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THE SHORT WAVE MAGAZINE

July, 1986

METALFAYRE
The Sporadic E season started quite early this year on 2m., on May 16, bringing a welcome relief from the generally mediocre tropo. conditions of recent months. On 6m. there have been contacts with EA, CT and ZB2 stations via Es, and the FY7THF beacon on 50.038 MHz has been heard on several occasions. Satellite Oscar-10 suffered a “spacecraft emergency” on May 10 which could be rather serious.

Awards News

Congratulations to another overseas reader Georg Grahle, DL40L, from Holle (FM61f) in West Germany who is member number 65 of the 144 MHz QTH Squares Century Club. His certificate was issued on May 13 with stickers for 125 and 150 squares confirmed, his actual total being 154. One contact was on FM, all the rest on SSB. Modes were 130 on tropo., 14 via Es and 10 via Ar. DL40L is the D.A.R.C’s manager for the UKW-Europa-Diplom which was mentioned on page 149 last month.

Mike Stevens, G1LQJ, from Epsom in Surrey, is member no. 383 of the 144 MHz VHF Century Club. His station comprises a Yaesu FT-726R and 10 dB amplifier, the antenna being a 12-ee. Yagi at 30ft. a.g.l. His QTH is 108ft. a.s.l. Mike is a keen participant in the Worked All Britain activity and he hopes to work a lot more people on 70cm. He says he get full pleasure from this fantastic hobby and is studying for his Morse test.

The Wythall Radio Club, in conjunction with Eddystone Radio Ltd., are offering a Worked All Midlands Clubs Award which starts on July 1. The award is to promote the existence of AR clubs and societies and is open to radio amateurs and listeners, “...operating on the 6m., 4m., 2m. and 70cm. bands and in any simplex mode.” The four awards are bronze, silver, gold and platinum and require the accumulation of points. For full details, send a large s.a.e. to the Wythall Radio Club, c/o Mick Pugh, G4VPD, 37 Forest Way, Hollywood, Birmingham, B47 5JS. The club’s own call is G4WAC and the certificate is very attractive.

The satellite Oscar-10 suffered a “spacecraft emergency” on May 10 which could be rather serious.

The main news this month is about O-10 which suffered a “spacecraft emergency” at 0320 UTC on May 18. A fault developed in the Integrated Housekeeping Unit — IHU — resulting in the systems becoming uncommandable. At perigee passage on May 17, defective PSK telemetry was noticed. The result of the malfunction was that the spacecraft was in Mode B all the time with the real danger of ruining the batteries. AMSAT-UK contacted members altering them not to use the transponder and other AMSAT groups did the same.

Ian Ashley, ZL1AOX, is the control station and between 1938 and 2037 on May 19, he reloaded O-10’s computer with software, after which some meaningful telemetry blocks were received. One suggestion is that the IHU fault was induced by a high energy particle impacting the computer or its memory. “Soft” errors can be dealt with and the design of O-10’s system makes it largely immune to soft errors. However a “hard” error would cause permanent damage to memory cells, so spacecraft software would have to run, bypassing the affected byte(s). This has already happened last year.

A program of software diagnostics was initiated to find out exactly what has happened and it could be several weeks before the transponders are back in action again. The good news is that the batteries are being kept well charged and the satellite is in no immediate danger. It has to be appreciated that the memory chips in the IHU will suffer degradation due to the long term effects of cosmic radiation. The initial failure to place O-10 into the planned orbit resulted in the spacecraft spending more time per orbit in the Van Allen belts.

It is quite likely that, once the faulty memory addresses have been identified, a new operating system will be devised to restore the satellite to a more or less normal state. However, it is inevitable that this type of fault will occur more frequently from now on. Users should listen to the AMSAT-UK net on 3,780 kHz for the latest news direct from G3AAJ.

The Phase 3C AMSAT spacecraft has been finally completed and was due to undergo thermal vacuum tests on May 27. Thereafter it was to be shipped back to Marburg in West Germany in mid-June. Failure of the last ARIANE launch has resulted in slippage of the 3C launch date, now guessed as January or February next year, realistically.

The launch of the Japanese satellite JAS-1 should be on July 31, if all goes to plan. The estimated parameters are:— altitude 1,500 kms; period 120 mins; inclination 50°; window 20 mins. per pass. There are two, separate Mode J transponders. The first is a linear one, Mode JA, with uplink 145.90 — 146.00 MHz and inverted downlink 435.90 — 435.80 MHz. The output power is one watt p.e.p. and there is a 100 mW CW beacon on 435.795 MHz. Ground stations will need 100w e.i.r.p. output power, e.g. 10w to a 10 dB gain antenna.

The second transponder is a digital one, Mode JD, with four input channels using Manchester coded FM for the uplink, on 145.85, 145.87, 145.89 and 145.91 MHz, the downlink being on 435.91 MHz for all four. Again 100w e.i.r.p. is suggested for ground stations. Protocol is AX-25 Level 2, Version 2 with 1,200 bps data transfer rate for both up- and downlink. Mode JD is not a “digipeater” but a storage and forward system since digipeating in real time is not satisfactory for a low orbiting satellite with a relatively small “footprint.”

“VHF Bands” deadlines for the next three months;—

August issue — July 2nd
September issue — August 6th
October issue — September 3rd

Please be sure to note these dates.

An English translation of the JAS-1 Handbook is now available. For details, send a self-addressed envelope, with IRC, to Project OSCAR, c/o Ross Forbes (WB6GFJ), P.O. Box 1, Los Altos, CA 94023, U.S.A. Your scribe plans to publish the usual article for this new satellite as soon as it has been put into orbit and known to be working successfully.

Beacon Notes

The 4m. ZBVHF beacon on 70.12 MHz is back on the air from WX64g. On June 9, the 6m. beacon in Gibraltar carried the message, “ZBVHF Info 4m. beacon now operational.” During the Es opening on May 16, John Palfrey, G4XEN, (NHM) heard a CW signal on 144.310 MHz at about S7, repeating the callsign, UOSO1D. He assumes it was a beacon and if so, wonders if anyone has details. It faded quickly. Between 144.136 and 144.371 MHz, 16 Soviet beacons are listed
but all are lowish power, as far as is known. Nothing is listed for 144.310, nor anything in UO5. GB2RS mentioned that GB3CTC on 70cm. “...will be off the air until further notice.”

Contest News

The results of this year’s 4m. Cumulative Contest were broadcast over GB2RS on May 25. The winners were the Wirral and District ARS, G4MCR, with 687 points from 95 contacts. The Sheppley Outcasts, G4BYV/P, were second with 529/113 and there were 22 entries.

The weekend of July 5/6 is VHF NFD which commences at 1400 for 24 hours. This year, 2.3 GHz will be included, the scores to be added to the 1.3 GHz figures and the same callsign must be used for both bands. On 4m, the period 1400-2200 on the 5th is for ‘phone only, with closedown thereafter until 0600 on the 6th, when the last eight hours will be CW only. On 4m. only, the QTH must be sent, given in a different form in each section. Serial numbers start at 001 in each section and the final total is the radial ring sum of points added together. The full rules were published in the April issue of RadCom, page 283.

During NFD weekend, the British Amateur Television Club is running its Summer Fun event and for details, contact G6IQM who is QTHR. On July 26, there is the 144 MHz Low Power and SWL Contest, with the 432 MHz version on the next day. The respective times are 1500-2300 and 0900-1500. There are three sections; Fixed, All other and SWL. The usual radial ring scoring system will be used for each QSO, the total points then being multiplied by the sum total of different counties and countries worked. Up to three different stations in the Scottish regions may be counted for multiplier points. The county names or code letters must be exchanged and recorded in the entries. The 2m. entries go to G4FRE, the 70cm. ones to G3FZL who are both QTHR.

The fourth legs of the 10 GHz and Microwave Cumulative are on July 13 from 0900 to 2000 and the microwave band will be 5.7 GHz. John Acton, G1DOX (CBA) asks if the Short Wave Magazine has considered sponsoring a contest as some other magazines do. Erik Gedvils, G8XVJ (CHS) has more specific and suggested some kind of 70cm. Cumulative event in August, perhaps a few two or three hour sessions on a Sunday morning. It would be too late to organise anything for this August as it would need to be well publicised in advance. If any readers have constructive ideas please write in. Alternatively, some may think there are enough contests already: whatever you think, please comment in your next letter.

Packet Radio

Last month’s plea for news of what readers are doing with packet radio has brought a couple of replies. Bob Geddes, G8GGI, (Ldn) says that PR is now taking off in the U.K. He bought an AX-25 TNC kit at the 1984 BARTG rally then did not work a single station that year. 1985 was better and this year has seen a considerable increase in activity. Over the weekend May 31/June 1, Bob copied 19 stations on 144.675 MHz, all on F2D mode. Most QSOs seem to be the traditional RTTY kind of conversations and the way the mode is being used does not offer any benefits over AMTOR. But he feels that there is much potential for development if digi-repeaters and mailboxes are established.

A problem is that the frequency is shared with BBC-type PR and ASCII, creating Bedlam at times. G8GGI has been experimenting with AX-25 PR through O-10 and has worked himself. He was all set up to try again on May 18 when the aforementioned HU problem occurred. Bob notes the following as QRV on AX-25 PR—G0AMP, G0AMX, G0/K8KA, G1JOV, G3s CWB, OLM, ONR, VRH and WGV, G4s BBR, NWP, PHZ and TRS, G6s DLJ, HUH and RBP, G8LWY and G8VLY, and last, but not least, John Danks, G5DS, (LDN), whose report comes next.

G5DS has been active on 144.675 MHz since January, 1985 using AX-25 with 1,200/2,200 Hz tones and 1,200 bps. He also mentions the non-compatible BBC system at 300 bps, but the real problem is the ASCII operation which, because it is a continuous carrier system, inhibits the operation of the AX-25 TNCs. John has made contact with 59 stations on 2m. and is aware of 72 British AX-25 operators, although some are on HF only. G5DS uses 1,600/1,800 Hz tones at 300 bps on the HF bands on which he has contacted 67 stations.

Neither G8GGI nor G5DS commented regarding the RSGB VHF Committee proposal for digipeaters on 144.650 and 145.275 MHz, but it does seem that AX-25 and BBC PR, plus ASCII data should not all use the same frequency. G5DS mentioned some deliberate interference from stations who put carriers on and off when they hear PR tones on 144.675 MHz. Of course this poltroonery has been evident on the more notorious repeaters for years, and one wonders about the warped mentality of those few whose only “hobby” appears to be annoy others.

Six Metres

The beacon FY7THF in French Guiana on 50.038 MHz has been received in the British Isles. In a long letter to G5KW, Ted Collins, G4UPS, (SOM) reports copying it at 1110 on May 30 and again at 1635 and 1800-1808 on June 4. Norman Hyde, G2AIH, (SKY) copied it on June 4 at 1923 for 40 mins. up to S4, while G5KW (KNT) heard it on June 6, 2000 to 2040 and again on the 7th, 2010-2130 at less than S1. The Gibraltar beacon, ZB2VHF, on 50.035 MHz, has been received quite frequently and was good copy on June 9 at G3FPK using a crossed dipole antenna for 10m. in the loft.

There is illegal activity by a few Spanish stations. It seems they applied for permission to operate on the band but were refused. Nevertheless, it seems their attitude is that, if they do not cause any TVI, they just use the band anyway. Jerry Russell, G4SEU, (WKS) worked EA2JG (IN83MC) on May 30, the EA being S9 plus 30 dB. Crossband QSOs with 10m. stations were OH1ZAA on May 15, EA4CGN on the 30th and LA2AB on June 1.

G4UPS first heard the Cyprus beacon, 5B4CY, (QU14g) on 50.50 MHz on May 15 at 1425, and again on May 20, 21 and 22. Ian Parker, G4YUZ, (HFD) has received MS skeds with GM3WCS and of 12 up to 12 May, only one had failed. During May, he made a few crossband contacts to 10m. stations via Es; on the 16th, Y02IS (KF), OZ1DOQ (GP), SM6PU, LA1K (FX) and OH51Y (NU). On the 17th, Ian worked OH1ZAA (KV).

Ken Ellis, G5KW, had a crossband QSO on May 16 with Y02IS at 0630 and with EA3ADW on the 22nd at 1910. He also worked EA2JG direct on 6m. on May 30 at 1920. The ZB2VHF beacon was copied on June 1 from 1845 to 2010 up to over S9; on the 2nd from 0630, then all day “in and out,” peaking S9 plus 20 dB at 1650, and also on the 3rd from 0630.

Mike Johnson, G6AJE, (LEC) found the band very lively via Es on May 26. At 1520 on 50.25 MHz he heard a pop music programme, with adverts, in Italian, but he thinks these might have been images as other, similar, signals were copied in other parts of the band. From 1750 to 1800, Mike copied 5B4CY which he reckons has the worst FSK ever. Dave Lewis, GW4HBR, (GWT) heard ZB2VHF on May 31 and June 1. He worked CT and EA direct and had many crossband contacts with D, EA, F, LA, OH, OZ and SM, HB, 1, OE and YO stations were also working U.K. stations, crossband.

Four Metres

The east European broadcasting stations have been in regularly on the band. On June 3, for example, Terry Hackwill, G4MUT, (BRK) heard them from 0900-1000. Tony Collett, G4NBS, (CBE) replaced his 6m. beam with a 4m. one in time for the April contest in which he made 44 QSOs for Annual Table points. G4SEU worked 4W/ND/P (NLD) on May 25 for an all-time new county, also EI2CA the same day. EI9Q was on, but not heard in Nuneaton. Jerry has bought a dual 6m/4m. beam from
Sandpiper Aerials in South Wales which sports five elements on 6m. and six elements on 4m.

G4YUZ now has 54 counties worked and confirmed and Ian is looking for any GMs who would like to try some MS skeds. He hopes to work 60 counties by the 17/18 contest. GI4OMK has been distracted by 10m. CW activity. Colin Morris, GOCUZ, (WMD) missed the 17/18 contest with E19Q worked twelve on 2m. and confirmed and Ian is looking for any contacts with west European BC stations very loud, though he had difficulty with ES signals on 40 MHz. He mentions the extreme selectiveness of ES signals on 40 MHz. Bob Nixon, G1KDF, has now got 54 counties worked and confirmed with EI9Q worked twice on 40 MHz. G4MUT has been a station. Bob Nixon, G1KDF, (LNH) caught the 40 MHz ES on May 16 but failed with DK1PZ. He hopes to try with the latter on 50 MHz later. GI4ZMM, (HWR) made good use of the very flat. GI4KIS has been contacted when operating on 10m. CW. George Haylock, G2DHV, has been operating from St. Ives (CBE) who hopes to work 60 counties by the 17/18 contest when he used 180wp.e.p. to make his first signals via the Moon on April 12. He is operating from site 200 miles from the equator.

GI4CD reports that David Butler, G4AAR, (HWR) made good use of the GB4MTR call making over 150 QSOs in the first few days. Until July 15, GI3ZTL (LDR) will be the station. GI3ZTL (LDR) will be the station.

Two Metres

Mike Honeywell, G0ABB, (HPH) added a further 36 stations on 20m. to top the 1986 2m. ladder, but admits to having been distracted by 10m. CW activity. Colin Morris, GOCUZ, (WMD) missed the ES openings on May 16 but has been plugging away at MS, and in the ETA Aquarids on May 6, he completed with IOUZF (GD) on random CW after seven, previous uncompleted skeds. The final burst from the IO was 85 secs. long. Other May success were:- 7th, OK1KRT/P (IK); 10th, OEX3U/A (IBH); 13th, SP9AMH (JS); 14th, GI4FELD (ZC); 22nd, EI1ANP (EE) and 23rd, OK1KRT (HK). Some comments about MS procedure from Colin will be aired later.

Welcome to new contributor Philip Everitt, G1CRH, from St. Ives (CBE) who enters the Annual Table. He doesn’t have too much time for the hobby due to the priorities of school work, so most activity is confined to contests. He uses a Yaesu FT-290R and 5-ele. Yagi for the contest. Best DX for May as the antenna. Graham Jarrett, G4PPV, (KNT) added another 23 stations to his CW ladder total but says he has not heard much DX this year. In the May 17/18 contest, G4SEU used his 6m. beam and managed QSOs with stations in F, GD, GJ and GI. On June 1, Jerry worked GB4XN on Anglesey. Now he has the dualband 6/4m. beam, he has space to re-erect a proper 2m. antenna. June Charles, G4YIR, (ESX) concentrates mostly on CW and is now up to 155 different stations this year. May proved a better month, starting on the contest on the 3rd/4th when seven new ones were worked on the key. In the 17/18th event she worked GI4VIP/P whom she relies upon each year for GI. G4APA/A was an all-time new county on CW. On SSb, new 1986 counties were CHS, MSY, GDD and GNM.

John Palfrey, G4XEN, (NMM) heard his first signals via the Moon on April 19. On May 19, he discovered the 4m. signals and heard GI4OMK very weakly. On SSb mode, he completed on CW on Apr. 4 with EA2LU (IN92) and on the 21st with H38V (IN96) receiving a 40s. burst. On May 5, John completed with GI4OMK who was on the air. He was operating on the contest on the 3rd/4th when seven new ones were worked on the key. In the 17/18th event she worked GI4VIP/P whom she relies upon each year for GI. GI4APA/A was an all-time new county on CW, On SSb, new 1986 counties were CHS, MSY, GDD and GNM.

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**ANNUAL VHF/UHF TABLE**

January to December 1986

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<tr>
<th>Station</th>
<th>Four Metres</th>
<th>Two Metres</th>
<th>20 Centimetres</th>
<th>20 Centimetres</th>
<th>Total Points</th>
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<tr>
<td>G1KDF</td>
<td>27</td>
<td>2</td>
<td>91</td>
<td>15</td>
<td>194</td>
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</table>

Three bands only count for points. Non-scoring figures in italics.
during the Es opening to the east. John worked SP4DGN on SSB at 1125 and on CW at 1134. SP2LU (JO9J) was worked on CW at 1141, thus adding two more QSOs.

On Apr. 25, G4YUZ worked SM2CEW (LZ) for his best DX so far. A sked on May 22 with OE6FGW (HH) took 11/5 hours, due to poor reflections, starting at 0300. Ian was on holiday in Scandinavia from May 1 so called in to see SM2CEW and collect his QSL. Peter put Ian and his friend up for the night on May 6, which was kind of him. Ian then met LA6QBA on the 9th and collected his QSL for their 6m QSO on Apr. 26. Back home, G4YUZ heard SP4DGN on the 16th, but could not crack the pile-up.

G6AJE came home from work at 1230 for lunch on May 16 to hear the GWs excitedly calling “CQ” Band 2 was yielding stuff from the east so amazing in that direction and was rewarded with SP4DGN at RS59 each way. On May 18, in the contest, he lists his best DX as GW4CZZ/2 (CWD), GM4RZ/W (P), G4APA/A, GW30XD/P (PWS), GD41OM, G3AHD/P (MSY), GJ6TMM/P, G41WP/B, (CNL) and XJ square, no. 80, G6CRW/P (SXE) and GACU/N (ADOR). Keith Killigrew, G62ZH, (HWR) thinks the Es season got off to a very slow start but missed the May 16 opening due to being at work. Like many others, he has acquired a Band 1 TV service and has been watching pictures from all over Europe.

Ela Martyr, G6HKM, (ESX) thoroughly enjoyed the May 17/18 contest making 333 contacts as a Single-op. entrant. Her best DX was GM4ZUK/P at 062 ksm. and she worked 53 counties with 11 countries with 22 D QSOs. On May 22, at 0120, she worked DF1CF (FH23) for a new square and three Ds out portable in EI square. On the 25th, H8BYF/E (HJ36G6LJ) and F3F1P/P (IN36G5G) were worked. Neil Montanana, G8WRG, (SRY) received the FX4VFH beacon (AF69C) very strongly on May 24 so worked FC1GTU (AF64A) at 2215 and at 2300, FD1FHI (ZH63a). Although the Normandy beacon FX3THF (Y113d) was incredibly loud later, no French or Spanish stations were to be heard.

Erik Gedvils, G8XVJ, (CHS) caught eight minutes Es opening on June 7, his “CQ” call being answered by LZ1ZB (LC), followed by LZ2AR (LD) for a couple of new squares. Others worked were YU1EU, YU2SB and YU1A in LF. On the 8th, he completed an MS sked from 0500 in 45 mins. with OK1KT. Prior to that, at 0430, Erik heard YU1GCK on 144.300 MHz calling “CQ” for 15 secs.

Congratulations to John Eden, ex-GM6LXN (HLD) who passed his Morse test at Wick Radio on March 3 and who is now GM0EXN. Between 1120 and 1140 on May 16, beamning 130° had 18 Es QSOs as follows:- OK3WCM, OK3CMV, OK3YM, YU7EW, HG7JAK, OK3KCM, HG8VF, OK2WCK, OK3KCM again, HG8CE, OK3HRW, HG5KKN, OK3TTL, OK3TBY, OK2KZR, OK2PEW, OK2TU and OK3LQ, all very good signals each way. Unfortunately the useful squares information was not exchanged. John was using 25w and a 10XY Yagi at 25ft. The same day, he reports that GM4LPG/M in the Grantown on Spey area worked to Vienna on simplex FM, and that GM6WQC in Dornoch worked another GM via a repeater in Belgrade: doing it the hard way?

Paul Baker, GW6VZW (GW) took part in the May 3 contest working F6GIF/P (Z1), FD1JLQ/P (AK), F6KBF/P (AJ), ON4/LSL/(A/BK), FD1FHI (ZH), PI4VLI (BL) and DJ4UF (DK) a new 1986 country. On the 5th, GJ1/GD4YDT was another new county and country this year. GB4LI on Lundby Is. and G4XBN/P on Rat Is. were unusual QSOs. In the May 17/18 contest, Paul added another seven 1986 countries, G4APA/A (DHM) being an all-time new one, while GW4BP/P in XJ was a new square.

A late letter from Ken Osborne, G4I GO, (SOM) covers the Es of May 16. From 1000-1030 he worked RQ2GGS (LQ), UQ2GJN (MQ), SM1HOW (JR), SM7OSW (HQ) and SM7LXV, OZ1DOQ and OZ9FW all in GP. At 1742 on June 6, Ken got FD6FR (GC) and at 1832 IC8CFQ (HA) via Es. On the 7th, he worked IW4ARD (GE) by MS in an 80s. burst. Later that day, in another brief Es opening, he worked YU1AFS (KE) at 1703, YU4WEU (IE) at 1715 and YU8ALN (KC) at 1715. YU2FVV and YU1HFG were heard.

The May 16 Es was quite a lengthy affair, it would seem, since GW4CQT began by working SP5AD at 0947. Your scribe was out all morning and made the back to find a message from G6TUF about the event. At 1147, UP2BH (MP) was worked on CW at RST449 but in the next few QSOs, he came up to S9. The most consistent DX was SP4DGN who was worked by many up and down the country. There were 13 SPs copied and your scribe heard someone telling a friend he had worked SP4DGN at 1340, whether GMT or BST was not mentioned, though.

Other notes gleaned from monitoring the VHFs etc., are that SM5MIX contacted seven Fs between 1100 and 1200 on May 16, suggesting the reflecting region of the E-layer was over northern Germany. PAs were worked into LZ via HF and also from CW at RST449 but in the next few QSOs, he came up to S9. The most consistent DX was SP4DGN who was worked by many up and down the country. There were 13 SPs copied and your scribe heard someone telling a friend he had worked SP4DGN at 1340, whether GMT or BST was not mentioned, though.

Other notes gleaned from monitoring the VHFs etc., are that SM5MIX contacted seven Fs between 1100 and 1200 on May 16, suggesting the reflecting region of the E-layer was over northern Germany. PAs were worked into LZ via Es on May 11. On May 22, Paul Pasquet, G4RRA, (SRY) worked OE2CAL (GH) at 1944 in a very selective, duct-type of tropo event, followed by DF1CF (FH). On May 28 there was a fleeting Es opening around 1850 when GD41OM was heard calling an IWO and DL7YS said that between 1548 and 1630, there was an opening between
The Microwaves

G1DOX has been putting more work into his 13cm. station and John now has the brass PA fired up. With a 2C39BA valve, the power output is now 4.8w and he expects to squeeze another couple of watts out of it. He has contacted G4CBW (SFd) receiving a 57/58 report. G3FNQ in Southport has been worked, John getting 54 from him. Shortly G1DOX will be conducting tests with four Midland stations; G6FK, G8SWZ, G8UYR and G3KFD. He says that G3BPF is contemplating 13cm. too. On 23cm. G1DOX added ZM square, G6NYB, on April 20, and on May 11, he mentions G4KIS/P as a new county but omitted to say which one of the six.

G4NBS worked GW8TF1/P (DFD) and XL square for an all-time new one and it was Tony's 40th county from his "new" QTH in ten months on 23cm. He has been spending a lot of time under his car lately, but emerged to have 11 QSOs on 23cm. in the May 3/4 contest. Another new county was GW4GFX/P (PWS) but no continentals were worked. The only other QSO was on the 29th, GB4XN another new county and square. Tony has put his preamp. on the mast which has improved reception. Beacons GB3CLE and GB3MLE are now fully audible, but with only 5w at the antenna, very few stations are worked outside of contests.

It is proposed to publish the latest listings for the 13cm. All-time Table next month. The present participants are G3JXN, G3XY, G6DER, G6YLO, G8PNN and G8TFI, but it would be nice to have some more entries. All you need do is state the number of administrative counties worked, the countries and the QTH squares, then add them together for your total points.

DX-Peditions

From the 20m. VHF net, John Hunter, G3IMV, has heard that YU7AJH may operate from LB square in the August Perseids meteor shower. Also, SP6GZ2 is promising operation at the same time period from JM and JM squares.

The Five Bells Contest Group is running a DX-pedition to ZT square in the Shetland Is. from July 20 for two weeks. They will be QRV on 2m., 70cm., 23cm. and maybe 6m. On 2m. the call for CW MS will be GM4DHF/P on 144.028 MHz using 2½ minute periods and they will always transmit on the second period. They have complete duplicate equipment and propose to run two stations simultaneously, the other being GM4YHF/P on 144.128 MHz. The tropo. QRGs on all bands will be decimal 213. The two other members of the group are G4ODA and G1DI and this team can always be relied upon to put on a very good performance.

MS Procedures

The following comment from Colin Morris, G0CUZ, has been received: "Recently, in a sked with a DL station, I tried the 'missing information procedure' when my callsign was still missing but 'Roger' report received. I loaded the memory with 'MMMM. . . .' and the next period this was greeted with 'RRR. . .' from the DL station. The QSO then failed. This procedure does obviously not work and I shall not use it again.

"The problem is that some stations — and I have done this myself — will gamble towards the end of a sked and send, say, 'R26 R26. . .' with no callsigns at all. This is OK if these have been received earlier in the sked but a number of my skeds have failed because of my missing part, or all, of the callsign still needed, despite 'Roger' report received. I know not of any effective way around this, now having tried the 'missing info' procedure'.

Perhaps other MS practitioners would care to comment on this matter.

Six Metres Supplement

From Ken Osborne, G4IGO, (SOM) some more 6m. notes. He writes that the ZBV2VHF beacon has been appearing at good strength for long periods. On May 26, 5B4CY was up to S8 between 1805 and 1835. On May 30, FY7THF was up to S4 from at least 1901 to 2018, and on June 4, from about 1936 to 2011 and 2052 to 2107, it was up to S6. On June 8, from about 0706 to 0808, Ken was receiving a TV test card on Ch. E4 with the words ORTAS-DAMAS which he assumes was from Syria. (N.B. There is a 100kw TV Tx at Hassake on E4). G4IGO has worked the following:- May 30, 2000 EA2JG (YD), June 5, 1807 ZB2BL (XW), June 7, 1055 EA1MO (XB), 1758 GM4FDT (XR) and 1807 GM4UPL (XR) all via ES EA1MO is said to be running one watt to a 2-ele. beam.

For transatlantic 6m. watchers, there is something magic about June 30/July 1 as G3JYHU reminded your scribe recently. In 1984, Dennis had 47 North American QSOs in the period 2234 to 0057, it may be recalled. A point worth noting is that 6m. may be open even though 10m. is quite dead, so don't be fooled.

Finale

This last part is being edited on June 10 and there has not been a really good Es opening on 2m. in June. But perhaps the "season" will start late this year, following the pattern of the summer? weather. Whatever happens, please write and share your experiences of the VHF/UHF bands. The all-important deadlines are in the box and address your correspondence to:- "VHF Bands," SHORT WAVE MAGAZINE, 34 High Street, WELWYN, Herts., AL6 9EQ. 73 de G3FPK.
Practical, Simple Sideband
Part 2

in this special series, these two very well-known designers and constructors, get together to unravel its mysteries

REV. G. C. DOBBS, G3RJV and IAN KEYSER, G3ROO

Continued by G3ROO

Reverting to the circuit diagram we have two mixers following the filter, IC4 and IC6. IC4 is not used if the set is to be operated on 80 or 20 metres; if any other band is required dual conversion is used and the frequency of the crystal oscillator is calculated by adding 14.5 MHz to the top end of the required output frequency of the transmitter. This means that the output of the first mixer must be tuned to a frequency 5.5 MHz HF of the top end of the required output frequency. Table 1 lists the required frequencies.

The output from the first mixer is amplified by IC5 prior to passing to the second mixer so making up for losses in the circuit. The output from the PCB is about 0.5 milliwatt at a fairly low impedance. When used to drive the Cirkit linear amplifier module a maximum of five watts output can be obtained, a good QRP level for SSB which will enable the world to be worked under good conditions. The advantages of keeping the output power low in simple SSB transmitters is that we do not have to worry about ALC, automatic linearity control. If the power amplifier is capable of producing 20 watts with reasonable linearity and we can drive it to less than half of its rating we can remain fairly confident that we will radiate a clean signal.

If the PCB is to be used for an all-band version we do not effect the single-conversion onto 20 metres — instead we keep to double-conversion. By doing this we can choose crystals so that sideband selection is automatically LSB on 160, 80, and 40 metres and on all the other bands USB. That means that we only require a single carrier crystal, so saving a few pounds. The two sets of coils have to be mounted on another board, for which Vero could be used, and the correct set selected for each band using a multi-pole.

TABLE 1: TO CONVERT 9MHz LSB SIGNAL BY DUAL CONVERSION TO AMATEUR BAND OBTAINING CORRECT SIDEBAND

<table>
<thead>
<tr>
<th>Band</th>
<th>Mix 9MHz LSB with xtal on</th>
<th>To reduce signal on/in L1/L2</th>
<th>Then mix with VFO on</th>
<th>To produce output on/in L3/L4</th>
<th>L1 &amp; L2 36swg enam.</th>
<th>L3 36 swg</th>
<th>L4 36 swg</th>
<th>C 34, 35, 36.</th>
<th>C 37, 38, 39.</th>
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<tbody>
<tr>
<td>160m</td>
<td>2MHz</td>
<td>7MHz LSB</td>
<td>5-0 - 5-2</td>
<td>2-0 - 1-8 LSB</td>
<td>10 10 4 16 16 5 4 28 5</td>
<td>200p</td>
<td>560p</td>
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<tr>
<td>80m</td>
<td>Unbal mixer</td>
<td>9MHz LSB</td>
<td>5-2 - 5-5</td>
<td>3-8 - 3-5 LSB</td>
<td>10 10 4 16 16 5 4 28 5</td>
<td>100p</td>
<td>560p</td>
<td></td>
<td></td>
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<tr>
<td>40m</td>
<td>3-5MHz</td>
<td>12-9MHz LSB</td>
<td>5-4 - 5-5</td>
<td>7-1 - 7-0 LSB</td>
<td>6 6 3 10 10 4 3 17 4 150p</td>
<td>220p</td>
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<td>20m</td>
<td>28-5MHz</td>
<td>19-5MHz LSB</td>
<td>5-15-5-5</td>
<td>14-35-14-0 USB</td>
<td>6 6 3 6 6 3 2 10 3 33p</td>
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<td>35-5MHz</td>
<td>26-5MHz USB</td>
<td>5-05-5-5</td>
<td>21-45-21-0 USB</td>
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<td>3 4 2 4 4 2 2 6 2 22p</td>
<td>22p</td>
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</table>

Underside view of 10K coil former

Last 1/4 in this port and finish on Pin 3
Third 1/4 in this port
Second 1/4 in this port
Wind link winding (4-6) in this port
Starting on Pin 1, wind 1/4 main winding on top of link.

Tap as necessary on pin 2
multi-way switch. In the case of 80 metres the first mixer is not required and so is unbalanced by applying a bias to the carrier port and tuning the output to 9 MHz. The SSB signal from the filter will then pass directly to the SL610 amplifier and thence to the second mixer IC6.

**Setting-Up**

The beauty of the filter method of SSB generation is that setting up is very simple indeed, all that is necessary is a general coverage receiver. First thing to do when applying power is to check for...
smoke! Ideally an ammeter in the positive supply lead is an advantage and can be of considerable assistance in fault finding. I prefer to isolate the supply to each module in any complex unit and check in turn.

In this case we have four modules, the VFO, the crystal oscillator, the SSB module and the PA module. The PA should have already been checked for correct operation when that was built and set up. Next is the VFO, and the supply should be connected and the module checked that it is generating the required signal using the general coverage receiver with a short length of wire connected to its aerial terminal, this being placed near the output of the oscillator. Now the crystal oscillator unit; again the general coverage receiver is used in the same way as with the VFO. Finally the SSB unit: apply power and set the two presets to half travel. Using the general coverage receiver check that when the +12 volt supply is connected to each of the carrier oscillator select pins the correct crystal oscillates. The two trimmer capacitors can be checked that they change the frequency of the crystal by a kilohertz or so.

Next connect a microphone to the microphone input pins and talk. The audio should be heard in the receiver strongly when the pickup wire is held near the filter terminals. Now connect the output of the crystal oscillator PCB to the carrier input of the mixer IC5; couple the receiver aerial loosely to the filter tuned circuits on the output of IC4 and tune to the expected frequency. The audio from the microphone should be immediately evident. Now temporarily disconnect the microphone and it will be possible to hear the carrier frequency which is leaking through the balanced modulator: adjust RV2 to reduce this to its lowest level. Next loosely couple to the output of the PCB and tune to the required output frequency. Connect the VFO to the second mixer, IC6, carrier input and tune the VFO until the SSB signal is heard in the receiver. Peak the cores of L1 and L2 for maximum and then peak L3 and L4 for maximum reducing the coupling to the receiver as you go.

That completes the rough setting-up but it will be necessary to re-trim L3 and L4 when the transmitter is completed so that a fairly flat response is obtained over the band in use.

Final setting up of the carrier crystals must be done with another station by moving the trimmer slightly and getting reports on the audio. Another more reliable method uses an audio signal generator. Feed a 1.5 kHz tone into the microphone input and adjust the level so that 1 watt is being radiated, then maintaining this audio input level reduce the audio frequency to 250 Hz and adjust the trimmer so that the output power is about 200mW. That is just about optimum for most SSB filters.

Completed simple sideband transmitter board.
Further Uses of the Transmitter PCB

We now look at other ways that we can use the PCB. The output of the board is not sufficient to drive the Cirkit PA module to full output. As explained earlier this is not a bad thing as it does mean that we are less likely to radiate a poor quality signal and that, in turn, gives home brew equipment a bad reputation!

The following description is for a transmitter with much greater output than the simple sideband unit and is considerably more complex to construct. The fully tested circuit of the exciter stages is given and over the years this has been built in various disguises. The complete unit is not given as it has not been built as a final unit, but the description given is to show how a full transmitter can be built and got going. Fig. 17 gives the complete block diagram to show the requirements of such a transmitter.

If we are prepared to go to the effort of including ALC circuitry it is possible to utilise the board to accommodate a transistor in place of the final mixer and so increase its output to drive the Cirkit PA module to full output of 20 watts. The new circuit of the mixer section of the PCB is given in Fig. 18 and the component layout in Fig. 19. The second mixer IC6 has been replaced by TR4, this is DC connected to the output of IC5 and the biasing set so the transistor is running in Class-A. The output signal is tuned by L3 and L4 and as the frequencies are the same as the original design we can use the data in Table 1. L1 and L2, however, are now tuned to the output frequency and the transmitter uses single conversion; the data for these coils is the same as for L3.

We now come to the problem of the VFO. If the transmitter was to cover only the four LF bands we could get away with using a VFO and change its frequency to suit the conversion: 160 metres would require a VFO on 7 MHz, 80m. on 5 MHz, 40m. on 2 MHz and 20m. on 5 MHz. These are all practical VFO frequencies and one of my earlier transceivers did just this. If 15m. and 10m. are to be covered the VFOs needed would be on 12 MHz and 19 MHz respectively — far too high to maintain good stability.

To overcome this we can use a crystal mixer VFO using the same design as the transmitter mixer circuitry. Fig. 21 shows the overall circuit and notice the similarity: it's almost identical! We feed in a signal generator to the required output frequency of the crystal mixer VFO and feed it into the carrier input of IC4. Tune the transmitter stages as described in the simple sideband unit, monitoring the output on the amateur band.

For an example look at the frequencies used in the 40-metre band. We used a conversion crystal oscillator on 3.5MHz to convert the 9 MHz signal to 12.5 MHz. The second harmonic of the 3.5 MHz oscillator is on 7.0 MHz and if allowed to get to the signal stages would be radiated as a strong carrier. We are lucky in this design as the signal would be heavily attenuated in the 12.5 MHz bandpass circuit and does not cause any problem, but we must take care that this situation cannot occur on any transmitter we design.

This can easily be avoided by ensuring that the oscillator is HF of the band in use; the harmonics of the signal are then well out of the passband of the transmitter. There can be another problem, that of two harmonics of oscillators in the set beating together to produce spurious signals, but these are more troublesome in receivers than transmitters and by using the old faithful VFO frequency of 5.0 to 5.5 MHz and the crystal frequencies associated with it we are relatively problem free. (This VFO frequency not was just pulled out of a hat but was worked out by someone as being the best. The first recollection I have of it being used was by the famous constructor Arnold Mynett, G3HBW, who used it in a solid-state transceiver back in the early 1960's. This set, as I remember it, had all the facilities that are in the FT-707 but included 4m. and 2m. as well and in a case only a little larger!)

For setting up any piece of equipment it is advisable to have a few items of test equipment such as diode probe, ODO multimeter, and a great advantage is a power supply which includes a current meter. As mentioned in the setting up of the simple sideband transmitter the supply current can tell the more experienced constructor a lot about what is happening in the circuit but it can also be of assistance to the non-experienced. Full scale deflection when you're only expecting 100 milliamps points to an obvious fault! A slowly rising current when you're not doing anything to the circuit points to thermal runaway somewhere, so look for something getting hotter and hotter! And no deflection at all ... well, find the disconnection.

A signal generator, however simple, can be of great assistance as, when used on maximum output, it can temporarily be used in place of an oscillator. The SL640 and SL641 are especially suited to this as the carrier input port only needs 100mV to drive it; all signal generators will be able to supply this on maximum output if working properly. If the transmitter is to be used only on the LF bands the setting up procedure is the same as the simple sideband description. Look for oscillators on the general coverage receiver, start from the exciter end and work towards the output. On HF, where the general receiver cannot be used, firstly tune the signal generator to the required output frequency of the crystal mixer VFO and feed it into the carrier input of IC4. Tune the transmitter stages as described in the simple sideband unit, monitoring the output on the amateur band.

---

**Fig. 17** BLOCK DIAGRAM OF HIGHER POWER "SIMPLE SIDEBAND"
Having got the exciter going feed in the VFO and peak the crystal mixer VFO tuned circuits for maximum output; the transmitter will then be ready to put on the air after filtering output through suitable low pass filters.

Construction Problems

This is the most difficult part of any design! The RF circuitry is totally predictable on paper but when placed in a box snags can occur if the screening is not good enough. As far as possible construct in boxes, bolt these together in a suitable arrangement and then do the interwiring. Remember when designing layout that you do have to get into it for servicing and tuning-up, so place boxes in such a way that lids can be removed. Also lead all wires off the board in one direction and lace them together, not only does this make it look so much neater but also holds the wires in one place when trying to get the iron in to replace a component.

Table of Values

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1, R2</td>
<td>27K, 1/4W</td>
</tr>
<tr>
<td>R3</td>
<td>470R, 16W</td>
</tr>
<tr>
<td>R4</td>
<td>47K, 1/4W</td>
</tr>
<tr>
<td>C1 to C3, C5 to C11</td>
<td>0.01µF ceramic plate</td>
</tr>
<tr>
<td>C12 to C14</td>
<td>to resonate L1, L2, L3 on required output frequency</td>
</tr>
</tbody>
</table>

L1, L2, L3 = inductance required to resonate with C12, C13, C14, respectively on the required output of the xtal mixer VFO, the link winding being 1/10th of the primary winding.

There is nothing worse that charred wires in completed equipment.

The biggest problem of all in designing the layout of a multiband unit is the positioning of the bandswitch. Remember
that the exciter PCB, the crystal oscillator board, the crystal mixer board, as well as the low pass filter box, are all switched. You could use four switches, one for each unit but that makes the front panel look untidy and unprofessional. All these units must be ‘in line’ from front to back with the switch running beneath them. The other alternative is diode switching or relay switching. Diode switching is cheap but I am not altogether happy with it especially at high levels in transmitters.

The alternative, and the method I now use almost exclusively is relay switching; this is far from cheap, but far more convenient. I design my boards to accept relays, get the set to work on one band, preferably one of the highest, and then add bands as required. In this way the cost of the unit is spread, only bands that are used are fitted but the facility is always there to fit others at a later date.

With relay or diode switching positioning of the boards is very simple indeed, as it is only necessary to think of the RF path of the design.

Keep the exciter stages as far as possible from the PA and the low pass filter box; the microphone input is very sensitive to RF signals and this is a common cause of audio distortion.

As mentioned earlier this latter design has not been built as described as a transmitter, but all stages have been used in the past at one time or another, and have worked. Anyone new to the art of construction should have little trouble getting the simple sideband exciter going on QRP. Low pass filtering is required on both transmitters and details of suitable filters are given in the Table of Values for Fig. 18; these are connected between the output of the PA unit and the aerial terminal and switched as required.

The beauty of the simple sideband unit is the inability to overdrive the PA stages. Audio distortion may occur in the microphone amplifier if a very high output microphone is used but such units are rare indeed.

Next month George, G3RJV, will be taking over to describe a transceiver based on the "MLX" PCB. This is a complete SSB transceiver on 9 MHz and with his design will enable a single band transceiver to be constructed.

We regret that, due to a production problem, Fig. 21 has had to be held over until Part 3 next month.

Subscription rate to Short Wave Magazine is £17.40 for a year of twelve issues, post free.

SHORT WAVE MAGAZINE LTD., 34 HIGH STREET, WELWYN, HERTS. AL6 9EQ
OUR preamble this time is once again down to W. J. Prior (Lochcarron) who wonders why on the one hand he rarely if ever, hears a G station and on the other why his Discone, pressed into service as an HF aerial when the main one blew down, seems to be the best yet!

To take the first part, Bill is around 300 miles north of Scotch Corner, very roughly, and so there is no chance whatever of other than a very rare hearing of a G ground-wave signal; also, being surrounded by mountains anyway, he is well screened before he starts. Thus he will only hear G stations who happen, thanks to a combination of their aerial, his aerial, and short-skip conditions, to propagate their signals just right. Now as to the second question — heaven knows! It seems to be a pretty clear hint that a vertical aerial is worth experimenting with! It is quite frustrating to an SWL when he can only hear one end of the QSO, and the U.K. station is inaudible while the DX is a five-and-nine boomer; but that is part of the game and happens to us all, wherever we may be. In fact it is probably by far the most common cause of a vertical aerial is worth experimenting with! It is quite frustrating to an SWL when he can only hear one end of the QSO, and the U.K. station is inaudible while the DX is a five-and-nine boomer; but that is part of the game and happens to us all, wherever we may be. In fact it is probably by far the most common cause of the problem.

To the last of the ground-wave and the first return of the sky may be. In fact it is probably by far the most common cause of the problem. Now as to the second combination of their aerial, his aerial, and short-skip conditions, starts. Thus he will only hear G stations who happen, thanks to a discone, very roughly, and so there is no chance whatever of other than a very rare hearing of a G station.

Bill has an HR-10B which she says is a 'bit flat' particularly at the low end. Angela details her log — involves the main log but several other notebooks too, and which is about due out, and so there may be a different contact.

Clubs & Things

Dave McGlone (Limerick) has been listening for just five weeks when he sent in his first entry. Now he is beginning to feel the need for clubs to join and books to read, as we all seem to do at this stage. Firstly, without a doubt, is to join IRTS, the Irish national society; they are at Box 462, Dublin 9. Secondly, find the Limerick club, and to this end our copy of the "IRTS Yearbook" says that the contact is E14BK, T. Deegan, 27 Oakland Drive, Greystones, Limerick — although we must say that the next issue is about due out, and so there may be a different contact. However, with 71 amateurs in Limerick, they should be findable! As for books, that depends on your individual interests, but we would suggest a good general-coverage text for a start, such as the RSGB "Radio Communication Handbook," or the ARRL "Handbook for the Radio Amateur" — both are obtainable from our Publications Dept. On the subject of Dave's HPX listings, it is quite surprising to notice that he has just one East German on the list. This must be an effect of the skip distance, as they are very common indeed in England.

Awards

J. J. Sales (Lancaster) is into awards, and wants to know, in essence, how to go about it. A Good Question! Ideally, one wants to know what the award is about and what the requirements are before you start. Secondly, you also need to know what is required in the way of QSLs, or a certified log entry, or whatever; and thirdly you have to get the stations into the log and get the QSLs out of them if that is called for. For J. C.'s own money, the only awards worth looking at are WAC, DXCC, WAZ and the similar level ones by the Russians and other countries. The efforts that just require you to hear/work six stations in Bloggsville if you are in the same county, and two if you are elsewhere are good for a chuckle and go to make Bloggsville a little more popular with the DX fraternity, but otherwise don’t do much. However anyone who can complete a WAZ — let alone a five-band WAZ — and get the cards in, in order to claim his award, is very definitely a savvy operator, be he a Phone or a CW man and deserves every respect. In some of the big awards the same group run an annual contest, and if you work a country in the contest they will check with the other chap's contest log entry and if you are in there they will accept that in lieu of a QSL. That's only one or two cards, though, and the rest have to be got in. This is the tough bit, insofar...
as the use of the Bureau isn’t very successful; you have to get your
verdict in by direct mailing and enclosing an s.a.e. and maybe even a
couple of dollars — and the s.a.e. needs foreign stamps which
have to be obtained from stamp dealers. By the time you’ve
got the cards in for, say 200 countries for DXCC, quite a lot will have
come in via the Bureau, but the rare ones will have cost you a
bomb and done your blood-pressure no good! Incidentally about
the Russian awards, for the details you must write to Box 88,
Moscow.

Next we must turn to Mrs R. Smith (Nuneaton) who seems to be
having trouble with aerials that won’t stay aerial — the spring
winds can be quite destructive!

S. Wilson (St. Andrews) has been restricted to the 0100-0400
period for his listening, and split these hours down the middle
to give equal time to Eighty and Twenty. Perhaps the most
interesting one was P4/P/HB9TL on Aruba which Stuart was a
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Moscow.
14 MHz. Propagation seems to have been mainly to the east, with Indonesia in particular well represented.

Our next reporter is M. Rodgers (Harwood) who offers just an interesting HPX list to take him up to 1667.

N. Henbrey (Northiam) says he has given up playing cricket in favour of umpiring and his wife is a qualified scorer. However, Norman has been in hospital for a spell — hope he will soon be fit and around again.

The two lists from E. M. Gauci (Sliema, Malta) cover his All-Time entry and a running total for 1986. So far 1986 has yielded some 666 prefixes — way above the normal 500 transfer point. However, to keep the two lists must be a mammoth task in itself.

There is a change of touring caravan in prospect for F. Dunn (Chester), and Frank reckons he won't get so much listening time in as a result, as he will be out and about. One would have thought something rather fine in the aerial line could have been organised on the caravan, and some exploration of sites and places would yield interesting data for aerial buffs, but of course there is always the problem of powering the receiver (and family objections to contend with in a confined space!)

Next we have a short note from J. Routledge (Hartlepool); he says that now he has passed the 1000 mark on Phone he is going to concentrate his attention on the RTTY and get his score in that mode up. However, time is limited by decorating chores and similar activities.

P. Lincoln (Aldershot) has just a short note this time, as he has been occupied with the computer and when he has been active conditions haven't been very good — mostly Europeans and U.S.A., with the ZS mailbox station strong at times.

Our next letter is from N. Jennings (Rye) who passes on the word that our old friend G. Shipton has been in hospital and we all hope he is soon fully recovered and back on the bowling-green. Norman reckons that the reference to Maidenhead Squares in connection with Mrs. Smith's letter last time round was wrong — so we are now left wondering just what those suffixes meant!

E. W. Robinson (Felixstowe) agrees with us about the OTs having much more rigorous definitions of what they call a ‘hearing’ of a station before they enter it in the HPX List. E.W.R. reckons that we should call for an entry to show the band, time GMT, the station heard, who he is working, location of the station claimed, and maybe comments too. The argument is that GMT, the station heard, who he is working, location of the station, would make the preparation of each HPX listing quite complex. And, as he says, it's more interesting when you extract the maximum information from a hearing. We agree, but at the same time it would make the preparation of each HPX listing quite complex. Certainly we want to know if the station is at all odd, or at an odd connection with Mrs. Smith's letter last time round was wrong.

200 Prefixes to have been heard since January 1 1986 for an entry to be made, in accordance with HPX Rules, see p. 29, March issue. At score 500, automatic transfer will be made to the All-Time ladder, but for this year those who so wish may continue in the Annual Table, provided a separate listing is sent in (where applicable) from the All-Time list. Thus the 1986 final listing, to appear in the March 1987 issue will show who has heard the most Prefixes in year 1986.

ANNUAL HPX LADDER
Starting date January 1, 1986

<table>
<thead>
<tr>
<th>SWL</th>
<th>PREFIXES</th>
</tr>
</thead>
<tbody>
<tr>
<td>R. G. Williams (Borhamwood)</td>
<td>463</td>
</tr>
<tr>
<td>I. Marquardt (Hereford)</td>
<td>423</td>
</tr>
<tr>
<td>B. Muselwhite (Warminster)</td>
<td>338</td>
</tr>
<tr>
<td>S. Field (Barnburgh)</td>
<td>319</td>
</tr>
<tr>
<td>Mrs. A. Sitton (Stevenage)</td>
<td>300</td>
</tr>
<tr>
<td>D. McGlone (Limerick)</td>
<td>208</td>
</tr>
</tbody>
</table>

Starting score 500 for Phone, 200 for CW or RTTY. Entries in accordance with HPX Rules — see March issue, p. 29.

Directory of SWL Names & Addresses

H. M. Graham, 20 Little Spring, Chesham, Bucks. HP5 2BZ. (0494 786564).

N. Henbrey, 1 Perrymans Cottages, Northiam, Rye, East Sussex TN31 6HX. (0797 74 2437).

B. F. Hughes, 4 Harlington Hall Lane, Harvington, Kidderminster, Worcs. DY10 4LS. (0562 83 787).

N. E. Jennings, 64 Udimore Road, Rye, East Sussex TN31 7DS. (0797 222530).

P. Lincoln, 105 Newport Road, Aldershott, Hants. GU12 4PW. (0252 317870).

P. Oliver, 64 Moorhouse Avenue, Paisley, Strathclyde PA29NY.

W. J. Prior, Tigna Beinne, Croft Road, Lochcarron, Ross-shire IV54 8YA. (Lochcarron 207).

August issue due to appear on Friday, July 25th.
Propagation Study on 50 MHz, Part 3

Transequatorial Propagation (T.E.P.) during sunspot cycles 18, 19, 20 and 21

KEN ELLIS, G5KW (ex-SU1KE/HZ1KE/MD5KW, etc.)

At the end of World War 2 the author, as MD5KW serving with Royal Signals in the Suez Canal Zone of Egypt, was able to do extensive monitoring of the harmonics of All India Radio on 49 MHz, Band I, TV, harmonics of services and commercial stations, and it was established that there was a potential for long distance propagation on the north-south path across the equator on six metres.

To explore this probability I constructed a station for operation on 50 and 58.5 MHz with a power output of 50 watts into a four-element directional array, changing direction alternately north and south at thirty minute intervals by means of a modified prop-pitch motor. I had also obtained from the R.A.F. loan of a cabin and an obsolete 50-foot wooden tower which we installed near my quarters at the officers' mess. The beacon started operating early in 1946, and in addition a continuous listening watch was kept for me for cross-band replies on 28.100 MHz at the remote Signals Receiving Station, a few miles away.

During the remainder of 1946 and early 1947 several reports of reception were received from Europe and South Africa, including reports from German stations DEM6753, DE8923 and DE8291. (I wonder who and where they are now — how I received the German listener reports would make interesting reading!) Regular monitoring was being done by G5BY, G6DH, G6XM, G2AOK, VQ2PL, ZS1P, ZS1T and others, but no contacts were made until autumn of 1947.

From Short Wave Magazine, November 1947, “Five Metres” by E. J. Williams, B.Sc., G2XC.

The First Break: by early October reports were coming in that ZS1P and others in South Africa were receiving the afternoon transmissions from Alexandra Palace with fair regularity. Then on October 4th came a series of exciting contacts, when, from 1405 to 1434 GMT, G5BY and ZS1P worked CW and phone on a cross-band contact, G5BY on 28 MHz and the ZS on 50 MHz. Earlier in the day conditions had not been so good, for both G6DH and G6XM (who had listened earlier) switched off under the impression that nothing would happen that day.

The first Europe-South African two-way on 50 MHz was made a week later by PA0UN and ZS1T at about 1200 GMT. A contact with ZS1P followed.

On October 14th VQ2PL heard MD5KW on 50 MHz and on the 15th VQ2PL and MD5KW had a 28/50 MHz crossband contact. The following day G5BY and ZS1P repeated a crossband QSO, and VQ2PL and ZS1P worked MD5KW two-way on 50 MHz; G6DH heard nothing of MD5KW who was beaming on G most of the morning. On the 17th PA0UN and ZS1T had their second two-way: ZS1T was S7/9 at G6DH from 1200-1225 GMT. G5BY had crossband QSO's with ZS1AX and ZS1P from 1209 to 1249. VQ2PL and MD5KW made it again at 1530, and MD5KW's signals were still audible at VQ2PL with the former's beam pointing north. MD5KW had a two-way on 50 MHz with
Fig. 5. Cycle 21 T.E.P., Isles of Scilly

<table>
<thead>
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<th>Date</th>
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<th>Bands</th>
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ZS6BJ at 1300. Both G6DH and G5BD (Mapelthorpe) heard an American station on 48 MHz.

On Sunday, 19th MDSKW reached G for the first time and was heard by G5BY from 0800 to 0835 and from 0948 to 0952, cross-band contact being made at 0820. G6JKL heard MDSKW at intervals from 0945 to 1100, signals peaking to S9. G5BY reported MDSKW at RST 558 peaking 20dB over S9! Later ZB2A got a crossband with ZS1T. This same day J9AAO worked CE1AH on 50 MHz two-way for a new world record of 11,300 miles.

Other distances we make as follows: G5BY/ZS, 5,970 miles; G6DH/ZS, 6,015 miles; PA0UN/ZS, 5,940 miles; MDSKW/ZS, 4,500 miles.

In addition to all this there have been many new paths opened up in the Americas, notably between LU and W5, while XE1KE has had over 50 contacts with LU and OA4, also TG9JW, CE1AH and PY2QK have been worked by the LU's.

In the north-south direction G5BY has also scored. During the course of many 50 MHz tests with MDSKW in the Suez Canal Zone, on a number of occasions G5BY would report MDSKW S9 when the signal was absolutely inaudible at G6DH (even though the MUF in that direction was at least 50 MHz). In these instances it appears that G6DH is too close to MDSKW — distance 2100 miles. PA0UN has also on several occasions not been able to receive MDSKW, who is 1950 miles from him, when G5BY was actually receiving him O.K.

Up to Nov. 9th 1947, MDSKW had been received only twice at G6DH for short periods at fairly weak strength. On Nov. 10th, however (when MDSKW made his first 50 MHz two-way QSO with G6DH), the signals were S9 plus at G6DH. In this instance it appears that E's assisted and reduced the skip distance.1
were issued. Gordon Spencer G4LX (Newcastle) reported U.K. due to Band I TV, interest faded in U.K. and the 50 MHz may lead to the impression that one's equipment is at fault, or a confirmed by G6DH in an excellent article in QST, January 1948.) month) in the paragraph “The effects of latitude” and is I’ Author’s these will be referred to.

However at other times crossband 28/50 contacts were made and south - i.e. during the spring and autumn equinox periods. observations were possible when T.E.P. was probable to the extreme south-west as was desirable; therefore, only limited expense involved, it was not possible to spend as much time in the International Geophysical Year, when a few experimental permits were issued. Gordon Spencer G4LX (Newcastle) reported reception of the ZE2JV tests several times in May 1958. In the autumn he had permission for operation on 52.5 MHz, making tests every evening in September and at noontime on Sundays only. The evening tests were received in Salisbury three evenings out of 29 tried. In September, G4LX, on the other hand, heard ZE2JV 15 evenings out of 29 tried, and heard noontime tests on 2 out of 4 tries. G4LX reported the reception of the South African signals briefly for two evening periods, 1700 to 1715 GMT, usually showing a “clean” signal, and 1900 to 1930, always showing a flutter which is characteristic of TE propagation. The 1700-1715 period was discounted, as F2 propagation may have been responsible, but F2 propagation during the later period appeared unlikely. Tests in the other direction bore this out.

The time factors on the I.o.S-S. African path will of course be

1) Author’s note: This anomaly was referred to in Part Two (last month) in the paragraph “The effects of latitude” and is confirmed by G6DH in an excellent article in QST, January 1948.)

This effect of latitude and distance can be very frustrating and may lead to the impression that one’s equipment is at fault, or a location problem! It was most noticeable more recently whilst operating from I.o.S and Penzance.

T.E.P. during Cycles 19 and 20

After the withdrawal of operating permits for 5/6 metres in U.K. due to Band I TV, interest faded in U.K. and the 50 MHz DX was forgotten until a revival of interest during the International Geophysical Year, when a few experimental permits were issued. Gordon Spencer G4LX (Newcastle) reported reception of the ZE2JV tests several times in May 1958. In the autumn he had permission for operation on 52.5 MHz, making tests every evening in September and at noontime on Sundays only. The evening tests were received in Salisbury three evenings out of 29 tried. In September, G4LX, on the other hand, heard ZE2JV 15 evenings out of 29 tried, and heard noontime tests on 2 out of 4 tries. G4LX reported the reception of the South African signals briefly for two evening periods, 1700 to 1715 GMT, usually showing a “clean” signal, and 1900 to 1930, always showing a flutter which is characteristic of TE propagation. The 1700-1715 period was discounted, as F2 propagation may have been responsible, but F2 propagation during the later period appeared unlikely. Tests in the other direction bore this out.

The time factors on the I.o.S-S. African path will of course be later.'

Sunspot Cycle 21, 1979-1982

Due to family and other commitments, and in view of the expense involved, it was not possible to spend as much time in the extreme south-west as was desirable; therefore only limited observations were possible when T.E.P. was probable to the south — i.e. during the spring and autumn equinox periods. However at other times crossband 28/50 contacts were made and these will be referred to.

An extract from the author’s log of QSO’s over the north-south path, Fig. 5, is included as a guide to possible times and dates of future openings. No attempt has been made to classify the QSO’s into the now accepted modes of propagation, but the information is offered for the specialists in propagation studies.

As the geomagnetic equator is more curved at the point of intersection on Fig. 7, i.e. concave to the south, and convex to the north, it is assumed that the main zone and extensions will have to be modified. Fig. 7 is therefore being offered by the author as a rough guide; Fig. 7 is based on the original Fig. 6 (source ARRL “VHF Manual”, 1965) and reprinted in Radio Communication, June/July 1980, in “Twenty-one years of TE”.

Ray Cracknell has kindly loaned to me for a limited period copies of most of his excellent detailed and diagram-supported articles. For the benefit of those who may require more detailed information I am prepared, within reason, to assist — on receipt of an s.a.e. My current address is at the end of this article.

Now that we have 24-hour facilities once again, it is desirable that the study started by the pioneers of TEP 40 years ago and unfortunately interrupted be resumed, and all results, however small, be placed on record for inclusion in due course in the U.K. contribution to 50 MHz history. These may be sent to me, or direct to Ray Cracknell. Thanks in advance.

In Dec. 1959 QST, R. G. Cracknell, ZE2JV (now G2AHU), wrote a long, interesting and detailed article, “A Study of North-South VHF Propagation”, based on the work of F9BG, G4LX, ZC4IP, ZC4WR and ZE2JV. This was followed in 1980 by a series of articles, “Twenty-One Years of TE”, in Radio Communication, giving an account of observations and experiments in transequatorial propagation between 1957 and 1979.

Evidence was produced to confirm:
(a) T.E. Propagation takes place via the Ionosphere.
(b) Equinoxial dropout, which effects all signals above 50 MHz.
(c) Three distinct modes of propagation:-
1. Normal ‘F’ layer at irregular periods between 1100 and 2100 hours at very strong signal strengths.
2. ‘F’ type TE providing strong signals, often characterised by very deep fading or severe distortion, and occurring mainly between 1830 and 2030hrs.
3. Pure TE, providing weak signals accompanied by a characteristic flutter fading pattern, the maximum occurring about 2100hrs, but signals may be propagated at noon and throughout the evening until after midnight.

The classification of the three modes was established by time delay tests by oscilloscope photographs of an unmodulated 50 MHz signal received in Limassol from Salisbury by differing modes of propagation. Observations were made of the varying angles of arrival, flutter fading, and frequency spreading of the received signals.

The Future Programme

Now that 24-hour operation on 50 MHz is allowed in U.K. the studies that we can undertake are as follows:-
(1) A full exploration of the possibilities of longer range TE.
(2) Confirming or disproving that stations must be equidistant and at right angles to the magnetic equator in order for T.E.P. to work.
(3) A determination of whether T.E.P. will work at even higher frequencies.
(4) Transequatorial Propagation during the years of the quiet sun (see article “An Amateur IQSY Project”, RSGB Bulletin, June 1965).

The next article will deal with 50 MHz during the International Geophysical Year, 1957-1958.

Author’s address: 29 Stanbrook Road, Northfleet, Kent DA11 0JW.
Improved CW Performance for Ten-Tec Transceivers

better selectivity for the Triton and Argonaut

COLIN TURNER, G3VTT, and CHRISTOPHER PAGE, G4BUE

TEN-TEC Inc. of U.S.A. has marketed a successful range of transceivers in the U.K. for the last ten years or so. Recently KW Electronics has acted as U.K. agents and sold both transceivers and spares. Whilst later designs have a provision for a CW crystal filter as an accessory item, the earlier designs only had provision for an audio CW filter, which does not provide such good selectivity as a narrow crystal filter in the IF strip.

During our trip to the U.S.A. last year we went to the Ten-Tec production plant in Sevierville, Tennessee, as part of our tour of the southern States. CW selectivity was one factor of the early Ten-Tec range that we discussed with Dick Frey, K4XU, who at that time was chief development engineer with the company. Since our trip Dick has moved to a post with another company, but with the information we learnt and by purchasing two CW filters, we have improved our Argonaut and Triton IV. Do you have an ageing Argo 505, 509 or 515, or maybe a Triton? Do you want to improve the receiver selectivity? If so, read on!

IF Amplifier and Filter

The heart of the improvement in selectivity is the Ten-Tec Model 217 500Hz CW filter, which is obtainable either from Ten-Tec direct or via KW Electronics at Chatham, Kent (their address can be found in any issue of Short Wave Magazine. The price quoted to us from Ten-Tec was $59 plus $7.50 air mail postage, and the KW price will no doubt reflect the import duty, VAT and airmail costs.

Another filter is available which has a passband of 250Hz, called the Model 219. This can be used to give even more selectivity, but it does have the disadvantage of introducing a 10dB loss to the IF signal. The Model 217 filter has a loss of around 7dB, and this is overcome by using a simple untuned preamplifier before the filter in the IF chain. Switching from CW back to SSB, and so reverting to the normal 2.7kHz bandwidth, is carried out by a change-over relay.

An unmodified Triton or Argonaut will have an SSB filter fitted giving around 2.7kHz passband. The Triton also has an audio filter which enhances reception in the CW mode, whereas on the Argonaut this is an accessory. If either of these transceivers is fitted with both the audio filter (Model 245 for the Triton and Model 208A for the Argonaut) and our extra crystal filter, the result is a very 'hot' transceiver indeed.

The Circuit

Fig. 1 shows the circuit of the preamplifier, TR1 and the filter with its associated switching relay, RL1. Signals at the IF of 9MHz are taken from the SSB generator board 80282 in the Triton and 80131 in the Argonaut, amplified by TR1 and are then passed via the filter and RL1, to the rest of the receiver IF strip through the IF/AGC board; this board is 80279 in the Triton and 80208 in the Argonaut. This modification affects the receiver path only, and the wire which connects the SSB generator board to the IF/AGC board must be removed before the filter is fitted.

Reference to the manual will show that we need to remove the wire from the pins marked ‘RX IF’ on the SSB generator board, and the other end which is connected to the ‘IN’ pin on the IF/AGC board. On the Triton this wire was coloured brown and on the Argonaut we found it to be blue.

In effect our new filter and amplifier is taking the place of this wire we have just removed. If you are in doubt about which wire to remove, the job has been made easy for you — luckily Ten-Tec transceivers are normally made to be readily serviceable. Merely remove the SSB generator and IF/AGC boards by removing the two screws holding the boards down and gently tug at the boards so lifting them from their sockets. Identify which pin is which by comparing the boards components with the individual circuits in the handbook for your particular transceiver. On the Argonaut the wire to be removed was connected to pin number 6 on both boards. Good old Ten-Tec, they always do a decent job of the handbook and service alignment procedures for their products!

Power for the amplifier can be obtained from any of the points in the transceiver which has 12 volts and is accessible. On the Triton modification there was a bunch of wires delivering power to various circuits at the rear of the crystal calibrator on/off switch, and on the Argonaut we ‘stole’ it from the dial lamp switch located on the inside of the rear apron. The changeover relay RL1 is used to switch the filter out of circuit when changing from CW to SSB operation. We arranged that a spare contact on the mode switch which is grounded under
A close-up of the new filter and amplifier fitted to the Triton IV of G3VTT.

The 'SBN' position, i.e. normal SSB, is used to hold the relay in, so connecting the SSB generator board direct to the IF/AGC board and bypassing our filter. When we switch to CW the relay drops out, so inserting the filter in the IF chain.

The relay can be any 12 volt changeover device, the smaller the better. In Colin's Triton we used a 5 volt type with a 560ohm resistor in series, whilst in Chris's Argonaut we used a 12 volt ultra miniature relay supplied by Maplin (part number YYX94C, at 98p). Whatever relay is used it must be grounded through its coil from 12 volts via the mode switch wafer (Stc on the Triton and Std on the Argonaut) when switched to 'SB-N'.

On the Argonaut, to enable the filter to be switched out when in the 'SB-R' mode (reverse sideband) as well as the 'SB-N' mode, a connection was also made to the appropriate tag on the switch. The correct tags on the switch can soon be found by using a meter, and if in the same position as Chris's will be at the bottom and rather difficult to get at. We overcame this by taking the side panel off the Argonaut by removing the remaining two screws, and making our connection.

**Construction**

A piece of PCB is cut just larger in length than the filter, which should also accommodate the changeover relay and the preamp transistor. For the Triton we used 'ugly' construction with the components soldered directly to the earth plane of the board. We etched a board for the Argonaut and used conventional PCB construction techniques. The PCB etching pattern is shown in Fig. 2 and the parts layout in Fig. 3. You can now choose which type of construction you prefer.

Screened leads should be used for all the IF connections, and the negative rail is run to any convenient earth point.

The completed board can be placed in any area near to the IF/AGC board on the underside of the transceiver. It was mounted vertically in the Triton and held in place by a small right-angled bracket soldered to the board and screwed into place under one of the transceiver's own PCB retaining screws. We mounted it horizontally in the Argonaut, parallel to, and immediately above, the IF/AGC board; it is held in place by a small right-angled bracket fixed to an existing screw on the side of the VFO.

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**Diagram**

- **Fig. 1**

- **Fig. 2**

- **Fig. 3**
The position of the new filter module fitted to G3VTT's Triton IV, between the IF/AGC board, calibrator and audio boards.

Inside G4BUE's Argonaut 515, with the new PCB mounted alongside the VFO compartment. A small bracket is used to hold the PCB in position above the IF/AGC board.
G3VTT’s ‘ugly construction’
filter module, mounted between
crystal calibrator, audio and
IF/AGC modules.

compartment, which in turn holds the bracket which one of the
bottom panel retaining screws go into. A piece of insulating card
was placed between the filter board and IF/AGC board to prevent
shorting out of components should the two boards accidentally
touch each other.

Testing and Results
After checking the wiring and switching on, often a nerve-
racking business, the selectivity can be compared by switching
between ‘SB-N’ and ‘CW’, using the normal mode switch on the
transceiver front panel.

There should be a great improvement in selectivity between the
two positions, in fact on the Triton there are two positions of CW
selectivity already fitted with the inbuilt audio filter. The
selectivity in ‘CW2’, i.e. audio filter plus SSB filter plus new CW
filter, is enough width for any CW operator on today’s crowded
bands.

The audio filter (Model 208A) for the Argonaut is combined
with a notch filter and is external, being built into a separate case.

It has three positions of varying bandwidth (CW1, CW2 and
CW3) and when used with our new crystal filter turns the
Argonaut into a very good receiver, especially for QRP work.

Although we have not tried this modification with real ‘live’
Argonaut 505 or 509 models, there is no reason why it should not
work as they both have identical IF amplifier systems to the later
515 model.

We would recommend that only an approved Ten-Tec filter is
used, either Model 217 or 219. This is due to the amplifier design
we have suiting only the 2200hm termination impedance seen by
the Ten-Tec ladder type filters.

No ringing has been noticed with these filters, the shape factor
of either 2:1 or 2.4:1 depending on whether a Model 217 or 219 is
used, is enough to ensure that offending QRM can be lost by off-
tuning enough to lose it ‘over the side’.

So there you have it: with a little careful thought, manipulation
of the soldering iron, a relay, the filter, and a handful of
components, enhanced selectivity for your Ten-Tec. Go for it!

“I suppose they are a bit like us...”
WHAT has this month been like on the bands? As far as the writer is concerned, the prime observation has been that when one returns to the shack after taking the mower for a walk, or switches on after a session of putting slow Morse on tape, the bands have obviously been giving well but are now equally obviously dropping out. This of course is in accordance with Finagles Axiom, which states that Hodde's Law is always optimistic!

The Bands

There has been a little of what does you good to be found on all the bands, provided of course you could be on at the right time, so we may as well cut the cackle, and follow the readers round.

Ten Metres

The improved band conditions during the past month have of course resulted in more contacts and more reports.

G3NOF (Yevoli) noted quite a bit of sporadic-E, with signals from all over Europe and strong GM signals, the band on occasion being alive from 0700-2300z, while at other times it has opened in the early morning and then died in the middle of the day until around 1600z; there were even a few openings to South America and Africa. Don mentions his contacts on SSB with C53FE, CN2AQ, CU2DG, FY5DG, JR8BU/5N0, IC8SDL (Capri), PY1ACV, PY2EOQ, PY2EM, T77C and 5N2ZHN.

G4HBU (Knutsford) used CW, SSB and even some FM during the month, and his aerials varied from the two-element Quad, a half-wave vertical or a helically wound vertical used on the car, for one or two FM contacts while mobile. The band opened just about every day; the South American and Caribbean openings were noted but nothing worked due to TVI problems in that direction. However the tally still added up to 5B4RU, CN8AQ, DM, HA, HB9, I, LA, LZ, OH, OK, SM, SP, TK/DL4FF, RA4LD, RQ2GGF, UA6LMB, UA1ZFI (Murmskn) and YU, with gotaways including LU, CE, KP4, and CX. On a slightly different note, Tony recalls the White Rose Club's Activity Day on May 25, and enjoyed the inter-G working it engendered. True enough, and the White Rose Club support of the band and the efforts of David Whitaker are just great.

G2HKU (Sheppey) was entertained mildly by my opening comments last time around — he has been observing the phenomena himself from close quarters while trying to locate Customs & Excise and local government officials on specific topics. Ted reckons they have training courses in covering their tracks and in laying down smoke-screens! Ted used CW on the band to find and work EA2BU/N, EA5ABT, and IJ6FBA.

G4ZZG (Warrington) notes the absence of the IY3M thing from his log, but found another one in EA3JA on 28246 kHz from Barcelona, heard at 1445z on May 11; and Charles also comments that, as in last season, there is no tie-up between the presence of amateurs and the presence of beacons. What is required, one supposes, is some sort of reporting network, whereby, for example, if a beacon in country X is audible in country Y, a telephone call goes between them and amateurs are alerted to the presence of an opening, and at least to some idea of the nature and direction thereof. Half of the problem is that while the beacon is giving the distant stations the hint that the band is open, it does nothing to alert the locals. With the present state of technical knowledge, there seems no reason, given only that the beacon band can be split into two, why a beacon cannot both transmit and also listen for other beacons; and when it hears one, raise an alarm with the beacon keepers who can then spread the alert through the ranks of the faithful, and get them on the band. On the other hand, to revert to G4ZZG's very interesting and thought-provoking report, how does one account for such as May 12 and 17, when Charles noted lots of amateur activity but nif on beacons? Possibly a question of localised paths and no beacon on the route?

Nice to hear again from G40BK (Chorley) who promises us a photograph of what the wild winds did to his Top Band vertical . . . sounds as though he was getting a hint from nature to try an inverted-L! On Ten, CW accounted for YUs, EAs, Fs, Is, SMs, HB9s, C30BAX (QSL via DL4BBO), S9JWL (QSL via SM4FTF) and 1SOOMH. SSB managed to do the trick with CN2AQ and F6FGU, and there were some cross-band contacts to 50 MHz, from 28,885 MHz, which yielded OPEXA, OZ1DOQ and OE3OKS; G40BK regrets not having time to report to “VHF Bands” too. On a different tack, as we have reported in “Clubs Roundup” this month, there is a new club formed, and G40BK has been pushed into the chair. He must be O.K. because they've already got thirty members or more signed on! To change tack again, Phil notes that the CB intruders are still with us, and that it needs more of us to get on and squash the perishers with RF.

G3BDQ (Hastings) has done further work on his aerial as previously forecast, and believes he has in the process improved the signal a bit, too. The 28 MHz openings were not missed and John worked SSB (after he dusted off the microphone!) to work short-skip all over EU, YU, HA, OZ, UK5, DL, and so on, plus 5B4LT, T77C and A71BJ.

G4VFG (Ivybridge) begins by hoping your scribe's aerial is working well, as mentioned last time around . . . chance would be a fine thing, to get it up! Peter noted some of the short-skip and the odd longer haul: IK8EOY, IK8EHN, OK1TW, HG5AAP, HA8XX, EA6NR, YU7QCS, CE3GWO and CE3HFC (both in Santiago), and the EA3JA beacon (on 19th) was followed by a QSO with EA3FJS in — you guessed! — Barcelona. May 20 was the start of the best period, and Peter noted Y32XJ, YU2RL, DJ2FR, OE3DHS, IK6GTC, HAI5WU, I0JX, all on the one day. May 21 saw a selection of beacons logged from Europe and a contact with HB9DAI; on 22nd there were again several beacons heard, and there was just a 4X who failed to come back to the G4VFG call. May 25 showed only one beacon but at 1800 a couple of PY's surfaced on CW, and were snapped up; PY1PL and PY1APS.

“CDXN” deadlines for the next three months:

August issue — July 2nd
September issue — August 6th
October issue — September 3rd

please be sure to note these dates

An interesting and lengthy letter from G2HLU (Earley) who was pleased by my remarks last time about the New Bands. Harold has observed that well-known amateur radio phenomenon, of an upsurge of activity when a new rig or a new aerial is placed in service — and in Harold's case it is the lure of the new Micron rig. In fact, G2HLU has the disease badly, and he has started a new record book for countries, prefixes and so on. So? Well, the old rig was wartime vintage so one can imagine the state the poor thing must have been in after over forty years of quite hard usage. On 28
MHz, the QRO CW went to EA7FTN, PY4BH and ZP5XDW, while the QRP box managed I4YCE, IK2GRA, LU7EE, OK3TKM, 4Z4NUT and 9H1EL.

**Top Band**

Seems to be maintaining a surprising degree of life for the time of year; although the writer will admit that for many years he has believed the summer months offered quite definite and worthwhile DX opportunities.

A new contributor is GM4ZRR (Aberdeen) who for some reason received his April issue after the May one — not our fault, your Honour! — and was moved to write by our comments on the Top Band situation. Ian is 16, and has been listening on the band for three years and active on the band since he was first licensed back in 1984, and has such stuff as VK, ZL and 9M2 in his log. Ian says he finds operating standards both on CW and Phone, have steadily deteriorated in the period he has been around. GM4ZRR makes a valid additional point when he remarks that in his belief, many of the Europeans who have been let on the band in the past few years just don't realise its DX potential.

That is a very important point; twenty-five years or more ago, your scribe could be said to have been one of that fraternity, and the thought of a QSO with GM or GI was wonderful — I just didn't know that the Loran at the lower end of the band emanated from U.S.A. until I had it all explained to me, tried it and found it worked. The need is quite clear, and it seems that the protagonists of single-channel working are probably making a rod for their own backs (and ours) in the long-term. If someone who doesn't understand gets a call from and makes a QSO with, a DX station he will be baffled, so it just spits out a blank. RSGB agreed this was so, and promised to set up a system whereby the afflicted ones could advise RSGB Hq. and they would manually alter their records, and so get the Callbook right. Alas, the RSGB system has failed to materialise, at least as far as G4IJF is concerned. Nigel therefore wishes it to be known that the following details should be added to your copy:

- G4IJF, Nigel Roberts, PO Box 49, Colchester, Essex CO4 3SF. Station located at Manningtree, Essex.

Now we must look at DX News Sheet. The comments about the Clipperton expedition looking for EU calls on 3803 kHz were somewhat acid, and others have written in the same vein; if that were not bad enough, they were on occasions noted calling Europe and then going back to Ws. A damn bad show all round as far as we are concerned.

There have also been some fireworks over DL7FT and his SV5 activities, and we understand that at least one SV station called the Voicebank to say that his licence had been revoked, although operation continued. Later it appeared that DL7FT's licence had been revoked before he began but someone forgot to tell him; in addition when he was finally located by the Greek authorities he was on Kos, although the licence had been granted for use on Rhodes.

If you came across a call of the form A21HAR, don't panic — it appears to have come from Argentina; but watch the QSLs, as we understand A21HAR goes to LU4AA, but A21HAR/5 to LU6FAZ!

**Titbits**

The problem of the RSGB Callbook and the "name and address withheld" splattered all over the place against people who don't want their details suppressed is at least partly solved by G4IJF. Nigel found that if the station address and the address for correspondence is different, then the RALU computer software is baffled, so it just spits out a blank. RSGB agreed this was so, and promised to set up a system whereby the afflicted ones could advise RSGB Hq. and they would manually alter their records, and so get the Callbook right. Alas, the RSGB system has failed to materialise, at least as far as G4IJF is concerned. Nigel therefore wishes it to be known that the following details should be added to your copy:

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Those who hunger for a Spratly contact should note that VQ9ZZ is reported to be on 7390 kHz, 6173 kHz, 6016 kHz and 5980 kHz. The comments about the Clipperton expedition looking for EU calls on 3803 kHz were somewhat acid, and others have written in the same vein; if that were not bad enough, they were on occasions noted calling Europe and then going back to Ws. A damn bad show all round as far as we are concerned.

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- VP8BGO and VP8WTW are reported to be trying to set up a S. Georgia operation, but money is the prime problem; at the time of writing they were awaiting word from some of the major DX Foundations on their representations for help.

Those who hunger for a Spratly contact should note that VQ9ZZ is reported to be
looking at the possibilities of a Spratly activity while he is on a tour of duty in the Philippines.

**New Bands**

G2HKU mentions just one QSO on the band, which was a CW one with KV4AM on 10 MHz.

10 MHz CW also served for G40BK; Phil offers FG5AM, but says he leaves the glory to local G4VDX who does very well on these bands!

G2HLU also offers just one contact; his was with the QRP rig, CW and EA2JJ.

Turning to the letter from G4VDX (Leyland), Joe mentions 10 MHz as having yielded PZ1DV, LX2LH, FG5AM, LU9CV, VE2GXD, 4X4WF, EA8ABR, VK2AMO, C308BC, CT3DJ, KC3TT, WK1MD, VK4RF, GB4LI (Lundy Is.), W8EGB, 7X2AX, W1KRV, WA1ZQM and W1HMD, VK4RF, GB4LI (Lundy Is.), was with the QRP rig, CW and EA2JJ. on these bands!

G4VDX was quite pleased to work LU9CV on CW, and also GB4LI on Lundy Island.

Back to G3BDQ, who for once had a basalinf of SSB, and worked 5Z4ET, 4X4JU, OD5RH, ZB2HI, VH2ZAP, CX7ABT, FY5BV, J28EL, and a couple of islands in IY7WVF on Pedagne and I2KAN1/JM0 on Magdalena.

G2HLU’s QRP rig had to be tried on this band, and it netted contacts with HA, LZ, OE, OK, TK, UB, UP, and YU.

**Twenty**

With the long evenings, one has been able to go into the shack most evenings and find something of interest to work. The writer has even been able to use it to make a recording of slow-Morse-with-some-QRM for training purposes when there was nothing to rave about!

G3NOF has a long analysis of the month on this band; there was some Spratly and some good DX conditions. The VK/2L path in the mornings hasn’t been much good, although the short path to the Pacific has been open around 0700z and 0900z. Otherwise rather to pattern, save for the odd opening to VE7 and VK around 2300. Don made SSB QSOs with AP2MQ, BY4AA, AZ1IARU, DL7FT/SV5, EO4AHK, EO5BIM, ER3A, EU0G, EV9AW, FF6KTT/P (Levens Is.), FG5BM, F08FO, GB0O5 (Housay Is.), HB0/DAIWA, H17PV, HK4CZE, HL4CCM, H9LYG, JH13MJ/KP2, JW1L, JWE, JW8FQG (Bear Is.), JF8NT, JA7QFU, JAEXW, JA8ALC, JE1JUN, JF2EZA, JH7QKX, JH8JWF, K0DU (Colorado), K0VVF (Colorado), KF6GO, KH6I, KH65B, KH6UF, KL7C, KL7HFQ, KL7LF, KL7NT, KL7TC, N7F5W/KL7, RD9DM, RM8MA, RZIOWB (Novaya Zemlya), S79CW, TA1B, T12ANL, T12CLR, T12OZ, UA0FO (Zone 19), UI1J8B/8UK, UIJ8MM, U29WJO, U2Q0QW (Zone 19), U2Q0QX (again Zone 19), V85IR, VE2PAB/4U/YK, VE3SMH/M, VK5AQL at 1652z, VP3RM, JW1L, VX0DK, WQ5T, ZC4AP, ZC4MR, ZF8DXX, ZL3AFT, ZS6CW, 4N0IARU, 4S7VK, 513BH, 5N8BAY, 5Z4EV, 750TM, 8J9ITU (Tokyo), and 9M2DF.

The CW from G3BDQ went out to 4X6F, 5B4FN, ZV2KT, ZY40D (both Pys!), C30CSA, HK1HKK, FM5CT and, after a thirty-minute chase, 3G3C in Santiago, Chile — one of the biggest peaks up John recalls.

G4VDX was quite pleased to work LU9CV on CW, and also GB4LI on Lundy Island.

**Fifteen**

Let’s look at G3NOF’s report from Yeovil first; Don notes that there was some Spratly-E about but not as much as was noted on Ten, and by large and the large band didn’t do very well for him. Africans were noted around 1700, and by and large the band wasn’t working.

We are saddened to learn of the death on May 10th of G. E. Read, G3ERN, at the age of 81, known to countless friends as ‘Ernie’. He was first licenced shortly after World War 2, and quickly became well known, mainly on Top Band, for an outstanding signal from Harlow, Essex, and for the fact that the Harlow club then gathered at his shack. When the G3ERN land was taken up as part of the redevelopment of Harlow, Ernie moved to Hallingbury, from where he continued to radiate a good Top Band signal, even though it had lost some of its edge due to the different ground structure at his new home. This provoked G3BDQ to turn to 144 MHz and he continued to keep in touch with friends regularly, despite failing health in later years.

Among the highlights of G3ERN’s earlier career was making the first transatlantic Top Band contact using transistors, with an output power of around three watts. He was for a time president of Harlow club, and later was granted an Honorary Life Membership of the Bishop’s Stortford ARC which signified the local appreciation of G3ERN’s efforts and his encouragement of aspiring novices.
PRODUCT REVIEW

The MET Six-Metre
2-Element and
3-Element Yagis

IAN KEYSER, G3ROO

HAVING decided that I wanted to be active on the first day
day that 50 MHz was open to Class A licence holders,
considerable work was done to get a station ready. As usual the rig
was the priority, and two of these were made ready in case of
sudden failure at the last minute! Then came the problem of the
aerial.

The first attempt was with a dipole slung from the tower but as
more thought was put to the problem I decided that as my interest
in 2 metres was so low the good location that that aerial occupied
on top of the tower was wasted. Calculation showed that even
with a small beam I would be approaching the maximum wind
loading for the tower, and the smallest beam on the market was a
two-element. On further investigation the one that seemed to
have the least wind loading was a MET antenna, made by
Metalfayre.

On a visit to them in St. Margaret-at-Cliffe the problem was
discussed but I left without purchasing anything. During a later
chat with Metalfayre I was asked if I could test a proposed
2-element beam that they had decided to produce but did not have
the time to develop, and the following is a report on the
conclusions of the next few days work.

The MET 2-ele Yagi

The aerial itself came in a strong polythene tube and consisted
of four element rods, one gamma assembly, one boom, two
jointing studs, four locking nuts, fully adjustable clamp,
waterproofing boot, a sachet of silicon grease and instructions.

Constructing the beam presented no problem and was on top of
the tower, instead of the 2m. aerial, in no time at all. Due to plug
incompatibility on the 100 feet of UR67 coax we could not do
SWR adjustments at the beam itself but had to use the reflecto-
meter in the shack and use a 2-metre talkback.

Setting up did not take too long as we inserted the gamma
capacity rod by two thirds of its length and then adjusted the strap
for minimum SWR; the capacity was altered slightly and the strap
re-adjusted for best SWR and improvement noted. Playing with
the two adjustments soon gave a perfect SWR. The tower was
lifted a few feet and it was noted that the SWR changed
considerably! We then realised that we had adjusted the SWR
with the beam firing into the ground only four feet away! The
beam was then turned by 90 degrees so that it was firing parallel to
the ground and the SWR re-adjusted. This time the best SWR
shifted 200 kHz HF but remained perfect. The tower was again
lowered and the SWR re-adjusted at low level on 50.0 MHz and
when lifted this rose to 50.2 MHz. The positioning of the gamma
clamp on final setting up was found to be almost at the extremity
of the gamma rod for best matching; a second aerial was tried and
the optimum setting found to be in exactly the same position.

As can be seen from Fig. 1 the SWR curve is very flat indeed
with the SWR below 1.1 to 1 between 49 and 52 MHz. With the
tower lifted to the vertical the beacon GB3NHQ became clearly
audible and as the beam was rotated it faded into the noise. The
beam was then turned onto the power line which runs a few
hundred yards away and the noise from that also peaked.

The polar diagram is shown in Fig. 2. This was measured using
a stepped attenuator in the aerial line and using a signal from
Stuart, GOAXD, with the beams firing at each other. The
attenuator was adjusted for an S-meter reading of 2. The beam
was then turned by 10 degree steps and the attenuator re-adjusted
so that the meter again read 52. Fig. 2 shows that the side nulls are
in excess of 24dB and the back-to-front ratio in excess of 10dB —
a very reasonable figure for a two-element Yagi. The squint due to
the gamma matching rods was a little more than expected and this
may have been influenced by the location of the house which is off
the side of the beam when firing at GOAXD. This could also
explain the amplitude difference of the two lobes.

In use the aerial has proved itself with all stations heard having
been worked with five watts.

Fig. 1 MET 2 ELEMENT YAGI. SWR adjusted to unity at 50.2 MHz

Fig. 2 6m. 2ele. Yagi practical horizontal polar plot.
Conversion to a 3-ele Yagi

When constructing the two-element Yagi it will be noticed that the boom is slightly longer than it needs to be and that there are two plastic plugs in this 'tail'. There is a very good reason for these holes as they can be used to convert the two-element beam into a three-element beam. Having ordered and received the conversion kit, these two plugs and the end plastic stopper were removed and the construction and addition of the third element carried out in accordance with the three-element beam instructions supplied.

It is then necessary to re-match the beam as the addition of the third element will of course make considerable difference to the positioning of the gamma rod and capacitor.

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The MET 3-ele. Yagi for 6m. mounted above the HF beam.
The same tests were carried out as with the two-element beam and the results given in Fig. 3 and Fig. 4. It will be noticed that the bandwidth of the array is less but still the SWR is very acceptable over the whole of the six metre band, not going above 1.2 at the band edges.

The beamwidth of the array is about the same with the 3dB points at plus 40 degrees and minus 45 degrees, the slight squint being caused by the gamma match assembly. In use the extra gain of the third element was immediately noticeable when the beam was pointed at the local power lines and the signal from GB3NHQ was also noticeably stronger; however it is difficult with the equipment available to exactly quantify the gain over the two-element Yagi.

Conclusion
The two-element beam is an ideal unit for those worried about wind loading or those in sensitive areas as far as aerials are concerned. No-one can complain about it as only 10 years ago the majority of the dwellings in the U.K. were fitted with a very similar aerial for TV reception. Stuart, G0AXD, has mounted his 2-element at 90 degrees to his 2-metre, 7-element beam and only two feet below it. The interaction between the two aerials mounted like this is minimal — and the system looks reasonably neat, too.

The price of the two-element MET beam is £32.00 inc. VAT, plus £3.50 postage and packing. The conversion kit is priced at £11.50 inc. VAT plus £1.75 post and packing. This compares favourably with the price of the three-element beam at £39.95. To complete the range of aerials, MET do a five-element unit which retails at £59.95 inc.; but with all the other pieces of metal hanging on my poor tower I did not dare try this monster out!

METalfayre's address is Kingsdown Road, St. Margarets-at-Cliffe, Dover, Kent CT15 6AZ. (0304-853021).

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A problem that the 'old-timers' had to contend with has still not gone away despite all the advances in technology that have taken place over the years. Voltage stability caused drifting carriers and other problems in the 1920s and can still cause havoc today. Oscillators can now be built which have greatly improved characteristics compared with pre-war designs but the ultimate test is still the short-term instability caused by slight changes of the operating voltages. There are also many other circumstances in which a well stabilised supply is essential, ranging from the need for a voltage reference to the requirement for an ultra smooth DC line with the minimum amount of ripple superimposed upon it, perhaps for use with a very high gain audio pre-amplifier or the input stage of a piece of test gear.

Stability
The obvious way to make a good start is to ensure that the main DC supply is well regulated and adequately smoothed for the purpose intended, but this is not always enough and it is frequently found that one has to resort to local or "on board" regulation. This is usually required due to voltage swings on the supply lead to that subsection due to varying current demands of the circuitry involved.

Considerations
Firstly it must be obvious that you need a higher supply voltage than the regulated line that you wish to end up with because there has to be a drop across the resistor. There must also be an allowance for the standing current through the Zener diode which for the smaller wattage units should be around 10 to 15 milliamps. Let us look at an example: assume you have a 12 volt line and you wish to stabilise it at 5.6 volts and that the circuit or load draws 20 milliamps. The combined load and Zener current is, say, 33
milliamps and the required voltage drop is \( 12 - 5.6 = 6.4 \) volts. The nearest standard value resistor which will drop in here is 220 ohms and the wattage rating would be \((V^2)/R\) approximately 0.22. In practice it would be safer to fit a half-watt component.

**Diode Rating**

The diode has to be rated on the basis of the load taking no current at all (accidental open circuit) and again allowing a little leeway we would opt for a 500 milliwatt device. One point that is frequently overlooked is that a Zener diode is a great generator of RF hash and noise over a very wide frequency range and because of this it is essential to fit the capacitor shown in the diagram, using a value appropriate to the frequency range of interest. This would normally be about 0.01µF for HF operation and a 0.001µF disc ceramic for suppression in the VHF bands.

**Uprating**

The basic circuit shown can be used with a wide range of current requirements and there are some really massive diodes seen around the rallies and junk sales. The main disadvantage to this approach is the wattage rating of the resistor and getting rid of the heat that is produced. If the current requirements are not too extreme, say up to a couple of amps, then the circuit shown on Fig. 2 may be used. This is simply a series pass transistor capable of passing the required current with the Zener diode controlling the base voltage. Depending on the type of transistor used the output voltage is typically 600 millivolts less than the Zener voltage. The series resistor is now calculated on the basis of the standing current through the Zener only, the small base to emitter current of the series pass transistor can be safely ignored. Due to the fact that the load is no longer connected directly to the Zener the regulation of this circuit is not quite as good as the basic system and it must also be kept in mind that a short circuit on the load side could blow the transistor — but this does at least protect the supply from damage.

**Zener Dropper**

An excellent use for the previous circuit is as a pre-stabiliser in a bench power supply. These are usually built to supply anything from around two to thirty volts at up to two or three amps. One of the problems encountered is that when such a supply is giving around five volts at only a few milliamps the primary part of the supply shows a large voltage rise due to the low current being drawn by the load. The simple regulator will restrict this to a safe level. Another way of getting rid of extra volts is to use a Zener diode as a series dropper, the amount lost being equal to the voltage rating of the diode, see Fig. 3. The only thing to remember here is that you must provide an adequate heat sink for the diode.

**Generator**

We have already found that the Zener diode is a prolific noise generator, so why not put this to good use? The circuit in Fig. 4 shows the very simple circuit of a noise generator which if compactly built and all leads are kept to the minimum length will operate well up to at least several hundred megahertz. Probably the best way to build it is in a small diecast box with all the components except the variable resistor mounted directly on the back of the BNC or other RF connector. This is not intended as a precision generator but is very useful for routine checks and setting up equipment, it can also make a very good driver for a noise bridge of the type used for setting up aerials.

**“S.W.M.” Cover Price**

With effect from the next issue, cover price of Short Wave Magazine will be £1.45, and the annual subscription will be £17.40 post free. Current subscribers will not, of course, pay the new rate until their subscriptions fall due for renewal. This modest rise is due to increased production costs during the twelve months since the last price change.
CLUBS ROUNDUP

By "Club Secretary"

LOTS of reports and not a lot of time to write them up, about sums the situation this month; so straight into the pile, alphabetically as always.

The Mail

July 15 sees the Aberavanny & Nevill Hall crowd holding a jumble sale at the Corn Exchange in Aberavenny, 9 – 12 noon. Normal meetings are at the room over Male Ward 2 at Pen-y-Fal Hospital, Aberavenny, every Thursday. There is a Morse class session at each meeting and we are told that "Bert needs YOU to teach!"

The Acton, Brentford & Chiswick monthly meeting at Chiswick Town Hall, High Road, Chiswick, is also on July 15; they will have a discussion on home brewed equipment starting at 7.30 p.m.

Now to Basingstoke, where they have G4NNS on July 7 to talk about packet radio, at Forest Ring Community Centre, Sycamore Way, Winklebury, Basingstoke, at 7.30 p.m. We should add that the club also has various other activities, usually set up at short notice — talks to "the WIZ" at the address in the Secretaries Panel for the latest.

July 15 for Biggin Hill is a computer night, the venue being at Downe Village Hall, next to the "George and Dragon", 24 High Street, Downe, Kent.

On the Isle of Wight we have Binstead, whose Hq. is at the Scout Hq., Drill Hall Lane, Binstead; meetings every Wednesday.

The Bishops Stortford crowd has its dates on the third Monday of each month at the British Legion in Windhill, but we understand they are also to be found on Thursday evenings informally in the s’oon bar of the "Nags Head" pub on the Dunmow Road, close by the hospital and the golf club.

Borders Hon. Sec. notes that they are in session on the first and third Friday of the month at Tweep View Hotel, Berwick-on-Tweed.

The Bredhurst members are booked in on July 10 and 24 at Parkwood Community Centre, Parkwood Green, Rainham, Kent; the first date is down for a talk and demonstration of some of their gear, and on 24th there will be a talk, details of which were "in the pipeline" at the time of writing this piece.

Now we head for Brighton; these days the club lives at Seven Furlong Bar on Brighton Racecourse, where they gather on the first and third Wednesday of each month; and there is also a Morse class on Mondays. More details from the Hon. Sec. — see Panel.

Aston Fields Working Men’s Club is the scene for the Bromsgrove society meetings, which are on first and third Tuesdays at 8 p.m. There is usually something of interest booked in, but we don’t have the current details for which we must refer you to the Hon. Sec. — see Panel.

Every Tuesday evening the Bury group meets at Mosses Community Centre, Cecil Street, Bury, and the ‘main’ meeting, with talk or whatever, is the second one in each month.

Next we have Central Lancashire which meets at the Priory Club, Broadfield Drive, Leyland, on the first and third Monday each month. On July 7 they entertain GBGG, who will be talking about "Aerials for Confined Spaces". This is a new club, and is looking for support from the locals, so why not go along and join?

Turning to Chelmsford we find they have their place at Marconi College in Arbour Lane at 7.30 p.m. and we understand they have something set up in the way of a talk or whatever every month; July 1 is a talk on electricity generation and distribution, and on 12th they have GB4NSC operational at North Springfield.

At Cheltenham the base is at Stanton Room, Charlton Kings Library, Cheltenham; On July 18 they have a six-metre evening to which you are invited to bring your gear.

The Cheshunt club meets every Wednesday evening at Church Room, Church Lane, Wormley, near Cheshunt; but we note that for some years they have gone to Baas Hill Common for a /P session at least once each month when the long evenings are with us; so we suggest you check with the Hon. Sec. for the correct dates.

Over to Chester where on July 1 they have a committee meeting and on 8th G4UXD on the FT-726R plus a video; July 15 is a treasure hunt, starting at 7 p.m. and on 22nd they have a visit to BAc at Broughton; leaving July 29 for a talk on GM3TZO/MM around the Western Isles. All are at Chester RUFC, Hare Lane, Vicars Cross.

Turning to the Chichester crowd we find them at North Lodge Bar, County Hall, Chichester, on first and third Tuesdays. On July 1st they have the Annual Summer Social Evening, at Goodwood in the car park opposite the main grandstand; July 12-19 features GB2CHI at the Chichester 911 festivities at Guildhall, Priory Park, and of course the Sussex Mobile Rally is at Brighton on 13th; and the club meeting is on 15th.

For details on the Colchester doings at the Colchester Institute in Sheepen Road, we must refer you to the Hon. Sec. — see Panel for his new telephone number.

The Cornish club Hq. is at the Church Hall, Treleigh, on the old Redruth by-pass, on the first Thursday of each month; and of course in July they have the Cornish Rally, at Camborne Comprehensive School, on 20th. If you are within striking distance this is one not to miss.

Deadlines for “Clubs” for the next three months—

August issue — June 26th
September issue — July 24th
October issue — August 28th
November issue — September 25th

Please be sure to note these dates!

Back to the Midlands now and Coventry and here the Hq. is at Baden Powell House, 121 St. Nicholas Street, Radford, Coventry, where the gang is to be found every Friday evening. However, be aware that on July 4 they are making preparations for VHF NFD at Burton Dassett.

Looking at the Crawley newsletter we find they are now based at the Leisure Centre, Crawley, on July 23 for a members’ evening. There is an informal too, but for the details on this we refer you to the Hon. Sec. — see Panel.

The Crystal Palace club has its base at the All Saints Parish Rooms, at the junction of Beulah Hill and Church Road, Upper Norwood, opposite the IBA mast, on the third Saturday in each month, starting at 8 p.m. July 19 is an informal, with G3VCP on the air.

Further north now to Denby Dale and of course the famous Pie Hall; but the newsletter gives no detail of any meetings, so we must refer you to the Hon. Sec. — see Panel for his details.

At Derby the locals are to be found on Wednesday evenings at 119 Green Lane, Derby. July 9 sees them going “Back to Basics”, and on 16th they have GB3ERD on the air from Hq. July 23 is down for a talk on enamelling by Bob Neill, and on 30th they will be visiting Watnall Weather Centre.

The ‘other’ club at Derby is based on Nunsfield House Community Association, Boulton Lane, Alvaston. On July 4 they prepare for VHF NFD, and on 11th they have Sean Dodds talking about holiday photography. July 18 is the rally barbecue, and on 25th they have a surplus sale.

It is a little difficult to read the Dorking club programme sheet,
Names and Addresses of Club Secretaries reporting in this issue:

ABERGAVENNY: J. B. Davies, GW4QHX, 109 Croeswen Parc, Abercymyr, Gwent NP7 5SU.

ACON, BRENTFORD & CHISWICK: W. G. Dyer, G3GEH, 188 Great West Road, Brentford, Middlesex TW8 9LG.

ACTON, BRENTFORD & CHISWICK: W. G. Dyer, G3GEH, 188 Great West Road, Brentford, Middlesex TW8 9LG.

ADRIANNA: E. Calvert, 6 Barber Street, Padfield, Hadfield, Glossop, 925 9JP.

AGILE: J. Kaine, G4RPK, 74 Camden Mews, London NW1 9BX.

ALKEN: J. Robison, GW4PYZ, 3 Melon Avenue, Llanelli, Dyfed SA14 6QH.

ALMTEC: G. Raynor, GW20PL, 226 Kingsway, Salford, Lancs. M5 4SE.

ALNMOUTH: W. F. Bland, GW29B, 53 Station Road, Alnwick, Northumberland.

ALNWICK: A. Naylor, GW4QZ, 195 Railway Terrace, Alnwick.

AMBLEY: T. Cooper, GW4WA, 12 St. James Road, Alton, Hampshire.

ANDOVER: J. D. Mead, G4KQE, 133 St. Leonard's, Andover, Hampshire.

ASHBURY: A. E. Haynes, GW3GH, 36 St. Albans Road, Aylesbury.

ASHLAND: C. Wiseman, GIPUV, 14 Whiteridge Road, Whitehill, South Ayrshire.

ASHBOURNE: P. Turner, G4IL, 12 Whittington Road, Ashbourne, Derbyshire.

ASHBY DE LA ZOUCH: A. F. Crewe, GW4ES, 16 Market Place, Ashby De La Zouch.

ASHCOMBE: J. Bremser, GW4MY, 40 St. Mary's Road, Ashcombe, Staines.

ASHLEY: N. A. Miller, G4MMF, 11 Ashley Road, Altrincham, Greater Manchester.

ASHWORTH: J. H. Crofts, GW4CS, 46a Ashworth Avenue, Liverpool.

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**New Home**

This is the position for **Douglas Valley** where the club is now meeting on the first and third Thursday of each month at Standish Conservative Club, School Lane, Standish, near Wigan. For more details on how to get there contact the Hon. Sec. — see Panel.

S.E. Kent YMCA is in effect the **Dover** club; and is at the YMCA, Godwynhurst, Leyburne Road, Dover. July 2 is a natter session and on July 9 they have a treasure hunt for members; July 16 is also a natter evening, but we note that at these sessions members are available to help with problems on equipment, both theoretical and practical.

Now we come to **Droitwich**; here the venue is at 17 Ombrellas Street West, on the second Monday of each month; nothing particular is mentioned for July, although something is down for September.

Many of the activities at **Dunfermline** are set up at short notice, but they do manage an interesting programme. Find them at Outh Wireless Station on any Thursday; and as that isn’t easy, contact the Hon. Sec. for help with transport from Dunfermline to the club Hq.

**East Lancs** members are to be found at the Conservative Club, Cliff Street, Rishton, on the first Tuesday in each month for the lecture session; the informal natter is on the last Tuesday of each month.

**Edgware** has its place at Watting Community Centre, 145 Orange Hill Road, Burnt Oak, Edgware, on second and fourth Thursdays. July 10 is a talk on microwaves by G6ODA, and on 20th they take in the Low Power Field Day at Copthall Stadium; the month is rounded off by the meeting on July 24 which is informal and practical.

Our next stop is at **Farnborough**, which implies the Railway Enthusiasts Club, Access Road, off Hawley Lane, near the M3 bridge. The dates are July 9 and 23.

Over now to **Felixstowe** where they have a social evening on July 14, and on 28th a talk on hospital radio by Pam and Bryan Hoyer of Ipswich Hospital Radio. Both are to take place in the back room at “The Feathers” pub in Walton High Street, Felixstowe.

**Fylde** make their sub. a combined one, to the radio club and their hosts the Kite Club at Blackpool Airport, so you can go watch the aeroplanes if you like too! On July 15 they have the informal and Morse class, but the first of July sees their informal with a talk on propagation, (part 2) by G3KEN.

There are no meetings in July for **Glossop** due to the Wakes Weeks and holidays, but they are together again on August 28 at the “Nags Head” for Norman Kendrick’s talk on Japanese Morse.

The **Grafton** club has now got a fine Hq. at the Signals Room in TS Wizard in White Hart Lane, opposite Haringey Football ground. They are there on second and fourth Fridays and are looking for new members!

July 17 is junk sale night for **Greater Peterborough** at their Hq. in Southfields Junior School, Stanground.

**Another New Club**

This one is at **Harpenden** where meetings are held at the “Silver Cup” pub, St. Albans Road, Harpenden; July 8 is down for the aftermath of Field Day, and on 22nd they have the natter session. Start at 8 p.m. in the club room, but some members arrive at 1930 for a quick one in the bar!

The latest issue of the **Hastings** magazine has a first text page which very clearly tells one everything one could wish to know about the club. The main meeting is on the third Wednesday of the month at West Hill Community Centre, Croft Road, and the informals are every Friday evening at Ashdown Farm Community Centre, Downey Close.

**Haverling** has a busy July. On 2nd there is the quarterly business meeting; 5/6th are down for NFD, and 9th is an informal. On March 16 they have a D/F hunt if weather permits, and on 23rd there is another informal; finally, in July 30 they have a topic — details to be announced. Hq. is at Fairkeys Arts Centre, Billet Lane, Hornchurch.

At **Hereford** the locals foregather in the County Control, Civil Defence Hq., Gaol Street, Hereford. On July 4 they visit the Pathology and Nuclear Medicine Department at the local hospital, and on July 18 they have the informal.

Now we head for Eire, and **I.R.T.S.**: this is the national society for EI-band, and in addition functions to some degree as a local club — and of course it is the place to aim any inquiries about amateur radio in Eire.

Nice to hear again from the **Isle of Man**; they seem to have moved Hq., and are now to be found on Monday evenings at the Howstrake Hotel, Harbour Road, Onchan; in addition there are local meetings at the British Legion Douglas Street, Peel, on Thursdays, and at Perwick Bay Hotel, Port St. Mary, on Fridays. A pity we didn’t get to know earlier about their GD4IOM station from St. Patrick’s Isle, Peel Castle, but they had problems with the permissions which didn’t get sorted until too late. Get all the details on the club from the Hon. Sec. at the address in the Panel.

The meetings for the **Kidderminster** crowd at Harriers Vice-Presidents Club, Holy Road, Kidderminster, are on July 8 for a session with Lowe Electronics, and on July 22 they have G4LVK plus an on-the-air session.

Up in Shetland there is the **Lerwick** club, GM3ZET, and for all the current details we must refer you to the Hon. Sec. — see Panel.

At **Loughton** in Essex the locals meet at Loughton Hall; July 4 is down for the “Story of Laser 558”, and over the weekend 19/20 they will put on G82LRS and G4ONF to celebrate 25 years of Loughton Hall. More details on this and the club from G4FK1 — see Panel. Incidentally we note that the G4ONP signal at this event will be on six metres, and that they are seeking contacts especially on this band.

July 4 at **Malby** is an activity night when the gang are operational on HF; July 11 is a junk sale. Meetings are every Friday at Hellafield Community Hall, Clifford Road, Hellaby, close to the M18 junction 1.

Although there are twice-monthly meetings of the **Maxwell town** group at the Tam o’ Shanter Inn, Dumfries, the dates seem to be a little fluid so check with the Hon. Sec. first — see Panel. Every Friday evening the **Medway** club meets at St. Luke’s Church Hall, Gillingham. Details of what goes on from the Hon. Sec. — see Panel.

Nice of the **Midland** crowd to send your scribe a membership card . . . I might turn up one evening yet! The club’s base is at Unit 3, Henstead House, Henstead Street, Birmingham 5. On July 15 they have G4PZA on the Radio Regulatory Dept., but of course you can go along there on just about any weekday evening and find something on the go.

The **Nene Valley** crew has its base at the “Prince of Wales” pub, Well Street, Finedon, on Wednesday evenings; the July and August dates are all to be informals.

On July 8 the **Newbury** chaps will have a talk on satellite operation by one of the AMSAT crowd, at Newbury College.

The **North Wakefield** Hon. Sec. passes on first details of their North Wakefield Rally, at Outwood Grange School, Potovens Lane, Wakefield — dealer and general enquiries to the Hon. Sec., who will also doubtless pass on details of the club meetings too — see Panel.

The **Nottingham** Hq. is at Sherwood Community Association, Woodthorpe House, Mansfield Road. July 3 is an activity night, and on 10th they have a VHF foxhunt. July 17 is down for a talk on packet radio, while on 24th they have a treasure hunt. July 31 is down for a talk on First Aid, given by G8SSL.

**Ormskirk** lives in Ormskirk Community Centre, on the first Thursday of each month, and the new Hon. Sec. says they are setting up a good programme for the autumn — but he also notes they will have no meeting in August.

**Pembroke** pass on the word about their expedition to Ramsey Island, over the period July 10-13. They will be using GW0EJE/P on all HF bands and VHF, Details on this and the club itself, from GW4UZL — see Panel for the needful.
members, when they head for the Library, Watts Road, Thames Ditton — July will be a technical forum. The Torbay letters this time are about the Rally on August 24 at the STC Social Club, Brixham Road, Paignton. Hence for the meeting details we have to refer you to the Hon. Sec. — see Panel.

Now Trafford where the locals meet on Thursdays, at the Sea Cadet Hq., Bradshaw Lane, Stretford, Manchester.

The R.A.F. Association is home to the Verulam club, and on July 5 they have a joint talk by G3RFS and G4OBH on the “Running Hot and Cold DX-pedition.” WACRAL is one of the special-interest groups in the hobby, and is for committed Christians of any denomination, worldwide. Details from the Hon. Sec. — see Panel.

The Warrington club meets at Grappenhall Community Centre, Bellhouse Lane, Grappenhall; on July 1 they have an open forum, and on July 8 they have a visit by Microwave Modules. July 15 is down for D/F and a talk by two of the Wirral members, G8TRY and G6SNO. July 22 sees them put it into practice with a treasure hunt, and on July 29 they have an RSVG film show.

The Welwyn-Hatfield club notes that they recently had a talk by G3LXP on “Aerials for Small Spaces”. They meet on July 7 for an NFD analysis, and have a fox hunt on 21st, both being at Knightsfield Scout Hq, Welwyn Garden City.

Off we go now to Wimbledon, which means the St. John Ambulance Hq, 124 Kingston Road, on second and last Fridays. July 11 is a talk on the Great Western Railway, by David Kinsella, and on 25th there is an activity evening.

The older of the two Wirral groups is to be found at their clubhouse at Ivy Farm, Arrowe Park on first and third Wednesdays.

Looking at Wolverhampton we see they have a junk sale on July 1, and a 144 MHz D/F hunt on 6th. July 8 is a discussion on aerial rotators, and on 15th they visit BBC Droitwich; July 22 is committee night and on 29th they have a night on the air. Every Wednesday evening the Worthing group heads for Lancing Parish Hl, South Street; Lancing; they have a junk sale on July 16.

Now Yeovil, and they are to be found at the Recreation Centre, Chilton Grove, Yeovil, every Thursday evening; usually they have one informal and three talks, mainly by G3GC and G3MYM.

At York the home base is at the United Services Club in Micklegate, where the locals go every Friday at 7.30 p.m. The main interest seems to be outdoor events in the summer but they do seem a very nice friendly lot from their letters.

Finale

That’s it for another month; your letters and data, newsletters and chat, should be arranged to arrive by the dates shown in the box, addressed as ever to your Club Secretary, SHORT WAVE MAGAZINE, 34 High Street, Welwyn, Herts. AL6 9EQ. Be seein’ ya!

July Rallies

July 20, Cornish Rally, Camborne School, Camborne, 10 a.m. to 5 p.m. Details from G4MSV, 0736-763549. July 20, McMichael Mobile Rally, Haymill Centre, Burnham, Slough, Berks., doors open 11 a.m., full range of trade stands, fleamarket, special radio and family attractions. More information from GOBTY, 0494-29868.

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EZITU. The concept of this unit is unique and its users constantly praise its performance. Produces S + noise in your RX. Adjust your A.T.U. controls for a sharp dip in the noise and you are matched up to 50 Ohms. Compare the older fashion alternate of transmitting a carrier and waiting for the noise to quiet. This makes it the most versatile unit available and many people using them say they made the mistake of paying more for a different model which would not match their aerials. 3.5-30MHz £10.00 each and EZITU £3.50 Extra. We also make a very nice little 2 metre TRANSMATCH for £2.50 All ex-stock.

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TRADE

Wanted: FC-902 ATU’s, also FT-101ZD’s, etc. — Holdings/AEUK, 45 Johnston Street, Blackburn BB2 1EF. (Tel: 0254-59595).

Sinclair 16K RAM packs, £6 including VAT and p/p. — Halbar, Unit 1, Bury Walk, Bedford MK41 7BW.


August issue: due to appear on Friday, July 25th. Single copies at £1.70 post paid will be sent by first-class mail for orders received by Wednesday, July 23rd, as available. — Circulation Dept., Short Wave Magazine, 34 High Street, Welwyn, Herts. AL6 9EQ.

Amidon toroidal cores, ferrite rings and beads. Send s.a.e. for data and prices. Business hours: 10-5 p.m. Tues., Wed., Fri.; 10-4 p.m. Sat. — SMC (TMP Electronics), Unit 27, Pinfold Workshops, Pinfold Lane, Buckley, Cheshire CH7 3PL.

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THE SHORT WAVE MAGAZINE
July, 1986

THE JOY OF QRP: STRATEGY FOR SUCCESS

The experts reviewed Ade Weiss’s (WORS P) book and wrote: George Dobbs, G3RJV, Radcom: “I am most impressed both with the scope and content of the book... the sections on objectives, planning, operating techniques, band selection and propagation would help any amateur whatever power is being used — SPRAT: “a comprehensive guide to the whole subject of QRP... a great book for QRP’rs and a lot of QRO operators would benefit from reading it.” Doug DeMaw W1FQ, QST: “I found the book easy to read, and the text is interesting throughout. I would have no hesitation in recommending WORS P’s book to any amateur interested in QRP operation. In fact, it will provide great reading for nearly any active ham.” Bill Welsh, W6DB, Novice Ed., CQ: “151 pages covering QRP from basics to fine points in eight interesting chapters... Novices will have no difficulty understanding the explanations.” Fred Bonavita, W5QJM, QRP Quarterly: “In no other place have I encountered such a well-founded statement of the philosophy of QRP operating.” £10.40 post paid (cheques: G QRP Club)

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see information panel on p. 203

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Wanted: PCR Rx, LW/MW/SW, with AC/PSU. Also Heathkit RA-1 Rx’s. Details and price please. — Marris, 35 Kingswood House, Farnham Road, Slough, Berks. SL2 1DA.


Wanted: Sony CRF-320 receiver, moderately priced, and international amateur Callbook. Private buyer. — Ring 06174-31570 after 9 p.m.

Wanted: Vario meter, ex-19 Set type, good price paid. Also require BFO components from British 19 Set. W-H-Y? — Heslop, 75 Alder Park, Brandon, Durham DH7 8TJ.

For Sale: Interdigital filter, 23cm., £25. Power splitter, 23cm. x 2, £10. 2C39 water jacket, £8. Interdigital converter, 13cm., £30. Meteosat interdigital converter, 1.7 GHz, £30. Twin paddle key, £30. Part-exchange TS-5205, little used, for FT-221 or FT-225. — James, G3V VB, QTHR. (Tel: Megavision 842368).

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