
BeechLog

The Magazine of Burnham Beeches Radio Club

April 1998



Dear Members,

Elsewhere in this BeechLog you should find the Minutes of the AGM, held on the 2nd March at FCVH.

Since putting my hand up and writing this piece I have had the opportunity to look through some past issues of this venerable publication. In particular the predictions of previous Chairmen around this time of year of the imminent demise of the club. Although the membership seems low about this time of year, it also seems to pick up as the year progresses.

1997 can I believe be counted as a successful anniversary year with most members either participating in or enjoying an event, and making the Diamond celebration worth remembering. To me that's what the

(Continued on page 2)

An Automatic ATU

I have for some time used a FC707 manual ATU with my portable station. (FT840) But have longed to have the automatic ATU fitted as standard to my home base station rig (TS850). On enquiring at the local shop I quickly dismissed the auto ATU's as the cost was in the £200 - £300 range even for second hand ones, so have bashed on with the manual version.

At one of the DX picnics Bryan G4CVF mentioned an American kit for a QRP auto ATU, also there was a high power version. Annoyingly I had missed an article in QST magazine giving full constructional details of this ATU. Bryan said he would build one if I would so the plot was hatched to build the ATU.

(Continued on page 2)

In this issue

From the Chair	1
An Automatic ATU	1
New Phones	3
Packet Problem	3
VHF Blues	4
AGM Minutes 1998	5
Tunis	6
What's On	6
LF Memories	7
McMichael '98	9
Little Computers	9

(Continued from page 1)

club is about. We still seem to need to increase the profile of the club, its attendance's and membership. Against this we have an events list for the coming year with a relative few gaps only to fill. Dave has done sterling work to produce interesting meetings for our membership, but we still need more ideas from you all.

BBRC like all clubs is what the membership makes it. Your committee will continue to do all it can to support the spirit of amateur radio in this area and to make a club that you will feel comfortable and happy to attend regularly. If this is not the case, let me know.

If however you agree, then its up to us all to make it thrive in this and the

(Continued from page 1)

A visit to the WEB site gave details of the kits available, we decided to buy only those parts we could not obtain over here, so we ordered the PCB and the programmed micro controller plus socket and a special reset chip. Ordering from the States is relatively easy with the credit card, and the service from this small company excellent. The order was faxed and follow ups done via email.

About a fortnight later a message from the local sorting office asked me to pick up a parcel and pay excess postage! Ah well, we had to pay duty, VAT and a handling charge from the post office.

Next came the task of finding all the other parts, and a case to put it in. We decided a visit to Leicester for the rally would be appropriate, and armed with a list we went round the rally several times and obtained most of the bits we required. The cases - Bryan had designed a case to fit the IC706 and was sure we could get all the bits in, so we found Morgan Smith who would make the case to the spec we gave

him, he only lived in High Wycombe so this was great. When they arrived on the door step, he brought them! They only cost a tenner, not bad. We were still missing several parts but they could be ordered from the usual suppliers, bulk buying certainly reduced the over all cost.

One item eluded us, a 8Mhz oscillator module, I guess I might need new glasses as I trawled the catalogues and couldn't find them. Eventually in desperation I decided to buy a version that could be made to fit from RS and then low and behold there they were.

Construction, this was relatively painless, the 200 components were easily fitted and only the winding of the toroids was a bit fiddly. I have to say the only mistake I made was getting the SWR bridge transformer winding reversed, easily corrected but wouldn't have been if I had taken the designers advice and glued it to the board.

With the board checked out power was applied and all seemed well, the LED's on the front flashing as described in the article. However one of the LED's was U/S, I blamed my wiring only later finding the led duff. Checking the ATU on a real load was first off very interesting. The ATU consists of many relays which switch in L & C. The micro controller monitors the SWR and then switches the relays to get a good match.

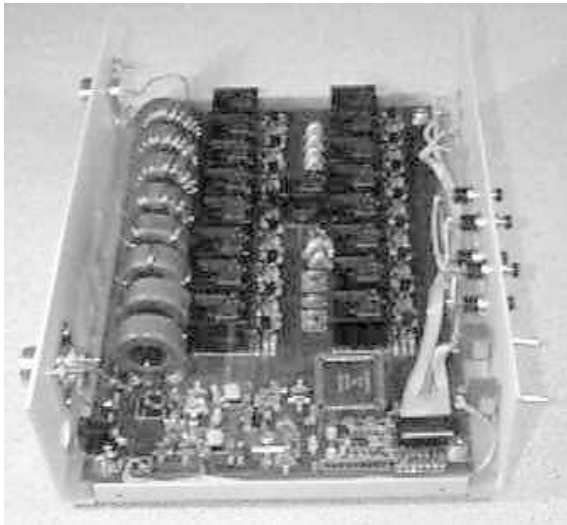
Well, it does this very quickly in one or two seconds, so I was not prepared for the buzz on the first match, and as the sound was likened to RF getting up a rig usually with disastrous results, I switched off immediately. On re-applying power the same thing happened, I checked out the cables and things and then sat down to think about it. A moment of inspiration and this next time I left it to do its business, all buzzing ceased within a second and

(Continued on page 3)

(Continued from page 2)

a match was obtained all things running cool. I mentioned this to Bryan so he wouldn't worry about it the first time, he was glad of the advice.

All that was left to do was to make the front and back pretty. Well as with most of my projects this is still to be done. You will be able to see these ATU's in action at the next DX picnic. So did we save any money? We estimated the cost about £100 so a very big yes, and as with all these



Details of the LDG Electronics ATU can be found at <http://www.radix.net/~ldg/>

New phones?

One of the most successful applications of radio for ordinary people has been the GSM "mobile" phone. Who would have believed that these radios, which continuously switch between transmit and receive during a call, would even be practical?

In the UK, GSM phones dominate the market, operating either on 900MHz or 1800MHz. There is an upgrade on the current standard imminent, and also the eventual replacement system is at present being chosen. This latter decision has now been taken as far as Europe is concerned. It was hoped that a world-wide standard might be adopted, but this now looks unlikely.

The current standard is supported in the greater part of the world. I recently received a phone call from an old friend who now lives in Australia, who was using his (Australian) phone in a London taxi. He remarked that on his business trips around the world, the phone worked everywhere - except in the USA.

The hopes I referred to earlier are unlikely to be realised because the USA operators have decided it would be better for their customers if they adopted several different standards. I suppose that they have good reasons for this decision, but it will not be of much help to US travellers to other countries, and the millions of tourists who visit the USA each year.

To get round the current situation, several manufacturers have announced dual-standard phones, which work on the main US systems and the GSM standard used here and elsewhere. These will be bought by many business users, but holiday makers in the US will still have to rely on the exorbitant costs of using hotel phones, which make international cell-phone calls look quite inexpensive!

Packet Problem

When the packet frequencies were changed recently I was a bit miffed as it made my rock bound Olympic obsolete unless I forked out on new crystals.

I then suddenly remembered that I had a Philips MX294, which I no longer used, in the car. It also occurred to me that the 294 was also fitted with a 12.5kHz filter which is required for the new spec.

I got hold of the details for converting the 294 to use a EPROM instead of PROM and programmed in the frequencies which were required.

On checking out the performance of the 294 and comparing it with another 2 metre rig it was useless. A number of theories were put forward as to the lack of performance and various remedies tried.

(Continued on page 4)

(Continued from page 3)

Nothing improved things until I obtained and fitted a 25khz filter and now it works fine.

The only conclusion I can come to is that the transmitting stations are not keeping to 12.5khz deviation. Is there any-one out there using a 12.5khz RX filter successfully on Packet?

Peter G4XGD

VHF blues

When I first got my B licence back in 1981 there was a good choice of equipment available for communication by various modes on at least two metres and 70cms. There were commercial FM only jobs, SSB/CW only radios, and multimodes, covering a wide price range. There were transverters from HF to VHF, and VHF to UHF. For FM there were many kits, mainly from Wood and Douglas, and these were widely used by local hams.

However the market seems to have changed these days. The FM only equipment is commercially built in great variety, and prices have dropped so that the kit manufacturers have found it difficult to compete. But for SSB and CW enthusiasts, you need to be well heeled! So much for the "simple CW equipment", since the commercial offerings now consist of HF/VHF multimodes, and up market VHF/UHF multimodes. The £250 FT280R has not been replaced, and the mobile Icoms and Kenwoods are hard to come by, even second-hand. Back in 1981 you could buy a multimode VHF mobile for about 20% more than an FM job, so the SSB/CW end of the band was

quite busy.

Although we have had a six metre allocation for many years, the only six metre SSB radios you are likely to find are those whose main job is to cover the HF spectrum. Six metre SSB is going to buck up as the sunspots get more active, but alas I don't have a radio to cover the band. The only answer is to sell all my radio gear, and buy a single set to cover all the bands.

Last time I was on six, it was most interesting, although frustrating. At that time, the UK was allowed 100 watts ERP, about 20 watts to a small beam. So when there was an opening to somewhere interesting, all the G's were received as a general mush! That is, except for the chaps who reported to RadCom, they used their twin 4CX250B amplifiers and stacked beams to produce about 20 times the legal ERP! Some openings lasted only a few minutes, and by the time these chaps had told the DX how their signal was better/worse than yesterday, the band closed. But it was nice to get there before these guys, and work Brazil or the Caymans on just 10 watts of sideband. I still receive the odd QSL card for these contacts.

It is a great pity that there is not much second-hand or kit gear around for six. I never got to work Australia or New Zealand, the openings were few and far between. But there are still a few years to go, so who knows?

It is not that single band SSB/CW equipment does not exist - it just isn't imported into the UK. Perhaps the European market is not large enough to warrant getting CE approval? Perhaps everything is geared towards the US market, who sup-

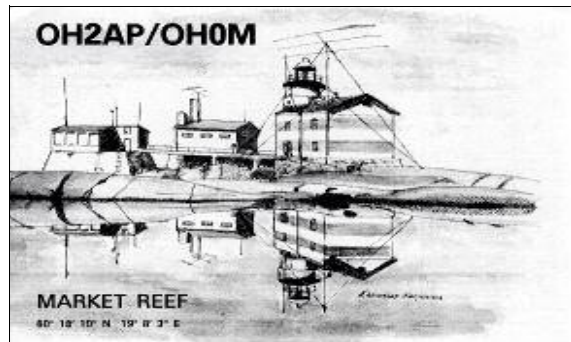
J52US Dave Hill
Bloxus
Department of State
Washington, D.C. 20520

Republic of Guinea-Bissau
West Africa

(KBMN, KBMN/OH2, KBMN/OH6, OHMM/OJ2)

CONFIRMED QSO WITH	DATE	UTC	MHz	RBT	2-WAY
	DAY	MONTH	YEAR		
GØHZK	26	11	89	1419	740 53 CW SSB RTTY

QSL via WA5JOC Paragon, Model 585 Transceiver
A WAFR QSL. TEN-TEC



AGM 1998

Burnham Beeches Radio Club

Minutes of the Annual General Meeting

**March 3rd 1998, Farnham Common
Village Hall**

Those Present:

Dave Chislett (Hon President) in the Chair, Eileen Chislett G6EIL (Minutes), Rex Booth G7VKM, John Kipping G0GCL, Owen Cubitts G0TGQ, Mike Brown G4RAA, Paul Shayler G6TSF,

Meeting opened at 20.24

1. Apologies for Absence.

None received. Current membership of 12, means that with 7 present a quorum was reached.

2. Minutes of 1997 AGM were approved.

Proposed G0GCL, Seconded G7VKM

3. Outgoing Chair's report. Mark was not in attendance and no report was received.

4. Secretary's report. (G4XDU)

Dave reported that it had been a successful 1997 Burnham Beeches Radio Club anniversary year. There had been several enjoyable Special Event Stations. One disappointment was that the Tshirts/ sweatshirts are not yet available.

QSL cards are at the printers, and we have received a large number of QSLs. Many members made the effort to come to the Special Event stations and a certificate is to be given to those who operated. Certificates will be presented at a future club meeting.

There has been a good range of talks, despite some being difficult to arrange, and unfortunately attendance at meetings has been sporadic. Pleased to report that McMichael 97 went very well.

G0GCL proposed a vote of thanks to Dave for his work during the past year. Seconded by G4RAA.

5. Treasurer's Report (G6TSF)

Unfortunately an error was found and it was agreed by the meeting that the accounts had been produced in good faith but that Paul should present a revised copy for final ratification at the next club meeting (March 16th). A list of Club Assets and their value should also be made. *Action by G4XDU by 1/5/98*

It was noted that the club's HF linear was still in the possession of G6LKZ, who is no longer a member, and steps are being taken to recover these items as soon as possible. *Action G0GCL*

6. Election of Auditors.

The meeting agreed that none was required.

7. Election of new officers.

The 97/98 committee formally stood down, and the elections were as follows.

a) Chair

Nomination: John G0GCL

Proposed: Rex G7VKM

Seconded: Owen G0TGQ

RETURNED UNOPPOSED

b) Secretary

Nomination: Dave G4XDU

Proposed: Rex G7VKM

Seconded: Paul G6TSF

RETURNED UNOPPOSED

c) Treasurer

Nomination: Paul Shayler G6TSF

Proposed: Mike G4RAA

Seconded: Eileen G6EIL

RETURNED UNOPPOSED

d) Ordinary Members

Nominations: Mike G4RAA

Proposed: Dave G4XDU

Seconded: Eileen G6EIL

RETURNED UNOPPOSED.

VACANCY OUTSTANDING FOR ONE
ORDINARY MEMBER.

8. AOB

a) McMichael Rally 98

To be held this year on 19th July. G0GCL, a member of the McMichael Rally Cmte, explained that with our small membership we might find it difficult to fulfil our obligations of some 60 hours .

After a brief discussion a motion was proposed by G4RAA , seconded by G0TGQ that we should continue with McMichael 98. The vote was unanimously in favour.

b) Awards, None to present this year.

c)DF Mug. G4XDU has it but it is not engraved yet. *Action : G4XDU by 1/5/98.*

Date of next AGM: March 1st 1999

Meeting closed at 21.10

Tunis

I recently posted an article on an Internet newsgroup extolling the virtues of amateur radio for the uninitiated. This produced a reply from Dr. Alan Grey G3XQU of Great Warley, Essex, part of which is reproduced with his permission:

Tunisia disallowed all amateur licenses after 1969. But via a diplomat contact in Indonesia, whose (American) brother worked in Tunis, I eventually got a licence in 1981, and with two others and as much equipment as we could carry on a charter flight, we put up a selection of aerials in a hotel garden and spoke to over 9,000 people around the world in 6 days of operating day and night.

And my good wyfe could listen in on a portable short-wave radio in the kitchen to make sure we weren't up to no good!

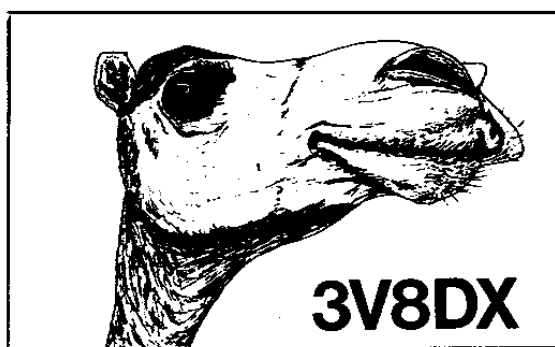
It gave a considerable feeling of world power being on the microphone with thousands of people yelling and trying to be heard above the cacophony. My wife was particularly impressed with my commanding "Stand by Japan; OK go ahead Europe..." to try to sort out the chaos... (The Japanese by the way are *exceptionally* well behaved in these circumstances. But Europe - wow. The Spaniards keep yelling insults at the Italians; the Italians shout insults at everybody. And the yanks behave as if their lives depended on it...

We even arranged a contact with King Hussein, because Tunisia was one of the few countries he had never spoken to...(I have a lovely gold-edged card from him following a chat when he was in his study in Amman too.)

It was certainly one of the most hectic weeks of my life. The adventures we had getting permission from everyone possible were really quite something. You can just imagine the reaction of customs in Tunis, even though we flourished letters from their Embassy in

Kensington and various other documents. We had to tear around in a taxi to get even more clearance papers from the radio department of their government just to get the gear out of the airport.

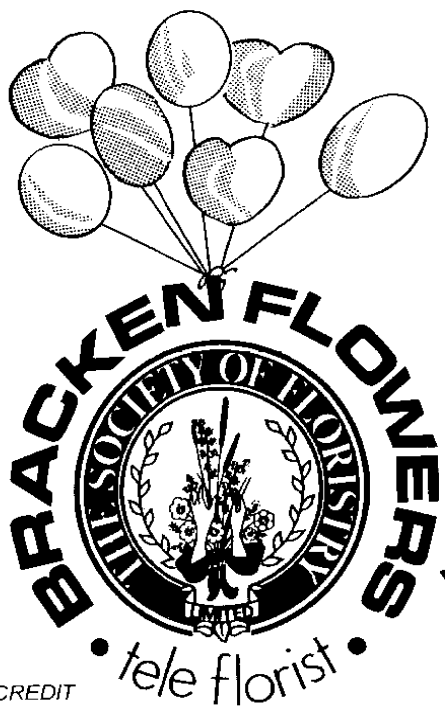
Fortunately we had booked a hotel with little 'chalet' type bungalows in the grounds, so had no noise problems: and it was 'out of season' so didn't have to worry about creating a problem



What's On

The following dates were believed correct at the time of printing:

- April 6th Foxhunt (G6TSF Fox)
- April 20th Measurements Dick G8DPS
- May 4th TBA
- May 18th Cave Radio
- May 24th DXPicnic Stafford (week long) details G4XDU
- June 1st 9K6 and higher, G7LTT
- June 15th IOTA DX-peditions G3OZF
- June 21st PW Low power contest (Basingstoke)
- July 6th Getting ready for the rally.
- July 19th Mc Michael Rally (Sunday)
- August 3rd FoxHunt
- September
- 19/20/21st DX Picnic (Basingstoke) details G4XDU
- October 5th Junk Sale
- December 7th Christmas Do
- December 21st Video Evening



CREDIT
CARDS
ACCEPTED

31, Eton Wick Road • Eton Wick • Windsor • Berkshire • SL4 6LU

Fax Service

Balloons

FOR PARTIES, WEDDINGS, AND BIRTHDAYS
- OR JUST FOR FUN

FRESH, SILK & DRIED FLOWERS • BASKETS
ARRANGEMENTS • BOUQUETS • WEDDINGS
FLORAL TRIBUTES • CHRISTENINGS • BIRTHDAYS

SELECTION OF PLANTS ALWAYS IN STOCK

LOCAL • NATIONAL • INTERNATIONAL •
DELIVERY SERVICE

Pamela Sanders ASF
01753 833225

Baby China

SELECTION OF VASES AND CANDLES
DRIED & SILK ARRANGEMENTS
ALWAYS IN STOCK OR MADE TO ORDER

LF memories...

It was interesting to read in last months RadCom about the progress hams are making on 136kHz. It does seem that although the band is less than twice the wavelength, far greater distances are being worked more easily. If a given aerial is twice as efficient on 136 as it is on 73kHz, twice the power is radiated, but the improvement people are finding seems greater than expected. Perhaps there is some other advantage as yet unidentified?

When I was a lad (!?) I used to work on many military systems, including an LF receiver designed to work on submarines. This covered from 10kHz up to 200kHz, the latter useful for receiving the "Light Program" from the BBC. There were several demodulators, mostly for data (if I remember correctly), but including SSB and AM. The receivers were extremely heavy and quite large, and were fully solid state. There was even a synthesiser, I think it was some sort of "huff and puff" type which locked the VFO against the output of a harmonic selector. There was a huge backlit display, the coverage was

spread across about 8 bands, bandswitching and display switching was accomplished by a lot of gears and chains! The whole thing was full of encapsulated silver mica capacitors and pot cores.

I have seen the occasional examples at rallies. The receiver has now been superseded by a digital replacement, so more may crop up now and then. As these machines were designed for submarine use, the mind boggles at the type of aerial used! Naturally it was rather large! Submariners have different problems to those of us with small back gardens, so I'll leave you to work out the logistics.

Talking of pot cores, I have many fond memories of these things. I worked mainly on sonar systems, which in those days used a lot of passive filtering and phase shifting. The pot core was king, and each filter required the core to be individually hand tuned. For those of you unfamiliar with these beasts, a pot core is a ferrite inductor. They are cylindrical devices, rather like the "E" laminations of a traditional mains transformer, and consist

(Continued on page 8)

(Continued from page 7)

of two similar halves - each like a "pot" with a central pillar. A bobbin wound with wire fits in the middle.

To tune these things, either the central pillar (which passes through the middle of the bobbin), or the outer shell, was ground with emery board until the correct inductance was obtained. A typical crevasse filter, which has a very deep sharp notch in an otherwise flat bandwidth, required at least 8 of these pot cores, and numerous select-on-text mica capacitors. The whole thing was tuned to take into account the later encapsulation with wax, and fitting into a tinplate container. As you might expect, as soon as the lid was soldered into place, the filter would go off-tune. This meant you had to open it up again!

Sometimes they waited until the final coat of paint has been applied!

We had a special air conditioned room to work on these things.

There was an air-locked pair of doors, the outer one was fitted with a concealed alarm system, which switched off the radio we weren't supposed to be listening to, when anyone came in. The room was a good place for a quiet kip, the alarm was supposed to wake you in time for you to look busy, but I remember the boss coming in to find three sleeping engineers!

The actual sonar equipment consisted of a great number of sub-assemblies, all of which were tested individually. These were valve-operated, with a +500V and plus and minus 250V supplies. These supplies were always switched on while you worked, even if you had to change components with your soldering iron (earth lead disconnected!). Most of us had little brown marks on our hands, usually in pairs - one

where the 500V went in, one where it came out!

The display units had bigger 15kV power supplies. These I was a bit more wary of - they had oil filled transformers which sometimes assumed the shape of a cows udder overdue for milking - just before they burst. However to relieve the boredom of testing, these transformers were sometimes wired up to chairs and metallic items. I remember once feeling a ticking sensation on my leg, someone had crawled under my bench a stuck a wire connected to an 18kV supply up my trousers! Such fun!

Another prank was to hide a resistor under the equipment someone was testing. As they worked, the current in the concealed wiring to the resistor was would up until smoke appeared. The

...someone had crawled under my bench a stuck a wire connected to an 18kV supply up my trousers!

engineer would switch off and try to find where the problem in his equipment was. As there was nothing wrong, soon after he switched on again, the hidden resistor would start smoking again! After a few sessions of foul language, the trick would be discovered!

Sometimes the smoke appeared on it's own anyway. Most equipment had double-triodes inside, with 12.6V centre tapped heaters. The twisted wiring which ran to each valve heater supply was sometimes incorrectly wired, so when you powered up, the ensuing short-circuit would cause the insulation to melt and fuse the wires together!

These days of valve equipment were notable by the variation in gain between stages in the equipment. Negative feedback was not always appropriate, so each engineer had a large box of assorted valves, so a swapping session would generally result in the equipment

McMichael '98

Another important committee meeting conducted on 11th March was an advance preparation for the Rally. The many and varied tasks in order for the Rally to go smoothly ahead are listed and tackled by members of the committee on the run-up to the event. For example the venue has to be booked, tables ordered, printing of labels, badges, tickets etc. all has to be arranged in advance but in a logical and timely fashion.

Other clubs also have their allotted tasks, however on behalf of BBRC I have to ensure that you all know about the event, so apart from plugs at meetings, and the poster on the club noticeboard I am taking the liberty of enclosing a flyer with BeechLog to remind you again of the event and to pass on to a neighbour, friend, club or other that you feel would be either interested or would benefit in some way. I will also be writing a second time to the main ham radio magazines and later on to some other media. I should also mention here the good work being done on the McMichael Committee by John Sanders and Dave Chislett, respectively Secretary and Committee Chairman.

I will also soon be asking someone to put their hand up to take charge of two tasks, (a) door security, and (b) the talk-in station. The task leader will be responsible on the day for the smooth running of his assigned task. This of course is not too onerous if planned in advance and there is always somebody to talk to in the club for advice based on what has happened in previous years. I will mention the tasks at the next few meetings.

Once again we as a club have a commitment to undertake our share of the volunteer man-hours for the events. No change from last year on this front, and you will be hearing more on this point in

the next BeechLog.

Naturally we will continue to keep you all informed on progress as things happen through the medium of BeechLog and at meetings, and there is no reason yet why this years event should not be a successful and enjoyable fund raiser for the Clubs and radio related good causes

Rally Contacts

Chairman: Dave Chislett 01628 625720
Email: g4xdu@amsat.org

Trade enquiries and bookings:
Min Standen 01189 723504
Email: mins@clara.net

Little Computers

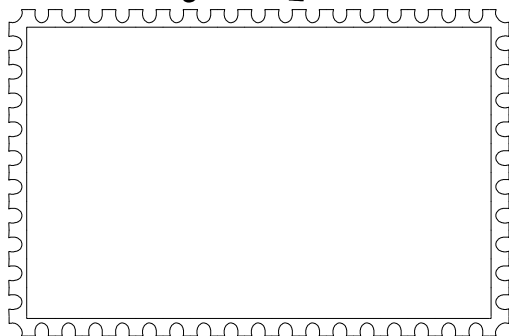
As I write this issue of BeechLog on my Psion Series 5, I have in front of me some articles about the latest Microsoft inspired hand portable computers, the WinCE version 2 models. Here in the UK there are two of these machines in the shops, both by Hewlett Packard, one monochrome, one colour.

The on-board application have been improved somewhat, and now the computers don't fall over when you poke the touch-sensitive screen. They have faster CPU's, too. However this has had some influence on battery life. My Psion 3a lasted at least 40 hours on a pair of Duracells, the Series 5 runs for just over 30. The mono CE2 machine is billed to reach 20 hours if you are lucky, and the colour version, about 2-3 hours.

The problem is that there are some physical and financial limitations on pocket computers. If you really want something portable, then the battery life of the new products will let you down. The

(Continued on page 10)

BeechLog - April 1998



(Continued from page 9)

current crop of colour screens need lots of milliAmps to give a decent display. The PC card plug-ins that they use also were not designed for economic battery life. The faster the CPU, the more current is needed.

One of the gripes about all these HPC's or PDA's is the problems of synchronising the diary data with whatever is popular on a PC at the time. Whatever machine you have, it is likely to let you down in the area you "must have compatibility". By the time the software catches up, the PC application will have become unfashionable, and replaced by something else!

Now look at this. The HP colour machine costs £800. As I write, PC World has the Toshiba Libretto model 50 also at £800. The Libretto is a little larger than the WinCE machine, and has an 800meg hard disk, a Pentium 75, and comes with standard Windows 95 installed. You can run Paint Shop Pro or Microsoft Office on the Libretto. You can't run any standard PC applications on the HP.

If you really need to have a computer run your life, you need the Libretto, but it can run your life for only an hour or two at a time. Of course, you can plug these things into the mains. Hardly portable, though!

This situation may change in a few years. Light emitting plastic screens are at the prototype stage. These screens are scanned like a CRT, so the power

consumption is much lower than current colour screens. Memory is still a problem. The Libretto's 800meg hard disk costs a lot less than 800megs of RAM or flash. However things are moving on the flash front. When the Psion 5 was released last July, the largest compact flash card was 8 megs, but by Christmas there were 32meg versions available. Any day now the 64meg models will appear. So in a year from now...

Unfortunately Windows 98 will be entrenched by then. This means twice as much everything is required! Although Windows CE 2 is not "real" Windows, there is a possibility that it might evolve into something more useful. The scenario is thus: Windows NT5 for business use, Windows CE3 for domestic use. At least CE needs less space to operate. But unfortunately the games requirement for domestic machines means that it won't

BeechLog

Well, that's **BeechLog** for this month. The deadline for the next issue will be the 18th of May 1998, and the next issue will be published on the 1st of June.

As per usual I make a plea for articles to print in future issues of the club magazine. Almost anything will be considered, however short or long. A report on your new ham gear, a visit to a rally, an unusual holiday or business trip!

All copy can be sent to the editor via any means. My address is in the callbook, or you can phone me in the evening on 01753 811918, or during business hours on 07050 606725. I can be reached by email at beechlog@cryogen.com.

I am also looking for someone else to take care of the **BeechLog** web pages. The club address can be re-directed to your own web pages. Please volunteer....

All BeechLog content is Copyright Burnham Beeches Radio Club 1998, unless otherwise stated. Please contact the editor if you wish to re-publish anything elsewhere.