acorn

Volume II No 1

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. . . . . and lots more!

HAPPY BIRTHDAY LASERBUG! Yes, that's right. Today LASERBUG is one year old! Well, from that first issue there have been a number of changes – early members will know how much we've changed over the last year. Hopefully you all agreee it is for the better.

We are going to cut out these long Editorials from now on – instead we'll have long news pages instead!

As it's the beginning of a new year, for us at least, I suppose I should say a few things regarding LASERBUG. The aim of LASERBUG is, and always has been, to help BBC Micro owners get the most out of their investment. We do this in every way possible. If you ever have any kind of problem with your machine get in touch and we'll try to sort it out. If there is something you would like to know more on let us know and we'll try to get an article together on it. If you have written a program send it in and we'll print it in Softspot. Articles are likewise welcome. If something is very wrong with LASERBUG let us know – it's you who we're writing for. If you feel we are not catering for a certain type of person let us know and we'll try to include something. LASERBUG is your user group, your magazine and in it should go what you want to read.

Paul Barbour

news

The Computer Programme Special – 2 Hours Long!

After The Computer Programme and Making The Most Of The Micro comes . . . a two hour long live special which will be broadcast in October. Owners of home computers are invited to send in questions to which a team of experts will attempt to answer in the studio. A phone-in is also a possibility? If you have a question for the special program you can send it in ON A POSTCARD ONLY to Making The Most Of The Micro, P.O. Box 7, London, W3 6XJ. You should include your name, address and telephone number on the card but with the volume of mail the Beeb receive don't be too surprised if they don't reply.

Castle Of Riddles Winner – A LASERBUG Member!

Peter Voke, a recent contributor to LASERBUG has won the Castle Of The Riddles competition! He wins a £700 hallmarked silver ring-shaped trophy mounted on a presentation plinth and inscribed King Of The Ring together with £1500 worth of Acorn hardware and software!!! Well done Peter!!!

Cheapest OS Available – From LASERBUG

You all by now have read the details about the 1.2 OS enclosed on the separate sheet last month. If not see Special Offers on the back cover. This is the cheapest the 1.2 ROM is available from anywhere. We have managed to cut our costs to an absolute minimum to be able to sell to you at this price. Judging by the amount of responses we have had this is an extremely popular move with all of you!

Basic II ROM Is Available

Recently most magazines carried either the story that a Version II BASIC would be released or that it wouldn't. The truth is that it is, or to be more precise HAS, been released. This hasn't met with the approval however of a lot of people. As there are problems with compatibility between the 0.1 OS and the 1.2 so are their problems between the Version 1 BASIC and Version 2!! We will be reporting on the new BASIC in future issues.

Swift Link Software Fly Away

Unfortunately, Swift Link Software who produced a number of educational programs for the BBC Micro has been forced due to "personal and financial reason" to cease trading as from March 31st. All present commitments will be honoured we were told.

100,000 BBC Micros And 12,000 More A Month!

At the moment there are 100,000 BBC Micros around and this figure is being increased by 12,000 a month. That's the news from Acorn. Not only this, according to a chart in the new weekly magazine Personal Computer News the BBC Micro is the best selling home computer – beating even the £50 ZX81.

Microscopic Teletext?

The BBC have revealed that only five pages of teletext will be made available for the Ceefax telesoftware service. This amounts to approximately 150k. Programs will be cycled every 14 days but even so does that make the telesoftware service worth it for anyone except schools when you consider the Teletext Adaptor is £225?

Overseas BBC Micros

Acorn were told not to open up export markets for the BBC Micro until the UK backlog was cleared. This has now happened and so the BBC Micro is going worldwide. The first episode of The Computer Programme will be shown in America on April 16th. It is hoped that up to 80,000 BBC Micros will be sold in America over the next year. The biggest market in Europe is rumoured to be Germany. Australia is said to have 1,500 BBC Micros with New Zealand having 600. Over the next year it is likely that both The Computer Programme and the BBC Micro will be seen/available in most countries!!! American magazines are predicting a great future for the Beeb across the sea.

Micronet

As you can see from the articles in this months magazine LASERBUG is into Micronet 800 in a big, big way. I won't say much more here except that you can keep in touch with us via Mailbox Number 919991005.

Acorn User Show

At the Cunard Hotel between August 25-28th there will be a special Acorn User exhibition for the Acorn Atom, BBC Micro and Acorn Electron. Anybody who's anybody in the BBC Micro World will be there – including us. More details in future issues . . .

No More LASERBUG?

Supposing you stop receiving LASERBUGs each month. What should you think – that LASERBUG has closed down? Wrong. What you should do is cast your mind back to when you joined. Have you had 12 issues of the magazine? If so then your subscription needs re-newing. We do send renewal notices but please don't let your subscription lapse.

More News Next Month . . .

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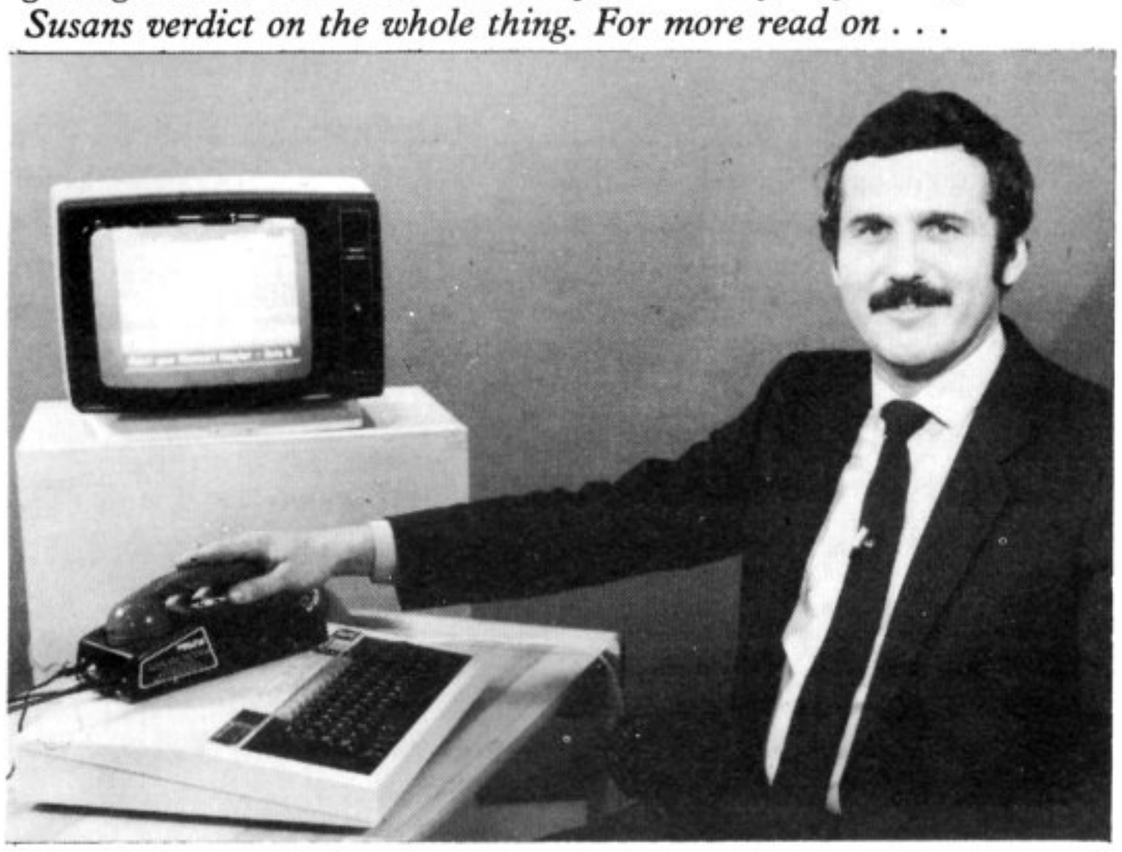
micronet 800 part 1

This is the first of a number of articles in this month's LASERBUG about the Micronet 800 service. Below is a report by Dr. Susans on the Press Launch of Micronet which was held at the end of February. "The Micronet 800 conference seemed to me to be a case of try hard to sell without much success at present. I believe that it will be slow getting started but will, eventually, be a useful system", was Dr. Susans verdict on the whole thing. For more read on . . .



BOB DENTON *Managing Director of Prism Microproducts Tries Out His Modem.*

A press conference was held in London on the 21st February to introduce Micronet 800 which started on the 1st March 1983. The Micronet 800 system has been jointly developed by Telemap Ltd., and Prism Microproducts. It is a network system which uses Prestel to allow microcomputers to communicate with Micronet 800 database. This database initially will have 100 free programs (apart from telephone call charges) together with about 50 chargeable programs. The intention is to change the free programs at regular intervals. The cost of programs for which a charge will be made will be between £3 and £10, but at about two-thirds of the normal full retails price. However, if the program fails to download correctly you will still have to pay.

To start with, facilities to send data from the microcomputer will be very limited although it is expected to improve these at a later date. Data is received by your computer at 1200 baud (the normal cassette speed) but any transmissions to Micronet are at 1/16 of this rate i.e. 75 baud. This low rate makes any major transmissions from you quite expensive in telephone charges. An acoustic coupler is used to couple the micro to the telephone and this is supplied together with the necessary software when joining the network. A special offer is being made to the first 10,000 subscribers at £59.74 (inc. VAT) for the adaptor, software and joining charge. In addition there is a £52+VAT per annum rental charge for the Micronet 800 and Prestel service (higher for business users).

In the autumn, a further service for business users will be introduced. This service will see a more complex modem (cost around £200) but will enable more expensive (up to £100) protected programs to be downloaded and enable the user to connect to mainframe computers for complex calculations.

In view of the costs involved, I consider that, at present, the service would not be economical for individual users who wanted only the programs. However, if you also wanted the Prestel service then this could be cheaper than using the Acorn Prestel adaptor (at least at the special offer rate). For schools, which have more use for programs, the scheme could be a useful investment. For small businesses, the present advantages are much less well defined but I am sure that in the future, as the network system grows, it will become more useful.

Dr. D.E. Susans

educationspot

Below is a few useful PROCedures written by J.A. Campbell of Aberdeen College of Education. The original PROCedures were many more in number but we have just taken out the ones of the most general interest – even so these take up 1½ pages! If the demand proves to be there we will probably print the others that Mr. Campbell wrote although most of these are much more specialised. Sufficient information is in the REM lines for you to be able to digest the listing. Basically we included PROCedures below to:

(i) Remove allspaces and dots from a response
(ii) Alter all the characters in a response to lower case
(iii) Alter all the characters in a response to upper case
(iv) Ask the user if they want to continue?
(v) Make the first letter of a response a capital
(vi) Scroll up a number of lines
(vii) Scroll down a number of lines
(viii) Produce accents on the screen
(ix) Allow the entry of accents in a program
(x) Provide a pause
(xi) Print a random message from a wrong reply, etc.

L.

```
 10 REM          Useful Procedures
 20 REM            by J.A.Campbell
 30 REM       (Language Deptartment)
 40 REM  of Aberdeen College of Education
 50 :
 60 REM       Our thanks to both for
 70 REM       allowing us to publish
 80 REM        the below PROCedures
 90 :
100 REM   These were originally designed
110 REM    for use in Language Programs
120 :
130 REM     We have only included those
140 REM that we thought of general intrest
150 REM      but might print the more
160 REM specialised ones in another issue.
170 REM  We have added a few of our own.
180 :
190 REM    Some have been corrected from
200 REM   the original form and some have
210 REM   integers added to speed up the
220 REM              routines
230 :
240 REM  Both we and Mr.Campbell would be
250 REM happy to receive correspondence and
260 REM exchange ideas with other teachers/
270 REM          language teachers
280 :
290 REM You should of course enter only the
300 REM    PROCedures of intrest to you
310 REM Plus the array dimensions used (1.350)
320 :
330     :::::
340 :
350 DIMZX$(255),ZY$(255),M$(50)
360 END
370 DEFPROCspaceout
380 REM Removes Spaces/Dots From A Response (A$)
390 LOCALB$,I%:B$=""
400 FORI%=1TOLEN(A$):ZX$(I%)=MID$(A$,I%,1):IFZX$(I%)
=" "THENZX$(I%)=""
410    IFZX$(I%)="."THENZX$(I%)=""
420    B$=B$+ZX$(I%):NEXT:A$=B$:ENDPROC
430 :
440 DEFPROClower
```

```
  450 REM Reduces All Letters To Lower Case In Respons
e (A$)
  460 LOCALB$,I%,L%:B$=""
  470 FORI%=1TOLEN(A$):L%=ASC(MID$(A$,I%,1))
  480   IFL%<91ANDL%>64THENL%=L%+32
  490   B$=B$+CHR$(L%):NEXT
  500 A$=B$:ENDPROC
  510 :
  520 DEFPROCupper
  530 REM Reduces All Letters To Upper Case In Respons
e (A$)
  540 LOCALB$,I%,L%:B$=""
  550 FORI%=1TOLEN(A$):L%=ASC(MID$(A$,I%,1))
  560   IFL%<123ANDL%>96THENL%=L%-32
  570   B$=B$+CHR$(L%):NEXT
  580 A$=B$:ENDPROC
  590 :
  600 DEFPROCcont(X,Y)
  610 REM Print Continue? Message in a 40 column MODE
  620 PRINTTAB(2,22)"*** PRESS SPACE BAR TO CONTINUE *
**"
  630 PRINTTAB(4,23)"***** HIT KEY 'E' TO EXIT *****"
  640 REPEATWAIT$=GET$:UNTILWAIT$=" "ORWAIT$="E"
  650 IFWAIT$="E"THENCLS:END
  660 CLS:VDU31,X,Y:REM Places cursor at point X,Y
  670 ENDPROC
  680 :
  690 DEFPROCcapinit
  700 REM Makes first letter of response (A$) a capita
l
  710 LOCALB$,X%,L%:B$=""
  720 X%=LEN(A$):L%=ASC(LEFT$(A$,1))
  730 IFL%<123ANDL%>96THENL%=L%-32
  740 B$=CHR$(L%)+RIGHT$(A$,X%-1)
  750 A$=B$:ENDPROC
  760 :
  770 DEFPROCup(up%)
  780 REM Scrolls Up A Given Number Of Lines
  790 LOCALD%
  800 FORD%=1TOup%
  810   TIME=0:REPEATUNTILTIME=10
  820   PRINT
  830   NEXT
  840 ENDPROC
  850 :
  860 DEFPROCdown(down%)
  870 REM Scrolls Down A Given Number Of Lines
  880 LOCALD%:PRINTTAB(0,0);
  890 FORD%=1TOdown%
  900   TIME=0:REPEATUNTILTIME=10
  910   VDU11
  920   NEXT
  930 ENDPROC
  940 :
  950 DEFPROCaccent(accent%)
  960 REM French Accents - Acute=1
  970 REM                  Grave=2
  980 REM                  Circumflex=3
  990 REM                  Cedilla=4
 1000 REM Use in MODE4
```

```
1010 VDU5
1020 XX=POS*32:YX=1024-(VPOS*32)
1030 MOVEXX-32,YX+4
1040 ONaccent%GOTO1050,1060,1070,1080
1050 PRINT"/":GOTO1090
1060 PRINT"\":GOTO1090
1070 PRINT"^":GOTO1090
1080 MOVEXX-32,YX-8:PRINT","
1090 VDU4:ENDPROC
1100 :
1110 DEFPROCgetacc
1120 REM Allows Entry Of French Accents
1130 REM £ - Acute
1140 REM $ - Grave
1150 REM % - Circumflex
1160 REM & - Cedilla
1170 A$=""
1180 ZX$=GET$
1190 ZZ=ASC(ZX$)
1200 IFZZ=127THEN1270
1210 IFZZ=13THEN1300
1220 IFZZ<35ORZZ>38THEN1280
1230 IFZZ=35THENPROCaccent(1):GOTO1290
1240 IFZZ=36THENPROCaccent(2):GOTO1290
1250 IFZZ=37THENPROCaccent(3):GOTO1290
1260 IFZZ=38THENPROCaccent(4):GOTO1290
1270 PRINTZX$;:A$=LEFT$(A$,LEN(A$)-1):GOTO1180
1280 PRINTZX$;
1290 A$=A$+ZX$:GOTO1180
1300 PRINTZX$:ENDPROC
```


micronet 800 part II

The second of our Micronet articles looks at how the system was formed and a few details about it. This article was written mainly on the basis of information supplied by Micronet 800.

Firstly what is Micronet? Or what is Prestel might be better! We will assume as there are almost 1 million teletext sets around the country that you understand the concept of Teletext. If not take a look in your local TV Rental Companies window. Prestel is a huge version of teletext – instead of 700 pages as on teletext Prestel has over a quarter of a million!!!!! You receive teletext as a free service through your aerial – once you have bought/rented the special television/decoder unit then all the other costs are free. For the BBC Micro you will (May?) be able to buy a special teletext decoder to enable (i) you to access teletext through your micro and (ii) to download telesoftware.

We used then the phrase telesoftware. Let's just explain that as well. You all know how you can buy software on tape/disk and load them into your computer – telesoftware is where the program you want to load is held on the Prestel pages i.e. software on television. Instead of loading it in from tape/disk you simply press a button and hey presto the program loads in from Prestel.

Like teletext you have to buy a special adaptor to be able to use Prestel. However after this the similarity ends. Instead of getting the information from the aerial you get it through the telephone and so the first cost you have is your phone charges whenever you use the system. Next there is a standing charge for using the system. Finally although most pages are free, to look at the information on some of them can cost you between ½ to 50p although you are given warning of some of these.

Next question, where does all the information come from. Well, some of it comes from Prestel themselves however Prestel would find it impossible to provide the quarter of a million pages on the system. This is where the phrase Information Provider's or IP's

```
1310 XX=RND(10)
1320 DEFPROCpause(sec%)
1330 endpause%=TIME+sec%*100
1340 REPEAT
1350   UNTILTIME>endpause%
1360 ENDPROC
1370 :
1380 DEFPROCwrong(X,Y)
1390 ZX$(1)="Sorry,  I can't accept that!"
1400 ZX$(2)="I'm afraid you've got it wrong!"
1410 ZX$(3)="Too bad!  It's wrong,  I'm afraid!"
1420 ZX$(4)="Maybe you'll get it right next time!"
1430 ZX$(5)="Hard luck!  You've got it wrong!"
1440 ZX$(6)="Not quite right,  I'm afraid!"
1450 ZX$(7)="Sorry!  Your answer is not acceptable."
1460 ZX$(8)="Take care!  You're getting it wrong!"
1470 ZX$(9)="Won't do,  I'm sorry to say!"
1480 ZX$(10)="You haven't got itright this time!"
1490 VDU31,X,Y:PRINTZX$(XX)
1500 VDU31,X,Y+1:PRINT"Do you want to try again?  (Y/
N)?"
1510 REPEATZX$=GET$
1520   UNTILZX$="Y"ORZX$="N"
1530 :
1540 REM Please let us know if you are
1550 REM interested in other language
1560 REM PROCedures
>REM £ IS A HASH (SHIFT-3)
```

come in. There are about 900 IP's on Prestel although only about 150 are actually contracted. Some of the IP's only provide a handful of pages, some provide considerably more. Micronet 800 is quite simply another IP although one of particular interest to the micro user.

So how did Micronet 800 form? Several people were involved in actual fact. Mike Brown was developing the idea of telesoftware. Robin Wilkinson of EMAP (who publish Computer & Video Games, Electronics & Computing, etc.) were running a leisure database called Telemap about gardening, photography, angling, etc.. Bob Denton was running Electronic Insight which was an experimental computer news database and now is MD of Prism Microproducts who make the modem for Micronet. Richard Hease, a young publisher interested in computing, launched a variety of computer magazines including Practical Computing, Computer & Video Games, etc. EMAP later bought a number of these titles.

A big barrier for Prestel not catching on in the home was the extremely high cost of Prestel TV's. The answer – microcomputers. Microcomputers have taken over so many people's lives – 1 in 20 homes have a microcomputer!!! With cheap adaptors available and so many micros the answer was there and so was born Micronet with the personnel to run a micro based IP and cheap modems allowing the micro's to log on.

From here you get Micronet 800. That's how the system was formed, now turn to part III of this article for a review of the hardware/software and the service Micronet 800 provides.

Paul Barbour

Epson in depth

Many people, when confronted with a printer as complex as the Epson, feel overwhelmed with the mass of different control codes available and hence do not use their printer to its full capabilities. Never fear, LASERBUG is here. If you have an Epson MX-80 Type III printer and want to use some of its impressive features, continue reading.

The back of the manual you get with the printer (pages 92/93) show over 40 different control codes. The first thing you should understand is how to implement them. A little note before that however. To send a single character to the printer only you can use VDU1 **BUT** if you have a series 1 OS the printer must be enabled first with VDU2. If you are using OS 0.1 then you don't have to do this but to ensure compatability with all versions of the OS you should really if you don't want to have problems when you upgrade.

Ok, now what. Well, you can split the types of control codes into three types: (i) Single character codes, (ii) ESC codes and (iii) ESC codes + further information. One thing at a time though.

If you look in the table of codes for the Epson (p.92/3) you will see five columns. The first is the control code more of which later. The second is the hex value of the code and the third is the decimal value – we might as well use the decimal code. The fourth column explains briefly what each code does and the fifth gives you a page to look up for more information.

The first few codes in the list are of type (i) – all you need to do is send a single character to the printer i.e. to make the buzzer sound we have to send the number 7. If we just did VDU2:PRINT7:VDU3 then this would not work – we would be printing the number 7 which has an ASCII code of 55. We want to print the character which has the ASCII value 7.

Let me explain a little more about the ASCII system. Every letter, number, etc. on your computer has a number asigned to it for instance the number for the letter A is 65. To ensure compatability between all the computers, printer, etc. there is a convention which states that the letter A has a number 65, etc. – the name for the convention is called ASCII – American Standard Code for Information Exchange. Try entering PRINTASC("A), this should give you the value 65 i.e. the ASCII value of the letter A is 65. Conversely enter PRINTCHR$65, this should give you the letter A i.e. the character whose ASCII code is 65 is the letter A.

For letters, numbers, etc. the ASCII code starts at 32 which is a space. All the codes less than 32 are called control codes – on your computer you can access them at the keyboard by using the CTRL (control) key. Try pressing CTRL-G – you should hear a beep. Then enter A=GET, press CTRL-G and then PRINTA – you should get the number 7. This is because the ASCII system says that the character 7 should make the bell sound in the device which on your computer is that beep, on the printer it is its buzzer. If you look again at the manual you will see that the abbreviation for ASCII code 7 is BEL. You can find a full list of ASCII codes on page 507 of the user guide.

So where does all this lead us? Well, we now know that we have to send the ASCII code 7 to the printer, not the number 7 which has an ASCII code of 55. Now try entering VDU2:PRINT CHR$7:VDU3 – both the computers beep and the printers buzzer should be heard at once (if you can only hear the printers buzzer that is because it is far louder than the computer). For this application it doesn't matter too much that the computers bell sounds at the same time. Supposing though it was code 14 which on the printer causes double width characters. If you sent this to the printer using VDU2:PRINTCHR$14:VDU3 then you would indeed get double width characters on the printer – however on your computer it means that the paging mode comes into play. Obviously you want to send the character to the printer only, avoiding the computer as well.

ASCII code 1 on the computer means send next character to printer only. To make the printer's buzzer only sound you could enter VDU2:PRINTCHR$1;CHRS7:VDU3 and this will work. It would be much quicker and shorter however to use another method of sending out characters – the VDU statement. Try VDU2,1,7,3 instead and you will see that it has exactly the same effect. The 2 code switches the printer on, the 1 code means send the next character to printer only, the 7 is the code to operate the buzzer and the 3 code switches the printer off again after use.

You can use the VDU2,1,n,3 method for all of these single codes i.e. NUL (0), BEL (7), BS (8), DC2 (18), etc.

The second type of codes are called escape codes – **do not** confuse my use of the word escape with the ESCAPE key on the computer. For this example lets use the code for emphasised characters which is ESC E. As you can see the code is in two parts – the ESC part and the E part and hence is a two character code. The reason for the ESC codes is simple – instead of the 32 control characters (0-31) the use of ESC enables a whole new range of codes by using the normal codes for letters, etc. but preceding them by ESC to show that they are to control something. The code for ESC is 27 and on your computer does nothing. When using these codes firstly you have to send the ESC part followed by the letter. You could try VDU2,1,27,69,3 which is on/character to printer only/ESC/E/off and this would of course work but the only problem is the letter E would be printed as well so what we use is VDU2,1,27,1,69,3 which sends both the ESC part and the E part to printer only. Well, that's not too hard so far.

And so onto the third type of code which requires **three** characters. Say we want to switch on the underline mode which the manual tells us is ESC –. Can we use VDU2,1,27,1,45,3 – it looks that way but as you soon learn from computing not everything is what it seems at first glance. For more details on the code the manual tells you to look at page 65 so turn to here and what are you told? Not only do you have to send ESC – but also n where n = 0 or 1 (and 48 or 49 but these are identical to 0 and 1). The manual says the code is ESC – + n but don't get over enthusiastic. You have to send the ESC code and the code for a minus sign/dash (45). You **do not** have to send the + sign, that is just to indicate to you that a third code is required, represented by n which can be 0 or 1. If you send ESC – + 1 by VDU2,1,27,1,45,1,1,3 then you're there!!! Note again though that ESC is the ASCII control code 27, – is the normal ASCII value for – which is 45 and the 1 if ASCII 1, nor the ASCII value of the character 1.

Whilst going through all that you might have found some strange things happening on your printer – a number of the codes also need switching off as well as on i.e. to cancel the underline send ESC – + 0 which is VDU2,1,27,1,45,1,0,3.

Enough of the theory, let's get down to some real examples. Firstly though make sure the paper is positioned correctly and enter VDU2,1,27,1,64,3 which is ESC @ or reset printer.

We are going to look here at four different features of your printer, firstly the size of the text/number of characters per line. The Epson

can have four different numbers of characters per line – 132, 80, 66 and 40. To summarise the different text commands:

Function	**Codes**	**In Program** *(assuming printer is active)*
132 chars on	SI (15)	VDU1,15
132 chars off	DC2 (18)	VDU1,18
80 chars on	Default	Restore by switching other modes off
66 chars on	SI (15)/SO (14)	VDU1,15,1,14
66 chars off	DC2 (18)/DC4 (20)	VDU1,18,1,20
40 chars on	SO (14)	VDU1,14
40 chars off	DC4 (20)	VDU1,20

As actions speak louder than words (or so they tell me) try running the program below:

```
>L.
   10 REM Switch on
   20 VDU2
   30 REM 132 columns
   40 VDU1,15
   50 PRINT"LASERBUG"
   60 VDU1,18
   70 REM 80 columns
   80 PRINT"LASERBUG"
   90 REM 66 columns
  100 VDU1,15
  110 VDU1,14
  120 PRINT"LASERBUG"
  130 VDU1,18
  140 REM 40 columns
  150 VDU1,14
  160 PRINT"LASERBUG"
  170 VDU3
>RUN
LASERBUG
LASERBUG
LASERBUG
LASERBUG
```

OK? Good. Once you have got the text you want there are three different functions you can use to lighten or darken the text. The first is to print it normally which is the lightest. The second is to do what is called double printing which is where the line is printed once, the paper moved up very, very slightly and the line printed again. This is the middle one. The third is emphasised text which gives a dark print. In the lightest text you can see all the dots making up the letters, in the middle one some are covered by overprinting and with emphasised you can't really see any of the dots. Another table will help here:

Function	**Codes**	**In Program** *(assuming printer is active)*
Normal text	Default	Restore by switching other modes off
Double text	ESC G (71)	VDU1,27,1,71
Double off	ESC H (72)	VDU1,27,1,72
Emphasised on	ESC E (69)	VDU1,27,1,69
Emphasised off	ESC F (70)	VDU1,27,1,70

Try entering the next listing and see that in practice:

```
L.
   10 REM Switch on
   20 VDU2
   30 REM Normal printing
   40 PRINT"LASERBUG"
   50 REM Emphasised printing
   60 REM ESC E
   70 VDU1,27,1,69
   80 PRINT"LASERBUG"
   90 VDU1,27,1,70
  100 REM Double printing
  110 REM ESC G
  120 VDU1,27,1,71
  130 PRINT"LASERBUG"
  140 VDU1,27,1,72
  150 REM Switch off
  160 VDU3
>RUN
LASERBUG
LASERBUG
LASERBUG
```

What else can we do? One thing you can do on almost all typewriters is to underline things. This is a very good technique if you want something to stand out without going into darker text. The Epson of course comes to our rescue with this feature built in. To operate it a third table shows how:

Function	**Codes**	**In Program** *(assuming printer is active)*
Underline on	ESC – + 1 (45)	VDU1,27,1,45,1,1
Underline off	ESC – + 0 (45)	VDU1,27,1,45,1,0

To show that working:

```
L.
   10 REM Switch on
   20 VDU2
   30 REM Print normally
   40 PRINT"LASERBUG ";
   50 REM Underline
   60 REM ESC - 1
   70 VDU1,27,1,45,1,1
   80 PRINT"LASERBUG ";
   90 VDU1,27,1,45,1,0
  100 PRINT"LASERBUG "
  110 VDU3
>RUN
LASERBUG LASERBUG LASERBUG
```

This article seems to be getting rather long and so for the time being we'll look at one more function – superscripts and subscripts. Firstly I should explain what these are. A superscript is a character that you want above the normal text like a squared sign in an equation i.e. $X^2+Y^2=Z^4$ – the 2's and 4 are the superscripts. if you want the characters to be below the line i.e. $X_1+X_2=X_2$ – the 2's and 1 are subscripts. A fourth and final table will explain the codes here:

Function	**Codes**	**In Program** *(assuming printer is active)*
Superscript on	ESC S + 0 (83)	VDU1,27,1,83,1,0
Superscript off	ESC T/ESC H (84/72)	VDU1,27,1,84,1,27,1,72
Subscript on	ESC S + 1 (83)	VDU1,27,1,83,1,1
Subscript off	ESC T/ESC H (84/72)	VDU1,27,1,84,1,27,1,72

When you turn on the super/subscripts you also turn on double printing (because in this mode the characters do not come out fully first time round because of their small size) and so this must be switched off later. If my explanation earlier wasn't clear enough below is an example:

```
L.
   10 REM Switch on
   20 VDU2
   30 REM Print normally
   40 PRINT"LASERBUG ";
   50 REM Superscript
   60 REM ESC S 0
   70 VDU1,27,1,83,1,0
   80 PRINT"LASERBUG ";
```

```
 90 VDU1,27,1,84,1,27,1,72
100 REM  Subscript
110 REM ESC S 1
120 VDU1,27,1,83,1,1
130 PRINT"LASERBUG ";
140 VDU1,27,1,84,1,27,1,72
150 PRINT"LASERBUG"
160 REM Switch off
170 VDU3
>RUN
LASERBUG LASERBUG LASERBUG LASERBUG
```

Hopefully if you have an Epson and want to try to produce your own forms, etc. then above you should find enough information to get a very presentable result. The cost of an Epson isn't all that cheap – you might as well get all you can out of it and hopefully this article will go some of that way.

Paul Barbour

micronet 800 part III

The third in these articles is really the most important – a review of the whole system including software, hardware, the Micronet service, other computer services on Prestel and indeed Prestel itself. If other articles and adverts about Micronet has got you interested then please if you read no other articles, read this one.

So how do you join Micronet 800? Well, after getting an application form (from the address below) you pay £59.74 for the hardware and software (£49.00 hardware/software, £2.95 postage and packing and £7.79 VAT). Then you sit back and wait. The form you have actually filled in is a joint application to (i) join Prestel and (ii) join Micronet.

Your Micronet system will come to you in two parts. From the reports we have been getting the delays at present is with hardware, more of this in a moment.

One very important thing you should remember is that Micronet 800 is a part of Prestel, not the other way around. The entire Prestel service offers over a quarter of a million pages and Micronet just provides a fraction of that although this fraction is aimed at the micro user.

The part of your system you are likely to get first is the Prestel part – your two identity numbers. Every user of Prestel has two numbers – a ten digit code called your customer identity and a four digit code called your personal password. The first number is the code given to you which you will keep forever. When you log onto Prestel this is the first code you have to enter so that Prestel can identify you as a subscriber and not a non-subscriber trying to take a crafty look at their pages. These numbers will arrive on their own from Prestel and you are warned strongly to keep them to yourself.

Eventually you will get the second part of your system – what is called the Networking Interface. This comes in a black box 8" x 12". Now you have all you need to get you working, hopefully. I say hopefully because you should be using a standard telephone for it to fit in the modem. A special version is available for the "Trimphone" but if you have one of these fancy telephones then it will not fit into a modem. Also if you have a shared line you would have to get that altered.

In the box you get:
(i) The Acoustic Modem
(ii) A Power Pack for the Modem
(iii) A Connecting Lead (RS232-RS423)
(iv) The Terminal Software
(v) An Instruction Manual
(vi) A "Welcome To Micronet" Pack containing an introductory letter, a copy of the Micronet newsletter and a "map" showing you many of the pages. The Micronet newletter also has a directory of the Micronet page numbers in it.
Adding this to the Prestel material consisting of:
(vii) A sheet containing your account numbers, the computer phone numbers and your personal numbers
(viii) A "Welcome To Prestel" Pack containing five information sheets called "Before You Use Prestel/Micronet", "How To Use Prestel", Getting The Best From Prestel", "Paying For Prestel" and "Problems?", The Prestel User (containing How To Use Prestel, a directory of all the subjects on Prestel and a directory of all the IP's) and Viewdata and TV User which is a news magazine all about Prestel/Teletext, etc..

So now you go about connecting up the system. The first problem here might be about power. You might have (i) Computer, (ii) Cassette Recorder, (iii) TV/Monitor, (iv) Printer, (v) Disk Drives (other companies, not Acorn's) and (vi) Micronet. This means you might need six power sockets!!! I normally use a 4 way gang socket as do a large number of people but with six sockets needed you might want to think again. So once you have got as far as having everything plugged in your next problem is to plug is the lead. The end into the modem is simple, the problem comes when trying to plug the RS423. If you take a look at the socket you will see that it is extremely easy to get the lead plugged in the wrong way in which case no data will get through. In the socket on the end of the lead there is a notch taken out of one side – this should be facing downwards.

Step 3 is to load in the terminal software. This is recorded on tape at 300 baud only which means you have to wait a while before it is loaded in. Ideally you should make a back up copy of the software at 1200 baud and load this in instead. You don't have to worry about finding out all the locations using*OPT1,2, etc. as the back of the manual tells you all you need to know to make the copy.

The program actually loads in four parts and the last part is specially configured for whichever operating system you are using (although with the 1.2 ROM offer on the back page you all have no reason for not having the series 1 OS!). When you first load the program it is configured for OS 0.1 – if you have a series 1 OS you can simply alter the program to work with this system. You can re-save the program with the alteration already made if you so wish.

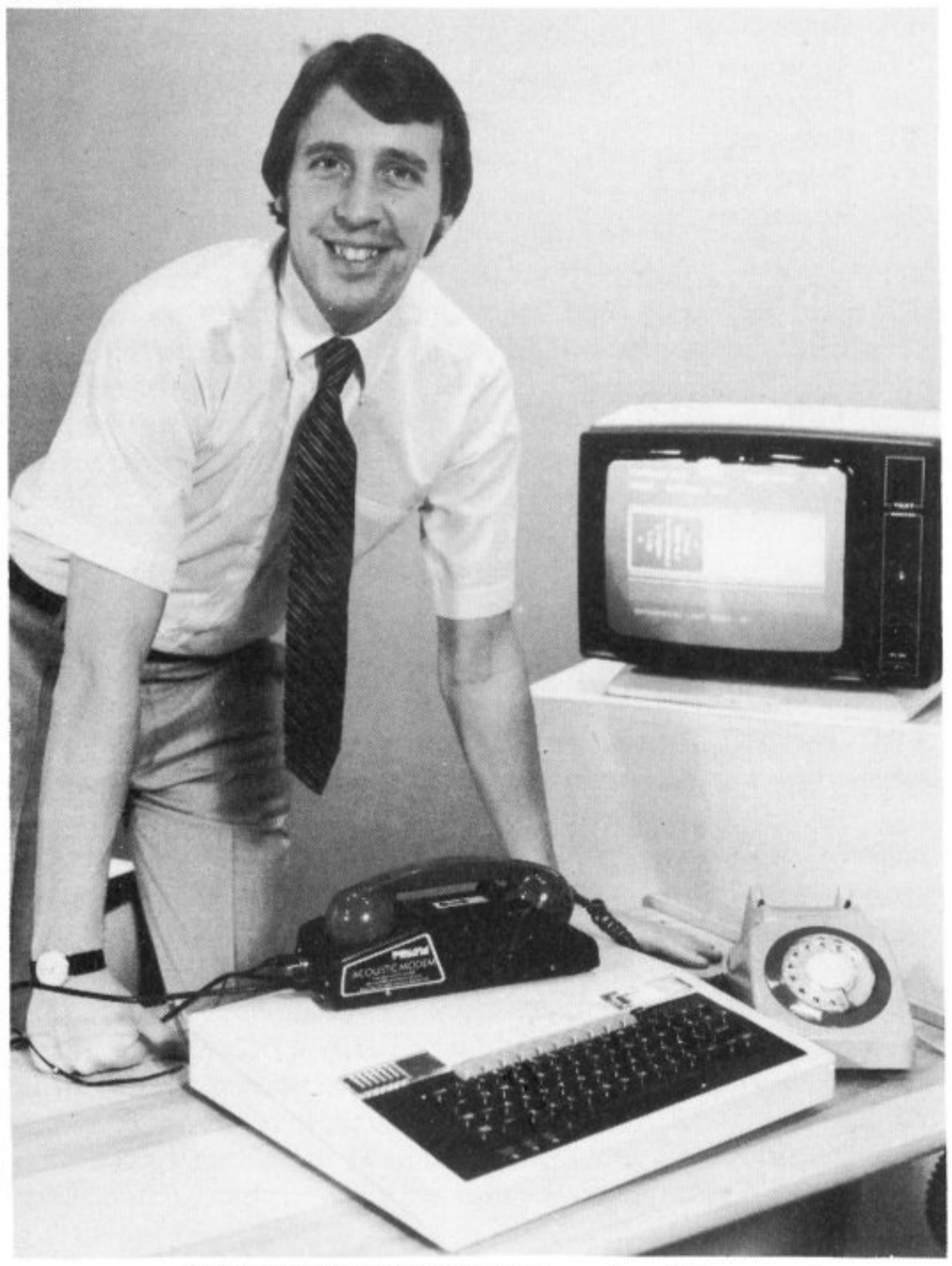
We should emphasise the point here that although the modem works through the RS423, it is still compatible with OS 0.1. You may know that normally the RS423 can send data but can't receive it. This is only a software fault (corrected on the series 1) and the program automatically takes account of that fact. So you have a program working just waiting for a connection. The next stage is to bring the phone to your micro which might prove a little difficult. The lead on the modem isn't much longer than 1m so that can't be very far away from your computer which means either you set up your computer near your telephone or make sure your telephone can reach over to the computer. I just happen to have a 14' telephone cord so personally I didn't have much problem.

To get through to Prestel you have to dial up one of the computers. There are Enterprise, Derwent, Dickens, Dryden, Keats and Kipling. The main computer is Enterprise but you use whichever is closest to you to cut down on phone bills. You are told which computer/s you can use from Prestel along with their phone numbers. The only difference between them is that Enterprise is the only one on which you can use the electronic mail facility.

Dialing up the computer may sound easy but unfortunately it isn't quite as simple as that. For you to be able to get Micronet/Prestel properly you need a good phone line – if you get a line with the slightest crackle then the data will come down the line garbled and you will just get nonsense on your screen. During our tests we found that:
50% of connections were too bad even to get connected
30% of connections were good enough to get connected but once on-line, the line was too bad to receive each screen properly.
20% of connections were fine.
This means in short that if you dial up Micronet/Prestel out of ten calls, five of them will be too bad to get anything to work, three calls will be too bad to be able to get a readable page and only 2 calls out of 10 will be OK to use. These statistics aren't a reflection on the Micronet hardware we should point out but on British Telecom's phone lines. This 1 in 5 success rate is rather upsetting when you first use the system but is something you soon get used to. If you try to use a computer out of your area (i.e. if you are up in Scotland and try to dial up the London computer Enterprise for the Electronic Mail service) the success figures are likely to be much worse.

Once you have got a decent phone line and typed in your two numbers you are on-line to Micronet/Prestel. The first number is the ten digit one described earlier. Once you have entered that you are on-line to Prestel, well almost. Next you have to enter a four digit code. This is initially selected for you but afterwards can be changed as often as you like. The idea is that if anyone should discover your first code number, they still need your second number to be able to use the system properly. Being able to change the second number at will provides you with that added security.

So now you're on-line and should be looking like Richard Hease below:



RICHARD HEASE *Managing Director of Micronet 800 On-Line*

Just a brief word about one of the facilities of the software – there is a built in facility to dump screen pages out onto any printer connected to the parallel connector however when using this any graphical characters, etc. come out as =. Hence the following dumps might look a little odd.

OK, so when you're first on-line you are presented with a main index looking something like:

```
MICRONET 800 (C)              60000a          Op
   NON_SUBSCRIBERS GOTO 4 TO JOIN!

  ========================    SPECIAL
  ========================    HELP
  ========================    MENU:
  ========================    GOTO 01
  ========================    FROM
  ========================    ANY PAGE
=============================================
11 WHAT'S NEW FOR YOU TODAY     TALKING
12 FULL FEATURES ON MICRONET    BACK
13 PROGRAMS YOU CAN LOAD NOW    GOTO:2
14 LATEST MICRO NEWS  ==================
15 MICRO FACTFINDER      MICRONET'S OWN
16 MICRONET AT HOME      GATEWAY:GOTO 3
17 MICRONET EDUCATION ==================
18 MICRONET BUSINESS      PRESTEL MAIN
19 BIG BROTHER            MENU:GOTO 9

          SINCLAIR COMPUTERS _ GOTO 8
```

Let us suppose we wanted to download the program REPEAT from a past issue of LASERBUG. Well, from this menu we would want to look at the full features page so we enter 12 and are presented with:

```
MICRONET 800 (C)              60003a          Op
  FULL FEATURES _ A MENU SPECIALLY TO
  HELP YOU ON YOUR JOURNEY IN MICRONET
  GOTO
 11 Advertisers' A_Z     35 Computermart
 12 How to advertise     36 Comp. results
 13 Aladdin's Cave       37 Diary
 14 Agony Aunt           41 Education
 15 A.L.C.C              42 Ed.Exchange
 16 Apple Microbase      43 Free t'software
 17 Apple (U.K.)         44 Games t'softwre
 18 Armchair shopping    45 Games on screen
 21 B.A.S.U.G.           46 Games _ prizes
 22 BBC Microbase        47 HELP,t'software
 23 Benchtests           48 HELP messages
 24 Big Brother          49 HELP database
 25 Business Micronet
 26 Buyers Guides        ==================
 31 Classifieds            Software.....
 32 ClubSpot               Hardware and
 33 Commodore B.M.         much more GOTO £
 34 Cm'dore Microbase    ==================
  Telesoftware GOTO 9 Mailbox GOTO 8
```

We are interested in BBC Micro programs so we can enter 22 which gives us:

```
MICRONET 800 (C)          60011012a     Op
========== MICRO BASE:BBC ==============
    ================== ============
    THE=============    MICRO =======
    ================== ============
    ================== ============
=============================================
  Here is our special guide to the full
  information on MICRONET for BBC users
GOTO
 10 Latest news of hardware and software
 11 Programs you can LOAD now!
 12 Comparison chart with other micros
 13 Published reviews and tests

 15 User Groups to help you
 16 Send us a story,hints and tips
 17 Software directory
  To MICRONET main menu - GOTO 9
=============================================
   WHERE TO GET YOUR BBC _ GOTO 7
=============================================
```

We want to download programs and so enter 11:

```
MICRONET 800 (C)          6006111a      Op
==========TELESOFTWARE=LIBRARY==========
      ==============================
  THE================MICROCOMPUTER
  = ==============================
    ==============================
    DON'T FORGET THAT YOU CAN JOIN:
    The Laserbug BBC club _ Goto 5

    Disc Users Warning:GOTO ff

    New programs this week  Goto £
    Free programs           Goto 1
```

```
    Games programs              Goto 2
    Education programs          Goto 4
    Various Utilities           Goto =

    To BBC Micro Base           Goto 8
    Other home/hobby info       Goto 9
=========================================
 BBC Computer Literacy Scheme _ GOTO 7

=========================================
```

All of the LASERBUG programs on Micronet are free so we can enter 1 and get the message:

```
 Aladdin's Cave              70037a          Op
    FREE TELESOFTWARE ON MICRONET 800
=========================================
BBC MICRO Program Library
=========================================

GOTO
11 Design & Development

12 Games

13 Education

14 General

15 Children's


GOTO 2 Hints and tips about downloading

GOTO 9 For BBC telesoftware library
free telesoftware ============ =======
============ free telesoftware  ======
```


REPEAT is a game and so pressing 12 gives:

```
 Aladdin's Cave              700372a         Op
  £ FREE TELESOFTWARE ON MICRONET 800
=========================================
GAMES PROGRAMS - BBC MICRO
=========================================
GOTO
11 Pontoon              23 Madlib1
12 Crigon               24 Guess *
13 Artillery
14 Bazooka
15 4 in a Row
16 Oxygen
17 Repeat
18 Bomber II
19 Scamper

21 Adventure
22 Mastermind

* Latest additions
Goto 9 for free BBC Program Library
free telesoftware ============ =======
============ free telesoftware  ======
```

REPEAT is number 17 and so entering this leads you to:

```
 Aladdin's Cave              70037440a     Op
    FREE TELESOFTWARE ON MICRONET 800
=========================================
 BBC MICRO Program
=========================================

 NAME: Repeat

 AUTHOR: Paul Barbour

 SUPPLIER: Laserbug

 DOCUMENTATION: Contained within the
 program



 Goto £ to continue
 Goto 9 for free BBC Program Library
 free telesoftware ============ =======
 ============ free telesoftware  ======
```

Pressing £ would have taken you further giving instructions and finally a page to enable you to download the program into your computer.

If you looked carefully earlier you would have seen that there were several ways to get to the program but whichever way I'd chosen I still would have gone through a cascade of menu's. Once you are on Micronet you can get literally to anywhere by going through these different menu's. The other way to get to anywhere is to enter the page number directly. For instance the BBC Telesoftware index is on page 6006111 – to get directly to this you would have had to enter *6006111 £ and you would have gone directly to this section bypassing all those other pages.

The best way to describe Micronet is a teletext computer magazine. Half of the full index is shown above, the other half is:

```
MICRONET 800 (C)            60003b          Op
  FULL FEATURES _ A MENU SPECIALLY TO
  HELP YOU ON YOUR JOURNEY IN MICRONET
  GOTO
11 Hardware guide     33 Send programs
```

```
12 I.C.P.U.G.          34 S'ware business
13 Industry s'ware     35 S'ware educate
14 Interactive M'net   36 S'ware guides
15 Jargon              37 S'ware personal
16 Letters             41 SPECTRUM M.base
21 MAILBOX             42 Talking back
22 Microbase           43 Teach basic
23 Micro Reviews       44 Teachers guide
24 Prestel             45 Teleshopping
25 Prize Games         46 Telex
26 NEWS _ Latest       47 TRS 80 M'base
27 News by micro       48 Vote
28 News _ sources      49 ZX '81 M'base
29 News _ T'software
31 News _ what's new     Directory
32 RML 380Z              refresh
                         GOTO *£
        TELESOFTWARE _ GOTO 9
```

You can see that there is quite a lot here especially when you consider that each page you chose might lead you to a further 15 pages or whatever.

At the moment what is on the system is good but the main point there is what is on the system. Micronet is fairly new – at the time of writing this article it had been up and running for 20 days. Because it is new a number of the features which could be there either aren't at all or just say something like "on-line soon" or coming "**th *****". There is quite a lot already here but that is nothing compared to what will be there. By the time you are reading this Micronet would have got a lot further forward and have a lot more information on it.

The introduction of Micronet 800 has proved quite a change on Prestel and the way certain parts of it are run. It has also caused a lot of resentment. Before the introduction of Micronet, Micro users could download any program on Aladdin's Cave for nothing. There was a good deal of telesoftware there in the first place and anybody who subscribed to Prestel could access them. Now with the Micronet these pages have been closed off to the normal user and only Micronet members can access these. Hence the rest of the people who used to access Prestel have now had a good source of telesoftware taken away from them. This is what has upset people and in particular another IP called Viewfax 258.

You see, Viewfax has been doing for a long time (although on a smaller scale) exactly what Micronet is doing now.

```
V I E W F A X  258       258200a       Op
   ================================
   = =======MICRO=MAG===== 20/03/83  =
   = ================================ =
   = ================================ =
   = ================================ =
   ================================
         ALL OUR PAGES ARE FREE

=======================================
Key for:
 1  Latest News          91 ZX Index
 2  Viewfax fun          92 Apple Index
 3  Mode 7 art           93 Acorn/BBC Index
 4  Client Index         94 Our Address
 5  Clubs & Groups       95 Our Rates
 6  Sales & Wants        96 What's New
 7  Adaptor bargains     97 Thank you !
 8  Telesoftware         99 2 Hour Micro
 £  Numbers etc              prog from BBC
    SPECTRUM TELESOFTWARE - KEY 98

          0 Front Page
```

The difference is that whereas you have to pay a subscription charge to Micronet, all of the Viewfax 258 pages are free to everybody. To date I have found more "newsworthy" items on Viewfax:

```
V I E W F A X  258       25829001a     Op
 ========================= ============
 ========================= =========
 ========================= =========
 ========================= =========
 ========================= ============
  NEWS/INFO === UPDATED 20/03/83
 Key for

J 11  2 Hour BBC Micro special
  13  More BBC Micro magazines
  14  Telesoftware Index
  15  "Picture" telesoftware
  16  No "Mode 7" on Electron
  17  Beebug jobs worth £32,000
  18  BBC Software Piracy
  19  New games for Model B
  21  BBC Micro Software from Bug Byte
  22  Bug Byte software for Acorn Atom
  23  Telesoftware terminal review
  24  New BBC telesoftware format
  25  Torch to sell U.S. Prestel
   0 Micro Mag              9 Front Page
```

than on Micronet:

```
MICRONET 800 (C)          6001212a      Op
   H=E=R=E==I=S==T=H=E==B=B=C==N=E=W=S=

   From BBC Micro User Magazine ...

GOTO:_                                To BBC
11 New BBC Micro User mag!            technical
12 Alternative disc drives            MicroBase
13 Big production number              GOTO 8
14 Operating upgrades                 All other
```

```
15 School applications          micro news
16 Acorn's busiest month?        GOTO 9

 All the news here on          ============
 Micronet 800 is updated       ==GOT=A ====
 throughout the week. So       ==STORY= ===
 new stories appear day-       = FOR US? ==
 by-day: don't miss any!       = GOTO 7 ===
                               ============
=====================================
   B B C   Micro   User   Magazine !
=====================================
```

Don't get me wrong either way – I think that both Micronet and Viewfax are very good. Micronet is THE service for home computing without a doubt but then again all its energies are channelled into this area and it should be good. Viewfax is involved in several areas and its home computing pages which have been going for a long time provide a good and reputable service. You can't help feeling sorry for Viewfax.

Generally when I get on to Prestel to look at Micronet I always seem to take a look at Viewfax as well. The Viewfax service isn't anywhere as near as comprehensive but then again it doesn't try to be. It is well worth looking at providing both a news service and telesoftware programs.

When you get on-line to Micronet you should remember as I have said several times before that in actual fact you are on-line to Prestel which Micronet is a small part of. The main index to Prestel is shown below:

```
P R E S T E L                40a                Op
  Main Index

 ===================================
 1 SPECIAL FEATURE      LIMERICKS...
   Compose your own poem,hours of fun
   with 'Lord Byron' limericks
 = ===================================
 2 INFORMATION News & Weather,Amusements
   Buying & booking,Travel,Sport,Advice,
   Whats On,Advertisements
 3 BUSINESS Stocks & Shares,Commodities,
   Securities,Exchange Rates,Govt.info,
   Company Accts,Shipping
 4 LOCAL INFORMATION By town & by region
 5 ALPHABETIC INDEXES to subjects & IPs
 6 WHAT'S NEW            == MARCH 18th
 7 TALKING BACK TO PRESTEL Mailbox,
   Teleshopping & other message services
 8 INFORMATION FOR PRESTEL USERS
  ==================================
 9 MICRONET 800 Telesoftware,news,views
   & products for microcomputer users
```

which leads you onto so much information it hardly bears contemplating. Literally if you think of any subject under the sun from Abu Dhabi to Yachting there will be something about it on Prestel. It really is a massive database.

Anyway, back to Micronet itself. The whole system is very easy to use and the terminal software is well written. It provides many facilities which roughly are:

(i) Call Micronet/Prestel
(ii) Go straight to the Telesoftware Index page
(iii) Go straight to the Micronet Index
(iv) Go straight to the Micronet Help page
(v) Repeat the last frame (in case the screen was garbled due to bad line noise)
(vi) Update frame (to include any new information)
(vii) Reveal frame (to display any hidden information i.e. the answer to a puzzle)
(viii) Conceal the hidden parts again
(ix) Download a program from Micronet
(x) Save the program onto tape
(xi) Run the program just downloaded
(xii) Leave Micronet
(xiii) Hold frame (to temporarily leave Micronet)
(xiv) Execute a single line in the program (allows you to load and look at non-BBC Programs **IF** you have a series 1 OS)
(xv) Print frame (dump the screen to the printer remembering that all graphics characters, etc. come out as =)
(xvi) Save the current frame to tape
(xvii) Load a frame from tape

It takes a little getting used to the layout but once you have the hang of it it is really simple – I tried out the system on people ranging from my younger brother to grandfather and all managed to use Prestel easily.

So far I have written rather a lot so I think it's time I started summarising up. Micronet 800 provides a very good service for all home computer owners. The first home computer that could access Micronet was the BBC and so that is featured a great deal. Micronet provides a good news and telesoftware service. A number of free telesoftware programs are available (a large number of which are supplied by us) as well as a large database of programs which you can load at a cost. This is normally about two-thirds of what you would pay if you bought the programs over the counter. As well as this, Micronet provides a good deal of other information on all aspects of computing. The whole system is best described as a giant interactive computer magazine.

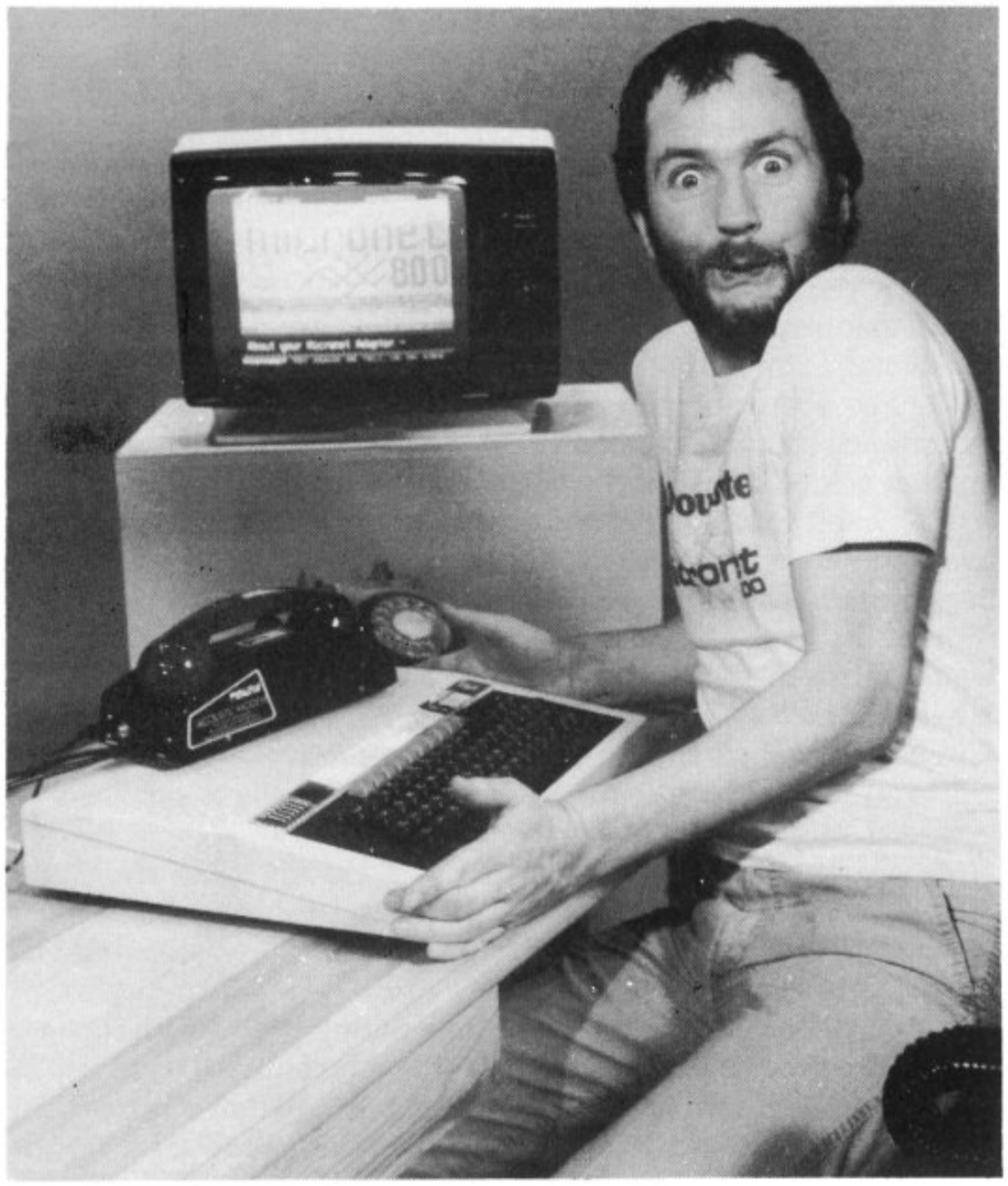
Not only is the Micronet service good but there are a number of other things on Prestel. Of direct interest to Micro users, Viewfax 258 also provides a lot of info. Also the Prestel database as a whole has so much information on it and on so many different topics that it is just impossible to describe.

And what does it cost I hear you all asking. Well, it isn't quite as cheap as the glossy adverts make out. The actual initial cost of joining Micronet is £59.74 which includes all the hardware and software. This price is only guaranteed for the first 10,000 subscribers. You should realise that this £60 price is a very, very good bargain. The closest modem that we could find to compare with the one Micronet supply costs £160. On top of this you have to add the costs for the software, say £10. This means you are getting £170 worth of goods for £60!!! Micronet are subsidising the first 10,000 users by a large amount as you can see so if you are interested it is worth getting in early. My personal thoughts would be that the first 10,000 users won't be reached until probably Christmas so I don't think you have to rush too much but you never know?

OK, so you've bought the system – what next? Of course all the time you're using Micronet you are actually making a phone call (all be it a local one normally) and so you get this bill. The phone charges are just taken as part of your normal phone bill. **IF** you use Micronet during peak times (i.e. between 8am – 6pm weekdays, 8am – 1pm Saturday) you are charged 5p/minute computer time. The idea here is to make the business users pay a lot more than the home users. So if you want to save money you should only use the system after 6pm weekdays, after 1pm on Saturdays or any time Sunday. When you think about it this cost is fair (unless you use it as part of your business in which case a travel agent who has his terminal on all day is charged roughly £150 a week plus the phone bill!)

The third normal cost is what is called a frame charge. Most pages you look at on Micronet/Prestel are free. However to look at some of them you are charged something. For instance if you wanted to play a game you might be charged ½p. Alternatively supposing you wanted to download Acornsoft Invaders which might cost £2.00 and is 8 pages long. You might be charged 25p per page which by the time you've downloaded the program is how you pay the £2.00. It is unlikely that you'll pay a charge without noticing it – one of the rules on Prestel is that if a page costs something you must give sufficient warning of how much it costs and a choice of whether to go ahead and look at it or not. A single game might only cost ½p but a child will find it very easy to notch up 50p given half an hour to himself.

The final charge is the standing charge for using Prestel/Micronet. This is £8 per quarter for Micronet and £5 per quarter for Prestel which leaves you with a bill of £13 per quarter (roughly £1 per week). It is this bill to which is added any computer connect and frame charges.



KENNY EVERETT *filling his bytes with data at the press launch*

One thing I should mention before summing up is the Electronic Mail facility. By dialling into the Enterprise computer you can actually send other Prestel/Micronet users messages and greetings cards. What you have to do is to first of all is to find out the person who you are sending the message account number (you could use either the Prestel or Micronet directory to do this). You then pick the card/enter the message and press the send key. When the other person next dials up Enterprise they will get the message "New Messages Waiting For You – Key 1" and on pressing 1 will get your message. I must just thank David Annal of the ACC whilst I'm here for his kind messages to me when he first knew LASERBUG was on line (I hope your terminal suffers from line noise too!).

I've described the system to you, told you of the costs, what else can I do? I personally think that Micronet is very good and well worth the subscription. As we are all Micro users we can all benefit from the service they provide. On top of this that provides a very cheap way of actually getting onto Prestel – I still haven't seen a cheaper way. I am convinced as you can see by the length of this article!

Micronet I think has made the Acorn Prestel receiver redundant (August I here now!) and I doubt if it will ever get made. If so it would have to have some pretty impressive features to beat the Micronet version and for anybody to buy it at the £200 mark it is rumoured to cost. Teletext is all very good and we'll be looking at that another time but due to its very nature is extremely limited whereas Prestel is not. Micronet is more expensive than the Teletext Adaptor in the long run but for the service it provides it is worth it.

I can recommend Micronet to all users of the BBC Micro without worry. I think if you do go ahead and get one you'll be as impressed as I am. Please also remember that if you do join Micronet it's not only Micronet you can look at but the whole of the Prestel service containing a quarter of a million pages. Do also take a look at Viewfax 258 as well (enter *258 #/£ to get to them) as they also provide a service well worth looking at.

You can get more details on Micronet 800 by writing to Micronet 800, Petersham House, 57a Hatton Garden, London, EC1B 1DT.

Paul Barbour

14 what graphics pack?

One of the main attributes of the BBC Micro is its extremely extensive graphics capabilities. This has of course prompted several different graphics packages to be brought out to help you get the most out of them. With as many facilities at the programmers disposal as the BBC Micro has you would think that they'd all be excellent. Were they? Predictably the answer was no. In my personal opinion the graphic powers and speed of operation makes the BBC Micro have such a huge potential in this field and I am afraid that although some of these packages we will look at are very good, none of them utilise fully the resources they have. Don't get me wrong – some of the programs below are well worth having and will take you very far, it's just that a very good programmer could take you a little further.

OK, so what are we looking at? For the purposes of this review we managed to find five different graphics packages on the market – if there are any packages that we didn't know of then our apologies. Hopefully some more packages will come on the market soon so perhaps we will be able to do a second review.

The five programs we look at cost between £7.95 and £24.95 with the manufacturers being Clares, BBC Soft, The Software House and Salamander Software.

The best way to do this review is in three stages – first a comparison table between the five programs, then an explanation of the table and finally comments on the individual programs. And so onto the table:

	BBC ARTIST	DRAWING	EDG	GRAPHKEY	PAINTING
AIRBRUSH	Y	N	N	N	Y
ARC DRAWING	N	N	Y	N	N
CIRCLE DRAWING	Y	Y	Y	Y	N
COLOUR CHANGE	Y	Y	Y	Y	Y
COLOUR LOGIC CHANGE	Y	N	Y	N	Y
CONES	N	Y	N	N	N
CROSS HATCH	N	N	N	N	Y
DOTTED LINES	Y	N	Y	N	N
FILL	N	N	Y	N	N
GRIDS	Y	Y	Y	Y	N
HORIZON	N	Y	N	N	N
JOYSTICK	Y	N	N	≠/≠	N
LINES	Y	N	Y	Y	N
LINE THICKNESS	N	Y	N	Y	Y
MODE CHANGE	Y	N	Y	Y	N
PAINTING	Y	Y	Y	Y	Y
POLYGON	N	Y	N	N	Y
RECTANGLE	N	N	Y	Y	N
RUBBER BANDING	N	N	Y	Y	N
SCREEN SAVE/LOAD	Y	N	Y	Y	N
SOLID LINES	Y	Y	Y	Y	Y
SOLID SHAPES	N	N	Y	Y	N
TEXT INSERTION	Y	Y	Y	Y	Y
TRIANGLE	N	N	Y	Y	N
VARIABLE CURSOR SPEED	Y	Y	Y	Y	Y

(≠/≠A separate program called GRAPHSTICK is available if you want joystick control only – you cannot have both with this program though.)

If just glancing at the chart gives you a headache briefly BBC Artist has 14 features, Drawing has 11, EDG 18, Graphkey 15 and Painting 10. Remember though that it's not how many features a program has that counts but which particular ones it has that interests you.

If you don't understand much about some of the terms used in the chart I will try and elaborate a bit:

Airbrush: For this your "paintbrush" becomes either a pre-defined shape (BBC Artist) or say a square of a set size (Painting). The pre-defined shape method gives you a wide variety of different "brushes". When you have picked your brush instead of drawing with lines/dots you draw using the shape you defined. This can give an effect rather like that of using an airbrush.

Colour/Colour Logic Change: A colour change is where you change what colour ink you are drawing in. A colour logic change is whether you are drawing in normal logic, OR, EOR, etc. i.e. you could then represent this as GCOLcolour logic, colour (see User Guide page 262 for more details).

Fill: The Fill command expanded could be called "fill the area determined by cursor position with a set colour up to the border of another colour". In English, supposing you had a red triangle in the top left hand corner of the screen, a green square in the bottom left hand corner, a cyan square in the top right corner and a black background. If you picked say the colour blue, positioned the cursor somewhere in the black area and pressed Fill then the computer would fill up the black area with blue going very neatly around the other shapes.

Grid: A grid is where a grid of a set size is drawn on the screen to help you judge where to draw lines, etc. Normally it can then be removed without leaving a trace behind.

Rubber Banding: Rubber banding is exactly what the name implies – you define a point and a pretend rubber band is then fastened to this point. You then control the other end which can be moved around however you want.

A comparison chart CAN be very misleading, especially if they are compiled by the makers. The chart above was compiled by us and as such is fair and does not try to show that one program is better than the others. Even though it is a true table it is fairly hard to gain much real information this way. Hence to round off we'll tell you what we thought.

Unfortunately like a lot of the BBC Soft packages the Painting and Drawing programs weren't really any match for the others and proved very cumbersome to use. This is a great pity because "the official BBC Software" doesn't match the stuff the independent companies can put out, let alone Acornsoft. We are promised some really good packages from the BBC soon and hopefully they might realise what they have got to achieve to get anywhere in this industry.

The BBC Artist program was fairly good and when it was first released was good value for money, however now it has really been superceded by the following two programs. Perhaps a re-vamped version might get my full seal of approval but . . .

So what are we left with? Well, the remaining programs are the cheapest one (£7.95) and the most expensive one (£24.95). Both of these programs are very good. Each one has features that the other doesn't but the more expensive program, EDG is the best definitely. Both of these are fairly new and are under constant development so the version you might be buying when you read this could have more features than the version we reviewed.

Graphkey certainly offers the best value for money at £7.95 and I think no matter what area you are interested in you will be pleased with this package. EDG does offer a few more features which makes it the better package but it is three times the price.

I think the average person would find Graphkey sufficient to cater for his needs. If you are likely to be doing a great deal of graphical work and would benefit strongly from the extra features then go ahead and get the EDG package.

BBC ARTIST is available from The Software House, 146 Oxford Street, London, W1 for £12.50.
DRAWING is available from BBC Soft, 35 Marylebone High Street, London, W1M 4AA for £10.00.
EDG is available from Salamander Software, 17 Norfolk Road, Brighton, East Sussex, BN1 4AA for £24.95. **RECOMMENDED.**
GRAPHKEY is available from Clares, 222 Townfields Road, Winsford, Cheshire, CW7 4AX for £7.95. **RECOMMENDED.**
PAINTING is available from BBC Soft (address above) for £10.00

Paul Barbour

Many of you may now be able to write short programs using assembler and BASIC as in the program below.

```
L.
  10 REM ***********************************
  20 REM * £ SHOULD BE A HASH (shift-3) *
  30 REM ***********************************
  40 DIM code &30
  50 PROCassem
  60 MODE2:col=1
  70 FORangle=0TO6.2STEPPI/16
  80   col=col+col:IFcol=16THENcol=1
  90   GCOL1,col:MOVE640,512
 100   DRAW640+500*SINangle,512+500*COSangle
 110   NEXT:A%=1
 120 REPEAT
 130   TIME=0:REPEATUNTILTIME>5
 140   CALLcode
 150   A%=A%+A%
 160   IFA%=16THENA%=1
 170   UNTIL0
 180 DEFPROCassem
 190 lit=&70
 200 oswrch=&FFEE
 210 FORpass=0TO1
 220   P%=code
 230   [OPT pass*3
 240   STA lit:LDX£15
 250   .map
 260   LDA£19:JSRoswrch
 270   TXA:JSRoswrch
 280   ANDlit:BNEoff
 290   LDA£2:BCCcolor
 300   .off:LDA£0
 310   .color:JSRoswrch
 320   LDA£0:JSRoswrch
 330   JSRoswrch
 340   JSRoswrch
 350   DEX:BPLmap
 360   RTS:]
 370   NEXT
 380 ENDPROC
>RUN
106C           OPTpass*3
106C 85 70     STA lit
106E A2 0F     LDX£15
1070           .map
1070 A9 13     LDA£19
1072 20 EE FF  JSRoswrch
1075 8A        TXA
1076 20 EE FF  JSRoswrch
1079 25 70     ANDlit
107B D0 04     BNEoff
107D A9 02     LDA£2
107F 90 02     BCCcolor
1081           .off
1081 A9 00     LDA£0
1083           .color
1083 20 EE FF  JSRoswrch
1086 A9 00     LDA£0
1088 20 EE FF  JSRoswrch
108B 20 EE FF  JSRoswrch
108E 20 EE FF  JSRoswrch

1091 CA        DEX
1092 10 DC     BPLmap
1094 60        RTS
```

Hopefully on running this you will see the assembler listing on the screen which should then clear and four sets of spokes should be drawn in different colours for different angles. By showing the background in green and only one set of spokes in black at any one time animation should be observed as a result of showing successive "frames" using colour switching. The purpose of the machine code routine is to cause all logical colours, except those containing the colours passed to it by A%, to be shown as green – i.e. select one frame.

The equivalent BASIC routine would be:

```
L.
  10 X=15:REPEAT
  20 - VDU19,X
  30   IFX ANDA%THENVDU0:ELSEVDU1
  40   VDU0,0,0
  50   X=X-1
  60   UNTILX<0
```

Much use is made of the accumulator for passing an argument to the VDU drivers. It will be noticed that the assembly process is performed twice, each time setting P% to point to the start of the area reserved for code, and that the OPT statement is the first inside the [at the start of the assembler code. Try leaving OPT out: you will get an error at line 240 because at this stage when you are trying to assemble "BNEoff" the computer has not come across the variable "off" and therefore doesn't understand where to branch to. Using OPT0 however, allows you to ignore the error, leaving a blank in the assembled code. Further down "off" is defined as a label so on the **SECOND** pass the value for it can be filled into the code. It is worth emphasising that since P% has the same value at the start of each pass the code resulting from the second pass will overwrite that from the first.

If you can understand this program after experimenting with it for a bit you may find it useful to look at some more. A good source is the BASIC ROMs which can be examined using a disassembler (see LASERBUG Issue 5 for our own disassembler, also written by Nick Goodwin – Ed.). Having armed yourself with a list of 6502 opcodes you may well be able to see what is going on, even if you cannot work out why anybody wanted it to.

One powerful technique used in much code of this type is known as indirection. BBC BASIC provides this with the operators "?" and "!". You may have used a program such as

```
>L.
  10 INPUTX%
  20 FORI=0TO255
  30   PRINT?I+X%,~X%?I
  40   NEXTI
```

to dump memory a byte at a time. X%?I gives the byte stored at the address obtained by adding the contents of X% and I.

The 6502 provides a way of doing this by allowing a memory pointer and the Y register to be used together to get the address of the operand e.g. LDA(&70),Y which means take an address from location hex 70, add the contents of the Y register and use the sum of the two as the address of the byte required. Unfortunately the memory pointer must be on "zero page", locations &0–&FF and only &70–&8F are free for our assembler programs, but it is still a useful feature. To use it remember that to store its lower eight bits at that address but the top eight bits at a byte one higher up in memory e.g. ?&70=&35:?&71=&2 stores the address &235 at hex 70.

Try this program and see what it does. You may be able to work out why.

```
>L.
  10 DIM P%-1
```

```
20 [.start
30 LDY£0
40 .loop
50 LDA(&70),Y
60 STA(&72),Y
70 INY:BNEloop
80 RTS
90 ]
100 ?&71=&7F:?&70=0
110 ?&73=&7D:?&72=&EA
120 CALLstart
```

Nick Goodwin

micronet 800 part IV

To round off this series of Micronet articles we'll just take a look at what LASERBUG is offering on Micronet.

At present there are three things. The first doesn't really concern you. If you enter *60061120♯/≠ you will find a number of pages all about LASERBUG:

```
MICRONET 800 (C)          60061120a     Op
    ==============================
    THE============    MICRO========
    ==============================
    ==============================
LASERBUG:LASERBUG:LASERBUG:LASERBUG:LAS
========================================
LASERBUG is a User Group for the BBC
Micro & Acorn Electron. Every month we
produce a magazine about these compu-
ters plus news of meetings, and members
-only special offers.
LASERBUG began in February '82.The idea
came from Trevor Sharples who had been
involved in the early days of the ZX
User Group Interface and had co_written
a book on the Acorn Atom. Gathering a
small team around him the London and
South East Region BBCmicrocomputer User
Group was set up _ hence the name
LASERBUG. In April '82 the first news_
letter came out.This was the first...
  Micronet Club Spot GOTO 1  more:£
```

This is basically to attract more members but even so makes interesting reading. Secondly most of the programs from back issues of LASERBUG are on Micronet in the form of telesoftware. If you want a program from one of the back issues you simply have to dial up the correct page and you can load in the program there and then. You can get to the main index for free telesoftware by entering *70037♯/≠:

```
Aladdin's Cave                70037a      Op
    FREE TELESOFTWARE ON MICRONET 800
========================================
BBC MICRO Program Library
========================================

GOTO
11 Design & Development

12 Games

13 Education

14 General

15 Children's

GOTO 2 Hints and tips about downloading

GOTO 9 For BBC telesoftware library
free telesoftware ============ =======
============== free telesoftware  ======
```

The only other part of Micronet/Prestel you can use to do with us is the electronic mail facility. If you want to send us a letter or anything simply use our mailbox number 919991005 and we'll get back to you as soon as possible. Alternatively we will accept orders for goods via the mailbox. We cannot accept orders on credit card but if you let us know what you want we'll have the goods mailed onto you with an invoice for the amount.

```
P R E S T E L                100102a      Op

PAUL BARBOUR
LASERBUG
10 DAWLEY RIDE
COLNBROOK
SLOUGH
BERKS   SL3 OQH
MON 21 MAR 1983 20:38:48

  Your PRESTEL account number is

        919991005

Please note this number.  You will
need to quote it whenever you make
a billing or service enquiry.

 Key *0£ for main Prestel index.
```

The other service we will be offering still has to be arranged. What we will be doing is a mini-LASERBUG on Micronet. We would be pleased to receive ideas on what you'd like to see here but more details on this in the next magazine.

Let us have your feedback on Micronet either by letter or electronic mail. I'll see you on-line . . .

Paul Barbour

businesspot – coding pt II

You remember last month we explained how you could code your own items e.g. your stock, your record collection or whatever. This month we will try to expand on that idea.

To remind you the example we were using was coding a collection of miniature trees. We used an 11 digit code in which the first 5 digits represented the number of the tree, the next whether it was deciduous, evergreen or unknown, the following two the month the tree started, the next two the year and the final character whether the date was exact or an approximation.

As we are going to manipulate the data we need some to start off with so enter the following listing:

```
>L.
  10 REM Array Fill
  20 amount%=10
  30 DIM code$(10)
  40 FOR data%=1 TO amount%
  50   READ code$(data%)
  60   NEXT
  70 END
  80 :
```

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The Computer Programme II – Making The Most Of The Micro
Presented by Ian McNaught Davis
With Ian Trackman
Produced by David Allen
Episode III – Strings and Things

This episode opens by showing a town called Glastonbury which used to be the centre for a healthy printing industry. A local authoress wants a press release made up but the normal costs of getting a manuscript set into type is expensive and time consuming. She takes the manuscript to a local firm just set up which relies on the microcomputer.

Her typed manuscript is typed fed into the micro by using an optical character reader thus doing away with the need of re-typing. A spelling program is run through the text enabling any arrors to be weeded out. The sizes and styles of the final print are chosen and certain words are emphasised. Once the text is perfect it is sent directly to a phototypesetting machine. Finally back at the studio we are shown the finished product.

Computer in hand, Mac tries to get over the difference between numeric and string variables by setting up a numeric variable, adding to it and then trying a string variable and see what happens when you try adding one to that! How you can "add" strings is shown as well. The string facility is put to real use in a simple program to test to see if the entered word is palindromic (i.e. reads the same backwards as forwards).

We move onto another BBC Computer which is running VIEW, the Acornsoft wordprocessor. The set up is computer (with VIEW), monitor, single disk drive and daisywheel printer. A letter is loaded in from disk. Some parts are overtyped, the replace facility is used, a line added, a paragraph moved, the text justified, the letter saved on disk and finally printed out.

A ZX Spectrum and printer is shown working as "when you're writing a program you can get away with something a little less expensive".

"Well, so far we've only been looking at the principles of writing short programs" Mac says, "but when you write longer programs not only is a printer almost essential but there are some new techniques to be learnt." He is, of course, talking about how when you write a program you have to break down what you want to do very precisely.

We move outside to a Presto supermarket as an example of this. "Imagine writing a program for a computer controlled robot to do exactly the same thing. The actual actions that you go through within the store would have to be broken down into very, very carefully defined procedures . . . " (notice how that word just happens to slip in neatly) " . . . and the robot would have to know exactly what steps to do, to do things that you in your shopping trip take for granted." Mac describes a PROCedure where you buy an item on the basis of unit cost. Other PROCedures are described i.e. to buy three of something, to buy something to a fixed weight limit and picking the best checkout lane in the shop. "One things absolutely for certain" Mac rounds off "it'll be a long time before you see any damned robot able to do it" and by way of perfect timing Marvin (of Hitch Hikers Guide To The Galaxy fame) walks past!

For the final scene it's back to the studio. We see Mac playing a computerised game of patience written by Ian Trackman who wrote most of the software both in this and the last series. Ian says that there are three parts to writing a program – analysis, design and coding. A listing is shown of the Patience program to emphasise the use of PROCedures.

A good and a bad program is shown – the good one being well presented in looks and being very structured in code. The bad is poorly presented and its listing is quite simply a mess.

The third episode brought us deeper into the principles of programming without going too deeply into the actual nuts and bolts of it. You were shown the differences between string and numeric variables but weren't shown in depth how to us them, you were shown the principle of breaking down a program into short steps – PROCedures – but again weren't shown in detail how you go about putting them in your program. I feel this is exactly what the program should be doing – explaining about the subjects without going into the technicalities of it which would make poor television. A good program on the whole – a look at episode four next month . . .

Paul Barbour

LANGUAGE PROGRAM: r q Forth
REQUIRES: 16k
SUPPLIER: Level 9 Computing, 229 Hughenden Road, High Wycombe. Bucks., HP13 5PG.
PRICE: £15.00
REVIEWER: Nick Goodwin
DESCRIPTION: For your money you get not only a very good implementation of the popular FORTH language but also a 72 page manual. If you are an absolute beginner at FORTH you may also need a book such as "Starting FORTH" (by Leo Brodie) or the Acornsoft book on the language, but once you have got an idea of the fundamentals you should get better value out of this pack than virtually any other program you could buy. In fact, the only reason I can think for not buying this cassette is that you may already have a version of FORTH! My only criticisms are the lack of instructions for the complete beginner and the slightly cumbersome filing system. It would really be better on a ROM, thus freeing valuable graphics space as well.
PRESENTATION: ***
ADDICTIVE QUALITY: ******
VALUE FOR MONEY: *****

UTILITY PROGRAM: FORTH Toolkit
REQUIRES: 32k, r q FORTH
SUPPLIER: Level 9 Computing (address above)
PRICE: £10
REVIEWER: Nick Goodwin
DESCRIPTION: Level 9 promise to support r q FORTH and this pack proves it. It provides the source code for all sorts of useful routines and examples of how to program in FORTH. With so much on one cassette it would be good value at twice the price. It includes a macro assembler, a turtle graphics package and a version of the Towers of Hanoi problem that some may have seen implemented in BBC BASIC. My short acquaintance with the pack lead me to believe the quality to be more than adequate offering good examples of FORTH programming and if you don't like it use the screen editor to change it to give you more practice.
PRESENTATION: ***
SIZE: About 20k in blocks
VALUE FOR MONEY: ****** (Yes, 6 out of 5!)

UTILITY PROGRAM: Disassembler
REQUIREMENTS: 16k (?)
SUPPLIER: Simonsoft, Front Street, Topcliffe, N. Yorks., YO7 3RJ
PRICE: £6.95
DESCRIPTION OF PROGRAM: If there are two types of programs that you can guarantee coming out for any type of home computer one is games, the other is a disassembler. After a while you have used all the words up to talk about disassemblers and are left with either saying whether the program is good or bad. This program is one of the former, good. The function keys are used to good effect making this a worthwhile program to bite at the bytes (apologies for the pun) in your computer.
PRESENTATION: ****
RESPONSE SPEED: ***
USEFULNESS: ****
LOADING PROBLEMS: No
VALUE FOR MONEY: ***

We would like to thank Level 9 and Simonsoft for supplying us with review tapes. Thanks also to Nick Goodwin for the FORTH reviews.

Arcade game high scores

We seem to have started something here. Almost the day after you received the last issue we started having hi-scores sent to us. The current list of hi-scores appears below. If you can beat any of the scores below let us know but please (i) have a witness sign the letter and (ii) let us know roughly how long the score took you to get.

Arcadians (1)	16010 (15 Mins)	Ian Cook
The Frog (2)	15 050	LASERBUG

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continued from page 16

```
   90    :::::
  100 :
10000 DATA"B1001D1079A"
10010 DATA"B1002D1080A"
10020 DATA"B1003D1282E"
10030 DATA"B1004U0183E"
10040 DATA"B1005E0378A"
10050 DATA"B1006E1077A"
10060 DATA"B1007E0273A"
10070 DATA"B1008D1080A"
10080 DATA"B1009U0283E"
10090 DATA"B1010E1074A"
>REM Number
>PRINTLEFT$(code$(1),5)
B1001
>REM Type
>PRINTMID$(code$(1),6,1)
D
>REM Month
>PRINTMID$(code$(1),7,2)
10
>REM Year
>PRINTMID$(code$(1),9,2)
79
>REM Accuracy
>PRINTRIGHT$(code$(1),1)
A
```

By using string handling commands we can dissect each code into its individual parts (see above listing briefly or for fuller details of string handling see String, String, String in LASERBUG Issue 6, November '82 pages 16/17).

The main thing we are going to want to do with the codes is interogate them to find a certain code. You don't have to get a hard chair, a bright light and cheap cigarettes to do this – just a bit of neat, structured programming.

There are five different parts to our code and we will try to get information out using each different section. Firstly the numbers. If you want the code on tree number 7 you don't have to search through all the info until you find the first five characters equal to B1007 – because of the way we have arranged things all you need do is PRINTcode$(7) and that will give you the answer.

Supposing you wanted a list of all the trees you hadn't managed to classify – you need to search for the sixth character and print out the codes when this is equal to "U". This is simple to do:

```
>L.70,140
   70 :
   80 FOR data%=1 TO amount%
   90   IF MID$(code$(data%),6,1)="U" THEN PRINT code$
(data%)
  100   NEXT
  110 END
  120 :
  130    :::::
  140 :
>RUN
B1004U0183E
B1009U0283E
>
```

OK, supposing we want a list of the trees that were started between January and April of any year:

```
>L.70,150
   70 :
   80 FOR data%=1 TO amount%
   90   month%=VAL(MID$(code$(data%),7,2))
  100   IF month%>=1 AND month%<=4 THEN PRINT code$(da
ta%)
  110   NEXT
  120 END
  130 :
  140    :::::
  150 :
>RUN
B1004U0183E
B1005E0378A
B1007E0273A
B1009U0283E
```

Let's try to look at two things at once now by getting a list of trees that started in October earlier than 1978:

```
L.70,160
   70 :
   80 FOR data%=1 TO amount%
   90   month%=VAL(MID$(code$(data%),7,2))
  100   year%=VAL(MID$(code$(data%),9,2))
  110   IF month%=10 AND year%<78 THEN PRINT code$(dat
a%)
  120   NEXT
  130 END
  140 :
  150    :::::
  160 :
>RUN
B1006E1077A
B1010E1074A
```

We might as well utilise the last character as well. We'll have a list of trees that we know were definitely started this year:

```
>L.70,160
   70 :
   80 FOR data%=1 TO amount%
   90   year%=VAL(MID$(code$(data%),9,2))
  100   accuracy$=RIGHT$(code$(data%),1)
  110   IF year%=83 AND accuracy$="E" THEN PRINT code$
(data%)
  120   NEXT
  130 END
  140 :
  150    :::::
  160 :
>RUN
B1004U0183E
B1009U0283E
>
```

Now I suppose at this stage I should make a few things clear. Firstly I am not suggesting that you hold all your information in data statements at the end of the program (although some commercial programs have been known to do this!!!) – this is an extremely inflexible method. In real life you would keep all the information file, be it cassettte or disk. You also wouldn't have just 10 records, probably a few hundred or maybe even a few thousand. We have just restricted ourselves to 10 items loaded into an array using data statements for simplicity.

Also the interogation of the data wouldn't be performed in the same manner – you would have to write your own custom designed program. The stages you go through are simple:

(i) Determine what piece/pieces of information we want to look at

(ii) Determine what particular case we are looking for
(iii) Look at each piece of data in turn
(iv) Get the necessary information out of the code
(v) Test to see if the case occurs
(vi) If it does print out the full code/appropriate information.

Some people like writing their own business software, some don't. The coding idea is fairly personalised i.e. one person's needs might be completely different from another's so to get exactly what you require in this field you probably will have to write your own package. Don't let this put you off – using the articles in LASERBUG on coding and a bit of neat programming you will come up with quite a presentable program.

It is surprising just how much information is held in our little 11 digit code. Try the following program:

```
L.70,470
   70 :
   80 FOR data%=1 TO amount%
   90   :
  100   REM Get out data
  110   number$=LEFT$(code$(data%),5)
  120   type$=MID$(code$(data%),6,1)
  130   month%=VAL(MID$(code$(data%),7,2))
  140   year%=VAL(MID$(code$(data%),9,2))
  150   accuracy$=RIGHT$(code$(data%),1)
  160   :
  170   REM Process necessary data
  180   ON month% GOSUB 200,210,220,230,240,250,260,27
0,280,290,300,310
  190   GOTO320
  200   month$="JANUARY":RETURN
  210   month$="FEBRUARY":RETURN
  220   month$="MARCH":RETURN
  230   month$="APRIL":RETURN
  240   month$="MAY":RETURN
  250   month$="JUNE":RETURN
  260   month$="JULY":RETURN
  270   month$="AUGUST":RETURN
  280   month$="SEPTEMBER":RETURN
  290   month$="OCTOBER":RETURN
  300   month$="NOVEMBER":RETURN
  310   month$="DECEMBER":RETURN
  320   IFaccuracy$="A"THENdate$="APPROXIMATELY":ELSEd
ata$="EXACTLY"
  330   IFtype$="D"THENtree$="A DECIDUOUS"
  340   IFtype$="E"THENtree$="AN EVERGREEN"
  350   IFtype$="U"THENtree$="AN UNKNOWN"
  360   :
  370   REM Print data
  380   PRINT"Item: ";data%;" - Code: ";code$(data%)
  390   PRINT"Tree Number ";number$
  400   PRINT"Information:"
  410   PRINT"TREE STARTED ";date$;" ";month$;" 19";ye
ar%
  420   PRINT"IT IS ";tree$;" TREE."'
  430   :
  440   NEXT
  450 :
  460    :::::
  470 :
>RUN
Item: 1 - Code: B1001D1079A
Tree Number B1001
Information:
TREE STARTED APPROXIMATELY OCTOBER 1979
IT IS A DECIDUOUS TREE.

Item: 2 - Code: B1002D1080A
Tree Number B1002
Information:
TREE STARTED APPROXIMATELY OCTOBER 1980
IT IS A DECIDUOUS TREE.

Item: 3 - Code: B1003D1282E
Tree Number B1003
 Information:
 TREE STARTED APPROXIMATELY DECEMBER 1982
 IT IS A DECIDUOUS TREE.

 Item: 4 - Code: B1004U0183E
 Tree Number B1004
 Information:
 TREE STARTED APPROXIMATELY JANUARY 1983
 IT IS AN UNKNOWN TREE.

 Item: 5 - Code: B1005E0378A
 Tree Number B1005
 Information:
 TREE STARTED APPROXIMATELY MARCH 1978
 IT IS AN EVERGREEN TREE.

 Item: 6 - Code: B1006E1077A
  Tree Number B1006
 Information:
 TREE STARTED APPROXIMATELY OCTOBER 1977
 IT IS AN EVERGREEN TREE.

 Item: 7 - Code: B1007E0273A
 Tree Number B1007
 Information:
 TREE STARTED APPROXIMATELY FEBRUARY 1973
 IT IS AN EVERGREEN TREE.

 Item: 8 - Code: B1008D1080A
 Tree Number B1008
 Information:
 TREE STARTED APPROXIMATELY OCTOBER 1980
 IT IS A DECIDUOUS TREE.

 Item: 9 - Code: B1009U0283E
 Tree Number B1009
 Information:
 TREE STARTED APPROXIMATELY FEBRUARY 1983
 IT IS AN UNKNOWN TREE.

 Item: 10 - Code: B1010E1074A
 Tree Number B1010
 Information:
 TREE STARTED APPROXIMATELY OCTOBER 1974
 IT IS AN EVERGREEN TREE.
```

So now we can see how useful codes can be and how much information can be stored in a short space. We could say have added another two digits to our code to determine what type of tree it was,

referencing the list with a look up table in the program.

Now enough of trees, lets get onto something like stock control. Supposing you do go ahead and computerise your whole stock and get somebody to type in the code for each item as it is used so you know when you need more, etc. What's to stop the person altering a number hence altering the meaning of what they've put in – you could have just used a box of floppy disks but because the wrong number was typed in your records show you've just taken a box of paper clips! Eh? I here you all say. In any system which is going to be used properly you have got to have some way of error checking.

Before I tell you how to do it, lets see the system in action. The codes we will use are ten-digits long and for reference four valid codes are 315274911, 8363917391, 8344382161 and 8747382731. Enter the following program and then try (i) entering a valid code and (ii) entering any ten digit number:

```
  10 REPEAT
  20   REPEAT
  30     INPUT"ENTER CODE ",code$
  40     UNTILLEN(code$)=10
  50   check%=VAL(RIGHT$(code$,1))
  60   sum%=0
  70   FORbreak%=1TO10
  80     sum%=sum%+VAL(MID$(code$,break%,1))
  90     NEXT
 100   check$=STR$(sum%)
 110   UNTILRIGHT$(check$,1)="0"
 120 PRINT"VALID CODE"
 130 END
>RUN
ENTER CODE ?3152747911
VALID CODE
>RUN
ENTER CODE ?8364926493
ENTER CODE ?6482748264
ENTER CODE ?9374826393
ENTER CODE ?8374926193
ENTER CODE ?8363917391
VALID CODE
>RUN
ENTER CODE ?8344382161
VALID CODE
>RUN
ENTER CODE ?9484947381
ENTER CODE ?9473926393
ENTER CODE ?9319373912
ENTER CODE ?8747382731
VALID CODE
```

You will see that the program rejects a good number of the random numbers which proves something. Firstly the program waits for the ten digit number. Then it adds up each individual digit i.e. if you entered 1234567890 it would work out 1+2+3+4+5+6+7+8+9+0. If the last digit of the total is zero then the code is considered valid, if not then it is rejected and a new code has to be entered. In real terms therefore, your code is only nine digits long with the final digit only being there to make sure that the sum is correct.

Well, last month we introduced the topic, this month we've taken it further. Hopefully now your can dissect the articles, take what you want out of them and write something for yourself to suit your own needs. As I said above it is rather hard to write a general purpose program as the exact code each person might require will be different. Assuming we can think of a good general purpose coding program look out for Softspot over the next few months.

JSBR GIM (that's Have Fun in code!!!)

Paul Barbour

The film Tron brought to light the old computer game Snake where you and the computer/another person control a snake which you must move about the screen being careful not to crash into anything.

We have called the game below Photon Cycle Duel. You and the computer each control a Photon Cycle which leaves a beam of light behind it as it moves. If either you or the computer crosses one of the light beams or hits the barriers at the edges of the screen then you de-rez – or at least that's what should happen! There is only one problem – your computer hates to lose!!! Sometimes if the computer thinks he is going to lose then he cheats a bit to help him on his way (who says computers always do what they're meant to!).

Don't be put off by this – it is still possible to beat the sly computer. To start off with you will see him repeating every move you make until he catches up to you. Once he has caught up though you stand little chance of winning. Be tricky, the symmetrical movements he makes is the key to beating him.

All necessary instructions are in the program. Good luck (you'll need it) . . .

```
L.
  10 REM   PHOTON CYCLE DUEL
  20 REM    by Paul Barbour
  30 :
  40 REM        12/3/83
  50 :
  60 REM      Version 1.0
  70 :
  80 REM Takes up ~4.54k memory
  90 :
 100 REM      Requires 32k
 110 :
 120 REM   Written on OS 0.1
 130 :
 140 REM   (c) LASERBUG 1983
 150 :
 160    :::::
 170 :
 180 MODE7
 190 VDU23;8202;0;0;0;
 200 PROCinstruct
 210 MODE2
 220 VDU23;8202;0;0;0;
 230 score%=0
 240 PROCroom
 250 PROCrez
 260 PROCpause
 270 PROCvariables
 280 PROCplayer
 290 PROCcomputer
 300 GOTO280
 310 END
 320 :
 330    :::::
 340 :
 350 DEFPROCinstruct
 360 PRINT" "CHR$157;TAB(10);CHR$141;CHR$132;"PHOTON
CYCLE DUEL"
 370 PRINT" "CHR$157;TAB(10);CHR$141;CHR$132;"PHOTON
CYCLE DUEL"
 380 PRINT'CHR$131;"     You and the computer control
 a"
 390 PRINTCHR$131;"photon cycle which leaves a trail
of"
```

```
 400 PRINTCHR$131;"light behind as it moves.  If you"
 410 PRINTCHR$131;"cross one of the beams or hit the"
 420 PRINTCHR$131;"edges of the screen then you de-re
z."
 430 PRINTCHR$131;"The same SHOULD apply to the compu
ter"
 440 PRINTCHR$131;"BUT it hates to lose and so someti
mes"
 450 PRINTCHR$131;"cheats to help itself along a bit
!"
 460 PRINTCHR$131;"Try to stay on the screen as long
as"
 470 PRINTCHR$131;"possible and attempt to make the"
 480 PRINTCHR$131;"computer crash !"
 490 PRINT'CHR$130;"Press : to move up"
 500 PRINTCHR$130;"Press / to move down"
 510 PRINTCHR$130;"Press X to move right"
 520 PRINTCHR$130;"Press Z to move left"
 530 PRINT'CHR$133;"Press any key to start"
 540 *FX15,1
 550 A=GET
 560 ENDPROC
 570 :
 580 DEFPROCroom
 590 LOCALwall%
 600 VDU23,224,-1,-1,-1,-1,-1,-1,-1,-1
 610 VDU19,1;0;0;19,134;0;0;
 620 COLOUR1
 630 COLOUR134
 640 PRINTSTRING$(20,CHR$224);
 650 FORwall%=1TO28
 660   PRINTCHR$224;SPC(18);CHR$224;
 670   NEXT
 680 PRINTSTRING$(20,CHR$224);
 690 VDU20
 700 ENDPROC
 710 :
 720 DEFPROCrez
 730 VDU5
 740 VDU23,225,0,0,0,24,60,126,255,66
 750 FORvol=0TO-15STEP-.2
 760   GCOL0,RND(8)
 770   MOVE164,196:PRINTCHR$225
 780   GCOL0,RND(8)
 790   MOVE1108,888:PRINTCHR$225
 800   SOUND0,vol,3,1:SOUND1,0,RND(255),1
 810   NEXT
 820 GCOL0,4
 830 MOVE164,196:PRINTCHR$225
 840 GCOL0,5
 850 MOVE1108,888:PRINTCHR$225
 860 VDU4
 870 ENDPROC
 880 :
 890 DEFPROCpause
 900 ENVELOPE1,3,0,0,0,0,0,0,121,-10,-5,-5,120,120
 910 COLOUR134:COLOUR8
 920 PRINTTAB(5,10);"COUNTDOWN"
 930 timer=10
 940 PRINTTAB(9,12);timer;" "
 950 REPEAT
 960   TIME=0:REPEATUNTILTIME=100
 970   SOUND2,1,200,3
 980   timer=timer-1
 990   PRINTTAB(9,12);timer;" "
1000   UNTILtimer=0
1010 PRINTTAB(5,10);SPC(9);TAB(9,12);" "
1020 PRINTTAB(3,10);"REV YOUR ENGINE"
1030 FORengine=1TO3
1040   FORrev%=100TO200
1050     SOUND&10,-15,3,1:SOUND&11,0,rev%,1
1060     NEXT
1070   FORrev%=200TO100STEP-2
1080     SOUND&10,-15,3,1:SOUND&11,0,rev%,1
1090     NEXT
1100   NEXT
1110 FORrev%=100TO255
1120   SOUND&10,-15,3,1:SOUND&11,0,rev%,1
1130   NEXT
1140 PRINTTAB(3,10);SPC(15)
1150 PRINTTAB(8,10);"GO !"
1160 SOUND2,1,100,5:SOUND3,-15,99,5:SOUND1,-15,99,5
1170 SOUND2,1,104,3:SOUND3,-15,103,3:SOUND1,-15,103,3
1180 SOUND2,1,100,5:SOUND3,-15,99,5:SOUND1,-15,99,5
1190 SOUND2,1,108,7:SOUND3,-15,107,7:SOUND1,-15,107,7
1200 SOUND2,1,104,3:SOUND3,-15,103,3:SOUND1,-15,103,3
1210 SOUND2,1,108,10:SOUND3,-15,107,7:SOUND1,-15,107,
10
1220 TIME=0:REPEATUNTILTIME=175
1230 SOUND0,-10,3,255:SOUND1,0,200,255
1240 PRINTTAB(8,10);"    "
1250 VDU5
1260 GCOL0,6
1270 MOVE164,196:PRINTCHR$225
1280 GCOL0,6
1290 MOVE1108,888:PRINTCHR$225
1300 VDU4
1310 ENDPROC
1320 :
1330 DEFPROCvariables
1340 user_x=164:user_y=200
1350 comp_x=1108:comp_y=888
1360 move$="X"
1370 ENDPROC
1380 :
1390 DEFPROCplayer
1400 COLOUR3
1410 PRINTTAB(0,30);"SCORE: ";score%
1420 score%=score%+1
1430 old_ux=user_x:old_uy=user_y
1440 old_move$=move$
1450 move$=INKEY$(0)
1460 step%=16
1470 *FX15,1
1480 IFmove$=""THENmove$=old_move$
1490 IFmove$=":"THENuser_y=user_y+step%
1500 IFmove$="/"THENuser_y=user_y-step%
1510 IFmove$="X"THENuser_x=user_x+step%
1520 IFmove$="Z"THENuser_x=user_x-step%
1530 IFPOINT(user_x,user_y)<>6THENPROCcrash(1):PROCov
```

```
er
 1540 GCOL0,4
 1550 MOVEold_ux,old_uy:DRAWuser_x,user_y
 1560 ENDPROC
 1570 :
 1580 DEFPROCcomputer
 1590 old_cx=comp_x:old_cy=comp_y
 1600 try1=1:try2=1
 1610 Cmove$=""
 1620 IFuser_x<comp_x THENCmove$="Z"
 1630 IFuser_x>comp_x THENCmove$=Cmove$+"X"
 1640 IFuser_y<comp_y THENCmove$=Cmove$+"/"
 1650 IFuser_y>comp_y THENCmove$=Cmove$+":"
 1660 decision$=Cmove$
 1670 IFtry1=1THENCmove$=LEFT$(decision$,1):ELSECmove$
=RIGHT$(decision$,1)
 1680 IFCmove$=":"THENcomp_y=comp_y+step%
 1690 IFCmove$="/"THENcomp_y=comp_y-step%
 1700 IFCmove$="X"THENcomp_x=comp_x+step%
 1710 IFCmove$="Z"THENcomp_x=comp_x-step%
 1720 IFPOINT(comp_x,comp_y)<>6THEN1760
 1730 GCOL0,5
 1740 MOVEold_cx,old_cy:DRAWcomp_x,comp_y
 1750 ENDPROC
 1760 try1=try1+1:IFtry1>2THENPROCrnd:GOTO1680:ELSE167
0
 1770 GOTO1680
 1780 :
 1790 DEFPROCrnd
 1800 IFtry2=1THEN1880
 1810 IFtry2=2ANDtry1>4THENPROCcrash(2):CLS:GOTO240
 1820 ONRND(4)GOSUB1840,1850,1860,1870
 1830 ENDPROC
 1840 Cmove$=":":RETURN
 1850 Cmove$="/":RETURN
 1860 Cmove$="X":RETURN
 1870 Cmove$="Z":RETURN
 1880 Cmove$=""
 1890 IFINSTR(decision$,"X")=0THENCmove$=Cmove$+"X"
 1900 IFINSTR(decision$,"Z")=0THENCmove$=Cmove$+"Z"
 1910 IFINSTR(decision$,"Z")=0THENCmove$=Cmove$+":"
 1920 IFINSTR(decision$,"Z")=0THENCmove$=Cmove$+"/"
 1930 try1=1:try2=2
 1940 ENDPROC
 1950 :
 1960 DEFPROCcrash(crash%)
 1970 VDU19,1,7,0;0;19,6,7,0;0;
 1980 SOUND&10,0,0,0:SOUND&11,0,0,0
 1990 FORvol=-10TO-15STEP.-1
 2000   SOUND0,vol,6,1
 2010   NEXT
 2020 VDU20
 2030 VDU19,6,14,0;0;19,1,9,0;0;19,3,9,0;0;
 2040 IFcrash%=2THENVDU19,5,9,0,0,0:ELSEVDU19,4,9,0;0;
 2050 FORvol=-15TO-5STEP.05
 2060   SOUND0,vol,6,1
 2070   NEXT
 2080 IFcrash%=1THENX=user_x:Y=user_y:ELSEX=comp_x:Y=c
omp_y
 2090 VDU5
 2100 FORvol=-15TO-5STEP.2
 2110   GCOL0,RND(8)
 2120   MOVEX,Y:PRINTCHR$225
 2130   SOUND0,vol,3,1:SOUND1,0,RND(255),1
 2140   NEXT
 2150 VDU4
 2160 ENDPROC
 2170 :
 2180 DEFPROCover
 2190 VDU22,7:HIMEM=&7C00
 2200 PRINT" "CHR$157;TAB(10);CHR$141;CHR$132;"PHOTON
CYCLE DUEL"
 2210 PRINT" "CHR$157;TAB(10);CHR$141;CHR$132;"PHOTON
CYCLE DUEL"
 2220 PRINT'CHR$130"Your photon cycle de-rezed in a fl
ash"
 2230 PRINT'CHR$130"of multi-coloured light as you wer
e"
 2240 PRINT'CHR$130"careless enough to crash !"
 2250 PRINT'''CHR$134"Your score is ";score%
 2260 IFscore%>H%THENH%=score%
 2270 PRINT'CHR$134"The hi-score is ";H%
 2280 TIME=0
 2290 REPEATUNTILTIME=700
 2300 RUN
```

educationspot – time test

After our What's the Time? program we now present Time Test by Don Clarke. Although What's the Time? had a fairly unique method of asking questions the below program is the more familiar kind of Time program. You have several options to choose from and like all good programs the actual listing contains all the info needed.

```
L.
   10 REM       TIME TEST
   20 REM     by Don Clarke
   30 :
   40 REM      January'83
   50 :
   60 REM      Version 1.0
   70 :
   80 REM Takes up 4.14k memory
   90 :
  100 REM     Requires 32k
  110 :
  120 REM   Written on OS 0.1
  130 :
  140 REM   (c) LASERBUG 1983
  150 :
  160    :::::
  170 :
  200 *KEY0 MODE7|MLIST|M
  210 *KEY1 MODE7|M
  220 *KEY10 OLD|M|N LIST|M
  230  DIMY%(65),X%(65)
  240  FOR N%=0 TO 65
  250    X%(N%)=290*(SIN(RAD(N%*6)))
  260    Y%(N%)=290*(COS(RAD(N%*6)))
  270    NEXT
```

```
 280  ON ERROR GOTO 290
 290  MODE7
 300  *FX12,0
 310  *FX 4,0
 320  PRINTTAB(0,24);"Remember to use ESCAPE to retur
n to MENU"
 330  PRINTTAB(15,2)CHR$(141);"M E N U"
 340  PRINTTAB(15,3)CHR$(141);"M E N U"''
 350  PRINTTAB(4)"1   Manual Clock"'
 360  PRINTTAB(4)"2   Move Clocks together"'
 370  PRINTTAB(4)"3   Hands Clock Quiz"'
 380  PRINTTAB(4)"4   Hands Clock Quiz(no Numerals)"'
 390  PRINTTAB(4)"5   Digital Clock Quiz"'
 400  PRINTTAB(4)"6   Digital Clock Quiz(no Numerals)
"'''
 410 PRINTTAB(5)"Enter 1-6 and Press RETURN: ";
 420  Y%=GET
 430  Y%=Y%AND&EF-32:IFY%<1ORY%>6THEN420
 440  *FX 4,1
 450  H%=0:M%=0:HOURS%=12:MINS%=0
 460  MODE4:VDU19,0,1;0;19,1,3;0;
 470  VDU29,800;540;
 480  ON Y% GOTO 500,510,520,530,540,550
 490 :
 500  PROCmanual
 510  PROCmoveclocks
 520  PROChandsQwithNum
 530  PROChandsQnoNum
 540  PROCdigitQwithNum
 550  PROCdigitQnoNum
 560 :
 570  DEF PROCmanual
 580  *FX11,0
 590  PRINT TAB(1,1);"MANUAL CLOCK"TAB(4,29);"Enter t
he time you want to show"
 600  PRINT TAB(6,30);"and clock hands will move"
 610 PROCprintnumbers:PROCplotcircle:PROCsetManual
 620  ENDPROC
 630  DEF PROCmoveclocks
 640  PRINT TAB(1,1);"MOVE CLOCKS together"
 650 PRINTTAB(0,29);"Use CURSOR controls to move cloc
ks,use"
 660  PRINT TAB(0,30);"top ones for slow,bottom ones
for fast"
 670  PROCOFF:PROCprintnumbers:PROCplotcircle
 680  PROCprintDigit:PROCmovehands:GOTO680
 690  ENDPROC
 700  DEF PROChandsQwithNum
 710  PROCprintnumbers:PRINT TAB(1,1);"HANDS QUIZ wit
h NUMERALS":PROCHANDSQUIZ
 720  ENDPROC
 730  DEF PROChandsQnoNum
 740 PRINT TAB(1,1);"HANDS QUIZ without NUMERALS":PRO
CHANDSQUIZ
 750  ENDPROC
 760  DEF PROCHANDSQUIZ
 770  PROCOFF:PRINTTAB(0,28);"Use CURSOR controls to
move clocks,use"
 780  PRINT TAB(0,29);"top ones for slow,bottom ones
for fast"
 790  PRINTTAB(0,30);"Press COPY if you think you are
right"
 800  PROCplotcircle
 810  PROCrandDigit:PRINTTAB(1,6);SPC(12)TAB(1,7);SPC
(12):FLAGCORRECT=0
 820  PROCmovehands
 830  IF INKEY(-106) PROCcheck
 840  IF FLAGCORRECT=1 GOTO810 ELSE 820
 850  ENDPROC
 860  DEF PROCdigitQwithNum
 870  PRINT TAB(1,1);"DIGITAL QUIZ with NUMERALS"
 880  PROCprintnumbers:PROCDIGITALQUIZ
 890  ENDPROC
 900  DEF PROCdigitQnoNum
 910  PRINT TAB(1,1);"DIGITAL QUIZ without NUMERALS"
 920  PROCDIGITALQUIZ
 930  ENDPROC
 940  DEF PROCDIGITALQUIZ
 950  *FX11,0
 960  PRINTTAB(4,29);"Enter time in numbers and the"
 970  PRINTTAB(2,30);"Computer willI tell if you are r
ight"
 980  PROCplotcircle:PROChands
 990  PROCrandhands:PRINTTAB(1,6);SPC(12)TAB(1,7);SPC
(12):FLAGCORRECT=0
1000  PROCinputDigit
1010  PROCcheck:PRINTTAB(3,4);SPC(6)
1020  IF FLAGCORRECT=1 GOTO 990 ELSE 1000
1030  ENDPROC
1040  DEF PROCplotcircle
1050  MOVE 0,350
1060  FOR N%=0 TO 360 STEP 10
1070    DRAW SINRAD(N%)*350,COSRAD(N%)*350
1080    NEXT
1090  FOR N%=1 TO 12
1100    MOVE SINRAD(N%*30)*350,COSRAD(N%*30)*350
1110    DRAW SINRAD(N%*30)*300,COSRAD(N%*30)*300
1120    NEXT
1130  ENDPROC
1140  DEF PROCprintnumbers
1150  VDU5
1160  FOR N%=1TO12
1170    MOVE SINRAD(N%*30)*390-15+20*(N%>9),COSRAD(N%
*30)*390+15
1180    PRINT;N%;
1190    NEXT
1200  VDU4
1210  ENDPROC
1220  DEFPROChands
1230  MOVE X%(M%),Y%(M%)
1240  MOVE-(Y%(M%)/15),X%(M%)/15
1250  PLOT86,Y%(M%)/15,-(X%(M%)/15)
1260  MOVE .7*X%(H%),.7*Y%(H%)
1270  MOVE-(Y%(H%)/13),X%(H%)/13
1280  PLOT86,Y%(H%)/13,-(X%(H%)/13)
1290  ENDPROC
1300  DEF PROCsetManual
1310  PROChands
1320  INPUT TAB(3,4)HOURS%
1330  INPUT TAB(5,4)":"MINS%
```

```
1340   IFHOURS%>12 OR MINS%>59 PRINT TAB(1,6)"SILLY T
IME  "TAB(1,7)"TRY NEW TIME":FOR T=1 TO 8000:NEXT:PRIN
TTAB(1,6);SPC(12)TAB(1,7);SPC(12):GOTO1380
 1350  PROChands
 1360  H%=HOURS%*5+MINS%/12:M%=MINS%
 1370  PROChands
 1380  PRINTTAB(3,4);SPC(6)
 1390  GOTO1320
 1400  ENDPROC
 1410  DEF PROCmovehands
 1420  PROChands
 1430  K=GET
 1440  IF K=137 MINS%=MINS%+1:IF MINS%=60 HOURS%=HOURS
%+1:IF MINS%=60 MINS%=0:IF HOURS%=13 HOURS%=1
 1450  IF K=136 MINS%=MINS%-1:IF MINS%=-1 HOURS%=HOURS
%-1:IF MINS%=-1 MINS%=59:IF HOURS%=0 HOURS%=12
 1460  IFK=138 HOURS%=HOURS%+1:IFHOURS%=13HOURS%=1
 1470  IFK=139 HOURS%=HOURS%-1:IFHOURS%=0 HOURS%=12
 1480  PROChands
 1490  H%=HOURS%*5+MINS%/12:M%=MINS%
 1500  *FX 15,1
 1510  ENDPROC
 1520  DEF PROCprintDigit
 1530  PRINTTAB(3,4);SPC(6)
 1540  PRINTTAB(3,4);HOURS%;":";
 1550  IF MINS%<10 PRINT;"0";MINS% ELSE PRINT;MINS%
 1560  ENDPROC
 1570  DEFPROCOFF VDU23;8202;0;0;0;:ENDPROC
 1580  DEF PROCrandDigit
 1590  PRINTTAB(3,4);SPC(6)
 1600  digH%=RND(12):digM%=RND(59)
 1610  PRINTTAB(3,4);digH%;":";
 1620  IF digM%<10 PRINT;"0";digM% ELSE PRINT;digM%
 1630  ENDPROC
 1640  DEF PROCcheck
 1650  IFHOURS%=digH% AND MINS%=digM% PRINT TAB(1,6)"C
ORRECT NOW "TAB(1,7)"TRY NEW TIME"ELSE PRINT TAB(1,6)"
WRONG - KEEP"TAB(1,7)"TRYING"
 1660  IF HOURS%=digH% AND MINS%=digM% FLAGCORRECT=1:F
OR T=1 TO 8000:NEXT
 1670  ENDPROC
 1680  DEF PROCrandhands
 1690  PROChands
 1700  HOURS%=RND(12):MINS%=RND(59)
 1710  H%=HOURS%*5+MINS%/12:M%=MINS%
 1720  PROChands
 1730  ENDPROC
 1740  DEF PROCinputDigit
 1750  INPUT TAB(3,4)digH%
 1760  INPUT TAB(5,4)":"digM%
 1770  ENDPROC
```

competition

This months competition is set by Martin Painter of Kenley, Surrey. The question is to write a short, fast program to round up numbers to any amount of decimal places. If you enter "3.25" to 1 decimal place the answer would be 3.3. Happy programming.

oddspot

There are few things left to say about Oddspot programs now. What can I tell you except type in the following short program by Josef Franses and see what it does . . .

```
LIST
   10 MODE2
   20 VDU23;8202;0;0;0;
   30 COLOURRND(8)+127:L%=0:A%=0:Q%=0:CLS
   40 FORM%=1TO1014STEP10
   50   P%=RND(8)-1
   60   GCOL0,P%
   70   PLOT4,A%,Q%
   80   DRAW640,M%+10
   90   NEXT:L%=L%+1
  100 IFL%=1THENA%=0:Q%=1023:GOTO40
  110 IFL%=2THENA%=1280:Q%=0:GOTO40
  120 IFL%=3THENA%=1280:Q%=1023:GOTO40
  130 IFL%=4THENA%=0:Q%=507:GOTO40
  140 IFL%=5THENA%=1280:Q%=507:GOTO40
  150 GOTO150
```

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Galactic Firebird (3)	9 400	LASERBUG
Invaders (4)	11 430	LASERBUG
Meteors (1)	16 800 (7 Mins)	Koon Loong Chan
Monsters (1)	104 650 (30 Mins)	Ian Cook
Planetoid (1)	159 775 (30 Mins)	Ian Cook
Rocket Raid (1)	46 480 (15 Mins)	Koon Loong Chan
Snapper (1)	170 190 (15 Mins)	Koon Loong Chan

KEY TO SUPPLIERS: (1) Acornsoft, (2) Software for All, (3) Kansas, (4) Secta. Generally these games are the best of their kind i.e. The Frog is the best version of Frogger available in our opinion. If a skill level is offered in a game this is normally the standard one that is chosen.

Yes, it's true. LASERBUG has now been going for one year!!! As is traditional in magazines below is an index to all ten issues and their contents. First though a few words about the past year.

LASERBUG started in March'82 when the BBC Micro Model A was first available. The first issue followed at the very beginning of April and was very highly acclaimed. Many people didn't think that we could keep the standard up for very long – this issue proves them wrong. Issue 2 was rather late due to a few staffing problems at LASERBUG and because of this Issues 3 and 4 were double month issues to enable us to catch up with the delay. Nobody lost out though as all 12 month members still get 12 issues of the magazine. To make up for the delays Issue 5 was a bumper 32 pages but was again late due to a change of printers. Issue 6 found itself as the suitable format for future issues and delivery times improved until by Issue 8 we were back on perfect time! Well, this is Issue 11 and 28 pages long. Things have changed a great deal from that first issue both in the contents of the magazine and the situation with the BBC Micro. Back in April'82 you couldn't get a BBC Micro for love nor money and the average delivery time was 7 months. Apart from the welcome tape no software was available. Now you can buy BBC Model B's with a disk interface over the counter and the number of programs available are impossible to calculate. Not only is LASERBUG a year old but in real terms (i.e. when significant numbers of people were receiving them) the BBC Micro is too. For something that is a year old and considering what we were promised by Acorn the lack of peripherals is disappointing. Acorn have managed to get a single 100k disk drive out in 12 months! Teletext is promised for next month now when original estimates were Autumn'82!!! Without a shadow of a doubt the BBC Micro has taken off and taken off well. A chart in the first issue of Personal Computer News shows the BBC Micro Model B as the best selling computer at £399 beating the infamous ZX81 at £50!!! Looking at its competitors, the Atari 800 is 8th and Commodore 64 10th but no other comparable competition is anywhere near it. If this isn't success I'd like to know what is!!!

Well, I've been involved with LASERBUG since late April'82 and been running it properly since August. I managed to pick it up when it was down (and almost out for the count) and I can honestly say I've enjoyed every minute. I think the BBC Micro is an excellent computer (even if the same can't be said about its manufacturers) and it is, as you all know, a very powerful machine. If you all weren't hooked on it you wouldn't be reading this so I'm preaching to the converted.

What's going to happen in the second year I have no idea. We'll try to keep on improving the magazine. Hopefully we'll have a few more contributions from you, the members. Basically we'll just take things as they come so both I and everybody else connected with the running of LASERBUG looks forward to writing/working for you in 83/4. Keep on reading . . .

Paul Barbour

INDEX TO VOLUME 1 OF LASERBUG

Issues 1 and 2 were 16 pages long, Issue 4 20 pages, Issues 3, 6, 7, 8, 9, 10 were 24 pages and Issue 5 made it all the way up to 32 pages. Backcopies of all issues except Issue 1 are available (see back page). We are running out of Issues 3 and 4.

KEY: Name of feature (Article/Program) – issue number/page number.

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credits

LASERBUG is edited by Paul Barbour.
The contributors this month were Paul Barbour, Dr D E Susans, Martin Painter and Josef Franses.
The final copy date for each issue is the beginning of the month preceding that of the cover date.
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