

*Newsletter of the Severnside Television Group
 Edited by Shaun O'Sullivan G8VPG*

VIV'S CHRISTMAS MESSAGE !

As Christmas once again approaches, may I take this opportunity to wish all Members and their families a Merry Christmas and a Happy New Year. The Christmas party this year will take place on Saturday 18th December at Elm Park Parish Pavilion, Filton, with doors opening at 7.30 pm. Members, their families and guests are all most welcome. It would be appreciated if Members could bring along some refreshments to supplement those provided by the Committee.

Our founding Chairman Roger G4ZQF has once again volunteered to act as auctioneer. Please make an extra effort to bring along some items for him to auction. All proceeds or just an agreed proportion will go to Group funds.

Bryan G4YQR and Phil G1HIA will be on hand to sell you some raffle tickets. The first prize will be £50.00 cash. The proceeds from the auction and raffle have enabled us to keep the membership fees at just £5.00 - the same amount since the Group was formed. It is now eight years since the Group started, and we have achieved a great deal together, with a membership now of eighty.

The Repeater continues to function well. A new 23 cm receiver was installed in July, after much development work by Steve G8KUW. Work continues on the development of the next generation of control logic, which will be PC based. One little niggle has been the receive aerial selector switch, which has become increasingly unreliable. Steve G8KUW found that the cost of a new one from the USA was £780.00 plus VAT. However, we were fortunate to obtain a surplus one for just £50.00 at the Leicester Rally, although Bryan GW6BWX is still considering an electronic replacement, which would be more reliable. This would have extra

ports to enable us to reach our more remote areas.

We are continuing to develop the proposed 10 GHz ATV Repeater, to be sited at Dundry. The licence is being applied for and the equipment is well advanced. No special equipment will be needed to receive it, since a normal satellite receiver with a slight modification to the LNB will cover the 10 GHz band - more details to follow in "P5" !

1993 has been a sad year for the Group with the deaths of Oscar Hancox G8BIY, Ken Giles GW1XUB and Arthur Butler SWL. Our deepest sympathies go to their wives and families.

It would be nice to see every one of the members back on the air once again sometime over the festive season, or perhaps for the "Fancy Dress on the Air" evening which will take place on Sunday 9th January at 7.30 pm via GB3ZZ.

Finally, it will be five years in April since I was elected Chairperson, during which time the membership has doubled, we have a healthy bank balance and we have helped many other Repeater Groups who often wonder how we have achieved our objectives. For this, I have to thank the remainder of the Committee, who have worked so very hard with very little time and thanks for their efforts. Their support during the last five years has been excellent. I have enjoyed my time as Chairperson, but I think that it is time that I stepped down in April and a replacement is elected. This will give Ivor and myself a well earned rest and we may be able to get back and enjoy the hobby once again !

*Best wishes for 1994, Viv G1IXE, STG
 Chairperson*

PRINTERS FOR HOME COMPUTERS

Many Radio Amateurs are now using Home Computers in the shack. Besides all the radio applications, such as logging and data communications modes, they are useful for other routine activities, such as word processing. However, something which the purchaser of a computer soon discovers is that their usefulness is very limited without a printer. Despite all the talk about electronic "paperless" offices, the written "hard copy" is still needed, and this means some form of transferring the computer data onto paper is needed.

Compared to the early days of home computing, printers have both dropped in price and improved in quality of output. It is now possible to buy a first class printer for much less than the cost of the average PC, so lets have a look at what is available.

The first printers to be widely available at reasonable cost to the home computer enthusiast were dot matrix printers. The dot matrix printer uses a number of small metal pins, which are activated by electromagnets to strike a ribbon, and thus produce a mark on the paper. The simplest versions use 9 pins, whilst the better quality printers use 24 pins. Generally speaking, the larger number of pins produces better print quality, but can make the printer operate more slowly.

Dot matrix printers are available in a wide range of types and price ranges. A simple 9 pin machine can be bought for less than £100, whilst a 24 pin machine capable of very good print quality can be obtained for about £200. "Line printers" can produce very fast output speeds, although these are not the sort of machine that the home user is likely to have.

So, the advantages of dot matrix printers are that they are inexpensive, can be used flexibly for text or graphics, usually have a tractor feed option for continuous fan-fold stationery, offer a variety of quality and speed modes and they can produce quite good quality copy with 24 pins in high quality mode, and are inexpensive to run, the only regular replacements needed

being new ribbons. Because they operate by a mechanical striking action, they can be used for multi-part forms and carbon copies.

The disadvantages are that they are noisy, relatively slow and print quality fades as the ribbon starts to wear out. It is possible to re-ink ribbons, but this needs to be done with great care. Excessive ink can smudge the output and lead to gummed up print heads, which are expensive to replace.

An early attempt to improve the dot matrix printers quality of output was the daisy wheel printer. This operated in a similar manner to a typewriter. A die is available for each character, and these are arranged on a series of spokes emanating from a central hub. They look a bit like a daisy flower, and hence the name. The output is produced by rotated the wheel until the correct character is by the print position, and then striking this onto a ribbon to produce a mark on the paper.

The result is a very high quality of output, especially if a "once through" ribbon is used (most printer ribbons are fabric and are re-circulated through the cartridge until the output fades as a result of all the ink being used up. A once-through ribbon is plastic and coated with ink that all transfers to the paper the first time that it is hit. It gives very good copy, but is more expensive, and for those of you who worry about such things, it leaves a permanent record of what you've written - dispose of by burning !).

The disadvantages of the daisy wheel printer are that they are inflexible, a change of type style necessitating a change of print wheel, and are noisy. They have largely been over-taken by newer technology, and were never very popular as home printers.

One of the latest types of printer on the market is the ink jet. Ink jet is the Hewlett Packard term for this technology, something very similar is available from Canon, called bubble jet. These printers operate by spraying liquid ink in very fine droplets onto the paper. The printers have a series of very small tubes, each

of which contain an electrically operated heater. When the heater is turned on, a bubble of vapour is formed in the tube and this forces a droplet of ink out of the end of the tube and onto the paper. The heater is turned off, the bubble condenses and draws in more liquid ink from the reservoir to replace that lost in the droplet ejected. This is the technology used by Hewlett Packard and Canon. Epson achieve the same result by using a piezoelectric pump action.

Ink jets produce a very high quality output that approaches that of a laser printer. They are almost silent in operation, fairly quick, and can be used flexibly to produce all sorts of text and graphics, with appropriate driving software. Generally speaking, they do not have a tractor feed option, most of them being designed with a cut sheet feeder that automatically feeds in a separate sheet of paper as needed. The liquid ink is contained in a cartridge which also includes the print head, and typically will last for about 500-700 pages and costs about £18. It is possible to refill the cartridges using a hypodermic syringe, and suitable refill kits are widely available.

The cheapest ink jets cost about £200, and a wide choice is available for about £300, including colour machines. They are quiet, compact, flexible, and offer a good quality of output for little more than a dot matrix printer. No wonder then that they are so popular and are probably the most cost effective all round home printer.

One word of warning though, because they spray liquid ink onto the paper, they are sensitive to the type of paper used. Cheap photocopier bond can cause slight furring of the character edges as the ink soaks into the paper. I recommend the use of special ink jet paper which avoids this problem, and is not too expensive (about £5 for 500 A4 sized sheets).

The final type of printer to consider is the laser printer. Prices have fallen significantly recently, but the cheapest laser is still about £500, and hence this is a printer for the wealthy enthusiast or someone with a business use in mind.

Lasers work in a similar manner to photocopiers, electrostatically depositing a dry black powder (called toner) onto the paper, which is then fixed in place by the application of heat. They produce superb results, with an output to rival that of professional type setting. They are also very quick, the slowest producing 4 pages a minute, and some are as fast as 10 pages a minute. They offer a wide variety of type faces and can be used for all types of graphics applications.

However, they are expensive to buy and run, needing replacement toner and photographic drums at regular intervals. These are not cheap items, and hence most laser printers are confined to the office.

Something to generally bear in mind about printers is how your computer will drive, or operate with them. Most computers have a Centronics parallel interface, which will match that on most printers. Some printers use a series interface, which is slower. Your computer will need a special programme called a printer driver in order to be able to talk to the printer and send it data. This programme must be specifically written for the type of printer that you use, or one similar (compatible in computer jargon) to it. Before you buy any printer or new software, it is very important to establish that you have or can obtain the appropriate driver. Otherwise, you can spend many frustrating hours trying to get everything to work together satisfactorily.

This is a very brief over-view of the printers available, and has skipped over many items. None the less, it should give the newcomer a simple appreciation of what is available on the market, and allow him (or her !) to make further investigations. My advice is to visit the computer shops, get test prints from the machines that interest you and read the relevant magazine reviews. Bernard Babani publish some really good beginners guide books on computing, which I frequently refer to. They are not too dear, and Maplins stock a good selection.

In case you were wondering this article was printed on an OKI OL810 LED/laser page printer - 73 de Shaun G8VPG •

FURTHER TIPS FOR 10 Ghz

John Hudson G3RFL

PUCKS FOR TRANSMITTERS

Whilst getting ready for transmitting to our proposed new 10 GHz repeater, I found that all LOW band LNB pucks that I tried could be shifted to 10,250 MHz by screwing in the brass tuning screw. So, keep any of your LOW band LNB's for future use !

PUCKS FOR RECEIVERS

Buy a 9.1 GHz puck for your LNB (these cost about £10-12 each and may be obtained from Oakbury Components).

This can be used in most LNB's such as SKYSCAN , BSB etc.

TRANSMITTER RF SNIFFER & FREQUENCY COUNTER

Try to get hold of a BSB bullet type LNB and save it ! The local oscillator operates on 10,700 MHz.

- It can be used in front of a 600 MHz frequency counter to read frequencies in the 10 GHz Amateur band.
- By placing an RF detector on the output of the LNB, you have a RF voltage probe to test your Transmitters.

SETTING UP A TRANSMITTER ON TOP OF A KNOWN ONE.

By placing an oscilloscope on the video output on your satellite receiver, with an LNB tuned in for ATV, you can tune the unknown transmitter to the known one (do not modulate the transmitter) by tuning and watching the scope. A ZERO beat should be aimed for.

NOTE : try to balance the level of each transmitter to be equal or it will not work.

DX-TV NEWS from Stephen Michie G7KXD

Stephens logs for the 3 months August to October indicate that August was a good month, September rather poor with an improvement apparent in October.

On 15th August, MRT from Macedonia was seen on E4, a rare find ! This was followed on the 21st with more familiar pictures from TVP1 Poland, MTV1 Hungary, Denmark, Spain and the Czech Republic. The remainder of the month also produced pictures from Sweden, Latvia, Norway, Russia, Slovenia, with a large SpE opening on the 30th.

As mentioned, September was a very poor month, but October featured some better activity. Band 1 produced signals from NRK Norway, SVT Sweden and TVE1 Spain. Towards the end of the month, there was a large UHF tropospheric opening. On 28/29th, NED3 Netherlands was seen on E30/35/44,

ARD Germany on E5/11/32, ZDF Germany on E35, France 3 on E27 and the French Canal+ scrambled pictures were also sighted. As Stephen writes, the opening was still continuing - I wonder whether there was any DX worked on 70 cm ATV, or maybe even 23 cm ? Watching UHF DX-TV is made difficult by all of the local signals from British broadcasters. As anyone who has looked at a guide to broadcast channel allocation will know, there is very little spare spectrum available.

As winter approaches, DX-TV activity tends to die down, with much less SpE on Band 1 than is visible during the main season of May to August. However, UHF tropospheric openings do occur, particularly when a high pressure weather system begins to decline and move away. Keep watching !

.... **ADVANCED NOTICE** **ADVANCED NOTICE** ...

37th LONGLEAT **AMATEUR RADIO RALLY**

Sunday 26th June 1994

We are pleased to announce that the 37th Longleat Amateur Radio Rally will take place on Sunday 26th June 1994, at Longleat House, Warminster, Wiltshire. As usual, there will be a large trade show with many suppliers of Amateur Radio, Electronics and Computer equipment present. There will be representatives of most of the National Amateur Radio Clubs present, aswell as many local Groups & Societies. Once again, a high quality Craft Fair will share the site with us, and of course there will be a wide selection of on-site catering available.

You will be able to camp or caravan right next to the Rally site on the Friday, Saturday & Sunday nights of the Rally weekend for a nominal fee of £3.00 per night.

The entrance charges will be the same as 1993, at £2.50 for adults, £1.50 for OAP's and 50p for children. Of this amount, just 50p of the adult & OAP charges go to the Rally organisers, the remainder is the standard Longleat entrance charge.

Car parking is free of charge, and there are special arrangements for the disabled with an orange badge to park close to the Rally.

Of course, the Longleat Rally would not be the same without the very popular Bring & Buy, the largest of its type that we know of. Sell your surplus gear for a commission of just 10% - full conditions on display at the Rally.

We are aware of many misinformed rumours about the Longleat Rally - none of which are true. Please be assured that the Rally is here to stay, and the entrance charges will be as stated above. We all look forward to seeing you there !

For further information or details of Trade Stand rates - which have been frozen at 1992 levels - please apply to Shaun O'Sullivan G8VPG, Longleat Rally Manager, 15 Witney Close, Saltford, Bristol BS18 3DX. Telephone (office hours) 0272 860 422, (evenings & weekends) 0225 873 098, fax 0272 869 387. The Longleat Amateur Radio Rally is organised by the RSGB City of Bristol Group. The proceeds of the rally, after deducting costs, are used to run the Groups activities and to support other local Radio Clubs that help to organise the Rally.

RECYCLING THE FERGUSON BSB "SQUARIEL" FOR ATV USE AT 10 Ghz

John Hudson G3RFL.

The original specification for these aerials is : RHCP (Right Hand Circular Polarisation) 42 dBi gain : Left Hand Circular Polarisation (LHCP) -25 dB @ 12 GHz. Beamwidth $\pm 2^\circ$. 250 elements.

Normally these aerials worked in the Right Hand Circular Polarisation mode meaning that the signal polarisation is like a corkscrew for want of a better explanation. The aerial will reject (high attenuation) other modes such Left Hand Circular Polarisation and will be down in gain when used on vertical or horizontal planes. For our use (ATV) we require the latter.

Upon investigation of the aerial itself, I noticed that there are two halves to the flat aerial, each of which are subdivided by two and again by two and so on, such that there are 128 elements per half antenna. These are all phased up in the same phase via phase matching lines, all of which are very symmetrical. However, where the two halves meet at the LNB feed, the two main feeds are offset by 90° . Thus one half lags the other.

NOW FOR THE EASY BIT ...

This only takes about 10 minutes. To make the aerial Horizontally Polarised, first remove the 12 case self tapping screws. Remove the front of the case. Remove the two screws in the centre that hold the cavity matching trap. Remove the 4 screws that hold the slotted plate. Remember the position and remove this plate : it has to go back as before. Remember its position and remove the spacing sheet.

Now remove the foil, again remembering its position (don't mark it !). At each corner is a small bit of foil strip : cut two of these off and save for later.

Look at the two lines in the middle and you will see that there is a gap. This gap is in the wrong place : it needs to be in the middle and not to one side. By using a very sharp knife, scratch a gap in the middle such that it is just like the original gap. Now using thin glue, place on each side of the original gap the two bits of foil you have saved from earlier (these form a tuned short).

AND NOW FOR THE HARD BIT ...

Next comes the hard bit, which can take over an hour to complete. File the case and all plates etc. such that when put back together, the new gap is in the centre of the cavity. The LNB moves by about 6 mm.

The difference between a Dish Aerial and Flat Plate Aerial is not in the phase across the aperture but in the amplitude distribution. The Flat Plate Aerial elements are fed with equal amplitude, giving the array a uniform distribution. However, a dish has a tapered distribution as a result of the feed horn distribution and can be 10 dB down at the dish edges relative to the centre. Low side lobes with the Flat Plate Aerial are achieved by orientating it in the diamond plane, thereby creating a triangular amplitude distribution along a diagonal. I actually measured 40 dBi gain and it was horizontally polarised (at right angles to the slots).

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Contests Calendar

11th & 12th December '93

Winter Vision - All bands, FSTV/SSTV

6th, 14th, 22nd & 30th January '94

Winter Cumulative - All bands, FSTV/SSTV

12th & 13th March '94

Spring Vision - All bands, FSTV/SSTV

14th & 15th May '94

Mayday Microwave - 24cm and above, FSTV only

All contests run from 18:00 GMT Saturday to 12:00 GMT Sunday except the cumulative which runs from 19:00 GMT to 23:59 GMT on each day.

Logs must be submitted no later than the third Monday after the contest. The best three logs out of four should be sent in cumulative contests.

Entries should be sent to the contest manager:

Richard Guttridge, 'Ivy House', Rise Road, Skirlaugh, Hull, North Humberside. HU11 5BH

Another source of ATV information.

Brian GW6BWX

For the past three years I have been running a dial-up Bulletin Board called "BetWiXt". The only word in the English language that has my callsign letters in the right order! Doubly appropriate as the word means 'lying between' which is exactly where the system is with respect to it's users.

My original intent was to provide a place that ATVers and others with an interest in technical matters could get together to share their ideas or seek help. Although it has never lost sight of this, the diversity of users has considerably broadened the range of material it carries. After trials (unknown to me at the time) the South Western Citizens Advice Bureaux 'adopted' the system for transferring messages and carrying research files between offices. More recently the BATC "Television Club" bulletin board has had to close down and BetWiXt is taking over it's functions.

A glance at the monitor screen tells me that at the moment there are 504 users and they have made 3,042 calls since I started counting them about 18 months ago. There are 421 messages 'in-transit' between the users and 554 programs available for downloading. On an average day there are about 30 calls but this will probably increase considerably when the BATC publicise the new number. I try to encourage people to use the system but I have had to impose a time limit of 90 minutes per caller each day. Thankfully most people take much less time than allowed but there is still a period in the evenings when the line is always busy. To remedy this

problem, part of the defunct BATC system is being attached to BetWiXt to double its capacity for accepting calls. The phone number will probably stay the same but if line 1 is busy, the call will be passed to line 2 automatically. The system can cope with ten callers simultaneously but installing the phone lines costs more limbs than I can afford to lose.

So what do you need to get to all this information?

Answer: a computer, a phone line and a modem.

Almost all computers can be used. The system adapts itself to the type of screen you are using and will turn graphics or colour off if it detects you have a machine that can't handle them. All you need is a serial port to plug the modem in to.

Voice grade phone lines are normally used, in most cases the modem and telephone are plugged into a double socket at the same time. A few modems can be connected in line with the phone, these will switch the phone off while the modem is being used. Modems have dropped in price dramatically over the past few years, slower modems can be picked up for less than £50 while super fast ones cost up to about £250. BetWiXt will adjust to match the speed of modem you use and will run as fast as anything on the market.

There is no charge to use BetWiXt, normal telephone line charges apply during the call.

Telephone Number: 0633 614765

My Start in Amateur Radio.

"No aptitude for communications" was the decision of the Army panel in 1941 when they discovered I could drive, at the time being desperate for lady drivers..... I, having taken their aptitude test, after conscription, wanted to join the Royal Corps of Signals!!!!

Throughout the years until 1981 it had been my "niggle", and to my family it had become a joke. At this time I was looking for a challenge and my son gave me a present of a shortwave radio and said "Perhaps this will satisfy!"

I really enjoyed listening for a year and then discovered there was an Amateur Radio frequency and people were talking to each other from a worldwide network.

No longer satisfied with shortwave I wanted to become an Amateur listener so I purchased the Yaesu 7700 General Coverage Receiver recording every frequency and callsign I heard.

Bristol Central Library was my next source of information. I discovered 2 metres FM and purchased a converter. Then the next day I listened to friends congratulating a gentleman, mobile, on receiving his "A" licence call-sign. Through writing to congratulate him and explaining I was a listener, I subsequently met him and his Wife at the next Longleat Rally, they persuaded me to attend an evening class to study for my RAE examination.

The year was now 1983 and I was already an O.A.P. so it was with much joy I discovered in July of that year, I had passed and was the owner of the call-sign G1HMQ... "Her Majesty, Queen" ...were the many jests of my friends.

Before receiving confirmation of my pass I commenced learning Morse Code and with the help of many good friends I took and passed my test in March 1984.

Now the world was open to me to take any direction that interested me. First came the HF bands and the real delight of talking across the continents, after which I taught Morse Code to beginners for a year, as a "thank you" to those that had helped me.

Having for many years been interested in photography, I have, since 1985, married the two hobbies in Amateur Television.

The family joke has been removed and the Army proved wrong. In fact the Royal Corps of Signals, on hearing the above story, offered me a membership of their Association.... Do you mind if I crow?!!!

Jean. G0AWX,

Treasurer of The Severnside Television Group.