

The

SHORT WAVE

Magazine

22½P

VOL. XXIX

SEPTEMBER, 1971

NUMBER 7



WORLD WIDE COMMUNICATION

KW
ELECTRONICS
LIMITED

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PEP 10-160 metres, complete with
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I.R.T./I.T.T.

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Carriage extra

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- Improved VFO Read-out
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- Attractive panel layout
- D.C. P.S.U. for mobile
- Break-in c.w.



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10 - 80 metres

£200

carriage extra

KW Atlanta and
A.C. P.S.U.

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- A.N.L. and A.L.C.
- 100 kHz Crystal Calibrator.
- Two speed VFO drive
- Built in speaker.

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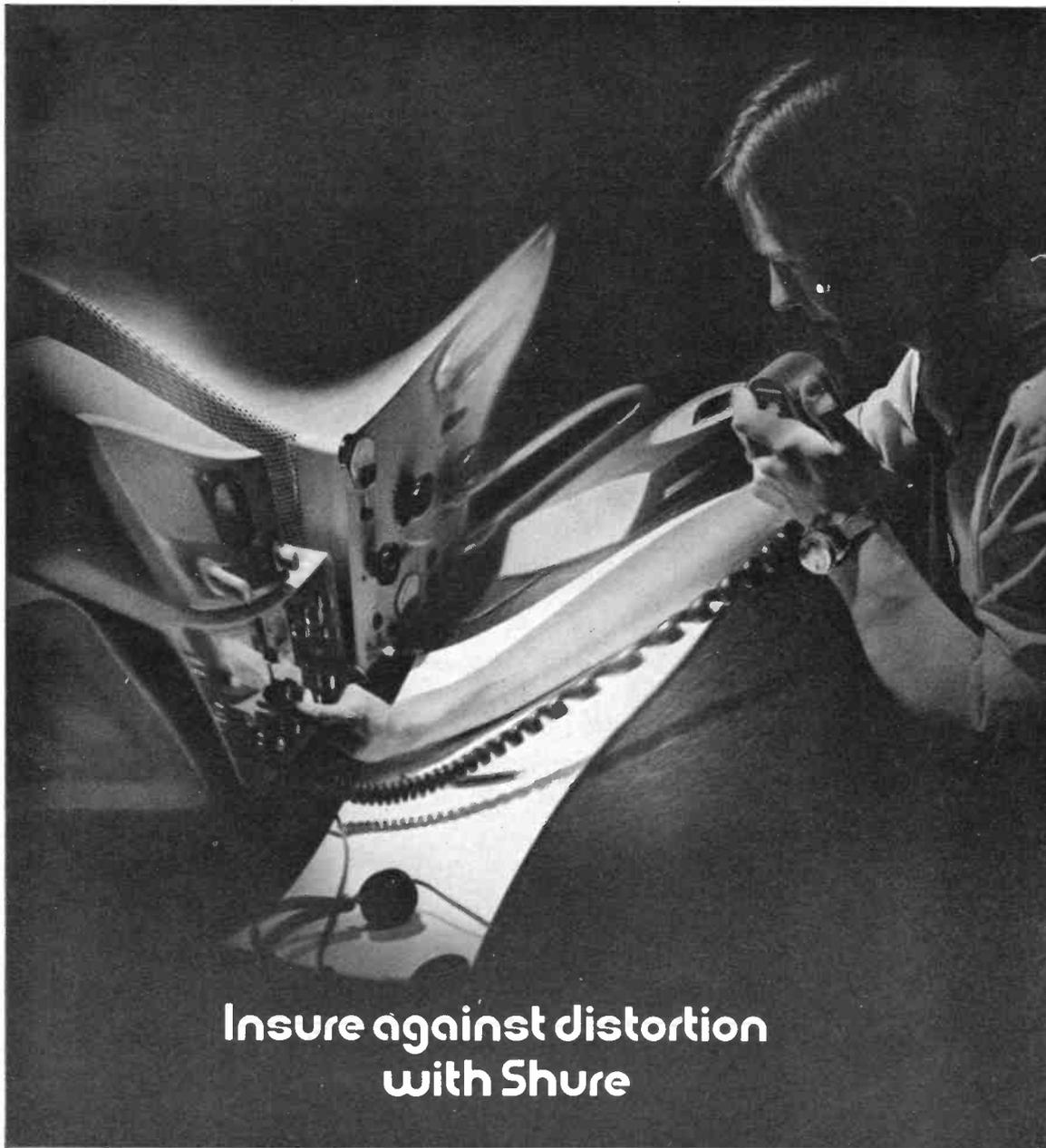
NEW KW PRODUCTS

KW202 RECEIVER, 10-160 metres SSB/AM/CW, with Mechanical Filter, built-in 'Q' Multiplier (Peak & Null), 500 kHz VFO covering all Bands. Two-Speed VFO Drive. Excellent Sig./Noise and sensitivity performance. Very attractive (similar in appearance to KW2000B). 100 kHz Crystal Calibrator price £140 carriage extra.
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KW 101—Standing-Wave-Ratio meter £9.25*.
KW 103 SWR/Power meter 0-100 & 0-1000 watts £12.50*. **KW 103** with Dummy Load and Coax Lead £20.50*. **KW 105** Antenna Tuning System including E-Z Match, SWR Ind., Dummy Load, Antenna Switch, 5 position, £36.00*. Also KW Trap Dipole with twin feeder and 4 other types (only the *original* Trap from KW is good enough for you). KW E-Z Match ATV, KW Low Pass Filters, KW & HZP Baluns, etc.

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TRIO JR310 AMATEUR BAND 10-80 Metre Receiver, £77.50.

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High quality 10 valve receiver manufactured by Murphy. Five bands: 150-300 Kc/s.; 560 Kc/s. -1.5 Mc/s.; 3.9-30.5 Mc/s. Incorporates 2 R.F. and 3 I.F. stages, band-pass filter, noise limiter, crystal controlled B.F.O. calibrator, I.F. output, etc. Built-in speaker, output for phones. Operation 150/230 volt A.C. Size 19½" x 13½" x 16". Weight 114 lbs. Offered in good working condition, £22.50. Carr. £1.50. With circuit diagram. Also available B41 L.F. version of above. 15 Kc/s.-700 Kc/s. £17.50. Carr. £1.50.

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TMK Model TW20CB. Features resettable overload button. Sensitivity: 20KΩ/volt D.C. 5KΩ/volt A.C. D.C. Volts: 0-0.5, 2.5, 10, 50, 250, 1,000v. A.C. Volts: 0-2.5, 10, 50, 250, 1,000v. D.C. Currents: 0-0.05, 0.5, 5, 50, 500mA. 10 amp. Resistance: 0-5K, 50K, 0-500K, 5 MEGΩ. Decibels: -20 to +52 dB., £11.50, P.P. 17½p.

UR-II SOLID STATE COMMUNICATION RECEIVER



4 bands covering 550 Kc/s.-30 Mc/s. continuous. Special features are use of FET transistors. S Meter, built-in speaker, variable BFO for SSB reception, noise limiter, bandspread control, sensitivity control. Output for low impedance headphones. Operation 220-240v. A.C. or 12v. D.C. Size: 12½" x 4½" x 7". Excellent value. Only £24.00. Carr. 37½p.

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RQ.10X (Built in P.S.U.) £8.87½
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12/RC Control Unit ... £2.50
AT5 Mains P.S.U. ... £11.00
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LAFAYETTE HA.800 SOLID STATE AMATEUR COMMUNICATION RECEIVER SIX BANDS 3-5-4, 7-7-3, 14-14-35, 21-45, 28-29-7, 50-54 Mc/s.



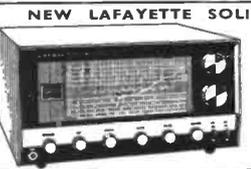
Dual conversion on all bands. 2 x 455 Kc/s. mechanical filters. Product detector Variable B.F.O. 100 Kc/s. crystal calibrator. "S" meter Huge slide rule dial. Operation 230v. AC or 12v. DC. Size 15" x 9½" x 8½". Complete with instruction manual, £50.50. Carr. paid (100 Kc/s. Crystal £1.97½ extra).



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Covering 550 Kc/s.-30 Mc/s. Incorporates variable FOB for CW/SSB reception. Built-in speaker and phone jack. Metal cabinet. Operation 220/240v. A.C. supplied brand new, guaranteed with instructions. £15.75. Carr. 37½p.



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500-0-500µA	£1.37½	150mA	£1.37½	150v AC	£1.37½
1mA	£1.37½	200mA	£1.37½	300v AC	£1.37½
1-0-1mA	£1.37½	300mA	£1.37½	500v AC	£1.37½
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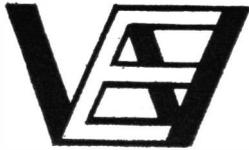
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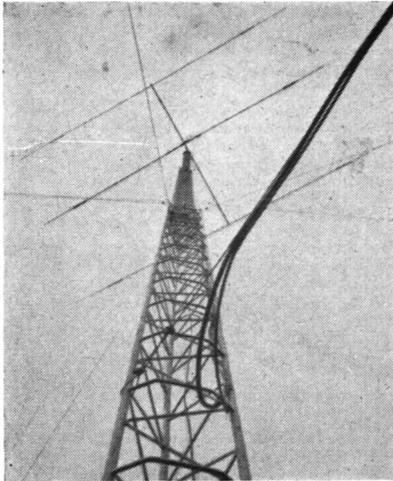
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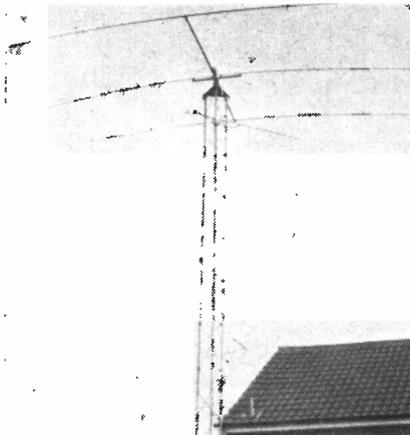


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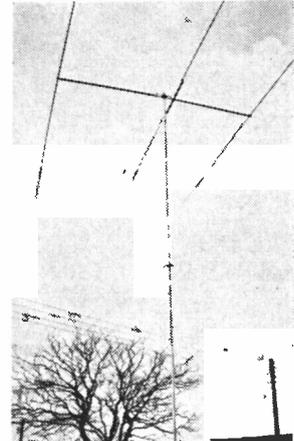
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FP200/250 A.C. Supply... .. £36	FT401/747 £195	FF50DX L.P. Filter £6-20
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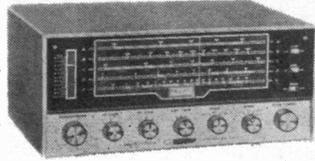


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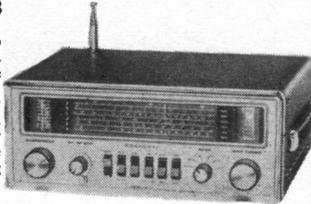


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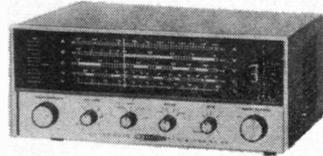


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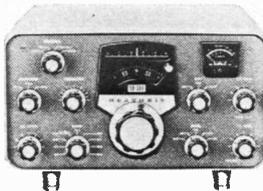


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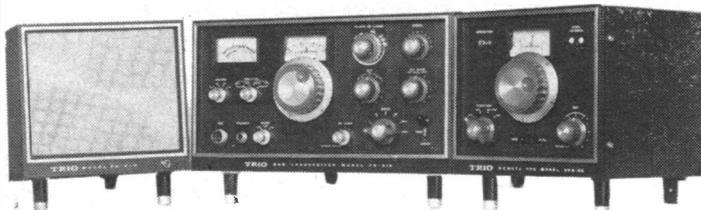
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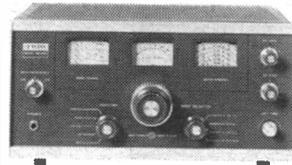


JR-310

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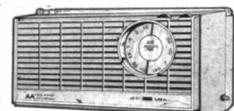
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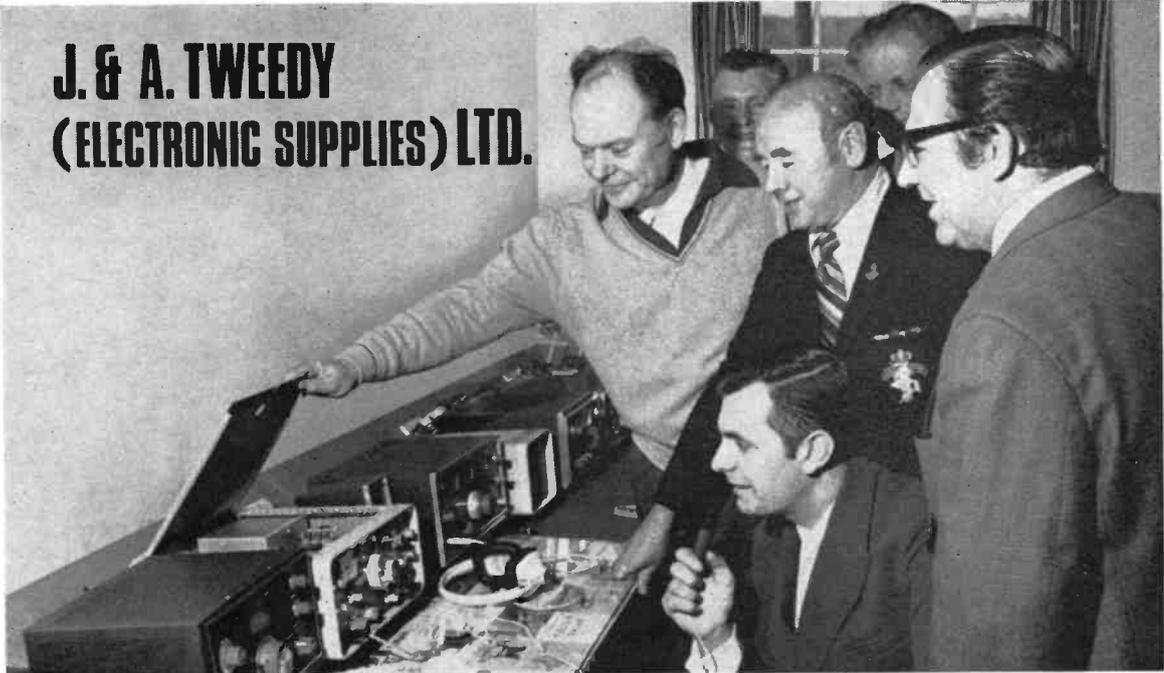
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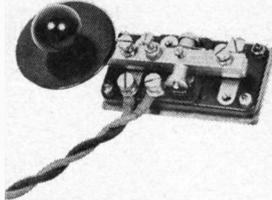
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SHORT WAVE MAGAZINE

(GB3SWM)

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SEPTEMBER, 1971

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AUTHORS' MSS

Articles submitted for Editorial consideration must be typed double-spaced with wide margins on one side only of quarto or foolscap sheets. Photographs should be lightly identified in pencil on the back with details on a separate sheet. All drawings and diagrams should also be shown separately, and tables of values prepared in accordance with our normal setting convention—see any issue. Payment is made for all material used, and it is a condition of acceptance that full copyright passes to the Short Wave Magazine, Ltd., on publication.

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New Model: FT-401 Designed for the CW man—built-in CW filter as well as the normal SSB filter, built-in noise blanker, fan-cooled PA. Further details and price to be announced when we have thoroughly vetted the equipment.

Inoue :
New Model: IC-20 Restyled IC-2F retaining all the valuable features with one or two minor improvements, £80.
We have just received a batch of IC-700R receivers—these are the solid state amateur band receivers with the top quality 9 MHz crystal filter at a reduced price of £75. At the old price they were a best buy, and at this price they are an absolute steal.

- F.E.:** FE-600 FE-600 200W p.e.p. transceiver. Excellent value at a rock bottom price. A ready-built 80-10 200W p.e.p. (2 x 6146B's) transceiver with built-in p.s.u., VOX, MOX, PTT, RIT, etc. Everybody thinks there's a catch—it can't be any good at such a low price. Nonsense, gentlemen—just listen to them on the air or come along and try one at our QTH. Convince yourself. The daftest thing I ever did was to underprice them in the first place. However, let's see if I can move 'em at £130. (And if anyone wanting a low priced rig misses this, then they want their nut examining!).
- FE-1200 500W p.e.p. version with fan-cooled PA. Unlike the FE-600, there is a catch. It is a discontinued model and a mite short of drive on 10. Mark, you, Twain, there's a heckuva lot of discontinued models going great guns and likely to for years to come.

As for being short of drive on 10—not the end of the world by a long chalk. Anyway, let's give the last one away at £110.

New Model: Digital 500D. Mr. Hirakawa has turned up trumps—not only has his latest model incorporated all the things we asked for, he has even increased the nixies from 5 to 6 so that the rig now reads to 100 Hz., £275. Digital One—separate VFO also available, illustrated above.

Other new stuff includes the YDB46 mike at £5 (this is the one supplied with the FT-101—sound nice, don't they?) and the de luxe table mike YDB44 at £10. Keys £1, EK-9X keyers £8-20, low impedance padded headsets £2-50 less plug, £2-60 with stereo plug, 12 hour digital clocks £5-80. Crystal filters KVG XF-9A, B, C, D and M all in stock, as well as the TEW and Kokusai. Fresh batch of Asahi dual meter SWR meters £6-80. Power meters/dummy loads, these are a very superior job, switchable 20 or 120 watts, VSWR 1:2 or better. 50 ohms 3-500 MHz £38. 75 ohms 3-150 MHz £35.

VHF men—at last a decent piece of gear at a reasonable price.

VHF mobile whips: the G-whip $\frac{1}{2}$ vertical at £4.10 plus 15p postage —just the job for the mobile IC-2F, IC-20 or FT-2F.

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Swan 400 £160.
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73 de Alan and Bill

The SHORT WAVE Magazine

EDITORIAL

Listeners Ever since the beginning, new recruits to Amateur Radio have come mainly from the ranks of short wave listeners—they achieve transmitter status after years of listening on the amateur bands; they are steeped in the traditions of Amateur Radio; they understand its language; and they regard themselves as privileged to belong to its ranks.

There can be no question that among the best of AT-station operators are those who have served a long apprenticeship as SWL's. There can be few who, holding call signs that mean anything today, did not cut their teeth as SWL's. They were introduced to Amateur Radio either by the chance hearing of some local transmitter (usually on Top Band) on a home-built receiver or, in later years, by listening round on the bands marked "amateur" on the short-wave ranges of the family BC receiver. Whatever their introduction, they found that progress in the art and science of Amateur Radio depended almost entirely upon their own efforts.

It is this self-dependence that makes the majority of radio amateurs the unique body they are—able to think for themselves, individualistic and self-reliant, but without being absorbed in Amateur Radio to the exclusion of all other interests.

The SWL's of the present generation are exactly the same sort of people as those who, looking for advice and guidance 40 or more years ago, are among the leading lights in the world of Amateur Radio as it is today.

If an SWL—young or old, shy or self-confident, professional or with only an amateur interest in radio—approaches you for advice about getting on the air, it is not only your duty, but also your privilege, to do all you can to help and encourage him and maintain his enthusiasm.

Austin Smith,
9660.

WAVEMETER FOR VHF

SENSITIVE TRANSISTORISED CIRCUIT

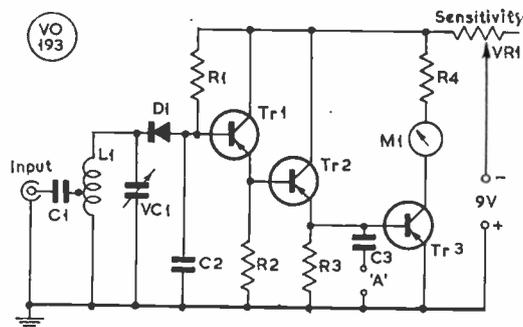
J. M. ORTON (G8CHP)

THE wavemeter described here was originally designed for checking the frequency of multiplier chains in 145 MHz transmitters. It had also to be sensitive enough to register the output of local oscillator chains used in transistorised two-metre converters—obviously working at very low RF power levels.

Hence, in addition to being sensitive, the frequency coverage needed is of the order of 25 to 150 MHz. The circuit as shown also makes provision for an audio output monitoring point, at "A".

The L-C input is tapped one turn from the earthy end for maximum sensitivity, rectified by D1, and fed to three DC-coupled emitter followers, giving the high sensitivity factor. In the author's experience of using coil data taken from published circuits (invariably needing some slight modification) it is suggested that L1 be independently adjusted to provide the required coverage, but details for L1 as used here are given as a guide.

It is advised that VR1 be set at maximum before any



Values for the VHF Wavemeter: C1, 50 pF; C2, .0047 μ F; C3, 0.47 μ F; VC1, 350 pF; R1, 180K; R2, 4.3K; R3, 8.2K; R4, 390 ohms; VR1, 250K potentiometer; D1, any RF diode; Tr1, Tr2, Tr3, OC71; meter, 0.1 mA; and L1, five turns 18g. $\frac{1}{2}$ -in. dia. by $1\frac{1}{2}$ -in. long, air-spaced, tapped one turn from earthy end—see text.

given RF circuit is sampled. The "no-signal" current through M1 should be just enough to lift the needle off the stop, when VR1 is at minimum setting. Construction can be in any low-loss arrangement, the writer using an Eddystone die-cast box about $4\frac{1}{4} \times 3\frac{1}{4} \times 2\frac{1}{4}$ ins., with a slow-motion control for VC1.

NEW VHF/UHF MANUAL

THE new, Second Edition, of the *VHF/UHF Manual* edited by George Jessop, G6JP, and published by the RSGB, has now made a welcome appearance, and is as much a "must" for the serious VHF/UHF worker as was the original. The ten chapters and some 270 pages of text, diagrams and photographs cover just about all aspects of amateur endeavour in these frequency regions.

As might be expected, the chapters on fundamental theory have not needed revision, but it is noteworthy that the design material has been enlarged and improved by the inclusion of many transistorised circuits for both transmission and reception at frequencies up to 13 cm. which make use of the most modern, state-of-the-art devices. Valve equipment, particularly for the higher output power range, has not been ignored and designs for 150-watt transmitters for both two metres and 70 cm. are included. The chapter on Mobile operation has been considerably extended and now includes construction data for a transistorised Rx as well as for transmitters and power supplies for 144 MHz. Welcome additions to the section on SSB are comprehensive notes on the criteria for avoiding spurious in-and-out of band radiations when generating this mode, and designs for phasing exciters for 144 MHz SSB transmitters. The remainder of this chapter deals with the "Variverter" principle and the design of medium and high-power linear output stages. The material on antennae is much the mixture as before, but then an 8-ele Yagi doesn't change much with the years, and includes details of suitable arrays for all the VHF/UHF bands, including constructional data on dishes for 23 cm.

The chapter on test equipment includes information

on reflectometers and power measurements, and gives designs for GDO's covering frequencies up to 10 GHz. Noise sources, RF bridges and power supplies are included, together with details of a suitable CRT monitor for 144 MHz transmissions.

In summarising, it may safely be said that this Manual is the most comprehensive *vade mecum* at present available to the amateur, and is thoroughly to be recommended to all, be they tyro or expert. The cost is £1.75, post free, and stocks are held for immediate delivery by the Publications Department, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

A.H.D.

SOME I.A.R.U. STATISTICS

From the Summary of Annual Reports for 1970, we get it that of the countries with the largest number of licensed amateurs, varying proportions are actually members of their national societies—for instance, of the 101,000 Japanese AT-stations, only 34,000 belong to the J.A.R.L. Of the 15,354 German licensees some 12,300 are members of D.A.R.C. The United Kingdom figures are 16,500+ licensed with about 8,000 as members of RSGB. For the U.S.A., the total of licences is given as 266,000, with only 77,000 members of the ARRL.

The countries having *all* their licensed amateurs as members of the national organisation (probably a condition for getting an AT-station permit in the first place) are Algeria (16), Bolivia (107), Bulgaria (446), Burma (25), Ceylon (58), Finland (2,000), Hungary (€21), Liberia (88), Monaco (19), Morocco (50), Paraguay (184), Surinam (46) and Yugoslavia (1,750).

COMMUNICATION and DX NEWS

E. P. Essery, G3KFE

ANOTHER summer month has slipped by, almost unnoticed, and still the band clings to the June habits. Nothing but the odd short-skip (probably Sporadic-E) contact on Ten, certainly at any hours your conductor was able to look. Fifteen doing its duty occasionally, but, compared with last year, hampered by a shortage of sun-spots. Twenty, more than ever, taking the traffic—but, of course the extra business on Twenty means the DX is an extra dozen layers down. As for the LF bands—ugh! Even Top Band is suffering, insofar as the stations who have come on the air of late years

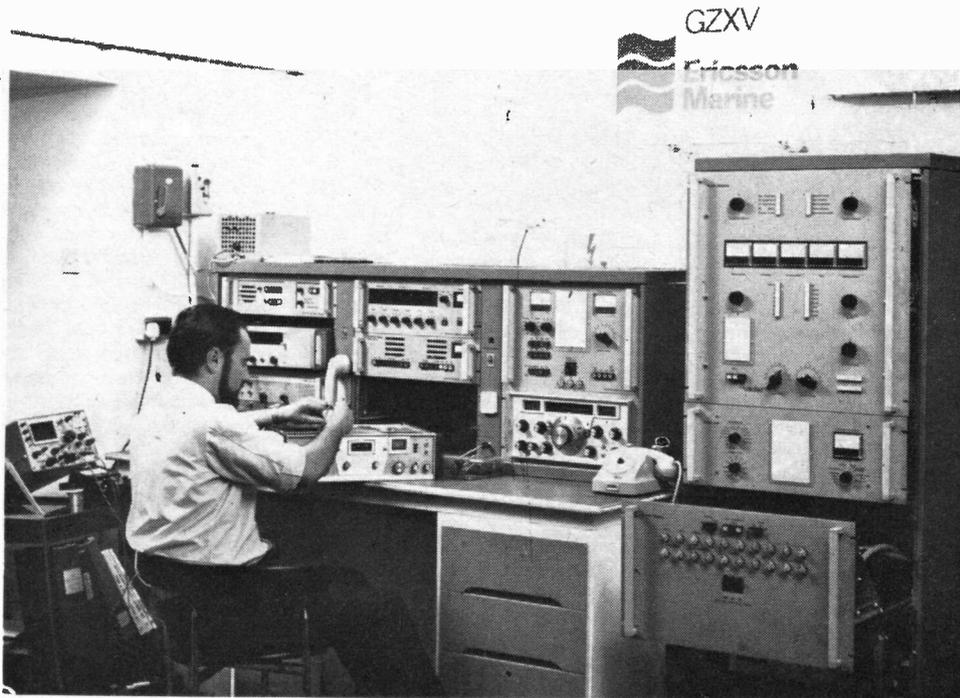
are nearly all lacking in GI QSO's

However, let us carry on with Top Band, and record the tale of G3RKJ, asking just who put out the tale that Top Band was no dice for DX in summer. It seems Neil tried a CQ just a little after midnight-zulu, and had been somewhat startled to raise PY1DVG—but he was even more surprised to be tail-ended by KV4FZ!

How nice to hear from W1BB that at his W1BB/1 QTH, where the dipole is 265 feet up at the feed point, that the aerial is now repaired and back in service—the band has certainly not been the same without that

colossal signal over here. Stew mentions some interesting DX contacts—WA7ILC to ZL1AYG on July 11. On July 16 came what must almost be the ultimate in Top Band contacts, namely a CW and SSB QSO — one of each — between KL7HEE and VP8ME, the latter at the Byrd station, Halley Bay. However, if you've got any ideas about going one better—VP8ME left Antarctica four days later.

A new correspondent, who has a Vespa and much-modified RA-1, is G3ZVW (Palmers Green), who is mainly on Top Band, as on the other bands he must contend with a com-



Not an amateur station, but the Ericsson Marine commercial demonstration set-up, allocated the ship callsign GZXV, and established at the Norway Trade Centre, Pall Mall, London, to provide advance training for ships' radio officers in the servicing and maintenance of Ericsson equipment. In charge is Bryn Tinton, G3SWC, who has himself served at sea with Cunard, in their ships "Atlantic Causeway" and "Atlantic Conveyor", fitted with the most sophisticated marine radio equipment.

bination of TVI and poor aerials. However, on the credit side (as with so many Top Band stations in the area) G3ZVW is on London clay and near a river, which helps enormously in brewing up a big signal.

Does anyone have a patent for growing grass just one inch long? G2HKU (Sheppey) needs some samples for his non-QRM generating garden! In the way of contacts it has been a thin month on all bands for Ted, although he did in fact hook PA0PN on SSB and G13JEX, GW3TUG, OLIAOH on CW.

A Sark DX-pedition is, we gather, being mounted by G3HZL, G3VUQ, G3YCY and G5ATJ—to be on mainly from 2000 till 0100 on Top Band, also CW/SSB on the other bands, to make the whole affair a continuous 24-hour effort daily during September 15-21. In addition, GC5ATJ will be on from the island for another couple of weeks but sporadically only. For skeds, write to G3HZL, *QTHR*.

Between August 24 and September 3, G3ZTJ will be /P on Eigg, in the Inner Hebrides, possibly with a GB callsign. This will most definitely be one for the WAB chaps. Charles, incidentally, remarks that the South American skeds were far from being a flop—he had a couple of contacts with ZP9AY, and so did other people.

Let Battle Commence!

A heading your scribe could not resist when he read the note from G2CAS (Harrogate). John's theme is to hit out violently at the misuse of the voluntary band-plan, both on Eighty and Forty, by Phone, mainly AM, stations. That is in itself bad enough, but on top of that there are some, quite old-time, operators, who are in fact churning out effectively an MCW signal several kilohertz wide, simply by not bothering to read the instruction-book on the rig. Although G2CAS has an Eico 753 and a Heath SB-101, he has more interest in securing QSO's with a Ten-Tec or home-brew CW rig, never running more than five watts.

Please listen to what G2CAS is saying: You AM chappies keep in the Phone end of the band, and the SSB ops, please avoid *forcing* the AM station to QSY; and all transceiver operators on CW, *please, please* remember that overdriving on CW is the finest QRM generating scheme

ever let loose on a suffering world. Consideration is a way to more pleasure for more people for more of the time, despite what the mindless may say.

QSL Addresses

As ever, quite a few. Starting with G3NOF, who has *XW8DY*, to P.O. Box 25, Vientiane; *5H3MT* to LA9PF; *HB0XTU* to DL1GK; *VA2UN* to W3GHK; *9Y4OT* to P.O. Box 66, Port-of-Spain; *VP5KG* to DJ9ZB; *VP2MAA* to VE3GCO; *VBIMSA* to VO1FX, or Bureau; *3A0FW* to DJ9KH; *TR8MR* to VE2DCY; *OX5BJ* to W000T; *F0CG* to HB9RB; *VE0NK* to VE1DV; *FO8BQ* to WA6MWG; *9G1WW* to W5EGH; *FP0BG* to VE1AH; *HB0XTH* to DJ9MH; *C31DY* to PA0GMM; *3V8ZK* to F5ZK.

Now the lot from W4WFL/1, who has *HC8GG*, via K9YBC; *VS6CZ*, at the American Consulate, Hong Kong; his QSL address is Bernhard M. Bloom, American Consulate, Box 30, FPO, San Francisco, California 96659. *KF4SJ* is a commemorative station in Puerto Rico, and you have till the end of the year to hook him—QSL's go to the Puerto Rico Club at Box 626, Ponce, Puerto Rico. The Virgin Isles Transmitting and Listening Society—VITALS to you—propose, during the period of October 9-17 to visit PJ8, FS7, and VP2, operators being KV4's BV, EY, and FR. QSL's, with s.a.e., to Command Communications, Box 3374, St. Thomas, Virgin Is. 00801.

W6AM has an interesting odd-ball in his earlier list which seems to have eluded our bleary old eye—Don worked BY3NK at the bottom end of Twenty, giving name as Chen and saying the QSL's would come through to Hong Kong in five months; meantime, he was to receive his at M.P.O. 32, Canton.

Still talking in terms of QSL cards, G3DRN (London, S.W.20) finds it quite normal to receive a batch of QSL-bureau envelopes with no indication of callsign; quite apart from those bearing no stamps—or, worse, National Savings stamps! On occasion, Ted has gone to the trouble of phoning one such no-stamps merchant—no wonder he feels like shoving them out to the postman unstamped, so the offender pays his own penalty. In course of time, some stamped envelopes arrived, with no

comment. On a different angle, G3DRN claims to be the only, last remaining, real amateur in the United Kingdom, basing this on the fact that he still runs surplus stuff to radiate his signal, when all the others seem to have gone commercial.

Ten and Fifteen

Lump 'em together this time, and maybe they'll go a page of typescript between 'em, was how your conductor's reaction to his mail went. Not surprising, though, bearing in mind the time of the year and the sun-spot cycle. Neither of the W6AM (Long Beach) lists shows *any* contacts on Ten; on *Fifteen*, when forced by the requirements of the scoring, Don went out and hooked, for instance, the Annobon Is. expedition, and 3B9DK during her sojourn in Rodrigues—but even the W6AM rhombic farm could only produce such reports as 55 or 33 on *Fifteen*!

One could almost sum up the report from G3NOF (Yeovil) in one word—*Yeuch!* Despite a fairly steady watch being maintained, Don managed only a couple of SSB QSO's, with CR6EF and 3A2CP. As for *Fifteen*, Don, being a methodical sort of chap, checks the band daily at 0730 and 1130z; neither time has been much good, but in the evenings there have been Africans when TVI prevented action being taken to raise them. SSB contacts with 5Z4MO, ZS's and 9G1DY suggest that the MUF was not a lot above 21 MHz for most of the time.

G4AAQ (Sharlston Common) found his interest in Fifteen waning to the extent that he went out and put up a GP for Twenty, which lasted just three days! Despite this omen, Phil was determined not to be forced on to a dead band, with results which will be noted in due course.

G3OJV (Hockley, Essex) found just one signal worth working—9J2ED on Sideband, and so he moved his signal up to Twenty, of which more anon.

Nice to welcome G3ZPF (Dudley) who for long enough was in the hands of J.C. of our regular "SWL" piece. G3ZPF wisely spent a wee while on Top Band to get a "feel" for things, and then launched himself on an unsuspecting Twenty with a dipole and FT-DX500. However, the cream of the whole thing is the QSO on *Fifteen*. Seems that while tuning

up Twenty, Dave flipped the band-switch to 15 metres to check the noise, found himself sitting on 4W1AF calling CQ with no takers, and proceeded to tune the dipole to Fifteen, call him and work him. Heaven knows what the VSWR must have been!

G2DC (Ringwood) still reckons that half the snag about Ten is the lack of activity—not much is heard mid-week, but things usually sound better at weekends. In fact, Jack worked PY2AN, PY3RB, UA9AB, UA9WW and 7Q7LZ. Fifteen was a bit more yielding, and G2DC made two-way exchanges with FM7AG, 7Q7AA, HC6JB, PZ2AB, all W's apart from W7, VE1-4, PY's, LU's, 5H3MV and 9G1WW.

It really is surprising how the DX does fall sometimes. At G3YRR (Cleethorpes) Fifteen is only activated, normally, on Monday and Saturday afternoons. Chas. offers MP4BIM—a QSL in *three days*!—9Q5R, 5N2NN, 5Z4DV (twice), 9G1BY, C31DX, OG5A, CE3NT and JA's. On the QSL-card front, some of interest included VE8YL (Resolution Is.), FP8CS (St. Pierre) and VS9MT—which means that the chap with the limited time allocation seems to have got the cream!

Forty and Eighty

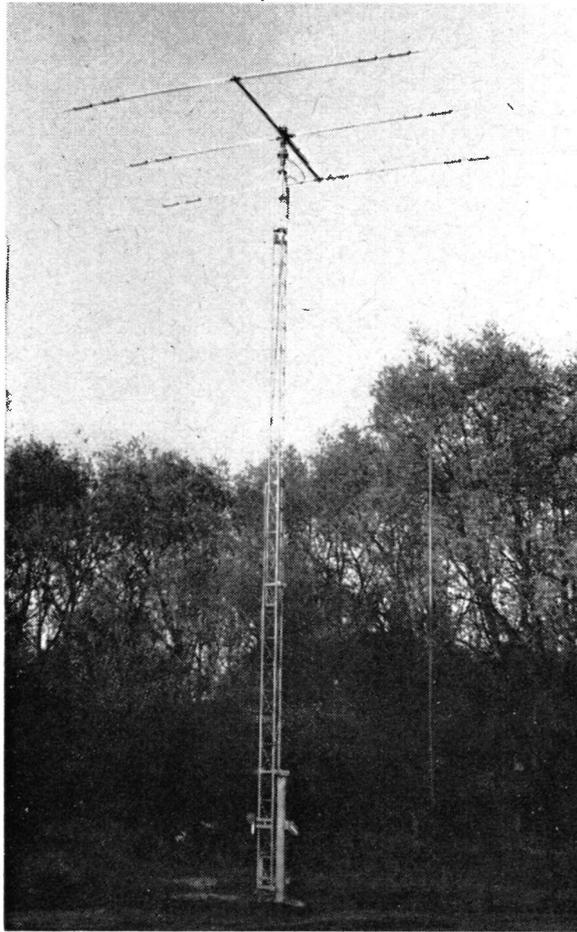
G2DC has been listening around the SSB end of Eighty of late, and likens it to (when, for instance, a VK shows up) throwing a large chunk of red meat into a cave-full of hungry lions! The proper answer, in the opinion of G2DC is to enforce good manners, and set a lower power limit on both Eighty and Forty, say 150 watts input. Jack worked his usual W/VE stations, but nothing else—he found the top end *horribly* fascinating! As for *Forty*, Jack only checked it in the mornings, when it was quite fair, mainly for W, with the odd PY or VK to make it a bit more interesting—but he wants to know just how GM3JDR manages such an enormous pile of DX stuff on that band.

Cue for the entrance of GM3JDR (Wick) himself, dragging his sackful of DX behind him. Of course, as G2DC says, GM3JDR is just about as far away from the worst sources of the European liddery as it is humanly possible to be in these Islands; and it is also true that having the power fed into a Delta Loop is a bit different from, say, a trapped

vertical. The early-morning period up in Wick is beginning to show signs, with VK/ZL/W around 0730z and gotaways T12PZ, CM8RC, CM6ET, and HC2GG/1, indicating that the sun is beginning to head in the right direction. (One tends to forget just how far North Wick really is—up to an hour difference in sunset times.) However, the list, as before, is confined to the offerings of the period 2030 to 2200z, saving the W6 and the VE8, taken one morning. So . . . CW for JX2HK, 4Z4GH, WB6VZZ/MM (near TF), UA9FBZ, UK7GAC, VK5NO, PY2FAO, CR7FM, PY8RH/7, WA2PQX/TF, ZS6OS, UA9AAF, 4X4NJ, UI8NH, UF6FAG, ZS6BT, PY7AJB, PY7AYT, ZS6IW,

PY7BEZ, UD6DGX, ZS6ANN, PY2FIQ, ZS1KJ, PY2FFA, UI8GAC, UK9XAA, UF6FN, JT1AW, UW9WL, UK9AAZ, VE8IT, OY9LV and UA9XAR. By contrast the Sideband takings are a bit attenuated this month, with OY9LV and 9E3USA.

Now to G3DCS (Ipswich) who has been playing with aeriols once again. He now has three of the rectangular antennae discussed by G6LX in the June SHORT WAVE MAGAZINE—one each for 14, 21, and 3.5 MHz. Enver finds they go quite well at the second harmonic of the design frequency as a bonus. The 3.5 MHz one is relatively untried at its design frequency—only local contacts here—but its trials on its second har-



A Thunderbird TH-3 beam on a 40ft. "Versatower" at the OTH of G3ZBA, Sydney Sefton, 8 Sandmoor Avenue, Leeds, 17. He also has a KW trap dipole for 40/80m., the far mast for which can be seen in the background.

monic show up as QSO's with UZ3TD, SP3ABG, HA7LO and SP2BKF. On a different line, Enver has been using the old KW-2000 very much of late during TV hours (one presumes from the /A place in North London) and has become so enamoured of CW with it that he has lashed out on a DC/PSU for it, to go either /P from the car from a chosen high spot, or to enable operation from his boat.

G2HKU started off by saying that it had been for him a sad month, DX-wise—and therefore he was writing in case it had been so for all the others! On *Eighty* SSB there was a brief encounter with EP2WB, while CW yielded the gotaway-of-the-month in 9F3USA, who was instantly buried in QRM. Now to *Forty*, and here G2HKU has an appeal to pass on: YV3UF and the other YV's who often net on 7084 kHz around 2300z, with UK2FAA as their European link-man, are most anxious to QSO GD, GI, GC, and GW; particularly GC insofar as they just haven't heard, let alone come near working, GC, and are wondering whether the Islands still exist. Anyone willing to help, with any of these areas, please look out for UK2FAA, at time and frequency, to tee things up.

W6AM seems to have let up a bit on *Eighty*, as the only QSO noted is with ZM7AG, 3802 kHz SSB at 0945. *Forty* was not much more liked, with ZD5X, and VP9NP/W on Willis, taken on four bands.

What about Twenty?

No, we hadn't forgotten there was a band at 14 MHz—we just felt that after the chronicle of "not much doing" on all the others, we ought at least to end up with the one on which everyone falls back when the pet allocation goes sour.

G2DC has always been a little addicted to the early-morning period, 0600-0730z. During last month all continents were often on and workable, but the Italian QRM is pretty shocking. It pays, if one can, to stick around a little after 0730, as the EU QRM falls off quite a lot, and VK's come up in strength. As an alternative, when the VK's are weak, the band can be full of W6, W7 and KH6. CW accounted for FO8BQ, KH6FF, KH6CHG, UL7IZ, VP9EP/P, VK2-8, ZL1-4, ZL5AX, all W call areas and VE1-8. SSB has

been more used, and this mode accounted for CE3MP, CE3FM/HK, EA9EJ, KH6GCV, KH6CCL, KH6HIF, VE7ADA, VE7BMH, VE7KU, VE8MD, VE8RCS, VP9AH, YS2CEN, 9Y4OT, VK2-8, ZL1-4 and all W call areas.

G3OJV (Hockley, Essex) found that he was more or less forced on to the SSB end by the shortage of DX on CW, particularly as his operating times are so limited—if there is *nowt* on CW, then he goes over to SSB. One evening when there was a little more time to spare, Peter did sit it out on the key and was rewarded with KV4AA, and JA7HX/MM in the Arabian Sea. The SSB list, on the other hand includes CE3AAM, HC1CS, HC2SX, HP1TG, HR2HHP, IG9XAI, KZ5JF, LU3MBQ, LU8FT, TF3BT, XE1SU, ZF1GC, ZK1CD (raised from a CQ call!), ZP5CF, 5W1AU and 9Y4VT.

At G4AAQ, as already recounted, the aerial fell down, snapping off 14 gauge copper radials in the process; but the radials are now of steel cable. The effort seems to have been well worthwhile, though, with all SSB—CT2BB, DF0AFZ, C3IDY, EA6BU, HB0XUD, IL7XAK, FP0LK, EQ2WB (variations on the theme of FP8 and EP2 respectively), JX2HK, Y1, MP4BIZ, UL7JAB, UL7TA, VE2, VE3, VE4, VE8RCS, VE0NK, K2LQQ/TF, VK2, VK3, VK5, VP2MAA, VS9MT, all W call areas, 4U1ITU, 5Z4MO, 5Z4DW and 9G1GG. For light relief there were a couple of CW contacts, with respectively BY1AB, and BY1AC—QSO's which must be viewed with some doubt!

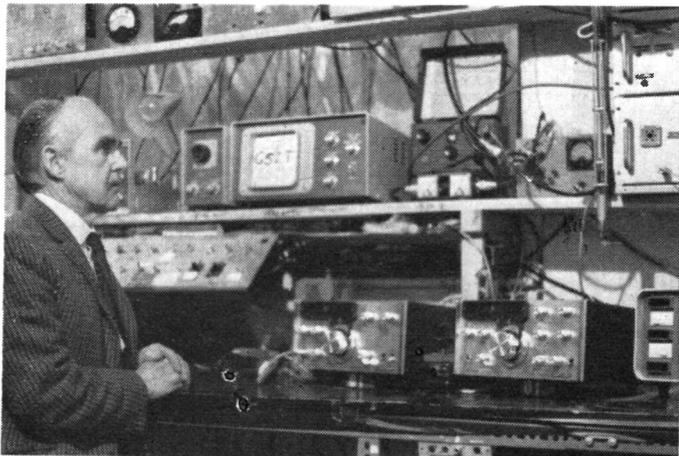
So Justin Cooper is everlasting, eh? So says G3ZPF, who claims to have been weaned and raised in Amateur Radio by J.C.—but we doubt it! After the initial few months on Top Band—very good way of "getting one's feet wet"—the rig was fired up on Twenty, and QSO's made with YV1, PY2, 5Z4, 9Q5, PJ2, CT1, 9Y4, UH8, DU1, IA5, FCO, KP4, IG9, JX2, HB0, VP2M, 5X5, EA8, SV0, ZC4, C31, as well as the normal assortment of Europeans and W's. Disappointment of the month is at the chief gotaway—9K2A8, heard frequently, but always just going QRT; G3ZPF fears his deodorant is not the right one! David, of course, is at the "learning fast" stage, and still on

occasion calls CQ. This results in Italian stations displaying one of their more unpleasant characteristics. By-play, like this: *Enter G3ZPF*, on clear frequency, calling CQ. *Enter the Villain*, also calling CQ on the same frequency; both go over to receive; sweet and innocent, G3ZPF calls the I station; gets report of RS-59+, and is ushered smartly to exit right, booted off-stage; I station dusts hands and calls CQ on "his" channel. Yes, David, we have all of us met the type, and most of us have evolved methods of dealing with them, gentlemanly and otherwise.

On a different line of thought, G3ZPF has been very surprised to find that power seems to matter less in raising the DX than *timing*. On several occasions he has called in a pile-up, when the ten QSO's in front of and behind his have all been given "umpty-over-nine" reports, and raised the guy with RS-55. It's the knack of knowing when and how, as every DX man gets to learn.

G3DCS next: Enver seems to have stuck to CW on this band all month, which meant UV9DX, UN1AS, VE1SO, PY1MCC, UV3FO, 8J1AA, UQ2IF, SP9BPE, UT5YB, UC2AAD, VE3CZP, VE1EO, UA1DW, VA2UN and CP1BC. It seems 8J1AA is a Japanese station in Antarctica, QSL's for which can be sent *via* JA1MBN; but we can reassure G3DCS that VA2UN is not a pirate but quite genuine.

A nice letter from G3YJH (Great Barr, Birmingham) implies that he always goes "green with envy" when he reads the lists from the regular correspondents. Being a sensible sort of chap, Dave had a go at matching them, using an HW-32A on Twenty, to an East-West dipole. Most were worked after, midnight "when the QRM goes to bed"(!) thus: 3C1EG, C31DZ, 9Y4VT, VU2CK, OX3LP, LU3AQ, LU7FT, ZB2A, JX6QO, YN1RD, VE7KL, VE7AWT, XE1TTY, 9F3USA, W4QCW/OB8 (Peru), VP2MM, VP2MF, VP2MMA, FG7GT, MP4MBC, 8P6BX, PJ8KG, H13AGS, 5J3CC in Colombia, VP5KG/P, VK6OV, CR6TP, CR3KD, HR2WTA, UJ8AC, PY2DVH, PY4ATG, PY7AKW, 7X2BK, PJ2RR, PZ1AP, 9G1FF, CE3OE, VA2UN, HB0XTU, ZC4RS, UV9OR, 8R1J, 8R1Q, YS1O, VP1MH and, of course, all W call areas, all VE except VE8, and



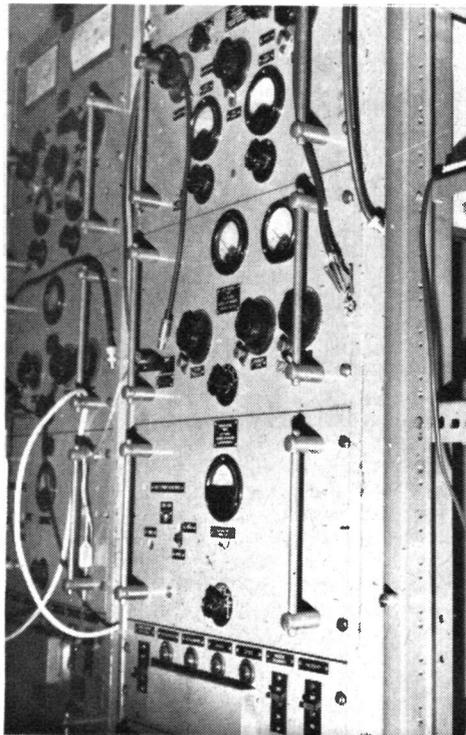
G5ZT—A/TV, SS/TV

FOR years, Harold Jones, G5ZT, Plymouth, QTHR, has been actively interested in amateur TV transmission (A/TV) and was probably one of the first in the U.K. able actually to transmit television in the strictly amateur context.

Recently, he has turned to the more esoteric art of Slow-Scan TV, which can be achieved on the HF bands as distinct from VHF A/TV over comparatively local ranges. Some DX pictures received by him on SS/TV were shown on p.344 of the August issue of SHORT WAVE MAGAZINE.

In fact, he has done much better than this. Using the American "Robot" equipment, designed for SS/TV working, he has had *two-way QSO's*, on the 20m. band, with seven countries ranging from Greece, Italy and Sweden to the United States, the main interest being in the U.S. among the W1, W2, W4, W8, W9 stations taking up SS/TV as a serious activity. And he has also had slow-scan TV reception reports from LA, OK and UW.

Some of the equipment involved is shown in our picture. The SS/TV camera is the Robot with its accompanying monitor TV receiver, the transmitter being a Trio TS-510/PS-510 and the Rx a JR-599. With home-built transmitters for two metres (150 watts) and 70 centi-



metres (100w.)—in the racks on the right of the photograph—SS/TV from G5ZT is possible on all bands 10-80m. and VHF, with direct A/TV on Seventycems.

Licensed in 1927, G5ZT is one of our senior active old-timers—we first published his then station description in the "Other Man's Station" series in the September 1939 issue of SHORT WAVE MAGAZINE, our last before the outbreak of Hitler's War. Time certainly marches on!

With, as G5ZT reports, an increasing interest in SS/TV working, especially in the States, we can expect to hear of much more in this particular field of amateur activity. Details of the Robot equipment can be obtained from Saltash Radio, Ltd., 84 Fore Street, Saltash, Cornwall.

"sundries."

Most of the spare time of W4WFL /1 available for radio has been offered to Twenty, with CW the favourite mode. Morgan singles out VP2LAW (running 5 watts to a dipole and laying down a 599), UH8BX and ZD8CW, as the catches of the month—the gotaways, sad to say, included FM7AA, FG7AF, FGØGD /FS, GD3HQR and HC8GG. Putting on his stern expression, W4WFL /1 wonders whether we on this side have noticed the increasing number of W stations with that "Mittel

Europa" sound? Yes, indeed, Morgan, and often from SSB rigs—one feels on occasion that someone, somewhere, is busting a blood-vessel, long before you come across the offender causing the splash, who is probably several tens of kHz up the band.

G3NOF found Twenty the best band of a job lot, with the 0630 period alternating between W6/W7 and FO8, KS6, VR6TC, for example. VK's were weak, and ZL's almost absent. Gotaways first, and these were KS6DY, VQ9YL and XW8DY.

QSO's were booked in with C31DY, EA9AI, EQ2WB, F6BDZ/FC, FO8BQ, FPØBG, HBØXTH, HV3SJ, HK4BZQ, HK4CJQ, KG4AN, KS6CY, TR8MR, VK's, VP2MAA, VP2MF, VP5KG/P, VQ9R, W5, W6, W7, XE1PFB, YN1LC, 3AØFW, 3V8ZK, 5H3LV, 5H3MT, 5Z4DW, 5Z4MO, 9E3USA, 9Y4OT and 9J2JY.

Noticing how many reporters of late have commented upon the absence of the early-morning ZL's, one wonders whether it has affected the regular sked between G5QA and

ZL2OU, which is now nearing the *eleven thousandth* repeat, going back as it does to pre-War. As a matter of interest to tyros, struggling for their first few QSO's (and glad enough to work out of G) this G5QA/ZL2OU sked has been, except on the rare occasions when the band conditions have made it impossible, a hundred-per-cent job—implying a couple of ops. who know what it is all about.

The G2HKU sked with ZL of a morning has most certainly faded during the last month. The occasional coy peep from a VK, but not a single sign of ZL the whole time! However, Ted consoled himself with CW QSO's with FO8BQ and HBØXTU; and Sideband with K6PIZ, K7DFV and KP4DEX.

Naturally enough, the majority of the work the W6AM rhombics had to do during the review period concerned *Twenty*. Taking CW, one notes VP9NP/W, ZL4OL/A, JT1AA, ZD5X, ZA2RPS and BY3NK. Also

XW8DZ, 3B9DK on Rodrigues, 3CØAN, 3C1EG, JD1ABU (on what used to be known as Marcus Is.) and VK9LV. SSB accounted for ZK2AF, ON6CE (operated by W3ZA), ZA2RPS, VR2CC and VK9NP/W. Just goes to show what you have to do to keep top of the pile in DXCC—a glance at our Table shows the figures as revised recently by the Old Maestro himself.

A couple of tail-enders to round off with. G3TZL/MM, who was aboard m.s. *Bulimba*, was worked by G2NJ (Peterborough) from his new floating home, s.s. *Patuca*. Seems he only joined her on July 21—so someone must have been pretty smart at clearing the /MM paperwork for the new ship.

Yet another diminution in the number of 5N2 calls is noted with return of G2FKS to Cambridge. David was the operator of the 5N2KPT station at Kaduna Polytechnic College—the only 5N2 call issued new for many moons. Inci-

dentally, we also hear that during October Nigerian stations will be using 5N5 as the prefix—it is something to do with an independence anniversary, and there are about six 5N5's likely to be active.

Final Comment

Considered in retrospect, this has been an even more ghastly month than its equivalent of a year ago—but don't lose heart, Autumn is coming, when conditions always lift. But we're stuck with a shortage of sunspots for some years yet to come! This, as with previous Sunspot Minima, is shown as a time to tighten up on the rig, the aerial and the operating techniques, all having become a bit slack at the peak of the cycle, if only because it was all so darned *easy*!

But anyway, there will still be a CDXN next time, and the deadline for the incoming mail is **Monday, September 6**—sorry it's a bit tight!—addressed as ever to CDXN, SHORT WAVE MAGAZINE, BUCKINGHAM.

"OTHER MAN'S STATION"

As a regular *Magazine* feature since before the War, we are always glad to see offerings for this popular page. The first essential is a good, sharp black-and-white photograph, preferably about post-card size. This should be accompanied by full details respecting the station and its operator, including all the information permissible for print, e.g., age, when licensed, marital status, job, interests outside Amateur Radio, and so forth. We write the story to fit the space from the details given and payment for the material is made immediately on publication. Send your station description to: Editor, SHORT WAVE MAGAZINE, BUCKINGHAM.

THE "NEW QTH" PAGE

As soon as you receive your call sign, or change your address, let us know, not only for publication in "New QTH's"—which has been a regular *Magazine* feature for the last 25 years—but also so that we can inform the publishers of the *International Radio Amateur Call Book* (Chicago), which includes the now very extensive U.K. section in the quarterly "DX Listings" edition. To keep our records up-to-date, please also mention whether or not you are a direct subscriber, i.e., if you receive your copy of the *Magazine* direct from us, by subscription. Where changes of address are concerned, this can save a lot of needless checking through our subscriber card-index if you are not D/S.

"SOME MID-WAR TITLES"

Further to this item on p.173 of the May issue, we have been reminded that in fact *Practical Wireless* (still publishing) and *Popular Wireless* (which ceased publication in December 1937) were always separate publications

and never did combine. Also that we had overlooked *Television & Short-Wave World* (now also defunct) which during the mid-War period made a contribution of its own to Amateur Radio—in fact, prior to about 1937, before the founding of SHORT WAVE MAGAZINE, one of its contributors was our Editor, so it is odd that it should have been left out of the original listing. Our thanks to SWL J. Cave (Poole) and G3HB (Pinner) for sorting out these details.

JOIN A CLUB

Every month, in the "Clubs" feature, we publish what is in effect a list of active Clubs up and down the country—see the Secretaries' Panel, any issue. Not all Clubs report every month but over any period of 3-4 months practically every active Club is represented. The point is that, particularly for beginners, the best way to progress in Amateur Radio and acquire practical knowledge is to be a member of the nearest Club group. Members collectively are always glad to help and advise newcomers and much can be learnt quickly and pleasantly by discussion, question-and-answer or just listening to the chat at meetings.

USE THEM PROPERLY

Readers holding AT-station licences are reminded that—even if working in a net over local distances—their call sign should be enunciated clearly and fully. It is a breach of regulations (to say nothing of being sloppy in the extreme) to use abbreviated call signs, and this applies on all bands including the VHF's. Many SSB operators are particularly blameworthy in this respect and could find themselves dropped on for irregular procedure. Remember, the Post Office monitoring stations are constantly cruising the amateur bands.

• • • **SWL** • • •

SHORT WAVE LISTENER
FEATURE

By Justin Cooper

R.A.E. CLASSES—LEARNING MORSE—
SOME TECHNICAL PROBLEMS DISCUSSED—
QSL PROCEDURES—NEWS AND GOSSIP—
THE HPX LADDERS

The Mail

HERE we are yet again, with another SWL clip from which to make a column of news; and, as always, most of that news is in fact in your letters.

For your conductor, of course, the time when you are settling down to read this is just about when he is getting down to his notes for the coming winter's R.A.E. course. It is surprising how the march of technology causes slight alterations even in so basic a course as R.A.E. each year, which must be duly noted and taught. While talking about R.A.E., it is as well to remember that if you do not see a note in *SHORT WAVE MAGAZINE* which lists R.A.E. centres each autumn, there is still a chance that your local college or evening-institute either have one listed or could set one up if sufficient candidates are forthcoming. Often enough, the value of publicity in the *Magazine* is overlooked by colleges or lecturers, or the local club secretary forgets, even though there is a good chance of raising the numbers required—usually about 15 are necessary for a start to be made. As for Morse, this is often regarded as the difficult bit, particularly when the course does not include it; but, you know, it is really only a matter of sticking at it, and, maybe more to the point, sticking to the transmissions which are too fast to be taken "solid copy." If you can copy a signal perfectly, then it is no good as practice material, saving only in the matter of noting correct character-formation against the day when one can start practice at sending, which should *never* be commenced until one can read comfortably at test speed. Even then, one's early practice sending should be recorded and played back to make sure that bad spacing or incorrect dot-to-dash ratios are not being used.

As to whether it is possible to pick up Morse from just listening around the bands, the answer is definitely in the affirmative. Indeed your conductor, once he had obtained the magic "ticket" rarely if ever used CW until the art was completely forgotten; but then the urge came (as a result of a bout of TVI on Phone) to operate CW again as the best of a bad job. J.C. spent a few months more or less completely QRT but used the operating periods to listen to the LF ends of our bands and try to copy the stuff. Now, quite without effort, he finds himself on occasion able to copy signals at or below noise levels, and to obtain solid "take" on signals within 100 cycles of bigger QRM—and at that without the full selectivity of the station being pressed into service. Needless to say, the result is an almost complete swing to CW operation on the bands, as a relief from over-emphasis on Phone.

It is odd how something will crop up quite often in this piece with no reaction, and then, suddenly, when it reappears, provokes a spate of letters. Earthing has produced a series of comments—for instance, *D. A. Shepherd (Kingswinford)* has a 7 MHz dipole and a Joystick as aerials, with about two hundred feet of copper wire in radials, some in the back garden and some in the front, plus six copper tubes. This represents quite an amount of work, but Derek is quite definite that it has all been well worthwhile in terms of results.

E. Parker (Hove) has a hundred feet or so of copper wire running out in one length from the shack buried, and again, in conjunction with all the other gear, it yields a significant lift in results. However, the most amusing bit of his letter defines Ernie's wife's attitude to amateur radio—she refers to his operating shack as his "play-room!"

Quite a range of frequencies are covered by *D. Rodgers (Harwood)* who has sets of Rx gear for HF, VHF, and UHF bands up to 432 MHz. Dennis says he, too, has been "hiding more copper from the vulgar gaze"—again with worthwhile benefit to the HF-band reception. On a different tack, Dennis notices the throng on Two, almost as busy as Twenty at times, but although the VFO's on this band may be technically acceptable there are clearly cases where they have proved "too much for the operating abilities or the good manners of the owners." A sentiment with which your old scribe would heartily agree.

And still earthing—*J. Woods (Woodbridge, Suffolk)* has a couple of eight-foot pipes of an inch diameter which he fills with rock salt—and joins to the rig by half-inch copper braid. Good point this; it is not a fat lot of use spending much time and spadework getting a low earth resistance, and then to lose all the benefit by connecting the beautiful low-resistance earth to the rig by a bit of wet string!

M. Newsome (Sutton-on-the-Forest) is primarily a Top Band and Eighty DX listener, and comes to your J.C.'s aid over the vexed question of preselectors—as he says, on a receiver that is any good at all, the preselector merely lifts the S-meter reading on noise, to the great detriment of weak incoming signals—indeed, it is an *attenuator* in front of the receiver, between it and the ATU, that is wanted if one has a good receiver and a good aerial and wishes to wrinkle out the real DX. The station that Malcolm runs sounds quite a beauty—he has a brace of Marconi Atlantas, each with its own PSU, all in a rack together with a dual-diversity panel. There is a Trio JR-310 with the Top Band coverage and calibrator fitted; as standby receivers there are a Hallicrafters SX-111 and Drake SW4A. These have to be provided with aerials. Malcolm has five dipoles, one for each band, supported on a pair of seventy-foot masts, which in

themselves are used as a pair of verticals fed in—or out—of phase as desired. On the stocks is another seventy-foot stick, and a 3.5 MHz fixed beam of Malcolm's own design, aimed States-wards. On a 300-acre farm, space is not a problem when you want to put up aerials!

That photograph in the July "SWL" of the shack of *M. East (London, N.W.8)* shows how a well-organised layout can look. It is interesting to notice that Martin's interest in radio was sparked off at the age of thirteen, by building a valve receiver and having it work first time (!), and that he is now retired and at last finding time to have a good crack at the R.A.E. and his own call. As a secondary interest, Martin has all the facilities for closed-circuit TV available as well as recording video facilities—he could well pop up as an A/TV station as well, for his first QSO!

Still "talking technicalities", next we have a reader with a problem—*S. Rawlings (Twyford)*, who has line timebase QRM troubles with local TV sets, which he has been trying to reduce. One could hazard a guess that the earth to the shack and the mains earthing system are sharing the same bit of wire somewhere along the run; if there is an RF earth on the shack receiver, then it implies the need for considerable improvement of it, and maybe in addition the isolation of the shack receiver from the mains earth by an RF choke or similar filtration. The basic cause is the extremely angular waveform of the line timebase appearing in the line output transformer, and the effect this has on the core of the transformer in the TV Rx. This causes magnetic coupling of line timebase energy to the chassis of the TV, and hence to one leg of the mains-lead, the set being AC/DC. The pulse current is then either fed directly through the mains to the shack, or (which is probably less often suspected) by capacity between the affected leg and the earth-wire in the mains system—if the shack and the TV mains-plug earths are commoned—probably in the last few feet of run ere they *actually* go to ground; the pulse voltage across the common resistance then appears as a "signal" on the earthy leg of the shack aerial system, and *voilà!* Sometimes one can obtain a substantial improvement merely by reversing the TV mains lead in the plug if the mains "live" pole is to chassis in the TV set instead of the neutral, through use of a two-pin plug or incorrect wiring of a three-pin one.

Prefix Questions

B. Walsh (Romford) seems very pleased to rub your old J.C.'s nose in the fact that last time out he was "agin" KD2UMP. True, Brian, but you have to realise that there are such things as deadlines—we got to know about the KD2UMP about a day after the copy was placed, past recall, in the letterbox! However, just to square the game, we will mention VA2UN, quite good, from McGill University to commemorate an anniversary, and QSL's for which go to "DX-Pedition of the Month" (DOTM).

R. Philpot (Shenfield) has no less than three letters in the pile this time! Bringing them together, and taking from them the scores, one notes a query concerning 3C0AN, who was in fact the OH DX-pedition from Annobon Is. for a new country. From the HPX point of view it brings up an odd point, for the older listeners will mostly have already scored up the 3C series of prefixes

when they were in use from Canada, and therefore although to them it is still a new country it will not be a new prefix—perhaps the first time since the War this has happened.

One of those who mentions the Annobon expedition is *S. Foster (Lincoln)*, who found them, and TY1ABE, for a couple of nice new ones, to go along with various less rare prefixes to bring his score up to 1234.

R. Shilvock (Lye) refers to a couple of stations signing N0NMM and N0WRK—sorry, not real amateur calls, although operated by amateurs. They are American MARS stations, and do not count in HPX.

H. Alford (Burnham) latched on to C31DZ and KF4SV, and says the former was the London University Andorra DX-pedition, while the KF was in Puerto Rico. On a wee bit different subject, for forty years SWL Alford has believed in dipoles firing E-W as a preferred direction; but erection of one firing North-South recently has made a convert, so he now has a pair at right-angles for each band, and the necessary switching.

Now to *G. Proud (Letterston)* who wonders whether he made an error in logging when he heard what he thought to have been XR2A/MM working OD5LX one evening on Fifteen, the time being around 2020z. Any offers?

Up in *Bradford, M. Fisher* has lifted his score quite a bit, thanks to all the new Italian prefixes, and also OG2A, back last March.

More Points

Nice to hear again after a very long break from *I. Paterson (Carstairs Hospital)* who mentions that he is still around, though not anything like as active as of yore. However, Iain has a problem—he wants to know where he can obtain a battery-powered preselector to put in front of his EC-10. In the hospital spot where Iain is located, a battery-driven set-up is essential. If anyone can help, perhaps they would get in touch with him direct—Iain T. Paterson, Carstairs Hospital, Carstairs Junction, Lanarkshire, Scotland, is the address.

And talking of preselectors, *K. Webb (Slough)* also has a little problem. This one concerns a TRF receiver and PR-30 preselector. It seems Keith was told he would have to buy the mains-powered version, as the basic one could not be used with a TRF! The things people say!—but, in the event, Keith finds that when he joins the coaxial output from the PR-30X to the aerial terminals of the TRF receiver, the latter promptly takes off up the band, and signals through the combinations are, if anything, worse than they were before. Disconnecting the earth of the preselector eases things a little, albeit not much. One would think that several things are happening: Most likely the first stage of the TRF is a little regenerative, and also the aerial not quite resonant. There are separate earth paths for the receiver and the PR-30X to the mains earth, and possible also to the aerial-system earth as well. Disconnecting two of these three earths would be a good start, by removing the earth from the mains-plugs. A serious attempt to tame the RF stage also helps—and it could well be noted that a preselector is only an RF stage in a separate box, so whoever said a preselector wouldn't work with a TRF could not ever have seen a 1-V-1, which was, certainly in the pre-War period, quite the most common variety of TRF receiver!

S. Wessely (Sheffield) has a difficulty; Simon has

started sending cards out, and wonders what he can do about the chap who only "QSL's via bureau". Well, now, Simon, this is the crux of the whole bureau problem; most solve it by allowing anyone to deposit envelopes with the bureau, but restricting *outgoing* service to members only. Consider RSGB's service, for example: Most of the other bureaux around the world would automatically send their outgoing cards for the U.K. to RSGB. Here they are first sorted to the various "sub-managers" who handle a particular group of callsigns. The sub-managers take their batches and separate them for onward posting to individuals. Now, if G3KFE, for example, is not an RSGB member, it still is possible for him to leave envelopes with his sub-manager, so the latter can clear his files of the G3KFE stuff and not have to burn it. On the other hand, G3KFE needs to be a member before he can use the *outgoing* bureau service, which is fair and reasonable.

In the case of the listener members, the situation is rather more difficult; a call is a unique thing, which a name most certainly is not! For this reason, SWL's who join RSGB are allocated a BRS or A number, which is used as their reference both on envelopes for incoming cards, and written on outgoing ones as the equivalent of a "callsign" to which the recipient addresses his return card. Thus, it will be seen that for use of the QSL bureau, an SWL has to join one of the societies, which in this country implies either RSGB or ISWL, both of whom run a very effective bureau service.

Last time around, we mentioned *N. Henbrey (Northiam)* and the question of Russian translation; it is surprising to notice how many readers of this piece either can, or know someone who can, translate Russian. After Norman's difficulty had been resolved, letters came in from *V. N. Picken (University of Aston in Birmingham)*, *G6 YC*, and *M. Pellatt (Surbiton)*, who wrote the day after taking O-Level Russian examinations. To all these, thanks for the offer. Incidentally, Mike Pellatt, who lives at 66 Berrylands, Surbiton, would like to get in touch with *P. Harris*, who also is an SWL and a follower of this piece.

Meopham, Kent, is the home of *W. B. Taunton*; so it is no wonder that Bernard lists among the distractions he has to suffer, in addition to the usual ones, QRM from fruit-picking duties, and the consequent wine-making. On the bands, Bernard has been sticking to CW, but has been somewhat irritated by the interminable CQ calls so often to be heard. Admittedly, J.C. has a transmitter, but it does not alter his attitude to the long CQ—*disregard it*. In all the years your conductor has been around, he has never yet heard a long CQ with a DX'y call on the end. The operator who was clot enough to send 25 CQ's to one callsign from a DX location would be too much of a clot to handle the pile-up! Seriously, though, it is only the operator in a country with a large amateur population who does tricks of this kind, as he has more difficulty in raising an answer to *any* CQ call, but has not yet realised the method is to listen round for somebody to call and not to CQ at all!

R. Impey (Brentwood) has doubts as to his own abilities as far as R.A.E., and in particular, Morse, are concerned. For both, Roger, there can be only one answer—anyone can do it, provided only they are prepared to stick at it; and as for the Morse, it is an interesting fact that the majority of those who attend the "basic" Morse at

HPX LADDER

(All-Time post war)

SWL	PREFIXES	SWL	PREFIXES
PHONE ONLY		PHONE ONLY	
S. Foster (Lincoln)	1234	N. Askew (Coventry)	624
J. Singleton (Hull)	1101	G. W. Raven	(London, S.E.13) 614
A. W. Nielson (Glasgow)	1090	A. Judge (Bishops Stortford)	579
R. Shilvock (Lye)	972	Mrs. S. Singleton (Hull)	559
J. Fitzgerald (Gt. Missenden)	893	J. H. Sparkes (Trowbridge)	545
G. S. Taylor (Rugeley)	852	S. Wessely (Sheffield)	541
G. Dover (Nottingham)	847	D. J. Browning	(Bishops Stortford) 533
R. A. Treacher (Eltham)	830	I. Forse (Saltash)	533
I. Brown (Newtonabbey)	825	J. Lee (Nuneaton)	525
M. T. Hyder (Hythe)	824	J. R. Cowan (Rochford)	523
N. Henbrey (Northiam)	810	C. J. Deacon (East Ham)	523
W. Moncrieff (Hampton)	789	J. Spearing (Orpington)	522
R. Carter (Blackburn)	781	J. Dunnett (Luton)	518
J. G. Ayton (Sunderland)	780	A. R. Holland (Malvern)	514
T. Rootsey (Ilford)	776	R. Bence (Cardiff)	512
M. J. Quintin	(Wotton-u-Edge) 771	T. George (Penzance)	511
M. Fisher (Bradford, 9)	758	K. C. Webb (Slough)	502
D. Rodgers (Bolton)	757	R. Pepper (Bradford)	501
J. P. Scragg (Stockport)	742		
H. Alford (Burnham-on-Sea)	715	CW ONLY	
T. W. Hyder (Southampton)	708	A. Glass (Plymouth)	731
S. Proud (Letterston)	688	J. Dunnett (Luton)	645
B. Hughes (Worcester)	684	G. Proud (Letterston)	525
H. M. Graham (Harefield)	682	H. Wright (Pontefract)	476
A. Mercer (Wigan)	661	J. Halden (Newcastle, Staffs)	391
E. W. Robinson	(Bury St. Edmunds) 650	W. B. Taunton (Meopham)	382
K. Kyezor (Perivale)	645	T. Grimbleby	(R.A.F., Digby) 305
D. Robinson	(Birmingham, 26) 642	D. Rodgers (Harwood)	243
M. Williams (Sleaford)	637	T. Thornton (Wargrave)	220
P. L. King (Ryde, I.o.W.)	633	T. George (Penzance)	207
E. Parker (Hove)	631		

Starting score, 500 for Phone, 200 for CW. Listings include only recent claims. Rules for HPX were given on p.46, March issue. The DX Zone Map and latest Prefix List, 85p post free from Publications Dept., 55 Victoria Street, London, S.W.1.

Grafton on R.A.E. class evenings are found to pass Morse as easily as R.A.E.

Sad to say, *G. S. Taylor (Rugeley)* seems to have a receiver full of images, as he finds Twenty all but useless because of the number of BC stations cluttering it up. And we could add that Graham should know what he is about, with a score of 852 in the Table and several years of the essential experience behind him.

T. George (Penzance) has now put up a two-element Quad for Fifteen, and says he finds it *quite* an improvement on the dipoles. Operationally, most time has been spent on CW, resulting in a CW entry as well as the Phone one—good!

From *I. Brown (Newtonabbey)* comes a long and chatty letter, from which we can deduce that Irwin has wisely spent a lot of time doing maintenance on his aerials. In addition, there has been a change of direction to the 20m. dipole which now fires over the Poles; it is too early yet to comment on the difference this has made. However, the main project, the tower, is still hanging fire for want of the raw materials to build it from, albeit Irwin is still searching. Meantime, a 3-way aerial switch has been built up, and an ATU is also on the stocks.

R. Holland is an old-timer who lives in *Malvern*; he started with a series of home-brew one and two valvers back in 1949, and then progressed through a string of the "lesser" surplus receivers such as the R.208 and R.107, to the present neat Trio 9R-59DS which is neat enough to

live in the house. Roy wonders how long it has taken Stew Foster to achieve his total score—we should guess years, but no doubt Stew will tell us next time round.

The hot weather of summer caused *R. Bence (Cardiff)* to rise at the unearthly hour of 0500 clock, it being too hot for further sleep. The AR88 was switched on and yielded ZL's on Eighty, working G's, and DL3GJ/P/HK3 in Colombia—but, alas, Ray already had these prefixes booked in on the HF bands so no prefix profit resulted.

J. H. Sparkes (Trowbridge) has an initial entry, directly into the A-T-P-W listings. He has particular interests in the Maritime Mobiles, but wishes more of them would give the name of the ship they are operating from. He also wants to know about the "Regions" by which some /MM stations identify their locations. This is a tough one—basically there are three Regions, defined by ITU, Region I being broadly Europe and Africa, and Region II North and South America. Frequency allocations are given, in general, similarly to all parts of a Region; on the amateur plane, for example, Region I and III has 7-0-7-1 as the allocation on Forty, while Region II has 7-0-7-3 MHz. Thus, a /MM, in giving his ITU region, is in effect saying what frequencies he can operate on, as his bands change as he goes from one Region to another.

A rather annoyed *J. Fitzgerald (Gt. Missenden)* has had to return his Trio 9R 59DS to the supplier for a spot of warranty work, by way of the rectification of an intermittent fault in the BFO, which comes and goes as it pleases. However, by the time this reaches print, John will no doubt have it back in service and pulling in the DX. A personal QSO with G3XTJ, who has recently taken to VHF, and the revelation of the DX to be worked from North London has made John rather interested in the VHF possibilities from his Missenden home, which on the surface looks to be a far better VHF site than G3XTJ's—another one heading for a G8/3 call?

Mention of *J. Fitzgerald* leads one naturally to think of *A. T. Judge (Bishops Stortford)*, who is one of the Fitzgerald students. Tony has an interesting point when he refers to an SWL card in the context of a QSO with someone, such as VP2ME in Montserrat, who does not QSL. He says—"Imagine you have a QSO with VP2ME, and cannot claim him as a country because you can't get a card. You receive a QSL from a listener, reporting on your contact with VP2ME—shouldn't that be adequate documentary proof of your having worked VP2ME, for an award?" A Good Question—but not one your conductor is qualified to answer.

Still in *Bishops Stortford*, *D. J. Browning* sounds relieved to have his O-Level studies behind him and get on with listening; there is also a matter of his rejoining the local Club, which he has not been able to attend for a long time, because of his need for study time.

A long time also since we heard from *S. Cole (Rogerstone)* albeit we have heard from odd sources of him! Stephen has come on a long way since those early days, with his current aim as a sort of Listeners Five-Band DXCC, to which end he has over the hundred countries on all bands except Forty, where he is in the high-nineties. As if all these were not enough, Rogerstone sports a two-metre receiving station as well, with a five-element beam at about twenty feet in a poor VHF DX location.

R. Carter (Blackburn) is an early riser, and likes

this period of the day best as far as SWL'ing is concerned, although he sometimes has a go in the day, or late at night. However, his most important news is of the demise of his wooden mast—thanks to a "skilled property repairer." However, there is now a big steel job, ten feet higher than the old one, bolted to the side of the house, and the bits of the original have gone for firewood.

K. Kyezor (Perivale) is going Stateside for a few days in August, to Fort Lauderdale, and has high hopes of looking up some of the local W4's.

G. W. Raven (Lewisham) pulled the big switch on April 12, and did not switch on again till June 28; but the lay-off seems to have resulted in an increase in enthusiasm, as is so often the case. On the QSL front, already the return-rate *via* the bureau is up to 30%, even though most were only despatched a few months ago.

M. Marsden (Ilford) has been worrying about his HPX appearance, but this time sees him at 306. Mark wants to know what has happened to reader Mike Cuckoo of Herne Bay, against whom he was pitting himself in the ladder as a yardstick. The short answer is just that we don't know—but if he is still with us, at least in spirit, he will no doubt let us know how he is getting on.

M. Williams (Sleaford) mentions a Cambridge team who are interested in Long-Delayed Echoes—LDE's, which we mentioned last time round, and the theories that have been put forward. Yes, but one must be careful, as most of the "theories," even as mentioned in the work of the great Terman, are transplants from earlier work, and the Stanford University chaps are in fact starting to work from Square One.

Images are troubling *J. Jarvis (Rickmansworth)* who has a CR-70A plus PR30 preselector. The only help we can offer is to use an ATU as well, adjusted so it tunes a bit more sharply than would normally be nice; and of course to keep the gain of the preselector down, and the CR70 IF gain up, as far as may be, at all times when one senses trouble. On a different tack, Jonathan brings up the use of a separate receiver as a BFO when taking CW or SSB on a receiver not fitted. The ploy is to put the two receivers side-by-side, and to tune the second receiver so that its mixer oscillator is operating at the signal frequency of the other one. This ploy is called front-end injection, and is sometimes done with a BC-221 or similar.

S. Proud (Letterston) is now up to 216 countries all-band, and has of late been combing-out Eighty for DX. This has of course led him to the DX Net, and to the QRM. In particular, it led him to one EI station in particular, who was not only capable of but had worked DX on the band, whose conduct towards the DX Net leads reader Proud to surmise that he "should be in an institution". Hard words, these, when coming from an SWL who has no vested interest in *working* the DX. And he is not the first one to comment on the antics of those bent on destroying the DX SSB Net as far as Eighty is concerned. But then, Eighty, as far as its Phone end goes, has, ever since the war, taken over the function of gash-bin, as the Navy would have it, for all the more undesirable elements in Amateur Radio, from the monologue-merchants too incompetent to make a mark, through to the pundits—a tribe who can pronounce with great authority on *anything*, with no idea what they are saying. Then there are the last of the AM chaps, still

with the dirty signal they had twenty years ago, to the modern exponents of the "permissive society" whose language on the bands is enough to make a civilised person squirm, the while showing how empty their little minds are by their repetition of one or two words of filth. However, it is a consoling thought that among it all there are still *some* people who have signals and operating above reproach, though why they patronise the band, Heaven-only knows!

On a completely different tack, *Z. Parmigiani (Whaley Bridge)* has been doing some constructing, and hit a spot of bother, in that his S-meter circuit does not work, as there seems to be little or no voltage on the receiver AGC line. This is an old one, and arises from the "loading" effect of the S-meter circuit, or the test-meter, on the high-impedance of the AGC circuit. About the only way round this one is to use a valve-voltmeter circuit, of about 10 megohms input impedance, and at the same time to check *all* the capacitors associated with the AGC and the input of the valve-voltmeter S-meter circuit for leakage, using a high-voltage test through a megger. If a megger is not to hand, another way is to use a neon bulb in series with the capacitor under test, across a convenient DC HT supply. With this circuit, the neon will flash once only if the capacitor is good. If it is leaky, it will either show the neon flashing at intervals or continuously, depending on the degree of leakage. Such a simple test is far more reliable at finding leaky capacitors than any low-voltage test on the ohms range of a test-meter, simply because it puts a higher voltage across the capacitor.

Now to *J. R. Cowan (Rochford)* who wants to know about Citizen's Band. This is around 27 MHz, and is available in certain European countries, notably SM, and, mainly, in USA, where it seems to have got completely out of control of the authorities, to judge by the noises which can be heard when the band is open. A second question concerns the QSL manager for 4X40G/AM,

heard and logged as W2BHK. One would think, at a guess, this is a mis-logging of W2GHK, Stu. Meyer, who is the leading light of "DX-Pedition of the Month" as a QSL service. The address is, if we recall aright, Box 7388, Newark, New Jersey.

As he says, half the problem of getting an aerial up for *T. Grimbleby (R.A.F., Digby)* is having a mast—a problem solved when somebody presented him with a twenty-five foot TV mast; so next time we should hear what Terry has used it for.

For *R. A. Treacher (Eltham)* the month has been gladdened by the arrival of a Sommerkamp FR-DX500 receiver, which has been found quite an improvement on the earlier receivers. Bob is the organiser of the Cray Valley club SWL Contest, over the weekend September 25/26—if anyone is interested in entering this, write to him for a copy of the rules: R. A. Treacher, 392 Rochester Way, Eltham, London, S.E.9.

A thumping rise in his total is reported by *Rev. L. J. Turner (Lower Gornal)*, despite still being tied to his receiver's whip aerial. However, a shift of diggings is in prospect, and hopes are expressed that the new ones will sprout an aerial—we hope so, indeed.

Another one with a new receiver to report is *A. Mercer (Wigan)* who has swapped from an 1155N to a BC-348, still with the converter for Ten and Fifteen. Brings back memories for J.C. does that BC-348—his first SW receiver was a '348, bought from G2AK and carried home in triumph on a bus, while it got heavier and heavier!

Finally, to our old friend *H. M. Graham (Harefield)* who has spent part of the period away in Lugano, in HB-land, "where they have cracking thunderstorms most nights!" For the rest, Maurice is a little puzzled by the new I-prefixes; they are based on the number at the start of the Italian Postal Code, so that if this is, say, an 8, the operator can sign I1 or I8. This is a bit hard on those whose postal codes begin with 1, so they are given the option of L1 or IP1. This results in a reshuffling of the prefixes of the Italian off-shore islands as well.

NEW HPX LADDER

(Starting January 1, 1971)

SWL	PREFIXES	SWL	PREFIXES
PHONE ONLY		PHONE ONLY	
Rev. L. J. Turner (Dudley)	428	M. Marsden (Ilford)	306
P. Goff (Towcester)	420	J. Woods (Chillesford)	301
D. A. Shepherd		T. J. Thornton (Wargrave)	268
(Brierley Hill)	491	K. A. Hastie (Jedburgh)	265
K. Plumridge (Southampton)	408	R. Philpot (Shenfield)	253
W. B. Taunton (Meopham)	403	P. Reeves (Burton-on-Trent)	252
J. V. Parker		R. Impey (Brentwood)	252
(Newcastle-on-Tyne)	400	W. M. Bell (Bristol)	249
S. Rawlings (Twyford)	386	Z. Parmigiani (Stockport)	243
Miss L. Hyder		P. Harris (Lincoln)	229
(Southampton)	353	M. Gawsthorpe (Hull)	210
H. R. Goodwin (Streety)	350	S. Emlyn-Jones	
J. W. Jarvis		(Tunbridge Wells)	206
(Rickmansworth)	312		

Listings include only recent claims. Starting score 200. Rules as for HPX, given on p.46 March. DX Zone Map and latest Prefix List 85p post free from Publications Dept., Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

The Others

The chaps who sent in scores only this time, and are not, therefore mentioned in the main text, include *N. Askew*, Coventry; *J. G. Ayton*, Sunderland; *I. Forse*, Saltash; *A. Glass*, Plymouth; *H. R. Goodwin*, Sutton Coldfield; *J. Halden*, Newcastle, Staffs.; *K. A. Hastie*, Jedburgh; *B. Hughes*, Worcester; *W. Moncrieff*, Hampton; *K. Plumridge* Southampton; *M. J. Quintin*, Wotton-u-Edge; *P. J. Reeves*, Burton-on-Trent; *D. Robinson*, Birmingham 26; *E. W. Robinson*, Bury St. Edmunds; and *T. Rootsey*, Ilford.

Which is by no means saying we are not interested—indeed your conductor enjoys reading *all* your letters and comments, whether printable or not!

Deadline

For next time the deadline is **Monday, 13 September**; the address, as always, is "SWL", SHORT WAVE MAGAZINE, BUCKINGHAM. 73.

BASICS ABOUT ANTENNAE

NOTES ON THE END-FED AND TUNED DOUBLET TYPES — HOW TO ACTIVATE THEM

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

END-FED AERIALS

AN end-fed aerial is probably the easiest to put up, and can allow working on any band. The same wire can be used on 160 and 80m., and on any or all of the HF Bands, often with quite reasonable efficiency.

The length of such an aerial is that of the whole wire from the transmitter (or tuner) to the far end, Fig. 1. It thus includes the down-lead, and any portion coming through into the house. Actually, the earth lead is part of the system, but as this will often be parallel conductors of various length, it is at present ignored here.

In practical terms, the plan is to get the whole aerial (which includes the down-lead) as high and far from earthed objects as possible. "A" can often go to a house, chimney, or attached pole, with enough cord to get the down-lead some feet from walls etc. "B" will run to the highest support which can be arranged. The top section need not be horizontal.

The whole can be an uncut length of 14g. hard-drawn copper or similar aerial wire, threaded through the insulator at "A" and bound or twisted.

Length

In terms of radiating a signal, there is no magical "right" length. Some lengths are easier to feed or couple than others, but it is theoretically possible to feed *any* length, and the writer has never encountered a length which could not be used.

In general, the higher and longer the aerial, on the whole the better will results prove to be. Such aerials are sometimes called "long wires," but this ought only to be applied to aerials which are a wavelength or more long at the working frequency.

The characteristics of the aerial at its feed point Z vary enormously with frequency and length. As example, assume about 136ft. This is roughly a $\frac{1}{4}$ -wave for 160m., so Z will be around 52 ohms (usually less). On 80m., 136ft. is near an end-fed $\frac{1}{2}$ -wave, and Z may be 2,000 ohms. It will be a full-wave on 40m., two full-waves on 20m., three full-waves on 15m. and four full-waves on 10m. Z would be high-impedance on all these bands, should the aerial be exactly resonant at these multiples (which is unlikely).

If the wire is a $\frac{1}{2}$ -wave, end-effects apply at each end of the wire. But with harmonic operation on higher frequencies, there will be a number of $\frac{1}{2}$ -waves accommodated, with end-effects at the outer terminations only. For this reason, a length which is, say, an exact $\frac{1}{2}$ -wave on 3.5 MHz, is not exactly a full-wave on 7.0 MHz, or exactly four $\frac{1}{4}$ -waves on 14 MHz. The (well-known)

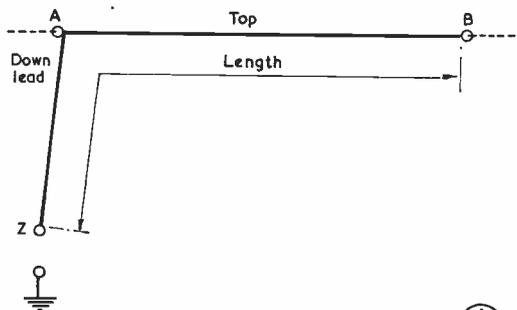


Fig.1 End fed Aerial

formula for the length for harmonic operation is an easy one, and is given below for those who may want it—but due to bends and other factors the feed-point Z may well turn out to have a different impedance than expected, especially on the HF bands.

$$\text{Length in Ft.} = \frac{492(N-0.05)}{\text{MHz}}$$

N is the number of $\frac{1}{2}$ -waves of the wire.

If lengths must be given, then 136ft. is suggested for all bands. If space is lacking, 68ft. will be a $\frac{1}{2}$ -wave or multiple on half-waves on all bands 40-10m., and a $\frac{1}{4}$ -wave on 80m. On the other hand, about 102ft. is 3 half-waves on 20m. and 6 half-waves on 10m. and can be fed at low impedance on 40m. ($\frac{3}{4}$ -wave).

Feeding The Wire

Some end-fed lengths will present a satisfactory load to the transmitter when Z is connected to its output socket. This is often an easy way of working 80 or 160m. (If the operator and the neighbours are happy, there is no particular reason to disturb this state of affairs).

Again, often the feed-point Z has such characteristics that no possible adjustment of the PA tuning and loading controls will allow the PA to be correctly loaded. If so, a matching device or tuner will be needed, to change Z to something more suitable for the transmitter.

A matching device, impedance match, or Z-match will enable the transmitter to be loaded, but may distinguish little against harmonics. This can thus overcome the matching problem, but perhaps not that of harmonic radiation. (The end-fed wire is a good radiator of any harmonics supplied to it).

So a matching device which employs a resonant tuned circuit is preferred. It both allows loading of the transmitter, and helps reduce harmonics.

In fact, when an end-fed aerial is contemplated, a

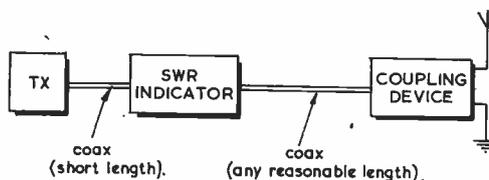


Fig.2 Sequence of Equipment

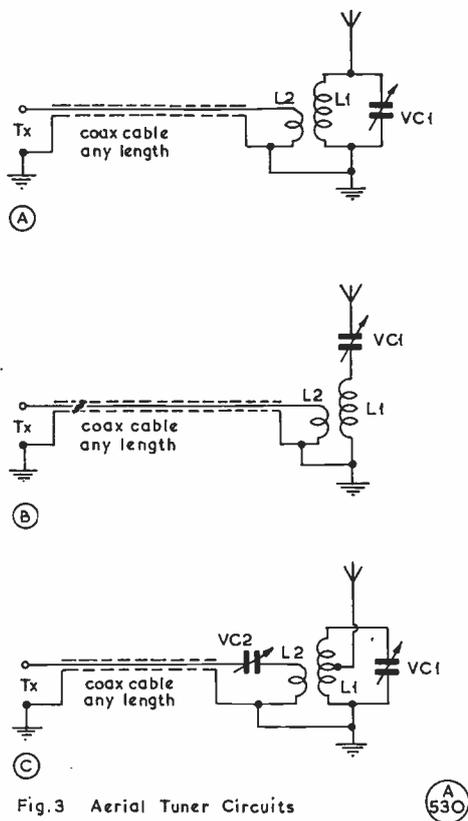


Fig. 3 Aerial Tuner Circuits

tuner or similar device ought to be planned at the same time and be made an integral part of the system.

SWR

There are supposed to be standing waves on an ended wire, so the SWR indicator is not placed here. Again, a small Top Band, 80m. or phone Tx may not much mind standing waves; but the new SSB transceiver may strongly object to them. So a good set-up with the ended wire is as in Fig. 2. This supposes the Tx to be suitable for 75-ohm co-axial output. A piece of 75-ohm coax with plugs connects the SWR indicator (for 75 ohms) and a second similar lead runs to the aerial matching device. All adjustments of the device are directed towards securing the minimum reflected power reading on the SWR indicator. Should a harmonic filter be in use, it is placed also in the 75-ohm line (and would be designed for 75 ohms).

This leaves everything planned except the aerial matching device. Circuits for these are numerous and varied!

The Tuner

Fig. 3 shows three circuits. "A" is parallel-tuned for aerials which are a 1/4-wave or multiple of 1/4-waves. L1 is resonant at the working frequency, and L2 a tightly coupled loop of a few turns.

"B" is for series tuning, for an aerial which is a 1/4-wave, 3/4-wave, or odd number of 1/4-waves. VC1 can be

at the earthed end of L1.

In each case, VC2 may be added, as at "C", to help give a form of variable coupling which may reduce the SWR ratio. Tapping down the aerial as at "C" can also be tried when "A" and "B" are not satisfactory.

L1 can look like the Tx tank coil. The Eddystone type 2 1/2 in. dia. by 5 in. long ribbed former with 26 turns of 14g. or similar wire will do for 80m. and higher frequencies. L1 has to be tapped to reduce turns in circuit, for the higher frequency bands. VC1 can be about 150 pF, wide spaced. VC2 should be a 2-gang 500 pF capacitor, though 300 pF or 500 pF will often be enough for 40m. and higher frequencies. L2 can often be about 4 or 5 turns for 40/80m. but two or so for 20m. and higher frequencies.

It is helpful to use reduced power for tuning up, and to list dial readings and tappings for each band, once found. This reduces the need for three hands, and chances of cooking the PA in its own juice.

Fiddle with tuning and tappings—sorry, experiment with the capacitor settings and inductance in circuit, to obtain the lowest SWR, which may well be near 1 : 1. If you have no SWR indicator (and one is very desirable here) it may be feasible to feed the Tx into a 75-ohm resistor load, note its PA and loading control settings, and adjust L1, VC1, L2 and possibly VC2 until the aerial with its tuner loads the Tx in a similar manner, with little or no touching up of the Tx controls.

Normally, a little adjustment of VC1 will be necessary when moving about in a single band. When changing from one band to the other, a more radical change, such as altering the number of turns of L1 in circuit, will usually be needed.

If 160m. is to be worked, a small separate aerial tuner is best made for this. VC1 can be a receiver type 500 pF capacitor. L1 can usually be 70 turns of 22g. enam. wire close-wound on a 1 in. diameter tube, with about 7 to 10 turns for L2.

Earth

A good earth, such as buried wires and earth rods, is helpful with low impedance feed in particular, such as is likely on 160 metres. On HF bands it is wise to avoid those earth lead lengths which are themselves a multiple of 1/4-waves from the Tx (or tuner) to the earthing point. If operating from an upstairs room, using two or more earth leads of dissimilar length will be a solution.

Results vary enormously and will not be detailed here. As the aerial becomes longer and longer in terms of 1/2-waves at the frequency in use, maximum radiation develops more nearly in line with the wire, and major lobes can have useful gain over a dipole. The down lead also radiates. Unless quite elaborate planning along textbook lines is in view, the easier solution is to erect the aerial as circumstances permit and establish what results it will give by using it on the wanted bands.

ALL-BAND DOUBLET

These brief details of transmitting aerials continue with a popular type of balanced aerial which it can prove extremely useful to have—the doublet with an open-wire line.

When a dipole aerial is cut to correct length, it can be fed in the centre with 75-ohm co-axial cable. The

same top length is unsuitable for more than one band (with the exception of the special case of 40/15m. operation) so the aerial is essentially for a single band.

This limitation is overcome by using an open-wire line. The same aerial can then generally be used on any band.

Doublet Construction

Fig. 1 shows the essential features. The top, radiating part consists of two equal wires, A and B. These will usually be 14-gauge hard drawn copper, or other suitable aerial wire. A and B are always of the same length. Each outer end has an insulator, and cord to run to suitable supports—chimney, poles, trees, etc.

At the centre, fit a ribbed strain insulator, or two small egg insulators secured together with cord, so that the distance between the ends is about the same as will exist between the wires C and D.

Feeder

The wires C and D form the feeder, and are both of the same length. Hard drawn 14g. is a bit awkward to deal with here, and 7/26's or similar stranded copper wire is easier to handle. The wire gauge and spacing between wires results in a particular characteristic impedance, but in the present case this need not be known, or be of any definite figure. Something in the region of the equivalent to 16g. wires, at about 14in. spacing, would be roughly around 600 ohms, and will be suitable.

The spreaders may be purchased for this purpose, or can be made from strips of insulating material such as paxolin or Perspex, etc., flat, or in rod form. Materials which absorb moisture must be varnished or otherwise treated, or the result will be a fair-weather aerial. Silicone will help keep moisture off.

Too many spreaders increases cost, assembly time, weight, and losses. Too few spreaders leave wires flapping about, and produce by no means a parallel line. If the feeder is moderately taut, one spreader each 2ft. to 3ft. should do nicely. The spreaders may have a notch at each end, and an adjacent small hole. The feeder wires then rest in the notches, and are secured by bindings through the adjacent holes, and round the wires.

Feeder ends X-X must be run all the way to the operating position, or tuner. They should be soundly insulated where they pass through a wall or window-frame, or may run through holes drilled in a pane, or through a narrow board placed under a slightly-raised window, as circumstances allow.

Mode of Working

Many pages could be filled with top lengths and feeder lengths, and ways to use the result on each band. Happily, it is usually possible to employ almost any top length, and any feeder length, on any band! This is done by staying comfortably indoors, juggling with the coupling at X-X.

Suppose the top length were about 132ft. This is about a $\frac{1}{2}$ -wave on 80, so feed-points Y-Y of the top are low impedance. If we now shift to 40 metres, A is a $\frac{1}{2}$ -wave, and B is also a $\frac{1}{2}$ -wave, so the aerial is two $\frac{1}{2}$ -waves in phase, and the feed-points Y-Y are high impedance. On 20, these wires will be two full-waves, and a correspondingly greater multiple on 15 and 10m. ¶

With a given impedance at Y-Y, the impedance "seen" by the coupler at X-X depends on the multiple of $\frac{1}{2}$ -waves in the line C-D. It is not difficult to calculate the expected feed at X-X. If A plus C is a multiple of $\frac{1}{2}$ -waves, anticipate high impedance at X-X. But if A plus C is an *uneven* number of $\frac{1}{2}$ -waves, anticipate low impedance.

In using aerials of this kind for a good number of years, there was no evidence that the top ought to be some particular length, such as a multiple of $\frac{1}{2}$ -waves. Nor need the feeder be any special length, provided the system can be coupled correctly. As with the random length end-fed wire described earlier, it would seem that any length can be successful, though some lengths are easier to couple than others.

As would be expected, added length for the top helps, especially on the LF bands. It is normally assumed that the top ought to be at least a $\frac{1}{2}$ -wave on the lowest frequency, which is around 132ft. for 160m. For some time a 200ft. top was in operation here, for 160-10m., with success. Many other lengths have been used. For 80m. and higher frequency bands, a top of about 132ft. is satisfactory, and shorter tops are sufficient for the HF bands.

Feeder lengths actually used have varied from 15ft. to about 50ft.

Transmitter Coupling

The problem encountered here is exactly that described for random length end-fed aerials, except that the system and feed points X-X are balanced. The feed points may be almost any impedance, with inductive or capacitive reactance thrown in.

The wires C-D can be called a tuned line, and the easiest coupler to use is a tuner of similar type to that usual for end-fed aerials, but catering for balanced feeders.

Fig. 2 is a suitable parallel tuned coupler for high impedances. L1 should look like the Tx tank coil (or the portion of it in use for the wanted band) and VC resembles the PA tuning capacitor. For 80m. L1 can be 26 turns of 18g. wire, 2½in. in diameter, and occupying 3½in. winding length. VC will then need to be around 300 pF, widespaced.

The link L2 is of soundly insulated wire, and is wound

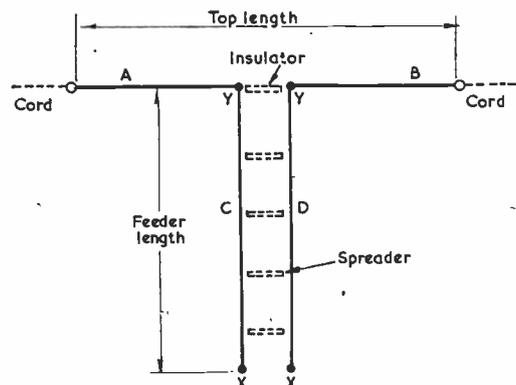


Fig.1 Doublet with open-wire feeder

centrally on top of L1. For 80, four or five turns should do.

Where the points X-X are of somewhat lower impedance, it is necessary to tap them towards the centre of the coil, using taps such as B-B, or C-C, instead of taking the feeders to A-A.

The presence or not of the centre-tap on L1 seems usually to make little difference. There can be some hand-capacity effects to VC, unless on an insulated extension spindle. Using a two-gang (or split) capacitor for VC allows the frame and rotor to be earthed, one fixed section being connected to each point A. It then seems best to omit the centre tap on L1.

For other bands, it is necessary to tap VC and feeder wires in equally, to points B-B, or C-C, so that the portion of L1 in use can be tuned to the wanted band. In tests, no difference could be found in the radiated signal strength when tapping an 80m. coil in this way for 15 or 10m., compared with a coil wound for 15m. or 10m. only.

When X-X are low impedance, series tuning is needed, Fig. 3. L1 is again resonant at the working frequency. Fig. 3 is not strictly balanced, since a second similar capacitor should be placed at Y, and both should be adjusted together. This is easily hooked up, but actual results seem similar with a single condenser.

SWR

An indicator can be put in the co-axial lead from the transmitter, to observe the SWR. If so, adjustments are directed towards securing the lowest reflected power ratio. Variables include altering the number of turns in circuit on L1, moving X-X to points such as B-B, Fig. 2, and changing the number of turns on L2. A receiver-type capacitor may be put at Z as an aid to getting a better SWR on the co-axial line. About 500 pF is suitable for 10-40m., but a larger value, from a ganged capacitor with sections in parallel, may be required on 80m. or 160m.

It is generally better to make a separate tuner for 160m., as many more turns are necessary, but power will be low. L1 can often be about 70 turns of 26g. enamelled, close-wound on a 1in. former, with about 10 to 15 turns for L2, and VC 500 pF or larger.

Receiver

If the receiver has a 75-ohm or similar input impedance, optimum adjustment of VC will show up as a peak in the S-meter reading. But due to coupled-in reactances, a slight re-adjustment of VC may be necessary for the transmitter, though usually VC can then generally be left in this position, for both transmission and reception.

Having dials or coil taps marked for each band will greatly ease returning to any band, as wanted.

Lengths

As pointed out, the great advantage of using open-wire lines is to allow practically any length of aerial to work efficiently, so that there is no need for the top or feeder to be cut to any special dimensions. However, as a guide, some suggested lengths may prove helpful. It should not be expected that these will necessarily give exactly the type of tuning mentioned, as a foot or two of wire can make a considerable difference on the HF bands, while bends and the proximity of other objects

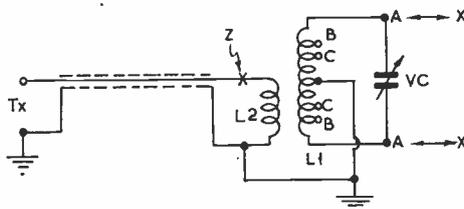


Fig. 2 Parallel Tuned Coupler

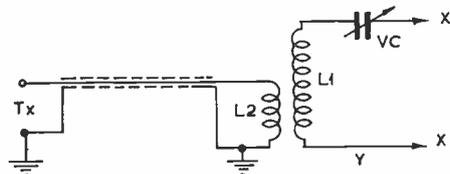


Fig. 3 Series Tuning

(A 526)

also effect the aerial.

A 135ft. top and 68ft. feeder could be expected to require parallel tuning on 80, 40, 20 and 10 metres. Reducing the feeder to about 42ft. should leave parallel tuning on 80, 40, 20 and 15 metres but require series on 10m.

For less space, a 68ft. top and 42ft. feeder would be expected to need parallel tuning on the 40m. and HF bands, but series on 80m. A 100ft. top, with 26ft. feeder, would be similar.

For any band, the significant length is A plus C, or B plus D (which is the same) Fig. 1. If it is imagined that the insulator at Y-Y is moved up or down the feeder, the top length will become shorter or longer, while the length A plus C remains the same. Thus, the top length or feeder length can be adjusted at will to suit space, etc. In all cases, the aerial should prove to be an effective radiator.

Numerous aerials of this kind have been used by the writer over the years, and a top length and feeder length which could not be used has never been encountered—provided the aerial tuner at X-X has a full range of taps and other adjustments available.

STOLEN GEAR—WATCH OUT

Anyone who knows the whereabouts of, or is offered, a KW-2000B, serial No. B.1193; its accompanying PSU/speaker, No. P.A.1636; a K.W. ATU, No. S.1168; and a K.W. SWR Bridge No. M.V.796, should report immediately to the County Police Office, Weston-super-Mare, Somerset (Tel: Weston-s-Mare 25411), giving them the reference CID/RWP dated '14 June 71. Any local Police station would, of course, take the information and pass it on to Weston-super-Mare. The matter arises by reason of a burglary at the Technical College, Weston-super-Mare.

BUILD-UP OF A TRANSMITTING LAYOUT

HOME-CONSTRUCTED RIG FOR
ALL BANDS—BUILT IN UNIT
FORM—FOR AM/CW OPERATION
RUNNING 10-20 WATTS TOP
BAND TO VHF

Part I

J. PATRICK (G3TWG)

This article, to appear in two parts, will be of particular interest to beginners contemplating getting on the air with home-built equipment. Our contributor presents a carefully thought-out design, with simplicity, efficiency and the practical approach as the prime considerations, tested over some years of amateur-band operating. It might well be thought that the emphasis should have been on SSB—but nowadays almost everyone starting with Sideband phone and no thought of CW would go for one of the commercial plug-in appliances. Apart from the CW aspect—still the most effective method of international communication—there is even today scope for AM phone working on Top Band and two metres. In fact, most people would admit that it is "much nicer" to listen to phone on AM than on SSB!—Editor.

ONE of the main problems for the home-constructor these days is the apparent complexity of a multi-band transmitter or receiver. Some projects may take over a year to complete, and may call for more skill, more knowledge or more patience than the average amateur possesses. However, many amateurs do build GDO's, ATU's or converters, which are simpler to construct and, possibly more important, simpler to align. This article describes one way of getting on all bands in easy stages by a series of small projects, none of which make undue demands on a constructor's time, money or skill.

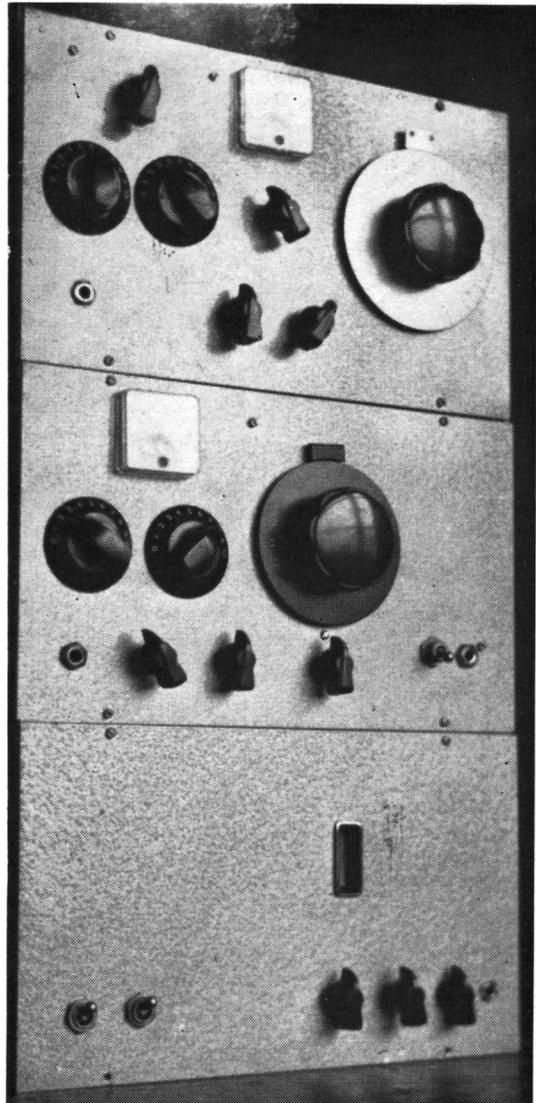
The writer had several years as an SWL before getting his ticket, and during that time he built up a receiver bit by bit. A single superhet for the LF bands was followed by a crystal-controlled converter for 10-40 metres, and in the year before the Morse test was passed, a pair of converters for two and four metres were added. The biggest unit was the main receiver which now has eight valves plus rectifier and stabiliser—but started with less! Construction and alignment of all units was comparatively simple, and together they constitute an efficient all-bands receiver. They are larger and not so neat as a "plug-in appliance", but nevertheless built in proper cases and reasonably tidy.

With the licence expected in only a few months, some serious thought was given to planning a transmitter to work with the receiver. The space available for the transmitter receiver, key, microphone and log was a table top 35 × 23ins. It was intended to start on Top Band and then progress to the other bands, beginning with two

metres. Clearly, space would not permit separate complete transmitters for Top Band, VHF and the HF bands, so another approach was necessary. A look at the circuit diagram of any CW/AM transmitter shows that it consists of the following main units: Power pack; Exciter; PA stage; Speech amplifier; Modulator; Transmit/receive switching arrangements, and a meter or meters.

Of these items only two actually generate or handle radio frequencies. It is extremely rare for an operator to

(cont'd p.418)



A front view of the complete assembly. The bottom section carries the power pack and modulator with the modulation level indicator visible immediately above the transmit/receive switch. The centre case contains the LF band rig, nearest camera, and the 2-metre Tx (crystal switch and key jack visible); the three lower knobs on this box are, from left to right, the RF unit selector switch, the 80/160 metre band-switch and an additional control (not shown in circuit diagrams) for putting power to an external RF unit for 4 metres. The top cabinet contains the 10-40 metres transmitter.

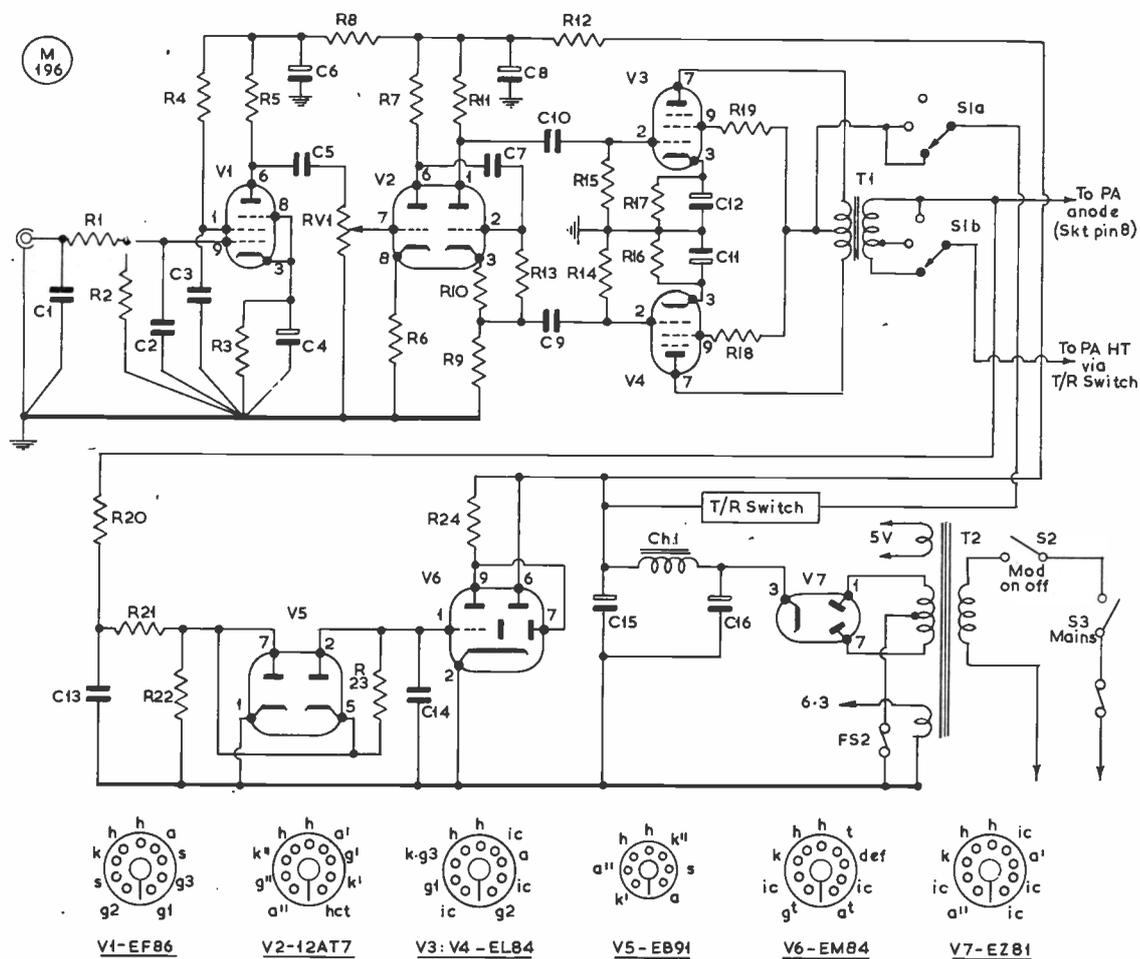


Fig. 1. The Modulator Unit and one PSU for the G3TWG all-band rig.

Table of Values

Fig. 1. Modulator and Power Pack

- C1 = 100 pF
- C2 = 47 pF
- C3 = 0.1 μ F
- C4 = 25 μ F
- C5 = 1,000 pF
- C6, C8 = 8 + 8 μ F
- C7 = 500 pF
- C9, C10 = 0.01 μ F
- C14 = 50 μ F
- C11, C12 = 270 pF
- C13 = 1,000 pF
- C15, C16 = 16 + 16 μ F
- C17, C18 = 16 + 16 μ F (not in diagram, Tx power pack)
- Ch1, Ch2 = 10 Hy, 120 mA

- T1 = Woden UM0 or similar small modulation transformer
- T2, T3 = Douglas MT-10 (250-0-250v., 120 mA, 6.3v., 3-5A, 5/6.3v., 2A) (Ch2, T3 not in diagram)
- S1 = 2 pole 3 way
- S2 = 1 pole on/off
- S3 = 2 pole on/off

- S4 (T/R switch) = 3 wafers each 4 pole 3 way
- R1 = 22 K ohm
- R2, R4, R13, R21 = 1 M ohm
- R3, R6 = 2.2 K ohm
- R5, R7 = 220 K ohm
- R8 = 10 K ohm
- R9, R11, R20 = 47 K ohm
- R10 = 470 ohm
- R12 = 33 K ohm
- R14, R15 = 820 K ohm

- R16, R17 = 270 ohm
- R18, R19 = 47 ohm
- R23 = 3 M ohm
- R24 = 470 K ohm
- VR1 = 500 K ohm log
- V1 = EF86
- V2 = 12AX7
- V3, V4 = EL84
- V5 = EB91
- V6 = EM84
- V7, V8 = EZ81 (V8 not in diagram)

Chassis dimensions: 11 x 6 1/2 x 2ins.

want two transmitters available simultaneously, so it would appear logical for a family of RF units to share a common power pack, speech amplifier and modulator, and as far as possible transmit/receive switching and meters. Neither the power pack *plus* modulator nor the separate RF units would be difficult to build, the station could be added to bit by bit as time permitted, and experience could be gained on the Top Band and two metres units before tackling the HF band RF unit which was considered potentially the most difficult. If later it was desired to go portable, the appropriate RF unit could be hitched up to a portable power supply and transistorised modulator.

What Size to Go For ?

The first decision to be made was what size of rig to go for, since the size of the power pack/modulator is the controlling factor and the RF units must be built to match. The writer considered three sizes:

- (a) *10 watts:* Power unit, 250 volts at 120 mA, Modulator single EL84 or 6BW6, RF units PA 5763 on all bands.
- (b) *15 to 20 watts:* Power unit 250 to 300 volts at 200 mA, Modulator push-pull EL84's, RF units—Top Band/80 metres 5763 PA, VHF QQV03-10 PA, HF 6146 (under-run).
- (c) *50 watts:* Power unit—500 volts at 150 mA, 400 volts at 100 mA (for modulator), 250 volts at 60 mA (arrangements to reduce power on Top Band), Modulator push-pull EL34's, RF units—Top Band 5763 PA, VHF 6146 or QQV03-20, HF 6146.

The choice is a matter for individual preference, but the writer chose 15 to 20 watts for the following reasons:

- (a) Ten watts is rather too low for the HF bands, even on CW,
- (b) A single EL84 is barely sufficient to modulate a ten-watt rig for two metres,
- (c) Going to 50 watts would require a considerably larger power pack and modulator,
- (d) SSB has largely replaced high power AM except at VHF, for which 15 watts was considered adequate.

In practice the choice has turned out well, and the writer has worked over 100 countries on the HF bands on CW with quite modest wire aerials.

The Power Pack

Voltage requirements are set by the 5763 and the QQV03-10 for which the maximum HT is 300 volts. Total HT current required for transmitter and modulator for both the VHF and HF band units is about 200 mA. Transformers giving 300 volts at 200 mA are expensive, as are smoothing chokes capable of handling 200 mA, and it was found cheaper to make two separate power supplies each giving 250 volts at 120 mA using standard readily-available transformers and chokes. By arranging for one power supply to feed the modulator the latter can be left switched off when working CW.

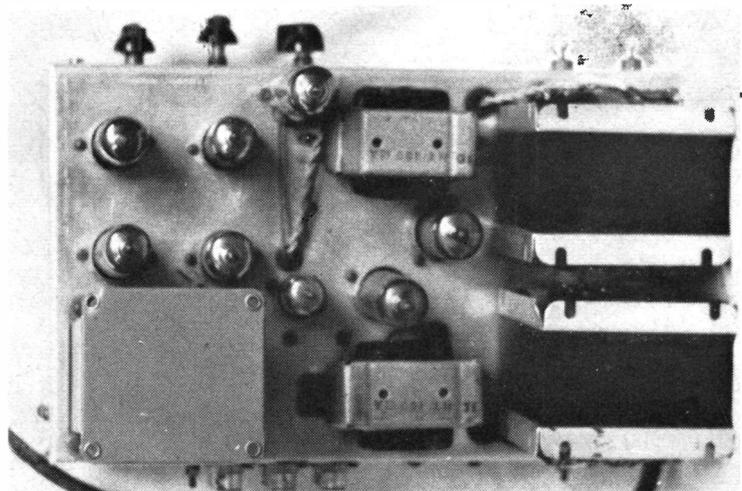
The Modulator

The modulator will have to feed a variety of impedances at differing powers. For this reason a modulation transformer giving a choice of output impedances was acquired. The switch to short-circuit its output for CW working was also arranged to give a choice of output impedances. In practice, impedance matching has been found to be not very critical, and one ratio suitable for the biggest PA to be modulated would work quite satisfactorily.

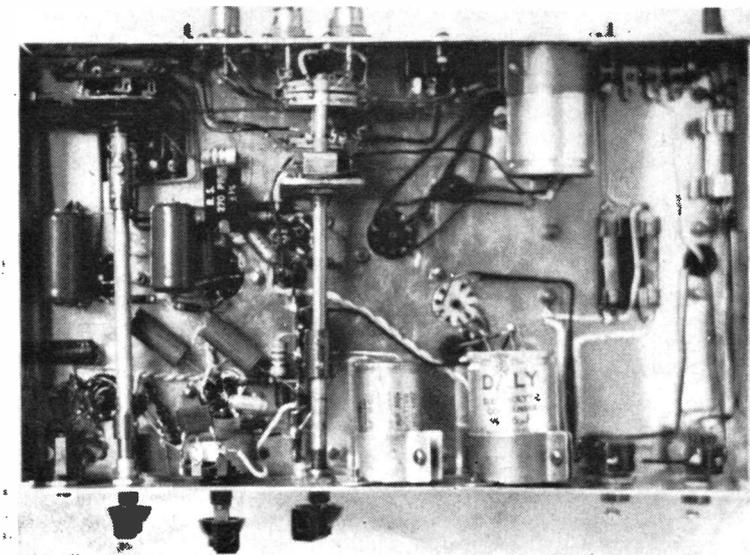
The modulator gain requires re-setting for different RF units, so a modulation level indicator is highly desirable. The circuit used employs an EB91 and an EM84 which shows "fully closed" at 100% modulation peaks. Using this it is easy to set the modulator gain correctly for the RF unit in use, and the magic-eye will quickly draw one's attention if the wrong gain setting is in use.

In other respects the modulator follows conventional practice. The speech amplifier consists of an EF86 followed by the first half of a 12AX7. The second half of the 12AX7 acts as a phase splitter to feed the push-pull EL84's. The author's combination of microphone and modulation transformer gives a satisfactory cut-off of the higher audio frequencies, so no top cut has been incorporated. Some low-note cut to reduce the amplitude

The power pack and modulator. The EM84 is mounted one inch above the chassis with leads coming from the EB91.



Bottom view of the power pack and modulator. To keep leads short the transmit / receive and modulator switches are mounted at the back with long extension spindles, the rear wafer of the T/R switch being as close as possible to the coax sockets.



of frequencies below 300 Hz is provided by using small values of coupling capacitor in the speech amplifier.

The Transmit/Receive/Net Switch

It would be simplest RF-wise to arrange separate transmit/receive switching on each unit, but this would be inconvenient in use and would complicate the problem of arranging receiver muting on "transmit". Instead a common Transmit/Receive/Net switch was fitted on the power pack/modulator chassis. This carries three sets of aerial change-over contacts on the rear two wafers which are positioned in close proximity to three sets of coax sockets on the rear of the chassis. Thus all RF units can have their respective aerial leads permanently connected, and changing from band to band involves solely switching power from one RF unit to another. The transmit/receive switch used is made up from a *Radiospares* "Maka-Switch Kit" using three 4-pole 3-way wafers. The front one applies HT to exciter, PA and modulator. The middle one carries one aerial change-over with a switch to short out the receiver lead on "transmit" and the receiver muting switch. The rear wafer has two aerial change-over switches with receiver lead shorting on "transmit". Although the switch must be near the limit of its power handling capability, it has functioned satisfactorily for the 8,000 QSO's made since the unit was built. For higher powers or for 70 cm, it would probably be desirable to have the T/R switch actuate a suitable relay.

It would be possible to place the switch for selecting the desired RF unit on either the power pack/modulator unit or the lower of the two RF unit boxes. As the latter holds two RF units (for 160/80 metres and two metres respectively) and a PA current meter, it was more convenient to mount it there. Wherever it is placed, the transmit/receive switch must be wired between it and the power pack. Since completion of the rig a requirement has arisen to be able to supply a fourth RF unit (for four metres) positioned outside the transmitter itself, so an additional selector switch and 6-pin socket has been added, also on the lower RF unit box. The original

switch gives a choice of LF/HF/VHF and the second gives a choice of four or two metres when switched to VHF.

Cabinet Size

One must select a standard range of cabinets that can be mounted on top of one another. Originally $16 \times 8 \times 8$ ins. was considered but it was found that power pack, modulator and transmit/receive switch could be fitted nicely into one of $12 \times 7 \times 7$ ins., so this size was used instead. By placing all the heavy iron-cored components in the bottom box it is possible to produce a 3-tier layout without any tendency to overbalance. The upper two boxes contain RF units. These are strongly constructed but their weight is small when compared with the two mains transformers, one modulation transformer and two smoothing chokes in the bottom unit. As may be seen from the photographs, the layout of all units is compact without being cramped.

The leads between the power pack and the RF units are potential radiators of TVI, so it is important that they be fitted with feed-through capacitors where they enter an RF unit, particularly the one for 10 to 40 metres. In a fringe area for BBC-1 additional filtering might be needed, but none of the writer's four QTH's have been in such an area, and at present in Plymouth he uses CW on all bands and AM on the LF and VHF bands without any trouble apart from some swamping when transmitting on four metres.

The second part of this article will deal with the RF units, principally with that for 10 to 40 metres which is a little unusual in that it uses a mixer VFO.

(To be continued)

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BK SYSTEM USING REED RELAYS

SPEEDY AND SILENT
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M. A. SANDYS (G3BGJ)

ALTHOUGH reed relays have been in existence for many years, they seem to have been largely neglected by the amateur. In the past five years only two contributors to *SHORT WAVE MAGAZINE* refer to them: G3SGX in "Full CW Break-In", September 1966, and G3TIE in "Another Break-in System", February 1970. This is rather surprising because reed relays would seem to be ideal for transmitter keying, particularly the miniature types now available. Compared with the electro-mechanical types reed relays are:

- Faster; operating times of 0.5 mS are possible.
- Smaller; some are no longer than $\frac{1}{2}$ in.
- Above all, quieter. To anyone who has endured the irritating clatter of the electro-mechanical variety, the silence of reed relays is unbelievable; one has literally to strain one's ears to hear the contacts closing.

All factors considered, reed relays could provide an attractive alternative to the electronic means of achieving full break-in so popular today.

The Reed Relay

Before describing the break-in system a brief look at the reed relay itself may be of interest. Fig. 1A shows the normally-open type. Two ferro-magnetic reeds are clamped in the sealed ends of a small evacuated glass tube, the tips of the reeds being separated by a small gap. This device is known as a reed switch. The glass tube fits loosely inside a coil; the complete assembly is then known as a reed relay. When a current is passed through the coil the reeds are magnetised with the polarity shown. Because the tips are of opposite polarity, they attract each other and make contact. When the current is withdrawn the reeds lose their magnetism and spring apart. For the miniature types the operate time is of the order of 1 mS.

A normally-open type may be converted to normally-closed by strapping a small biasing magnet to the glass tube, as shown in Fig. 1B. The field of the magnet causes the reeds to close. If a current is now passed through the coil in the correct direction, the field of the coil counteracts the field of the magnet and the reeds spring apart.

The change-over variety is shown in Fig. 1C. This is basically a normally-open type with one of the ferro-magnetic reeds in contact with a non-magnetic reed. When the coil is energised, the two ferro-magnetic reeds attract, breaking one circuit and making the other. Due to the construction of this type, it is a little slower than

the normally-open type, a fact which is used to advantage, as explained later.

Fig. 1A shows a coil containing a single switch. In fact, coils are available which hold up to eight switches, so that multi-contact units can be built up.

The relays used by the writer can be obtained from G.W.M. Radio, Ltd., who now market a wide range of reed switches and coils. In its final form the break-in system at G3BGJ uses two change-over types and one normally open, each with its own coil. The reed switches are of the miniature type and the coil dimensions are approximately 0.9in. by 0.5in. Coil resistance is 8,100 ohms and the operating current 3 to 6 mA only.

The Basic Break-in System

The basic system, shown in Fig. 2, is very simple. A keying valve energises the two series-connected change-over reed relays. Relay A removes the short across the muting resistor in the receiver, then keys the VFO. Relay B breaks the connection to the Tx π -circuit, then earths the input to the cathode follower.

Points worth noting are:

- The use of separate relays means that each can be mounted close to the circuit it controls,
- A separate relay supply is not required,
- Provided the cathode follower has an independent HT supply, the Tx HT may be switched off between overs.

Further Development

The circuit of Fig. 2 would probably work quite well as it stands with some Tx/Rx combinations. At least, very little work would be required to fit it into the average transmitter on a "try it and see" basis. In the writer's

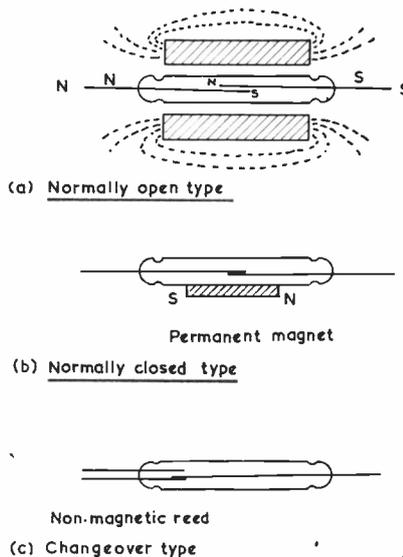


Fig. 1

Q
497

Fig. 1. The three types of reed switch that are available. (A) the normally-open type, (B) the normally-closed variety and (C) the change-over type. See text.

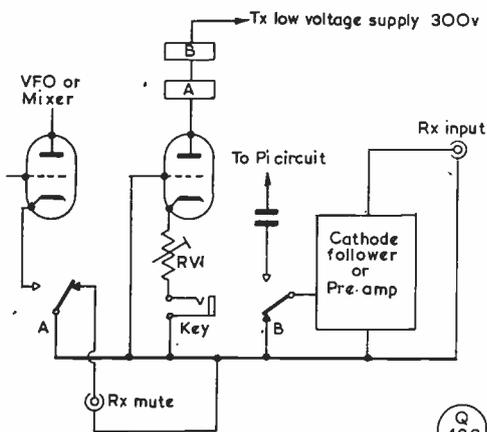


Fig. 2

Q 498

Fig. 2. Basic break-in control circuit. Both relays A and B are miniature change-over types, having a coil-resistance of 8,100 ohms and operating current of 3-6 mA. RV1 is a 500-ohm unit and valve can be a 6C4 or any suitable triode.

case it was at once apparent that his Tx line-up did not lend itself to the simple version—it has a clamp-controlled PA with the screen fed *via* a neon. Although the PA standing current is only a few mA, noise generated in the driver was getting through the PA and appearing at the Rx input at an unacceptable level. Without major modification the only solution was to introduce another relay and key the driver as well. This expedient, as it turned out, led eventually to a more efficient system.

Fig. 3A shows the development of the basic circuit to suit the writer's transmitter. The muting/keying function has been moved to the driver cathode (relay C) and a normally-open relay used to key the VFO. As previously mentioned, the normally-open type is faster than the change-over unit. The VFO therefore switches before the driver is keyed and because the drop-out current of the normally-open type is less, the VFO is still running when the driver relay releases. This, of course, is the differential keying of the electronic enthusiasts!

Final Modification

Keying the driver removed one source of noise but still left a noticeable amount due to the slight PA conduction. It was observed that this noise disappeared completely when the driver anode tuned circuit (in effect the PA grid circuit) was mistuned. The change-over relay in the driver cathode was therefore used to connect a .001 μ F capacitor from driver anode to earth (see Fig. 3B), the muting function being transferred to the back contacts of the key (the writer still uses a pump handle!). This eliminated the last traces of transmitter-generated noise and using the back contacts prolonged the delay available for Rx muting.

The final system of Fig. 3B gives excellent results. There is no increase in receiver noise when HT is applied to the Tx; the make-and-break are completely click-free; the keying is very good and, perhaps the most pleasing characteristic of all, the whole operation, in the mechanical sense, is completely silent. In fact, listening on the

receiver it is impossible to tell that one's own Tx is not just another strong signal.

With a key having no back-contacts, there is no reason why yet another switch should not be used to mute the Rx. A larger coil for relay C could accommodate the extra switch. Of course, if the PA is completely cut off in the key-up condition, the final modification would probably not be required.

Receiver Muting

The writer's receiver employs the well-known method in which the cathodes of the IF amplifiers are returned to earth through a variable resistor, which is shorted by the relay or key back contacts in the "receive" condition. In most receivers this "variable resistor" is a pre-set control at the back, though continual adjustment is usually required, to suit varying conditions. In the writer's opinion, for efficient operation it is essential to bring it out as a front panel control. In the G3BGJ receiver, the Rx gain and muting adjustments are on the same control, the inner knob controlling the gain and the outer ring setting the muting level.

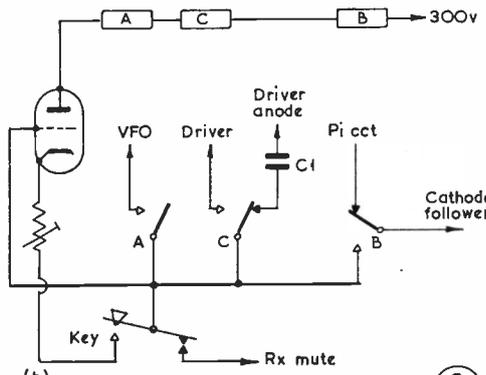
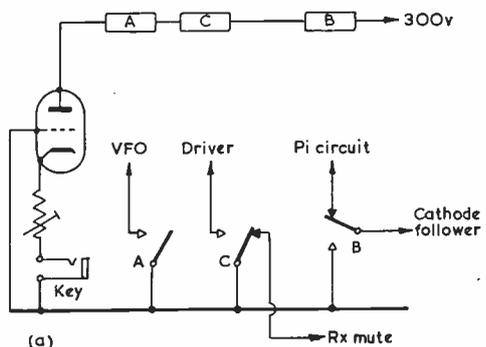


Fig. 3

Q 499

Fig. 3. (A) the basic circuit modified to include an extra relay C to key the driver stage, thus reducing the noise reaching the receiver. Because of the relay characteristics, a form of differential keying results—see text. Relay A is a normally-open type, and relays B and C are change-over. Fig. 3B shows the final system in use at G3BGJ—which could be applied at many amateur stations—where C1 is .001 μ F to eliminate the last trace of noise into the Rx.

THE MOBILE SCENE

Final Rally Dates — and Some More Pictures

THERE now remain five events to round off this year's Rally Season—and there is bound to be a clash of interest in East Anglia on September 26—which in general has had fine weather and excellent attendances. Indeed, with some 3,100 U.K. amateurs now licensed /M (and many more potentially interested) it could hardly be otherwise.

An interesting fact brought out by the Rally reports is the increasing proportion of mobiles on VHF—though it is fair to say that Top Band still commands the allegiance of more /M's than all other bands put together.

RALLY CALENDAR

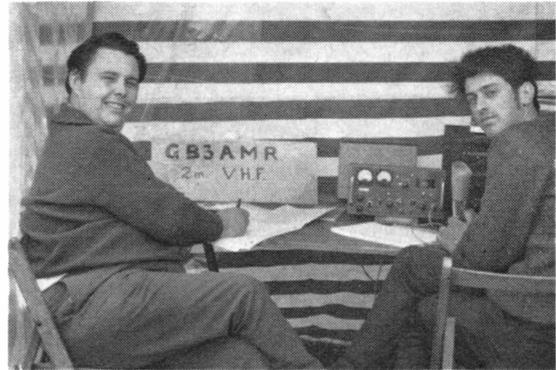
August 29: Preston Amateur Radio Society annual Mobile Rally at Timberley Barracks, Preston, with talk-in on 2m. and 160m. There will be trade stands, a bring-and-buy stall and a junk sale, with a licensed bar and refreshments on site.—G. Windsor, 26 St. Gregory's Road, Preston (55913), Lancs., PR1-6YB.

August 30: The Loddon Valley Amateur Radio Club will be supporting the Hurst (Reading) annual flower show and mobile visitors will be very welcome—talk-in on Top Band and details from E. Davies, G3PGM, 11 Tape Lane, Hurst, Reading, Berks.

September 5: Stratford-on-Avon Mobile Picnic, on the recreation ground directly opposite the Shakespeare Theatre, across the river. Turn off alongside the Swan's Nest Hotel, south of Clopton Bridge. Entrance free on production of QSL card, Tx or SWL. Talk-in on Top Band and two metres. Information and details: M. Wells, G3OOQ, QTHR.

September 26: Peterborough Mobile Rally, at Walton School, Mountsteven Avenue, 3 miles north of the City. Talk-in on 2m./160m. Details: A. H. Jackson, 57 Peterborough Road, Castor, Peterborough, PE5-7AX.

September 26: Once again, Harlow & District Amateur Radio Society come up with their annual Mobile Rally, usually the last of the season, and as always at Magdelane Laver Hall, near Harlow. The site will be sign-posted off the A.11 Epping-Harlow road, and talk-in will be given by a station signing G6UT/A on Top Band. For information and QSL's, the contact man is A. B. Ward, 27 Sharpecroft, Harlow, Essex.



Two-metre talk-in station for the Anglian Mobile Rally—signing GB3AMR and running 20 watts with a 14-ele Parabeam and a Turnstile, some 60 /M's had been worked by mid-day. When this was taken, the operators were G3TNE and G8BLS.



The stand of the well-known firm of dealers, Stephens-James, Ltd., at the recent White Rose Mobile Rally in Leeds, which was well attended—the two talk-in stations between them made some 120 contacts. There were 16 trade stands to interest the large number of visitors.

A very interesting group of personalities at the Scarborough Mobile Rally. Left to right : G3JBR, G8EKU, G2JO, G6UJ (founder member of the Scarborough Society and now 83 years of age), G2AQN, G3NRS, G3UHH and G8AZA.



General view of the assembly of cars for the successful Scarborough Mobile Rally on July 18. It was very well supported, in fine and warm weather.



(Above) left to right, G3CO, G4GA and G2HR, totalling between them 115 years of Amateur Radio; they were at the Anglian Mobile Rally. (At left) G3KMI of the Southampton Univ. Radio Society had their gear mounted in a vintage-1926 charabanc which transported many members to the Longleat Rally.

SPECIALLY ON THE AIR

As we near the end of the "open season", following are the events still to take place when Amateur Radio is to be on show to the public at large:

G3DOE/A, August 28-30: Put on by Thanet Radio Society for "Quexpo 71" at Birchington, Kent, for a weekend of family entertainment. They will be operating SSB on all HF bands, and will also be on two metres.—R. Trull, G3RAD, 1 Approach Road, Broadstairs, Kent.

GB3RSH, August 29-30: To be operated by the Radio Society of Harrow at the annual Harrow Show held in Headstone Manor recreation grounds, operating all bands Top to 70 cm. simultaneously, also running A/TV and RTTY exhibits, with talk-in on 160m. and two metres.—R. H. Medcraft, G3JVM, 134 Dulverton Road, Ruislip Manor, Ruislip (38726), Middlesex, HA4-9AG.

G4ABC/A, September 4: Put on by Thornbury & District Amateur Radio Club for the open day at the Oldbury-on-Severn Nuclear Power Station (4 miles north of the Severn Bridge). Contacts appreciated on 2m./160m. AM and 80m. SSB, with a special QSL card to confirm. Visitors welcomed for a tour of the Power Station itself, also other "open day" attractions.—M. Brett, G3YDC, 158 Streamleaze, Thornbury, Bristol, BS12-2DX.

GB3ITT, September 5: Arranged by the Electronics Section, S.T.C., Ltd., Brixham Road, Paignton, operating 10-160m. and VHF, with particular interest in working any amateurs employed by the International Telephone & Telegraph Corporation. Skeds for any band and visitors most welcome.—G. E. Simonite, G3JAO, 288 Totnes Road, Tweenaway Cross, Paignton, South Devon, TQ4-7HD.

GB3LRS, September 10/11: For the Hobbies Exhibition, Leamington Spa, operated by the Mid-Warwickshire group, on all bands 15-80m., CW/SSB.—K. J. Young, G3ZCG, 56 Chapel Street, Bishops Ichington, Leamington Spa, Warks.

GB3ATC, September 11: For the open day to be held by 2247 (County of Flint) Sqdn., Air Training Corps, at their Hq., working AM phone on 10-160m., also operating on the A.T.C. network, callsign VQ5X449 on 4925 kHz. A special QSL card has been produced for the occasion and the four operators involved hope to be working many stations in both connections.—H. D. Fennah, A.T.C., 14 Highfield, Hawarden, Deeside, Flintshire, CH5-3LR.

GB3MAN, Sept. 26-Oct. 24: Organised by the University of Manchester Institute of Science and Technology to coincide with the intake of new students for the forthcoming academic year. Operation on all bands 10-160m. with CW/SSB, and two-metre AM. Prospective students, either already licensed or interested in Amateur Radio, are invited to get in touch with: A. M. Davies, G3CXX, Amateur Radio & Electronics Society, The Students Union, P.O. Box 88, Sackville Street, Manchester, M60 1QD. (Tel. 061-236 1281.)

POINTS OF INTEREST

A new source of pollution is being complained of by Sir Martin Ryle (who is, incidentally, G3CY)—that of interference with his radio telescopes at Cambridge caused by microwave high-speed cookers! Now extensively used, they are neither shielded nor suppressed in any way.

* * *

To obtain a reciprocal licence in Chile requires 12 months' prior residence. G3MUL (lately of Stafford) is out there for two years and hopes to qualify for a CE call in due course.

* * *

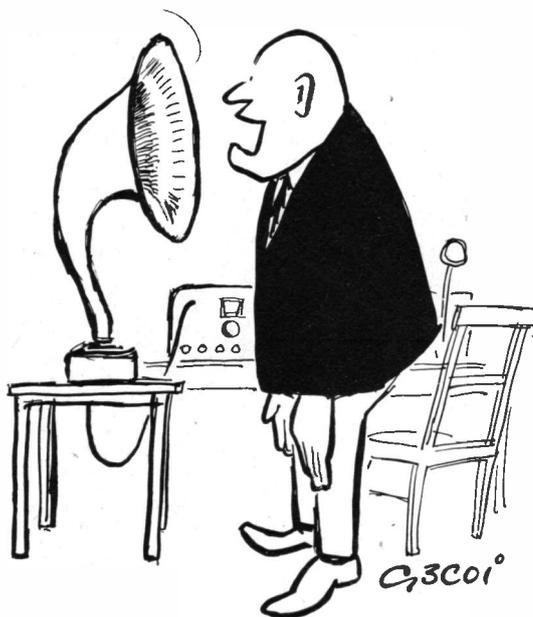
The North Staffordshire Polytechnic runs its own AT-station, signing G3VZI, operated by the electronics and electrical engineering staff, and students. With extensive lab. facilities available, the station is well set up with modern amateur-band equipment and rotary beam antennae—indeed, it is claimed to be the most advanced installation of its kind in the country.

* * *

Peter Dodd, ex-G3PBD, and at one time associated with K.W. Electronics, Ltd., has recently been appointed, at the age of 53, as the first full-time secretary-manager of the Wireless Institute of Australia, the VK radio amateur organisation. His new call is VK3CIF.

* * *

The EI/GI Convention for 1971 will be held on Sunday, October 3, at the Ballymascanlon Hotel, Dundalk. The hon. secretary of the Irish Radio Transmitters Society is W. McIlwaine, EI9F, 224 Templeogue Road, Dublin 6, Eire.



“... now trying the old dynamic mike, OM” ...

VHF BANDS

A. H. DORMER, G3DAH

HAVING regard to the time of the year, the bands have been quietish during the last month, with a few exceptions. Two metres opened to the Continent, including Scandinavia, on July 10, and both Two and Seventy were open to DL on July 9 during the early part of the evening. French stations in the North have been workable on many occasions from the South, but it was difficult to raise them from the Midlands. GC was available in the form of the G8DIZ/P expedition during their stay in the islands early in July, and this gave many operators their first chance of a crack at Sark, Herm and Jethou. GM was worked from Herne Bay on July 7.

A good four-metre opening to Iceland came on July 17 when the beacon station, TF3VHF was at 599 over much of the country, and TF3EA worked, among others, G3BA, G3OHH, G3JHM, G3COJ and G3NNO at good signal strengths. The path was only open for about two hours in the late afternoon, but three operators at least must have enjoyed it. G3NNO was at his work QTH when he learned about the opening and so he whipped smartly back home, made the contact, and whipped smartly back again, all within the space of thirty minutes! G3SNA heard TF3EA while he was mobile in Oldham, but could not raise him, and G3A00 had just finished building a new converter and was surprised when the first station he heard on it

was the TF beacon. There was a report of a solar-flare on July 15, and a "disturbance" on July 16 which may have been connected with the opening.

The EU's were workable again on 70 cm on August 2, at which time the Dutch beacon on 432.13 MHz was at 5 & 9+. Propagation on that band appeared better than on two metres, but, as usual, activity was at a low level. The DL's were coming through on two metres late on the 9th. No auroral activity has been observed or reported during the month, and although several stations have been heard calling for MS contacts, no QSO's were noted.

It has been mentioned before in this Column that best DX conditions usually occur during the months of September and October, so it is to be hoped that there will be much on which to report as time goes on.

Contests

First, congratulations to some of the winners of recent events. G8BBB retained his position as leader in the 432 MHz Open, Section A, and G8AWS/P retained his in the /P Section. G8AAC/A got home easily in Section B. The overall winner in the RSGB Region I contest on July 27 was again GD2HDZ with 937 points. Overall leader of the portable sections was G3WIN/P with 472 points, individual band winners being GW3AHD/P with 315 points on two metres; GW3NWR/P, 321 points on four metres; and G2CUZ/P, 14 points on 70 cm. The station outside the Region giving most points into it was GW8EQH, but disappointingly few logs were received. From the experience gained during this event, the organisers are considering introducing a multiplier for 70 cm operations and altering the height penalties now in force. They will be QRV during the September contest from their Westmorland site on 2m. and 4m. with improved antenna arrays.

The 2m. SSB contest on August 9 stirred up much activity and coincided with something of a lift toward the Continent in the latter stages. There appeared to be a welcome tendency, this time, to spread out a little more evenly around the calling channel and the QRM was correspondingly reduced. Best score heard at this QTH was that of G8BBB with 75 contacts, so it looks as if he may repeat his success of last January, which would

give him three in a row.

The 70 cm Open contest on July 18 was held under average conditions, although there were spasmodic openings of 250 miles or so. As might be expected under these circumstances, the portables were having the best of it, and GW3OXD/P in Radnor seemed to be having their share of what DX there was.

Major forthcoming events are VHF NFD, together with the IARU Region I contest on September 4/5, and the UHF/VHF NFD coincident with a similar Region I contest over October 2/3.

Beacons & Transponders

The garble on the Wrotham 2m beacon persists. The fault lies in the logic keying system and will be rectified in due course, but operation will continue *pro tem* as the frequency is well-known, and the major part of the call is readable. (A welcome decision this, since for most of us it must be rather disturbing to build a new converter or preamp and then be unable to find the beacon on it!) The project for the 70 cm beacon on the GB3DM site progresses favourably, and it is understood that the Tx will be ready by the time that these notes appear, so one may look for some test signals before long. The Hammersmith 70 cm beacon, GB3GEC, seems to have ceased operation. Perhaps this has something to do with the retirement of Messrs. Jessop and Gibson, who kept an eye on it.

DLØER appears to be back to normal strength these days, but "Checkpoint Charlie" on 143.968 MHz is temporarily off the air. PAØVD on 70 cm is still good copy, with the QRG unchanged at present at 432.13 MHz, and PAØDSW, operating on 2m, 70 cm and 23 cm has been heard in this country. A new Dutch beacon at 145.9 MHz with the callsign PAØPKN has just been brought into operation, and this differs from the usual run in that the transmission is varied cyclically in 6 dB steps, and reception reports would be welcomed by PAØPKN, P. J. Kleton, Marijkestraat 9, Noordwijk aan Zee.

The new French beacon, F7THF, of which mention was first made in "VHF Bands" for July 1971, is now installed on the "Ballon d'Alsace" in QRA DH75 in the Belfort area. Readers may recall that this beacon

was designed to transmit not only the call sign but also additional coded information.

A new German *repeater* is reported in operation in the Dusseldorf area, but full details are not yet to hand. The input frequency is 144.205 MHz and the answer comes back on 145.8 MHz. The antenna is on a 400ft. TV tower.

Work continues on the *Australis Oscar 6* project and gear has been test-flown successfully in a balloon. The present configuration demands an up-link on 146.0 and a down-link on 432.3 MHz, the output power being of the order of 500 milliwatts, but the final version will be rather more sophisticated. Equipment currently under construction consists of a four-channel FM repeater of the demodulation / remodulation type using 145.9 MHz as the up-link and 432.1 MHz for the down-link. Output power per channel should be about one watt. A linear repeater is also under construction by the German Group at Marbach, and this will have an input frequency of 432.1 MHz and output of ten watts on 145.9 MHz, bandwidth being 50 kHz to handle SSB, CW, AM, NBFM, RTTY and SSTV. The American Amsat Group have a breadboard version of yet another repeater with an output on ten metres. It is reported that launch is hoped for late this year or early in 1972.

It now appears doubtful if *Project Moonray* will ever get off the ground. In any case, this orbiting satellite was unlikely to have been greeted with vociferous enthusiasm by many U.K. amateurs, since the up and down frequencies lie well outside the normal 70 cm. communication band.

VHFCC Awards

First, it is a pleasure to welcome Robin Lucas, G8APZ, of Hounslow, Middlesex, to the ranks of the holders of the 70 cm Award. He has already gained the two-metre Award, and we are now waiting for him to come on 4m! First licensed in 1968, Robin runs a QV03-20A PA with 30 watts DC input. The antenna, a Parabeam, is 40ft. a.g.l. on the site in the Thames valley at 70ft. a.s.l. An FET converter with a BF180 front end produces a 3-5 MHz IF for the R.107 Rx. It took 175 contacts to produce the 100 QSL cards for Certificate No. 11.

Just beaten to the distinction of being the first G8/3E to claim the Award (the first was G8EBV) comes Jim Davies, G8EBJ, St. Leonards-on-Sea, Sussex. He runs a Pye base station with a QV03-20A in the final and a pair of 6V6 modulators. DC input to the final is about 25 watts, to energise a 5-ele beam. For reception, an FET preamp and a mosfet converter feed an R.107, and his set-up gets him Award No. 100.

Dave Dell, G3PQF (Farnborough, Hants.) obtains Award No. 101. He has been running a G8ATK Tx strip, suitably modified for NBFM to get rid of the TVI, to which he has now added a QV03-20A to give an output of 15 watts. The aerial on the roof is a 6/6 at about 26ft. and the QTH is 210ft. a.s.l. On the receiving side an Emsac converter feeds a Lafayette KT340 tuning 2-4 MHz which, Dave says, also receives the local Gas Board quite nicely on image. A gleam in his eye says SSB.

Award No. 102 goes to Paul Knight, G8DAW, of Luton, Beds. Over the period for which he has been collecting cards (and the QSL return rate is the almost inevitable 30% or so), a variety of Tx, Rx and antennae have been in use, but the current set-up is a QV03-20A with about 30 watts input and a 10-ele Yagi at 32ft. a.g.l. at a 540ft. a.s.l. site. The converter is a dual-gate mosfet feeding an Eddystone 888A receiver. Paul can now receive on 70 cm with a 46-ele beam, and hopes to be radiating on that band before long.

Another claimant from the Channel Islands joins the Club, Eric Deveau, GC3OMB/GCAFT/T, of Guernsey, and Award No. 103 goes there. He runs 10 watts only to an 8-ele beam at 25ft., and although the site is 157ft. a.s.l., he is so badly screened at St. Peter Port that contacts, even with Jersey, are difficult unless the propagation is good. He started up on 2m, with a Tx and converter loaned to him by GC2FZC in 1962, and has perhaps repaid the loan by establishing the first /T contact in the island with Harry earlier this year. The video gear also runs 10 watts to a QV03-20A from a Vidicon camera on 405 lines. Plans are in hand for more power, 60 watts or so, with the object of exchanging pictures with GSZT in Plymouth, who has given Eric much

encouragement in this project, and this would set up another "first." Only four more QSL cards are required to support a claim to VHFCC on 4m., so will those who owe QSL's to GC3OMB for that band please cough up!

Steve Bushell, G8ECK, Sunbury-on-Thames, gains Award No. 104. From modest beginnings in September 1970 when he ran 250 milliwatts to a halo in the loft, G8ECK now has 30 watts to a QV03-20A modulated by EL84's, with a 10-ele beam at 35ft. at the 20ft. a.s.l. QTH. The dual-gate mosfet converter feeds an HRO at 24-26 MHz, with a Codar PR30X to help the gain along. Projects in hand are the 10-watt transistor Tx for contest work, and a 100-watt job for fixed station use. Steve seems to be doing better than most with the QSL's—the return rate is up to 45%.

G8DNZ, now G4AAI (Hounslow, Middlesex), gains Award No. 105. He runs 27 watts to a QV03-12 modulated by a pair of OC28's and the beam, which was a 4-ele hanging from the shack wall, has been replaced by an 8-ele at 46ft.; this has helped him to prove to his own satisfaction that England extends further North than Hertfordshire. A nuvistor converter feeds a Lafayette HE30 at 28-30 MHz and this is due for replacement with a dual-gate mosfet job in the near future.

A warm welcome to another of our oversea subscribers in the person of Walter Vinken, ON5NY, of Passendale, who must be well-known to many readers, since his list of 100 QSL cards consists entirely of British stations. He runs a Hallicrafters transceiver SR42A to which he has added a home-built, solid-state VFO and a nuvistor preamp with dual-frequency conversion. The antenna is a 16-ele long Yagi at about 70ft. a.g.l. from a QTH at 150ft. a.s.l. He has worked 350 stations in six months to get his 100 cards, with the best DX to date OZ. He hopes to be coming up on 2m. SSB shortly. He has been awarded Certificate No. 106.

Frank Johnson, G8EAV (Oldham, Lancs), obtains Certificate No. 107. Most of his contacts were made with a QV03-10 Tx running 15 watts of AM and latterly a QV03-20A phase-mod rig. His 8-ele beam is at 35ft. and the QTH is 400ft. a.s.l., although the proximity of the Pen-

nines gives him some screening to the North round to ESE in spite of the height. On the receiving side, he has a nuvistor converter running into a Trio 9R-59DE. His licence came through just in time for him to participate in VHF NFD last year, and to take advantage of the good propagation which followed it.

From North of the Border we are pleased to welcome Jim Carlow, GM8CGS, of Edinburgh, to membership of the VHF Century Club with Award No. 108. Located on the South side of the Corstorphine Hill at 350ft. a.s.l., he is badly screened to the North by the hill itself, which rises to some 500ft. or so within a ¼-mile, and the 8 watt, QQV03-10 rig has a bit of a job to overcome this obstacle. Antennae have varied from a dipole to an 8-ele at 25ft., and the Rx from a 62H set to the current Trio 9R-59. The converter is an FET job to the design in the October, 1967, SHORT WAVE MAGAZINE. Jim would like to thank some of the portable and mobile stations who have made his claim possible, and mentions in particular G8BQX, and GM3OXX/P, who sports around the mountains with a low-power rig and a high-power bike!

An interesting claim comes from G8CUT, Les Turner of Chelmsford, Essex, whose list of QSL's contains only calls *outside* England. He runs 74 watts to a QQV06-40A driven from a VXO controlled exciter with EL506 Class-AB1 modulators. The Rx is a Hammarlund HQ170A which tunes 28-30 MHz from a DL6SW converter which, fitted with 2N5486 Fets, has a measured noise figure of less than 2 dB! The 8/8 slot-fed beam is at 50ft. and is giving very satisfactory results. A panadaptor, built to a QST design, is a useful adjunct to the rest of the gear. Certificate No. 109 bears his call.

Finally, G8CVI, Davis Elwell of Tiptree in Essex, gains Award No. 110 after some 18 months of operation on Two. He runs a modified Marconi base station Tx with a QQV06-40A in the final modulated by a pair of 5B/254Ms, and this gives him a choice from ten switched channels. The Rx is another Marconi job, the Marine Electra, with either a DL6SW converter with 2N3823's or a valve device. The antenna is an 8-ele Yagi at 30ft. He runs a Pye Cambridge when mobile,

and finds that the 5/8 vertical whip antenna gives good results.

Congratulations to them all.

Woburn—1971

If the object of the Woburn Rally on August 8 was to bring together a large number of enthusiastic specialists, then it was successful. Regrettably, in most other departments it left much to be desired. Finding the site was the first problem. The sign-posting outside the immediate area was inadequate and the 2m. and T/B talk-in stations were not operating until late in the morning (though 4m. was up from 9-0 a.m.). Booking-in facilities there were, provided one hunted for them, and then there was no display area for QSL cards, so one didn't know which of one's chums was there. The marquee, large though it was, was inadequate for the

number of visitors *and* the trade stands, and by mid-afternoon resembled Piccadilly Circus at the rush-hour. Catering and toilet facilities were shared with the thousands of normal Sunday visitors to Woburn Abbey, and were therefore overcrowded. Trade stands there were in abundance, but from enquiries made to their operators, it appeared that most of the business was the sale of junk and small components which brought but slight return. The question must be asked whether this is the right site for a major rally—and if the answer is that it is, or that it is the only one available, then the organisation, and presumably the finance, need considerable strengthening.

The Scottish Scene

Following on from the note last

THREE BAND ANNUAL VHF TABLE

January to December, 1971

Station	FOUR METRES		TWO METRES		70 CENTIMETRES		TOTAL pts.
	Counties	Countries	Counties	Countries	Counties	Countries	
G3COJ	34	4	63	15	29	7	153
G3OHH	44	6	54	5	24	3	136
G3DAH	18	2	38	11	24	5	118
G3ZYC	41	4	26	5	33	7	116
GD2HDZ	23	4	48	8	19	4	106
G3JXN	27	2	57	9	—	—	95
G5DF	—	—	53	11	26	4	94
G8BCA	—	—	49	6	25	4	84
G2AXI	24	3	39	4	8	2	80
G3ZPZ	—	—	66	12	—	—	78
G3EKP	22	6	19	5	6	6	64
G2JF	—	—	51	9	—	—	60
G3IAR	31	3	21	4	—	—	59
G3FIJ	—	—	44	8	5	2	59
EI6AS	15	5	30	6	1	1	58
G8BKR	—	—	39	5	10	2	56
G8ECK	—	—	46	9	—	—	55
G8BWW	—	—	32	5	6	4	47
G8DLJ	—	—	32	8	—	—	40
G8CBU	—	—	35	4	—	—	39
G8AUN	—	—	30	3	3	2	38
G8CVD	—	—	32	5	—	—	37
GM3EOJ	—	—	18	10	3	1	32
G8CYN	—	—	13	2	—	—	15

This Table goes through to December 31, 1971. It shows claims to date for the year commencing January 1, 1971. Claims should be sent to "VHF Bands," SHORT WAVE MAGAZINE, BUCKINGHAM.

month about the VHF activity in Lanarkshire, GM8DRQ draws attention to yet more enthusiasm for what must be for many a very difficult exercise in mountainous terrain. He quotes GM3YLD, GM3KZM and GM3SAN who all run NBFM on 145.8 MHz—GM3YND with 150 watts to a Parabeam, GM4AIE with 60 watts to a 6/6, GM8EUS who usually operates portable, and GM8EUJ, all operating in the top 200 kHz of the 2m. band. GM3ULP and GM3VQC are on 70 cm with video as GM6ADR/T and GM6AEG/T respectively.

'DRG himself is only on 2m. at present with 20 watts and a 5-ele Yagi; he is badly screened to the West by 900ft. hills some 200 yards away. On the Rx side, he has the G3BKQ converter, described in the October, 1967, SHORT WAVE MAGAZINE, with a MP5102 preamp followed by a tunable IF strip using some of the modules and IC's featured in the *Magazine* from time to time. Plans are in hand to increase power to 75 watts with a QQV06-40A, to raise the beam to 30ft. and double its size, and to get on 70 cm. He would appreciate reports and skeds, QTHR.

The Scottish VHF Convention opens at the Carlton Hotel, Edinburgh, at 3 p.m. on October 3. Light refreshments will be served during the afternoon and the formal dinner commences at 6.45 p.m. Tickets are available from Vic Stewart, GM3OWU, QTHR.

In Edinburgh also, Jack Wilson, GM6XI, is now back on 2m. after his holiday in the Islands, from which QTH he asked what on earth he and G3DAH were doing having a QSO on 40m. of all things!

It's a Long Way to Tipperary

Des Walsh, EI5CD, writing from Carrick-on-Suir in that County, paints a dismal picture of the VHF activity, or rather lack of it, there. His nearest VHF neighbour is 60 miles away, and he says that there are only about six stations regularly active on Two within the Republic, this state of affairs being brought about mainly by the lack of suitable equipment, and therefore, a lack of enthusiasm. He runs about 7 watts of NBFM which he finds better than AM for general purposes, to a 6/6 at 20ft. in a good location, and is

beaming to the East most weekends, so contacts (or listener reports) would be most welcome. He expects to be operating from Mt. Slievenamom, 8 miles NE of Clonmel, Co. Tipperary, during the September contest, so keep an eye open for him. Des suggests that a 2m. beacon in Eire, beaming East, would be a good thing, and there can be but few of us over here who would disagree with that proposal, particularly in view of the poor reception of GB3GI in most parts of this country. He is going to try and raise some interest for this project on the grounds that, apart from an obvious amateur application, it could be a worthwhile scientific project of assistance in the study of propagation over distances of 150-300 miles. Any help would be most gratefully acknowledged at his QTH at Coombe Down, Ballylynch, Carrick-on-Suir, Co. Tipperary.

Welsh Wales

One is happy to be able to record further regular 2m. activity in Cardiganshire. GW3DRV (Aberaeron) describes mid-Cardiganshire as the cradle of 2m. activity in the County, and cites GW5NF, GW3PXY and himself as having been active for a long time although readers may recall that GW5NF was probably better known as G5NF of Farnham, Surrey. However, GW5NF now radiates a potent 100-watt signal to an 8-ele beam and 'PXY has 12 watts to a 6/6. Being at sea level and surrounded by 300ft. hills on all sides, except to the NE and NW, 'DRV has a bit of a job getting out as well as the others, and so does a fair amount of portable work with 10 watts to a halo or a 3-ele beam. All this adds up to a repetition of what this Column said before—that it should be rewarding to turn the beam in that direction when a tropo. opening is about.

News Items

G3VPS reports several more 4m. openings to Malta over the last month, although conditions generally have been poorer than in June. Best day was probably July 13 when 9H1BL had contacts with G2DN at 589 on CW and 57 on AM; G3LVP at 58 on SSB; and with G3VPS at 559 to 599 on CW and 57 on AM. Short-lived openings on other days were confirmed by reception of the Sussex and Sheffield beacons, but no

activity was recorded. G3VPS had a contact with Malta while he was mobile with 10 watts in Eastbourne, which is very nice going. One extraordinary feature of the U.K./9H1 QSO's during the June opening is that there are *still six* British stations who have failed to QSL 9H1BL, in spite of the fact that cards have been sent with s.a.e.! One would have thought that confirmation of these very unusual contacts might have been forthcoming without delay.

Following his contact with IIBBK during the May 24 Sporadic-E openings, GD2HDZ has had a QSL from the Italian station which shows that he was using a transistor Tx with 2 watts output into a ground plane antenna. One wonders who was the most surprised at this 1,000-mile QSO under these circumstances! Incidentally, Arthur is now the owner of a Jap SSB Tx, and has plans for building a 2m. transverter to use with it.

G8COG (Birmingham), having been a keen SWL for some time, would welcome reports on his 2m. transmissions from SWL's within 150 miles of that City. He will QSL 100%. G8EGS of Kettering is now G4AJE and runs 45 watts to a QQV06-40A modulated by a pair of EL34's and feeding an 8-ele Yagi at 35ft. installed at a QTH 250ft. a.s.l. He is willing to arrange skeds with anyone interested in working Northamptonshire. During the July 8 EU opening, he worked among others DK5DE/P, who had climbed to the top of his HF mast with a 500 milliwatt, transistorised, portable Tx to get in on the act! There's enthusiasm for you!

Following the mention of the G5QA/G3ZYC 70 cm sked last month, it was pleasant to hear again, after a long time, from G5QA himself, with the news that he is listening on the band each evening between 1800-1930 BST and again from 2100-2200 BST. He has regular Sunday morning QSO's with G6GN in Bristol and G8ANZ in Portishead. Still on 70 cm, G8BKR reports activity in the Bristol Channel area to be on the increase, with the following stations active or about to become so: G8AII, G8AQZ, G2WS, G6GN, G8BKR, G8CRD, GW8COJ, G8BIN, G8ANZ and G8CJO. He hopes to be QRV on 23 cm by the time this appears, and will be running

a 2C39A tripler to an 8/8 at 33ft.

G3EHM of Stoke now seems to be more often heard on 70 cm than 2m., although, in spite of repeated calls, G3DAH is not able to raise him! He runs 150 watts to a 4CX250B with a 92 (!) element array and is also listening on 23 cm with a 3ft. dish and a K6AXN-type converter. G3MWQ of Kidderminster is a potent signal on 4m. SSB and enterprising to boot—hearing Polish FM stations on the band recently, he called for SP on 10m. in the hope of raising someone who could listen on Four, since it seemed likely that a local domestic receiver would cover the band. Although he managed to get an SP back he could not make him understand what he wanted, in fact the chap at the other end obviously thought there was something fishy going on and signed very abruptly! Pity! Another SSB operator on 4m. is G3NAS of Aldridge, Staffs., who runs 20 watts p.e.p. to a QQV03-20A PA and a 4-ele Quad at 60ft. The Tx is a Heathkit Marauder and the Rx a mosfet converter and an HQ170, and he is radiating a good signal.

G3COJ (High Wycombe) does not miss much that is happening on the VHF bands, and he was one of those who made it with TF3EA on July 17 and, as previously reported, also participated in the great Italian *Es* opening. He reports reception of ZB2VHF on 70.26 MHz on August 1 at around 1750z. Brian gives a very useful tip for finding out when there is likely to be an *Es* opening on 4m.—check the Citizen's Band around 27 MHz, and from the languages heard you can judge what conditions are like; there is a vast amount of CB activity in Italy, France, Spain and Germany and as it is all on AM it is much quicker to check than by listening to the SSB and CW on 28 MHz. Although by no means a guarantee of sporadic-E on four metres, it can be an indication of the possibilities.

The portable TV transmissions from the Dunstable Downs every other Thursday night are progressing very satisfactorily with at least three TV contacts during each session, and simultaneous sound and vision are now available with the correct spacing. G6AEV/T (G3VZV) took excellent pictures from them at a portable site in Woburn Park which

he was checking in preparation for the link which was to be set up for the Woburn Rally and which (as your scribe personally observed) gave good results. If any operator, particularly in the Midlands or East Anglia areas would like to make a sked, they should contact G3VZV (*QTHR*). Incidentally, the new membership list of the Dunstable Downs Radio Club, who are sponsoring these transmissions, shows that they have no less than *seven* licensed /T operators among their members, which works out at almost 5% of the national total.

The call G3UGF/MM conceals the identity of Richard Constantine, radio officer of the small tanker *Eso Inverness* plying up and down the East coast from Southampton to the North of Scotland, with occasional trips to Ireland. Until recently, he was with the Royal Research ship *Discovery*, whence he was /MM on 20m. But he has now acquired, with the help of G8BCL, gear for two metres, after much trial and tribulation involving rough seas and damage to his equipment. He is constrained, by Maritime Law, to operate xtal-controlled, and now carries the frequencies 144.108, 144.275, 145.05 and 145.8 MHz, so he is well equipped for the Zones through which his ship is likely to travel. He is using a modified Pye Ranger with out-board series-gate modulation, and the Rx is a DAVCO DR3 with the DL6SW converter and TIS34 front end. The antenna is an 8-ele Yagi on the monkey island above the bridge. He finds AM and NBFM signals very difficult to copy unless there is a lift on, as, presumably, few amateurs have their beams towards the sea unless they are after the EU DX. He is collecting the bits-and-pieces to go SSB, but meanwhile a xtal on the mobile calling channel of 145 MHz would be useful if anyone has one to spare. His watchkeeping duties prevent him from coming on just as he would like, but look out for him early or late evenings before 9 p.m. and after 11 p.m., also lunch-time and at weekends.

G8BMI has now moved QTH, although he is still in Keighley, Yorks., at 450ft. a.s.l. Results so far are encouraging with much more DX available. Geoff has a crack at the increasing use of silicon diodes for

power supplies. A faulty electrolytic would certainly have caused their immediate demise in the set-up, he is using, whereas the valve rectifier merely went a bit red in the face! Sounds as if there is something amiss with the fusing there! Omitted from the list last month of active 70 cm men in East Anglia was G8ATS of Bury St. Edmunds. Planning to come on video shortly from the South-West are G8BCH, Portland, and G3RZG, Weymouth.

G2JF ("John Fox") has now been able to try out the antenna and tower from the new QTH, and finds it pretty satisfactory. He worked 271 EU and 242 U.K. stations during the month of July, of which 140 were new contacts. He is not altogether happy with his NBFM, and is trying out another system which, with a speech compressor, should bring him back to the same hefty talk-power that he had with his old plate-and-screen modulation.

During a QSO with G3PBV in Bovey Tracy on July 21, your scribe noticed numerous well-defined meteor bursts. Would any MS expert comment on DX activity at that time?

G8ATV of Malmesbury, Wilts., will be QRT for some six months from October, as he is off to the Far East, so not only will his excellent 2m. phone transmissions be missed, but the RTTY boys will notice a gap in the cover.

G3BHT and G3RWM attended the Bodensee get-together last month, and report that we are much behind in our practices on VHF (can this be really true!—*Editor*) with the exception of our SSB techniques. Most operators on the Continent either have, or are in the process of acquiring, transceivers for Two, which incorporate all modes and also permit split-working. Again, most equipment is fully transistorised, except for the PA stages—you still have to use valves for full power output—and, as is well-known by those who traffic regularly with the Continentals, most operators over there are VFO controlled. We shall have to look to our laurels!

Deadline

Deadline for the next issue is **September 4** and the address for news, views, claims and comment is: "VHF Bands," SHORT WAVE MAGAZINE, BUCKINGHAM. Cheers for now and 73 de G3DAH.

COURSES FOR THE R.A.E.

Further to the listing given on p.348 of the August issue of *SHORT WAVE MAGAZINE*, and the notes thereon; here is the latest information we have about further R.A.E. Courses to be offered during the winter session for the Examination to be held next May.

These courses cover the syllabus for Subject No. 55, the Radio Amateur's Examination, a pass in which is essential for the acquisition of a U.K. amateur-station licence. Since in most cases courses are provided under the Local Authority grant for adult education, fees are nominal.

We have no details regarding courses not notified to us, *i.e.*, if your locality does not appear in the list here or on p.348, August, enquire at the local office of your Education Authority, quoting "Radio Amateur's Examination, Subject No. 55, City & Guilds of London Institute", asking if they can put you on to a course in the neighbourhood, or within reach.

In the larger centres of population, courses can often be arranged by the head of the local Technical College or Evening Institute (*see* telephone book) if a sufficient number of candidates can be assured—these can be attracted by Club publicity in the area and through notices in the local Press. The main difficulty could be that of finding a qualified instructor, who (preferably) should himself hold an AT-station licence.

Barry (Glam.): At the College of Further Education, 7.30-9.30 p.m. Tuesdays (R.A.E. Theory) and Thursdays (Morse and practical work), starting on September 21, enrolment during evenings Sept. 6-10. The College Radio Society runs its own station GW3VKL, open to students. Details and prospectus from the Registrar, at the College in Colcot Road, or *Tel. Barry 3251*.

Borehamwood (Herts.): College of Further Education, Elstree Way, on Wednesdays, 7.0-9.15 p.m., starting September 29, enrolment Sept. 13-14, 10 a.m. to 2.0 p.m. or 3.0 p.m. to 8.0 p.m. Course lecturer G. L. Benbow, G3HB. (This will also be a centre for taking the early R.A.E. in December.)

Canterbury: At the Technical College, which is an examination centre. Apply for details to Head of Engineering and Mining Dept., Tech. Coll., New Dover Road.

Crawley: At the Evening Institute, Lady Margaret Road, Ifield, starting on September 20, enrolment nights Sept. 16/17, 7.0 p.m. Further details from the course lecturer, C. McEwen, G3VKQ, 86 Park Way, Pound Hill (2036), Crawley.

Doncaster: At the College of Technology, during the September term. Apply R. Lane, Post Office, Scrooby Road, Bircotes.

Dundee: Kingsway Technical College, Old Glamis Road, on Wednesdays 6.30-9.0 p.m., opening September 8. Course will cover R.A.E. Theory and Morse, instructor F. Baxter, GM3VEY. The College has its own AT-station, GM4AAF. Enquiries to Head of Electrical Engineering Dept., or ring *Dundee 89366*.

Grantham: At St. Hugh's School, Dysart Road, on Monday evenings from 6.45 p.m., starting September 20. Enrolment first evening or during previous week

at the Grantham College for Further Education. Course instructor A. Ellis, G3PJR.

Harlow: At the Technical College; enquiries to the College or to E. P. Essery, G3KFE, *QTHR*, or ring *Bishops Stortford 2501*.

Heanor (Derbyshire): College of Further Education, Ilkeston Road, on Wednesdays (Theory) and Thursdays (Practical), 7.0-9.0 p.m., starting on September 22, enrolment September 6/7, 10.0 to 12.0 a.m. and 6.30-8.30 p.m.

Hemel Hempstead: At Dacorum College of Further Education, Marlowes, on Tuesday and Thursday evenings, 7.0-9.0 p.m., starting September 14, enrolment at the College Sept. 6-7. Further details from the course lecturer, C. Burke, B.Sc., G3VOZ, 30 Green Lane, Bovington (3300), Hemel Hempstead, Herts.

Hull: At 592 Hessle Road, every Friday at 9.30 p.m., starting on September 24. Information from Mrs. M. Longson, hon. secretary, Hull & District Amateur Radio Society, 4 Chester Road, off Wold Road, Hull, HU5-5QE.

Leeds (South): At the Evening Institute, Burton Road, on Tuesday evenings, 7.0-9.0 p.m., starting September 28, running through till Easter, enrolment September 20-22, at the Institute. Information from F. Stork, G3TEE, 75 Waterloo Road, Leeds, 13.

Leith (Edinburgh): Starting in late September at the Nautical College, 59 Commercial Street, to be held on Tuesday and Wednesday evenings, 6.30-9.30 p.m. Apply Head of Marine Electronics & Electrical Engineering Dept., at the College.

London (Barking): At Gascoigne Recreation Centre, Gascoigne School, Morley Road, on Tuesdays at 7.30 p.m., opening September 21. Morse is also to be arranged. Apply D. A. Bell, G8BFR, at the School (*Tel. Rippleway 4009*).

London (Ilford): At the Ilford Literary Institute, Cranbrook Road, starting September 22, enrolment Sept. 6-9, 7.0-8.30 p.m. at the Institute. Fees from £3 to £1.50 for under 21's. This course was started more than 20 years ago and has a long record of success in R.A.E. Apply, with s.a.e., to W. G. Hall, G8JM, 48 Hawkdene, North Chingford, London, E.4.

London (Romford): At Rush Green Technical College, Dagenham Road, on Thursday evenings in September covering both theory and practical work, including the use of modern communications equipment in the Marine Radio section of the Engineering Dept. Apply Head of Dept. (The College is also an examination centre for the R.A.E.)

Loughborough: At the Technical College, Radmoor, on Tuesdays, 6.0 to 9.0 p.m., Morse and R.A.E. Theory, commencing September 21, course fee £4.15, lecturer-in-charge D. R. Doughty, G3FLS. The College also operates on the amateur bands as G2PJ.

Newbury: At the South Berks Technical College, further details on application to the College, or to R. Church, G3KJC, Three Birches, Long Lane, Hermitage, Newbury.

Openshaw (Manchester): At the Technical College, enrolment commencing September 6. Details from the College or the course instructor, A. B. Langfield, G3IOA, 201 St. Mary's Road, Moston (*Tel. 681 5406*).

Princes Risborough: At the Evening Institute, County Secondary School, Merton Road, offering R.A.E. Theory (Mondays), Practical Work (Wednesdays), Morse Instruction (Thursdays), all classes 7.0 to 9.0 p.m., instructors R. Whiting, G3POF, and S. Ford, G4ACV. Institute opens September 13, enrolment for classes Sept. 7/8, 7.0-9.0 p.m.

Sheffield: On Wednesday evenings at 7.0 p.m. at Crosspool Adult Education Centre, King Edward VII School, Darwin Lane, Crosspool, Sheffield 10, commencing October 6, enrolment September 29. Particulars from

J. Bell, G3JON, *QTHR*, or ring office 26601, home 367774.

Wakefield: At the Technical College, Margaret Street, starting in September. Applications to Head of Engineering Dept., at the College, and full details from the course instructor, E. Wilby, G3RZX, 21 Hall Cliffe Road, Horbury (5753).

Wolverhampton: At Ounsdale Schools, Wombourne, on Wednesday evenings, commencing September 15, enrolment Sept. 6/7. Course instructor R. W. Tomkys, G3NOW.

NOVICE LICENSING—AUSTRALIA

There is a proposal afoot in Australia that a system of Novice Licensing should be introduced in that country. Broadly, the idea is a simplified technical examination; a slower (5 w.p.m.) Morse test; crystal control with not more than 10 watts input; CW working only; operation over narrow frequency areas in the amateur bands; and licences issued for a limited period only, *e.g.*, for 12 months, or whatever. The proposal is fully discussed in the Australian *Amateur Radio* for June, and it seems that informed opinion is about equally divided on the issue, which has now been thrown open for discussion through the W.I.A.

SCOTCHING A RUMOUR

We Are Still At No. 55

For some unaccountable reason which baffles us, there seems to be an idea around that because there is demolition and redevelopment going on in Victoria Street, we are either no longer there or about to be chucked out of No. 55 (which we have occupied for more than 20 years). In the first place, we cannot be dispossessed without long notice—secondly, the redevelopment area is well to the west of our office building—thirdly, it could be three years before any such work could even be started—and fourthly, if and when we have to change our London office address, notice in print would be given in at least six successive issues of *SHORT WAVE MAGAZINE*. So, till further notice, all correspondence and enquiries relating to book orders, subscriptions, advertising and circulation should continue to be addressed to: Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1 (Tel: 01-222 5341/2)—our sales counter is open 9.30 a.m. till 5.15 p.m., Monday to Friday.

“NOT FOR PUBLICATION”

Listening to Ships and Aircraft

We are frequently assailed by readers for not publishing details of what can be heard *outside* the amateur and BC bands. The reason is a simple one: It is against the law for any unauthorised person to listen to any transmissions not connected either with public-service broadcasting or Amateur Radio—read your ordinary receiving licence (you have one, of course!). This regulation is by international agreement and is in accordance with the principle of “secrecy of correspondence”, laid down by the International Telecommunications Union. It means the same thing as not having your telephone tapped or your mail opened.

Of course, we are well aware that certain types of

ordinary BC transistor radios can be tuned to police channels and, in some cases, to aircraft frequencies. But this does not mean that such listening is permissible and it is a certainty that any proved case of eavesdropping would lead to prosecution.

Therefore, readers who may not have read or understood the terms of their ordinary receiving licence are asked to desist from writing in to us asking how they can “listen-in to London Airport” or “hear the messages to ships at sea” (typical of the enquiries we get) because, even though we *could* tell them, they mustn’t do it! Incidentally, one individual had the temerity quite recently to say that he was interested only in “listening to military aircraft, and could we give him all the details”! In the circumstances, having to deal with such correspondence is just a waste of time. He got a dusty answer.

THIS YEAR’S J-O-T-A

For the international Scout event, the timing is midnight-to-midnight *local* time, anywhere in the world, for the period 0001 Saturday October 16 to 2359 Sunday 17th. As this involves a 24-hour time shift round the world in terms of GMT, it means that for a mid-period anywhere all stations everywhere should be on. The U.K. organiser for the Jamboree-on-the-Air is Leslie Mitchell, G3BHK, 28 Darwall Drive, Ascot, Berks. If you can participate in the event on behalf of local Scout groups, contact the District Commissioner for your area, QTH as phone book or through your local paper.



“... say, OM, remember that rig I bought from the 5N2...”

THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for October issue: September 3)

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

LAST time out, we gave the first warning of the dates for that best-loved of all Club events—the **Magazine Club Contest**, to be held over the weekend of **November 6/7**. Although full details will be given next month, with rules and identification code list, *now* is not too early for the preparations to start. Getting the gear together for the station; deciding on the venue; preparing the aerials, and, probably more important for the majority, the earth system; fixing up the operating roster, and the loggers; preparing such things as duplicate sheets if you are in for a win, and seconds will count; and, most important, making sure the tea can be mashed without pulling the contest station mains-plug out; making even more sure there is someone to brew the tea, equipped with the raw materials and the containers. That list alone, should be enough to get a majority of the members of the club involved and interested—which is part of the game, when it comes to **MCC**.

And, as always, we can be sure it will be a well-fought and sporting contest, in the best traditions of **MCC**.

Looking Round the Clubs

And for once it would not be a bad thing if we made a start with the London and South-East England lot; after all, a lot of people live in this area!

We can make a start at **Crawley**, with their popular **Junk Sale** on September 22, at Trinity Congregational Church Hall, Ifield. Incidentally, your conductor was amused at the letter containing this information, in which **G3TR**, the life president of the Club, points out that he is not the secretary—he implies that, despite his office, he is given "certain little jobs" as he is now semi-retired!

Now to **Thanet**, where meetings are held every Friday evening at 2000, the venue being Hilderstone House, Broadstairs. Here, on September 17, **G3ZBF** is down to talk about a **GM DX-pedition**, while the 24th is shown as a discussion-session dealing with their **Mobile Rally**.

At **Harrow**, the lads also book every Friday evening, under normal circumstances; but September 3 shows "no meeting" as it falls so near the Bank Holiday period. On September 10, there is an interesting combination—a practical evening *and* a bring-and-buy sale. September 17 sees that very popular lecture by **G3BPT** on the Port of London Authority Radio network, and there is another practical session on September 24. Another very popular talk appears on October 1, when those old campaigners, **G3BA** and **G3BHT**, will reveal the methods needed to succeed with **VHF DX-Peditions**.

The **North Kent** crowd are still as active as of yore, with a new compiler "at the key" of the *Newsletter*; however, it does not carry the programme information far forward enough for us to be able to give you the current details, for which, along with the Hq address, we must refer you to **G4ACQ**, as Panel on p.434.

One thing comes our way which is quite unmistakable, namely the **Crystal Palace Newsletter**, produced by **G3FZL** since before your conductor first started writing this column. For September, at Emmanuel Church Hall, Barry Road, S.E.22, the 18th is booked, the speaker being **Mr. C. H. Jones** of Mullard, and the subject one which concerns all who are interested in construction of up-to-date gear, namely **Integrated Circuits**.

Mid-Sussex are holding informal meetings at the homes of members during August when the Marle Place Hq is closed for the month; unfortunately, we have no information on the re-opening date, and so we suggest that if you want to visit or join this crowd you contact the hon. secretary, **QTH** as Panel.

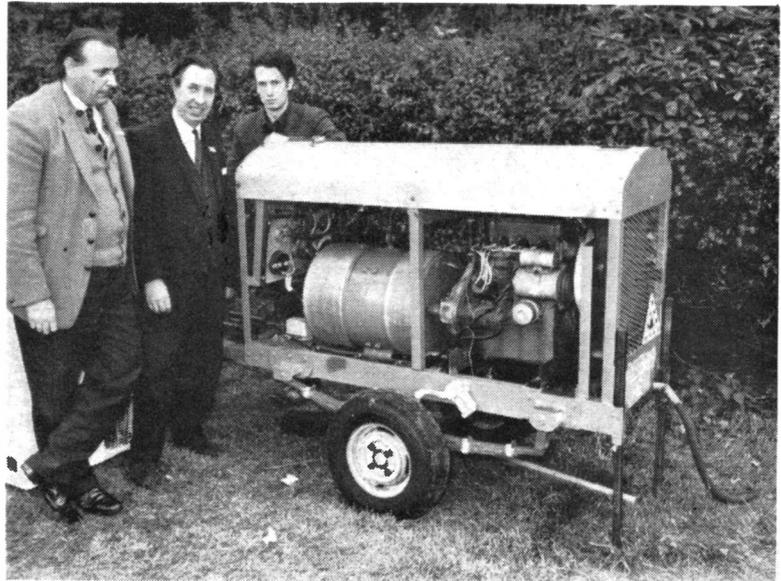
Over to **Cray Valley**, who are to be found at the Congregational Church Hall, Court Road, Eltham, S.E.9, on September 2 and 16. The first date is the "formal" meeting, when the members will be able to hear the tape-recorded **G2MI** lecture entitled "An Anthology of Radio Signals," while the other one is, as usual for this group, a **Natter Nite**.

A report on their various holiday doings will be given the **Acton, Brentford and Chiswick** lads by the members, including **G3CCD**, who was active from France as **FØUT**. This is on September 21, at Chiswick Trades and Social Club, 66 High Road, Chiswick; the starting time is 7.30 p.m.

Barking Radio and Electronics Society can be found at Gascoigne Recreation Centre, Gascoigne School, Morley Road. All effort at the moment is devoted to the Constructor's Award, to be held on November 11, at Hq, entries for which are to be in by October 30. We gather this award is an open one, and entries are welcome, with an entry fee of £0.15p—three bob in English money. Details may be obtained from **G8EAY**, as Panel.

Bedford have their own room at the "Dolphin," The Broadway, where they assemble every Thursday evening, with visitors always welcome. September 2 sees them deep in the mysteries of that most controversial of alleged **DX-raising accessories**, the speech compressor. **G3XKB**, described as "Flogger Bevan," is MC for the **Junk Sale** on September 9, and on the 16th **G3SME** will be talking about **Equipment Analysis Techniques**. On September 23 there is to be a play-over of the tape-and-slide lecture

Enterprise by the Nunsfield House (Derby) group—they have built their own P-E generating set for IP and field-day work. The engine is a salvaged BMC 803 c.c. OHV, completely reconditioned, with chassis and other metal parts adapted from scrap material. The alternator is an old DC-excited machine giving 230v. AC, 11 amps., at 1,500 r.p.m., when it appears to be well under-rated. Total weight 2½ cwt. with 8 gals. of petrol and it can be towed almost anywhere. The whole of the work was carried out by members G3VKH, G3WPU and SWL Matthews—good show.



“World at Your Fingertips,” and G3CWV rounds off on September 30, when he discusses a Digital Frequency Meter, using integrated circuits—this should raise a lot of interest, as the beasties are so easy to make using IC’s, and so very helpful in telling one just where the signal is within the band.

Up the top of Windhill, from the centre of **Bishops Stortford**, is the way the majority of the chaps go to the British Legion club on the third Monday in each month. Just what is going to happen on September 20 is, at the time of writing, as much a mystery as it can be—but the committee claim they have never yet failed to think of something interesting for the lads to do!

The issue of the **Echelford** newsletter for July does not give dates or details of the September programme at the Hall, St. Martins Court, Kingston Crescent, Ashford, Middx., but it does carry a full membership list which is both interesting and revealing. There are 80 licensed members, 23 of them G8/3’s, and the rest HF-band licences; four pre-War calls, one reciprocal-call, and one YL licensee. Of the forty SWL members, there are two more YL’s and a brace of keen DX-chasing listeners. Among the well-known calls in the list, we note G3JUL, of the GB2SM set-up, and, of course, G3RHF of Echelford Communications. These statistics show a nice balance of interest between the technical and the DX’ers, and imply a keen and active committee to attract and hold over a period of years so large and mixed a membership; they deserve congratulation.

Another Club which seems never to have the ups-and-downs suffered by most of us is **Shefford**, who can be

THE TWENTY-SIXTH MCC

Will be during weekend November 6/7. Rules in full and Identification Code list in October issue, due out September 24. Start making your plans now!

found in the Church Hall, Amptill Road, on any Thursday evening, mostly making their own entertainment. VHF/NFD, and “what went wrong *this time!*” will be under scrutiny on September 9, followed on the 16th by a Morse Quiz, run by G3VMI, and on the 23rd by an “Any Questions” session. September 30 is given over to G3RPL, who will be talking about Electricity Supply Distribution Systems.

The Cherwell Hotel, Watereaton Road, North Oxford has a booking for the second and fourth Wednesday of each month; details of what goes on at these get-togethers can be obtained from the hon. secretary—see Panel p.000.

It was a toss-up whether the Wessex report went in this section or the one covering Wales and the West—so we hope no-one objects to our choice! They can be found in the Cricketers Arms, Windham Road, Bournemouth, on 3rd and 20th September and, looking on to the winter, they have some outside visiting arranged.

Northerly Parts

We can’t mention Scotland in the heading, as at the time of writing we have no reports from beyond the Border.

One Club with a very keen and conscientious Secretary is **Tyneside**, whose enthusiasm was what made him write in, even though he was at the GPO Training School at Stone. He tells us that on September 6 there is a business meeting, followed on the 13th by a Junk Sale. A visit is mentioned for September 20, and a lecture, probably on Datel, rounds off on September 27. The venue is Wallsend Community Centre, Vine Street.

Bolton next, where the first Wednesday in each month is a “Noggin and Natter,” at the same place as the formal meeting on the third Wednesday, this being the Clarence Hotel, Bradshawgate.

Up in York, the Hq premises is at the local British Legion, 61 Micklegate, where the lads can be found on any Thursday evening.

(over)

Mondays or Fridays are available to members of the South Manchester crowd; Fridays are the main ones, at Sale Moor Community Centre, with September 3 down for a talk on FSK, and the Heathkit HW-17 to be discussed by G8DLD on the 10th. G3HZM Simplifies Single Sideband on the 17th, and G3FNM hands out More on Contest Operating on September 24; this leaves the Secretary, G3WFT, to discuss Constructional Techniques on October 1. Now to the Mondays, at the Club shack, "Greeba," Shady Lane, Manchester 23, which are Activity Nights, with the Club's own station G3UHF now operational on Seventycems.

A Club which seems to have a regular SWL session is Hull, where the practice is to assemble every Friday evening, at 592 Hessele Road. September 3 is addressed to VHF NFD preparations, while the 10th is for R.A.E. Preparations. September 17 is the technical lecture, when a representative of Radio Humberside will talk about local radio stations; September 24 is the previously-mentioned SWL night, and on October 1 there will be a musical evening.

Last month we gave prominence to the Star club and

their junk sale in aid of RAIBC funds—but, sad to say, we omitted to mention the date! September 15 it is, of course, open to all, and the place to head for is the New Inn in Bramley Town Street, Leeds. As all the proceeds are going to the good cause, there are bound to be some bargains about—but if you look in your shack, you will, no doubt, realise that you have something in your "stores" which you could spare for the sale—if so, please get hold of G8BUU *instantly*—see Address Panel—for him to organise its collection—and don't forget to put in an appearance on sale night as well! The normal Star club activities occur every Wednesday, 8.0 p.m., at the Star and Garter in that same Bramley Town Street, Leeds 13—but the big sale will kick off promptly at 7.30 p.m., to make sure they can get through all the lots.

As ever at this time of year, one expects to hear that the Universities and their Radio Societies are recruiting new members from among the Freshers. So it is at Manchester this year; the University club station, G3VUM, will be open to visitors during the last week of September, and operational all the time, with a KW-2000 and a separate 144 MHz rig as demonstrations. The venue

Names and Addresses of Club Secretaries reporting in this issue:

ACTON, BRENTFORD & CHISWICK: W. G. Dyer, G3GEH, 188 Gunnersbury Avenue, London, W3-8LB.
 A.R.M.S.: N. A. S. Fitch, G3FPK, 40 Eskdale Gardens, Purley, Surrey, CR2-1EZ.
 BARKING: A. P. Foss, G8EAY, 73 Coolgardie Avenue, Chigwell, Essex (01-500 6034).
 BASINGSTOKE: P. Sterry, G3CUB, Ashley, Orchard Road, Salisbury Gardens, Basingstoke.
 BEDFORD: J. Bennett, G3FWA, 47 Ibbett Close, Kempston (2427), Bedford.
 BISHOPS STORTFORD: A. Stanley, G3WUR, 43 Havers Lane, Bishops Stortford (57251), Herts.
 BOLTON: E. Longden, G3ZQS, 8 Gregory Avenue, Brightmet, Bolton, Lancs.
 B.A.R.T.G.: D. J. Goacher, G3LLZ, 51 Norman Road, Gorse Hill, Swindon (21740), Wilts.
 B.A.T.C.: J. Rose, G6STO/T, Pinchbeck Farmhouse, Mill Lane, Sturton-oy-Stow, Lincs. (042-776 356).
 BRITISH RAIL: R. Woods, 15 Grant Avenue, Slough, Bucks.
 CHIPPENHAM: P. J. Tuck, 186 St. Edith's Marsh, Bromham (274), Chippenham, Wilts.
 CONWAY VALLEY: K. Simpson, GW3RQV, Gwreiddyn, Moelfe, Abergele, Denbs.
 CORNISH: J. Farrar, G3UCQ, Elm Cottage, Ventonleague, Hayle, Cornwall.
 COVENTRY: C. Jaynes, 20 Belgrave Road, Wyken, Coventry, CV2-5AY.
 CRAWLEY: G. Bowden, G3YVR, 51 Leighlands, Pound Hill (3253), Crawley, Sussex.
 CRAY VALLEY: P. F. Vella, G3WVP, 78 Hurst Road, Sidcup.
 CRYSTAL PALACE: G. M. C. Stone, G3FZL, 11 Liphook Crescent, London, SE23-3BW (01-699 6940).
 DERBY: F. C. Ward, G2CVV, 5 Uplands Avenue, Littleover, Derby (21931), DE3-7GE.
 ECHELDFORD: R. Hewes, G3TDR, 24 Brightside Avenue, Laleham-on-Thames (Staines 56513).
 FARNBOROUGH: A. L. Stretton, G8BVM, 10 Sinhurst Road, Camberley (22887), Surrey.
 GRAFTON: T. Coleman, G8EEI, 14 Norman Court, London, N4-4QD (01-340 9542).
 HARROW: R. Medcraft, G3JVM, 134 Dulverton Road, Ruislip Manor, HA4-9AG (Ruislip 38726).
 HULL: Mrs. M. Longson, 4 Chester Road, Hull, HU5-5QE.
 MANCHESTER UNIVERSITY: R. Mortimer, G3ZNS, University Union, Oxford Road, Manchester 13 (Ardwick 4334).
 MID-CHESHIRE: A. Greenwood, G3SIQ, 83 Ash Road, Cuddington, Northwich, Cheshire.
 MID-HERTS: R. Thornton, G3PKV, 43 Fordwich Road, Welwyn Garden City (23763), Herts.
 MID-SUSSEX: E. J. Letts, G3RXJ, 87 Meadow Lane, Burgess Hill (3552), Sussex.

MID-WARWICKSHIRE: K. J. Young, G3ZCG, 56 Chape Street, Bishops Itchington, Leamington Spa, Warwickshire (Harbury Wells 273).
 NEWBURY: R. Church, G3KJC, Three Birches, Long Lane, Hermitage, Newbury.
 NIGERIAN: E. A. Lomax, 5N2ABG, P.O. Box 68, Kaduna.
 NORFOLK: J. L. Lockwood, G3KLL, 29 Coppice Avenue, Hellesdon, NOR-82R (Norwich 48685).
 NORTH DEVON: H. G. Hughes, G4CG, Crinnis, High Wall, Sticklepath, Barnstaple, North Devon.
 NORTHERN HEIGHTS: A. Robinson, G3MDW, Candy Cabin, Ogden, Halifax (44329), Yorkshire.
 NORTH KENT: L. Randall, G4ACQ, 118 Brook Street, Erith (40800), Kent.
 NORTH NOTTS: E. W. Badger, G3OZN, 20 Tennyson Drive, Worksop, Notts.
 OXFORD: D. R. Ward, 2 Lincoln Road, Oxford, OX1-4TB (47771).
 R.A.I.B.C.: Mrs. F. Woolley, G3LWY, 331 Wigan Lane, Wigan, Lancs.
 REDDITCH: R. J. Mutton, G3EVT, Summerhayes, Mill Lane, Oversley Green, Alcester (2041), Warwickshire.
 RHONDDA: C. M. Parry, GW3PHH, 34 Ca'er-Gwerlas, Tonyrefail, Porth, Glam.
 ROYAL NAVY: CRS M. Matthews, G3JFF, H.M.S. Mercury, Leydene, Hants.
 SALTASH: J. A. Ennis, G3XWA, 19 Coombe Road, Saltash.
 SHEFFORD: A. Sullivan, G2DGF, 12 Glebe Road, Letchworth, Herts.
 SILVERTHORN: A. Mitchell, G3YJZ, 6 South Road, Edmonton, London, N9-7JH.
 SOLIHULL: J. Burnie, G8BYM, 12 Buryfield Road, Solihull, Warks. (021-705 4565).
 SOUTH MANCHESTER: D. Holland, G3WFT, 7 Alcester Road, Sale, M33-3GW.
 STAR: D. Leeman, G8BUU, 115 Asket Drive, Seacroft, Leeds.
 STRATFORD-ON-AVON: J. Webb, G3OOQ, 14 Townsend Road, Tiddington, Stratford-on-Avon (5973).
 THANET: R. Trull, G3RAD, 1 Approach Road, Broadstairs, Kent.
 TYNESIDE: G. Lowdon, 21 Winifred Gardens, Wallsend, Northumberland.
 VERULAM: H. Young, G3YHY, 93 Leaford Crescent, Watford, WD2-5JQ.
 W.A.M.R.A.C.: Rev. A. Shepherd, G3NGF, 178 Manchester New Road, Middleton, M24-4DA (061-643 2368).
 WESSEX: G. Moore, G8BBN, 15 Stansfield Road, Winton, Bournemouth, BH9-2NL.
 WIRRAL: A. Fisher, G3WSD, 34 Glenmore Road, Oxton, Birkenhead (051-652 5078).
 YEOVIL: D. L. McLean, G3NOF, 9 Cedar Grove, Yeovil, Somerset.
 YORK: J. A. Rainbow, G8BOK, 14 Temple Road, Bishopthorpe, York, YO2-1QN.

Members of the Bolton (Lancs.) Amateur Radio Society recently ran an exhibition station in aid of the British Legion. In this photograph are G3XUM (operating), flanked by members G8CVO, G3ZQS, G3YTC, G3ZPL, G3LVX, G3SPB and two SWL's. They used their own call G8WY/P and the gear, loaned by G4ADW, consisted of a KW-2000A into a trapped dipole.



for the Club meetings is a room at the top of the Students Union.

Wales and West

Gone are the days when this part of the world seemed always to be blank, as far as radio groups were concerned; indeed, nowadays it is one of the fatter clips, at least till we start fishing out the one in three for the Short Notices section.

Our starter for this time is Conway Valley, who only comment at rare intervals; this is one of them, and arises because they have changed from the third to the second Thursday in each month. This gives them September 9, at the Parade Hotel, Llandudno, when Dr. D. Last, GW3MZV, will be giving the lecture.

Sad to say, the hon. secretary of Saltash slipped up a bit this month, and gave us the August programme. However, we can tell you the form is alternate Fridays, and the Hq, Burraton Toc H, Saltash—for the rest, G3XWA has his name and address in the Panel, and it is he who must be contacted.

Chippenham have always been regular correspondents. Now they write to say they are putting an entry into VHF NFD, and also that on September 18 they are putting on a demonstration station at Derry Hill School Fête. All this of course comes in as "extras"—the normal Tuesday-evening assemblies are at the Boys' High School, Hardenhuish Lane, each week.

North Devon are "at home" on the second and fourth Wednesdays of each month, at Crinnis, High Wall, Sticklepath, Barnstaple. This one is maybe a wee bit hard to find; take the road out towards Bideford, and as you start to climb out of the town, you will see a high wall on your near-side. That's it!—there are some steps from the road to the top of the high wall, and at the top you find yourself in High Wall, and not far from Crinnis. Do it on foot first, and the lads will show you how to get

the car up! But do remember, and this always applies where a Club meets at the home of a member, that for a visitor it is a courtesy to make contact first, before turning up at a meeting; it only needs a brief note and reply.

Cornish have their Hq at the SWEB Clubroom, Pool, Camborne, and meet on the first Thursday in the month. There are centres of activity elsewhere, notably at Truro and Newquay—details of all these can be obtained by getting in touch with the secretary.

Midlands

Through the summer the Mid-Warwickshire crew have carried on with informal Monday-evening get-togethers each week, but on September 13 the lads are going to make a start on the autumn and winter formal programme—but it seems to be a secret, as the secretary avoids saying what goes on! You are obviously intended to go and see—at 28 Hamilton Terrace, Leamington Spa, the club Hq.

Mid-Cheshire get together at Winsford Verdun Comprehensive School, Grange Lane, every Wednesday, not to mention the Top Band net on Mondays at 1900, nor the two-metre one on Tuesdays at the same time—this latter supporting the president's view that "Two-metre disease" is rampant in the club! The AGM falls at the first of the month, and will be followed from then on by a string of live and tape lectures, slide shows and films, the latter now being easier thanks to the acquisition of a 16 mm. projector. Here, we are told, you don't wait to be asked—you just turn up at a meeting.

Redditch have booked September 9 and 23, both Thursdays, at the Old People's Centre in Park Road. Details can be obtained from G3EVT, see Panel p.434.

Another hon. sec. who is, so to say, "part of the scenery" each month is the incumbent at Coventry, whose neat squiggle at the bottom of a letter is unmistakable. He says that the two nights-on-the-air are on September 10

and 24; this leaves September 3 for VHF NFD preparation, and September 17 for a Junk Sale.

Norwich are on the move this month; September 6 is a bring-and-buy sale at the Brickmakers Arms, Sprowston Road, but on September 8 they have an inaugural meeting at the new Hq in Crome Community Centre, Telegraph Lane East, Norwich. The following evening they are "out" on a visit to R.A.F. Watton, Thetford, and on September 15 there is a Brains Trust; a receiver demonstration is provisionally down for September 22, and a travelogue by G3IOR is firm for the 29th.

By the time this is in print the Wirral crew will have had a first taste of their new home, at the Old Drill Hall, Grange Road West—at the Slatey Road end—Birkenhead. Apparently this place has been acquired by Birkenhead Corporation to be a Recreation Centre for all sorts of sports; there will eventually even be a bar! September 1 is your first chance to look in, with the next date September 15, when there will be a visit to the Mersey Tunnel.

* * * *

Now we come to our last section, which takes in the groups having no local territorial affiliations.

A.R.M.S. are top of the pile, and the current copy of their *Mobile News* is well up to standard, including a review of the KW-2000A in mobile service, some notes on shielding a Triumph 1300 to reduce ignition noises, a series of checks run on ignition cable of the distributed-resistance variety so often claimed to be very good from the suppression point of view, which tend to prove the opposite, and many other interesting bits as well.

Wamrac seem to be in the wars again, albeit this time only mildly as compared with their past problems. The founder-secretary, G3NGF, has, yet again, been moved, and has another move still in prospect, to the Kirkby Stephen, Appleby and Tebay area, where it is quite certain that on every Sunday afternoon when he should be on the Wamrac net he will, instead, be travelling. However, this should not "upset the applecart" too much—these Methodists seem to be able to bounce back after mishaps which would long since have put another club into limbo!

Now to **British Rail**, where the newsletter contains a series of letters from a couple of W's, giving much very interesting reading—but spoilt for this writer by the front-page complaint that the Club is dying on its feet—one would almost believe him until one recalled this has been the front-page theme in every issue for years! But it must account for at least a few of the inevitable non-renewals each year, if only from the constant repetition. Seriously, though, there is, unsung, such a wealth of talent in the club—who would have known that the *Newsletter* compiler, after driving buses all the week, would have been prepared to put in a 225-mile stint at the wheel to take a vintage specimen to a Vintage Bus Rally on Sunday.

One *Newsletter* your conductor always looks forward to is that of the **Royal Navy A.R.S.**—partly because he personally knows so many of the active members, but also for the intrinsic interest of so much of the material printed. However, it has to be admitted that this month's best by far was the unprintable cartoon on the back page,

SHORT CLUB NOTICES

CLUB NAME	HEADQUARTERS LOCATION	MEETING DAY MONTHLY
Basingstoke	Chineham House, Shakespeare Road, Popley	1st and 3rd Saturdays, 7 p.m.
BARTG	<i>No local meetings</i>	<i>None</i>
Derby	Room 4, 119 Green Lane	Wednesdays
Farnborough	Railway Enthusiasts' Club, 310 Farnborough Road	2nd and 4th Tuesdays
Grafton	Whittington School, Highgate Hill, London, N.19	Fridays (from September 17)
Mid-Herts	Welwyn Civic Centre	September 9
Newbury	South Berks Tech. College	1st Monday
Nigerian	P.O. Box 2873, Lagos, Nigeria	<i>None</i>
Northern Heights	Peat Pitts Inn, Ogden	Wednesdays
North Notts	Kilton Youth Centre, Longfellow Drive, Kilton	September 10, September 23
R.A.I.B.C.	<i>No local meetings</i>	<i>None</i>
Rhondda	Rhondda Coll. of Further Education	September 16
Silverthorn	Friday Hill House, Chingford	<i>Not quoted</i>
Solihull	Manor House, High Street Malt Shovel, High Street	September 21 September 7
Stratford-on-Avon	Halls Croft	September 3, September 17
Verulam	St. Albans Town Hall	September 15
Yeovil	Youth Centre, 31 Park Lodge	September 2, September 23

N.B.—In each case, secretary's name and address appears in Panel, p.434.

which now adorns the shack wall!

The **British Amateur Television Club** is another one your old scribe has a soft spot for—he still has his membership lapel-badge from early 1955, albeit his operational interest in A/TV has waned over the years; it is interesting to compare, though, the way things are done nowadays, with integrated circuits by the bucketful, where we used to have to make do with a couple or three valves to try and achieve the same end. Anyone with an interest in Amateur TV should definitely be a member.

AR VA

Which you can interpret as "that's your lot for another month!" The next batch of mail should contain your news for October, and should be in by first post **September 3**, addressed as always "Club Secretary," **SHORT WAVE MAGAZINE, BUCKINGHAM.**

And would all secretaries please note that closing dates for months following are **October 8** and **November 5**.

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.

- EI4CE, C. O'Callaghan, Lower Main Street, Newmarket, Co. Cork.
- G3ZRQ, D. Maxfield, 40 Fegg Hayes Road, Stoke - on - Trent, Staffs., ST6 6RA.
- G4AAG, P. Manwaring, Three Gables, The Copse, Fetcham, Surrey.
- G4ADK, R. Cutbush, 10 Western Road, Upton Park, London, E13 9JF.
- G4AFA, N. D. Porter, The Hermitage, The Spital, Yarm, N. Yorkshire. (Tel. *Eaglescliffe 780210.*)
- GM4AGX, J. A. Yates, H.M. Coastguard Station, Lerwick, Shetland.
- G4AHG, Shirehampton Amateur Radio Club, Twyford House, High Street, Shirehampton, Bristol.
- GI4AIO, R. E. Lindsay, 69 Edenderry, Shawsbridge, Belfast.
- G4AIQ, G. J. Mitchell, 38 Glenriding Drive, Hawcoat, Barrow-in-Furness, Lancs.
- G4AJB, J. A. Bradley (*ex-G8CJB*), 106 Castlecroft Road, Finchfield, Wolverhampton, Staffs., WV3 8IU. (Tel. *Wolverhampton 61614.*)
- G4AJC, R. E. O'Mahoney (*ex-G8AJC*), 58 Hillside Avenue, Canterbury, Kent.
- G4AJE (*ex-G8EGS*), 9 Fairfield Road, Isham, Kettering, Northants.
- G8EUA, A. Heckley, 4 Dean Gardens, Shildon, Co. Durham.
- G8EWN, D. Ll. Edmonds, 60 Auckland Road, Potters Bar, Herts. (Tel. *Potters Bar 55453.*)
- G8EXQ, T. J. Connell, 38 Dagnam Park Drive, Romford, Essex, RM3 9XP. (Tel. *Ingrebourne 42966.*)
- G8EYL, P. D. Cooper, 167 Holly Lane, Erdington, Birmingham, B24 9LA.
- G8EYU, I. McGarrigle, R.A.F. Coltishall, Norwich, Norfolk, NOR.64-Y.
- G8EYV, D. L. Hardy, 32 Bramcote Road, Beeston, Notts. (Tel. *Beeston 251455.*)
- CHANGE OF ADDRESS**
- G2HKT, L. R. Hawkesford, 80 Wyndhurst Road, Stechford, Birmingham, 33. (Tel. *021-783 7668.*)
- G3AWL, T. Luxmore, Carn Brae, Stockton Road, Easington Village, Peterlee, Co. Durham.
- G3GZE, F. W. Bird (*VK6ZE*), Flat 5 Kalinya, 5 Welshpool Road, Bentley, Western Australia, 6102, Australia.
- G3IER, G. Martin, 88 Tennyson Road, St. Marks, Cheltenham, Glos., GL51 7DB.
- G3IXH, Lincoln Short Wave Club, c/o G. O'Connor, 61 Steep Hill, Lincoln.
- G3JNZ, V. D. Knibbs, 38 Mixbury, Brackley, Northants. (Tel. *Finnere 302.*)
- GW3JRJ, F. Buckley (*ex-G3JRJ*), Plas Dolydd, Sychnant Pass Road, Conway, Caerns.
- G3LDH, A. C. Wright, 9 Cranwell Road, Greasby, Wirral, Cheshire.
- G3MQU, R. M. W. Rash, Beech Tree Farm, Wortham, Diss, Norfolk. (Tel. *Diss 2875.*)
- G3NFQ, J. A. Cawley, 6 Willow Place, Shrewsbury, Salop., SY3 8YQ. (Tel. *Shrewsbury 2619.*)
- GM3NLO, R. Harvie, 8 Brigbrae Avenue, Calder Road, Bellshill, Lanarks.
- G3OXO, P. E. Morrison, 59 Castle Road, Tankerton, Whitstable, Kent.
- G3PTG, R. H. W. Gealy, 324 Musters Road, West Bridgford, Nottingham. (Tel. *0602-231827.*)
- G3PZT, F. J. Thompson, Frenice, Deerhurst Road, Apperley, Gloucester.
- G3RBF, A. C. West, 27 Ashby Road, Welton, Daventry, Northants.
- G3SCD, D. Dunn, 18 Mercer Row, Louth, Lincs.
- G3TAZ, R. Davies, 17 Baker Avenue, Pottton, Beds.
- GM3UDJ, T. M. Grant, Laigh Hook Cottage, Strathaven, Lanarks., ML10 6RP.
- G3UYC, J. Peirson, 11 Fosseyway Close, Colerne, Chippenham, Wilts.
- G3VGW, R. I. Buckby, 23 Hazel Drive, Spondon, Derby., DE2 7DS.
- GW3VOW, M. J. Fereday, 11 Craig Castell, Radyr, Cardiff, Glam., CF4 8RG.
- GD3VWN, R. C. Longworth, Rose Garth, St. Olave's Close, Cumberland Road, Ramsey, I.o.M.
- G3WDI, T. F. Weatherley, 5 Conway Road, London, N.14.
- G3WTN, R. W. Limehouse, 30 Copswood Close, Kesgrave, Ipswich, Suffolk.
- GM3XFC, H. R. S. Canale, 18 Seaton Road, Arbroath, Angus. (Tel. *Arbroath 4457.*)
- G3XGZ, M. Lambert, 62 Mayfield Avenue, Grovelands Estate, Wantage, Berks.
- GM3YHJ, P. J. Simmons, The Wooden Cottage, Asknish, Lochgair, Lochgilphead, Argyll.

ON ACQUIRING THE MORSE

Comment very much in context and to the point: "Our knowledge of the physiological process of learning has advanced to a stage at which we know that the speed and ease with which a piece of information stored in the brain can be retrieved depends on how often use is made of this information. Applied to CW and the learning of Morse, this means that constant repetition is the *only* method of increasing CW speed. Careful psychological preparation is also of great importance in mastering the

Morse Code. The instructor who paints a picture of CW as being a necessary evil in the process of acquiring an amateur licence can do irreparable damage by infusing into his pupils a sub-conscious rebellion against it. If, on the other hand, he can show his pupils that CW telegraphy is in effect an internationally-understood radio language, then he will have started by doing much to smooth the path of learning Morse". From the *I.A.R.C. Newsletter* No. 15, recently published from Geneva.

SOLID STATE MODULES

THE SENTINEL DUAL GATE MOSFET CONVERTERS

- ★ Low noise figure of 2dB. Gain 30dB.
- ★ Excellent overload and cross modulation performance.
- ★ Dual gate MOSFET R.F. amplifier and mixer.
- ★ Compact 2½" x 3" x 1½" aluminium case.
- ★ 2 metre IFs stocked: 4-6 MHz, 9-11 MHz, 14-16 MHz, 18-20 MHz, 23-25 MHz, 24-26 MHz, 28-30 MHz.
- ★ 4 metre IFs stocked: 25-25.7 MHz, 28-28.7 MHz. Price: £13-75.

SM 70 70cms FET CONVERTER

- ★ Low noise figure 3.5dB.
- ★ IF output 144-146 MHz for connection into a 2 metre converter. This arrangement means that we can produce a high performance 70cms unit for only £13-75.

THE SENTINEL LOW NOISE FET PRE AMPLIFIER

- ★ FET and components selected for a low noise figure of 1dB.
- ★ Gain of 18dB. Price £6-50.

THE SPITFIRE 2 METRE A.M. TRANSMITTER

- ★ 5 watts input. At least 2 watts output.
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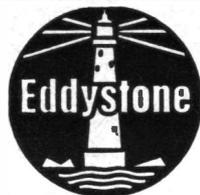
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WANTED: Manual or circuit diagram for Marconi receiver AD.8882B, also PSU details, for loan or purchase. Postage refunded to all correspondents.—Pring, 89A High Street, Chard, Somerset.

SELLING: Trio communications receiver Model JR-500S and manual, with matching Trio speaker SP5D, all as new, £45. Heathkit Resistance-Capacity Bridge, Model C-3U, £5. Audio generator, Heathkit Model AG-9U, partly built, with all parts and full instructions, £10.—Copage, 83 Willclare Road, Sheldon, Birmingham, 26.

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WANTED: Either trade or second-hand source of supply for B.44 Transceivers.—Gough, 1 Edanmount Park, Glen Road, Londonderry, Northern Ireland.

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