitwich, Warks.

**July 27:** Pudsey & District Radio Club Mobile Rally, at Allerton High School, Leeds 17. Talk-in on all regular bands.—M. S. Gaunt, G3WGW, QTHR.

**August 17:** Annual Derby Mobile Rally, *details later.*

**August 24:** Royal Signals and Amateur Radio Mobile Societies' Rally (open to members only) at the Royal Signals Camp, Blandford Forum, Dorset.—N. A. S. Fitch, G3FPK, Hon. Secretary, A.R.M.S., 40 Eskdale Gardens, Purley, CR2-1EZ, Surrey.

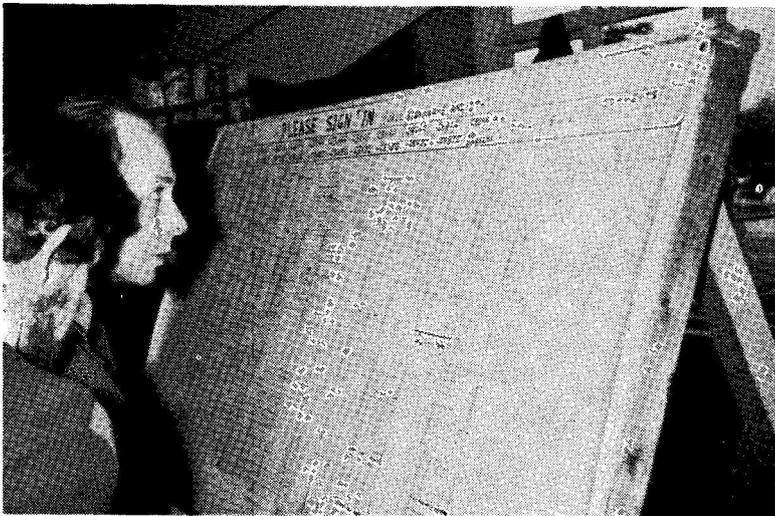
**August 31:** The G3VGG, Bromsgrove & District Amateur Radio Club, Mobile Picnic.

**August 31:** Preston Amateur Radio Society Mobile Rally, at Kimberley Barracks, Deepdale Road, Preston, Lancs.—G. Wright, 56 Queensway, Bamber Bridge, near Preston.

The stand of Amateur Electronics, Birmingham, with G3WQR demonstrating the new Trio TS-510 Transceiver, at the North Midlands Rally.



At the North Midlands Mobile Rally, one of the trade stands was that of Chas. H. Young, Ltd., the well-known firm of Amateur Radio suppliers, in the business for more than 20 years. Charlie Young, G2AK, himself is on the left.



The signing-in board for the North Midlands Mobile Rally. By the middle of the afternoon some 800 registrations had been made—/M's, transmitters and SWL's.

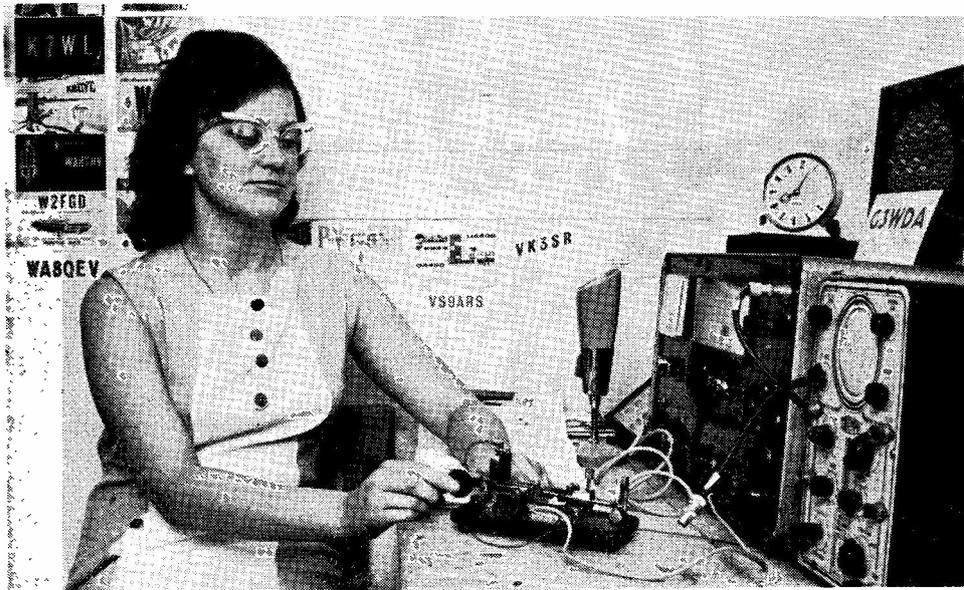


Some of the crowd in the main ball-room at Drayton Manor, where the trade exhibition was held for the Rally on April 20. There was a very large attendance, with no less than 40 stands of various kinds.

# NEW QTH's

This space is available for the publication of the addresses of all holders of new U.K. call signs, as issued, or changes of address of transmitters already licensed. All addresses published here are reprinted in the U.K. section of the "RADIO AMATEUR CALL BOOK" in preparation. QTH's are inserted as they are received, up to the limit of the space allowance each month. Please write clearly and address on a separate slip to QTH Section.

- G3XBY**, D. F. Harvey, Green Leys, Stourbridge Road, Wombourne, Wolverhampton, Staffs.
- G3XSX**, J. Harrison, 15 Antonio Street, Bootle, Liverpool, 20.
- G3YCV**, J. Hibbert, 21 Durban Road, Cliftonville, Margate, Kent.
- G3YCY**, R. E. Barrett, 4 Parr Fold Avenue, Worsley, Manchester, Lancs. M28 4EJ. (Tel. 061-790 2392.)
- G3YEU**, B. J. Short, 19 Tewkesbury Road, Mossley Estate, Walsall, Staffs.
- G3YFC**, R. Goddard, 35 Great Leylands, Harlow, Essex. (Tel. Harlow 24593.)
- G3YFV**, P. W. I'Anson, 103 Radcliffe Road, Bury, Lancs.
- G3YFY**, S. B. Caldwell, Woodside Road, Ballymena, Co. Antrim. (Tel. Ballymena 2569.)
- G3YGB**, C. Coleman, 6 Lynchetts Road, Amesbury, Salisbury, Wilts.
- G3YGG**, J. E. Kelly, 54 Brandon Avenue, Heald Green, Cheadle, Cheshire.
- G3YGM**, M. A. Osborne, 16 Forest Avenue, Cowplain, Hants.
- G3YGW**, G. E. Whitehead, B.Sc., 61 Parkway Grange, Leeds, LS14 6UR.
- G3YGY**, P. O. Ridgley, 21 White-thorn Avenue, Yiewsley, Middlesex.
- G3YHA**, T. Cooper, 25 Danum Road, Fulford, York.
- G3YHF**, C. Skelcher, 52 Victoria Road, Wilton, Salisbury, Wilts.
- G3YHG**, D. Harding, 12 Assisi Road, Pauls Dene, Salisbury, Wilts.
- G3YHJ**, P. J. Simmons, Lorient, Weedon Lane, Norton, Daventry, Northants. NN11 5NQ.
- G3YHN**, C. J. Pedley, 57 Temple Road, Willenhall, Staffs. (Tel. Willenhall 67928.)
- G3YHO**, R. A. Yaxley (ex-G8BJI), Ashness, Swaffham Road, Wending, Dereham, Norfolk.
- G3YHU**, D. Robinson, 3 Lightfoot Road, Larkhill, Salisbury, Wilts.
- G3YIF**, J. Weiner, 37 Knoll Drive, Coventry, Warks. CV3 5BU.
- G3YIU**, K. R. Bassett, 65 Farm Hill, Woodingdean, Brighton, Sussex. BN2 6BG. (Tel. Brighton 62727.)
- G3YJA**, B. Porter, 39 Knoll Drive, Coventry, Warks. CV3 5BU.
- GW3YJB**, H. Pritchard, Tyisaf, Rhydyclafdy, Pwllheli, Caerns.
- G3YJH**, D. Wickett, 317 Old Walsall Road, Great Barr, Birmingham, 22-A.
- G8BTK**, C. W. Harlow, Thorn Cottage, Old Mead Lane, Henham, Essex. (Tel. Henham 219.)
- G8CED**, L. C. Maunder, 47 Langdale Gardens, Elm Park, Hornchurch, Essex.
- G8CGZ**, D. R. Moore, 57 Rother Avenue, Brimington, Chesterfield, Derbyshire.
- G8CHZ**, Dr. D. M. H. Cogman, 30 Downage, London, N.W.4. (Tel. 01-203 2118.)
- G8CKF**, R. C. Taylor, 6 Trevelyan Crescent, Preston Road, Harrow, Middlesex.
- G8CLP**, R. B. Ludwell, 50 Clarendon Road, Cheshunt, Herts. (Tel. Waltham Cross 24869.)
- GW8CMA**, P. A. Jones, 9 Warwick Road, Derwen Fawr, Swansea, Glam. SA2 8DZ.
- G8CMV**, J. J. Creedy, 13 Wood Lane, Ramsey, Huntingdon.
- GW8CNY**, A. Bartlett, 14 Highfield Avenue, Litchard, Bridgend, Glam.
- G8COG**, R. A. Eva, 107 Perrywood Road, Great Barr, Birmingham, 22-A.
- CHANGE OF ADDRESS**
- GW3CBA**, H. S. C. Kellaway, 50 Winston Road, Barry, Glam.
- G3EDW**, P. R. Golledge (ex-9J2W /VQ2W/D2DW), Glen Tor, Torrington, Devon.
- G3EHG**, R. V. Jordan, 38 Southern-down Road, Sedgley, Dudley, Worcs. (Tel. Sedgley 3827.)
- G3EPO**, K. I. Procter, Brae-Mar, Ash Road, Hartley, Dartford, Kent. (Tel. Longfield 3743.)
- GD3HQR**, A. W. Anderson, 7 Howstrate Drive, Onchan.
- G3KAF**, J. F. France, 54 Friars Avenue, Shenfield, Brentwood, Essex. (Tel. Brentwood 6498.)
- G3MLNI**, H. J. Towns, 78 Kirkton Place, Whitemoss, East Kilbride, Glasgow.
- G3LXD**, J. L. Hawkins, 44 Award Road, Church Crookham, Aldershot, Hants.
- G3NXV**, R. H. Jennings, Grendon Hall, Atherstone, Warks.
- G3OXO**, P. E. Morrison, Halcyon, Station Road, Rawcliffe, Goole, Yorkshire.
- GW3PEX**, L. France, 4 The Copse, Trefechan (Breconshire), Merthyr Tydfil.
- G3PPP**, A. A. George, 32 Tithe Way, Churchcroft Estate, Roade, Northampton. NN7 2PJ.
- G3PST**, P. J. Finch, B.Sc., 3-A Coward Road, Gosport, Hants. PO12 2LP.
- GM3SHB**, W. R. Blanchard, 27 Stenhouse Road, Saughton, Edinburgh, 11.
- G3SHL**, J. Harlow, 10 Barbara Avenue, Scraftoft Lane, Leicester. (Tel. Leicester 67646.)
- G3TRR**, A. M. Mills, 231 Newlands Avenue, Hull, Yorkshire.
- G3UJU**, M. Haslam, Four Forks House, Spaxton, Bridgwater, Somerset.
- G3VDO/MM**, I. Hacking R/O, m.t. London Independence (GHSR), c/o London & Overseas Freighters Ltd., 8 Balfour Place, Park Lane, London, W.1.
- G3VIT**, R. Stancliffe, c/o Sgts' Mess, R.M.B. Eastney, Southsea, Hants.
- G3VOV**, G. MacNaught, 169 Clotherholme Park, Ripon, Yorkshire.
- G3XLG**, R. J. Spreadbury, The Nook, Wetherden, Stowmarket, Suffolk.
- G5IC**, L. F. Ivin, Oakville, Longden Common, Shrewsbury, Shropshire.
- G8AAE**, D. G. Phillips, Silhill, Back Lane, Stock, Ingatstone, Essex.
- G8BHL**, D. Sugden, 9 Lodge Drive, Palmers Green, London, N.13.
- CANCELLATION**
- G8CFB**, K. R. Cates, 267 Uppingham Road, Leicester. (February issue.)



## THE OTHER MAN'S STATION

# G3WDA

THIS time, the feature should more properly be called "An XYL's Station"—for we are happy to show here Mrs. L. H. Lewis, G3WDA, (known on the air as "Lulu") and the rig she and her husband (G3MYI) operate at 60 Gorse Lane, Oadby, Leicester.

She first became seriously interested in Amateur Radio while in the WRAF, on a posting to Cyprus. On returning to the U.K., she worked hard for her R.A.E. and obtained her own ticket in February 1967—incidentally, the Morse Test presented no problem at all, because as a trained R.A.F. operator she can still do 25's. That key you see in the picture is not just a gimmick—G3WDA can hold her own with the hottest of the CW boys. Indeed, Lulu has the distinction of being the only YL operator in the U.K. who is a member of the exclusive First-class Operators' Club.

The G3MYI/G3WDA rig consists of a home-built Transceiver, covering all bands 10 to 160 metres, running 220 watts p.e.p. on Sideband and 200w. on CW—appropriate power reduction being arranged for Top Band—with full electronic break-in. The key is a genuine American Vibroplex (the original speed key), and the crystal microphone is of Japanese origin.

Until recent storm damage wrote it all off, their antenna system was pretty elaborate, as well as being very effective—it consisted of separate dipoles for 1·8 mc

(at a height of 80ft.), 3·5 mc (70ft. high), for 7 mc at 65ft., and a three-band Cubical Quad for 10-15-20m. This is being restored, to be better and even higher than before.

Since becoming licensed, G3WDA has worked all bands 10 to 160 metres, also two metres, and one of her favourite hunting grounds for early-morning DX is Forty, which Lulu considers "a vastly under-rated band." Much good DX has been worked, on CW and SSB, and G3WDA remarks that when on phone a feminine voice seems to bring them back a little more easily! She says she cannot bear rubber-stamp QSO's, unless there is a contest on or the other end is in a real hurry. G3WDA is a member of that group—founded some 40 years ago—known as the Rag-Chewers' Club, the title of which explains the reason for its existence.

Another interest is /M operating—G3MYI/G3WDA hold the French call F0JB and have toured France visiting friends made over the air on the 7 mc band. They also get round to as many Mobile Rallies as they can.

Finally, we are sure that G3WDA will not mind us just mentioning that, by the time this is in print, she should have presented G3MYI with their first-born—so perhaps there is another radio amateur in the making! Good luck to this delightful little family, who have found Amateur Radio to be a real interest and activity they can share and enjoy together.

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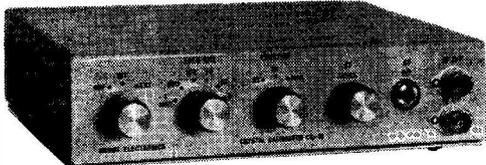
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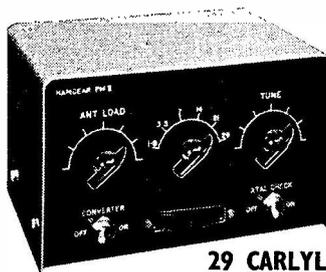
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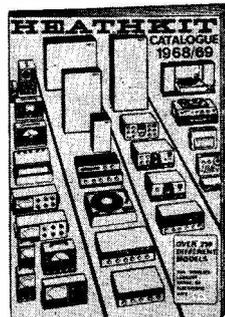
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**FOR SALE:** National HRO Rx, with eight band-spread and five general-coverage coil packs, price £25, including PSU. **OFFERS** invited for: K.W. Viceroy Mk. I, modified by K.W. Electronics to Mk. II, and overhauled by firm last month; also home-built double-conversion receiver, with xtal front-end and MF-455-10K filter, needs slight attention, plus aerial relay, comprising complete CW/SSB station.—Stone, G3YDX, 10 Berkshire Gardens, London, N.13. (Tel.: 01-888 6804, evenings.)

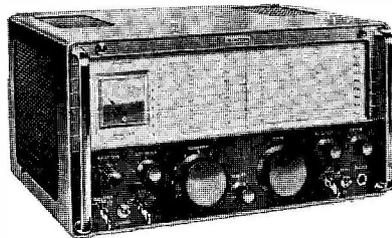
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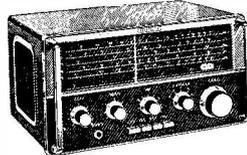
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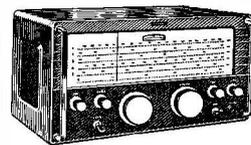
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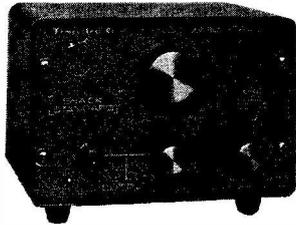
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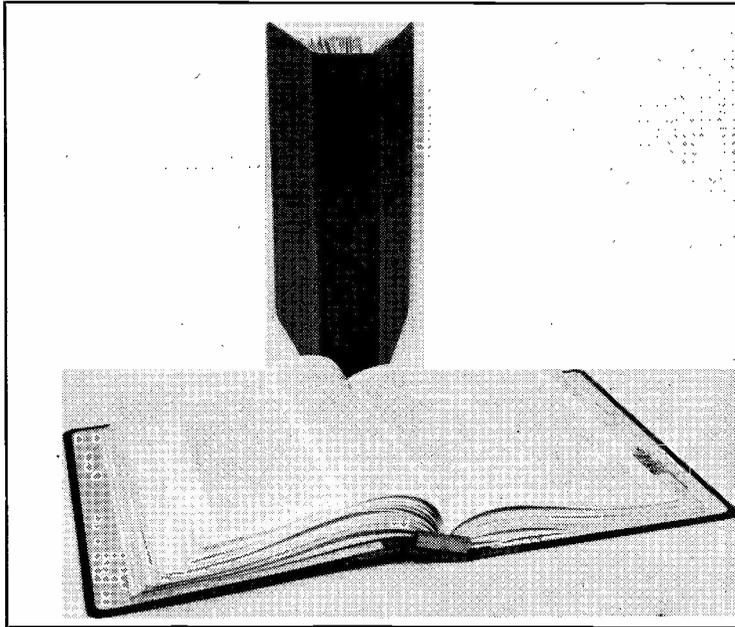
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