Volume II No 4

(Issue 15 Sept/Oct '83)

£1

A few apologies needed here this month unfortunately. As you all have been rather painfully aware, we have had some problems with the printing of LASERBUG. Because of these, issue 14 of LASERBUG became the July/August issue and came out in mid September and this, issue 15, is the September/October issue and has come out in mid October. We would like to apologise to everybody for the delays and would also like to thank absolutely everyone for being so understanding. We will now be getting the magazine out earlier and earlier as I will explain in a moment.

About the next biggest thing I need to explain about is the increase in membership to LASERBUG. When LASERBUG started 19 months ago, the magazine was 16 pages long and was posted out on a second class stamp which cost 10p. Now LASERBUG is 28 pages long (soon to be increased) and costs 21p to send out by second class post. Not only that but obviously over that space of time the costs of printing, envelopes and many other things have gone up. We have managed to keep the price down for a considerable time but mainly because of the postage costs we have had to put membership up. A UK 12 month subscription has gone up from £12 to £14 and an overseas 12 Month from £15 to £18. Full details are given on the back cover.

If you feel that the cost of a membership is too high, LASERBUG is now available from most local computer dealers up and down the country. If your local dealer is not yet selling LASERBUG ask them to get in touch with us for details of our dealer scheme. The cost of an "over the counter" LASERBUG is still £1. We are also arranging for much greater penetration into the market. Because of the fact that LASERBUG is sold through shops, over the coming months a number of changes will be creeping into LASERBUG.

The most noticable one is that we will probably be changing the format of our front cover. However other benefits to you, the user, is that the magazine will get much, much earlier fairly quickly and by the beginning of next year we should be coming out at the beginning of each month - we will also be accelerating past the cover date so that when the cover says March for instance, the magazine comes out in February as is standard practice in the magazine trade. Other changes are that the size of LASERBUG will increase and its contents will be of a much, much higher quality.

We are also branching out more to aid you, the member. On the back cover you will now see that we are selling printers for the Beeb at much lower prices than normal - unlike many of our offers in the past this time you will be buying direct from us. This was only finalised as we went to press so details of all the printers we will be supplying are not given. Please see either the next issue or write to us for details. The other thing we are going to do is to launch our software service. Again details were not quite ready at the time of going to print so either see next months mag or write in.

All the exhibitions for this year are now over. I would like to thank everyone who came and saw us and especially for all the warm congratulations. It is nice to know that we are appreciated.

As you may know, LASERBUG has now set up a large section of pages on Micronet 800/ClubSpot. There is a full feature on this elsewhere in the magazine but to me, the great attraction it has is that it provides a very, very good contact point. Sending a letter costs a minimum of 12.5p and takes two or three days to get there. Sending a message via Prestel costs nothing, it arrives within minutes and is brought to the attention of the person as soon as he or she dials onto Prestel so in turn they can reply instantly. We have had our pages running since the 1st August and I would like to say a very big thank-you to all the varied and wonderful people with whom I have been corresponding over the past few months. I would also like to thank the many people who have helped in various ways. Unfortunately there are too many of them to list here.

Finally, a hello to the Electron owners who are starting to join us. There aren't very many at the moment - the main reason being that the Electron is hardly available anywhere. W H Smiths who will be the biggest retailer are now not selling it until November. As the Electron members increase, so will the additional features on the Electron. BBC owners will not lose out as the size of the mag would have increased to cover this.

PAUL BARBOUR

OVERCROWDED ?

As there has been so much of a gap between writing the last new section and this one, there is rather a lot to cram in!

SEXISM AND COMPUTING

Acorn have recently researched by interviewing teachers and computer education specialists in primary and secondary schools, education authorities and computer camps around the country. Teachers fear that "girls could jeopadise their job prospects if they don't learn about the micro" are backed up by figures from the latest ABG (Audits of Great Britain) "Home Audit" survey which reveals that of all households owning micro computers, boys are 13 times more likely than girls to be using them - also only 4% of micros are used by their mothers.

Acorns research was prompted by their significant interests in educational computing - the BBC Micro is used in the majority of schools which have a computer. The Electron is also of course designed to catch the "home" part of the market - children are using a BBC Micro at school and used a cut down version, the Electron at home (the Electron is by most respects very similar to the BBC Micro).

The research uncovered widespread concern amongst teachers that girls are falling behind boys in computer studies. Some secondary schools are setting up "Girls Only" courses. In the opinion of Chris Curry, the problem stems from the home - "Many teachers pointed out how many more boys than girls use micros at home. This has two effects. First, boys get ahead of girls in computer studies. The evidence shows that for young teenagers, boys probably spend more time on computer studies at home than they are at school. Second, as the boys race ahead, the girls lose both interest and confidence - a situation aggravated by the relatively small number of machines so far in schools. Britain is in danger of losing half of its talent if girls don't acquire vital computer skills. It is clear that much of the problem is due to parents giving home computers to their sons rather than to their daughters. This 'leg-up' for boys means that girls are neither able to compete with their more knowledgeable brothers in school, nor in the ever fewer jobs outside."

"We are attempting to do something about this problem by aiming our products as much at women as at men. for instance, for the new Electron home micro, we are developing software that is more relevant and more useful to women, to encourage them to take the micro more seriously. We have already produced a gardening program for the BBC Micro called 'The Magic Garden' based on the Shirley Conran book. By getting the parents interested, we hope girls of school age will be encouraged not to fall behind in computer studies. Ironically all the evidence from our research show that girls are just as able as boys in using computers. What they need is more encouragement, and more help. And that task will have to rest with the parents, and the way they use the home micro".

contents

I personally teach computers at a local school - out of the 73 children I teach, 40 of them are girls. Normally I teach mixed groups of around 6 at a time - in this kind of set up I find that everyone does equally well, in accordance with their normal abilities. Girls have natural inhibitions that computers are rather a boys thing and are rather "timid" at first, but once they get into the subject they are as good as, if not better than, the boys - on the whole the girls think much more logically than the boys. With proper teaching the problems do not lie at school, but more at home. Too many parents are themselves computer illiterate and cannot see why their children should want one - if they decide that they do it is normally the boys they are given too. If anybody needs educating in computers, it is the parents. The figures above quote that only 4% of mothers use their childrens computers - if given the right encouragement to start off with by husbands or children, not only can mothers start to use them but also grandmothers! We will have to see how the situation developes over the coming year.

AFTER ECONET, PICONET

Decode Logic of Alloway have announced "picoNET" for the BBC Micro which, utilising a sideways ROM and an external plug-on connection allows a fairly cheap local network connecting a number of BBC Micros to the floppy disk drive of an Apple][. The transfer rate is 9600 baud and the system is suitable for a maximum of 10 users. DECODE LOGIC, 8 Cralgstewart Crescent, Alloway.

ERASE YOUR EPROMS NOW

If you are a machine code freak who loves blowing his own EPROMs, you may well find after a while that you need to erase some of them to make way for new programs. EPROM erasers are normally fairly expensive - the new Uvipac erasers costs just £19.95 of £24.95 with a 15 minute timer. It is capable of erasing 3 EPROMs of any size of 1 CPU with on-board EPROM in 5 to 20 minutes. GROUND CONTROL, Alfreda Avenue, Hullbridge, Essex, SS5 6LT. 0702-230324

THE FRENCH MISTRESS AND THE GERMAN MASTER

Kosmos, a new company, have released the French Mistress and the German Master onto the public. Both are high quality language tuition programs and come in two parts A and B. Each part teaches on a different section of the language, the two parts making a very complete course. Each program costs £9.95. KOSMOS SOFTWARE, 1 Pilgrims Close, Harlington, Dunstable, Beds., LU5 6LX. 05255 3942.

PEE BEE ?

A new educational software house has sprung up with the unlikely name of Pee Bee Software. It starts trading with five titles - Angle Tutor, Polygon Tutor (which extends on the first one), Play With Words, Teacher In The Custard (!) and Knowledge Quest. PEE BEE SOFTWARE, Ffrwdgreech Industrial Estate, Brecon, Powys, Wales, U.K. 0874-4448/4621.

PARALLEL, SERIAL AND NOW IEEE TOO

There are a number of standard interfaces in computing - parallel and serial are two, however another is IEEE which is used widely by Commodore and HP. The CSY PROCYON provides a full IEEE-488 interface and a 8k EPROM fitting into a sideways ROM socket providing a highly efficient IEEE filing system. It can cope with up to 16 connected devices, accepting standard operating system file commands as well as special instructions or user defined options. Data transfer can be up to 70k per second and is virtually fool-proof with extensive user advice facilities, error checking and visual indications of operating status. Possible peripherals that connect via the IEEE interface are high quality plotters and printers, frequency counters, voltmeters and disk drives. It is also possible to connect the Beeb to CBM equipment via a specially written Commodore filing system which can respond to any high level language (LISP, FORTRAN, BASIC, APL, etc.) CAMBRIDGE SYSTEMS TECHNOLOGY, 30 Regent Street, Cambridge, CB2 1DB. 0223 323302.

ALTERNATIVE COMPILER ?

At recent shows several people have asked us about good all round BASIC compilers - the answer has unfortunately been that there are none available at present. An alternative was suggested to them - that they write in BCPL. BCPL is one of the alternative high level languages available for the BBC Micro. Using a stand alone generator, you can use the code from a BCPL program on any BBC Micro - the benefit is that the code is normally at least four times faster than BASIC. For full details of BCPL please see the article on it elsewhere. It was originally written for Acornsoft by RCP Ltd. We hope to be carrying a full review of it shortly in the magazine in our continuing feature on alternative languages for the Beeb.

TWO NEW BOYS JOIN THE FOLD

There are rather a lot of magazines available for the BBC Micro at the moment. The original two magazines, were ourselves and BEEBUG who both started at the same time. Then came Acorn User followed by The Micro User followed by A&B Computing. Now comes Acorn Programs and Model B Computing, both based on their ZX counterparts. Acorn Programs is based on Sinclair Programs and is a magazine of listings, published by ECC Publications Ltd. Model B Computing is a cassette based magazine based on Spectrum Computing, published by ASP. The two new ones are joining an already crowded market - could they go the same way as the ill fated Micro Update (also published by ASP?).

HARD WIRED MODEMS

At last the new hard wired modems for the BBC Micro are available. These are both made by Prism - the Modem 1000 and 2000. The 1000 offers 1200/75 full-duplex for use with Prestel and 1200/1200 half-duplex so you can communicate with other people. It has a switch so when communicating with other people, you can choose whether you are receiving data or sending it. The 2000 modem is the same as the 1000 apart from the fact that this switching can be achieved in software. The Modem 1000 costs £69.95 and the Modem 2000 £84.95. Also, as an alternative to the normal cassette/disk based Prestel software, a new ROM based program has been developed costing £19.95. First reports of this are not too hopeful - we will bring you more details next month. If you are already a member of Micronet you can get the ROM at half price. If you want to buy one of the modems you can get the ROM free. A more hopeful alternative to the Prism ROM might be the forthcoming hard wired modem and accompanying ROM software from Acorn themselves? PRISM MICRO PRODUCTS LTD., Prism House, 18-29 Mora Street, London, EC1.

STACKED LIGHT PEN

Stack have now a version of their light pen available for the BBC Micro. Rather than a touch button at the end of the pen or the tip, it has two contacts on the body of the pen itself. It comes with a free game (Concentration) and a range of software is available from Stack that utilises the pen (Draughts, Go, Life, Lost in the Labrinth, Othello, Crossword Twister, Shuffle Squares, Simon, Seek & Destroy). The pen costs £25.00 + VAT with the additional software costing £5.00 + VAT. STACK COMPUTER SERVICES LTD., 290-298 Derby Road, Bootle, Liverpool, L20 8LN. 051-933 5511.

CONFUSED STACK

Stack have also released a graphics program called Graphix-Ed. It utilises all functions of the BBC Micro producing a similar effect to countless other programs already on the market. What isn't very clear is whether the program works with their light pen (see above) or is a stand alone produce. The program sounds quite good so if you are interested why not phone Stack - address and phone number above. it costs £19.00 + VAT.

ACORN EDUCATION EXHIBITION

Following up on the general Acorn User Show, in January Acorn User are holding the Acorn Education Exhibition. Every primary, middle, secondary and private school, technical and higher educational college, polytechnic, university, local educational authority and MEP will be sent information and ten free tickets with the offer of further free tickets if requested. The show will obviously be the place where all educational products are on display - a real treat for all educationalists everywhere. Considering the penetration the BBC Micro has had in schools it should be an interesting event. . .

OVERPRICED ?

Geoffrey Fellows, a tutor at the School of Computing, New South Wales, Australia has written to us recently informing us of the cost of BBC Micro equipment in Australia. The prices are amazing:

A BBC Micro Model A costs £841 compared with £299.00
A BBC Micro Model B costs £970 compared with £399.00
A 16k Memory Upgrade for a model A costs £70
A SSDD Disk Drive (200k) with interface costs £578
A Dual DDDD Disk drive (800k) with interface costs £1226
A Cassette Lead costs £7.37
An Acornsoft Arcade game costs £23 compared with £9.95

All prices are tax paid and were calculated at the correct rate of exchange when this article was written.

PROGRAM POWER 1

OK, first of a number of press releases from Program Power here. Micro Power have now released three new programs. Two are based on a character called Felix who is recognisable by his flat cap. Felix In The Factory is a kind of cross between Monsters and Donkey Kong! Felix must run around the factory trying to find the oil can to fuel the generator. To stop him there are the evil Troggs running around! If this isn't enough there is a rat about as well as a moving conveyor belt with objects on that have to be jumped over. To help you there is a pitchfork to fight the Troggs with and some rat poison. Felix And The Fruit Monsters is a variation on the Pacman theme. Also released was Bandits At 3 O'Clock which is a game for two players where each control a fighter plane with a joystick. The two Felix programs cost £7.95 and the aeroplanes one £6.95. MICRO POWER LTD., 8/8a Regent Street, Chapel Allerton, Leeds, LS7 4PE.

SERIOUS SOFTWARE AT LAST ?

HCCS are at last releasing some serious business software for the BBC Micro. They have recognised the fact that for £1500 it is possible to buy a dual disk system capable of handling most of the requirements of the average small company. There full business system consists of 6 modules, all being fully modulated. Each one costs £59.95 + VAT. It seems that at last someone is taking business software for the BBC Micro seriously - our board of software reviewers are now completing tests on some of the business software currently on the market. This new package from HCCS sounds like it might make a big impact. Hopefully we will be reviewing this integrated suite of programs shortly. HOME AND CONTINENTAL COMPUTER SERVICES LTD., 22 Market Square, Biggleswade, Beds., SG18 8AS. 0767-317300.

SALAMANDER SOFTWARE

Four new programs from Salamander - Franklins Tomb (an adventure), 737 Flight Simulator (a decent one at last?), Utilities Package (sound shaper, Epson screen dump, Teletext screen editor, disassembler) and French Tutor. Reviews to follow... SALAMANDER SOFTWARE, 17 Norfolk Road, Brighton, East Sussex, BN1 4AA. 0273-771942.

BRAINTEASING ELECTRON

On the 30th November a new book called Brainteasers for the BBC and Electron Computers is to be published. It is to be aimed at the 15+ market (?) and is a compendium of 40 programs for the BBC Micro and Electron. The programs cover a variety of topics and were written by Genevieve Ludinski who runs her own educational software house. Watch out for it in your local computer bookshop around Christmas.

DATABASE ON ROM

BeebBase-1 is a database program for the BBC on ROM. It can cope with up to 25 fields with a maximum of 250 characters in each field. It leaves 16k or RAM available for the storage of data with of course unlimited capacity when used with disk. Commands include SEARCH, EDIT, SORT, FIND and EXCLUDE. It costs £39.95 + VAT direct from Trevor Rae, the author. Alternatively, official distributors are GCC. TREVOR RAE, 44 Doggett Road, Cambridge, CB1 4LF.

PRINTOUT WITHOUT A PRINTER

One of the growing markets is the number of companies that are offering to print out listings and the like for you. Printout will print out a listing for you with a daisy wheel printer by return of post for 90p and an SAE. Programs on cassette only. PRINTOUT, 17 Porch Close, Godmanchester, Huntingdon, Cambs., PE18 8JW.

STANDS AND SOUND

First of all apologies for the quality of the above picture - if it is a little shakey that is because Microsupport gave us a colour photo for a black and white magazine! ! ! The stand is made in sheet steel and finished in a textured acrylic stove enamel in the same colour as the Beeb. It has four plastic feet and fits over the micro, allowing the computer to be slid underneath when not in use. It normally costs £16.99 inclusive but LASERBUG members can get a generous £1.50 off making the price £15.49 if you quote your membership number when ordering. All orders normally despatched within 48 hours allowing for the PO. Also, Microsupport make a volume control for the Beeb - basically it provides a volume control for the internal speaker and a 3.5mm jack socket for the connection of an external amplifier/speaker. It uses the standard Beeb two pin plug connections and requires no soldering to fit. The system does use the RESET and ECONET sockets and so if you are using these for any reason (a school ?) then it is no good for you. The price for this is £4.00 including P&P. MICROSUPPORT, 104 Reddown Road, Coulsdon, Surrey, CR3 1AL.

TABS FOR BEEB/torch

Following on from our Story about HCCS business software, if you are using a Torch disk drives/Z80 pack for the BBC Micro then you have access to the Easy TABS range of business software. They are available for the Sirius, IBM PC, Apple and "BBC with appropriate disk drives" i.e. Torch. The range itself is very good indeed - it covers Purchase Ledger, Purchase Ledger, Cash Book, Word Processor and mail List. They all come with magnificent documentation - the instructions with each one are a full book. The packages cost £99 each. TABS MARKETING, Sopers House, Chantry Way, Andover, Hampshire, SP10 1PE.

WONGS WIN YANK BEEB CONTRACT

Wong Electronics Company Ltd., based in Hong Kong, have won a $45 million contract from Acorn to manufacture the American version of the BBC Micro. It was announced by Raymond Yap (hello Stephen Yap!) who commented "We are convinced that the so-called instability of the U.S. Microcomputer market has been much exaggerated. For a start, microcomputer sales suffer the same kind of seasonal variations as sales of many other products. However the longer term trends continue to point to an expanding market. A new, up-to-date machine should have no problem gaining a firm place in the market once the consumer has had a chance to see its clear superiority over the less sophisticated rivals. The Acorn BBC Micro is being aimed specifically at the U.S. educational market and at $995 including disk drive, voice and Econet interfaces. It also carries two different sets of teacher training documentation, and a special panel of educationalists has been set up to monitor all educational software written for the machine. This makes the Acorn system unique in the American market, and we are confident it will do very well." At the moment Wongs already manufacture Acorn products for the Far East and Australia.

COLOURED DISKS

Do you have trouble telling one disk from another. When you are in a hurry can't you tell the difference between your wordprocessing disk and your games disk. What can you do? Put labels on the disks? Wouldn't it be much easier if the disks themselves were coloured. The Counting House have just launched a range of coloured disks. They are available in 10 different colours - red, orange, yellow, green, blue, beige, burgundy, grey, royal blue and tan.. They are available in all types (sides, densitys, tpi, sectors, etc.) in both 5" and 8". You can buy a 10 pack of one colour, two different rainbow packs or a colour pack with one of each colour. The idea is quite novel and although it may sound rather silly, it is a very effective way of filing your disks. I am very sure that it will catch on. A box of 10 SSDD disks cost £22 + VAT. Alternatively, they offer special 5.25" Duo Packs. These contain two disks in the colours of the customers choice and are in a punched wallet for filing. The prices for these are: SSDD48 - £5.00/DSDD48 - £6.10/SSQD - £6.80/DSQD96 - £8.50 (P&P 30p). Members can get a 5% discount on all products by quoting your membership number. Full details of prices can be obtained from THE COUNTING HOUSE, 123 Green End Road, Hemel Hempstead, HP1 1RT. 0442-54845

PROGRAM POWER 2

In the opinion of Micro Power, they expect to become the top software house for the BBC Micro - beating even Acornsoft. In the words of Bob Simpson, MD of Micro Power "Our main objective is to overtake Acornsoft as Number One BBC Micro software house by Christmas. This is becoming reality as our software continues to make substantial in-roads into the software charts features in specialist magazines: Killer Gorrila, Chess, Moonraider and croaker being notable examples."

This news story came in at the same time as PP announced three new programs, all of them a change from the normal "zap" types. Escape From Moonbase Alpha is a 3-D graphical adventure. Demon Decorator is a "Amidar/Painter" type game and Danger UXB, the best of the three in our opinion, is all about defusing bombs! Address above.

DATAPEN

As you can see from the picture above the Datapen is another light pen - is has a LED on the back so you know when valid data is at the tip of the pen. Software is also to be brought out to complement the pen including a freehand drawing program. Other forthcoming products from this company are bar code readers, a digitising pad and a mouse device. DATAPEN MICROTECHNOLOGY LTD., Kingsclere Road, Overton, Hants., RG25 3JB. 0256-770488

BUTTERFLY

Butterfly is a multi-purpose game designed to be tailored to suit a particular childrens needs. The program consists of an editor which actually allows you to set up text or whatever to be used in the main program. Then the Butterfly Game allows the user to guide a butterfly around the screen to gather letters, numbers to make up the chosen key words. The game unlike a number of educational programs is completely non-violent. Features include optional use of joysticks and colour hi-res graphics. The cassette version is £12.50 (disk £14.50) EDU-CAL, 28 Ingersol Road, Shepherds Bush, London, W12 7BD. 01-743 1579

AVON CALLING

During the first three weeks of November, the Byte Micro Computing Centre under the banner of CTUK (Computer Town UK) is holding a Home Computers and Computing exhibition. The idea is to educate the general public and schools in the uses of the small computer and remove the mystique that pervades the whole idea of a computerised society. Various demonstrations and symposiums will be held covering such things as education, careers and the home. It starts at the Avon County Library and afterwards in other libraries throughout South Avon. BYTE MICRO COMPUTING CENTRE, 7 Riverway, Nailsea, Avon, BS19 1HZ

TELEX ON A BEEB

If you belong to Prestel, it is possible for you to send a telex. First of all you have to be registered as one of the users of the telex service - you are then allowed into the telex closed user group. Sending a telex is then as simple as sending a mailbox message - you just have to dial onto a special response frame. Once you send the message, within about 10 minutes the telex link service will send it anywhere in the UK. The cost of the service is 50p per message - this is not charged immediately. When you send the telex, if it arrives safely you are sent a mailbox (you must be registered on Enterprise) to inform you of this fact and are told you will be charged 50p - these charges do not appear as frames charges and are billed seperately.

If not then you are sent an apology and not charged anything. This means that through a Beeb you can send a telex to anybody in the country - without any extremely high telex rental charges to pay. At the moment the service is send only but is hoped to develop it into a full telex system. We were one of the first people to utilise the service:

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848441 BENWEL G
296721 PRSTX G

DELIVERED TO YOU VIA THE PRESTEL  T E L E X  L I N K  SERVICE
==========================================

FROM  PAUL BARBOUR
AT    TUE 20 SEP 1983 21:49

PRESTEL MAILBOX NUMBER 919991065

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 TEST TELEX
 ==========

THIS TELEX MESSAGE WAS ONE OF THE FIRST
SENT USING THE NEW PRESTEL TELEX LINK
SYSTEM.  IT MEANS THAT WITH A NORMAL
PRESTEL MODEM YOU CAN SEND A TELEX TO
ANYWHERE IN THE UK. AT THE MOMENT IT IS
A SEND ONLY SERVICE.

LASERBUG.

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PLEASE DO NOT ATTEMPT TO REPLY TO OUR TELEX NUMBER
AS THE SERVICE IS ONE-WAY AT PRESENT


296721 PRSTX G
8484 1 BENWEL G
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BBC MICRO MODEL C

The BBC Micro Model A has 16k of RAM. The Model B has 32k. How would you like a Model C with 48k! The Model Micro Company has now developed such a device - a 16k memory upgrade for the B! The upgrade comes in a tiny circuit board (measuring 2.5" x 4.5") giving 16k of RAM (battery backed), RAM control logic and an additional 16k ROM socket. It plugs straight into one of the sideways ROM sockets requiring no cables or soldering. It comes with its own ROM based controlling software. It can be locked into read/write, write only or read only and can be used to save programs without the use of a normal filing system, allow password control of programs and data, run additional languages, write and run ROM software without burning EPROMs, encrypt and decrypt programs onto tape or disk or even give you password control of the use of the computer itself. THE MODEL MICRO COMPANY, 11 London Mews, London, W2 1HY.

ALTERNATIVE KEYBOARD

Star Microterminals have produced a touch sensitive keyboard, with a matrix of 8 x 16 keys, for use with several computers including the Beeb. It is not designed to replace the Beeb keyboard obviously but to provide an educational or business aid. The idea is that you place an overlay on the keyboard for the program you are using at the moment. For instance, if you are running an educational program it would be easier to have a keyboard that just had the numbers, enter and delete if you were answering mathematical questions. If you were running a multi-choice you could just have the letters A-E. If you are running a stock control program you could make each key on the keyboard correspond to an item - it is easier to press the button marked BOX OF ENVELOPES than either typing in the word or a long code number. STAR MICRO-TERMINALS LTD, 22 Hyde Street, Manchester, Winchester, Hampshire, SO23 7DR. 0962-51422

AUTOMATA MOVE

Automata only produce one program for the BBC Micro - Pimania which is a very good adventure for several computers. They have never sent us a review copy but their Spectrum material is so good (yes, as well as having a Beeb and Electron your editor has a Spectrum and a Dragon too!). If nothing else their marvellous advertising on the back of Popular Computing Weekly justifies them having a little bit of space. Up the Pi-Man and Groucho!

PROGRAM POWER 3

All this Program Power stuff gets boring after a while doesn't it! Micro Power have now formed Greyhound Marketing to distribute PP (and other ?) software. They aim initially to extend there dealer network by moving into bookshops and the like. At the moment as you can see from the pictures above PP now has a range of 48 programs!

WORDSWORTH ON DISK

Wordsworth, the cassette based wordprocessor, is now available on disk. Wordsworth is accepted at the moment as the standard non-ROM based wordprocessor - see elsewhere in this issue for a review. The disk version costs £19.50 (40 or 80 tracks) and the tape version £17.25.

MOST NEWSWORTHY OF ALL

Did you know that Chalksoft have moved? Of course where to? CHALKSOFT LTD., 37 Willowslea Road, Worcester, WR3 7QP. Did you know the UK Distributors for Chalksoft are Ward Lock. Where are they? WARD LOCK EDUCATIONAL CO, LTD., 47 Marylebone Lane, London, W1M 6AX. Have I gone completely potty? No! Chalksoft got a little upset that we called the fact that they had moved un-newsworthy. They got even more upset when we neglected to put their new address at the end of the feature! As you all know Chalksoft are one of the larger educational software houses - they have two new toys, disks and an Electron (given free by Acorn no less). We can expect alot more from them in the future... Happy Brian?

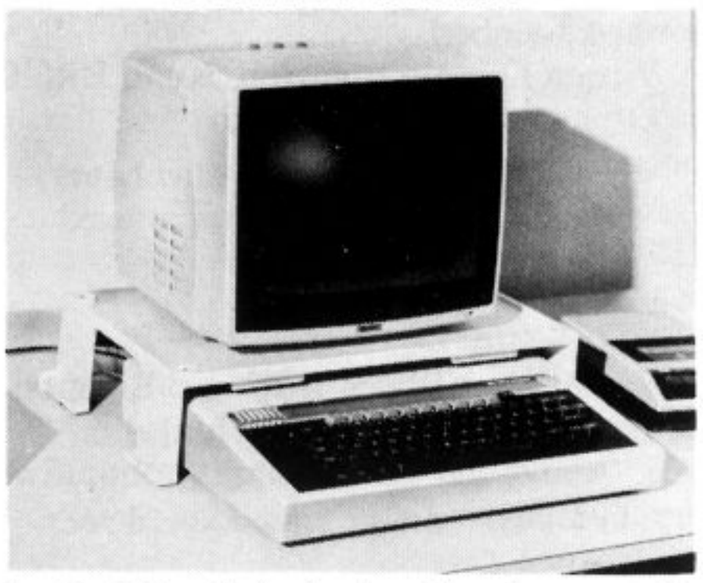
DUSTY ELECTRON

Is your Electron covered in chalkdust. No? Chalksoft (as in newsworthy stories) have now brought out two programs for the Electron. They are both conversions of their BBC Micro counterparts. More Electron programs from dusty Chalksoft later on this month.

ROM ANSWER

There are many differnet sideways ROM boards available now for the BBC Micro. All of them though seem to have problems of various kinds. Perhaps the answer comes from ATPL. Their ROM board allows full use of the 16 ROMs (some allow only 8), has a 16k RAM option, it does simply plug in (some require soldering) and it is fully buffered on the address and data busses (some boards are Un-buffered leading to RAM errors). We will be reporting on this and other ROM boards very shortly. ATPL, Station Road, Clowne, Chesterfield, Derbyshire, S43 4AB. 0246-811585

BROADY STAND



The Broady Owl Perch is designed to let a monitor or TV be placed above the BBC Micro in the natural position. We have been using one for several months now and can honestly say it works very well. It holds a monitor at exactly the right height, it is very durable and works well under all conditions. It has the capability to add another shelf and even a security pack. The normal price is £35.00 inclusive. If you wish to paint the unit yourself in a colour other than cream, you can buy an "as cast" version for £22 inclusive of postage and with the corners drilled and tapped. WILLIAM BROADY AND SON LTD., English Street, Hull, HU3 2DU.

G.O.A.L.

Don't you think that Hopper is a good name? Why hasn't anyone else come up with anything to match it. The answer could be that every software house haven't got G.O.A.L. GOAL stands for Graphic Orientated Arcade Language. It is a sophisticated program generator written by Neil Raine. It is obviously a thing kept rather quiet by Acornsoft - a few public references have been made to it but not many. The program is extremely complicated to use - it is rumoured that only Neil Raine understands how to use it! It appears also that there is somewhat of a security around it - it is brought out when the necessary people are around and locked away when anybody outside Acorn is around. I have had a good number of people come up complaining that it is not fair for Acornsoft to keep such a valuable tool away from everyone else - several software houses have released similar programs for other computers? Well Acornsoft? What about a simplified version of GOAL (one that somebody other than Neil Raine can understand) for Joe Public?

Electron news

At the time of writing this feature unfortunately we haven't had our Electron long enough to be able to do some in depth features about it. Several articles in this months magazine refer to both computers and there is a book review purely about the Electron. Next month however, all Electron owners out there are promised a number of features.

For people trying to change programs from the BBC Micro over to the Electron you should note that:

* It uses OS 1.00
* It uses BASIC II
* MODE 7 is not available
* The computer works slower in the higher modes
* Although you can still address all the sound channels, only one channel can sound at one time and you have no volume control.
* Envelope is less complex
* There is no 6845 and so sideways scrolling and the *TV command to name but two do not work
* It has no provisions for joysticks, printers or disks
* There is no 300 baud CFS
* Not all of the *FX calls are implemented on the Electron and it does have extra ones not available on the BBC
* All of the ASCII codes have been defined - those greater than 127 are of various things including arrows. Before you try to redefine a shape it might be an idea to check that the Electron hasn't already got it!

This month we have re-indexed our bi-monthly list of local user groups into areas to make finding a club nearer to you easier. If you would like to attend meetings of a local user group but cannot find one in your area please drop us a line and we will, with the help of the ACC database, try to find someone in your area.

We would like to remind clubs that there is a "Club Reports" page which is left free for use by any local user group. To date only one club has ever taken advantage of this page - if you would like to submit anything for inclusion in this section please send details to our normal address marking the letter Club Reports.

BARNSLEY
Contact: James Bridson
Address: 39 Keresforth Hall Road, Kingstone, Barnsley, S. Yorkshire, S70 6NF.
Telephone: 0226-41753 (after 4.30 p.m. please)
Club Name: Barnsley Computer Users Group

BRIGHTON & HOVE
Contact: I. Smith
Address: 30 Leicester Villas, Hove, E. Sussex, BN3 5SQ.
Club Name: Brighton, Hove and District Computer Club
Meeting Place: Southwick community centre
Times: Every second Wednesday between 7.30 and 10p.m.

BRISTOL
Contact: Peter Hughes
Address: The Lending Library, Five Marsh Street, Bristol, BS1 4AA
Club Name: Format 40/80 Disk Club
Other Details: The idea of the club is to "exchange programs of all kinds including school, educational and of course games. This will be done by a monthly disk to members ready to BOOT up with menu."

CARDIFF
Contact: Geoff Barker
Telephone: Penarth 701023
Club Name: Cardiff BBC Computer Club (CBCC)
Meeting Place: Applied Science Lecture Theatre of University College, Newport Road, Cardiff.
Times: Alternative Wednesday evenings
Other Details: Extensive facilities at Lecture Theatre. Had 60 members after only 3 months.

CHELMSFORD
Contact: G. W. Goodacre
Address: 34 Quilp Drive, Chelmsford, CM1 4YA
Club Name: Chelmerbug
Meeting Place: Local school
Times: First Wednesday of every month

CROYDON
Contact: I. M. Khabaza
Address: 10 Lawrence Road, South Norwood, London, SE25 5AA
Telephone: 01-653 3207/01-653 4610
Club Name: Croydon Computer Club BBC Group
Meeting Place: Croyden Central Library
Times: 1st and 4th Tuesdays of each month at 7p.m.

GREAT YARMOUTH
Contact: Nick Lamb
Address: 23 Gaywood Close, Caistor-on-Sea, Great Yarmouth, Norfolk, NR30 5RD
Telephone: 0493-728442

ISLE OF SKYE
Contact: C. J. Manvell
Address: Tigh na Pairc, 25 Breacais Iosal, Isle of Skye, IV42 8QA
Club Name: Skye and Lochalsh Computing Society
Other Details: Caters for all machines with BBC Micro dominating

LONDON (N11)
Contact: John Claydon
Telephone: 01-889 5446
Club Name: North London BBC Microcomputer Users Group and Education Workshop
Meeting Place: Bounds Green Junior School, Park Road, N11
Times: Second Sunday of each month at 2.00p.m.
Other Details: Fee of approx. £1 per meeting to cover costs

ORPINGTON
Contact: Norman Lambert
Address: 11 Vinson Close, Orpington, Kent, BR6 0EQ
Club Name: Orpington Computer Club
Meeting Place: Local Church Hall
Times: Every Friday evening
Other Details:

SWANSEA
Contact: Nick Goodwin
Club Name: South West Wales BBC and Electron User Group (allied with the Swansea Computer Club)
Meeting Place: Above the Three Lamps pub in Swansea
Times: Every Tuesday

SWEDEN
Contact: Janne Soderberg
Address: Frihetsvagen 32, S-175 33 Jarfalla, Sweden.
Telephone: 0758-31753
Other Details: Caters for the Atom as well as the BBC Micro

WAKEFIELD
Contact: Richard Sterry
Address: 1 Wavell Garth, Sandal, Wakefield, West Yorkshire, WF2 6JP.
Telephone: Wakefield 25515

WREXHAM
Contact: Mike Houghton
Address: 1 Sherwell Avenue, Wrexham, Clwyd, LL13 9TZ.
Club Name: Wrexham & District Computer Club
Times: Every Thursday.

complete *FX list II

BBC MICRO ONLY

Many people have printed incomplete lists of the *FX calls - the most complete list was printed by us but even that was short of some 100 calls. Now, for the first time, LASERBUG can reveal the absolutely complete list of *FX calls. The ones that aren't mentioned below simply aren't implemented. We would like to thank several people for their help in compiling this list, however most wished to remain anonymous. I would also like to thank the person who spoke to me on the phone and then sent me an almost complete list of the calls - unfortunately your letter has become separated from the list. Dr. Susans must also be congratulated for his own hard work on discovering many of the calls.

Over the coming months we will be expanding the information on every individual call to enable you to have as much information as possible. Also, we will be explaining which ones are implemented on the Electron and the additional Electron only calls.

*FX calls are all OSBYTE calls which resides at &FFF4 and indirects through &020A. The calls take the form *FXa,x,y where a is the OSBYTE type, x is argument 1 and y is argument 2. a must be included but x and y are optional - if not included the default is 0. Not all calls are suitable for use as *FX statements.

*FX0 Prints OS version number (i.e. OS 0.10 EPROM, OS 1.20). If x=0 message printed. If x<>0 OS version returned in x - x=1 means OS1.2

*FX1 Displaces arg. Old arg returned in x register (read with *FX241)

*FX2,x Selects input Device: x=0 keyboard only (default)
x=1 RS423 only
x=2 keyboard and RS423
(read with *FX177)

*FX3,x Selects output device (for characters written using OSWRCH)
Bit 0 enables RS 423
Bit 1 disables screen
Bit 2 disables printer
Bit 3 forces printer is CTRL-B not used
Bit 4 disables spooling
Bit 6 disables printer and stops VDU21 sending ASCII 12 to the printer
(read with *FX236)

*FX4,x Edit key functions: x=0 normal editing (default)
x=1 keys return ASCII codes
x=2 keys are become programmable as *KEY11-15
(read with *FX237)

*FX5,x Selects printer type: x=0 output ignored
x=1 parallel printer
x=2 RS423 serial printer
x=3 user defined ouput
(read with *FX245)

*FX6,x Set printer ignore character (character in x) (read with *FX246)

*FX7,x Set RS423 send rate: x=1 75 baud
x=2 150 baud
x=3 300 baud
x=4 1200 baud
x=5 2400 baud
x=6 4800 baud
x=7 9600 baud
x=8 19200 baud

*FX8,x Set RS423 receive rate: x same as for *FX7

*FX9,x Set flash rate of first colour (for colours 8-15) x=time of flash in 20ms. x=0 means no flash (read with *FX195)

*FX10,x Set flash rate of second colour. Details as in *FX9 (read with *FX194)

*FX11,x Set auto repeat delay. x=time of delay in 10ms. x=0 means no repeat (read with *FX196)

*FX12,x Set auto repeat period. Details as in *FX11. (read with *FX197)

*FX13,x Disable event: x=0 output buffer empty
x=1 input buffer full
x=2 character entered input buffer
x=3 ADC conversion complete
x=4 start of vertical sync (see *FX197)
x=5 interval timer crosses zero
x=6 escape has occurred
x=7 RS423 receive error
x=8 Econet/service event

*FX14,x Enable event. Details as in *FX13

*FX15,x Flush buffer: x=0 keyboard buffer
x=1 RS423 receive buffer
x=2 RS423 send buffer
x=3 printer output buffer
x=4 sound channel 0
x=5 sound channel 1
x=6 sound channel 2
x=7 sound channel 3
x=8 speech synthesis buffer

*FX16,x Number if ADC channels to be used. x=number of channels. x=0 means no sampling. (read with *FX189)

*FX17,x Forces conversion of ADC channel. x=channel number

*FX18 Clear user defined keys

*FX19 Wait until next TV synchronisation pulse

*FX20,x Explode (x=pages reserved) or implode (x=0) user defined character area. When exploded, all ASCII codes 32-255 can be redefined. *FX20,1 as stated in the user guide leaves insufficient space to redefine all codes.

*FX21,x Flush buffer. Details as in *FX15

*FX117 Returns VDU status byte in x: bit 0 set if printer engaged
bit 2 set if paged mode current
bit 3 set if software scrolling (i.e. valid VDU28 window) current
bit 5 set if text at graphics cursor current
bit 7 set if VDU disable current

*FX118 Reflects value of KSTAT. Carry bit set if CTRL pressed. Negative bit set if SHIFT pressed.

*FX119 Informs MOS that SPOOL and EXEC files have been closed by filing system

*FX120,x Set old key (for 2 key roll-over)

*FX121,x Scans keyboard beginning at matrix address x (x>16)

*FX122 Scans keyboard from 16 (decimal)

*FX123 Signifies end of user print routine

*FX124 Resets ESCAPE flag

*FX125 Set ESCAPE flag

*FX126 Acknowledge detection of ESCAPE

*FX127 Check for EOF status

*FX128,x Returns most recent conversion of specified ADC channel. With -ve x reads buffer information or buffer X EOR 255

*FX129,x Read key within time limit. With -ve x scans for a particular key

*FX130 Read machine high order address (&FFFF for I/O processor, &0000 for tube)

*FX131 Returns lowest address not used by OS (x=lsb/y=hsb)

*FX132 Returns start of screen memory (HIMEM on Tube)

*FX133,x Returns start of screen memory for given mode. On entry x=mode number. On exit x=lsb/y=hsb

*FX134 Returns current position of text cursor (x=pos, y=vpos)

*FX135 Read character at current cursor position. (x=ASCII value or 0 if character is garbage, y=screen mode)

*FX136,x,y *CODE command. (Indirects through USRVEC with a=0, x and y from command)

*FX137,x,y Switch cassette motor on or off (x=1 or 0). Also can define whether for a read (y=1) or write operation (y=0) to operate a dual cassette system

*FX138,x,y Insert character in y register into buffer in x register

*FX139,x,y Sets file options (x=file command, y=option)

*FX140,x Selects CFS and sets tape speed (x=3 300 baud, x<>3 1200 baud)

*FX141 Selects ROM filing system. Read only - write commands indirected to "Bad Command"

*FX142,x Execute sideways language ROM (x=ROM number from left of board logically 0-16.) On-board sockets are numbered 15-12 - other ROMs exist only with extra hardware. Without an expansion board ROMs are read as MOD 4.

*FX143,x Execute sideways service ROM from within language ROM. Reason codes must be used.

*FX144,x,y Alter screen vertical position (x) and interlace (y).

*FX145,x Remove character from buffer. On entry x=buffer number. On exit carry set in buffer empty, clear set if character obtained.

*FX146,x Read from FRED (x=offset from &FC00)

*FX147,x,y Write to FRED (x=offset from &FC00, y=value to be written)

*FX148,x Read from JIM (x=offset from &FD00)

*FX149,x,y Write to JIM (x=offset from &FD00, y=value to be written)

*FX150,x Read from SHEILA (x=offset from &FE00)

*FX151,x,y Write to SHEILA (x=offset from &FE00, y=value to be written)

*FX152,x Read character in buffer x without removing it. On exit y=pointer to character indexed from &FA/B

*FX153,x,y Insert character y into buffer x (x=0 or 1) and check for an escape condition

*FX154,x Write x to video ULA at &FE20

*FX155,x Write x to video ULA at &FE21

*FX156,x,y Alters 6850 to (old value AND Y) EOR X

*FX157,x,y Fast BPUT for use with Tube. x=value to be outputted, y=file

*FX158 Read from speech processor

*FX159 Write to speech processor (x=value to be written)

*FX160,x Read miscellaneous VDU system states - x=number to be read. Returns variables from page &3,

All the following calls have the parameter replaced by (old value AND y) EOR x. To read use x=&00/y=&FF and to write use x=value/y=&00. Some calls are of no use or should only be used with caution.

*FX166	Read start of OS variables) Two
*FX167	Read start of OS variables) bytes
*FX168	Read address of ROM pointer table) Two
*FX169	Read address of ROM pointer table) bytes
*FX170	Read address of ROM information table) Two
*FX171	Read address of ROM information table) bytes
*FX172	Read address of keyboard translation table) Two
*FX173	Read address of keyboard translation table) bytes
*FX174	Read VDU variables origin) Two
*FX175	Read VDU variables origin) bytes
*FX176	Read/write filing system timeout counter
*FX177	Read/write input source
*FX178	Read/write keyboard semaphore
*FX179	Read/write primary OSHWM (for fully imploded font)
*FX180	Read/write OSHWM (for current state of font)
*FX181	Read/write RS423 mode
*FX182	Read character state
*FX183	Read/write cassette/ROM filing system switch. 0=TAPE/2=ROM
*FX184	Read video processor ULA registers
*FX185	Read video processor ULA registers
*FX186	Read ROM number active at last error or soft reset
*FX187	Read number of ROM socket containing BASIC
*FX188	Read current ADC channel
*FX189	Read number of ADC channels
*FX190	Read ADC conversion type (12 or 8 bits)
*FX191	Read/write RS423 use flag (bit 7=active 1 or buffer empty 0)
*FX192	Read RS423 control flag
*FX193	Read/write flash counter
*FX194	Read/write space period count
*FX195	Read/write mark period
*FX196	Read/write keyboard auto-repeat delay
*FX197	Read/write keyboard auto-repeat period
*FX198	Read/write *EXEC handle
*FX199	Read/write *SPOOL handle
*FX200	Read/write ESCAPE/BREAK effect: x=0 nothing; x=1 ESCAPE disabled; x=2 wipe memory on BREAK; x=3 both
*FX201	Read/write keyboard disable
*FX202	Read/write keyboard status: x=0 CAPS/SHIFT on - SHIFT fn; x=16 SHIFT on; x=32 CAPS on; x=48 both off; x=144 SHIFT on - rev SHIFT fn; x=160 CAPS on - rev CAPS fn
*FX203	Read/write RS423 handshake level
*FX204	Read/write RS423 input suppression flag
*FX205	Read/write cassette/RS423 selection flag (0=RS423/&40=cassette)
*FX206	Read/write Econet OS intercepts
*FX207	Read/write Econet RDCH
*FX208	Read/write Econet WRCH
*FX209	Read/write speech suppress status
*FX210	Read/write sound suppress status
*FX211	Read/write bell channel
*FX212	Read/write bell information (volume/envelope/ synchronisation)
*FX213	Read/write bell frequency
*FX214	Read/write bell length
*FX215	Suppress start-up message/!BOOT option
*FX216	Read/write length of function key string
*FX217	Read/write number of lines printed since last pause in paged mode
*FX218	Read/write number of items in VDU queue
*FX219	Read/write TAB key character
*FX220	Read/write ESCAPE character
*FX221	Read/write interpretation of characters &CO-&BF
*FX222	Read/write interpretation of characters &DO-&CF
*FX223	Read/write interpretation of characters &EO-&EF
*FX224	Read/write interpretation of characters &FO-&FF
*FX225	Read/write function key status (ASCII codes or definable keys)
*FX226	Read/write SHIFT-function key status (ASCII codes or definable keys)
*FX227	Read/write CTRL- function key status (ASCII codes or definable keys)
*FX228	Read/write SHIFT-CTRL function key status (ASCII codes or definable keys)
*FX229	Read/write ESCAPE key function (ESCAPE or ASCII code)
*FX230	Read/write ESCAPE effects
*FX231	Read/write IRQ bit mask for user 6522
*FX232	Read/write IRQ bit mask for 6850 (effectively RS423)
*FX233	Read/write IRQ bit mask for system 6522
*FX234	Read tube present flag
*FX235	Read Speech present flag
*FX236	Read/write WRCH destination
*FX237	Read/write cursor editing status
*FX238	Read/write location &27E
*FX239	Read/write location &27F
*FX240	Read/write location &280
*FX241	Read/write location &281
*FX242	Read copy of serial processor
*FX243	Read timer switch state (5 or 10)
*FX244	Read/write soft key consistency flag (0=consistent)
*FX245	Read/write printer type
*FX246	Read/write printer ignore character
*FX247	Read/write BREAK intercept code (x=0 normal break/x>0 6502 opcode)
*FX248	Second byte (opcode/address/data) for *FX2476
*FX249	Third byte (opcode/address/data) for *FX247
*FX250	Read/write location &28A
*FX251	Read/write location &28B
*FX252	Read/write current language ROM number
*FX253	Read reset type (o=soft break/1=power on/2=hard break)
*FX254	Read/write available RAM(&40=16k/&80=32k)
*FX255	Read/write start up options

More details on the first section of calls next month. . . .

The Computer Programme II - Making the Most of the Micro
Presented by Ian McNaught Davis
With David Ellis and Catherine Robins
Produced by David Allen

Episode VII - Sound Interesting

The program opens with David Ellis and friends playing a piece of music with normal instruments and a synthesiser linked up to an Apple][. Mac tell us "Most micro's can make sounds of some kind, even a little hand held job . . ." (!) ". . . such as this one . . ." (the Sharp hand held computer) ". . . Today we are going to be looking at how some micros can be used to generate music and speech and we're also going to start looking at languages other than BASIC".

David Ellis and Mac sit around a BBC Micro and discuss what properties actually go to make up a sound - pitch, duration and volume. This is then transferred onto the BBC Micro by executing a simple sound statement which is described as "pretty boring"! As the next step up a simple FOR . . . TO . . . NEXT loop was set up to run through a simple scale - this gives rise to the comment "well that's more fun but it doesn't sound like a piano" which leads somewhat prematurely, to envelopes.

A normal "square" sound is demonstrated graphically and audibly. Then a video of a train is shown followed by an audible/graphical demo on the computer of the sound wave of a train going past. This sound wave is created using the ENVELOPE command. A utility program is shown which demonstrates a number of envelopes and allows you to alter an individual values in the envelope.

David quite rightly says it is very hard to enter music using a typewriter keyboard and so moves onto an Apple][with disk drive, a piece of hardware utilising a very complex sound chip capable of 16 channels and a proper musical keyboard. The real keyboard allows the musician to enter music much more easily and to utilise the computer to "edit" the music.

He starts off by playing a line of music and then adds another to it and yet another piece again - all three pieces can then be played back at once, one person being able to create music that would normally require 3 people! All the notes are stored in the computer simply as a series of numbers - these can of course be edited by just changing individual values. Also the various instruments in the piece can be altered by just changing the envelopes.

Still on the Apple a system is shown using a different piece of hardware which provides channels plus 1 channel containing 7 different percussion sounds. This system uses numbers to build up a percussion pattern and repeat it. The tune can be created in a similar way and the lot can be played together - this method is best with complex works as no matter how intricate a piece is, it can all be broken down into numbers.

So far all the music has been created/displayed without the use of musical notation. A program is shown (again on the Apple) that transposes whatever is played on the keyboard onto the screen in correct notation.

Now in case you had all thought that Mac had given up on the BBC Micros sound capabilities never fear - an excellent program is shown which display in proper musical notation the three sound channels with a fourth channel used for percussion. A tune is stored in the program and as it plays, the screen scrolls sideways. You can edit a particular bar and then individual notes. As soon as anyone starts selling this program (BBC Soft ? Acornsoft ?) it will be an instant winner.

Rounding off the section on sound the BBC Speech System is demonstrated (not very well !). Next we move on to other languages.

Firstly with languages we are shown the Scunthorpe Rock Mill where steel rolling is performed 24 hours a day. One problem that occasionally occurs is that the red hot steel comes out of its guide and produces a "cobble". A computer was installed running an "expert system" which was originally programmed by the Steel Mill Computer Engineer. When a fault occurs like a "cobble" it is quite possible that the chief engineer isn't around as the mill works 24 hours - an inexperienced operator can go to the computer, answer the questions the computer puts to him (some requiring various tests to be made by the operator) and in turn based on the information just given to it, the fault can be easily diagnosed.

Next we see Mac using a health diagnosis program written in Microtext (soon available from Acornsoft). Microtext is a language designed to aid writing programs for human/computer conversion. This particular program is a questionnaire - the answers from which lead the computer to make an overall assessment of your health.

Another program shown running is the "Tree of Knowledge" type one - designed to show crudely an artificial intelligence program. The computer learns about a topic such as animals based on what you can tell it. Eventually once you have given the computer enough information it should be able to pinpoint any animal you could think of.

Catherine Robins uses a system to control a robot arm via a Apple][with a speech recognition system fitted as input. The robot arm is the Armdroid 1 by Colne Robotics - the same one we had on display at the Acorn User exhibition. Firstly she teaches the computer to recognise her voice by repeating the key words, then she teaches the robot arm how to pick up a beaker and finally it can be reset and simply saying the word beaker will get it to pick the beaker up !

"Next week we'll be getting our own robot, the BBC Buggy to appear to do intelligent things and we'll be looking at how we can link the computer to the real world, sensing what's going on around and controlling equipment".

The episode provided a competent introduction into the sound capabilities of computers. With that in mind it is a pity that many more people do not take advantage of the BBC Micro's capabilities.

NEXT MONTH: Episode VIII - Everything Under Control.

arcade game high scores

This month we have decided to add a few games of our own that people haven't yet included. Come on all you arcade game freaks (including Ian "Zap" Cook) lets start zapping a few invaders, saving a few frogs and gobbling those power pills and boost up these scores a bit more.

Android Attack (1)	17	465	Mark Barbour
Arcadians (2)	35	000	Neil Raine
Atlantis (3)	39	650	Andrew Graham
Attack On Alpha Centuri (4)	7	920	Paul Barbour
Carousel (2)	25	740	Maureen Barbour
Centipede (5)	15	450	Mark Barbour
Felix And The Fruit Monsters (6)	20	160	Paul Barbour
Felix In The Factory (6)	7	150	Mark Barbour
Galactic Firebird (7)	10	400	Ian Coldicott
Hopper (2)	13	108	Mark Barbour
Hunchback (5)	1	640	Mark Barbour
Killer Gorrila (6)	95	450	Jonny Lee
Missile Base (2)	56	240	Paul Barbour
Meteors (2)	44	000	Neil Raine
Monsters (2)	257	060	Ian Cook
Moonraider (6)	243	000	Jonny Lee
Planetoid (2)	434	700	Neil Raine
Q*Bert (5)	12	420	Mark Barbour
Road Runner (5)	53	400	Mark Barbour
Rocket Raid (1)	135	000	Nick Pelling
Ski Slalom (8)	4	410	Mark Barbour
Snapper (2)	262	810	Ian Cook
Space Hi-Way (9)	18	200	Paul Barbour
Starship Command (2)	2	590	Ian Cook
Super Invaders (2)	46	300	David Featley

KEY:
1 Computer Concepts
2 Acornsoft
3 IJK Software
4 Software Invasion
5 Superior Software
6 Micro Power
7 Kansas
8 R H Electronics
9 Amicom

If you have a high score that beats any of the above games or have achieved a good score on any arcade type game not mentioned above please send them into us giving full details including a signature of a witness or some proof of the score.

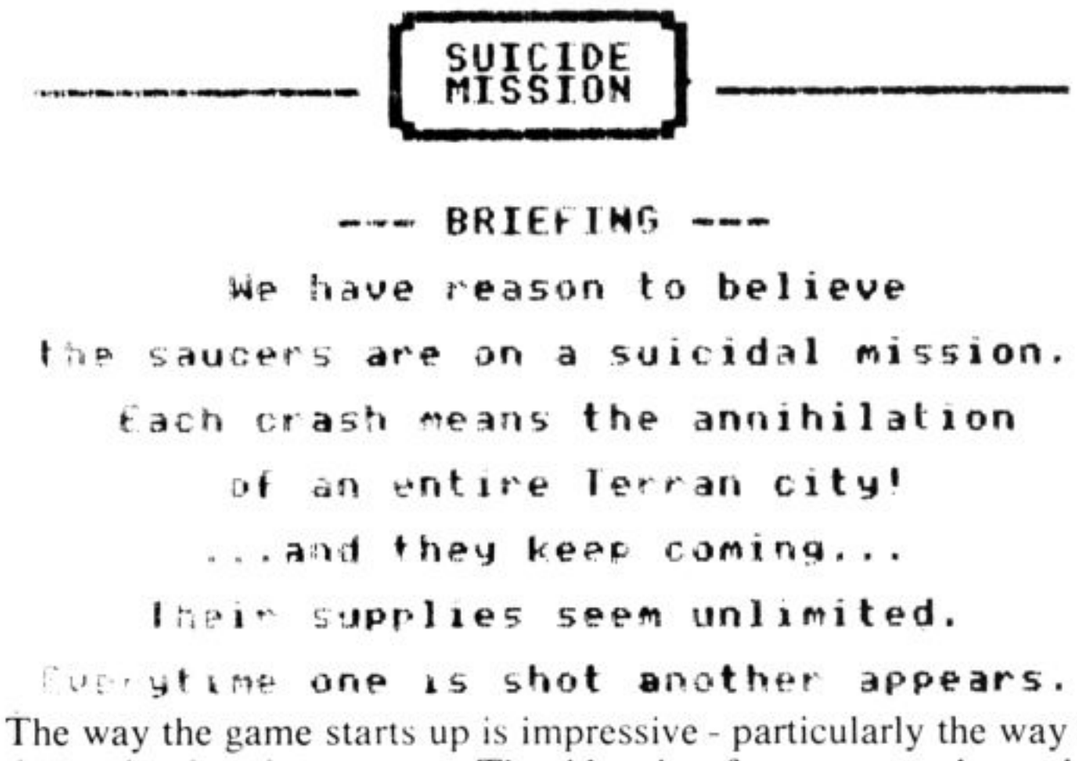
12 software search 1 winner BBC MICRO ONLY

It has taken a while to actually get the results into print but at last we have picked a winner for Software Search 1. The winner is:

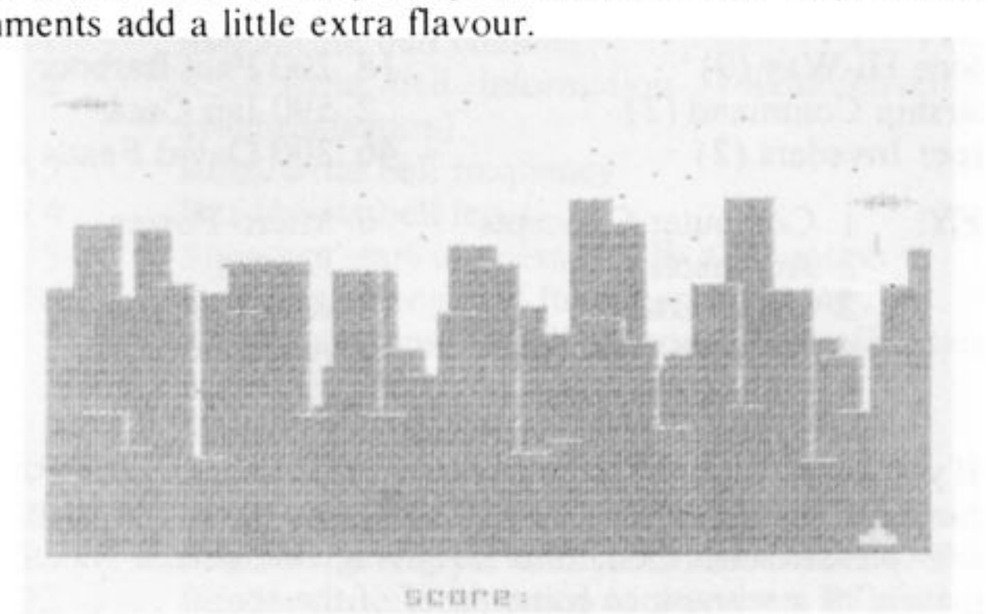
ROBERT LEONG
of
CAMERON PARK, DUBLIN
for his game
SUICIDE MISSION

The front screen for the program

Suicide Mission is an invaders type game. The idea certainly isn't new but the thing we liked about the program was that Robert had thought a great deal about the overall presentation of the game. To start off with the fact that he actually used a loader program rather than just load it straight in was good. In other words, the first part was a very short program that just printed up some words and loaded the rest of the game in, much better than just having a blank screen. The instructions were very good, giving a teletype feel about them making it much more interesting to read.



The way the game starts up is impressive - particularly the way it draws in the skyscrapers. The idea is of course to shoot the invaders - the game starts off with one but then moves onto two. Sounds too easy? I can assure you that it isn't, when you have one invader on one side of the screen and another invader on the other you will find it extremely hard to shoot both at once. The Hi-score chart comes on in a fairly unique fashion and the helpful/cheeky comments add a little extra flavour.



All in all, when you take the program as a whole package and not just the actual game itself, it ended up as the clear winner of the first competition.

Robert Leong is now the proud owner of a 14" RGB Monitor and next month we'll be telling you how to obtain a copy of his great game.

softreview

You may remember at the end of the last set of software reviews, we said that we were forming a board of software reviewers. Whilst we are arranging all this, we have suspended the reviews for one month. They will be back next month, this time written by the LASERBUG board of software reviewers.

If you would like to join the LASERBUG board of software reviewers, please drop us a line saying what type of programs you feel capable of reviewing. We have plenty of people to review games and educational software (!) but need more people for graphical, musical and business software amongst others.

LASERBUG QUESTIONAIRE 1983

To help us build up a complete picture of the BBC Micro/Electron market in 1983 we would be grateful if you could fill in and return the questionnaire below. All information given will be treated as confidential and the results will be printed in the December magazine.
If you feel you do not want to answer any particular question please leave it blank.

1. Personal Details

NAME..... MEMBERSHIP NUMBER.....

AGE: ☐ <16
☐ 16-21
☐ 21-26
☐ 26-35
☐ 35-50
☐ 50+

SEX: ☐ Male
☐ Female

BEFORE YOU BOUGHT YOUR COMPUTER, HAD YOU ANY PREVIOUS EXPERIENCE:

☐ Yes
☐ Some
☐ No

IF YOU DID HAVE PREVIOUS EXPERIENCE, ON WHAT COMPUTERS WAS THAT:

☐ Apple IIe
☐ Atari 400
☐ CGLM5
☐ Commodore 64
☐ Epson HX20
☐ Newbrain
☐ Sharp MZ80A/K
☐ Tandy Colour
☐ Vic 20
☐ ZX Spectrum
☐ Aquarius
☐ Atari 800
☐ Colour Genie
☐ Dragon 32
☐ Lynx 48
☐ Oric 1
☐ Sharp PC1500
☐ TI99/4A
☐ ZX80/81
☐ Other (Specify.....)

2. Your system

DO YOU HAVE:

☐ BBC Micro Model A
☐ BBC Micro Model B
☐ TV (make.....)
☐ RGB Monitor (make.....)
☐ Cassette Recorder (make.....)
☐ 5″ Disks (make.....)
☐ Micro-Voc
☐ Digitiser (make.....)
☐ Microwriter
☐ Disk Upgrade
☐ Speech Upgrade
☐ OS 1.0/1.1/1.2
☐ View
☐ Partially Upgraded Model A
☐ Acorn Electron
☐ B&W Monitor (make.....)
☐ Printer (make.....)
☐ Hobbit Floppy Tape
☐ 3″ Disks (make.....)
☐ Joysticks (make.....)
☐ Prestel/Micronet Modem
☐ Light Pen (make.....)
☐ Econet Upgrade
☐ OS 0.1
☐ Wordwise

Anything else (please give details).....
.....

WHERE DID YOU BUY YOUR COMPUTER FROM:

☐ Mail Order
☐ Second Hand
☐ Dealer
☐ Other (specify.....)

WHAT MADE YOU BUY THE BBC MICRO/ELECTRON:

.....
.....

WHAT DO YOU MAINLY USE YOUR COMPUTER FOR:

.....
.....

WHAT DO YOU THINK THE STRENGTHS OF THE BBC MICRO/ELECTRON ARE:

.....
.....

WHAT DO YOU THINK THE WEAKNESSES OF THE BBC MICRO/ELECTRON ARE:

.....
.....

3. What you are going to buy/have bought

IN THE PAST YEAR, HOW MUCH HAVE YOU SPENT ON:

Hardware:
- ☐ <£50
- ☐ £50-£100
- ☐ £100-£200
- ☐ £200-£500
- ☐ £500-£1000
- ☐ £1000-£2000
- ☐ £2000+

Software:
- ☐ <£50
- ☐ £50-£100
- ☐ £100-£200
- ☐ £200-£500
- ☐ £500+

AND IN THE COMING YEAR HOW MUCH DO YOU EXPECT TO SPEND ON:

Hardware:
- ☐ <£50
- ☐ £50-£100
- ☐ £100-£200
- ☐ £200-£500
- ☐ £500-£1000
- ☐ £1000-£2000
- ☐ £2000+

Software:
- ☐ <£50
- ☐ £50-£100
- ☐ £100-£200
- ☐ £200-£500
- ☐ £500+

WHAT ARE THE MAIN ITEMS OF HARDWARE YOU PLAN TO BUY OVER THE COMING YEAR:

.....

.....

WHERE DID YOU BUY THE MAJORITY OF YOUR HARDWARE FROM:

- ☐ Mail Order
- ☐ Dealer
- ☐ Second Hand
- ☐ Other (specify .....)

WHERE DID YOU BUY THE MAJORITY OF YOUR SOFTWARE FROM:

- ☐ Mail Order
- ☐ Dealer
- ☐ Second Hand
- ☐ Other (specify .....)

DO THE REVIEWS IN LASERBUG INFLUENCE WHAT YOU BUY:

- ☐ Yes
- ☐ No
- ☐ Sometimes

HAVE YOU EVER BOUGHT/NOT BOUGHT AN ITEM PURELY ON WHAT YOU HAVE READ IN LASERBUG:

- ☐ Yes
- ☐ No

IF YES, PLEASE GIVE MORE DETAILS:

.....

.....

4. The other magazines

WHAT OTHER MAGAZINES DO YOU RECEIVE REGULARLY

- ☐ A&B computing
- ☐ Acorn User
- ☐ Beebug
- ☐ Computer & Video Games
- ☐ Computer Answers
- ☐ Computing Today
- ☐ Electronics & Computing
- ☐ Home Computing Weekly
- ☐ Microcomputer Printout
- ☐ Personal Computer Games
- ☐ Personal Computer News
- ☐ Personal Computer World
- ☐ Personal Software
- ☐ Personal Computing Today
- ☐ Popular Computing Weekly
- ☐ Practical Computing
- ☐ The Micro User
- ☐ What Micro?
- ☐ Which Micro?
- ☐ Your Computer
- ☐ Other (specify .....)

WHAT WOULD YOU RATE (IN ORDER) AS THE TOP FIVE MAGAZINES (INCLUDING LASERBUG)

1) .....
2) .....
3) .....
4) .....
5) .....

5. Adverts

HOW DID YOU FIRST LEARN ABOUT LASERBUG:

- ☐ Through an Advert
- ☐ At a Show
- ☐ Other (specify .....)

DO YOU THINK LASERBUG HAS TOO MANY ADVERTS:

- ☐ Yes
- ☐ No

DO YOU READ THE ADVERTS IN LASERBUG:

- ☐ Yes
- ☐ No

HAVE YOU EVER BOUGHT ANYTHING FROM AN ADVERTISEMENT IN LASERBUG:

- ☐ Yes
- ☐ No

6. LASERBUG

DO YOU LIKE THE CURRENT FORMAT OF LASERBUG:

- ☐ Yes
- ☐ No

IF NO, HOW DO YOU THINK IT COULD BE IMPROVED:

.....

.....

DEALERS SELLING LASERBUG IN THEIR SHOPS HAVE ASKED FOR US TO CHANGE OUR FRONT COVER TO SOMETHING "MORE GLOSSY". WOULD YOU PREFER THE COVER TO REMAIN AS IT IS:

☐ Yes ☐ No

DO YOU LIKE THE CURRENT CONTENT OF LASERBUG:

☐ Yes ☐ No

WOULD YOU LIKE TO SEE MORE:

☐ Editorial ☐ News
☐ Reviews ☐ Hints and Tips
☐ Teaching Articles ☐ Beginners Articles
☐ Articles for the More Experienced ☐ Articles on Education
☐ Other (specify .....)

WOULD YOU LIKE TO SEE LESS:

☐ Editorial ☐ News
☐ Reviews ☐ Hints and Tips
☐ Teaching Articles ☐ Beginners Articles
☐ Articles for the More Experienced ☐ Articles on Education
☐ Other (specify .....)

OVER THE PAST YEAR HAS LASERBUG:

☐ Improved ☐ Got Worse
☐ Stayed the Same

WHAT WERE THE BEST FIVE ARTICLES EVER PRINTED IN LASERBUG:

1) .....
2) .....
3) .....
4) .....
5) .....

WHAT WERE THE WORST THREE ARTICLES EVER PRINTED IN LASERBUG:

1) .....
2) .....
3) .....

HAVE YOU EVER BOUGHT ANY OF THE FOLLOWING OFF OF LASERBUG:

☐ Dust Covers ☐ Back Copies
☐ Books ☐ Cassette Leads
☐ 1.2 ROMs ☐ Binders

WE ARE ABOUT TO INTRODUCE A SOFTWARE SERVICE. WILL YOU BE INTERESTED IN BUYING SOFTWARE OFF OF LASERBUG:

☐ Yes ☐ No

THE IDEA HAS BEEN PUT FORWARD OF OFFERING A CASSETTE WITH ALL THE PROGRAMS FROM THE MAGAZINE ON IT. WOULD YOU BE PREPARED TO BUY SUCH AN ITEM:

☐ Yes ☐ No

7. Do some work

HAVE YOU EVER CONTRIBUTED TO AN ISSUE OF LASERBUG BY SENDING IN AN ARTICLE, PROGRAM, LETTER OR QUERY:

☐ Yes ☐ No

IF YOU HAVE NEVER CONTRIBUTED IS THIS BECAUSE:

☐ You haven't the time ☐ You do not feel you are capable
☐ You thought that we'd never print your contribution ☐ You never thought of contributing
☐ Other (specify .....)

WOULD YOU LIKE YOUR NAME AND ADDRESS IN THE CONTACTS SECTION:

☐ Yes ☐ No

WOULD YOU LIKE YOUR NAME TAKEN OUT OF THE CONTACTS SECTION:

☐ Yes ☐ No

DO YOU ATTEND MEETINGS OF YOUR LOCAL BBC MICRO CLUB:

☐ Yes ☐ No

IF YES AND WE HAVEN'T ALREADY PRINTED DETAILS ON THE CLUB, COULD YOU LET US KNOW MORE ABOUT IT:

.....
.....

IF NO, IS THIS BECAUSE

☐ You don't want to attend meetings ☐ You don't have time to attend
☐ You don't know if there is a club near you.

HAVE YOU EVER TRIED TO ENTER FOR SOFTWARE SEARCH:

☐ Yes ☐ No

8. Feedback

WHAT ARE THE BEST FIVE PROGRAMS YOU HAVE EVER BOUGHT:

1) .....
2) .....
3) .....
4) .....
5) .....

WHAT IS THE WORST THREE PROGRAMS YOU HAVE EVER BOUGHT:

1) .....
2) .....
3) .....

WOULD YOU BE INTERESTED IN JOINING THE LASERBUG BOARD OF SOFTWARE REVIEWERS:
☐ Yes ☐ No
IF YES, WHAT KIND OF PROGRAM DO YOU FEEL YOU COULD REVIEW:
☐ Games ☐ Education
☐ Business ☐ Utilities
☐ Graphics ☐ Sound
HAVE YOU ANY COMMENTS YOU WOULD LIKE TO MAKE ABOUT ACORN:
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.....
.....
HAVE YOU ANY COMMENTS YOU WOULD LIKE TO MAKE ABOUT ANY ACORN DEALERS:
.....
.....
.....
HAVE YOU ANY COMMENTS YOU WOULD LIKE TO MAKE ABOUT SOFTWARE HOUSES:
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.....
HAVE YOU ANY COMMENTS YOU WOULD LIKE TO MAKE ABOUT LASERBUG:
.....
.....
.....
HAVE YOU ANY COMMENTS YOU WOULD LIKE TO MAKE ABOUT ANYTHING ELSE:
.....
.....
.....

9. Prestel Users
WHAT IS YOUR MAILBOX NUMBER:
.....
WERE YOU USING PRESTEL BEFORE MICRONET 800 CAME ALONG:
☐ Yes ☐ No
IF YOU ARE USING THE MICRONET ACOUSTIC MODEM, ARE YOU SATISFIED WITH IT:
☐ Yes ☐ No
WILL YOU PURCHASE A HARD WIRED MODEM WHEN MICRONET MAKE IT AVAILABLE:
☐ Yes ☐ No
WHICH OF THE FOLLOWING SECTIONS DO YOU REGULARLY READ:
☐ Micronet 800 (Page 800) ☐ Viewfax 258 (Page 258)
☐ Micrognome (part of Viewfax) ☐ LASERBUG (Page 8008128)
☐ Micronet Independent User Group (Page 8008100)
ARE YOU HAPPY WITH THE MICRONET 800 SERVICE:
☐ Yes ☐ No
ARE YOU HAPPY WITH THE VIEWFAX SERVICE:
☐ Yes ☐ No
ARE YOU HAPPY WITH THE LASERBUG SERVICE:
☐ Yes ☐ No
ARE YOU HAPPY WITH THE MICRONET INDEPENDENT USER GROUP SERVICE:
☐ Yes ☐ No
HAVE YOU ANY COMMENTS YOU WOULD LIKE TO MAKE ABOUT ANYTHING TO DO WITH PRESTEL, ETC:
.....
.....

10. And finally
WHEN IT IS TIME TO RENEW YOUR SUBSCRIPTION TO LASERBUG WILL YOU:
☐ Renew for 6 months ☐ Renew for a year
☐ Not renew and buy LASERBUG from your local dealer ☐ Not renew
HAVE YOU ANY HELPFUL COMMENTS THAT YOU WOULD LIKE TO MAKE TO HELP US TO IMPROVE LASERBUG:
.....
.....
.....
IF THERE IS ANYTHING ELSE YOU WOULD LIKE TO SAY, PLEASE DO IT IN THE SPACE BELOW:
.....
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.....
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.....

PLEASE SEND THE COMPLETED QUESTIONNAIRE TO:
LASERBUG Questionnaire, 10 Dawley Ride, Colnbrook, Slough, Berks., SL3 0QH.

Wordsworth reviewed BBC MICRO ONLY

There are two main ROM based wordprocessors for the BBC Micro - Wordwise and View. They are both compared elsewhere in this issue. However, cassette or disk based wordprocessors are rather thin on the ground - those that are available tend to be rather of a low quality. About the most popular wordprocessor on cassette/disk is Wordsworth by Ian Copestake. For those who don't want a ROM based program, it is Wordsworth that we take a look at.

This article was originally typed using the program. As a rule I normally use View but am familiar with most of the packages around - thus a good comparison can be drawn and a fairly accurate assessment of its capabilities made. We are reviewing the disk based program here but similar things will still apply to the cassette one.

When you first boot up the disk, you are presented with an option of Help, going into the Main Program, swap between disks and tape or check a saved text file in 80 columns. Choosing the main program straight away is normally a good indication of how easy or hard the program will be. At the bottom you are given the option of selecting 9 different functions, each one activated by pressing a function key. You may type, print, save, load, copy, delete, *COM, replace or codes. I selected type by pressing f1.

Everything is carried out in MODE 7, rather like Wordwise. However as soon as you start typing you realise that it is much more "messy" than its ROM counterpart. Wordwise take each line of text as you enter it and moves words onto new lines where necessary, meaning that the text is always easy to read. Wordswoth treats each line as being 80 characters long and thus taking up two lines. If you have a word that comes in the middle of the line then instead of it being moved it is split up in the middle. If you want to just put one word on a line and leave the rest blank, you end up with an extra blank line. When you go over the line length, the word is split, but rather slowly. In actual fact, that is one of my biggest criticisms of this program - it is slow. On View yesterday I got it to count how many words I had used in a feature - I had done just over 4000 and it told me within about 5 seconds. Wordsworth took over a minute to tell me I had used less than 400 words!

Wordwise I have said elsewhere in this issue is very easy to go straight into. View needed more thought and you needed to get familiar with the program first. View is like a childs toy compared with Wordsworth - it would be impossible to go straight into anything with it. For instance to centralise a heading on both Wordwise and View you just have to enter the edit command (two letters) followed by the text. With Wordsworth it is started by pressing CTRL-O. Then you have to decide whether you want to start at the current cursor position or somewhere else. If somewhere else you must define this position. Then you can enter the text - not where you want the heading to go but at the top of the screen. When this is entered then the computer centralises the heading down where it is meant to be - again fairly slowly and again splitting the word in half.

Other functions that may be utilised with CTRL include altering the decimal tab, holding the printer, locking the keyboard, turning the speaker off, embedding printer control codes, the word count or changing case. This is another good point. With both Wordwise and View when you change case you simply place the cursor under where you wish too change case and for each letter to be changed press the change case key. With Wordsworth you have to decide whether you want to change up or down and then every character which is put under the cursor will change if necessary.

The program is set up with control codes for the Epson range of printers although it is possible to define your own. The *COM function provides a catalogue of a disk and will allow you to enter any normal * command. Functions such as replace are available but extremely slow - making the whole thing rather poor.

When printing text, Wordsworth uses a rather unique feature - while the text is printing you can still carry on using the wordprocessor completely normally, the only problem being that the keyboard reacts more slowly.

All in all, the basic idea of Wordsworth is very good - a cassette or disk based wordprocessor with a large number of functions rivalling that of both Wordwise and View. The two facts that let it down again and again are that it is complicated to use and slow. You can say that the complicity is so that everything is done correctly, nothing is done without checking and so that errors are less likely to occur - even so the program is over complex which will simply put people off using it. The speed is a very big downfall - I would not be at all surprised if the program was written in BASIC completely. If it is in machine code, whoever wrote it should be ashamed. The fact that word counts and searches take so long is extremely prohibitory. A machine code search could be done much, much quicker.

My overall opinion of the program is that the ideas behind it are good - what has let it down is bad programming. The author needs to find a way of simplifying the operation and speeding it up considerably. If he or she can do this they will have a very, very good product on their hands. At the moment until a lot of work is done on it I cannot recommend it.

Ian Copestake, 23 Connaught Crescent, Brookwood, Woking, Surrey, GU24 0AN. 04867-4755

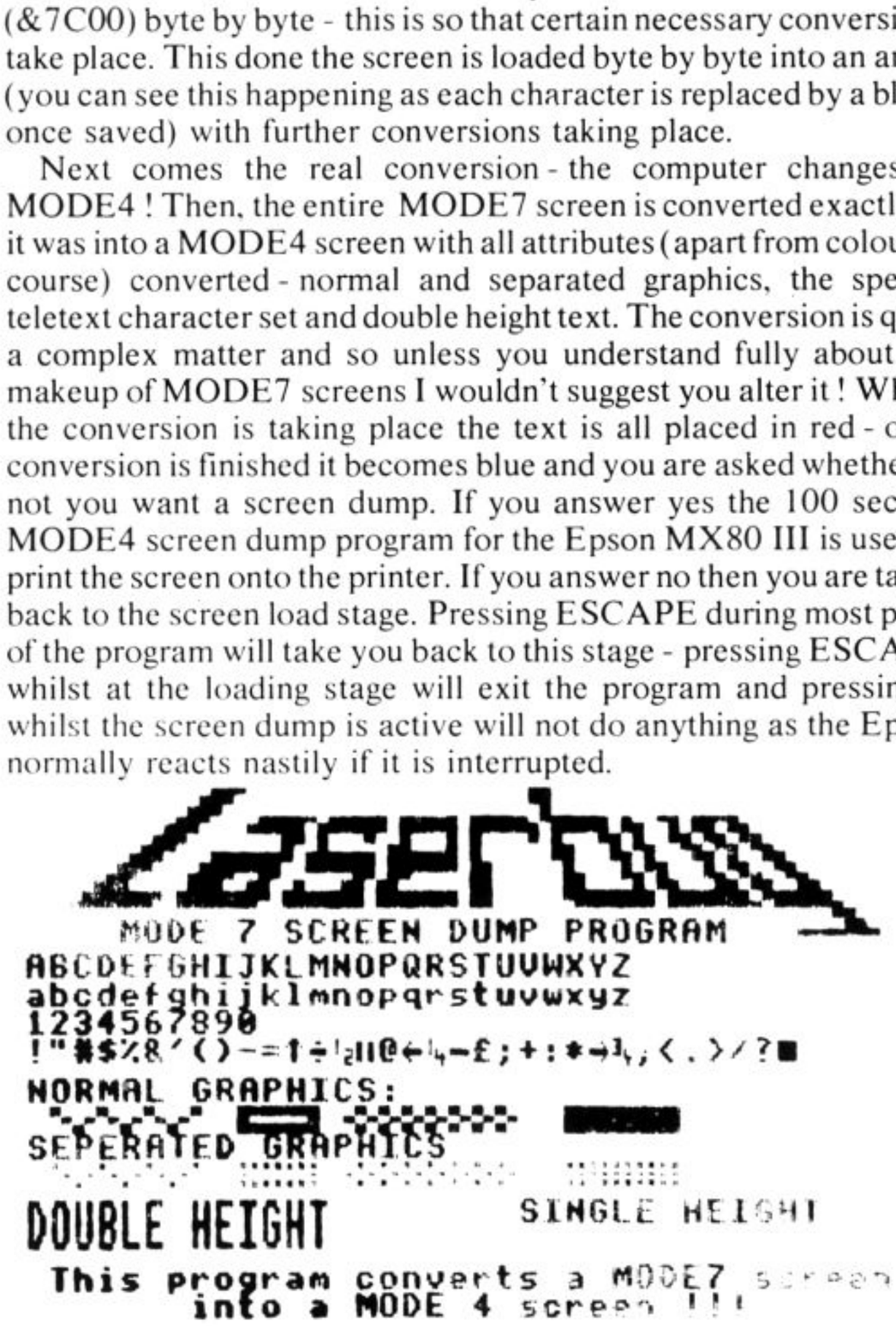
Cassette Version of Wordsworth: £17.25
Disk Version (40 or 80 tracks): £19.50

MODE7 screen dump BBC MICRO ONLY

There have been various routines published to print out the high resolution graphics screens (0,1,2,4,5) onto printers. However, one mode which has always been neglected is MODE7. People who like myself use Prestel a great deal and have many frames they would like to print out are forced either to print out only the text parts of the screen or to keep them saved onto tape/disk. No more - as it stands the program below will dump out a MODE7 screen to an Epson printer and many other possibilities spring to mind, more on these in a moment.

The way the program works is this. The screen that you want to dump firstly has to be saved onto tape/disk from its source, be it pressing f9 in the Prestel software or saving it with *SAVE <filename> 7C00+400. The program asks for the filename of the screen - this can be a maximum of 7 letters long to ensure that the program is compatable with tape and disk. The screen is *LOADed into &6000 and then transferred up to the normal screen start (&7C00) byte by byte - this is so that certain necessary conversions take place. This done the screen is loaded byte by byte into an array (you can see this happening as each character is replaced by a block once saved) with further conversions taking place.

Next comes the real conversion - the computer changes to MODE4 ! Then, the entire MODE7 screen is converted exactly as it was into a MODE4 screen with all attributes (apart from colour of course) converted - normal and separated graphics, the special teletext character set and double height text. The conversion is quite a complex matter and so unless you understand fully about the makeup of MODE7 screens I wouldn't suggest you alter it ! Whilst the conversion is taking place the text is all placed in red - once conversion is finished it becomes blue and you are asked whether or not you want a screen dump. If you answer yes the 100 second MODE4 screen dump program for the Epson MX80 III is used to print the screen onto the printer. If you answer no then you are taken back to the screen load stage. Pressing ESCAPE during most parts of the program will take you back to this stage - pressing ESCAPE whilst at the loading stage will exit the program and pressing it whilst the screen dump is active will not do anything as the Epson normally reacts nastily if it is interrupted.



IN
CONJUNCTION
WITH

PRESENTS

SOFTWARE SEARCH

Have you written a REALLY good program lately? If so what are you going to do with it. Nothing? Send it to a magazine for maybe £10 or £20? Attempt to sell it yourself with all the risks that involves? Enter it in the LASERBUG Software Search competition and possibly win an RGB Monitor? If you've any sense then there is only one answer!

Quite simply, LASERBUG is searching for some good software – the kind that you don't run once and then discard but keep using over and over again. We would like to see all kinds of programs – games, educational, business and utilities.

The programs will be judged on their individual merits and the winner will receive an RGB Monitor donated by Cabel Electronics. There will be one monitor to win each month for the next 10 issues.

Programs may be sent either on cassette or disk. If on cassette, please supply a copy at both 300 and 1200 baud. For disks, we will accept both 40 and 80 tracks on either single or double sided disks. Please do not send us your only copy of the program as we will not be able to return any. Make sure your name and address is on the cassette/disk and any accompanying documentation. Employees/relations of employees of either LASERBUG or Cabel Electronics are not eligible for entry in this competition, as are non-members of LASERBUG. There is no cash alternative for the prize. The closing date for Software Search 3 is the last working day in November. The winner will be notified by post and their program may be printed in LASERBUG, included in a Software Library or perhaps both. In both events the author will be acknowledged but no further payment made. The program must be the authors own, unaided work and should not have been submitted elsewhere. Judging will be carried out by the LASERBUG editor and the editor's decision is final. No correspondence will be entered into with regards these rules.

SOFTWARE SEARCH 3 ENTRY FORM

I enclose a program for entry to the LASERBUG Software Search competition, the details of which are:

PROGRAM NAME..... REQUIREMENTS.....

PROGRAM TYPE
- ☐ GAME
- ☐ EDUCATION
- ☐ BUSINESS
- ☐ UTILITY
- ☐ OTHER *(please specify)*

_____

MEDIA
- ☐ CASSETTE
- ☐ 40 TRACK DISK
- ☐ 80 TRACK DISK

PROGRAMMERS NAME..... MEMBERSHIP NUMBER.....

ADDRESS .....

.....

I am a member of LASERBUG. The program I have submitted to this competition is my own, unaided work and has not been sent to any other organisation. I understand that if I win this competition I will receive an RGB Monitor in exchange for full rights to the program. My program in turn may be printed in LASERBUG or included as part of a Software Library. In either case I will be acknowledged but not receive any further payment. I accept the rules laid down in this competition and agree that the editor's decision in judging the winner is final.

SIGNED..... DATE.....

- ☐ If I do not win Software Search 3, I would like my program to be entered for Software Search 4, 5, etc.
- ☐ If I do not win Software Search 3, I wish my program to be withdrawn from the competition.

THE FINAL CLOSING DATE FOR SOFTWARE SEARCH 3 IS THE LAST WORKING DAY IN NOVEMBER

You may enter more than one program in the competition but each entry must be accompanied by a copy of this form. Your entry is not valid unless it is signed and your membership number included.

20 MODE7 screen dump cont.

If you have a printer other than the MX80 III, you can replace line 1390 in the program with some MODE4 screen dump of your own. Another possible use is to convert MODE 7 screens into MODE 4 screens for Electron users.

```
>L.
   10 REM   MODE 7 SCREEN DUMP
   20 REM   FOR EPSON MX80 III
   30 REM    by Paul Barbour
   40 :
   50 REM   (MODE4 Screen Dump
   60 REM   by Jeremy Ruston)
   70 :
   80 REM         8/9/83
   90 :
  100 REM Suitable for BBC Micro
  110 :
  120 REM  Requires OS 1.2 and
  130 REM        BASIC II
  140 :
  150 REM   (c) LASERBUG 1983
  160 :
  170    :::::
  180 :
  190 DIMmemory%(39,23)
  200 graphic=FALSE
  210 double=FALSE
  220 start=FALSE
  230 bypass=FALSE
  240 single=FALSE
  250 mosaic=FALSE
  260 row=40
  270 :
  280 ONERRORGOTO1920
  290 MODE7
  300 PROGchar
  310 PROCoff
  320 PROCload
  330 PROCstore
  340 MODE4
  350 PROCoff
  360 PROCre_do
  370 PROCconfirm
  380 PROCdump
  390 RUN
  400 :
  410    :::::
  420 :
  430 DEFPROCon
  440 VDU23,0,10,64,0;0;0;0;
  450 ENDPROC
  460 :
  470 DEFPROCoff
  480 VDU23,1,0;0;0;0;
  490 ENDPROC
  500 :
  510 DEFPROCload
  520 FORX%=0TO&400STEP4:X%!&6000=0:NEXT
  530 PRINTCHR$131;"Enter name of screen";CHR$134;
  540 PROCon
  550 ONERRORMODE7:END
  560 INPUT""screen$
  570 ONERRORGOTO1920
  580 IFscreen$=""ORLEN(screen$)>7THENCLS:PRINTCHR$129;
"ILLEGAL FILE NAME":GOTO530
  590 PROCoff
  600 OSCLI("*LOAD "+screen$+" 6000")
  610 FORX%=0TO&400:A%=X%?&6000
  620   IFA%>=160 A%=A% AND 127
  630   X%?&7C00=A%:NEXT
  640 ENDPROC
  650 :
  660 DEFPROCstore
  670 Z%=&7C00
  680 FORY%=0TO23
  690   FORX%=0TO39
  700     A%=?Z%
  710     IFA%=&23THENA%=&60:ELSEIFA%=&60THENA%=&5F:ELS
EIFA%=&5FTHENA%=&23
  720     memory%(X%,Y%)=A%
  730     PRINTTAB(X%,Y%);CHR$255;
  740     Z%=Z%+1
  750     NEXT
  760   NEXT
  770 ENDPROC
  780 :
  790 DEFPROCre_do
  800 VDU19,0,7,0,0,0,19,1,1,0,0,0
  810 FORY%=0TO23
  820   FORX%=0TO39
  830     A%=memory%(X%,Y%)
  840     IFA%>144ANDA%<152THENgraphic=TRUE
  850     IFA%=141THENdouble=TRUE
  860     IFA%>90ANDA%<128ANDgraphic=FALSE THENPROCtext
  870     IFgraphic=TRUE THENPROCgraphic
  880     IFdouble=TRUE THENPROCdouble
  890     IFA%<32ORA%>127ANDbypass=FALSE THENA%=32
  900     bypass=FALSE
  910     PRINTTAB(X%,Y%);CHR$A%
  920     NEXT
  930   NEXT
  940 VDU19,1,4,0,0,0
  950 ENDPROC
  960 :
  970 DEFPROCgraphic
  980 IFA%>128ANDA%<136THENgraphic=FALSE:A%=32:ENDPROC
  990 IFX%=39THENgraphic=FALSE
 1000 IFA%=154THENmosaic=TRUE
 1010 IFA%=153ORX%=39THENmosaic=FALSE
 1020 IFA%>135ANDA%<159THENA%=32:ENDPROC
 1030 IFA%>63ANDA%<95THENENDPROC
 1040 R1%=0:R2%=0:R3%=0:R4%=0:R5%=0:R6%=0:R7%=0:R8%=0
 1050 IFA%=&60 THENA%=&23:ELSEIFA%=&5F THENA%=&60:ELSEI
FA%=&60 THENA%=&23
 1060 IFmosaic=TRUE THENPROCmosaic:GOTO1150
 1070 IFA%>=128THENA%=A%-128
 1080 IFA%>=64THENR6%=15:R7%=15:R8%=15:A%=A%-64
 1090 IFA%>=32THENA%=A%-32
 1100 IFA%>=16THENR6%=R6%+240:R7%=R7%+240:R8%=R8%+240:A
%=A%-16
 1110 IFA%>=8THENR4%=15:R5%=15:A%=A%-8
 1120 IFA%>=4THENR4%=R4%+240:R5%=R5%+240:A%=A%-4
 1130 IFA%>=2THENR1%=15:R2%=15:R3%=15:A%=A%-2
```

```
 1140 IFA%>=1THENR1%=R1%+240:R2%=R2%+240:R3%=R3%+240
 1150 VDU23,128,R1%,R2%,R3%,R4%,R5%,R6%,R7%,R8%
 1160 A%=128:bypass=TRUE
 1170 ENDPROC
 1180 :
 1190 DEFPROCdouble
 1200 IFstart=FALSE THENline=Y%:start=TRUE
 1210 IFY%-2=line THENstart=FALSE:double=FALSE:single=F
ALSE
 1220 IFA%=140THENsingle=TRUE:row=X%
 1230 IFA%>127ANDbypass=FALSE THENA%=32:ENDPROC
 1240 IFsingle=TRUE ANDline=Y%THENENDPROC
 1250 IFsingle=TRUE ANDline=Y%-1 ANDX%>row THENA%=32:EN
DPROC
 1260 Z%=A%:B%=X%:D%=Y%:A%=10:X%=0:Y%=10:C%=&A00
 1270 ?C%=Z%
 1280 CALL&FFF1
 1290 VDU23,130,C%?1,C%?1,C%?2,C%?2,C%?3,C%?3,C%?4,C%?4
 1300 VDU23,131,C%?5,C%?5,C%?6,C%?6,C%?7,C%?7,C%?8,C%?8
 1310 X%=B%:Y%=D%:bypass=TRUE
 1320 IFY%=line THENA%=130
 1330 IFY%-1=line THENA%=131
 1340 ENDPROC
 1350 :
 1360 DEFPROCdump
 1370 VDU19,1,5,0,0,0
 1380 *FX229,1
 1390 VDU2,1,27,1,65,1,8:FORL%=0TO39:VDU1,27,1,76,1,0,1
,2:FORT%=31TO0STEP-1:FORG%=7TO0STEP-1:A%=?(HIMEM+T%*320
+G%+L%*8):VDU1,A%,1,A%:NEXTG%,T%:VDU1,10:NEXTL%:VDU1,27
,1,50,1,13,1,13,1,13,3
 1400   *FX15,1
 1410   *FX229,0
 1420   ENDPROC
 1430   :
 1440   DEFPROCconfirm
 1450   PRINTTAB(0,28);"Screen Dump ? (Y/N)"
 1460   REPEATA$=GET$
 1470     UNTILA$="Y"ORA$="N"
 1480   IFA$="N"THENRUN
 1490   PRINTTAB(0,28);SPC(40)
 1500   ENDPROC
 1510   :
 1520   DEFPROCchar
 1530   VDU23,128,0,0,0,0,0,0,0,0
 1540   VDU23,129,32,32,32,40,42,15,2,2
 1550   VDU23,130,0,0,0,0,0,0,0,0
 1560   VDU23,131,0,0,0,0,0,0,0,0
 1570   VDU23,132,0,16,32,127,127,32,16,0
 1580   VDU23,133,112,16,48,20,116,7,2,2
 1590   VDU23,134,0,4,2,127,127,2,4,0
 1600   VDU23,135,0,24,0,126,126,0,24,0
 1610   VDU23,136,24,60,90,24,24,24,24,0
 1620   VDU23,137,0,102,102,102,102,102,102,0
 1630   VDU23,138,32,32,32,39,33,7,4,7
 1640   VDU23,139,0,0,0,127,127,0,0,0
 1650   VDU23,140,0,127,127,127,127,127,127,0
 1660   :
 1670   DEFPROCtext
 1680   IFA%=95THENA%=139
 1690   IFA%=127THENA%=140
 1700   IFA%=123THENA%=129
 1710   IFA%=91THENA%=132
 1720   IFA%=125THENA%=133
 1730   IFA%=93THENA%=134
 1740   IFA%=124THENA%=137
 1750   IFA%=92THENA%=138
 1760   IFA%=126THENA%=135
 1770   IFA%=94THENA%=136
 1780   bypass=TRUE
 1790   ENDPROC
 1800   :
 1810   DEFPROCmosaic
 1820   IFA%>=128THENA%=A%-128
 1830   IFA%>=64THENR6%=6:R7%=6:A%=A%-64
 1840   IFA%>=32THENA%=A%-32
 1850   IFA%>=16THENR6%=R6%+96:R7%=R7%+96:A%=A%-16
 1860   IFA%>=8THENR4%=6:A%=A%-8
 1870   IFA%>=4THENR4%=R4%+96:A%=A%-4
 1880   IFA%>=2THENR1%=6:R2%=6:A%=A%-2
 1890   IFA%>=1THENR1%=R1%+96:R2%=R2%+96:A%=A%-2
 1900   ENDPROC
 1910   :
 1920   IFERR=17THENGOTO290
 1930   MODE7
 1940   PRINTCHR$130;"AN ERROR HAS OCCURED:"
 1950   REPORT
 1960   PRINT'"(error number ";ERR;")"
 1970   PRINT;"at line ";ERL
 1980   PRINT'CHR$131;"PROGRAM STOPPED"
```

22 languagespot - BCPL BBC MICRO ONLY

Acornsoft have recently announced the availability of the BCPL language for the BBC micro, and readers may be interested in learning something of this language.

The following program in BCPL is a solution to the competition set in the March issue. It is designed to illustrate many of the features of BCPL, and so is far from the shortest possible solution.

The competition was to decode a string of digits. Each pair of digits represented an ascii value.

```
section "decode"
get "libhdr"

global $( string:300; position:301
       $)

let start() be
$( string :=
     "766583678266857132707982328 4*
     *726932666667327773678279 4613"
   decode()
   stop()
$)

// decode numerals in string
and decode() be
$( let length = string%0
   position := 1
   while position < length do
   $( let char = readascii()
      wrch( char)
   $)
   newline()
$)

// readascii returns the value of
// two decimal characters in string
and readascii() = valof
$( let ascii = 0
   for i = 0 to 1 do
   $( ascii := ascii*10 + string%position - '0'
      position := position + 1
   $)
   resultis ascii
$)
```

The first line defines a section name, which can be used to reference the compiled code. The next line contains a "get" statement, this opens the file "libhdr" and inserts its contents at this point. This is normally used to include the same definitions of global procedures in each section. For example "libhdr" is a file that defines the procedures available with the system. The program uses two of these procedures:

"wrch" to write a character, and
"newline" to move to a new line.

The "global" statement introduces a definition of shared variables. For example "string" is set up in one procedure "start" and used in another "readascii". Each Global variable is given a fixed position in a data area called the "Global Vector".

The symbols $(and $) enclose a block of code, which can be treated as a single statement by code outside the block.

The code is specified by defining procedures such as "start" and "decode". This is similar to BBC BASIC however a BCPL program starts at the procedure "start" rather than at the first statement in the listing. Procedures are always followed by () or the perameters in brackets. They can be recognised as procedures by these brackets because a separate operator '!' is used to reference arrays. The program ends when the procedure "start" ends or when "stop" is called.

In this case "start" sets up the global "string" to be the numerals to be decoded, and then calls "decode". The two asterisks in the string are layout characters.

BCPL works with integers, and all variables are held in two bytes. A variable such as a "string" is a word holding the address of the store which holds the text of the string.

Text preceded by // is comment and is ignored by the compiler.

In "decode" a local variable "length" is defined as "string%0". The % operator obtains a byte from a string and by convention byte 0 is the length of the string. It is also possible to define a local variable at the beginning of a block, for example as "char" is defined three lines further down. The procedure "readascii" is an example of a function, since it returns a value. "valof" tells the compiler to expect a "resultis" statement to yield the result.

The statement:

ascii := ascii*10 + string%position - '0'

adds in a numeral at the right of the variable "ascii". The current value is multiplied by 10, and the next digit is obtained by "string%position". This is converted to a number between 0 and 9 by subtracting the code for the character '0' which in the code used in the BBC micro is the number 48. This works because the codes for '0' to '9' are in sequence, thus '7'-'0' has the value 7.

The BCPL system published by Acornsoft comes as a package with a disk, a language ROM, and a user manual. Program development in BCPL requires the use of a disk or econet, since compilation using tape would take a minimum of 10 minutes to load the necessary programs. However developed programs can be used with tape.

In this implementation BCPL is compiled into a special compact code known as CINTCODE. The CINTCODE is then executed by an interpreter in a similar way to BASIC. However compiled BCPL can run several times faster than BASIC.

The language ROM contains this interpreter, a large number of useful procedures, and built in commands. One useful feature is the provision of a filing system in RAM, so it is possible to hold several programs or other files in store at once.

When the BCPL language ROM is fitted it is possible to switch between BCPL and BASIC using *BCPL and *BASIC commands. BCPL starts up in the command state, and a BCPL program is run by typing its name. When a program is running the ESCAPE key returns control to the command state. This allows a variety of commands to be executed, for example the operating system *FX commands, and then the program can be restarted by typing CONT.

The disk contains the compiler, and a number of other utilities including a full screen editor and a 6502 assembler. A selection of debugging aids allow tracing of code, the setting of break points and a number of displays of the state of the system.

The BCPL Stand Alone Generator will be available this Autumn. This allows programs developed in BCPL to be run in any BBC micro. It will also allow a user program in BCPL or assembler to be placed in its own ROM as though it was a language. The developed program will contain a selection of the facilities of the BCPL language ROM, and this must be licensed, however the license fee will be modest - unlimited non commercial copies and 100 commercial copies are permitted within the £50 price of the stand alone generator, and an unlimited 5 year licence will be under £300.

The advantages of using BCPL on the BBC micro include compact code; the ability to write clear commented code without a space penalty; execution speed; features such as block structure, separate compilation, and overlaying of code to ease the creation of large programs; and an excellent program testing environment.

John Richards

At 23:31 on the 31st July, LASERBUG opened up its own section of pages on Micronet 800. The area we are in is actually called ClubSpot 800 and is an area where all sorts of clubs run there own pages. To find ours, you have to dial page 8008128 (8008 is the ClubSpot prefix, 128 is the start of the LASERBUG section):

```
ClubSpot 800                    80008128a      0p

        WELCOME
          TO
      LASERBUG
  LOTS OF NEW STORIES - KEY 1
          ON
     CLUBSPOT 800

  KEY 1 FOR MAIN INDEX
  0 BACK TO CLUBSPOT
```

From our main index we have 10 different routes:

```
ClubSpot 800                    80001280a      0p

      LASERBUG
      MAIN MENU

   LAST UPDATED: Mon 10th Oct'83

 1. Latest News ..................  10/10
 2. LASERBUG - The Magazine ..  31/08
 3. Reviews ......................  03/08
 4. Programmers Corner .......  08/08
 5. On Sale ......................  08/19
 6. Clubs And The Charts .....  10/10
 7. Troubleshooter ...........  08/10
 8. Letters ......................  .....
 9. Response Frame ...............
 #. More Information About LASERBUG

        0 BACK TO CLUBSPOT
```

By the time everything on the sections is complete, we expect to have around 1000 pages on line. They are accessable by anyone who has a Prestel account - you do not have to be a member of LASERBUG or Micronet to read them. They are updated normally every day.

Why have these pages? Don't they interfere with the normal magazine? Well, we hope they don't. Prestel has one huge advantage over any monthly magazine - it isn't. Within minutes I can put a news story up or send a message to somebody. Things like the news and arcade game hi-scores can be updated daily "as it happens" so to speak. With the normal magazine, some new stories can be up to a month and a half old.

```
ClubSpot 800                    80001281a      0p

      LASERBUG
      LATEST NEWS

   LAST UPDATED: Mon 10th Oct'83

 6. Top Of The Pops ..........  10/10
 7. Points Arising ...........  10/10
 8. Is That Enough ? .........  08/10
 1. Bad Feelings .............  08/10
 2. Beep Fans - Don't Move ...  08/10
 3. Acorn Education Exhibition  08/10
 4. Overcrowded ? ............  08/10
 5. Anti-Anagreet ............  08/10

 IF YOU HAVE A STORY FOR US KEY #
 9 BACK TO MAIN INDEX / 0 CLUBSPOT
```

We have put a number of articles and reviews up on our pages - these are mostly taken from back issues so normal members do not lose out. The other big thing we do is answer questions. If somebody has a query and sends us a message via Prestel, if we are already using the system then within five minutes we would have received the message and within another five they could have been given answer. To send messages between people can only be done if you dial onto the London Prestel computer. No matter where you live though, you can send response frames to the companies on Prestel, including us. If using the London message service is awkward for some reason, people can send a message to us just by dialing a special page. Although we can't send them a message back directly, what we can do is to put their message up either on the letters page or answer their questions on Troubleshooter. The other use of our pages is storage - take something like our list of local clubs. That we only print an alternate months - on Prestel the information is there at your fingertips:

```
ClubSpot 800                    80001286a      0p

      CLUBS
     AND THE
     CHARTS

   LAST UPDATED: Mon 10th Oct'83

 1. Barnsley,  Brighton and Bristol
 2. Cardiff,  Chelmsford and Croydon
 3. Great Yarmouth,  Isle of Skye and
    London (N11)
 4. Orpington,  Swansea and Wakefield
 5. Wrexham

 7. Arcade Game High Scores ....  10/19

    IF YOU RUN A CLUB KEY #
 9 LASERBUG MAIN INDEX / 0 CLUBSPOT
```

I hope that every Prestel user is pleased with our new service. If you use it regularly you might find the following numbers useful:

LASERBUG Front Page - 8008 128
LASERBUG Main Index - 8008 128 0
Latest News - 8008 128 1
Arcade Game High Score Charts - 8008 128 67
Troubleshooter - 8008 128 7
Letters - 8008 128 8
LASERBUG Response Frame - 8008 128 00
LASERBUG Mailbox Number - 91 999 1005

how loud? BBC MICRO ONLY

The sound coming out of the BBC Micro is rather poor. Would you like to improve it? Yes. By how much? Are you willing to pay a lot? Well, if you want the whisper to turn into a roar or perhaps a quiet bang, the info below should help you.

THE BBC MICRO BY ITSELF

All the BBC Micros have an in-built volume control. This is a small mini-potentiometer marked VR1 which can be found on the main PCB approximately under the f0 key. Turning it one way will increase the sound, the other decrease it. Some computers come out of the factory with this turned full up so there is nothing you can do for them, however some are turned almost off and increasing this can boost the sound considerably.
COST: Nothing

DOUBLING UP

The BBC Micro uses a single 74LS283 to produce its sound. If you are technically minded and capable with a soldering iron it should well be possible to "piggyback" a second 74LS283 onto the first, thus increasing power. I have heard several people discuss this method but not of anyone who has actually tried it.
COST: Around £5?

TAPE HELP

For several of the ideas here, you will need a good way of accessing the sound output from the Beeb. One of the methods is described in this months news section. You will need a lead such as the one from Microsupport which will cost £4 but give you an external volume control and a 3.5mm jack socket sound output. A simple 3.5 - 3.5mm jck socket lead will enable you to connect up your computer to a cassette recorder. A number of cassette recorders enable you to monitor the recording and so you can use the internal speaker of that to amplify the sound rather than the Beeb. If your tape recorder does not have this facility, you can always record the sound on a blank tape and play it back later. The new Computer Program Data Recorder CPD8300 from W H Smiths has a separate audio-in socket. This means that as well as using the cassette recorder normally, you can use its built in sound amplifier to boost the computer. I have tried this personally and it works quite well.
COST: Around £6 (£4 for internal BBC sound lead, £2 for a lead to connect the computer to a tape recorder). The new CPD8300 costs £40.

LARGER SPEAKERS

You can always of course fit a larger speaker. Via the lead mentioned above and a small speaker with a suitable connection, you should be able to boost the sound by about 4 times easily. The BBC Micro can drive quite a large speaker this way. Alternatively Micro-Advent already have a complete set of two speakers plus all the necessary connections available as a complete set.
COST: £14 (£4 for lead, £10 for a separate speaker). Micro-Advents speakers are £22.50

DEAFENING

Via a lead such as the one above, the best way to get sound out of your computer is via an amplifier. A small guitar amplifier can be bought for £50 - this is capable of amplifying the sound to an unbearable level. You will find that is what most companies do at exhibitions (including us) so their computers can be heard. This is a little over-excessive for the home user though!
COST: £60 (£50 for amplifier, £4 for Beeb lead, £6 for connecting lead).

Microsupport, 104 Reddown Road, Coulsdon, Surrey, CR3 1AL.
Micro Advent, Ashlyn House, 113 Writtel Road, Chelmsford, Essex.

BOTH COMPUTERS

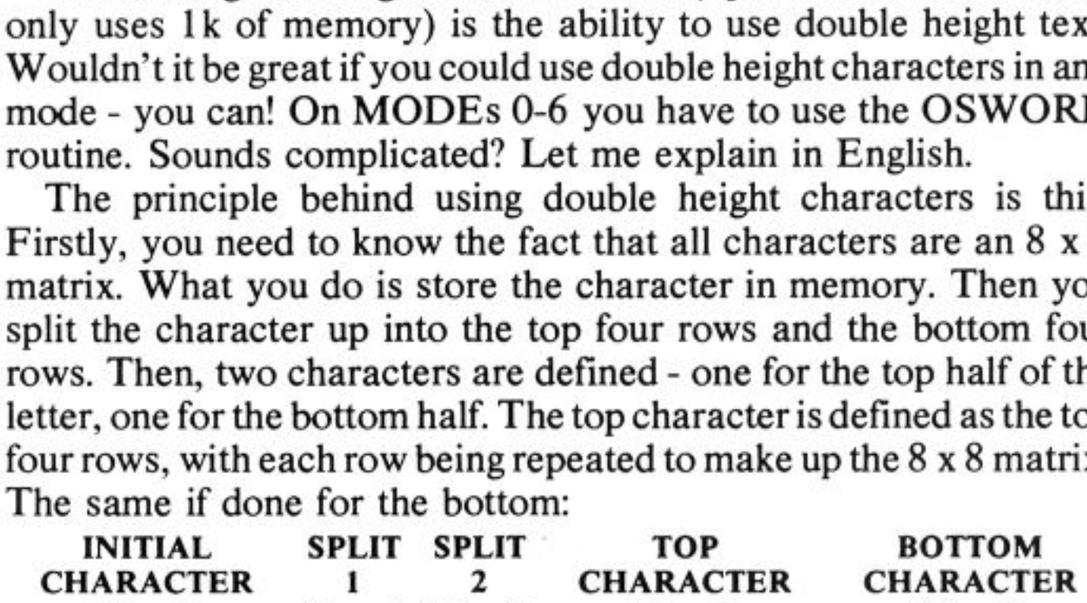
tip time - double height characters

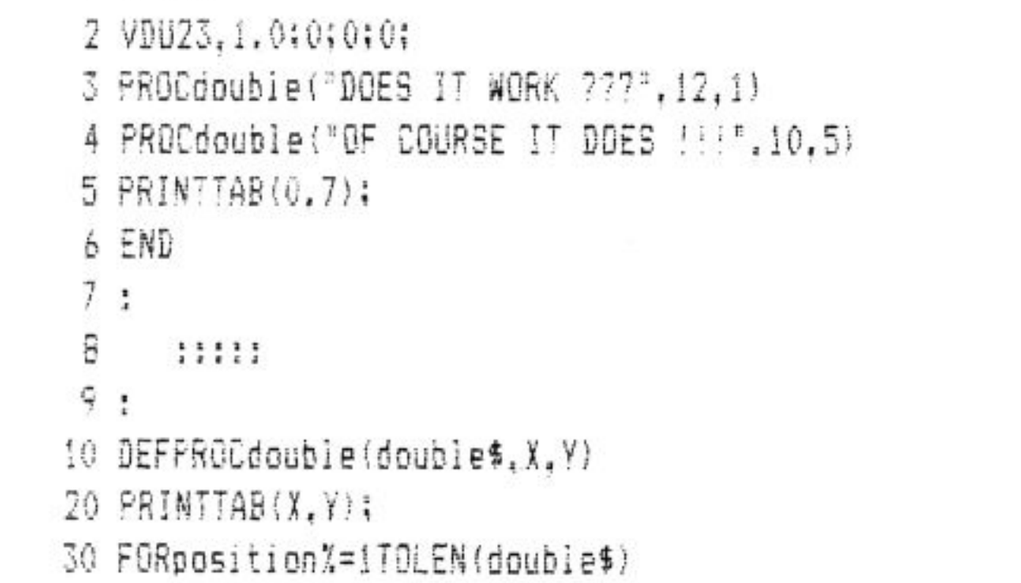
One of the good things about MODE 7 (apart from the fact that it only uses 1k of memory) is the ability to use double height text. Wouldn't it be great if you could use double height characters in any mode - you can! On MODEs 0-6 you have to use the OSWORD routine. Sounds complicated? Let me explain in English.

The principle behind using double height characters is this. Firstly, you need to know the fact that all characters are an 8 x 8 matrix. What you do is store the character in memory. Then you split the character up into the top four rows and the bottom four rows. Then, two characters are defined - one for the top half of the letter, one for the bottom half. The top character is defined as the top four rows, with each row being repeated to make up the 8 x 8 matrix. The same if done for the bottom:

INITIAL CHARACTER	SPLIT 1	SPLIT 2	TOP CHARACTER	BOTTOM CHARACTER
Line 1	Line 1	Line 5	Line 1	Line 5
Line 2	Line 2	Line 6	Line 1	Line 5
Line 3	Line 3	Line 7	Line 2	Line 6
Line 4	Line 4	Line 8	Line 2	Line 6
Line 5			Line 3	Line 7
Line 6			Line 3	Line 7
Line 7			Line 4	Line 8
Line 8			Line 4	Line 8

It is much easier to see this graphically:





And so on to how you actually do it. We will use an OSWORD call - this is located at &FFF1. The call we want is when the A register is &A (10).

```
10 A%=&
```

We have to store the character somewhere in memory, we have used &A00. This location must be stored in the X and Y registers of the accumulator, in the usual low byte/high byte format. As the location is &0A00 this splits up into 0C and 00:

```
20 X%=0: Y%=&A
```

We must also set a pointer to this location:

```
30 C%=&0A00
```

The character concerned must be initially put into this area of memory:

```
40 ?C%=ASC("M")
```

OSWORD must be called:

```
50 CALL&FFF1
```

Then the top and bottom characters must be defined:

```
60 VDU23,128,C%?1,C%?1,C%?2,C%?2,C%?3,C%?3,C%?4,C%?4
70 VDU23,129,C%?5,C%?5,C%?6,C%?6,C%?7,C%?7,C%?8,C%?8
```

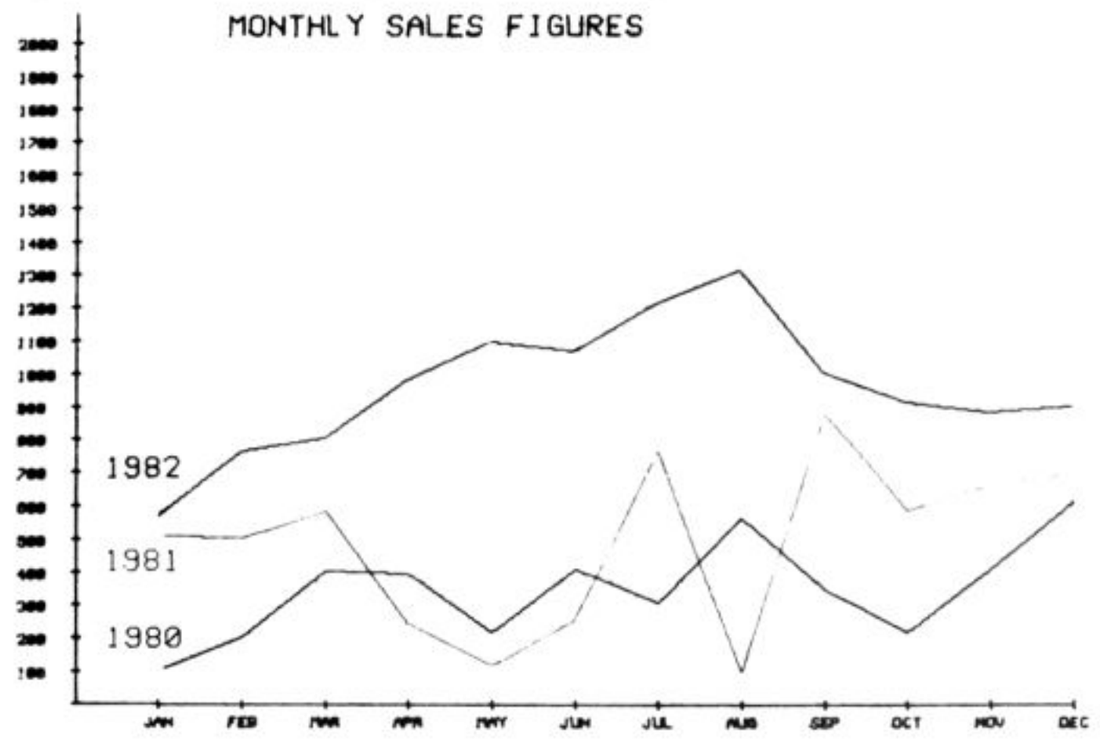
And finally your work printed:

```
80 MODE4
90 PRINT TAB(0,0);CHR$128
100 PRINT TAB(0,1);CHR$129
```

That's not too hard, is it. The routine above is OK for single characters but when you want a whole line in double height it's not so adaptable. For that reason, the following program will print the text contained in DOUBLE$ at position X,Y:

```
 1 MODE4
 2 VDU23,1,0;0;0;0;
 3 PROCdouble("DOES IT WORK ???",12,1)
 4 PROCdouble("OF COURSE IT DOES !!!",10,5)
 5 PRINTTAB(0,7);
 6 END
 7 :
 8    :::::
 9 :
10 DEFPROCdouble(double$,X,Y)
20 PRINTTAB(X,Y);
30 FORposition%=1TOLEN(double$)
40   char%=ASC(MID$(double$,position%,1))
50   A%=10:X%=0:Y%=10:store%=&A00
60   ?store%=char%
70   CALL&FFF1
80   VDU23,128,store%?1,store%?1,store%?2,store%?2,s
tore%?3,store%?3,store%?4,store%?4
90   VDU23,129,store%?5,store%?5,store%?6,store%?6,s
tore%?7,store%?7,store%?8,store%?8
100  VDU128,10,8,129,11
110  NEXT
120 ENDPROC
```

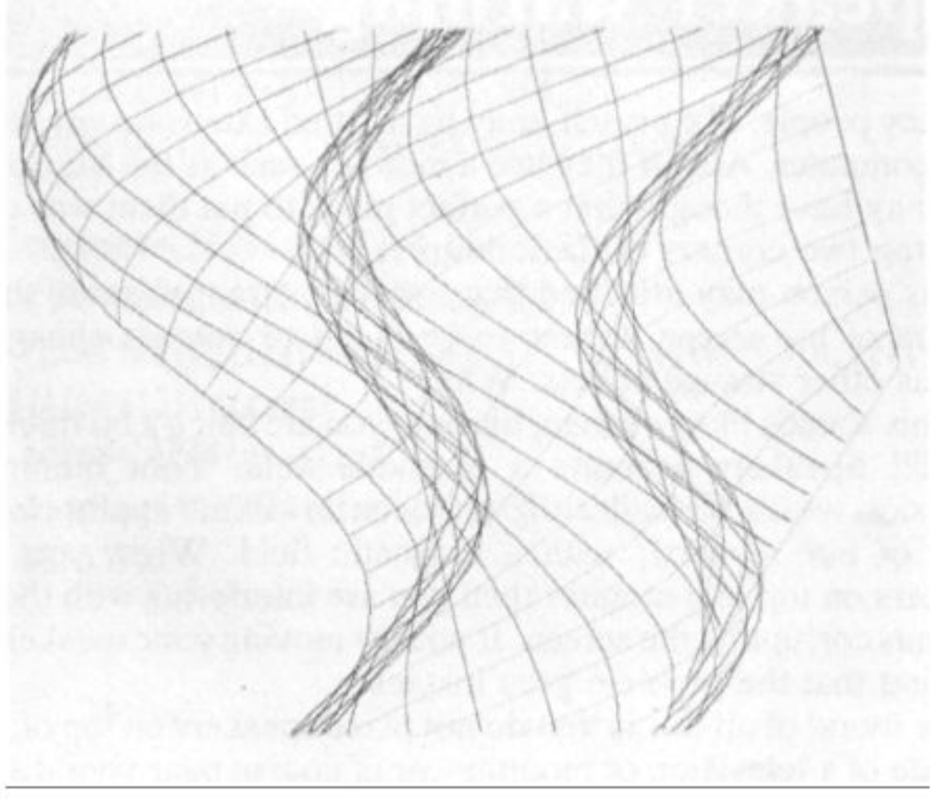
The CGP-115 Colour Graphic Printer from Radio Shack (a division of Tandy) has both RS232 and Centronics ports and so will connect directly to the BBC computer. The printer costs 149.95 including VAT, power supply and operation manual but excluding printer cable. In my opinion, it is a remarkable machine and represents outstanding value for money.



The printing mechanism is non-standard in that characters are actually written onto the paper using small ink pens controlled by routines contained in an internal ROM. The printer has four colours - black, blue, green and red. Printing is slow at 12 c.p.s. but the resulting print is of a superior quality to printers many times the price. However due to the 4½ inch paper width the lack of proportional spacing, the printer is unsuitable for most word-processing applications.

```
10 REM SAMPLE 40 COLUMN LISTING
20 MODE2
30 VDU19,0,6,0,0,0
40 REPEAT
50   MOVE 0,0
60   DRAW RND(1279),RND(1023)
70   GCOL0,RND(7)
80   UNTIL FALSE
90 END
>
```

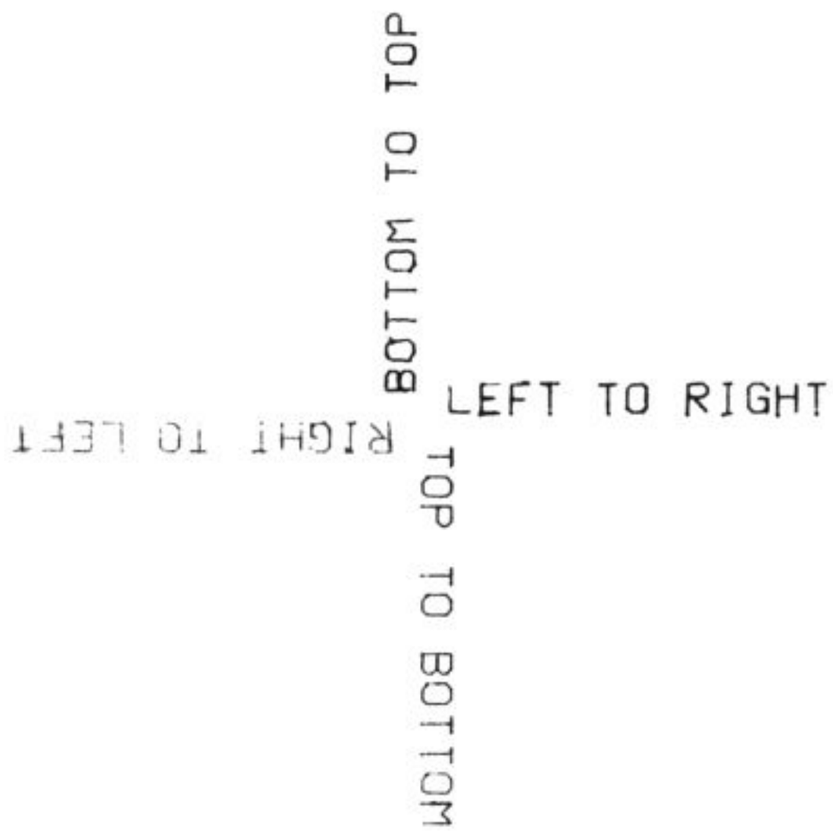
Paper costs around one pound per 100 feet and the ink pens, which write for 825 feet each cost 1.69 for a pack of three. The paper comes in 150 foot rolls which are easily loaded into the printer. With 80 columns per line, a typical 100 line program listing would cost about 1p to print. The paper is friction-fed forwards and backwards by a small rubber roller, and is also pricked at regular intervals by pins on the roller, giving both the effect of tractor feed and increased accuracy.



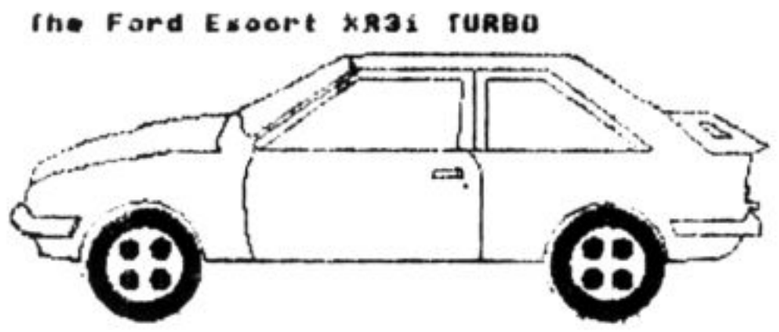
The only external controls on the printer are a paper feed button, a manual colour change button and four concealed DIP switches at the back. These switch between parallel or serial printer, 40 or 80 characters per line, CR only or CR plus LF and ASCII characters or Japanese script (!!). The ASCII set covers 33 to 127 plus characters 8, 10,11, 13, 17, 18 and 29.

```
10 REM SAMPLE 80 COLUMN LISTING
20 MODE2
30 VDU19,0,6,0,0,0
40 REPEAT
50   MOVE 0,0
60   DRAW RND(1279),RND(1023)
70   GCOL0,RND(7)
80   UNTIL FALSE
90 END
>
```

When the printer is switched on, it draws four neat boxes, one in each colour to alert the user if any of the pens have run out. If the paper feed button is depressed on power-up, a self test routine is activated in which the character set is drawn in four different colours.



The printer has two modes of operation-text mode and graphics mode. When the printer is switched on with VDU2, it is in text mode. To select graphics mode, the code 18 must be sent to the printer i.e. VDU1,18. To return to text mode, VDU1,17 is used.



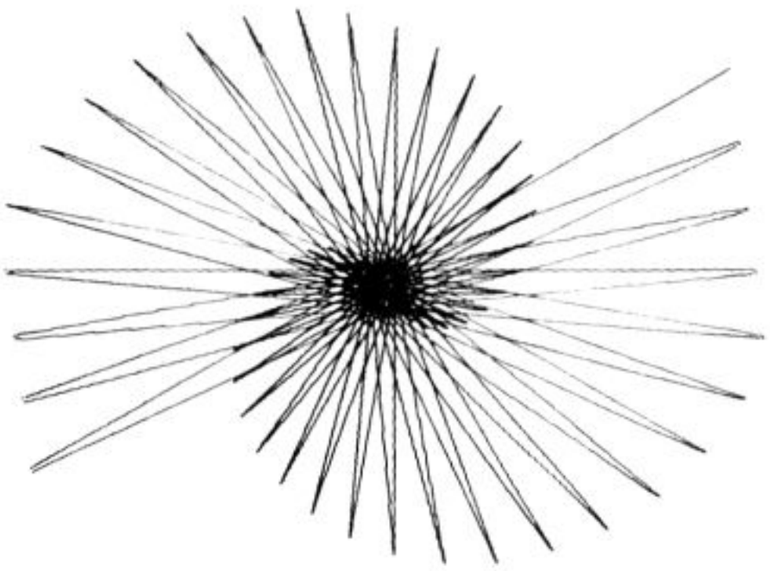
It is the features available in the graphics mode which make this printer/plotter so versatile. The complexity of drawings and designs in different colours and of different sizes is limited only by the programmer's ability and imagination (and the paper width). When in graphics mode, a number of control codes are available to send to the printer. These are:

A – return to text mode
C – change pen colour
D – draw a line relative to origin
H – move pen to current origin
I – reset origin to current pen location
J – draw absolute from current pen location
L – change line type (solid/dotted),
M – move absolute from current pen location
P – print characters in graphic mode
Q – change text printing direction
R – move pen relative to the current origin
S – change size of characters
X – draw automatically stepped co-ordinate axes

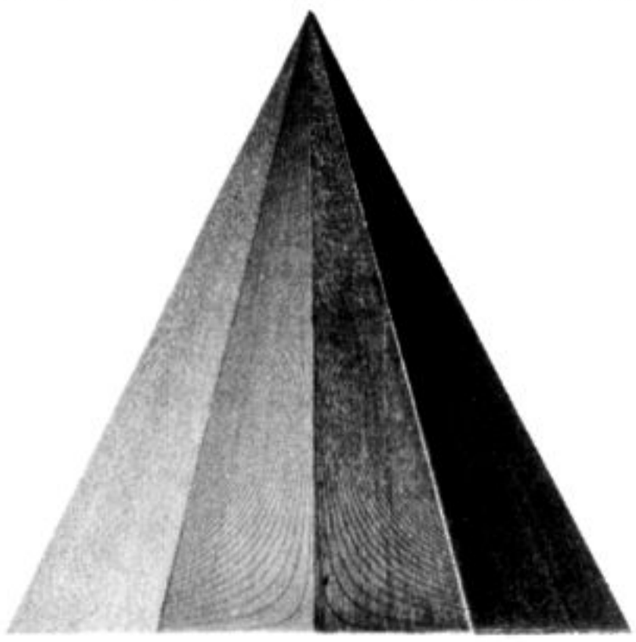
```
>WIDTH 34
>LISTO7
>LIST
   10 REM Mode 1 screen dump for l
ogical colours 0,1,2 and 3
   20 VDU21,2,1,18:REM turn screen
 off,and printer on
   30 FOR Cx=0 TO 3:REM four colou
rs
   40   PRINT"C";Cx
   50   FOR Xx=0 TO 1279 STEP 4
   60     FOR Yx=1023 TO 0 STEP -4
   70       IF POINT(Xx,Yx)=Cx THE
N PRINT"D";Xx/4;",";Yx/4 ELSE PRIN
T"M";Xx/4;",";Yx/4
   80       NEXT:NEXT:NEXT
   90 VDU1,17,3:REM turn printer o
ff
>
```

Using combinations of these codes in a program is easy e.g. to draw a red line to the point 200,200 the command PRINT"C3":PRINT"D200,200" would be given. To print LASERBUG in 2 inch square green letters for a banner, printing vertically downwards:

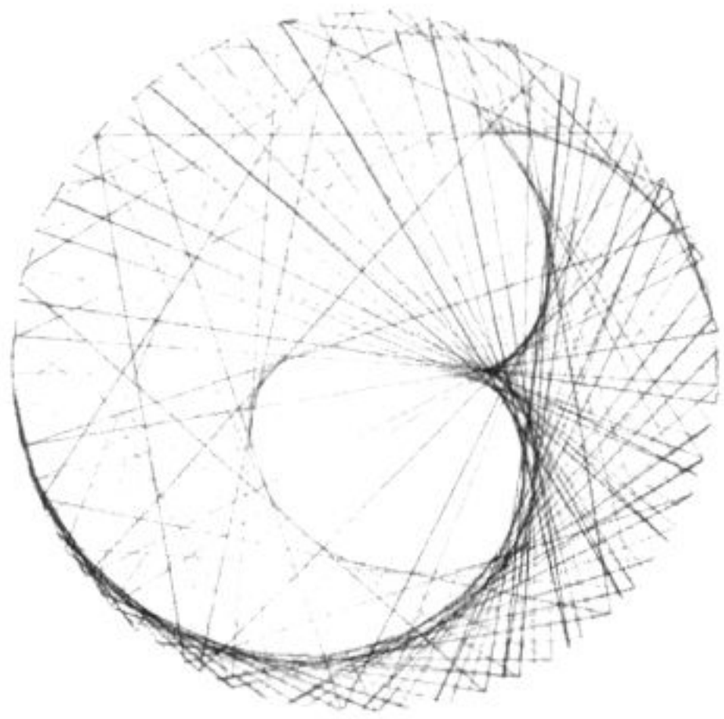
```
VDU2,1,18:REM go into graphic mode
PRINT"C2":REM Colour green
PRINT"Q1":REM Change print direction
PRINT"S60":REM Very large characters
PRINT"PLASERBUG"
```



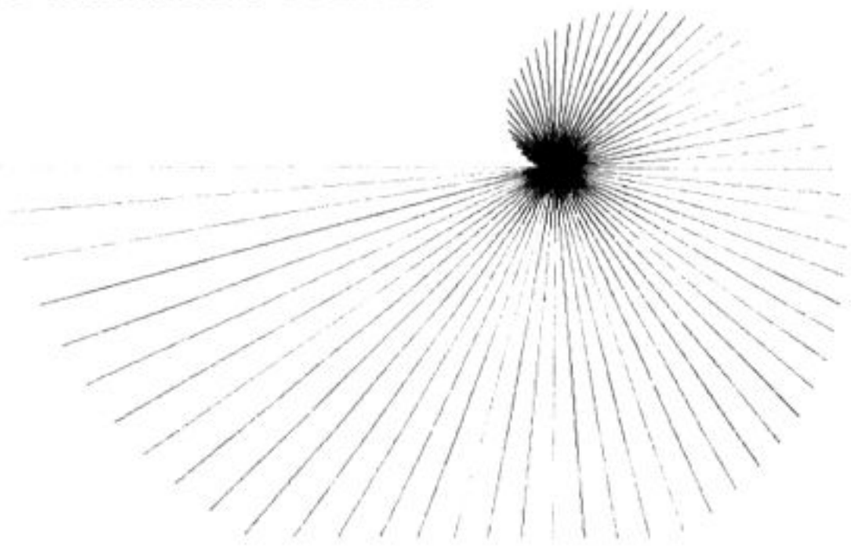
The horizontal resolution is 480 dots with steps of 0.2mm and a quoted accuracy of one percent. There is no limit to the vertical resolution apart from the length of the paper. The axis drawing command is excellent for work with graphs, and the ability to print text in any colour, in any position and direction (even upside down!) and in any size from 1 to 80 characters per line allows very realistic graphs of sales figures, pie charts etc. to be printed.



Colour screen dumps are possible in any mode. If the colour of each pixel on the screen is examined using the POINT command, the corresponding colour can be plotted on the printer. This method is ideal for MODE1 dumps in four colours. An example dump is given. It can easily be modified for any other mode by changing the step size depending on pixel resolution and grouping colours if there are more or less than four.



The 45 page operation manual is well laid out and easy to use for reference purposes. The programming examples it contains are all written for the TRS80 computer and have to be converted before running on a BBC. The main modification involves changing the LPRINT commands to PRINT.



In conclusion, this is an ideal printer for the BBC Micro user who is not into word processing but wants cheap, compact listings, and the ability to produce colour graphics on a printer far cheaper than the traditional Seikosha and Epson models. The only areas in which this machine can be faulted are speed and paper width.

MIKE TAYLOR

EDITORS NOTE: The printer described above is basically the same as the MCP-40 available direct from LASERBUG - please see the back cover for details.

speaker warning

Many people, like myself, may have fitted extension speakers to their computer. Also if they use a monitor such as the Microvitec, they may have thought that a perfect place to put them was on the front top two corners of the monitor.

This person may also find that for some strange reason the top corners of his screen appear to be faded or colours changed or various other strange effects. Why?

If this sounds like you then, like me, you are being a bit thick I am afraid!!! Speakers generate a magnetic field. Your monitor or television works by deflecting an electron beam (appropriate for some of our readers!) with a magnetic field. When you place speakers on top of a monitor then you are interfering with the field and thus corrupting the screen. If you try moving your speakers you will find that the problem goes instantly.

The moral of all this is that do not place speakers on top of, or by the side of a television or monitor - or of course near your disks. . .

You may have seen one of those "moving text" displays in a shop window - this program does the same kind of thing on your BBC Micro, using double height characters in MODE 7. You can store a line up to 255 characters long and can vary the scrolling speed by altering a variable.

There is plenty of room for expansion - you could perhaps add colour ???

```
L.
   10 REM MOVING TEXT PROGRAM
   20 REM   by Paul Barbour
   30 :
   40 REM      August'83
   50 :
   60 REM     Version 1.0
   70 :
   80 REM  Suitable only for
   90 REM BBC because of use
  100 REM      of MODE 7
  110 :
  120 REM  Written on OS 1.2
  130 :
  140 REM  (c) LASERBUG 1983
  150 :
  160    :::::
  170 :
  180 MODE7
  190 VDU23,1,0;0;0;0;
  200 REM Change to VDU23;8202;0;0;0;
  210 REM for OS 0.1
  220 :
  230 REM display$ is the variable that
   240 REM contains the actual text
   250 :
   260 display$=".....This is a demomstration of the LAS
ERBUG moving text program.....it will scroll a line up
to 255 characters long.....the speed can be varied.....
and there is plenty of room for expansion..... * * * *
* * * "
   270 length%=36
   280 :
   290 REM delay% is the time delay of
   300 REM the display before it adds
   310 REM the next character to the
   320 REM loop
   330 :
   340 delay%=20
   350 :
   360 line$=CHR$150+STRING$(39,CHR$255)
   370 PRINTTAB(0,10);line$;TAB(0,13);line$
   380 :
   390 screen$=LEFT$(display$,length%)
   400 TIME=0:REPEATUNTILTIME=delay%
   410 PRINTTAB(0,11);CHR$141;CHR$131;screen$;TAB(0,12);
CHR$141;CHR$131;screen$
   420 move$=LEFT$(display$,1)
   430 display$=RIGHT$(display$,LEN(display$)-1)+move$
   440 GOTO390
>
```


credits

LASERBUG is edited by Paul Barbour

This months contributors were Paul Barbour, John Richards and Mike Taylor.

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Articles and programs are always welcome. Please make sure that your work is original and has not been copied from elsewhere nor submitted to any other organisation. Work will be paid for. All contributions should preferable be submitted as a View, Wordwise or Wordsworth text files on either cassette (copies at both 1200 and 300 baud please). Alternatively typed or computer printed copy if acceptable but please ensure that you use double spacing and have at least a 1" margin. Hand written material is subject to delay and error. All programs longer than 10 lines should be submitted either on disk (either 40 or 80 tracks) or cassette (both 1200 and 300 baud please). If listings are supplied these should be done with LIST07 and WIDTH34 for 80-column listings (WIDTH55 for 132-columns). The first lines of the program should be REMed in the normal LASERBUG standard.

Advertising rates are available on request.
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MEMBERSHIPS

Unfortunately after a year and a half without a price rise, we have been forced to increase the cost of membership to LASERBUG. For full details please see the editorial of Issue 15. Membership to LASERBUG is £14.00 for one year or £7.00 for 6 months. This includes 12 (or 6) copies of the magazine and a membership card enabling you to take advantage of our many special offers. Overseas subscriptions are also available at both surface and air mail rates. Forces memberships at UK prices.

MS01 UK 12 Month Membership £14.00
MS02 UK 6 Month Membership £7.00
MS03 European and Outside Europe Surface Mail 12 Month Membership £18.00
MS04 European and Outside Europe Surface Mail 6 Month Membership £9.00
MS05 Postal Band A Air Mail 12 Month Membership (including Bahrain, Egypt, Israel, Oman, Saudi Arabia and United Arab Emirates) £22.00
MS06 Postal band B Air Mail 12 Month Membership (including Canada, Falkland Islands, Hong Kong, India, Malaysia, South Africa, Sri Lanka and United States of America) £24.00
MS07 Postal Band C Air Mail 12 Month Membership (including Australia and New Zealand) £26.00

DUST COVERS

Due to lack of demand we have stopped selling dust covers for the time being.

BACK COPIES

Missed out on a copy of LASERBUG? If so then use our back copy service and catch up on your reading. We have stocks on all magazines. A complete index was printed in Issue 11 but briefly:

BC01 Issue 1 (16 pages) Teletext Graphics, User Definable Characters, Hardreview, Oddspot
BC02 Issue 2 (16 pages) Sound/Envelope, *FX Part I, Teletext Part II, User Definable Keys, Pontoon
BC03 Issue 3 (24 pages) Programmers Corner, *FX Part II, Epson Screen Dump, Softreview, Telesoftware
BC04 Issue 4 (20 pages) Hardspot, What Printer?, Bookreview, Oddspot, Pixel Power, Moving Things
BC05 Issue 5 (32 pages) Wordprocessor, Machine Code, Disassembler, Seikosha Screen Dump, RGB Conversions
BC06 Issue 6 (24 pages) Software Protection Part I, Puzzle Program, How To Use Joysticks, Queryspot
BC07 Issue 7 (24 pages) Software Protection Part II, Alphabet Tester, Questionnaire Results, Club Reports
BC08 Issue 8 (24 pages) Memory Analyser, Assembler Programming On The BBC Micro Part I, Diskspot
BC09 Issue 9 (24 pages) Wallball, ADC Corner, Make The Most Out Of Sound, Grand Prix, Nine Dice
BC10 Issue 10 (24 pages) Tape Recorder Talk, Instant Memory Scan, Software Protection Part III
BC11 Issue 11 (28 pages) Micronet Review, Epson In Depth, Arcade Game High Scores, Year 1 Index
BC12 Issue 12 (24 pages) The Complete *FX List, Mactor, What To Do With Your 1.2, One Armed Bandit, Consumer Spot
BC13 Issue 13 (28 pages) Diskspot, Sound Review, Software Search, The Hobbit, Tape Talk.
BC14 Issue 14 (28 pages) Show Review, Speech Review, More On The 1.2, Strobe, Hungarian Rings, Seikosha 250X Screen Dump.

BC01 is a reprint and costs £1.60 + 20p P&P. All other backcopies (BC02-BC14) cost £1.25 + 20p P&P.

BOOKS

Interface are now adding to their BBC Micro range of books - one new one this month with more following next...

IN01 Let Your BBC Micro Teach You To Program by Tim Hartnell ..... £5.50 + 40p P&P
IN02 The BBC Micro Revealed by Jeremy Ruston ..... £6.50 + 40p P&P
IN03 36 Challenging Games for the BBC Micro by Tim D. Rogers and Chris Callender ..... £5.00 + 60p P&P

CASSETTE LEADS

Desperately need a cassette lead? There's no need to pay £5 for one when LASERBUG can offer their own cheap cassette leads to you. We sell both kinds of leads for compatability with your personal tape recorder.

CL01 7 pin DIN - DIN/Remote Jack ..... £2.50 + 20p P&P (inc. VAT)
CL02 7 pin DIN - 3 Jacks ..... £2.50 + 20p P&P (inc. VAT)

1.2 ROMS

Due to falling demand we have stopped selling 1.2 ROMs until further notice.

BINDERS

Old binder too much of a squeeze? Well, we have now had a new batch of binders made up - this time much larger than before. As before though they still hold 12 issues easily with the LASERBUG logo printed on the front cover.

BD01 LASERBUG Binder ..... £5.00 + £1.00 P&P

PRINTERS

As mentioned in the Editorial of this issue we are now in the position to start selling printers to you at discounted prices. Unlike similar offers made in the past, with this offer you will be dealing direct with us. The list below is not complete - at the time of going to press we were still negotiating the complete range we are to sell. Full details can be found in next months magazine or alternatively please write in. Most printers are at least £50 off the recommended price and some considerably more. We hope to be able to assist members by providing an information sheet on each printer, converting their printer control codes into a form suitable for the BBC. At the moment we are unable to supply paper or ribbons - you should approach your local computer stationer or one of the larger mail order companies (i.e. Inmac)

PR01 Star DP510: 100 characters per second bi-directional logic seeking; 9x9 matrix - true descenders; 2.3k buffer as standard; friction, tractor, roll holder; hi-res and block graphics; subscripts and superscripts; italic printing; auto underline; vertical and horizontal tabs; left and right margin set; skip over perforation; backspace; self test; international characters; 80 columns; 1 year warranty. £275.00 + £7.00 P&P (inc. VAT)

PR02 Star DP515: As above but 136 column. ..... £325.00 + £7.00 P&P (inc. VAT)

PR03 Star STX-80: No noise, no ribbons; 60 characters per second; 80 column; high resolution graphics; international and teletext characters; friction feed; low cost thermal paper; 1 year warranty. £150.00 + £7.00 P&P (inc. VAT)

PR04 Star Gemini 10X: 120 characters per second; 816 character buffer; columns - 80, 96, 132 (40, 48, 68 in double wide); ultra hi-resolution; skip over perforation; vertical - horizontal tabs; 100% duty cycle; self test; downloadable characters; macro instruction; continuous underline; 7 or 8 bit selectable; column scan bit image graphics; friction, tractor and roll holder as standard; 1 year warranty. £325.00 + £7.00 P&P (inc. VAT)

PR05 Star Delta-10: 160 characters per second; standard spool ribbon; up to 136 columns; 5. 6. 8.5, 10, 12 and 17 characters per inch; self test; downloadable character set; macro instruction set; parallel and serial interface; standard with 8k buffer; 240 characters per second white space speed; continuous underline; emphasized and double strike; super and subscripts; vertical and horizontal tabs; column scan bit image graphics; italics; friction, tractor and roll holder as standard; 1 year warranty ..... £400.00 + £7.00 P&P (inc. VAT)

PR06 Shinwa-CTI CP80: 80 Column; friction and adjustable tractor feed; bidirectional logic seeking; hi-res graphics and block graphics; sub and superscripts; 13x9 dot matrix; condensed print; emphasised print; graphics set; auto underlining; vertical and horizontal tabs; backspace; self test; italic print style; expanded print; double print; pound and hash sign; 1 year warranty..... £275.00 + £7.00 P&P (inc. VAT)

PR07 Olivetti JP101: Official BBC Micro printer - ink jet; no noise; 50 lines/minute; high and low resolution; double width, double height, underline; uses ordinary paper; bi-directional logic seeking; 7x7 dot matrix; eight normal character sets; normal, reverse, zoom graphic capability; 90 day warranty..... £275.00 + £7.00 P&P (inc. VAT)

PR08 Microline 92: Dual mode printing - mode 1 (9x9 matrix, 160 characters per second, bi-directional logic seeking) and mode 2 (dual pass, near letter quality (NLQ) printing); pin addressable graphics 72x72 dot resolution; superscript, subscript and underline; proportional spacing in NLQ mode; downloadable character set: 90 day warranty..... £475.00 + £7.00 P&P (inc. VAT)

PR09 Microline 84: Dual mode printing - mode 1 (200 characters per second, bi-directional, logic seeking, with 400 characters per second skip) and mode 2 (dual pass, near letter quality (NLQ) printing); 4"/sec slew rate; pin-addressable graphics, 72x72 dot resolution; subscript, superscript and underline; proportional spacing in NLQ mode; downline loadable character set; 90 day warranty. £850.00 + £7.00 P&P (inc. VAT)

PR10 MCP 40: High resolution graphics; 40 and 80 column printing; 12 characters per second speed; 4 colours (red, green, blue, black); resolution o.2mm/step; alpha numeric printing; uses plain roll paper; 13 graphics commands; prints 96 ASCII character; set in 4 colours; 1 year warranty ..... £125.00 + £7.00 P&P (inc. VAT)

PR11 Juki 6100: 20 characters per second maximum (18 cps shannon text); bidirectional logic seeking; 10, 12, 15 characters per inch plus proportional spacing; up to 220 characters per line; diablo protocols; bold printing; shadow printing; auto underline; subscripts and superscripts; graphics mode; linear motor for accurate positioning; 100 character daisywheel; 2k buffer as standard; IBM selectric ribbon; "drop in" daisywheel - Triumph Adler compatable; low cost; low noise; low maintenance; high reliability (MTBF 2500 hours); 1 year warranty..... £400.00 + £7.00 P&P (inc. VAT)

PR12 Hermes 612C: Professional word processing printer; 18 wire ruby matrix; parallel, serial interfaces and tractor as standard; data quality 400 characters per second; draft data quality at 240 characters per second; word processing quality at 120 characters per second; 8 international character sets; proportional spacing; automatic underlining; subscripts and superscripts; high contrast OCR quality IBM cassette ribbon; 132 characters per line at 10 CPI; 10, 12 or 15 CPI - programmable down to 1/360" spacing, enlarged, condensed, double height characters; high resolution graphics; 1 year warranty. £2000.00 + £7.00 P&P (inc. VAT)

CB01 Cable for any of the above printers (please specify which!) ..... £10.00 with free P&P when bought with the above (inc. VAT).

SOFTWARE

Details of software were not ready at the time of going to press. Please see either next months magazine or write for details.

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