JANUARY
1976

35 PENCE

Vol. XXXIII
No. 11

THE SHORT WAVE MAGAZINE

WORLD WIDE COMMUNICATION

FOR THE RADIO AMATEUR AND AMATEUR RADIO

TR2200G. All the knowledge, skill and experience of the Trio design department were put together to design the TR2200G. In a compact (5⅜" x 2½" x 7½") and lightweight (less than 3½ lbs.) package is the latest state of the art portable 2 metre transceiver available to the radio amateur. The TR2200G incorporates the best features, dependability and outstanding performance which made its predecessor, the TR2200 into the world's most popular 2 metre carry-around rig. Add to this the extra features of the TR2200G and you have the best value for money around today.

Up-to-the-minute semiconductor design—Employing 24 transistors, 1 FET, 3 I.C.s and 22 diodes ensures instant, no warmup operation as well as optimum stability and reliability, even when working in the tropics at 100°F or in a snowstorm at 20° below zero. The TR2200G won't give up.

12 Transmit and receive channels—In the 2 metre band from 144-146 MHz, three of which are factory fitted with crystals for S20, S22 and R7. The other nine channels can be fitted with crystals of the owner's choice.

Guaranteed output power—In excess of 1 watt at 13·8V dc operating voltage. This is more than sufficient for most local and district QSO's and will provide real DX contacts when used through your local repeater. Rugged PA transistor is safe against all but the most extreme misuse. For mobile operation, the VB2200 power amplifier module increases the output power to a solid 10 watts.

Sensitive receiver section—The TR2200G double superhet receiver uses an FET front end for excellent cross modulation and large signal handling performance together with high sensitivity for dragging signals out of the noise. Twin filters in the IF section provide optimum bandwidth for current deviation standards together with a superb 2 : 1 shape factor. A newly developed audio IC provides over 700mW of power to cater for all portable or mobile use.

Extra features—at no extra cost—Continuously adjustable squelch system; multi purpose metering providing S meter, RF output and battery check facilities; independent internal battery supply from either eight 1·5V penlight cells or ten re-chargeable Ni-cad batteries (option) or from any external 12v. dc power source (negative earth). The charger unit for the Nicad batteries is included in the basic price. The TR2200G has connectors for external antenna, external loudspeaker or earphone and the high quality dynamic microphone is also included in the price. It also features a 5 section telescopic antenna, built in speaker and Trio's exclusive tuning fork controlled 1750Hz. repeater access tone generator. The rig comes complete with carrying case and shoulder strap.

With the TR2200G, you can be on the air portable, mobile or simply sitting at home in the chair.

Sole Importers: LOWE ELECTRONICS
119 Cavendish Road, Matlock, Derbyshire
Tel.: Matlock 2817/2430

TR2200G £80 (VAT exc.)

TRIO

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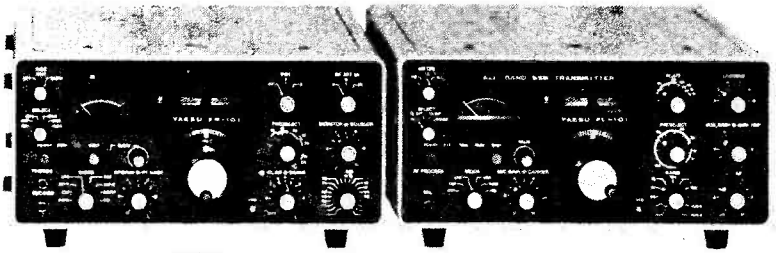


FR101 FL101

FR101S
FR101SD
FR101D
FR101DD
FL101

The FR101D (de luxe) wide coverage (23 (from 1·5 MHz), 500 kHz bands + 4 and 2 metres) receiver. Analysis of the signal path shows :— 0–20dB switchable attenuator, two section permeability tuned input filter, Mosfet R.F. stage and mixer (crystal controlled), 3 section top coupled bandpass filter, no gain at first I.F., IC balanced mixer, 20 kHz wide crystal filter, shunt diode noise blanker, single FET buffer stage, AM, CW or SSB (RTTY) filter, appropriate detector and audio stage. Add to this, two excellent VHF converters, squelch, FM detector, 1 kHz readout, excellent stability, Tx monitor control, crystal control facility, switchable AGC, transceive capability (FT or FL 101) and that digital readout options are available of this (de luxe), or the standard (less the plug in optionals), converters, broadcast band crystals, filters, etc.) version truly a "apparatus communication sine filis" extraordinary.

The FL101 transmitter is the ideal companion to the FR101 forming a superb base station. Operation 160 to 10m.(+ two auxillary bands) using SSB, AM, CW or FSK at 260W. PIP, and if desired the optional RF processor.

DIGITAL TRANSCEIVER

The FT501. The digital transceiver (80–10m.), an engineered blend of old and new techniques, valve front end and P.A. (for good dynamic range and low intermodulation) and solid state devices (for high, reliability and component density, lower, weight and heat production). Separate asymmetric crystal filters (superb 1·6 : 1 S.F.) for each sideband (with common carrier crystals to eliminate carrier shift). This combined with the optional CW filter, switchable AVC, etc., etc. offers to the discerning user a high power (500W. PIP) yet compact SSB/CW home station.

FT501

FT75 FP75bb

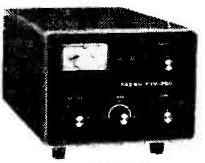
MOBILE TRANSCEIVER

The FT75B. The mobile transceiver. All solid state except driver and P.A., 120W. P.I.P. on 80 through 10m. External VFO (FV50) or 3 V.X.O. controlled crystal channels per band. Excellent noise blanker, CW facility and fully adjustable squelch, etc. all contained in a small 3″ x 8½″ x 11½″ package. AC mains (*FP75b illustrated*). 12v. DC (DC75B) PSU/speaker are available as is the VC75 microphone VOX/Compressor unit.

NEW

TWO METRE TRANSVERTOR

The FTV–250 styled to match the FT101, etc. Sensitive receiver converter with good image rejection and RF gain control on front panel. 10W. P.I.P. (A3j. and A1) 4W. (A3 and F3) metered :—power output, and drive level. (3V. RMS at 29 MHz). 13 lbs., 11¼″ x 8¼″ x 6″.



FTV250

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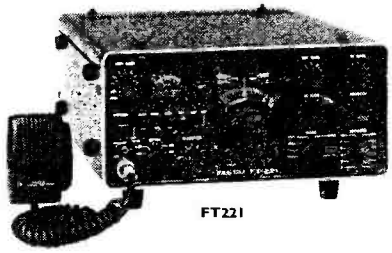
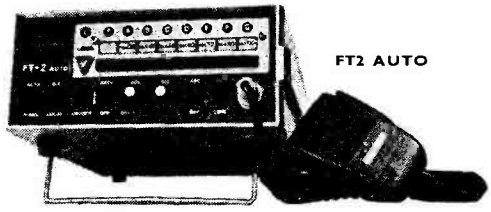


FT221

TWO METRE FT221

The FT221. The multimode USB, LSB, AM, FM, CW (with semi break-in and side tone), 2m. transceiver offering the choice of : phase locked VFO or 44 crystal channels, simplex or repeater (600 kHz up and down shifts), with unique "double push" auto tone burst, mains or 12v. (3A) operation, excellent selectivity, SSB 2·4 kHz (1·7 : 1 S.F.) or FM 12 kHz. Front panel adjustable VOX and mic gain, a calibrator (1 MHz ÷ 10), 1 kHz readout and linearity, sensitive squelch, clarifier with IRT and IRT with ITT (makes F.S.K. easy), switchable "S" and centre zero tuning meter, noise blanker, serviceable plug in boards all contained in 11½" (14") x 5" x 11½", 22 lbs. rigid package.



FT2 AUTO

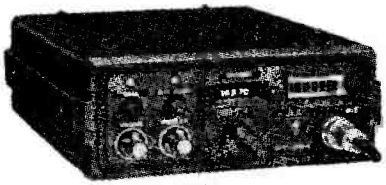
AUTO-TUNING TRANSCEIVER FT2 AUTO

The FT2 Auto is a unique concept in 2 metres FM transceivers. The "Auto scan" circuit monitors, in turn, each of the 8 channels every ⅛ second, automatically locking upon receipt of a signal. Push buttons, enable elimination of undesired or occupied channels, on Auto mode, or selection of that frequency on manual mode. A priority circuit may be activated to check your local net or RAEN frequency every two seconds. To transmit on a channel being received a momentary pressing of the P.T.T. locks the transmitter to the receiver

NEW ! FOUR METRES — FTC212

The FTC212 is a 4m., 12 channel, FM, 10W output, transceiver. It offers the best in modern VHF design. The low image response, single conversion receiver uses a Mosfet RF stage coupled via a 3-section helical filter to FET mixer, which is driven by (as in the transmitter) a low noise FET crystal oscillator. The 10·7 MHz IF is processed by a crystal filter and then two isolated ceramic filters for unrivalled stop-band performance. Two IC limiters feed the separate IC discriminator. Automatic final protection (AFP) is provided along with RF sensing LED ransmitter indicator. Mic., accessories and three channels are supplied.

FTC212



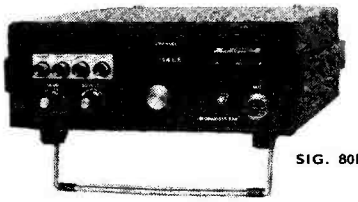
FT224

24 CHANNEL FM ON TWO

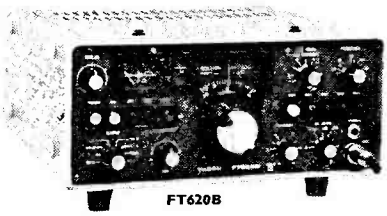
The FT224 is an advanced Solid State transceiver, 10W output with a 23 channel flexibility (excluding priority channel) all in one complete package (2⅝" x 6½" x 9" (10⅜")). The FT224 includes a built-in tone burst for repeater actuation. Automatic high VSWR protection of the final transistor and reverse power line polarity protection are included. The wireless comes complete with built-in speaker, mobile, mounting brackets and dynamic microphone.

THE VERSATILE ONE—SIGMASIZER 80R

The Sigmasizer 80R offers 80 (25 kHz increments) channels on 2m. The received frequency is always indicated on the dial, either transceive (simplex) or for repeaters, the transmitter is automatically shifted down 600Hz. When the receiver is tuned to repeater input channel, the transmitter is automatically shifted upwards thus offering full, simplex, normal repeater or inverse repeater. The built-in tone burst functions only in repeater mode. A further channel may be programmed for instant selection of a local net or RAEN frequency. Automatic final protection, 10W of RF and a generous 2W of audio are available from the unit which draws only 2·2A on 12v. DC.



SIG. 80R



FT620B

UHF EXCITER—FT620B

The FT620B features full 1 kHz resolution VFO coverage across 50-54 MHz in eight ranges, SSB (selectable), AM, CW (build your own FM modulator), four crystal controlled channels in each band segment, receiver clarifier, noise blanker, built-in AC and 12v. DC power supplies, mic. supplied. The exceedingly low level of spurious emissions and the 50 MHz output makes this unit highly suitable for use as a drive source transverting to 4, 2, or 70 cm., and/or parametrically up converting to 70 or 23cm.

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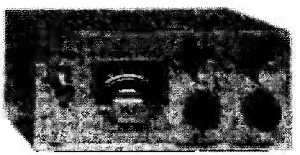
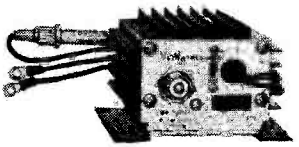
Audio to audio, via 10·7 MHz, mains powered, illuminated meter, FT-101, FT2 plugs suitable all phone modes superb on FM.

Ex Stock in Totton

£44 p & p 40p (+25% VAT)





144 MHz LINEARS RFL

RF sensing, switchable drop out time SSB, AM, FM, CW, 12v. DC 10W drive. 80I, 100W, 90I 150W.
RFA-10-100-HBX ... **£75·00**
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(+25% VAT)

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FT2FB (14 MHz Rx, 18 MHz Tx)
144 (15R, ·30, ·36, ·40, ·50R, ·60, ·70)
145 (·09, ·32, ·44T, ·90)
ALL **Simplex,** ALL **Duplex** and all Inverse Repeater (both T & R)

FT2F (52 MHz Rx, 6 MHz Tx)
144 (15R, ·25, ·36R, ·48, ·60R, ·70, ·80)
145 (·80, ·09, ·68, ·84, ·90)
ALL **Simplex,** ALL **Duplex** and all Inverse Repeater (both T & R)

TR2200 (44MHz Rx, 12MHz Tx)
Simplex
S (20, 21, 22, 23, 24)
Duplex
R(2, 5, 6, 7) (R6 ½ TOS)

C146A and C826MB
Simplex
S(SO, 21, 22, 23, 24)
Duplex
R (5, 6, 7)

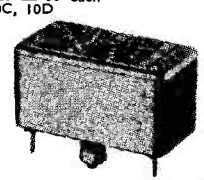
Spare Yaesu crystals available at £2·20 each and any 144 MHz (common types) channel crystals to order at £3·50 pair, 8 weeks delivery

FT200 at **£2·00** each
10A, 10C, 10D

Converter crystal, **£2**
38·666(2m.), 42(4m.), 50·5(70cm.

Pye Pocket Phones
433·2 **£4·50** pair

KP202, **£3·50** pair
·48, ·60, S21, R3, etc.



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All YF filters individually supplied with ± 6dB (25dB) 60dB bandwidths, ripple factor and insertion loss.

3·18 MHz		10·7 MHz		9 MHz	
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◀ **RINGO RANGER** 144 MHz (*illustrated left*)—ARX2, 6dB gain over ¼. (Uses 3 x ½ in phase and ¼ stub) ultra low angle radiator (approx. 10ft. high).

AR2 2m. Ringo vert. **£10·90**
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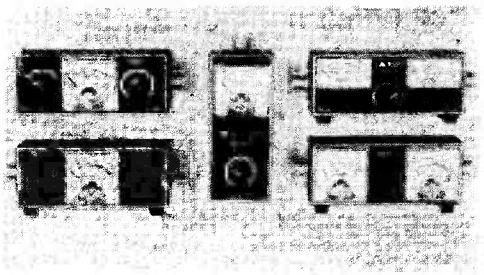
ASQ22 2m. stacked Squalo ... **£23·00**
CX1000 10m. gain vert. **£22·20**
ARX2 2m. Ringo ranger **£17·50**



CDE ROTATORS (Carriage (BRS or Post) Free

Securicor "B" delivery £1 extra

All rotators supplied complete with control box and instructions.

AR30 Light duty ... **£25·00**
AR40 Medium duty ... **£30·00**
AR33 de luxe AR40 ... **£36·75**
CD44 ... ... **£60·00**
Ham II heavy ... ... **£90·00**

Control Cable :—
5 core (AR30/40) *yd.* **18p** 8 core (CD44/Ham II *yd.* **27p**

A.E.C. S.W.R./F.S./Power Meters
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SWR10 (T.L.H.), 50/75Ω, SWR (±10%), 1·5 MHz up. ... **t.o.s.**

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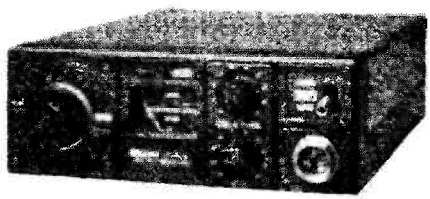
We are pleased to announce the opening of our new northern branch under the directorship of Richard McLachlan, G3OQT. He will be stocking the complete ICOM and NEC range of products including the popular IC22A 2 metre fm transceiver illustrated below with the NEW 1976 options (offered for a limited period at no extra cost).

Special Offer

For a limited period all 1976 IC22A transceivers supplied will be fitted completely free of charge with an automatic tone-burst and automatic time-out warning selected by a front panel control. When working through a repeater the normal access tone is transmitted and then 50 seconds later a further tone (not transmitted) is fed to the transceiver speaker to warn you that you are about to time out.



IC22A WITH NEW 1976 OPTIONS
£176·25 INC VAT
(fitted 10 channels)

Features

- ★ Automatic tone-burst on any channel at the flick of a new front-panel switch.
- ★ Every UK repeater channel fitted as standard.
- ★ 50 second time-out warning on repeater mode.

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SHORT WAVE MAGAZINE

(GB3SWM)

Vol. XXXIII JANUARY, 1976 No. 387

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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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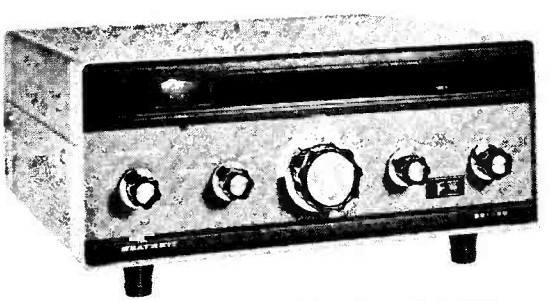

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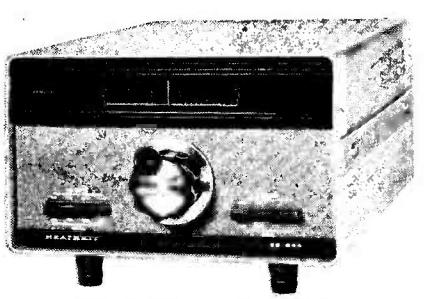

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FOR THE RADIO AMATEUR AND AMATEUR RADIO

The SHORT-WAVE Magazine

EDITORIAL

U.K. "CALL BOOK" — 1976

The new Edition of this annual publication is now available from us, for immediate despatch. It is, of course, a little thicker than the 1975 U.K. **Call Book** and this latest version takes us up to the QTH's of G4EFZ and G8KKG in the current run of U.K. licensing. There are a few more G5/3's (the reciprocal licence holders) and the A/TV listing (for amateur TV transmission) is up to G6TDG/T. The cost of the 1976 U.K. **Amateur Radio Call Book** giving the call signs, names and addresses of amateurs in the British Isles and Eire, is £1.47, inclusive post and packing, from: Publications Dept., Short Wave Magazine, Ltd., 29 High Street, Welwyn, Herts., AL6 9EE.

* * *

MOBILE RALLY SEASON — 1976

As in previous years, we shall soon be starting the Rally Calendar for the coming season and organisers should let us know as soon as possible what their dates are to be. So far, we have been notified of the following, all Sundays: **North Midlands,** April 25; **Northern, Keighley, Yorkshire,** May 31; **Hull District, Beverley, Yorkshire,** May 31; and **Elvaston Castle,** near Derby. June 31. At this stage, these should be regarded as "reserved dates" for events that are normally very well-attended and this prior notification is solely to avoid unnecessary clashing.

* * *

CALCULATORS FOR THE R.A.E.

Readers may remember that some time ago there was discussion in this space about the use of pocket calculators taken in for the Radio Amateur's Examination. They were then ruled out of order by the City & Guilds on the grounds of "fairness", it being felt at the time that few candidates could afford a calculator. Things are very different now, with perfectly adequate calculators generally available at remarkable low prices — just look over the advertising in the daily newspapers.

We are informed that the original ruling by the C. & G. has now been modified, to the extent that aids to calculation may be used in the R.A.E. unless the question directs otherwise.

* * *

SORTING OUT TRANSISTORS

We can now offer, in the publication called **Towers International Transistor Selector,** a listing of some 10,000 different transistors of British, American, European and Japanese origin, with full specification and available equivalents. For instance, to take a random example, we see that the BF120 is shown as an n-p-n silicon type in a TO-18 package, with all its working parameters given and that its application is for low-current audio work at high voltage (220v.), its Euro equivalent being the BF337, or 2N4927 of American manufacture; the lead connections and case outline are shown in separate appendices.

The price of this most comprehensive transistor directory — which, one would think — must be an absolutely essential reference for anyone having to do with transistors, is £3.45 post free, from: Publications Dept., Short Wave Magazine, Ltd., 29 High Street, Welwyn, Herts., AL6 9EE. Order as the **International Transistor Selector.**

To All Who May See this Page,
a Very Happy New Year, with Prosperity
and Good Health in 1976

WORLD-WIDE COMMUNICATION

COMMUNICATION and DX NEWS

E. P. Essery, G3KFE

LOOKING at the technical situation over the past year, two things are very obvious. The first is that, at long last, the day of the *useful* all-solid-state receiver is with us; it is now practical to produce such a box for the amateur bands which will surpass the front-end performance of the best valve receivers in terms of cross-mod. and IMD performance, and streets ahead of the best bipolar or FET front-end. Interestingly enough, one also notices that at long last the usefulness of an attenuator at the input of the station receiver is beginning to be accepted by the more open-minded owners of transistorised (conventional) receivers and transceivers. One line of attack here is the attempt to use PIN diodes in an attenuator intended for installation inside a commercial transceiver, to avoid the necessity for external switchery around the attenuator. The second development is the re-emergence of CW, and in particular the number of chaps who have let their transceivers run cold the while playing happily on one band or another with a very simple home-built QRP rig, and finding once again a sort of pleasure that many had declared to be dead. One supposes it is partly the fact that the CW brethren are generally, for some reason, a politer and better-operating breed than the general run of the phone stations on the air; but part of it is certainly also the fact of being back on the air with home-brew gear, at least on the transmitting side.

The Bands

Allowing for the low state of the sunspot cycle and the short winter days, the bands have been good at times. For the average evening operator on the HF bands there hasn't been much after about 1900 and when they are open, W4UMF's "low-normal" predictions have been distressingly true—if only W4UMF's accuracy could be instilled into *weather* forecasting, what a wonderful world it would be! The answer seems to have been for some to migrate LF, some to VHF, and some to a Good Book.

Looking Ahead

The Yasme Foundation is back in active business; a fact that probably doesn't mean much to the newer operators on any band, but which will surely quicken the pulses of some of the old-timers in the DX scene. To bring the New Chums up to date, *Yasme* was a boat built by a Bournemouth watchmaker, Danny Weil by name, back in 1954. When Danny reached the Virgin Islands, KV4AA met him and introduced him to Amateur Radio; he soon held the call VP2VB, and his round-the-world sail turned into a nine-year DX-pedition, with some 26 rare calls from many parts of the world under his belt. The Yasme Foundation was originally set up in 1960 to support, not only Danny's activities, but also to sponsor and/or aid other DX-peditions; one recalls WØMLY in Africa, putting seven rare calls on the air, and of course, from 1965 to 1968, Lloyd and Iris Colvin, W6KG and W6DOD, activated some 22 rare calls from all sorts of places. It is Lloyd and Iris who are doing another trip; they will start with Tuvalu, from Funafuti, on January 1, from the very moment of that country's inauguration, but during December you may have tripped over VR1Z, from the Gilbert and Ellice Islands, which is just to stretch the operating muscle a bit ready for the big efforts to come. Look for them on CW on 3505, 7005, 14050, 21050, or 28050 kHz, listening up 5 kHz, or just inside the U.S. General band; on SSB they will be on 3795, 7095, 14195, 21255 and 28550 kHz, again listening 5 kHz up from their "transmit" frequency, or just inside the general-class U.S. phone allocation. To give everyone a chance, Lloyd and Iris ask that people do not ask such questions as "What is your call?" or "Where are you going next?" or "When will you change modes?" or whatever—just listen for instructions and information which will be given frequently when known by the operators; and, of course the *West Coast DX Bulletin* will have the advance information which will be passed on in this piece whenever it is received soon enough—and doubtless Geoff Watts' invaluable *DX News Sheet* will carry the same information. Donations are asked for but not required; and all QSL's received will be answered.

As if the Yasme VR1Z and VR8B efforts were not enough to put life back into the DX scene, we hear that the old Maestro himself, Gus Browning, W4BPD, is getting ready for a final DX-pedition, timed for March 1976. Things are going to be livened up with a bang during the next few months!

In the VP2 area, we hear that W4GSM is intending operation from VP2E-land from late December until January 9; no more details are to hand at the time of writing.

If you are wanting YJ8, try looking for YJ8CS and YJ8YD, who have a sked on 14250 kHz every morning at 0700z with F6CKH.

Those who seek a YK contact will be interested to note that OE6DK/YK has been reported around 14245 kHz, working into Europe between 0900 and 1000z, and also about 1400z; not to mention around 1930-2000z on 3793 kHz working Europeans.

FR7ZL/G duly showed up from Glorieuses Is. seemingly using 21 MHz up to about 1400z, then switching to Twenty—working into Europe from around noon until band-change to 21300, then down to somewhere in the region of 14121 kHz till 1630z.

The Reports

By taking each correspondent's complete report, rather than dividing on a band-by-band basis, we will not only have a change of layout, but also be able to take in any latecomers without running the typewriter platen red-hot.

G2BJY (Walsall) wrote early on to ask if more gen. was wanted about his 80m. goings-on, but his good intent was utterly foiled by the letter taking eight days to arrive. Geoff has both CW and SSB working on the band—one seems to recall his CW PA is a push-push doubler arrangement, which is a bit unorthodox but has never received the popularity it deserves. The best DX worked was FG7AM, although Geoff says he can't find that exotic stuff the SSB chaps are reporting! On CW, there have been lots of Russians, both European and Asian, some W's, and no less than 223 assorted DA, DF, DJ, DK, DL and DM stations, some of the rarer Italian prefixes, and a prize gotaway in the form of VK3NR/MM off Brest, lost "under a swarm of bees!" Some of the European countries and the U.S. station worked during our last Top Band Ladder will be used towards the Jap low-band award.

G3CED/G3VFA (Broadstairs) next, and his comment at the top of his copy log is "I've never flogged so many dead horses on so many bands for so long!" Nonetheless, the three hundred milliwatts have now found their way to North America, Asia, Europe of course, also Africa; Asia to UA9JH who had a real hullaballoo on his frequency, and the ZE8JN who called for a repeat of the call and then came straight back with a 599(!) report. Several W's are noted, on 14 and 21 MHz, plus 9H1CH, 4L3MK and a gotaway in ZE1CU, when G3CED was hoicked out of the shack by an unsympathetic family. A really dead morning was noted on December 1, when 28, 21 and 14 were all without a signal, 7 MHz was almost as bad, and but three G's were to be heard on 3·5 MHz.

G3RJV (Calverton) is gradually settling in at the new QTH, but finds he is not getting out so well from here, even though he has moved from the town to the countryside; not only is there the high ridge to the South East but the ground also rises to the North. Getting out on *all* bands seems to be a bit of a problem; but a new country for QRP was raised in the form of TF3IM. Oddly enough, says George, his Joystick on Eighty seems to get out better than any other band or any other antenna so far tried. In conclusion, G3RJV asks us to mention the G-QRP Club again, and says the tally is now 176 members on the books.

G2HKU (Sheppey) has been largely building gear and keeping the existing stuff going despite the efforts of Murphy. SSB on 14 MHz came up with JR2KWI, ZL1VN, ZL3RS and ZL3SE; but on 7 MHz balance was achieved by operating all-CW with K2SQM/VE1, UF6FAG, UK9AAN and 4L3MK. Then there was Top Band, where the only SSB working was the regular QSO with PA0PN, while CW managed DJ3CC, DK8LD, DL0PG, GD4BEG, GI3JEX, GM3PFQ, OE5ANL, OE5ATG and PA0CC.

Next is a brief note from G4AYS (Moira) who has an initial entry for the New Top Band Ladder; but Albert reckons his ears are still flat from his last year's stint with the fleapower rig, so this time it is CW and AM at eight watts from an AT5—but the QRP rig is not by any means for the scrap-heap and will be used as needed. His claimed score of 56 points goes up to 60 by virtue of the countries raised.

Letters from SWL's are usually covered in their own feature, but Justin Cooper passed on one from P. L. King (Akrotiri) in which SWL King says that the ZC4AK gang are attempting to generate some Cyprus activity by operating from 1730 to 2030z on Eighty; the close-down time is fairly flexible if the demand warrants it.

Our next offering comes in from G3ORP (Maidstone), and refers entirely to out-of-U.K. contacts, all on Top Band. Peter found OE5ANL, OE3SGA and OE4SZW on November 16, KV4FZ the following evening at 0100z, and EA8CR at 2335 the night after that. On November 19, W4MEV, W4DO and W4BRB were all raised within 25 minutes, starting from 0023. The next session was a big one, on November 23, when the fun started with a gotaway in PY1RO at 0130, followed by K4CYU, W8LRL, K9MBS (whose first QSO with Europe it was), W4EX, W5PWW, K1PBW, W1HGT, K4RF, W3SJX, W1CER (of *QST* fame), and finally W1BB/1 at 0506—then sleep till noon. On the 29th another session started with W1BB at 0121, W1HGT, W3GPE, W2DEO and K1PBW, the closedown being at 0139—not a bad twenty minutes work on 160 metres!

The erstwhile G4CXM is now GW4CXM (Cwmbran), but for

Station of PY7APS, Gerson Rissin, P.O. Box 12178, Rio be Janiero 2000, Brazil, holds a Class-A licence and is paticularly active in the field of SS/TV.

the moment he is QRT pending a more permanent address where he will (hopefully) be able to get an aerial up. However, Ray gave the bands a working-over from Paignton before leaving home for the new job, reporting his QSO's as follows: 14 MHz SSB with CT3BL, DU6BG, EA8LS, FG7XT, HB4FF(!), HK1NR, HZ1TA, JY5MB, JY8XHK (who was G3XHK, just having received his permission to operate from JY1), KØWIU in S. Dakota, KG6JBE, KL7HQY, SU1MA, TF5TP, UA9's, VK2FZ, VK2LW, VK2XG, VK3UK, VK4AAT, VK5QX, VK6LV, VE7KC, VP2AB, VE1VE/SU, VR4DX twice, W7UBA, YBOPG, ZD7SD ZL1KN, ZL2ANB, 9L1BH, 9M2GL and 9M2RJ. CW was not heavily used—keying arm tired after 7 MHz, no doubt—but it did raise CE8AA, VK2AFG, VK3UX, and YV4AMG. The 7 MHz lot, as indicated, was a strictly CW bash, taking in CO5DM, CO5FS, CN8AD, HKØBKX, JW5NM, KL7AI, KV4CI, UL7JB, UH8HBI, UI8IF, UJ8JCE, UA9's, UAØSAU, VK3APN, VK3MR, VK3XB, all W call areas other than 5, 6, and 7, XJ1ATJ, YBØABV, ZL2AW and 9H1D. Finally, we must mention 21 MHz SSB, where A4XGD, UI8AAY, UK9AAN, an assortment of East Coast W's, YV5CEZ, 7Q7RM, 9G1LZ and 9J2BO were all netted.

Just the very briefest of notes from G4BOH (Bury) lets us know he is banging away at the new Ladder, and setting something of a start on the Countries column with a claim of eleven already!

A couple of the characteristic G2NJ (Peterborough) notes are next for mention, Nick having been doing his usual QRP thing on Eighty—the time for QRP working on this band seems to be around noon, when as many of the gang as can seem to get on; for G2NJ one of his outstanding contacts was with G5FF, Stroud, using one watt, and describing his aerial as a "bit of wire 18 feet long." On a different tack, he mentioned G5DX/P, operational through most of December from Northumberland, who is normally GI5DX. This does not seem to be the sort of weather to be out /P with a 62 Set in Northumberland.

Now a bit of history: The Torbay Club secretary writes to let us know he and the group operated a station in J-O-T-A for the 1st Highworth Village Scouts, in the lads' new Hq. building in Newton Abbot. While they made the usual U.K. contacts on Eighty, they also managed to connect with Scout groups in Kenya, Switzerland, Canada, South Africa, Nigeria (where they got a special greeting from the Commissioner of the Nigerian Scouts) and Sweden.

G3NOF (Yeovil) presents his usual appreciation of band conditions even though he is temporarily QRT due to TVI. The Post Office inspection exonerated his equipment but he has to do his month's penance until December 29 while the dealers sort out the TV sets—it seems the problem was, as so often, due to TV set deficiencies. It is annoying, nonetheless, that a blameless licensed amateur can be closed down on this score! and we can but sympathise. Turning to the bands, Don found nothing on Ten save the odd European and ZE around 11-1200z. On Fifteen, the band seems to have opened around 0900, and stayed open, after a fashion, until sunset, though skip has been quite short for much of the time. U.S. stations have been heard as early as 1200, though subject to heavy fading in the patchy conditions; Africans in small numbers have been found between 1100 and 1500. SSB contacts were made with A2CED, A2CJP, KH6HBZ/W5, VP2MIR, VQ9DE, TJ1BF, assorted W's including W6CCP and W7YR (Arizona), 3B8CV, 5N2ESH, 9J2WR and 9L1SL. Turning to 14 MHz, G3NOF comments on the fallaway in conditions from the short peak of a few weeks ago; in general 20 metres opens up to VK around 0830 on the long path, and continues till about an hour after sunset—though it is again on occasion displaying this "multiple closure" effect, whereby after shut-down it waits long enough to fool the innocent and then re-opens to South America. The morning VK opening is often but thirty minutes long; Africans have been heard around 1800 when the band is still open at that hour. The QSO tally takes in DU1EH, VE7LB, VE7MT, VP1JW, VK2APG, VK2BC, VK3JM, VK4UF, VK5BC, ZL1BD, ZL1KB, ZS1KZ, ZS1OK, ZS2PJ, 6Y5DE and 9J2LL.

An interesting letter from 9V1RS/GM3OOK (of the drill ship *Discoverer III*, out in those parts) discusses results from Singapore in working into Europe on CW during November on the 20-40m. bands. He has been running an FT-101 with a vertical Ae. and, in a string of what for him are DX calls, mentions OK's, Russians in the exotic call areas, also YZ, EA8FO, FR7AI/J (Juan de Nova), GC2LU, DU1GQ/MM and G4CBC/MM (of whom we would like to know more). He was to have been back in 9V1 by Dec. 18 for his "field break," with a delta-loop for 40m. and a *pukka* Windom (132ft. long) for Eighty. So you may have heard or worked 9V1RS on either band ere you see this. John is now on the DXCC Ladder, though proven QSL's were still only 60% at his time of writing.

In Singapore, the new local Telecomms. regulations demand a £5 fee even for a receiver covering the amateur bands! This is being contested by the local Amateur Radio group, as well it might be.

On this theme of amateur licensing, we have it that the Kenya authorities have upped the local amateur licence fee by *times* 12, putting an Amateur Radio licence more or less out of reach of the up-and-coming nationals—yet it is the *nationals* of these African countries who should be encouraged to find their way into Amateur Radio, so to learn about radio communication and electronics. (At the moment of writing, we do not know in detail what are the actual facts about Amateur Radio licensing for nationals of Third World countries. But from what we do know, it seems to be based on total ignorance of what Amateur Radio is all about.—*Editor.*)

Contests

Mustn't be forgotten, as a stimulus to a distinctly jaded band situation. One which should have received *massive* support was the ARRL

ten-metre effort over the weekend December 12-13. Even contesting by non-contesters is all grist to the mill—keep the commercials from putting in a take-over bid.

For the QRP clan there is the Contest organised by the Activity-Group-CW in DL. Any *five* bands between 1·8 and 28 MHz may be used, for up to 15 hours operation between 1500z on January 17 to 1500z January 18, the nine hours break to be taken in a maximum of two spells. Exchange RST, QSO number and input power number; QRO stations giving a contact send RST/QRO as the exchange; all add an X to the exchange if the rig is crystal or VXO controlled. Scoring is a bit complex, as follows: Own country one point, same continent two points, DX three points. Three points more if the contact is with another QRP station; plus handicaps as follows: Handicap is to be either CC, or below 3·5 watts, thus a total of four handicaps is possible in a QSO by both stations being fleapower and crystal-controlled. For one handicap in a QSO, double the points; for two handicaps treble the points, and for three handicaps, quadruple the QSO points. The multiplier is one for own continent, two for DX countries per band, in accordance with the latest DXCC list but with call-areas for JA, PY, VE, VK, W and ZS as extras. Normally-powered stations can enter, but only their QSO's with QRP chaps count; their QSO-points to be the same as for the QRP station they work. Entries to G8PG, *QTHR*, before February 15; Gus will forward all U.K. entries to the German organisers.

B.A.R.T.G. have one over the weekend March 27-29, 0200 to 0200z. Since this RTTY event is fairly well ahead and the rules are a bit complex, we suggest a line to Ted Double, G8CDW, 89 Linden Gardens, Enfield, Middx., for a copy of the rules in full. The same address is where logs are to be sent, to be received by May 31, 1976, to qualify as entries.

We have now to consult W1WY's invaluable fact sheet for some important events. The CQ WW 160 DX Contest is on January 23-25; 2200z on the 23 to 1600z on 25th. Rules are as last year. The activities Stateside, will be mainly around 1800-1825 kHz, with the European, in the "DX Window" of 1825-1830 kHz and W6, W7, KH6 stations just below 2000 kHz; Europeans and the West Coasters will be, in general, listening around 1800-1805 kHz, which implies, of course, split-frequency operation. Post logs before February 28 to "CQ 160 Contest," 14 Vanderventer Avenue, Port Washington, L.I., N.Y. 11050.

Then we have the ARRL DX Contest: Phone weekends *February* 7-8 and *March* 6-7, and the CW dates *February 21-22* and *March* 6-7. Rules as per last year; single operator stations can enter as All-Band, High-Band (10/15/20) or Low-Band (40/80/160). The multi-op. entries are all-band automatically. Exchange, for W/K's RS(T) plus state or province, the rest to give RS(T) plus a number to indicate power input. For non-W stations, the multiplier is one for each state, plus VE1-8 plus VO, a possible multiplier of 57 on each band; the same station can be worked on each band for QSO and multiplier credit. Mailing deadline is April 15, ARRL Communications Department, Newington, Conn., 06111. This is probably the world's most interesting and productive DX Contest. It is easy to participate.

Looking ahead still, we see the CQ WW WPX SSB Contest as down for March 27-28, and for May we have the Bermuda CW Contest.

Some results now. For the 1975 WAEDC CW, it is a pleasure to see G3FXB heading the European Top Ten, with G3MXJ in third place, the former also taking the Continental Leader trophy.

Turning to the Awards scene, if anyone applied to PY7ARM for the Fernado da Noronha parchment and has not as yet had a reply, please be patient, as PY7ARM has been flooded out and lost everything; he now awaits further supplies from the printer.

We mentioned the Low Band JA Certificate earlier as one that G2BJY was after; countries confirmed on Forty count one, on Eighty two, and on Top Band five points; QSO's to be on or after January 1 1969. For the basic award, you must score 100 points, and your list of countries must include *all six continents*. Send the list and seven IRC's to the Award Manager, JA2AAQ, *QTHR*.

Neville Jackson, G3IAD, 11 Winster Avenue, Ravenshead, Nottingham, is another keen amateur with a particular interest in SS/TV. At the latest count we have on file, he had exchanged pictures with 91 countries and 48 U.S. states. In one five-hour operating session he Worked All Continents (WAC) by picture, on slow-scan television. This is an activity usually confined to Twenty, for its DX potential.

We often hear, in this piece, about GM3YOR, Drew Givens, 41 Veronica Crescent, Kirkcaldy, Fife. He is very active in all modes and on all bands, and here he is with his mobile rig.

Change

Is ever with us, but the rate of it seems to have accelerated lately. Your conductor casts his mind back to his early gropings into Amateur Radio, after hearing about it in Service days. At that time, one's ambition went, if one flew high, to a new receiver instead of that old surplus BC-348 or whatever—and that new receiver, at least in U.K., was an Eddystone S.640, which cost about £27. Yesterday, a colleague mentioned he was looking for a general-coverage SWL receiver, a bit cheaper than the Eddystone EC-10, which he quoted as now being priced at £283, or as the plain Mk. II at £224·95! If you doubt your eyes, just look at the current advertising; and it's *not* a misprint! Divide that figure by six, and you come near to the price it originally sold at, as the EC-10 without any suffix.

Here and There

Earlier on we mentioned a possible VP2E expedition; it now seems that the call will be VP2EEA, to be operational from December 21. Little more is known about this one save that it will probably include some Top Band operation; and talking of Top Band, we hear that VR1AA is on 1805 kHz daily from 0600, that VS6DO has been heard on 1804 kHz around 2300, and JA3ONB on 1908 around 2100z. PAØHIP is trying for a JA contact from 2045 till 2130z, QSX 1909 to 1911 kHz; and VK2AHK is on 1805 kHz from 0930 till 1100.

QSL Addresses

G2HKU has: EP2OD, *via* K4OD; VP9HZ, *via* G8AXB. G3NOF mentions 9J2LL, to I2SB; 6Y5DE *via* G4DEM; VP2MIR to W7FCD and TJ1BF *via* K1ZES; VQ9DF cards to ON6FN; FK8BD to P.O. Box 857, Noumea; and VP1JW to P.O. Box 257, Belize City.

Some more, this culled from *DXNS*, to whom we give due acknowledgment (without Geoff Watts there wouldn't be much CDXN forward news!). So: KC4AAA, to D. Seeley, USARP South Pole Station, c/o FPO San Francisco, California 96692. The 3D6 QSL Bureau address is Douglas M. Goldman, 3D6BG, P.O. Box 21, Ezulwini, Swaziland. 3V8DQ and 3V8WO, both ask for QSL's *via* W4NJF; 4J2A and 4J3A, both to Box 88 Moscow; 9N1MM, QSL *via* W2KV. FY2AK is a bit of a problem—we understand that F2QQ, the QSL manager, asked for cards to be sent to his parent's address—but mail directed there has been returned. The F2QQ *home* address is 18 Rue Jean Jaures, F-92270 Bois Colombes, France, but it is suggested that you wait further developments on this one before sending a card. G3ILZ is no problem, though—P.O. Box 35, Andorra.

Late-Late Show

Having at last given up hope of seeing our *WCDXB* for this month, we sealed up the copy and headed for post; and who should we meet outside but Postie, bearing—*WCDXB*!

So, from this we notice that the CR9AK effort slated for December 7 duly opened up, and at the time of writing had banged up some 4000+ contacts, though the band conditions had not been as happy as they would have liked. Cards for this one go to: W6WX, Box 717, Oakland, California 94604. It should be noted that W6WX is a call belonging to the North California DX Foundation, and old *Call Book* addresses are N.G. Use the one given here.

SMØAGD has a copy of the Most-Wanted-Countries-List clutched in his hot hand, and was proposing to do something about it! By the time this reaches you, he will have been in TA-land (operating with his own call /TA), and then Iraq, YI) where he is making suitable noises to those who could hand out a ticket.

Look forward to the Spring now, April in fact; and you may well at that time be hunting for a Baja Nuevo and/or Serrana Bank expedition—we have it that K5QHS is firing on all cylinders, planning this, and to date things look to be good. More information later, but keep an ear to the ground.

BB2A is rumoured to be a *possible* from Peking—rumoured! But whether or no, if you find him, work first, ask afterwards, is the motto!

If you work or hear VQ9CP, don't let yourself get confused! He is on D'Arros, in the Amirantes group, a few miles from but not counting as Desroches, which is pronounced Day-Roash—see what we mean?

And a final thought; the smoothed sunspot number from WWV is showing "14" for December, falling very slowly now to "12" in June 1976; the hard thing to take is the point that in previous cycles, a drop to below "10" occurred before the upswing. Hope, prayer, and joss-sticks—that's what DX'ers need!

Closure

Is what we apply when the time or the space run out, and it signals the end of the Commentary for another month. And, since this is the time for good New Year Resolutions, why not resolve to send us some news of *your* doings in the field of Communication and DX—the more folk write in, the more complete and true to life our CDXN picture becomes—damp string merchants, QRP addicts, the guy with 400 countries on a dipole three feet high, and even the feller with one country worked, full power and beam notwithstanding—this last lad can at least remind us to connect a *receiver* into the system! Seriously, the more news the better, especially as it is so tight this time, at January 13 latest arrival, addressed as always to "CDXN," *SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ*. And a Very Happy New Year (HNY Phone or CW,) to all who follow this piece—from *G3KFE*.

IMPROVING SSB RECEPTION IN OLDER RECEIVERS

MODIFICATIONS FOR THE CR-100

D. A. S. DRYBROUGH (G8HEV)

MANY of the older valved receivers were not designed for SSB reception but only for AM and CW. For this latter mode, the Beat Frequency Oscillator was fed to the AM detector diode at a comparatively low level, roughly equal to that of the signal-bearing IF voltage. Because the signal was "On/Off" in character, amplitude distortion of the envelope in the CW detection process did not matter a great deal and it has been claimed that a distorted output tone, for the "On" or "Mark" periods, was more easily readable in noise and less tiring for long periods of listening than a pure tone.

When the attempt is made to receive an SSB signal using such an Rx in the CW mode, distortion of the resulting audio is very significant and some means of reducing detector distortion is generally necessary. The method usually advocated is to reduce the level of the input IF signal at the detector until it is only a small fraction of the BFO voltage at the same point. Under these conditions, quite reasonable fidelity can be obtained but at the sacrifice of good automatic gain control (AGC) and S-meter readings, together with the need to turn up the audio gain control much higher than normal to regain the usual output level. The sacrifice of AGC is usually inconvenient, if not distressing, especially if headphones are used, because the audio output changes as the tuned-in signal fluctuates or as the set is tuned over a band, and crashing peaks of output are difficult to avoid without missing weaker signals altogether.

The Product Detector

An alternative method, widely used in sets designed after SSB came into more general use, is to add a so-called "product detector" for SSB and CW reception, leaving the usual diode detector for AM signals only. This device is really a modulator or mixer—though the latter name has different connotations in the audio field where modulation is very definitely not welcomed—and the levels of the input signal and BFO voltages are set according to the requirements of the chosen valve or diode assembly and may be nearly those already provided for the CW mode using the AM detector. The snags here are the physical ones of fitting in the extra parts, the

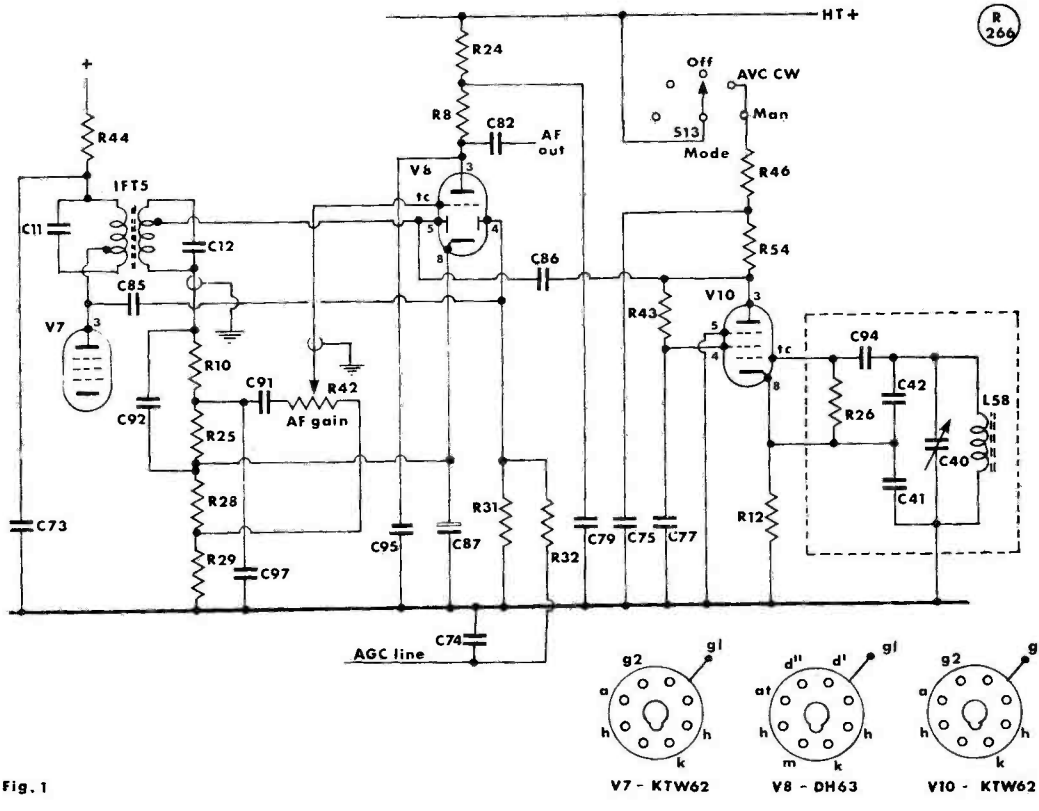


Fig. 1

Fig. 1. The circuitry round the detector stage in the CR-100. This can be modified for SSB reception as shown in Fig. 2.

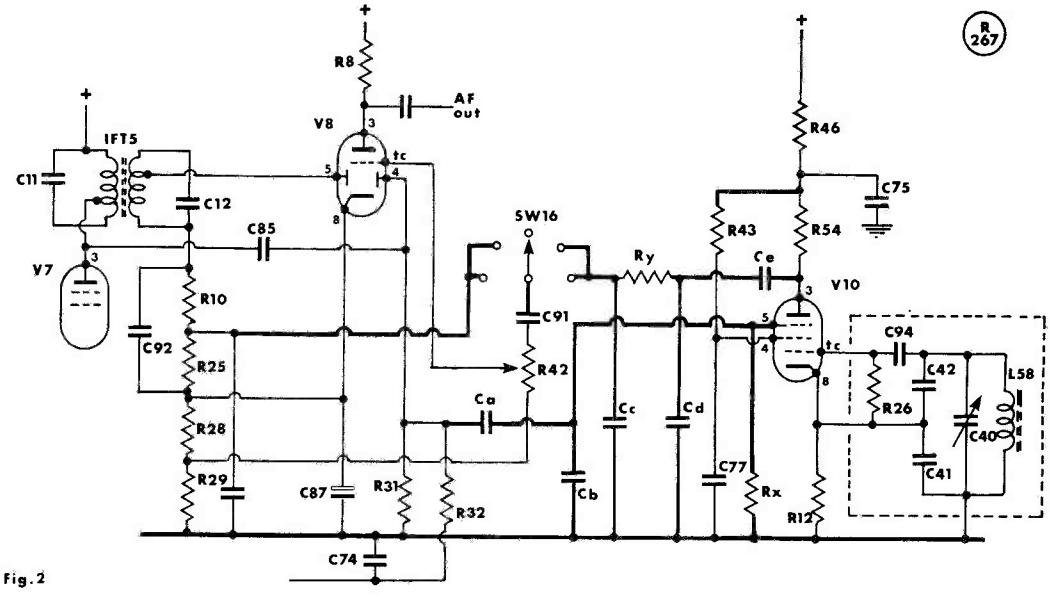


Fig. 2

provision of switching and re-consideration of AGC and signal metering circuits.

In some receivers the space problem is quite difficult, bearing in mind that the IF signal level is fairly high and so the likelihood of feedback troubles, if screening is poor or layout bad, is also high. This may well result in unwanted spurious responses ("birdies") at harmonics of the IF in the medium and low HF bands *e.g.*, at 2 × 455 kHz = 910 kHz. It would therefore be advantageous if the required modulating facility could be provided without extensive modifications to the set.

When considering this in the context of a CR-100 general coverage receiver, the thought occurred that it might be possible to use the beat frequency oscillator itself as a modulator. In the CR-100 this is specially attractive because the valve, a pentode, is in an electron-coupled circuit and only the cathode, grid 1 and grid 2 (screen grid) are used for the oscillator function. This leaves the anode reasonably clear for taking off the audio output and grid 3 (suppressor) for use as the signal grid in the modulator.

Fig. 2. The CR-100 detector section as modified (heavy line). New values are: Ca, 1 μμF; Cb, 15 μμF; Cc, Cd, 330 μμF; Ce, .05 μF; Rx, 470K; Ry, 220K. All other values are as for Fig. 1.

Table of Values

Fig. 1. Circuit of the CR-100 Detector

C11, C12,	= 350 μμF	C95, C97	= 500 μμF
C40	= 10 μμF, var.	R8	= 47,000 ohms
C41	= ·002 μF	R10	= 220,000 ohms
C42	= 470 μμF	R12, R29	= 10,000 ohms
C73, C74,		R24, R46	= 22,000 ohms
C75, C77,		R25, R26,	
C91	= 0·1 μF	R43, R54	= 100,000 ohms
C79	= 1 μF	R28	= 1,200 ohms
C82	= ·01 μF	R31	= 470,000 ohms
C85, C92,		R32	= 1 megohm
C94	= 100 μμF	R42	= 500K, var.
C86	= 30 μμF	R44	= 2,200 ohms
C87	= 25 μF	V7, V10	= KTW62
		V8	= DH63

NOTES: Circuit element numbering is as original (*see* manual). IF5 and L58 operate at 455 kHz. Modifications are shown in Fig. 2.

Modifications

The original circuit for the detector section of the CR-100 is given in Fig. 1. The modified circuit is as Fig. 2 with new or altered component valves identified. The IF input to V10 is taken from the primary of the last IFT (pin 4 of the double-diode triode, V8) through a small coupling capacitor and with a larger capacitor to earth to reduce the input level and avoid gross overload on all but very high-level signals at the aerial. The audio output is taken through a coupling capacitor and lowpass R/C filter from the anode of V10 to a new switch, SW16 and the audio gain control. Diode switching was tried here without much success and room was found for a micro-switch with changeover contacts, fitted on the front of the coil box and actuated by a cam fixed on the rear overhang of the "mode" switch. A sketch of the cam profile required to switch in the new detector for both CW positions, AVC and manual, is given in Fig. 3. The centre "off" position gives some latitude in shaping the contour which is not very critical in consequence. The audio output level from the new SSB demodulator is comparable with that from the AM detector and so the setting of the audio gain control is normal for both types of modulation.

The improvement in the demodulation of SSB signals resulting from the new detector circuit showed up another deficiency in the CR-100. The first oscillator is not stable enough to give pure tones in the CW/SSB positions but produced a hum and noise-modulated output when working at the higher frequencies, especially

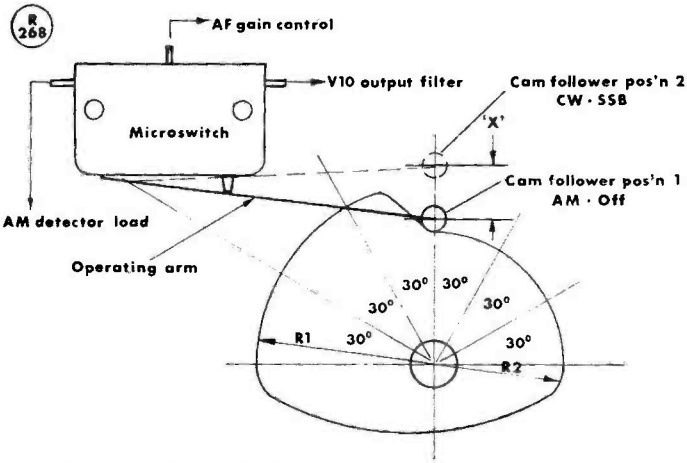


Fig. 3 Cam profile - shown in Off position

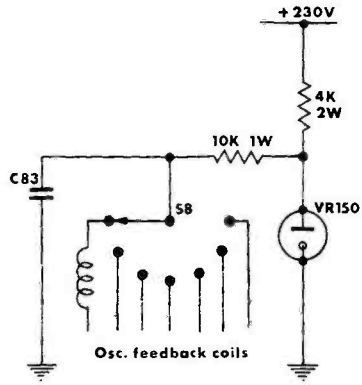


Fig. 4 Addition of HT stabiliser for first oscillator V4

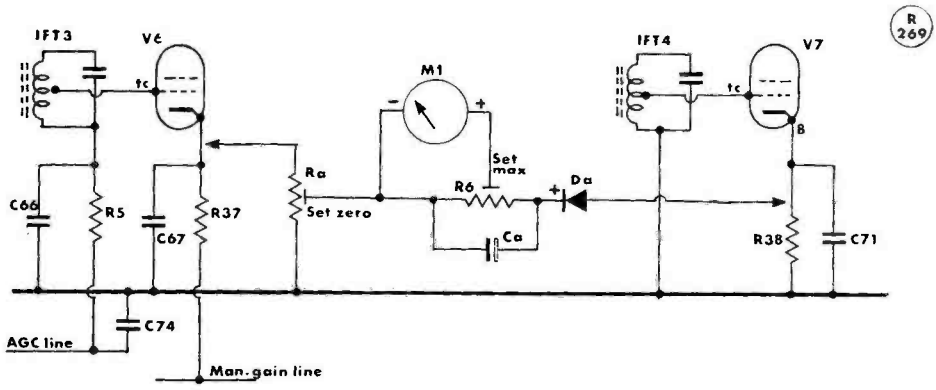


Fig. 5

Fig. 5. S-meter circuit for the CR-100. Values are : Ca, 125 μF ; R37, R38, 390 ohms ; Ra, 5K ; R 6, 10K ; Da, small-signal diode ; and meter, 0-1 mA.

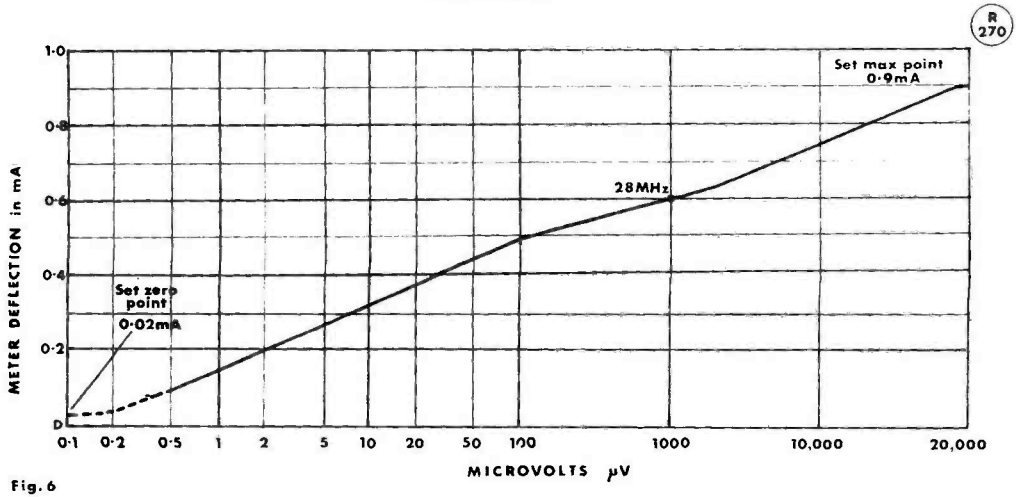


Fig. 6

Fig. 6. Typical S-meter calibration curve, with Rx at full gain.

above 11 MHz on Range 6. This was reduced by fitting a neon stabiliser (VR150) in the HT line to the oscillator, as shown in Fig. 4. Further improvement was not pursued because the tuning rate for the 14, 21 and 28 MHz amateur bands is not good in this set and SSB signals are not too easy to tune in. This could be helped by adding a varactor diode across the oscillator tuned circuit but the minimum capacity used there is very small and does not allow much capacitance to be added without upsetting tracking. A better alternative is to add a converter in front of the set for these bands, to translate them to a lower frequency (*e.g.* 4 to 6 MHz for the 28 to 30 MHz band) where the tuning rate is much more favourable.

Finally, a signal strength meter was added to the set, using the circuit given in Fig. 5. Two scale-setting potentiometers were provided to make best use of the full scale length of the meter and a reasonably sensitive device resulted. The series diode prevents reversed readings in the meter and the electrolytic capacitor smooths out fluctuations for SSB signals. A typical calibration curve is given in Fig. 6. This, of course, varies with changes in any of a large number of parameters in the receiver—but that is another story.

TRANSISTOR GRID DIPPER

USEFUL TEST INSTRUMENT FOR THE AMATEUR BANDS

THE circuit shown here is the basic grid-dip oscillator (GDO) arrangement simplified by the use of a transistor—this simplification producing the important advantage always associated with transistors; Power from a 9v. dry batter. This is of greater significance than it may seem, because the GDO is the sort of test instrument that needs to be handy and very portable. With a valve oscillator, as in the earlier type of GDO, the LT and HT had to be provided through trailing leads, since a transformer cannot be avoided (and transformers at mains voltage are too unhandy to be very portable, while trailing leads are always a nuisance).

By using plug-in coils for the inductance, a wide range of frequencies can be covered. Though not shown in the diagram, this coil could be elaborated by being given a link winding terminating in a small (1in. diameter) two- or three-turn loop on a flexible lead—in other words, an RF probe.

Construction can be in a 4in. by 3in. by 2in. box, with the meter fitted on the middle of the front panel and the plug-in coil mount at the top end of the box. The actual size of the box will be dictated by the dimensions of the tuning capacity C1, the meter that may be available (something scaled in microamps, is best) and the shape of the internal battery; this can be mounted on the base-plate for easy renewal, and its positive side should be connected to the mounting.

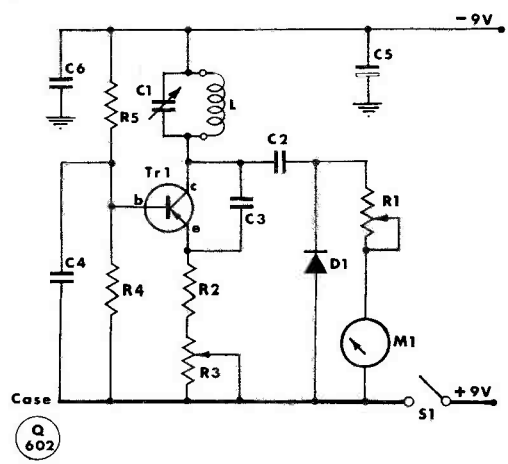
The resistor R3 is to control oscillation from band to band—in the usual manner of grid-dip oscillators, this will be a variable factor—and R1 is to keep the meter needle on scale when the band is changed.

Values are given in the table and as regards the coils, coils, following are some representative sizes when using a 60 $\mu\mu$F condenser at C1 : *80m.*, 30 μH, or 46 turns of 28g. enamelled close-wound on a $\frac{3}{4}$in. diameter former. *20m.*, 2·1 μH, 12 turns as for 80 metres but spaced over $\frac{3}{4}$in. Using Eddystone type 763 plug-in formers, *Top Band* would be found with 120 turns of 28g. close-wound over two inches. For *20m.* again, using this same type of former and wire as before, 8 turns over $1\frac{1}{2}$in. would be suitable. For the bands above 14 mc, a smaller capacity would be better for C1. For instance, with 20 $\mu\mu$F, 7 turns of 28g. enamelled wound over $1\frac{1}{2}$in. on an Eddystone 763 former would find the 28 mc band. These figures show that a certain amount of experiment and adjustment may be necessary to get the required coverage—this is easy enough by, in the first instance, checking the GDO working as an oscillator against the station receiver. If there is a reasonable calibration on the Rx, the GDO can itself be calibrated at least to that standard of accuracy, provided C1 is fitted with a suitable (small) graduated dial.

Table of Values

Transistorised Grid Dipper

C1 = 60 $\mu\mu$F, var. (*see text*)
C2 = 5 $\mu\mu$F
C3 = 10 $\mu\mu$F
C4, C5 = 50 $\mu\mu$F
C6 = 100 μF, elect.
R1 = 250,000 ohms, pot.
R2 = 200 ohms
R3 = 3,000 ohms, pot.
R4 = 4,000 ohms
R5 = 40,000 ohms
M = 0-50 or 0-100 microamp.
D = OA91
Tr1 = OC170, etc.
L = Plug-in (*see text*)



A transistorised GDO using plug-in coils at L, and described in the article. R3 is for oscillator adjustment from band to band, and R1 for setting the meter. A microamp. scaled instrument should be used.

RF BRIDGE UNIT

FOR AERIAL TESTING, RESONANCE CHECKING AND LINE MEASUREMENT

S. E. JANES (G2FWA)

WITH this device you will find how easy it is to check your aerial radiation resistance at a given frequency; to find the correct tap or link for matching your coax into a tuned circuit; or to determine the electrical length of a quarter- or half-wave line.

One leg of this bridge—circuit (A) in the diagram—is composed of a non-inductive variable resistor, or potentiometer, the dial of which can be calibrated in ohms (*see* later). When its setting is equal to this resistance, as "seen" at the output (at excitation frequency), the Bridge is in balance, and a meter connected across the Bridge will indicate a *null;* thus, the meter itself does not present any load. It must be remembered that this meter is merely an *indicating* device—readings are only relative and undoubtedly the meter indications must be non-linear. The unit should be built into a small metal box, chosen mainly to suit the size of the meter.

If you use a GDO for excitation it is preferable that the Bridge meter be of about the same f.s.d. as that in the GDO—though if the GDO is itself transistorised, it will probably not produce much deflection, even with a 50 μA movement. Better deflections can be obtained either with an 0-1 mA meter and the Tx on low power (or loose coupling), or a signal generator, or even the RF output direct from the VFO. However, a wide-range oscillator is preferable because if the point of resonance is not within a known band, you cannot check whether frequency is too high or too low. The 1K pot-meter should be mounted so as to reduce capacity-to-ground to a minimum.

Construction

With careful construction—such as mounting the diode at a right-angle to the 70-ohm resistor—to reduce capacity coupling components, this Bridge should work with reasonable accuracy up to about 100 MHz. Note that as frequency is increased, the *null* will become flatter. For the RF leads, heavy wiring should be used all through.

Calibration

For calibration and other uses a 2-turn link is plugged into the "In" socket, coupled to the drive source—GDO, VFO or Tx throttled righ back. Across the output, or "load" socket, are connected various known low values of composition resistors, up to 1,000 ohms or so. They should be wired in as close as possible to the socket.

Using a drive frequency somewhere in the range 10-20 MHz, the 1K pot. is adjusted for a *null* on the meter, the corresponding resistor value being marked on a card fitted behind the pointer knob. If you use a 70-ohm resistor in the Unit, then this value should appear at about mid-scale on the linear pot. knob (It is better to work on 70 ohms, rather than 50 ohms, which increases cramping at the upper end of the scale). There can be occasions when one may be working against a 300-ohm termination, so it is advisable to have the upper end of the scale spread out as much as possible.

Applications

The Bridge is now ready for use. Coupling to the RF drive source should be made sufficient to show almost full-scale meter deflection with "no-load".

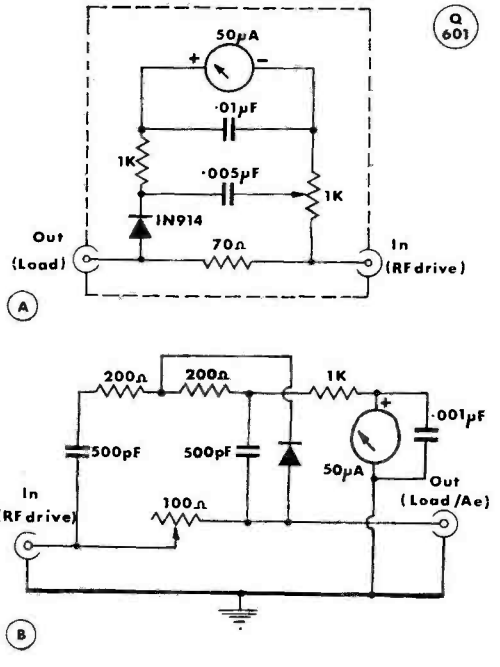
Then, with a load connected to the "out" end, the excitation frequency and the 1K resistor control are both varied until a *null* is obtained. Then, the frequency of the source of excitation is the resonant frequency of the load, and the impedance of the load is as shown on your calibrated resistor dial.

By use of the Bridge, you can find the *electrical* half- and quarter-wave lengths of feeder, coax or flat-twin, and so calculate the velocity factor, thus: A length of coax is connected to the output and its far end is shorted. The lowest frequency of resonance is then determined with the 1K scale indicator pre-set to the characteristic impedance of the line; with a shorted end this is one electrical half-wavelength.

The electrical length of a quarter-wave line, or an *odd* multiple of a quarter-wavelength, can be determined in the same way but in this case the far end of the line is left open.

Once you have mastered the fundamentals and thought about them in the light of what you can read in the manuals about aerial theory, other uses and applications will become evident.

Of course, this is *not*, as it described here, a laboratory instrument. Perfectionists could find fault, as they always will. But it is a piece of practical apparatus capable of providing answers sufficient for amateur needs.



Another Circuit

Drawn at (B) is an RF Bridge similar to that at (A) but having sufficient differences to make it interesting.

A 100-ohm carbon non-inductive (which means *not* wire-wound) potentiometer serves as the variable arm of the Bridge. The other arms consist of 200-ohm non-inductive carbon resistors, against the impedance of the load. If, let us say, the radiation resistance of the antenna is supposed to be 50 ohms, and the 100-ohm pot'meter is set at half-scale, the Bridge would be balanced and the diode voltmeter would read zero, near enough.

You do not have to calibrate by using comp. resistors up to 100 ohms—just divide the scale equally into 10-ohm sections. (But it may be more reassuring to do a calibration run with external resistors of known value).

This arrangement will cover only the 50-75 ohm feeder impedances. If you wish to go as high as 300 ohms, then use a 500-ohm carbon potentiometer—but this will cramp the scale for 50-75 ohm readings.

One point to be borne in mind with circuit (B) is that the two 200-ohm ½-watt resistors should be of equal value in that range, *i.e.* equal value is more important than exact value.

As a matter of interest, you can check up on your dipole *in situ* by finding a length of feeder an exact number of half-waves long. Your readings on the ground will then show what is happening in the centre of your dipole up aloft.

(Based on material by the author first appearing in the October '75 issue of the Cheltenham Group "Newsletter")

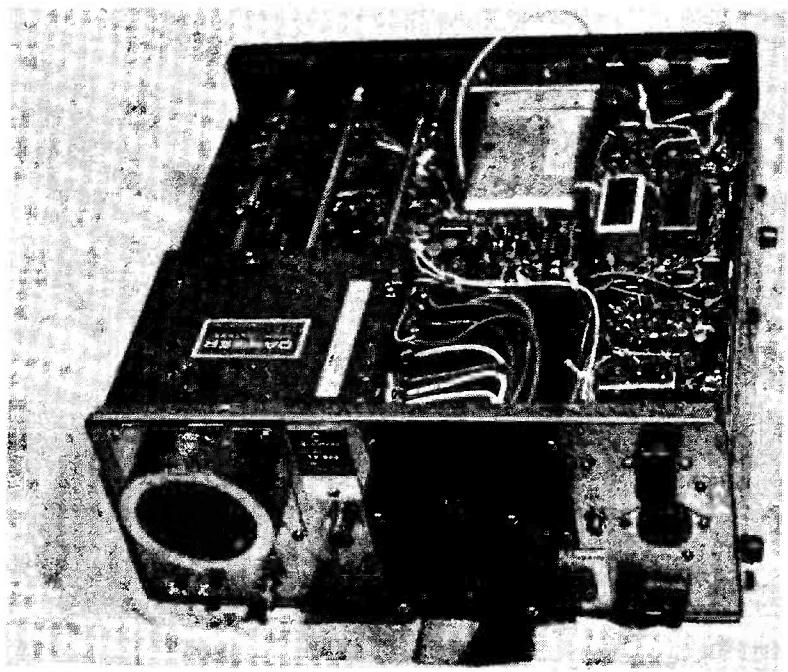
SOME NOTES ON THE TRIO TS-520

AMATEUR-BAND CW/SSB TRANSCEIVER

EARLIER Trio transceivers had a bad reputation in the U.K. for various minor failings, notably drift. The TS-520 report in *QST* for September 1974 indicated that drift was no longer a problem; and our own measurements confirm this. On the score of appearance, one was pleasantly surprised when the XYL commented favourably on its looks, two tones of browny-grey being set off by discreet use of satin chrome. No drift *and* XYL-approval—was this an omen? Let us look further.

The rig was ordered from Lowe Electronics, Matlock, to be delivered by Securicor, and to be fitted with the optional CW filter. The day they received the cheque, a letter in reply was sent by them, indicating that the TS-520 had gone to Securicor, and the following day the box arrived. Everything was in proper order, nothing short, nothing to complain about at all.

Now, any review of Trio equipment is going to be to some extent coloured by what one is used to—in this case, mainly valve gear, of the well-known commercial types. Initially one wondered how the receiver side would pan out, being all semiconductor, in comparison with all-valve receivers, and also as to the CW selectivity. There was no need to worry. Stability was



Top rear view, showing blower outlet and the protective casing of the 12v. DC inverter, also the large earthing terminal. The lead over the back end is for the internal speaker —this speaker mutes when an external speaker is plugged in.

very good—for all practical purposes one could say the rig had settled down inside one minute from switch-on; any further drift was not in practice noticeable at all. Mains variations of big enough amplitude and duration to make the standby receiver jump about moved the Trio not at all. All this, mark you, from a completely self-contained rig—speaker and PSU for mains andbattery are all built-in to quite a small package, although a matching outboard speaker is available if desired.

General Rx Points

Reception of CW using the built-in filter was a veritable joy after using a rig with only SSB filtering. The optimum audio-frequency output of the TS-520 was such that the MFJ filter could be used if so desired without any thought of having to offset receiver frequency by adjustment of the RIT, leaving this control to be used only for its basic purpose of coping with a call a little off frequency, or a drifter. On SSB reception one could feel the need for a somewhat larger speaker than the one built-in to mellow the tone a bit, but the rather "toppy" response of the small built-in speaker was quite acceptable after a bit of getting-used-to. Two facilities on the "receive" side should be noted: First, the provision of two-speed AGC with an AGC-off position should the need be felt, and secondly the noise-blanker facility which was *very* effective on ignition QRM but not so much on static. An RF gain control is provided but not an RF attenuator; this did not pose problems on any band with the amplitude of signals available on the aerials at this station.

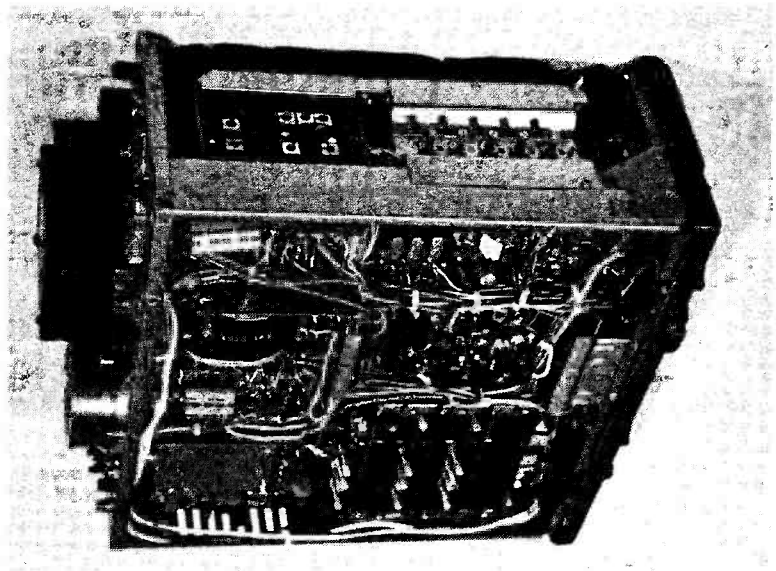
The Trio TS-520 gives five meter indications: S-meter on "receive," and on "transmit" a selection from ALC, anode current in the PA, RF output volts (purely to maximise the output, *not* to measure power) and PA anode volts.

The Tx Side

Which leads us into the transmitter portions of the box. The receiver, as already indicated is all solid-state, and the transmitter side likewise except that the driver and PA are valved (12BY7A into a pair of 6146A's) which immediately get rid of the awful problem of producing a civilised-sounding signal from a transistor output stage regardless of how clumsy one is in loading-up. The PA is fan-colled, sucking air in at the sides of the case and discharging out of the rear of the PA compartment; the fan is for all practical purposes noiseless. Everything apart from the PA is transistor, and most of it is on printed-circuit boards, module by module, each one of which is given a separate paragraph in the manual—incidentally, the Trio handbook is very good indeed, there being only one instance of what might be called "JA-English."

So far there has been no need to service the TS-520 but this writer would have no hesitation personally in tackling a fault should one develop—although it must be said that many people, quite idiotically scared of an SSB rig, would dive into a far more complex receiver with equanimity! The book is good enough so that commonsense and some basic test-gear should see one out of must problems. On the other hand, Bill Lowe is always there to send it back to should servicing be needed. The ALC action is quite effective, and there is a switch labelled "DX Pull On" which introduces a bit of "speech processing" by slightly altering the ALC arrangements: this seems to produce a definite improvement in the "punch" of the signal as heard at the other end, although the writer will admit to a preference for using the normal configuration and an outboard *Datong* Clipper. In either case, the blower-cooling of the PA means one is not worried too much about the PA valves when putting

Front view of the Trio TS-520 Transceiver. A carrying handle is provided at the right-hand side of the cabinet, with some extra feet on the left panel drop, so that it can be carried and set down just like a brief-case.



Under and left-side view. Note the five pre-set pot'meters, mentioned in the text, which are covered by a lid when the TS-520 is cased. A very sturdy mechanical construction is based round the front panel.

either the Datong unit or the inbuilt "DX-switch" into operation.

Operation on CW is a delight; lots of people have gone out of their way to comment on the nice quality of the outgoing signal, and in addition the fact that one can get very close to the full 150 watts input without any trace of ALC action being evident means that the PA is running in Class-AB1 on CW, thus reducing the TVI factor enormously—certainly no problems have arisen in the TVI area since the new rig has been on the bench, although on the other hand no attempt has been made to take filters out that were found to be needful when the KW-2000B is in use.

Test Results

Now, the test results. On the specimen here, all the specification figures were met within the limits set by the test-gear available, which is itself all within normal calibration accuracy. Thus, if the TS-520 is out of spec. anywhere, it is so near as to make no odds. The result of a long spell of operation is just that the warm air goes on coming out of the back, and the RF goes on coming out of the coax-socket; and the same can be said for the receiver.

Now to the don't-likes: Dual-concentric controls—but how else could the designers have got the number of functions on to such a small front panel? The four crystal-controlled channels are redundant as far as the writer is concerned, but again they could be very useful to a DX station using the gear. The method of adjusting the calibration by moving the escutcheon of the main tuning knob might be a nuisance to a mobile operator groping with a gloved hand; but once again, the /M op. shouldn't be tuning on the move! Perhaps a more important one as far as the home-station operator is concerned is the location of the three Vox controls, the pot for the RF volts meter indication, and the PA bias pot, under a cover at the *side* of the case, which means that, for the average chap the TS-520 has to be at the left-hand end of the row of gear if access to readjust the PA standing current or to change the Vox-delay on going to CW operation is not to involve pushing the linear off the end of the bench to get at the access-cover

And, of course, there is the lack of Top Band. On the other hand, with provision made for drive at low level to be picked off at the back, why not just knock up a simple transverter for Top Band out of the junk-box?

To summarise: The writer wouldn't have thought of a change of rig normally, but having done so, he has found that he can once again *enjoy* CW, which he never really did once he had gone from "separates" to "transceive" with the old set-up. He can take the rig straight out of the shack and into the car for a session away from the local static and electric-machinery noises in a modern estate; and the package is smaller than the old one, yet provides more in the way of operating convenience, quite apart from the fact of being operable from 117, 240 volts AC or 12 volts DC (negatively earthed) for Field Days. Above all, the TV's don't complain about it providing you are properly dealing with their front-end problems (which you have to do anyway if you are to operate Twenty, whatever the rig), and having got used to it, this reviewer is enjoying his operating more than ever, and to date hasn't even *thought* of modifications to improve the TS-520. The next windfall will be used to buy the mating VFO, the two-metre transverter and, if one appears to match it, a Top Band transverter.

• • • SWL • • •

SHORT WAVE LISTENER FEATURE

By Justin Cooper

ABOUT THE JOYSTICK AERIAL SYSTEM — SOME TECHNICAL POINTS DISCUSSED — THOUGHTS ABOUT TVI—NEWS, CHAT AND COMMENT—HOW THE LADDERS LOOK

ONE of the more controversial aerial systems is the well-known Joystick made by Partridge Electronics. Just recently, it fell out that a Joystick and its ATU came into the hands of the writer, who decided it would be no bad thing to see if it worked, and if so, to try and reason out just how the trick is done.

As to *whether* it works, suffice it to say that it does; what is more important is to realise *why* it works and, at least to some degree, *how* it works.

First, it must be pointed out that this design is basically a derivative of the Marconi, and it must therefore operate in conjunction with an earth, as distinct from the Hertzian dipole family which are, at least in the feeding, independent of earth. Feed to the receiver is by coaxial cable from the ATU, from which the single-wire aerial feed and the earth are also taken. Thus, a user in a block of flats, or an upper storey, will be very wise to lay out radials for at least the most-favoured bands running from the earth terminal; if nothing outside is possible, then a quarter-wave on, say, Twenty or Forty, might be arranged under the shack carpet—the rule is to make the radials as straight as may be, but not to hesitate in bending them around if necessary, and to terminate the radial(s), as well as the normal earth, on the earth point of the ATU.

Now to the Joystick aerial itself. Here you have first to realise that the object of the exercise is to get standing-waves on the aerial, and low SWR on the feeder to the receiver. The Joystick itself is not resonant on any amateur band, but it needs the ATU to bring the whole set-up to resonance, just as the random-length-wire expert tunes his ATU for maximum RF output or best incoming signal. With a short length of feeder, the ATU tuning will be very sharp indeed, becoming less so as the feeder wire is made longer and so contributes more to the total incoming signal; however, the bit at the top will be an effective pick-up element on its own, and in addition will make sure the feed-impedance will always be such as can as can be coped with easily by the ATU, sold as part of the system.

In all-round operation there is an optimum length for the single-wire feeder which will preserve this situation, but there need be no hesitation in shortening it, and indeed with the Joystick vertical, some advantage might be gained in shortening the feeder, by way of reduction in high-angle pick-up on Ten and Fifteen.

The last item in the system to be considered is the ATU. Many SWL's don't like the idea of an ATU in a plastic case—why not, for Heaven's sake? The ATU coil will be largely unaffected as to its Q and inductance by the presence of a plastic case, which certainly is *not* so if an ATU is small and has a metal outer casing. For the SWL, the improved Q of the ATU by use of a plastic case is far better, and of course it's *cheaper!*

As to the use of a Joystick with a transmitter, suffice it to say that J.C. is personally aware of at least two users of the system who have around the 120-plus countries confirmed, and in addition he has had the good fortune to hear G3VFA (the Joystick Club station) in QSO with a W on Twenty when they were using just a few hundred *milliwatts* at the Joystick end—and they were chatting away on CW for quite a while, which argues the W was receiving the G end quite solidly. However, it must be said that both ends of the QSO were obviously driven by really first class operators.

Summing up, what the Joystick does is deliberately to resonate outside of any amateur band. The ATU is then used to bring the combined aerial and feeder system to resonance in just the same way as the Top Band operator resonates his little bit of wire when he hasn't room for a full quarter-wave or half-wave. Resonating the system is done at the ATU every time one shifts frequency either within a band, or from one band to another. And the Joymatch is simply a design of ATU which will cope with whatever the Stick throws at it, and transform it to the resistive impedance the receiver desires.

Compare this with the operation of a mobile whip, where he who radiates a big signal carefully tunes-up his whip to be resonant in itself and dispenses with any ATU as such. These two techniques are really just the opposite ends of the range of tricks one can adopt to "show" the rig (Rx or Tx) the resistive input which it wants. The guy who says the Joystick "can't work" merely displays his ignorance of aerial basics, as does the chap who "prefers the thing to his beam"—both these chaps should ventilate their closed minds with a dose of good old-fashioned common sense! (Many years ago, it was always said by a great aerial expert in the commercial communications field that "you can make an old bedstead radiate if you know how to resonate it." *Editor*).

Prefix Points

M. J. Quintin (*Wotton-u-Edge*) remarks, apropos our comment last time about common prefixes cropping up in the lists from chaps with four-figure scores, that he himself would still, after seven years of SWL-ing, like to find a GI2, and even some prefixes in Great Britain. Incidentally, he offers EL2NY/MM and EL4DB/MM this time with good reasons for asking us to reverse our earlier objections. Yes, indeed, count 'em; and anyone else who lost a prefix that way can do the same.

Another case of seven-year-waiting occurred for *E. W. Robinson* (*Bury St. Edmunds*) when he finally logged 3D2AJ on the morning of October 21. An oddity heard by many folk was N8GMI, the first of the N-series from U.S.A., operating from the General Motors Institute Club station K8HPS, to whom the QSL's should be directed.

Another oddball was noted by *N. Phelps* (*Devizes*), who mentions a CW hearing of 9J11CL—a special-event call from 9J2-land.

H. Glass (*Plymouth*) noticed our point about how close his and N. Phelps's score are on the CW Table. He says he won't allow *anyone* to pass him, and he has bought a Drake R4A to that very end. One hopes that these two will give each other a run for the money, as it is about time to show just whan can be done, even today, by confining oneself to the CW ends of the bands—it might start someone else listening on the CW bands, who knows? Bert's odd prefix was 4L3MK, on the birthday of the first President of the U.S.S.R.

B. T. Mackness (*Dagenham*) was a bit cross that although last time we got his initials right in the text we didn't do so in the Table—the card index has now been amended! His collection of odd ones includes HU1DX, 5J4CKT and H31KC; the first from El Salvador, the second from Colombia, the third queried. In fact the first two are OK, and so is the third, it having been a multi-operator multi-transmitter effort from Panama during a contest.

R. Andrews (*Barry*) seems to cover all bands up to 144 MHz, and on the latter heard a PAØ through the GB3BC Mynydd Machen repeater. As to the "YZ1AJJ" heard on Forty, we have no news of him being a speeial-event station.

Quite a few people mention IV3VLS, but *M. Barton* (*Market Deeping*) felt that it, as well as "F7AN," could have been dud; could be, but this writer would be inclined to the view that the IV3 at least was quite genuine, he having been heard on SSB and SS/TV by various people. Mark doesn't like the impression of Eighty which is conveyed in CDXN by old G3KFE—but unless some of the others report, with their doings, what can he do?

Technicalities

I. J. Burness (*Inverbervie*) has a Trio JR-500S, and has drawn a curve of the selectivity, which shows about 1·5 kHz either side of centre at 6 dB, and at 60 dB down something of the order of 6 kHz either side. This, he feels is not really good enough; however, it shows a shape factor of about 4 : 1 which is not at all bad for a receiver in this price class. What I.J.B. needs to do is to replace these Toko filters (there are two in the JR-500S) by a Collins mechanical filter. It would be possible, but, frankly, one would not think the effort worth the bother in reall terms; and to add an MFJ SSB filter to the back of such a receiver would again hardly justify the expense.

R. Carter (*Blackburn*) borrowed a two-metre converter so he could have a look at a bit of new territory, and for an aerial he hung up an impromptu dipole at twenty feet. Ben concedes it picks up the locals out to forty miles, and even the odd item of DX—but it never seems to show any signs of life until 2130 or later! This may be fair comment in the Blackburn area, of course, as the habits of "the locals" vary from place to place. In areas within the service range of a repeater, there is always something doing, and of course there is often some activity on the FM channels locally—these are easy to slope-detect on an older receiver, but if you have one of the modern receivers with

an IF characteristic which is almost flat across the top and then nose-dives in a few hundred *cycles* to —60 dB then you have to make a separate FM detector to do any good. Then, of course, there is the DX on SSB and CW; sometimes the SSB is pretty awful, due to the traisistor-mad types who try to be modern, and don't realise the need for a spectrum-analyser if you are going to make a "linear" transistor stage—and not many people own, or have access to, a spectrum analyser. The Liner-2 merchants are particularly bad in this respect; most suppliers of these boxes set 'em up right, but the owners have to put sticky fingers inside and ruin the signal quality. Anyway, at least with a converter into a HF receiver, you can boot the converter out and go back to Twenty!

* * *

Now to some congratulations: *S. Lawrence* (*Market Harborough*) is now proudly G4EOF, and is clearly operating on HF as he says his best DX to date is ZS5—good show. Stephen has already tangled with the curse of the DX'er, namely TVI—in his case one of those communal TV systems with a gainy aerial and head amplifier covering all channels, feeding the signal through to an outlet in each flat in the block. The first implication is clear—the front-end of the amplifier is covering a spectrum from around 45 MHz straight through to the top of the UHF channel allocation and probably a lot more as well—and the second is that in order to sell such an amplifier to the architects, it has to be transistorised—no architect would think of buying *anything* old-fashioned! The third thing to remember is that the coaxial feeder joining the outlets to the amplifier will be of the lowest possible quality, for cheapness, and fitted with solderless connectors in the interests of labour economy and the use of unskilled installation hands. Add a low input from the TV transmitters in a fringe area, and you have a pretty kettle of fish.

Perhaps the best way of handling a situation such as this is to find out who are the installers and of the equipment makers (these are usually one and the same company). Get the Post Office people to come and clear you own rig of blame, and then write a firm letter to the managing director of the equipment makers and the installers, explaining the situation, and that the home rig has been cleared by the authorities, and ask them to tidy up their end—and, of course, a copy of each letter to the Post Office, and another for your own file. As to the cure—probably a high-pass filter (or two, if you are uncomfortably close) in the line from aerials to distribution amplifier, a ferrite-ring braid-breaker, and a purge of their solder-less connectors —all of which should be done by *them*, lest you are blamed for any future troubles!

R. Lyddon (*Barry*) was afraid of doing his receiver an injury if he built the PSU he had in mind for it—and in fact he would have done! Basically, relay and HT supplies, at least with valved circuits, aren't too fussy to a volt or so, but the valve heater line is most definitely one to be watched. It should come within 5% of nominal, *measured at the actual heater pins of the valve*, which may be a sight different from the voltage measured at the transformer secondary terminals, due to IR losses in the heater wiring. Allow for the tolerance on the average test meter on AC voltage ranges (usually about 3% at best) means that, at the pins, your 6·3 volts should lie between 6·2 and 6·4 volts, and pro-rata for any other heater voltages. With a series-connected heater string as used in aircraft equipment or some amateur radio gear, you have to watch out for two valves in series at 6 volts each, and the odd twelve-volt one to make up the set, which isn't any real problem; but on the true series string, such as you might meet in a TV set being used for A/TV reception, the *current* is important, and the correct value of series resistor does much to "tame" any surges.

Other Comments

Our first letter is an appeal for reinstatement from *A. W. Nielson* (*Glasgow*) who has not reported in since late summer 1974—poor conditions and lack of new prefixes had much to do with it, no doubt. Of course he is back on the Ladder; Arthur was, as far as your scribe can recall, the last of the original gang on the HPX Ladder from as long ago as 1960, when your conductor took over this piece, and he still remains so; so we could hardly "chop" him when he puts in a new entry! Anyway, anyone who gives up and makes a restart later is welcome, so long as they can indicate their score at the time they were dropped, or are prepared to send in a new list for checking.

S. M. Phillips (*Dukinfield*) used to write in years ago, and the bug has bitten once more; meanwhile, Stuart has married and gone through all the business of setting up home, working too hard, and so on, but he is back in SWL business with a good longwire which seems to be delivering the goods quite effectively.

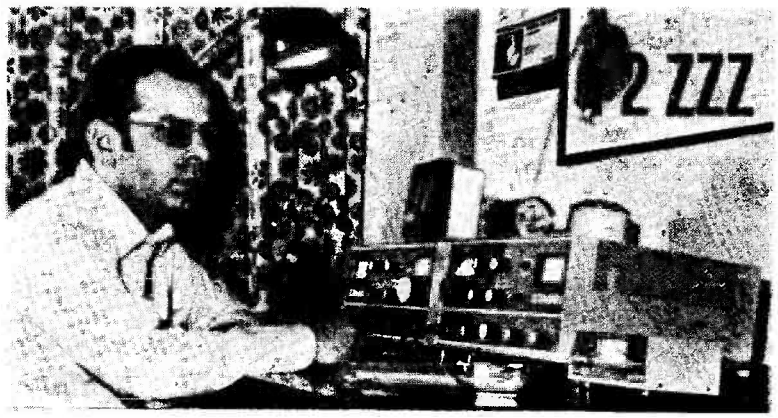
Yet another return to the fold is made by *T. Grimbleby* (*Hull*) who used to put a score in the CW Ladder some years ago, from R.A.F., Digby; Terry held 5B4CG for three years in the mid-60's, and has also been MP4MBC in Masira; now he is out of the Service. With the problems of demob., setting up a home, and all the rest of it, activity has been pretty low, but now the old R.1475 has been joined by an Eddystone S.640. Incidentally, if anyone has any dope on the S640, would they get in touch with Terry at 2 Haydock Garth, Bransholme, Hull.

K. Whiteley (*Castleford*) wants to know what the GB2BP operation counts as—just a GB2 or is he classified as /MM? Really, it depends on the small print on the licence, and one would think it was for a straight "special-event" call, so a GB2 is all it counts as. However, there is at least one amateur on dry land who was initially not granted a normal ticket because his residence was, the GPO claimed, a Class-3 ship!

Lack of listening time has hit *K. Kyezor* (*Irchester*), he having become mixed up with a group who are building a model railway; in a weak moment he volunteered to make 32 relays for them, first calculating and then winding the coils. It is a good thing to have more than one hobby, as there are always times when one's main interest palls for a while. J.C. has always hankered after clearing out the garage and setting to work on a quarter-size steam traction engine of the "Showman" variety, and, having completed it, to drive it to work and park it in the usual J.C. parking slot, just to see the reaction of the Police!

G. Ridgway is now safely in his new place at *Ardleigh, Essex*, with all the gear set up saving for the two-metre beam, and a first list of 258—we let in the CP but disallowed his other oddities—never mind!

E. Parker (*Hove*) has, besides his HPX list additions, a few gentle words of reproof for the operators of Clippers, Compressors, and Linears. As Ernie says, the result of their switching out all their gadgets is a marginal loss of signal strength and a great improvement in intelligibility! The Linear, of course, shouldn't degrade the output signal at all, just bringing you up by half or one S-point at the received end. As for the speech processors, no sort of speech processor not based on the RF clipping principle should be permitted, as they are



If you hear the well-known Italian station I2ZZZ, this is his set-up. The QSL address (for cards direct) is Agostini Faravilli, 5 Montebello 39, 27049 Stradella, Pavia, Italy.

indeed large-scale QRM generators in themselves and even more so when used incautiously. Even the RF clipper, which should not spread the transmission at all, has to be used with care, lest it overdrive the PA and generate splatter. Ernie's final-final amused J.C.—it dealt with the local OT who didn't know what value a capacitor marked "5K pF" was! On the other hand, that same OT was very firm that new licensees should be made to do a period of six months on CW before being let loose with a phone ticket, which *is* undoubtedly sound commonsense.

S. Foster (*Lincoln*) and your scribe had a few moments chat at the Leicester Show, and no doubt both came home a little lighter in the pocket! Even a howling harmonic has its advantages, says Stewart—his had not adjusted to GMT at the time of writing so that he was regularly awake and listening on the rig at 0600! On a different tack, the latest batch of cards from the Bureau brought him up to 297 countries verified out of 300 heard—must be some sort of a record.

J. Poole (*Coventry*) sent us some cuttings referring to his meeting at the Leicester Show with G4BPX, after years of listening to them on their local nets; John has been pretty well house-bound since shortly after retirement and the trip out was a big lift for him. On the receiving side, John runs a FR-50B and QR-666, the latter having recently displaced the previous 9R5-9DS. Let us hope the big lift is the first on the road to a complete restoration of health.

J. Bell (*Hampstead*) has noticed a coincidence between a spell of good conditions on the one hand and apologies for foreign interference on TV on the other, and wonders whether the coincidence is just that or there is a real relationship. A Good Question, indeed! Either of the alternatives could be true; sporadic-E could for instance be opening up both low-band TV channels and, say, the 21-28-70 MHz bands, and at the top of the sunspot peak the ionospheric MUF may well rise high enough to support television reception of Ch. I on almost a world-wide basis. On the other hand, sunspots generally have no effect on the VHF/UHF regions but weather most definitely does.

The list from *M. Bennett* (*Datchet*) has 194 new prefixes to add, of which about fifty are separated into a list of queries! Of these, out go the /A and the /G offerings; retained are the /M and /MM and /AM calls, the PA0IWA/S2, the VE/SU chaps, while the rest will have to be determined by Mike against his own log and the HPX Rules on p.524 of the November issue. Thus, we credit him with 169 new ones and leave him to re-claim those he finds to be still claimable after a re-check against the Rules.

P. Barker (*Sunderland*) continued with his SS/TV watching and in this mode managed to copy 9K2DO and 'IV3VLS on Twenty, plus W1BGW and LU2JC as pick of the crop; not that normal SWL operation was neglected, as Paul's list for HPX shows.

Now to *J. Fitzgerald* (*Gt. Missenden*) who went to the Show to but the two MFJ filters and ended up by getting the Waters & Stanton version. On a different tack, as a result of his recent activity, John has the odd situation of having heard HB9 and SM on Seventycems but *not* on Two metres! The Fitzgerald log for the period shows him as having been active on all bands from 1·8 MHz CW right up to 430 MHz.

R. H. McVey (*Weston-super-Mare*) and his father have added to their aerial farm an HQ-1 Minibeam, which seems to be doing quite nicely, gving a couple of S-points more signal on average than the dipole.

We had all but given up *H. M. Graham* (*Harefield*) for lost, but all is forgiven and Maurice is back in the fold, having meantime gained a few new countries and some new prefixes. Maurice seems to have found most of the ten-metre activity there has been going, and on 21 MHz also; VP5WW was an all-time new country and new prefix. On Twenty 3B9DA was also an all-time new country. Forty and Eighty were not used for much other than the hunt for new HAB areas to add to the collection.

J. H. Sparkes (*Trowbridge*) reckons to have found the bands particularly good during the Contest weekend of October 25/26—or was it really just the increased activity from the QRO crowd which pulled up the S-meter so much? Probably a bit of both, were the truth known.

The *Bingham family* in *Carrickfergus* have been a bit whittled down by circumstance, Dad having given up and Joe gone to Stranmiles College complete with the R.209, Hamgear preselector and Best Bent Wire; this leaves Billy at home to hold the fort, listen for the prefixes, and do the paperwork!

P. L. King (*R.A.F., Akrotiri*) has another lot of HPX to boost his total and has hopes of beating the 500 mark by the end of the year; he will shortly after be leaving Cyprus. On the Club front, we are advised that ZC4AK, the Club station, is on Eighty most Tuesday evenings from about 1730 to 2030z or so—closing time is flexible if there is a strong demand for a Cyprus contact.

It is nice to know one has provided the right answer; and it seems we did just that for *M. Law* (*Chesterfield*) and so he is now back in business with a working BFO . . . but that didn't help all that much as the aerial promptly fell down! Good old Murphy—ever predictable!

Another character who always contrives to disappear during the cricket season, but always turns up again in the autumn is *N. Henbrey* (*Northiam*). Norman's scene these days is primarily contests, on any band between 1·8 MHz and 432 MHz—he doesn't hunt for prefixes but carries on jotting them down as they appear, which keeps him moving along—26 this time to add to the previous 931 suggests that this method may in fact be the best way of bumping up an already high total!

ANNUAL HPX LADDER

(*Starting date January 1, 1975*)

SWL	PREFIXES
J. A pinall (Leed)	498
M. Barton (Market Deeping)	481
M. Law (Che terfield)	474
G. Clegg (Deeping St. Jame)	451
P. L. King (Akrotiri)	449
A. C. H. Darragh (Wetherby)	425
R. Staple (Lymm)	382
S. Lawrence (Market Harborough)	306
M. Kelly (Li burn)	268
G. Ridgeway (Ardleigh)	260
R. Rennard (Redditch)	252

Starting score 200, in accordance with the HPX Rules. All Prefixes in this list to have been heard in 1975. When a score of 500 is reached, transfer to the All-Time Table will follow. For HPX Rules, see November 1975, p. 524. New Table starts immediately, with effect from Jan. 1, 1976.

HPX LADDER

(*All-Time Post War*)

SWL	PREFIXES
PHONE ONLY	
W. Bingham (Carrickfergus)	1581
S. Foster (Lincoln)	1540
R. Shilvock (Kingswinford)	1483
K. Kyezor (Irchester)	1458
R. Carter (Blackburn)	1305
J. Fitzgerald (Gt. Missenden)	1302
M. J. Quintin (Wotton-u-Edge)	1231
P. C. Janes (East Looe)	1218
B. Hughes (Worcester)	1192
A. W. Nielson (Glasgow)	1156
K. A. Whiteley (Castleford)	1104
M. Cuckoo (Herne Bay)	1087
R. H. McVey (Weston-super-Mare)	1054
H. A. Londesborough (Swanland)	1048
J. H. Sparkes (Trowbridge)	1045
G. W. Raven (London, S.E.13)	1030
Mrs. J. B. Jane (East Looe)	975
N. Henbrey (Northiam)	957
E. W. Robinson (Bury St. Edmunds)	902
A. R. Holland (Malvern)	887
H. M. Graham (Harefield)	886
E. Parker (Hove)	848
P. Barker (Sunderland)	824
PHONE ONLY	
C. K. Verstage (Old Basing)	800
G. F. Gullis (Ogbourne St. George)	777
M. C. P. Bennett (Datchet)	760
L. Craven (Alvechurch)	737
J. Dougherty (Sunderland)	733
W. H. Smyth (Hartlepool)	724
M. Rodgers (Harwood)	693
A. C. Roberts (Shepshed)	683
M. Eccles (Lancaster)	682
J. Bell (Hampstead)	676
P. Rooney (Liverpool)	662
B. T. Mackness (Dagenham)	615
M. Rivers (Leyton)	560
R. C. Woolley (Ashbourne)	544
D. Taylor (Harborne)	542
L. Gibson (Barrow-in-Furness)	542
N. N. Graham (Newcastle-on-Tyne)	541
CW ONLY	
A. Glass (Plymouth)	1161
N. A. Phelps (Devizes)	952
H. A. Londesborough (Swanland)	822
G. Richards (Aberdeen)	524
A. F. Roberts (Kidderminster)	422
A. W. McNeill (Newbury)	353
T. Grimbleby (Hull)	207

Starting score 500 for Phone, 200 for CW. Listings include only recent claims.

The Tables

The final appearance of the 1975 Annual will be in the March 1976 "SWL," However, if you have by deadline day accumulated enough to make up the start of a 1976 entry, by all means send in your final 1975 and initial 1976 lists, *clearly* marked as to which is which (so *we* don't get in a tangle!) and send them in with your letters, to arrive on or before first post **January 23**, addressed as always, with comments and all, to "SWL," *SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ*. And a very happy New Year to all who follow this feature.

VHF BANDS

NORMAN FITCH, G3PFK

Operating Notes

WHEN Rock and Roll was all the rage, first time round, one Stan Freeburg produced an hilarious disc about making a hit record. This demonstrated how a skilful manager moulded a talentless moron into another Elvis. The performer was frequently interrupted so that the teacher could correct faults in the presentation. One such cardinal error was that they actually understood the words. "You've gotta mumble, Man," was the advice. Judging by the gabbled callsigns one hears, it seems that Mr. Freeburg has another generation of disciples. A new word has crept into our VHF vocabulary, "Jait," which, it transpires, is a diminutive of G8.

Presumably, most radio amateurs took out licences in order to communicate with other amateurs, so it should follow that we endeavour to make our messages clear. Our licences define when and how we identify ourselves, using recommended phonetics when necessary. The majority of U.K. amateurs use sensible phonetics, though a few persist with unusual and confusing words. HF band DX'ers may recall the classic phonetics used a couple of decades ago by HL1AB in Korea; "Here Lies One Aching Back," whilst ex-8th Army types from the Western Desert in the last War might remember saying, "A for 'orses; B-cef or mutton; C-forth Highlanders," and so on.

As the horse-racing tipsters would say, "reliable connexions" have suggested that the Home Office, through the Post Office, is somewhat concerned over the rule-bending relating to the use of callsigns, in particular the misuse of the -/A suffix. For example, if your scribe operated the Editor's station he would use the call G6FO and sign the log as the operator. He would be quite wrong to sign G3FPK/A. However, it is correct to use G3FPK/A if operating from a holiday apartment or from the home of a non-amateur friend or relative. There are no such calls as "G3FPK static mobile" and "G3FPK pedestrian mobile," only "G3FPK mobile." Our licences clearly define the uses of the -/A, -/M and -/P suffix, so anyone who is uncertain about this, or who may have forgotten, should re-read the relevant clauses. From a more practical point of view, it is common sense to state one's location during a CQ call when operating -/A, -/P or -/M particularly, so that others know in which direction to head the beam.

By the way, who is the "QRZ" so many people call! He never comes back to anyone. Expressions logged include, " . . . calling QRZ two, and by" and "QRZ the frequency". QRZ simply means, "Who is calling me?" The sensible use of "QRZ?" would be when you have not read the call of a station calling you.

Two-Metre Band Plan

Details of the "Warsaw Plan" for the two-metre band were published in the June 1975 issue of this column and there should have been sufficient time for us to assess its success. Its recommendations that beacons be moved to around 144·9 MHz has so far been ignored and we have no information at all as to whether it is intended to comply with that part of the Plan. Whilst the majority seem to favour beacons being parked around 144·15 MHz, G3DAH writes that this is the *last* frequency on which one wants 50 watts pumping out callsigns continuously. Mike mentions the problem of key clicks and breakthrough if one is under a very strong signal. Of course, these beacons must be absolutely first-class signals, in which case there ought to be little trouble. After all, your scribe and many others in the London area successfully cope with e.r.p's of *thousands* of kilowatts from amateur stations. Those that are really clean present little trouble.

A number of calling frequencies for certain modes were defined. The CW one at 144·05 MHz has not caught on as one hears CQ calls on many other frequencies. Random meteor scatter work does not appear to be on a chance basis, most all the random M/S operation being conducted on agreed frequencies elsewhere in the CW band. It is questionable whether it is necessary any longer to retain calling frequency for fixed stations operating on SSB. Perhaps 144·3 MHz should become a *mobile* calling frequency. Or it might be more sensible to call CQ between 144·29 and 144·31 MHz instead. As far as one can ascertain, nobody uses the SS/TV calling frequency of 144·5 MHz, most such calling being done on 144·28, although a signal on 144·23 MHz has been heard lately. The various repeater channels were not affected as far as the U.K. situation is concerned and the FM simplex channels seem to be working as intended.

May we enter a strong plea for more use of the SSB allocation between 144·3 and 144·5 MHz? So many operators still QSY a mere 10 or 20 kHz, up or down. There is no reason why everyone should pander to those who have restricted coverage equipment. From the time this issue is published, let us conduct QSO's on SSB in this section and to this end, G3PFK promises to call CQ on 144·4 MHz and hopes he will have some takers.

VHFCC Awards

Just one two-metre Award this month. No. 248 goes to Harold Goble, G8HDG, from Lancing in West Sussex. All but two of the QSO's were made using about 7 watts from either a Pye *Cambridge* or *Ranger*, FM and AM, into a 4-ele. loft mounted Yagi. The receiving side consists of a *Microwave Modules* converter into a CR-300 tuning 4-6 MHz. Harold's QTH is at sea level and he has now erected a 8-ele. Yagi on the roof. The counties score is 18 with 6 countries but it is hoped to improve that with SSB. To this end, G8HDG in a mere 10 days with a borrowed *Liner*-2, has worked more counties and countries than in three years on FM and AM! Seems to show how the wind blows!

Contests

Winner of the 70 MHz Fixed Station affair on October 26 was G3JYP (Appleby, Cumbria) with 484 points, runner up being G3NHE (North Anston, S. Yorks.) with 361 points, just three ahead of G3XCS (Saltash). Although 60·70 stations participated, only 35 entries were received.

G8CDW has sent the results of the 7th BARTG VHF RTTY Contest, run on September 13. First five places of the 21 entries were claimed by German participants, the winner being DC3OZ with 82 points from 12 contacts. Leading U.K. station was 6th placed, G8LT with 30 points from six QSO's. Four SM operators sent in entries whilst a further 29 stations took part. G8CDW asks if there is any VHF RTTY activity north of Northamptonshire as there were no entries from the North, at all? No reports received for the 432 MHz Open on November 16.

The Two-Metre Fixed Contest on December 7 encountered patchy conditions. Towards the end of the 8-hour stint, several stations were passing serial numbers over 200. It is pleasant to report that, from G3FPK, very few rotten signals were heard, which seems to prove the point that the anti-social signals often noted in contests where portable, multi-operator stations are allowed are probably due to unfamiliarity with the gear as much as to the equipment itself. During the contest, a large anti-cyclone was sitting to the south-west of the British Isles. Propagation to the north from London seemed poor with no GM's heard, best DX for G3FPK being G3BW in Cumbria on CW. Signals from the west and south-west were good although subject to more fading than usual. Several operators have

TWENTY-THREE CENTIMETRE ALL-TIME TABLE

Station	Counties	Countries	Total
G4BEL	38	10	48
G3NHE	24	5	29
G3JXN	25	4	29
G3DAH	23	4	27
G3JVL	21	4	25
G4BYV	17	8	25
G3OBD	20	3	23
G6NB	19	4	23
G3COJ	17	6	23
G3ARM	20	2	22
G4ALN	19	3	22
G5DF	13	1	14
G8FMK	12	1	13
G8AOD	11	2	13
GD2HDZ	5	4	9
G8FJG	7	1	8
G8ABH	7	1	8
G8AII	5	2	7
G8GNZ	4	2	6
G8EOP	2	1	3

mentioned that the band opened up for DX to very small areas for short periods. For example, G3JXN (London) and G3POI (Downe, Kent) worked DJ7CL in EI13j and from G3FPK, F1BYM in ZE25f and F1BUU in ZE28j were worked on SSB for the best DX of the contest at 31 points apiece. Nineteen QRA squares were managed from Riddlesdown and it will be interesting to learn next month how others fared. The 1976 contest season kicks off with the 70 MHz CW event on *January* 18, followed by the 432 MHz Open on *February* 8.

Exotic Modes

An E-M-E experiment was scheduled for November 23 from 0430-1530 UT, organised by the Stanford Research Institute in California. This was to be on 432·1 MHz using circular feed to a 150 foot dish. No reports on reception have been received and it is a pity that earlier publicity could not have been given. Nevertheless, we would welcome any reception reports of W6GD or WA6LET.

Meteor Scatter enthusiasts will be ready for the *Quadrantids* about the time this issue appears. This short shower is "pole circular"—that is, the radiant is close enough to the Pole star that it does not go below the horizon as the Earth rotates. (The radiant is the point in space from which the shower appears to originate.) It has the the highest echoes her hour of the recognised showers. G3POI continues his MS activity and has all but finished his programmable keyer. Clive has a number of interesting skeds lined up in the next few weeks and we hope to report the success or otherwise of these later. We would welcome news from others using this mode.

From recent contacts, it seems that Auroral propagation is a bit of a mystery to newcomers to the VHF bands. It is a very fascinating subject, difficult to deal with adequately in a few paragraphs. It is generally accepted that an aurora is caused when charged particles from the Sun enter the Earth's atmosphere following the lines of the Earth's magnetism. Some of the more intense particle bombardment produces spectacular, visible effects popularly called the Northern Lights. Although only rarely seen in the South of England, the *Aurora Borealis*, to give it the scientific name, is fairly frequently observed in Northern Scotland, becoming quite common as one travels towards the polar region. The effect of an aurora is to cause intense E-layer ionization, often sufficient to reflect radio waves.

Unlike radio signals reflected from the ionosphere in normal propagation or from Sporadic-E clouds, the auroral curtain is in a state of complex movement. Whilst, as a whole, it can be receding from, or approaching the observer, giving rise to a Doppler effect, individual parts of the aurora move to and fro. The most obvious consequence is that returned signals are extremely distorted. It is quite impossible to copy FM signals and very difficult to understand AM, but SSB is copiable although one gets the impression that the fellow at the other end has all but lost his voice—the whispering gallery effect. CW is the best mode for auroral communication even though the notes are quite dreadful, sounding very gargly. One does not give normal RST reports, rather 53A, indicating an auroral roar.

It is useful to be able to predict the possibility of an auroral opening and there are certain pointers to look for. First, a large sunspot or group of spots approaching the centre of the Sun's disc could eject particles towards the Earth. An indication of sunspot activity can be gauged by aiming your beam directly at the setting sun. If a pronounced hiss is heard, then be on the alert. Secondly, have a listen for flutter fading on 80m. band signals or unusual reception of medium-wave broadcast stations. Thirdly, listen for fade-outs on the HF bands since there is a possibility of an aurora within the next 24 hours. There Sudden Ionospheric Disturbances—*s.i.d's* for short—cause fade-outs on the sunlit side of the Earth and are usually short in duration and frequently occur about a day before a magnetic storm. They are the bane of the short-wave broadcasters.

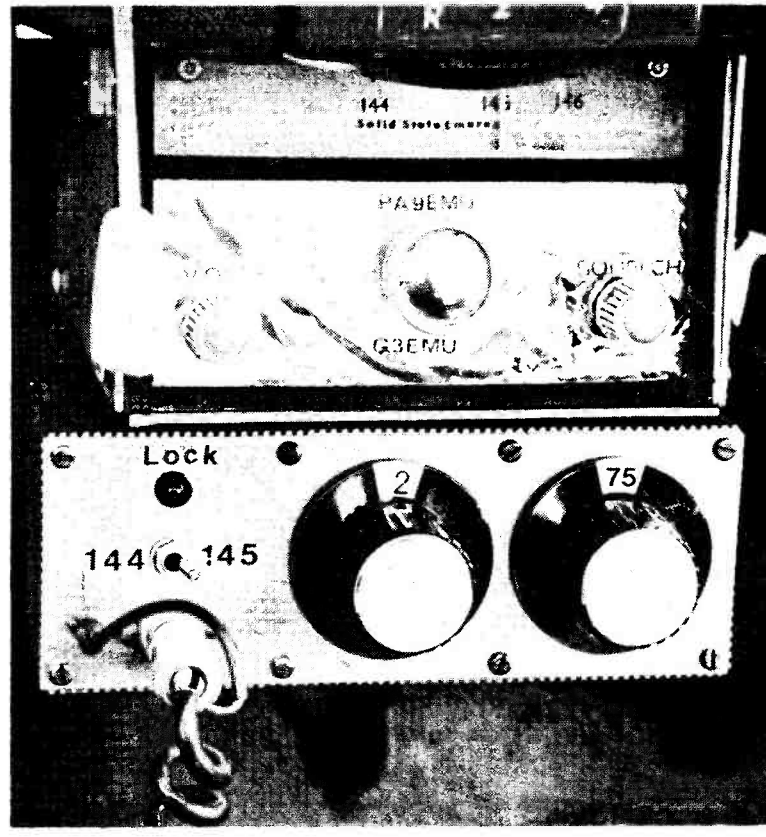
Irrespective of the true direction of a station from you, to communicate *via* auroral reflexion, the beam must be headed generally North. Preferably, the array should have a low radiation angle, *i.e.* mounted as high and as much in the clear as possible, but not be too narrow in horizontal

THREE BAND ANNUAL VHF TABLE

January to December 1975

Station	FOUR METRES Counties	FOUR METRES Countries	TWO METRES Counties	TWO METRES Countries	70 CENTIMETRES Counties	70 CENTIMETRES Countries	TOTAL Points
GD2HDZ	58	5	75	16	40	8	202
G3DAH	49	5	54	10	39	14	171
G4BWG	44	4	70	21	19	5	163
G2AXI	45	4	54	15	32	10	160
G3ZMD	34	3	64	16	32	9	158
GM4CXP	30	5	83	17	10	4	149
G4BYP	58	5	68	13	—	—	144
G3BW	—	—	76	13	45	8	142
G3BHW	—	—	64	19	35	13	131
GM8FFX	—	—	93	17	11	10	131
G3FIJ	47	4	50	12	6	3	122
G4AEZ	25	3	45	15	18	8	114
G5DF	51	6	—	—	36	11	105
G4CIK	19	2	65	15	—	—	101
G4CZP	—	—	84	15	—	—	99
G8BKR	—	—	69	15	12	2	98
GI8HXY	—	—	70	11	6	4	91
G8IAT	—	—	77	13	—	—	90
G3FPK	—	—	69	19	—	—	88
G8INL	—	—	67	14	2	3	86
G4AJE	—	—	50	13	17	5	85
G8IFT	—	—	52	8	16	4	80
GI3JLA	13	5	44	11	3	3	79
GD3YEO	—	—	65	14	—	—	79
G8ABH	—	—	40	11	21	5	77
G8EOP	—	—	40	12	20	4	76
G8GII/P	—	—	56	13	—	—	69
G8FMK	—	—	31	3	30	4	68
G8GLS	—	—	54	10	—	—	64
G8GHZ	—	—	50	9	3	1	63
GW8HVP	—	—	54	9	—	—	63
G8KSP	—	—	45	13	—	—	58
G8FWB	—	—	47	8	—	—	55
GM3JFG	—	—	38	15	—	—	53
G4DNJ	—	—	45	8	—	—	53
G8JKA	—	—	42	6	—	—	48
G3EKP	10	3	24	5	1	1	44
G4AIR	29	4	7	2	—	—	42
G8ITS	—	—	32	8	—	—	40
G4AGE	—	—	23	9	6	1	39
G8JAJ	—	—	29	6	—	—	35
GW8GLG	—	—	30	3	—	—	33
GW8FKB	—	—	—	—	18	6	24
G4BKY	—	—	8	2	—	—	10

This Table closed on December 31 for last year and Final Placings will appear in the February issue. Closing date for 1975 claims is January 9. The Table re-opened again with effect from January 1. Claims for the new 1976 Table should be sent in, as monthly totals accrue, to "VHF Bands," *SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ.*



G3EMU/M (from Canterbury) has a Volkswagen "Beetle" with the two-metre mobile gear built in, the Rx on the underside of the dash and the 80-channel Emusizer Tx behind the front bulkhead, with a 12-way cable for inter-connection. The rig is all-transistor, a pair of BLY84's producing 15 watts into a quarter-wave whip. As G3EMU says, a change from the ubiquitous black boxes.

beamwidth; something like an 8-over-8 or 10-over-10 would be ideal. It helps to have a reasonable power output as you will not make much impression with flea power. The time to start listening for an aurora is from about 1600z although earlier starts are noted as one gets further North. The first phase usually lasts 2 or 3 hours, whilst there is sometimes a second phase in the late evening and/or in the small hours. Whilst it is always exciting to work long distances, new counties and perhaps new countries *via* aurora, radio amateurs are in a unique position to help add to scientific knowledge of this intriguing phenomenon. Consequently, it helps to record at least the QRA locator of the station worked, your beam heading as exactly as possible, either magnetic or true and, if possible, the other chap's beam heading. Whilst the foregoing will be nothing new to our more experienced readers, it is hoped that newcomers to the VHF's will find these notes useful.

And so, on to band reports.

Three/Thirteen

G4BYV, in a letter which arrived too late for last month, reports that G8IGU (Norwich) hopes to have 3 cm. gear perking soon. John tells us he had a QSO with G8ADC on 13 cm. the morning of the Woburn rally in August and that he collected the QSL in person later that day. G8ADC uses a travelling-wave tube with 15 watts output to a 4ft. dish.

Twenty-Three

Still with G4BYV, he has added HB9 to the total bringing his country score to a very respectable eight on this band. A CW CQ call brought a reply from OZ9OR who told John that he only uses 23 cm. so calls CQ without prior setting up of contacts on other bands. Concerning the QRA squares table, G4BYV suggested that the 23 cm. part be made all-time so as to recognise early work of those who got their squares when activity was lower. This would somewhat complicate the affair so we will add the all-time squares worked to the existing table if those whose calls appear therein will send in their lists. G5DF (Reading) has added G3KAC in Avon and G3DAH in Kent to bring his 23 cm. score to 13 counties.

Seventy Centimetres

G3BW (Cumbria) continues his skeds with G3AUS in Devon at the earlier time of 2215 GMT. Half an hour later, Bill has his nightly QSO with GD2HDZ and G3KMS, "... until we all dry up...." He notes with pleasure that one or two new calls are appearing on the band and hopes to work the owners soon. G5DF added East Germany to his countries-total to make *11* for 1975 whilst G3PMH/P in Herts., G3IZD/P in West Sussex and G3XBY in Warwicks. brought the counties score to 36. John mentions the November 23 tests on 432·32 MHz by G2SU/A, from the Emley Moor TV tower. He copied the signal at 539 throughout the 90-minute test period, even though the antenna at Emley was "indoors" up the mast. G8BCL advises that this new beacon, GB3EM, will be on 432·91 MHz. Those seeking Co. Antrim will be pleased to read that GI8EWM already has a 46-ele. beam up the mast and will be on as soon as his transverter arrives. Steven would like to set up 432 MHz SSB skeds with stations in northwest England. Send s.a.e., *QTHR*.

Two Metres

An otherwise mediocre month for normal tropospheric operation, November was livened up by several aurorae, the first occurring on the 2nd. GM4CXP (Roxburghshire) mentions this mini-event lasting from 2320-2345z during which he worked LA3BG and half-worked SM5BSZ. Derrick is the sole chronicler of this one. The aurora which was happening as the December column was being written on November 9 was caught by many operators. Unfortunately, the early warning chain broke down somewhere in the Midlands as the folk were not at home to take the phone calls and QSP down the line. G3CHN (Bolberry Down, Devon) reports it as starting at 1555 and fizzling out at 1846z. An interesting DX contact was with G3PU in Weymouth, *via*

Returning home to Preston, Lancs., from the Leicester Exhibition, loaded down with the heavy stuff were, left to right, VHF men: G3YJM-G6AIO/T, G4DPK and G3HWC-G6ADL/T.

the curtain. G3POI did quite well working GI, GM, OZ and LA6VM (CSO8c), SM1BSA (JR22e), SM3BYA (IVO6j), and SP2AOZ (JO44) with UR2 a got-away.

G4BWG (London) didn't get into the act till 1730 but managed Antrim GI's 8EWM and 8K1A, plus GM's in Banff, Fife, Lanarks., Midlothian and Roxburgh. Steve reports the finish at 1855z. G4DWZ (London) managed GI8EWM (XO21j), GM8HEY (YQ73j) and G8DVD (YOO7j). GM3JFG (Ross-shire) was delighted to catch this aurora and the later ones so adding 11 countries and 16 counties to his 2m. total. GM4CXP timed this particular event from 1605-1916z and Derrick worked DL, DM, G, GM, GW, HB9, ON, SM and SP. GM8AKB (Penicuik, Lothians) heard a few continentals early on but found it soon became a U.K. only affair with many G, GM and GW signals. GI8EWM (Antrim) had a call from GM8DMZ to alert him about this aurora. In addition to 37 G, six GM and four GW, Steven bagged GC8AAZ, F1BHL, PA0LSC and four ON between 1537 and 1850z. GI8EWM uses a TS-510, homebrew transverter, 4CX250B combo to a 10-ele. Yagi.

The next event was on the 17th. G4BWG heard the first signals at 1650z and worked GM3JFG and GM3PIB (Moray) until the fade-out around 1830. GM4CXB missed the start but was on from 1647-1840z during which DL, G, GM, LA, PA and SM were hooked but Derrick says OHONC was the prize got-away. GM8AKB also heard this aurora but reports low activity with only two G's copied and an apparent one-way effect from G to GM. The fifth such event was on the 22nd and the only one in which G3FPK participated, thanks to a phone call from G4BWG. There was colossal noise from the sun as it set that afternoon. The solar storm started on the 14th, was severe from the 19th-22nd and died away on the 23rd. It brought a new county and QRA square thanks to GM3JFG (XR40c) on CW, whilst SSB yielded GM4DSZ/A in Kincardine. G4BWG reports this one starting around 1605z and fading out around 1830. Steve worked GM8JXZ in Roxburgh and GM8EIR in Perth but missed GI3JLA and GM8HXQ. The *Call Book* QTH of the latter is Outer Hebrides but a few days later he gave a QRA locator in YP11. G3SCP (Luton) is sure he heard TF3HP on CW and listened intently to satisfy himself it was not an F station. Gregg wonders if anyone else heard this rarity? For GM4CXP, this aurora lasted from 1555-1830z with a weak, second phase at 2125-2220z. DL, LA, ON, OZ and SM were worked as well as U.K. stations.

The sixth, and final, November aurora was a mini affair on the 29th, only mentioned by GM4CXP from 1708-1740z when a couple of DL's were worked. PA, DM and G3WSN (Essex) were heard, however. The 22nd event caused very severe disruption to HF broadcast services. (Our friends at the BBC did wonder for a while whether it was worth the trouble of transmitting the World Service). Even point-to-point SSB services, which had been completely reliable for 10 years, were knocked out for a time.

G4DGU (Oxon.) reports having worked a station on CW on the SSB calling channel signing ZB2DC at 2240z on December 4th with reports out/in of 539/529. Chris will believe it when he sees the QSL especially as he could not beam up in any definite direction. Ann Buckby, G8KMB (Derby), has worked 41 QRA squares since mid-August and reckons that the "YL Voice" is worth quite a few watts during pile-ups! Could be! Her country score is 11, much to the chagrin of husband Richard, G3VGW, with a mere four. Ann reports a startling increase in 2m. activity in the Derby area since the Leicester show.

Oscar

Persistent use of too much power on the uplink to *Oscar VII* is said to be damaging its batteries irrevocably: so QRP, fellows! G5DF is now using an 8-turn helix on a simple equatorial mounting outside the shack door, with "armstrong" rotation. This is proving very effective on high, overhead passes.

Miscellany

GD2HDZ successfully challenges GD3YEO's claim for a GD/LX first, mentioned last month. Arthur has a QSL from LX1DT for a QSO on October 13th, 1972. However, he concedes Richard's claim to the SP—by one hour.

Is G8KRY our youngest, licensed reader? Timothy, whose father is G3ZFQ, is 14 years old. PA0DAK, VHF Manager of Soviroza, advises of new Dutch prefixes. Class-C licences, equivalent to our G8/3, will be PE0. A new beginners' licence, PD0, has been created. PI4RYN is their "information station" and transmits news on Sundays at 1100 and 2200z on 144·555, 145·000 and 433·15 MHz FM from CM73j. Reports welcomed, to P.O. Box 11, Den Haag, NL-2076.

Space has run out so several items will be held over till next month. Please note the tight deadline due to this issue being late because of the Christmas holiday. Send in your final claims for the Three Band Annual and your QRA squares worked from 1-1-75 on 23 cm., 70 cm. and 2m. which will be run along with the new, 1976 "TBA." A Happy, VHF/UHF New Year to all readers.

Deadline

January 9th is the date to ring in your new diaries. Everything to "VHF Bands," *SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ. 73 de G3FPK.*

THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for March issue: February 6)

THE MCC Event, over the week-end November 15-16, went off well, some 45 Clubs participating (according to our reckoning). Logs have been received from most of them and the results in detail will appear in the next issue. Conditions were not too good, there being much QSB on distant signals. Activity was certainly not as high as it has been for MCC—there appear to be a number of reasons for this, including the fact that there was another Top Band contest the previous week-end, which seemed to have sapped the spirit of some of the usual MCC contenders! Anyway, the full story next month.

As we come to the start of another piece (crikey! how many will this one make us up to?) it is perhaps proper that we look at the changes in the Club Scene which have taken place over the past few years. Of course, Clubs come and go, as officials are either keen and competent or are replaced by other chaps who are lax about getting things done—this is inevitable, and it is a lucky group who have not had their ups and downs over a ten-year period. Many more groups have acquired commercial gear for a permanent shack, and this seems most successful when they set aside definite sessions for operation of the Club station; but many more by far are suffering the effects of inflation and either closing down, or amalgamating with bigger groups, or hunting for cheaper accommodation as local authorities push up the fees for a room. Many such Clubs are against a room in a local pub, for fear of upsetting parents of the younger members, but those who have taken the plunge in this direction don't seem to have suffered unduly, and there seem to be very few who are reduced to getting together in each other's homes for want of a Hq. It seems that, despite all the gloomy prophesies, Amateur Radio Clubs are *not* all doomed!

The Mail

Here, perhaps our first job should be to remind the Club Secretary, or scribe who sends in the information, please to indicate, not only all the detail about meeting-place, dates, Secretary's QTH and phone number, but—mildly important, this!—*the name of the group*. Yes, someone always does forget to mention this and, as usual, this means more time used up punting around the card-index until we hit on the Club to whom the details given apply. As this script is always written against the clock so to make your deadline as late as possible, this sort of snag can be quite an embarrassment, the more so when the Editor is hollering at us to get the copy in early in anticipation of a hang-up further along the production cycle.

Western Reaches

The monthly sessions at **Torbay** continue to attract good attendances, and a recent session on RTTY was much enjoyed; for January 31 they have a booking of the film on the Post Office Tower, while February 28 should be of great interest: M. Aldridge on Underwater Photography.

Cornish continue the good work; they had sixty-six present at the recent AGM! For January 1, G3RMG has been roped in, to talk about "Intelligent Use of the Junk Box," while on February 5, the topic will be that of the alignment of a short-wave receiver, G3VWK being the demonstrator. These meetings are, as usual, at the SWEB clubroom, Pool, Camborne.

Now we turn to **Yeovil**, who have tape lectures well featured, at their venue of the Youth Centre, 31 The Park. January 8 is the first tape, entitled "Amateur Radio as my Window," followed by G3MYM discussing "Operator J. Again." February 5 sees another tape session, this time entitled "Anthology of Radio Signals," by G2MI; and on 12th G3MYM is back at work, discussing the series-parallel impedance transformation.

Up North

Scots from the Kingdom of Fife recently enjoyed a get-together a the Luaral Bank Hotel, Markinch, over 80 people attending from all over the area and as far afield as Edinburgh, Lanark, Stirling, Perth and Dundee. Apart from a good old natter session, GM3OLK was there with his Microwave equipment, and there was a demonstration of Slow-Scan TV, using a monitor and feeding it with some tape recordings—and, of course there was the raffle out of which most of the groups attending managed a prize. Doubtless *Glenrothes* had something to do with this event, although, modestly, the report makes no mention.

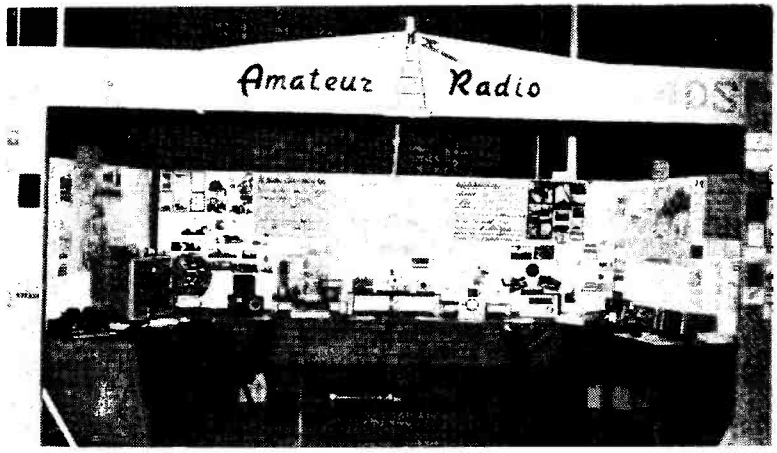
Wednesday evenings in Leeds is the time for the **White Rose** crowd to head for 83 Town Street, Armley. This month's letter indicates the big event of the year, the AGM, which is down for January 28 at 8.30; nominations are to be handed to G3VTY before the meeting is formally opened.

Sheffield Clubs are all associated into a combine, so as to give the opportunity for bigger and better meetings; the combine have booked G3GVV to talk about the International Amateur Radio Union on January 5, at Room 3106, Sheffield Polytechnic. The University and Polytechnic combined group start the term on January 8, while **Worksop** get together every week at Room 1, North Notts. College of Further Education—there is a murmur that they may change their evening, so we suggest you contact the secretary before visiting them.

Every week the **York** crowd assemble in the British Legion Club, 61 Micklegate, York, now on *Fridays*, but missing out the third Friday of each month. A little party will entertain everyone on January 2, but the sterner work of the AGM follows on January 9.

It is Wednesdays at the Peat Pitts Inn, Ogden, Halifax, for the **Northern Heights** crowd and, in addition, in January there is the Annual Dinner at the Sandal Restaurant, Thornton, which is slated for the 28th.

Clevand is a pretty empty part of the world, but there is still Amateur Radio there, with the Club of this name having its base at the R.A.F. Association Hq., Newcomen Terrace, Redcar, on alternate Tuesdays, where they have a station set up for Top Band and two metres. As for the question of a welcome, G3XAG says they don't



The Spalding & District A.R.S. played a part in their local Leisure Exhibition, putting on a comprehensive stand to illustrate the various facets of Amateur Radio, HF to VHF, commercial and home built. Among the exhibits were a model aerial tower centred on a world map, with QSL's from the appropriate areas.

just welcome visitors or new members, but they *want* them.

Midlands

Our pile begins with a nice letter from **Bury & Rossendale** wishing all other Clubs the very best of luck in 1976—a wish that goes for your scribe also. They have a Tuesday booking every week at the Mosses Community Centre, Cecil Street, Bury; the second Tuesday in each month is the formal, while the others are devoted to such activities as R.A.E. and Morse. As the AGM has just been held, we have no details of the 1976 goings on, but a contact with the hon. secretary—*see* Panel—should reveal all.

A great long list comes in from **South Manchester**, to cover two sessions each week throughout January and February, so we will have to abbreviate things a bit. Mondays at the Club shack, Greeba, Shady Lane, Manchester 23, is a date for all the VHF and D/F addicts in the Club, while Friday evenings are the main dates, at Sale Moor Community Centre, Norris Road, Sale. For January, we see: 2nd, a New Year D/F Contest; 9th, a Mystery Lecture; 16th, a talk by G3WFT on Electronic Fire Detection; 23rd, G8DVR on RTTY, and finally on the 30th G3LEQ on the subject of Repeaters. Looking on to February we see, provisionally on the 6th, a trip to Piccadilly Radio studios; G4AOK on Model Aircraft on the 13th; on the 20th a Night on the Air, and on February 27 a Surplus Equipment Sale.

A new handwriting appears under the **Solihull** letterhead, to inform us that they will be "open for business" on January 20 at the Manor House in High Street, the "business" being first some films of amateur interest, followed by a talk on Foreign Railways.

They seem to be wondering whether we still get the **Cheltenham** Newsletter, 'cos one month their "gen" did not appear. No problem, chaps, but you must have had one go astray, or managed to miss a deadline; and this time we find it somewhat difficult to pick up the data we need. The group venue is the Royal Crescent Hotel, Clarence Street, Cheltenham, and it looks like the booking is for the first Thursday evening in every month. We have no detail on the January session, but on February 5, it will be the AGM.

The top floor at 119 Green Lane is the **Derby** Hq., where they can be found every Wednesday evening from 7.30. Looking at theJanuary doings we see on the 7th a Surplus Sale, and on the 14th "The Year in Retrospect." A film show is down for the 21st, and on the 28th there is a Ladies Night entitled "Rocks, Fossils, and Minerals of Derbyshire." That takes up into February, where on the 4th comes another Surplus Sale; the 11th Technical Topics, and the 18th a film show again. To round off, February 23 is set aside for a discussion on Contests and NFD.

Not far away is **Nunsfield House**, in Boulton Lane, Alvaston, Derby, where they get together on Friday evenings in Room 7. Unfortunately from our point of view the programme for January and February was still in the making at the time of the report—but G4CTZ will doubtless have all the details by the time we reach print, so you can contact him at the address in the Panel.

Wirral seem to be in the mood for change; The AGM generated some of it, but the layout of the newsletter seems to be a case of the editor celebrating (or bewailing?) his re-election to the post for the sixth year on the run. A very important topic crops up on January 7, namely "Fire Precautions in the Sheak," a talk on which subject will be given by G3PZH. For those who associate Repeaters with spring onions, G3LEQ will be visiting on January 21 to offer a "corrective" talk.

Nottingham's proper title is Sherwood Community Association Amateur Radio Section, which in fact defines the Hq. address as well—the community association has its being in Woodthorpe House, Mansfield Road. It looks like every week, starting on New Year's Day with an Activity Nightk followed on the 8th by a Forum. On the 15th. G4AFJ and G8FWH get together to show you how to read between the lines of a specification (should be interesting!); and on the 22nd there is another Activity Night. Finally, we have January 29, for a tape-and-slide lecture on the History of Radio. For February no details are given, but the plan will no doubt be largely the same, and still weekly on Thursdays.

Names and addresses of Club Secretaries reporting in this issue:

ACTON, BRENTFORD & CHISWICK: W. G. Dyer, G3GEH, 188 Gunnersbury Avenue, Acton, London, W3 8LB.
A.R.M.S.: N. A. S. Fitch, G3FPK, 40 Eskdale Gardens, Purley, Surrey, CR2 1EZ.
B.A.R.T.G.: J. P. G. Jones, GW3IGG, 40 Lower Quay Road, Hook, Haverfordwest, Dyfed, SA62 4LR.
BISHOPS STORTFORD: C. Harlow, G8BTK, Thorn Cottage, Old Mead Lane, Henham, Elsenham, Bishops Stortford, Herts.
BRACKNELL: A. Haylett, G4AZP, Ascot Heath Golf Club, Winkfield Road, Ascot, Berks.
BURY & ROSSENDALE: M. Howarth, G4ECM, 11 Worthington Avenue, Heywood (*65911*). Lancs.
CHELTENHAM: G. D. Lively, G3KII, 26 Priors Road, Cheltenham (*34785*). Glos.
CHILTERN: F. S. G. Rose, G2DRT, 84 Cock Lane, High Wycombe, Bucks. (*Penn 4240.*)
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CRAY VALLEY: M. Tripp, G3YWO, 57 Cathcart Drive, Orpington (*38199*). Kent.
CRYSTAL PALACE: G. M. C. Stone, G3FZL, 11 Liphook Crescent, London. SE23 3BN. (*01-699 6940.*)
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GLENROTHES: A. Givens, GM3YOR: 41 Veronica Crescent, Kirkcaldy, Fife. KY1 2LH.
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HORNDEAN: S. Jenkins, G4CHO, 31 Briar Close, Horndean, Hants.
HUNTINGDON: R. Oakley, 32 Windmill Close, Ellington, Huntingdon (*890 737*), Cambs., PE18 0AJ.
LINCOLN: B. K. Middleton, G4DBS, 11 Chiltern Road, Brant Road, Lincoln (*0522-28968*), LN5 8SB.
MAIDENHEAD: E. C. Palmer, G3FVC, 37 Headington Road, Maidenhead (*20107*), Berks., SL6 5LA.
NORTHERN HEIGHTS: A. Robinson, G3MDW, Candy Cabin, Ogden, Halifax (*44329*), West Yorks.
NOTTINGHAM: M. C. Shaw, G4EKW, 50 White Road, Nottingham. NG5 1JR.
ROYAL NAVY: FCRS M. Matthews, G3JFF, Royal Navy ARS, *H.M.S. Mercury*, Leydene, Petersfield. Hants.
SHEFFIELD (Association of Clubs): B. Flounders, 24 Birley Spa Lane, Sheffield. S. Yorks.
SILVERTHORN: C. J. Hoare, G4AJA, 41 Lynton Road, South Chingford, London E4 9EA. (*01-529 2282.*)
SOLIHULL: S. R. Jones, G4AXW, 112 Highwood Avenue, Solihull.
SOUTH BIRMINGHAM: N. Gutteridge, G8BHE, 68 Max Road, Quinton, Birmingham, B32 1LB. (*021-422 9787.*)
SOUTHGATE: B. Oughton, G4AEZ, 48 Morley Hill, Enfield, Middlesex. (*01-366 7166.*)
SOUTH MANCHESTER: C. Scholefield, G8GDM, 57 St. Werburgh's Road, Chorlton-cum-Hardy, Manchester, M21 1UN.
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STEVENAGE: A. S. Grisley, G4DNJ, 45 Ramsdell, Stevenage, Herts.
SURREY: S. A. Morley, G3FWR, 22 Old Farleigh Road, Selsdon, South Croydon, Surrey, CR2 8PB. (*01-657 3258.*)
SUTTON & CHEAM: A. Keech, G4BOX, 26 St. Albans Road, Cheam, Sutton, Surrey.
TORBAY: M. Yates, G3UIQ, Top Flat, 23 Waverley Road, Newton Abbot (*3025*), Devon.
VERULAM: H. Young, G3YHY, 93 Leaford Crescent, Watford (*25633*), Herts, WD2 5JQ.
WHITE ROSE: K. R. Robson, G3VTY, Flat 7, 34 Saint James Drive, Horsforth, Leeds.
WIRRAL: H. I. Crofts, G3DLF, 3 Barmouth Road, Wallasey, Merseyside. (*051-638 2515.*)
WOLVERHAMPTON: D. T. Pugh, G8BSR, 38 Applebrook, Shifnal, Salop.
WORKSOP: D. L. Rush, G4CRE, 87 Rydal Drive, Worksop, Notts.
YORK: K. R. Cass, G3WVO, 4 Heworth Village, York, North Yorkshire.
YEOVIL: D. L. McLean, G3NOF, 9 Cedar Grove, Yovile, Somerset.

During September and October, Thames Valley A.R.T.S. held lively quiz sessions with the Sutton & Cheam and Echelford societies. These were most successful events and here we see members of the three teams, the rubber having been won by the Echelford group, standing at the left.

We have just a brief note from **Wolverhampton** to let us know a new Secretary has taken over. However, from the letterhead we see that the group are based on Neachells Cottage, Stockwell End, Tettenhall. No doubt a line there, or to the address in the Panel—will bring all the other information.

For **South Birmingham** the dates to book are: January 7, for the judging of the home-brewer's contest (Amateur Radio gear, not brown ale!), plus some short talks by the members, and February 4, for which the programme is not yet finalised. Both will be at Hampstead House, Fairfax Road, West Health, Birmingham.

The same person who is acting as Secretary at South Birmingham is in charge of the programme for **Midland**—G8BHE must like punishment! For *Midland*, January 20 is the date for G3OOQ to give a talk on the Electron Microscope, and February 17 for a talk on the Birmingham Repeater. Both these are at the Midland Institute, Margaret Street, Birmingham.

Some reorganisation is going on at **Lincoln** which prevents them giving a firm programme. However, they are still meeting at the Lincoln Astronomical Society's lecture room, Westcliffe Street, off Burton Road. There is a club net on Two—look out for G4DBS or G4DFH between 145 and 146 MHz, either AM, SSB, or FM; or go down to Eighty and look for G3TOA on 3·7 MHz. The VHF effort is on Thursday evenings at 2000, and the 80m. on Sunday mornings at 1100.

For **Spalding**, the AGM will be on January 9, at the "Ship Albion," Albion Street, commencing at 7.30 p.m. For February the meeting will be on the 6th, but probably at a new venue because of the increased cost of hiring a room; members will be advised of the new arrangements, as soon as possible.

A New Formation

A couple of chaps living in the **Huntingdon** area would like to form a new Club for the district round about; it is their understanding that there was enough interest years ago for a club, so why not again? Indeed, it seems to be the case that there is already enough support for a new start; but anyone in the area who has not already been made aware of the idea is asked to contact G8GRT at the address in the Panel, or to phone him, or to ring G8AQP on *Huntingdon* 56981. If all goes well, the inaugural meeting will be in mid-January. One hopes that our next news will be that the Club is a going concern with an Hq. address firmly booked. Good Luck.

South and East

Our first call is to **Bracknell** where they meet on Monday evenings at Coopers Hill Community Centre, over the bridge from the railway station. The first and third Mondays are "main" ones with some form of organised activity, while the alternate ones are informal for Morse practice and nattering. New members or visitors are welcome.

At **Bishops Stortford** the third Monday in January, the 19th, is the date for the AGM. This being the case, nothing is set up for February 16 at the time of writing. This Club meets in the committee room at the British Legion, Wind Hill, Bishops Stortford.

A new Secretary takes over at **Farnborough**—*see* Panel for his address. By now, the programme for the coming year has probably been settled, so a call to G8KUY will bring you up to date on the venue, the date, and the doings.

The committee at **Cray Valley** are definitely a thoughtful lot—they have reversed the order of things so that January 1 is the Natter Nite, leaving January 15 for the main meeting, thus allowing for any cases of holiday indigestion on New Year's Day. On a different tack, one was rather amused by the instructions given for gaining access to the back parlour of the Park Tavern—"knock twice and ask for Joe!" Sounds more like a smuggler's do than a radio club! Reverting to the matter in hand, the venue for all meetings is the United Reformed Church Hall, 1 Court Road, Eltham.

On to **Echelford** now, and their Hq. at St. Martin's Court, Kingston Crescent, Ashford, Middx; they are there on the second Monday and the *last* Thursday of each month. January 12 is down as a Special General Meeting for discussion of a proposal to raise subscriptions, and on the 29th, there will be a talk and demonstration of modern amateur equipment by SMC.

For **Harrow** there will be no lack of activity in January. The 2nd is to be a Practical evening, as indeed also on the 23rd. A bring-and-buy and a junk sale are combined on January 9, and on the 16th there is the AGM. That leaves the 30th for a technical queries evening, followed by discussion of the Club project. Looking on to February, the Practical evenings are on the 6th and 20th; on the 13th there is to be a talk on Oscar, and the subject for the 27th is to be arranged. However, the Secretary forgot to mention the venue, for which you will need to get in touch with him at the address in the Panel.

The meeting on January 1 which would normally begin the **Maidenhead** year is scrubbed, but on January 20 there will be a talk on Aircraft Navigational Aids, by D. Foster of British Airways. For February we would expect the same routine of first Thursday and third Tuesday will be kept to; and all will be at the British Red Cross Hall, The Crescent, Maidenhead.

There was a small error in the last mention for the **Chiltern** crowd, followed from the same mistake in their newsletter—we hope nobody has been lost to the Club as a result! In quoting the new Hq. address the Sea Cadets were turned into the Sea Scouts! The right place to head for if you want to pay a call is High Wycombe Sea Cadets. *T.S. Jaguar*, London Road. The January dates are the 14th, which is the AGM, and the 28th, when Mr. O. S. Puckle—yes, he of time-base fame—will come to talk about the Marconi he knew.

The **Sutton & Cheam** Hq. problem has finally been sorted out, and they are now at Sutton College of Liberal Arts, Cheam Road, Sutton, on the third Tuesday of each month. January 13 is down for G3OLX, who will talk about "VLF— QRO Distribution." February 17 is put down for the home constructional contest.

Surrey are still at the Ship Inn, Croydon, and their routine is to be there on the third Tuesday of each month; the January one will be their 400th. Sadly we do not have any details of what is planned—but G3FWR will no doubt be pleased to advise, if you contact him, as Panel.

Southgate are in session on January 8, for a talk on the Plessey series of Linear IC's, followed by February 12 for which the programme

Why won't the darn thing start? Familiar experience for many Clubs out on a Field Day with a portable generator! In this case, it was the Torbay Amateur Radio Society, with G8GCS and G8HHQ tussling with the mechanics. Actually, it only lost them a few minutes operating time during the recent VHF Field Day.

is as yet unannounced. The venue, as for some time now, will be the Scout Hut, Wilson Street, Winchmore Hill Green, London, N.21.

One of the most consistent of all the newsletters to come our way is that from **Crystal Palace**; it is a simple one-page effort confined to giving essentially all details of forthcoming events, the Hq. address, and the Secretary's QTH. So what, you may say. So this—while other newsletters come and go, and other editors are forever bleating about lack of support in the way of copy, this one goes serenely on from year to year with no help from anyone, and without overstraining the compiler's resources in keeping up the standard. (The over-ambitious high-flyers in the way of Club newsletters usually go up like a rocket for the first couple or three issues and subsequently fall again like the stick). However, the *meetings!* January 17 is down for G3IIR to give his postponed talk on Amateur Constructional Techniques, and February 21 is the AGM. Both these Saturday meetings start at 8 p.m. and are at Emmanuel Church Hall, Barry Road.

A brief note gives the **Horndean** story; a pity it gives the December 1975 details! However, it does say the Hq. is at Merchistoun Hall, Horndean, and we would guess the dates are the second Thursdays in January and February. For more details, contact G4CHO at the address in the Panel—and while you are at it, mention the need for advance data!

Now to **Silverthorn** who have their Hq. at Friday Hill House, Simmons Lane, Chingford; but there is nothing in the current issue of the newsletter to indicate on which evening the weekly get-togethers occur—but for once, we aren't berating the editor, as it seems the duplicator was in open rebellion this month! Anyway, G4AJA would be only too pleased to give the details—*see* Panel.

The **Edgware** newsletter has all the needful, right there on the front page—ideal if a neighbour wants to know the details, and you want to save the technical bit on page 3! The Hq. is given as Watling Community Centre, 145 Orange Hill Road, Burnt Oak, on the second and fourth Thursdays of every month; thus, we have for January, the AGM on the 8th, and a tape-and-slide lecture on the 22nd, while for February 12 and 26, the details are yet to be announced.

One Club who never seem to have Hq. problems is **Stevenage**. They obtained their present place about 12 years ago after being "in the wilderness" for some time with a different address for each meeting, and the membership dropping right off—but now look at 'em! The Hawker-Siddeley Dynamics canteen in Stevenage industrial area is the place to home in on, on the first and third Thursdays of every month. January 8 sees them having a talk on Radar, and on the 22nd there is a tape-and-slide lecture; looking forward to February they have a station showing the flag at the opening of the Leisure Centre; this means February 5 is down to preparations, and the 13th is "the big day," leaving the 19th for a talk.

Another very consistent reporter is **Acton, Brentford & Chiswick**, with their place at the Chiswick Trades and Social Club, 66 High Road, where they can be found on January 20 for the Annual General Meeting, the start being as usual at 7.30 p.m. sharp.

Verulam cover the St. Albans and Watford area of the country, and usually have their meetings at the Market Hall, St. Albans; however, the only date we have for January is the 5th, which is the informal at the R.A.F.A. place in Victoria Street.

Others

Top of the pile here is the **Royal Navy**, where we notice G3JFF has been pushed into the Secretary's chair yet again—how many times is this, we wonder? The current copy of the newsletter is worth the year's sub. as far as this writer is concerned. Details of membership from G3JFF as in Panel.

A.R.M.S. enfolds the interests of the Amateur Radio mobile licencee—which raises in this writer's mind the question of the current pedestrian-mobile stations—who looks after *them?* The A.R.M.S. *Mobile News* is the main thing for the average chap with a mobile, plus of course for the /M DX'r the MCA, which is the mobile equivalent of DXCC. Details from G3FPK, as Panel.

The British Amateur Radio Teleprinter Group (BARTG) were at the Leicester Show and attracted many visitors—new members joining at the stand brings their membership total over the 400-mark. Their new chairman is Eric Yeomanson, G3IIR, and secretary John Jones, GW3IGG. Plans for 1976 include appearance at Mobile Rallies, HF and VHF contests in the RTTY context, and providing lecture-material for interested groups. BARTG will, of course, also continue its main function as a clearing-house on the techniques of radio amateur teleprinter operation.

Signing Off

That concludes our survey of the Club Scene for this time. Our next one will be in the March issue, so send your details for that month including dates, venues, secretary's name and address (and telephone number if possible) and all the other details to reach us by first post on **February 6**—and for future months 21 days before publication day, which is the last Friday of the month; address to "Club Secretary," *SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ.* And a very Happy New Year to all Club members.

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February Issue: Due to appear January 30. Single copies at 45p post free will be sent by first-class mail for orders received by Wednesday, January 28, as available. — Circulation Dept., Short Wave Magazine, Ltd., 29 High Street, Welwyn, Herts., AL6 9EE.

Counties Map at £1·40. Log Books from 45p. QSL's from £1·40. Send 10p stamp for details.—**RWW, Box 11, Romsey, Hants., SO5 8XX.**

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For sale: Hammarlund HX-50 transmitter, 95 watts AM/CW/SSB, coverage 10 to 160m., with Vox and BK CW, £85.—Cummings, G4BOH, QTHR, or ring 061-764 7483.

Wanted: Services Text-Book of Radio, Vol. V, "Transmitting & Propagation".—Kemp, G4DXL, 17 Thorn Bank, Guildford (73019), Surrey.

February Issue: To appear Friday, January 30, single copies at 45p post free will be despatched first-class mail on receipt from printers. Orders by Wednesday, January 28, with remittance to: Circulation Dept., Short Wave Magazine, Ltd., 29 High Street, Welwyn, Herts., AL6 9EE.

Selling: R.C.A. 8516L, mint condition, £180 or near offer. TR-2200 FM 2-metre transceiver, as new, £60. Other gear, s.a.e. list.—Cain, G3DVF, 18 Oaky Balks, Alnwick (2487), Northumberland.

Wanted: Trio JR-599 or Yaesu FR-400SDX, or similar: must be in mint condition. Details and price please.—Reeves, 49 Corinthian Road, Chandlers Ford, Hants., SO5 2AY. (Tel: 042 15-61017).

Wanted: Eddystone S.640 receiver: any condition considered, will collect within reasonable distance. Details please.—Ring Guy, Hitchin (0462) 56714, evenings or weekends.

Wanted: Telequipment 'plug-ins'; Hewlett-Packard frequency standard; 'Off-Air' frequency standard; Type 130C oscilloscope; Modern Marconi test equipment: TDMS-70; Avo VCM-163 valve tester; TF-1041C valve voltmeter. Valves wanted (new): 6BS7, 6AK5W, ECC88, ECF80, EF184, 6U8A, 12AL5, 6AW8A, 12B4A, 5651, 5642, EA52, XB1 Barretter, 12AX7WA, 6AN5WA, 12AT7WA, 12AU7WA, 5719, 5726, 6135, 6203.—Fletcher, 62 Moorbridge Lane, Stapleford, Nottingham. (Tel: 0602-397446).

Sale: HW-17A transceiver, AM, 2-metre, complete DC power supply, with manuals, £40. **Wanted:** K.W. E-Zee Match. — Shaw, G4DBK (G8BZF), QTHR. (Tel: Preston 43926).

Sell or exchange: Swan 270B SSB transceiver, coverage 10-80m., 270 watts, £210: or **Exchange** for quality 2m./FM mobile transceiver. 14-AVQ vertical antenna, 10-80m., £15. Mobile antennas: 80m., £2: 40m., £2.—Ring Kolstad, Princes Risborough (Bucks.) 4072.

For sale: Hy-Gain 12-AVQ vertical, new in original box, £20. Pye Vanguard AM-25B modified for two metres, with xtals for 145·5 MHz, complete, £15.—Ring Shepherd, Shanklin (Isle of Wight) 3727.

For sale: Trio JR-310 Rx, little used, immaculate condition, with manual, £67.—Atkinson G3YPS, QTHR.

Selling: Microwave Modules 70cm. converter and Jaybeam 18-ele Parabeam.—Williams, 39 Clockhouse Way, Braintree, Essex.

Sale: *Yaesu FT-200 transceiver with AC power supply and spare PA valves, immaculate, £195.*—Mickleburgh, G4BRF, QTHR. (Tel: Polperro 349, evenings).

For sale: Yaesu FT-DX401 transceiver, covers 80-10m. at 560 watts p.e.p. input on SSB, 430 watts DC input on CW, good condition, £260.—Ring Gibbs, G4DFG, QTHR, or ring Telford 461326 after 6.30 p.m.

Selling: Two-metre station comprising HW-17A, HG-10B VFO, HWA-172 FM adaptor and matching mobile PSU, £65.—Ring Gregory, Plymouth 774045.

For sale: Save £20: nearly new 18-AVT/WB, £45. FT-75 with AC/PSU, home-built solid-state VFO, £40-worth of xtals, SWR/Power meter, full set of Tavasu centre load coils and aerial etc., £160.—Ring Cresswell, G4AMF (QTHR), Sheffield 873221 after 6 p.m.

Wanted: SSB transmitter, or would consider KW-2000A. Also signal generator and 'scope. — Fyffe, 23 Mid Street, Kettlebridge, Fife.

Wanted: FL-50B Tx. All offers acknowledged. — Wallace, 26 Broadheath Drive, Chislehurst, Kent. (Tel: 01-467 9033).

For sale: 18-AVT/WB in new condition, £45.—Box No. 5474, Short Wave Magazine, Ltd., 29 High Street, Welwyn, Herts., AL6 9EE.

Sale: IC-22 fitted with channels SO. S.20, S.22, S.23, R4 and Birm. repeater, £110. Or will **exchange** for Linear-2.—Gregory, G3LCV, QTHR. (Tel: Derby 701516).

Shack Clear Out: Marconi UHF Signal Generator, Type TF.762C, coverage 300-600 MHz, £20. Mullard high-speed valve tester, E.7800/4, with about 750 cards, £25. Wayne-Kerr L/C/R Bridge, B.101, £14. Mullard C/R Bridge, £8. Cossor Ganging Oscillator, Type 3345, 100 kHz to 20 MHz, £10. Cossor Signal Generator, VHF ex-W.D. No. 2 Mk.IV, 31 to 150 MHz, £20. Advance HF Signal Generator, B3-C, £10. Advance UHF Signal Generator, D1, £15. No. 88 Set, £5. B.44, £7.50. No. 52 Set, £5. Ex-W.D. Morse keys, 75p each. All items "open to offer". —Ring Edney, G8EWP, 024-32 (Pagham, Sx.) 5004, evenings.

For sale: Drake TR-4C, with noise blanker, matching speaker, 240v. PSU, 1 kW LP filter, £380 or near offer. Also K.W. E-Zee Match, £18; K.W. 52-ohm dummy load, £10; SWR/Power meter, £7; MFJ-C audio filter (boxed), £10.—Ring Waters, Worcester (0905) 54165, after 6.0 p.m. or week-ends.

Selling: Eddystone 940 communications receiver, five bands to 30 MHz, £75.—Ellacot, G4DAB, QTHR, or ring 01-440 1208.

For sale: R.C.A. AR88D, with matching speaker and headphones, new spare valve kit and 1-MHz crystal calibrator, manual, and new Vib. PSU for mobile operation, first £55 secures. R.C.A. AR77E receiver, with speaker and manual, in excellent condition, £40. Lafayette HE-73 Preselector/Converter, as new, with manual, £12. Hamgear Preselector, as new, £5. Class-D Wavemeter, mains, new, and in steel cabinet, with manual, £8.—Gratton, 244 Colley Road, Sheffield, S5 9HA. (Tel: Ecclesfield 4078.

Offering: Set of HRO coils, set of QCC crystals for "G2DAF" HF Tx, also valves and xtals.—Brown, 1 Silverdale Road, Falmouth, Cornwall.

For sale: Drake SPR-4 receiver, broadcast and 10-160m. coverage, crystals fitted, 1 kHz read out, price £200, buyer to collect.—Ring Bond, Bedworth (Warks.) 314717. (No offers).

Shack Clearance: Eddystone 940 with manuals, £105. Akai vertical tape-recorder, old but working, £12. Anglepoise Lamp, £4, also bits.—Ring Stuart, Caterham (Surrey) 48342, after 6.0 p.m.

Exchange or sell: Collins KWM-2, fitted Waters notch filter and PM2 PSU, or Exchange for other Collins gear, such 75S-3 receiver, Linear, etc. — Robbins, G3LNG, QTHR, or ring 051-709 5431.

Sale: Trio 9R-59DE communications receiver, in mint condition, complete with crystal calibrator, stabiliser, speaker, etc., price £50 carriage extra. Send s.a.e. with enquiries.—Hayward, Sunnyfields, Lighthouse Road, St. Margarets Bay, Dover, Kent.

For sale: Eddystone 940 receiver, with plinth speaker and manual, £100. Also Hammarlund HQ-100A Rx, complete with auto-transformer and manual, £45. Both these receivers are in excellent condition. Inspect and collect any Saturday.—Turton, 18 Wych Elm Road, Hornchurch, Essex.

For sale: Signal generator, 100 kHz to 80 MHz, £12. Multi-purpose Test Unit, £12. VHF TRF Rx, 100-176 MHz, £4. Buyers to collect.—Ring Walker, 01-789 0706.

Wanted: Quad Spiders and brackets, also plastic or glass-fibre spreaders to suit.—Fennell, G3LYT, 10 Liscombe Road, Dunstable, Beds., LU5 4PL. (Tel: 0682 606792).

Sale: IC-2F Transceiver, fitted channels 145.0, S20, GB3LO, GB3PI, 145.48, 145.60 MHz, £65. (PSU and mobile whip available). Home-built SSB Tx, coverage 40-80-160m., £15. Creed 7B teleprinter, £8. Eddystone 898 dial, £6.—Clarke, G3TIS, QTHR, or ring Ashford (Kent) 20497.

Selling: KW-2000B with AC/PSU, in good condition, with spare 6146B's, £200, buyer collects.—Hallsworth, G4DDG, QTHR, or ring Derby 62187.

For sale: Eagle solid-state PA amplifier, TPA-30, new, at £40.—Bacchus, Tel: East Grinstead 25183.

For sale: Hustler mobile antenna, unused, with bumper and ball mount, spring, mast and resonators for 20 and 80 metres, £48. Also Exide "Supreme" 12v. heavy-duty battery (cost £24), unused, £18; Lionel bug-key, £5.50; BC-221M frequency meter, cased, with PSU, £25.—Fox, G3HID, QTHR, Tel: 027878 (Burnham-on-Sea) 2511.

Selling: S.T.E. Arac 102 two-metre Rx, £85. Pye W.30 AM, less controls, £25. AM.25B with xtals for 145 MHz, 15. AM.25B less controls, £5. Microwave two-metre converter, IF 28-30 MHz, £10. Solid State Modules two-metre Pre-amp., £5. — Ring Knowles, 051-486 6698.

Wanted: For Racal RA-17 receiver, the LF Converter RA-137, SSB Adapator PA-63, Independent Sideband Adaptor RA-121. All to be in working order with instruction manuals. Please give details and prices asked. — Charsley-Thomas, Hillview, Frogham, Fordingbridge, Hants., SP6 2HP.

Wanted: HRO coil packs for 50 kHz to 7 MHz, also IF transformer. **Selling:** R.C.A. AR88 mains transformer, offers?—Maxwell, GW3UMD, 1 Nantfawr Crescent, Cyncoed, Cardiff, Glam., CF2 6JN, South Wales.

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