



## **Issue 7 Dec'82**

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..... and lots more!



Christmas has come round again – the time of peace and joy to all men (and user groups). I can't help thinking about my Christmas last year. As a Christmas Present I had a BBC Computer ordered on the 1st December – I actually got to open my 'Christmas' present on the 26th April. I am sure many of you have similar tales. Well, being Christmas I will refrain from moaning at either the BBC or Acorn – give them December to rest and I'll start again in the New Year (only joking).

OK, so what exciting news stories have hit my desk since last issue? Sales of the BBC Micro top 50,000, Acorn at last launches their new printer, the Electron is delayed yet again, somebody else tries to do an "Uncle Clive" and print one of those silly tables comparing the BBC Micro again with errors and much, much more as we say on the front cover.

Before we start on news I should just mention a few LASERBUG matters.

I did make a "slight" mistake in my Editorial in the October issue i.e. "it is October and you are actually reading the October issue of LASERBUG". Most of you read that around the 9th November! After solving our internal problems we then had some external ones with our printer. However things are getting back to usual, or at least how they should be, fairly quickly (how many times have you heard that before, from us and other people!). Seriously though we have now got back on our feet at last and so (famous last words) we will have no more problems.

The long awaited LASERBUG membership cards are getting close. For those that don't know we did originally plan to have membership cards for every member. We made all the arrangements and even paid for them but two weeks later the company concerned went into liquidation! We have now arranged for a hopefully more stable company to make some for us – more details in the new year.

At last sales of the BBC Micro have just topped the 50,000 mark. When Acorn originally started making the BBC Micro it was predicted that sales would reach the 100,000 mark within a year. That still remains to be seen but even 50,000 is a significant step. With Acorn releasing the BBC Micro in the States next year they might reach their target?

The baby brother to the BBC Micro, the Electron, has been delayed yet again. Acorn are being very careful not to make the same mistake as they did with the BBC and are building up stocks. My personal feeling is that it might be launched at the IPC Show next June but all the reports I've seen point to an earlier date.

Been tempted by the Jupiter Ace because of FORTH? Push temptation aside as Level 9 Computing now have their version available. It is suitable for both the Model A and B and comes complete with a 70 page manual. From my copy of it it does look very good – it follows the FORTH-79 STANDARD and includes many of the facilities from fig-FORTH. It works up to 10 times faster than BBC BASIC and costs only £15 inclusive. We will be looking at it in more detail in future editions of LASERBUG, meanwhile full details from Level 9 Computing, 229 Hughenden Road, High Wycombe, Bucks., HP13 5PG.

Incidentally we will be starting up a new languages spot in LASERBUG soon. If you have one of the many languages available on the BBC Micro then please send us your programs as the purely BASIC user is normally interested in unknown fields such as this.

One of the peripherals that was to be made up for the BBC Micro was an ink jet printer. Most people seem to have forgotten about it – until now. Acorn have just bought up the marketing rights from Olivetti for an undisclosed sum for their dry ink jet printer. It will cost £360 and will outstrip anything in the same price range. The ink jet method allows for a much higher resolution than usual and works quietly compared with the dot matrix printers. It sounds very promising and we will review one as soon as possible (but don't hold your breath).

Remember Uncle Clive's advertising campaign a few months back where he printed a comparison table which included the BBC Micro – the problem was that most of it was wrong! (see LASERBUG Issue 3). Lowe Electronics of Derbyshire have done exactly the same thing with the handout about the Colour Genie. Uncle Clive's leaflet could have been put down to error but on the Genie leaflet things are purposely left out. Although the leaflet states the CPU speed of all the other micros, it does not with the Beeb. It states incorrectly that the maximum number of colours is 4 – 8 is possible with MODE7. It totally ignores that the maximum resolution on the A is 320 x 256 which is better than any of the other computers on the leaflet. It also ignores details about graphics characters. Although it mentions that the A has sound capabilities it does not say that it has 4 channels. They leave the bit about user definable keys out for the BBC Micro even though it has 6 more than any of the other's mentioned. It does not mention about the other screen modes and leaves blank the size of BASIC. Need I say more? Please Lowe Electronics withdraw the ad.

Interested in interfacing your BBC Computer to the outside world? Educational Electronics produce a "Measurement Module" which is compatible with your BBC. If you are a science teacher but do not know how to use the BBC Computer yet don't worry – all you have to do is connect up the box to your micro and then load in a special program. I do not have enough room to say too much about it here but it can measure many different things and can present them in many different ways on the computer varying

from graphs to simple values. This I feel will be useful to many labs (especially schools and colleges) and would recommend that you find out more. The unit is also available for the ZX81/Spectrum and 380Z and costs £98 + and adaptor for your micro (£22 for the BBC one) + VAT. Special probes and power units are also available. More details from Educational Electronics, 30 Lake Street, Leighton Buzzard, Beds., LU7 8RX. 0525-373666.

Interested in the BBC Micro and other 6502/6809 machines? If so then Proton Acceleration might be of interest to you. PA is basically an R & D (research & development) Users Group who aim to "achieve maximum benefits of parallel knowledge gathered for members from users of similar machines". Their priorities will be "in the design, production and distribution of hardware products for our members at favourable user group prices, the futuristic and progressive support of our investments that we have made into our systems". It sounds interesting – we will let you know more of Proton Acceleration in future issues. Meanwhile you can contact them at 16 Iddesleigh Road, Charminster, Bournemouth, Dorset. 0202-294393.

Interested in books by Interface (i.e. Let Your BBC Micro Teach You To Program/The BBC Micro Revealed. If you are then forget the rest – buy them direct from LASERBUG, except at a 10% discount! Full details on the special offers page.

LASERBUG is now in the position at last to be able to pay for articles. We can offer £5 for small contributions and £10 for larger ones. Higher rates can be negotiated for very substantial or outstanding work. Just think, two small contributions and you have made up for the initial £12, well almost at least.

The results of our 1982 questionnaire postponed from last issue appears elsewhere. You can interpret them how you like but we thought we'd tell you our opinions. Come on all you ladies out there – just 4% of you have BBC Micros. That means only 2,000 belong to women – put in a bit more effort. It was rather predictable the age group that most of you fell into as was the number of each computer ordered. It surprised me how many people got onto the bandwagon of ordering their computer at the very start, the January increase was expected. The comments on delivery speak for themselves and I need say no more. Roughly 1/3 of you are total beginners to computing which was one of the more surprising figures as was the fact that as many people had Apples before the BBC Micro as they did the ZX's. Education obviously plays a large part in this computers life and so in future we will try to look towards this area. The reasons for buying the computer/its strengths and weaknesses like so many of these figures speak volumes – for the excellence of the machine and the handling problems. I was amazed at the number of people who planned to buy floppies – that is an extremely expensive outlay. We are considering investing in a national meeting but the local meetings certainly seem to be popular – if they ever get arranged. It is rather disappointing that 72% of people would go to a local meeting but only 22% be prepared to help organise it, apathy won't get you anywhere. I think the last result in the questionnaire was a huge vote of confidence in LASERBUG and so must thank you for that.

Well, that's all from me this month. Finally as it is the end of the year I would just like to thank all the people who have helped us in the past 10 months, especially to all the contributors. My personal thanks must go to Maureen for all the extremely hard work she has put in, also a quick thank-you to Brenda.

I hope you have a nice Christmas. Unfortunately I can't send a Christmas card to you all so instead please type in this month's seasonal program – I think you'll be impressed.

Merry Christmas and a Happy New Year from all of us here at LASERBUG.

Please address all correspondence to:

LASERBUG,  
10 Dawley Ride,  
Colnbrook,  
Slough,  
Berks.,  
SL3 0QH.

Please write one or two words in the top left hand corner of your envelope to describe what your letter is about i.e. OFFERS, MEMBERSHIPS, CONTRIBUTIONS, ADVERTISING, etc. otherwise your letter may be subject to delay.

Paul Barbour



Last month we showed you how to make copies of programs that appeared unsaveable. This month we will show you a few simple ways of protecting your programs from other people looking at them.

The Software houses have several methods of protecting their listings once you have access to them. This is done by a special process which involves altering lines in a certain way so that when they are listed, the special character somewhere (normally just after a REM statement) clears the screen and hence makes the line unreadable. Now half the software houses are panicking that I will reveal all I should say that I **will not** reveal how this method is done nor how to overcome it. Although I do want to describe how to protect your programs, I do not want to ruin a few of the software companies by telling you their secrets (although some of them could do with ruining when you look at some of the rubbish on sale).

To help you save your program and make it almost impossible for anyone to look at it we will describe a fairly simple method. Once you have your program ready this method can be easily applied to it. A program is most secure when it is saved in two parts. Now even if the program is all in BASIC we will still ★LOAD it as will be explained later. Obviously your initial program should have a fancy graphic display, etc. but for the purposes of this article our introduction program will simply print up LASERBUG SUPER GAME and then load in the main game.

```
>L.
10REM (C) LASERBUG 1982
20★KEY7★LOAD"20001MPAGE=&20001
MRUNIM
30PRINT"LASERBUG SUPER GAME"
40PRINT
50PRINT"PRESS F7 TO START"
60PRINT
90END
```

Notice that we have left lines 40 and 50 blank. In here we will insert two special routines that demonstrate an added safeguard to your program. By now you are probably familiar with PRINT?&E00 to print out what is at memory location &E00. However if you use PRINT!&E00 the computer will print out locations &E00, &E01, &E02 and &E03 (Ref: User Guide, p.409-413). If you know what the first four bytes are in your program:

```
>PRINT!&E00
170A0000
```

then you can test for this at line 70. If someone then alters the beginning of the program (in this case the copyright) then you can halt the program there and then:

```
>
70IF!&E00<>&170A0000THENPRINT"C
OPYRIGHT VIOLATED":★KEY7:END
```

Another test you can make is that the program is the correct length. (NOTE: When trying this out for yourself please put the values you get into the program as simply typing an extra space will alter everything.) Initially you will have to guess the length (i.e. 150). Then add an appropriate line:

```
>
80IFTOP-PAGE<>150THENPRINT"COPY
RIGHT VIOLATED":★KEY7:END
```

Once you have added this line check to see what the real length is:

```
>PRINTTOP-PAGE
228
```

and then alter the program properly:

```
>
80IFTOP-PAGE<>228THENPRINT"COPY
RIGHT VIOLATED":★KEY7:END
```

If you then run the program you should see it run correctly. Once it does work try altering the copyright from say LASERBUG to ACORNSOFT. You will see that the program will not run anymore. Alter it back again and it should work fine. More drastic action could be taken if copyright is violated but this will be described later.

Let us work on protecting the main program itself. We will assume that the main program is:

```
>L.
10REM (C) LASERBUG 1982
40CLS
50PRINT"LASERBUG SUPER GAME"
60A=GET
70IF A<650RA>90THENPRINT"THAT IS
NOT A LETTER OF THE ALPHABET"
80GOTO60
```

Not much of a program but we don't want anything too large to experiment on.

There are two ways that a program will be interrupted whilst running – by pressing ESCAPE or BREAK. Both methods are easily trapable. For simplicity sake we will just make the program run again if ESCAPE is pressed:

```
>
200ONERRORKUN
```

Assuming your program does not use any keys near the BREAK key, the only reason somebody would have for pressing it (other than trying to leave the program) is to look at your listing. You have two options open to you. Firstly you can make the program run itself again:

```
>
30★KEY10OLDMPAGE=&20001MRUNIM
```

Alternatively you could rub out the program. When you press BREAK the program is automatically wiped from the memory unless you press OLD. If you program the key to then print in a line 10 the old program would be erased from the memory permanently:

```
>
30★KEY10"10P." "RELOAD PROGRAM"
1MPAGE=&20001NEW10P." "RELOAD PR
OGRAM" "10L"
```

DO SAVE THE PROGRAM BEFORE RUNNING IT otherwise it will be almost lost completely. Now you have a program that cannot be escaped from and BREAK loses the program completely. The only way **at the moment** to get the program back is to do a hard-break. So how do we get around that? What we will do is save the main program as if it is machine code. And the reason for doing this? Normally programs start at &E00 (page). When BREAK is pressed the computer automatically resets page to &E00. Hence if we store the program at say &2000 it will appear to be lost if the user types OLD.

Save the main program as you would a BASIC one, straight after the introduction. Then rewind the program and then press key 7 as you are instructed. When you do the next program will be ★LOADED at location &2000, PAGE reset to this value and the program RUN. You can then try all you like to get the program back. The only way to do it is to reset the computer by performing a hard break first time, reset page and then the program is back. Although with a little practice you will be able to get everything back first time, the normal user who tries will not be able to (unless you show him this article).

Of course there are more drastic measure you can take if somebody presses either ESCAPE or BREAK. Firstly you could do as much as possible to make the computer unusable.

```
>L.
1000ONERRORGOTO1010
1010MODE5
1020VDU19,0,23,0,0
1030REPEAT# = GET# : PRINT# : UNTIL0
```

Alternatively you could wipe the program from memory:

```
>L.
1000FORX=PAGE TOTOP
1010?X=0
1020NEXT
```

Hopefully this article has given you some ideas on how to go about protecting your programs from prying eyes. Generally a few of the many methods shown here are quite suitable. You should remember however not to protect your program until you are sure it is perfect otherwise one day you will end up losing hours of work.

Paul Barbour



Continuing our series of educational programs, this month we present a program that tests children's abilities with the alphabet. Although obviously it is designed for young children, you would be surprised how many older children still have difficulty with the alphabet.

```

L.
10
20
30
40 REM      Alphabet Tester
50 REM      by Paul Barbour
60 :
70 REM      22/11/82
80 :
90 REM      Version 1.0
100 :
110 REM Takes up ~5.67k memory
120 REM and uses MODE 7 only
130 :
140 REM      Suitable for 16k
150 :
160 REM      Designed for Primary
170 REM      School children but
180 REM      suitable for anybody
190 REM of appropriate ability
200 :
210 REM      (C) LASERBUG 1982
220 :
230      : : : :
240 :
250 *TV255
260 MODE7
270 VDU23;8202;0;0;0;
280 *KEY10OLD!MRUN!M
290 ONERRORPROCerror
300 PROCinitialise
310 PROCtitle
320 PROCintroduction
330 PROCdelay(10)
340 PROCalphabet
350 PROCdelay(3)
360 PROCintroduction_continued1
370 PROCcontinue
380 PROCtitle
390 PROCintroduction_continued2
400 PROCcontinue
410 PROCinitialise_game
420 REPEATPROCdefine_question
430      PROCtitle
440      PROCset_question
450      PROCdelay(1)
460      PROCmark
470      UNTILquestion_number>10
480 PROCtitle
490 PROCoverall_marks
500 PROCcomputers_comment
510 PROCanother_90
520 PROCtitle
530 PROCgoodbye
540 END
550 :
560      : : : :
570 :
580 DEFPROCinitialise
590 alphabet$="ABCDEFGHIJKLMNOPQRSTUVWXYZ"
600 blue_back$=CHR$132+CHR$157
610 double_height_cyan$=CHR$134+CHR$141
620 green$=CHR$130
630 yellow$=CHR$131
640 magenta$=CHR$133
650 white_background$=" "+CHR$15
7
660 red$=CHR$129
670 blue$=CHR$132
680 cyan$=CHR$134
690 flash$=CHR$136
700 ENVELOPE1,3,0,0,0,0,0,121,-10,-5,-5,120,120
710 ENDPROC
720 :
730 DEFPROCtitle
740 CLS
750 PRINTblue_back$
760 PRINTblue_back$;TAB(11);double_height_cyan$;"ALPHABET TESTER"
770 PRINTblue_back$;TAB(11);double_height_cyan$;"ALPHABET TESTER"
780 PRINTblue_back$;TAB(11);double_height_cyan$;"*****"
790 PRINTblue_back$;TAB(11);double_height_cyan$;"*****"
800 PRINTblue_back$
810 ENDPROC
820 :
830 DEFPROCintroduction
840 PRINTTAB(6);green$;"This game will test you on your"
850 PRINT" ";yellow$;"alphabet.";green$;" Just to remind you, the"
860 PRINT" ";yellow$;"alphabet";green$;" is:"
870 ENDPROC
880 :
890 DEFPROCdelay(time)
900 TIME=0
910 time=time*100
920 REPEATUNTILTIME=time
930 ENDPROC
940 :
950 DEFPROCalphabet
960 PRINT'TAB(6);magenta$;
970 RESTORE1070
980 FORread_data=1TO26
990      READletter$

```



# H&H SOFTWARE

## Software for the BBC Computer

### Model B only

**ALPHABETA** A complete Word Processing Package with instantaneous response. Features include automatic wrapround, insert, delete, over-write, title centring, tabs, merging and other editing facilities. Up to 224 lines of 80 characters can be produced. For longer documents editing between files is possible. Price includes a manual and labels for the red keys.....£28.50

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Please send orders and cheques/PO/Transcash (No. 614 131 707)

H&H, Dept M, 53 HOLLOWAY, RUNCORN CHESHIRE.

For further information please send S.A.E.

```
1000 PRINTletter$;
1010 SOUND1,1,read_data$8,5
1020 SOUND2,1,read_data$8,5
1030 SOUND3,1,read_data$8,5
1040 PROCdelay(1)
1050 NEXT
1060 ENDPROC
1070 DATAA,B,C,D,E,F,G,H,I,J,K,L,
M,N,O,P,Q,R,S,T,U,V,W,X,Y,Z
1080 :
1090 DEFPROCintroduction_continue
d1
1100 PRINT"" ;green$;"I hope yo
u can remember all that !"
1110 PRINTTAB(6);green$;"I will g
ive you three letters in"
1120 PRINT" ";green$;"the";yellow
$;"alphabet";green$;"and you have
to give me"
1130 PRINT" ";green$;"the next on
e. For example if I gave"
1140 PRINT" ";green$;"you ABC, y
ou would have to answer D."
1150 ENDPROC
1160 :
1170 DEFPROCcontinue
1180 PRINT'white_background$(red$
;"Press the";blue$;"RETURN";red$;"
key to continue..."
```

```
1190 REPEATUNTILINKEY(-74)
1200 ENDPROC
1210 :
1220 DEFPROCintroduction_continue
d2
1230 PRINTTAB(6);green$;"When we
start you will have to"
1240 PRINT" ";green$;"answer 10 q
uestions on the";yellow$;"alphabet
"
1250 PRINT" ";green$;"The first t
hree letters will appear"
1260 PRINT" ";green$;"in the midd
le of the screen. You then";
1270 PRINT" ";green$;"must press
the next letter in the"
1280 PRINT" ";green$;"sequence -
Go careful and make sure"
1290 PRINT" ";green$;"you press t
he correct letter as you"
1300 PRINT" ";green$;"only have o
ne try at each question !"
1310 ENDPROC
1320 :
1330 DEFPROCinitialise_game
1340 question_number=1
1350 correct=0
1360 wrong=0
1370 ENDPROC
1380 :
1390 DEFPROCdefine_question
1400 start=RND(23)
1410 data$=MID$(alphabet$,start,4
)
1420 question1$=LEFT$(data$,1)
1430 question2$=MID$(data$,2,1)
1440 question3$=MID$(data$,3,1)
1450 connect_answer$=RIGHT$(data$
,1)
1460 ENDPROC
1470 :
1480 DEFPROCset_question
1490 PRINT" ";green$;"Question No
.";yellow$;question_number
1500 PRINT"" Please Press the n
ext letter:"
1510 PRINT'TAB(15)double_height_
cyan$;question1$;" ";question2$;"
";question3$;flash$;"#"
1520 PRINTTAB(15)double_height_cy
an$;question1$;" ";question2$;" ";
question3$;flash$;"#"
1530 *FX15,1
1540 REPEATanswer=GET
1550 IFanswer>96ANDanswer<123TH
ENanswer=answer-32
1560 UNTILanswer>64ANDanswer<91
1570 answer$=CHR$(answer)
1580 PRINTTAB(22,13);magenta$;ans
wer$
```



```

1590 PRINTTAB(22,14);magenta$;ans
wer$
1600 ENDPROC
1610 :
1620 DEFPROCmark
1630 IFanswer$=correct_answer$THE
Nmark=TRUE:correct=correct+1:ELSEm
ark=FALSE:wrong=wrong+1
1640 IFmark=TRUE THENPRINTTAB(22,
13);green$;TAB(22,14);green$
1650 IFmark=FALSE THENPRINTTAB(22
,13);red$;TAB(22,14);red$
1660 IFmark=TRUE THENPRINTTAB(14,
18);green$;"*****";TAB(14,19
);green$;"*
*";TAB(14,20);
green$;"* RIGHT ! *";TAB(14,21);gr
een$;"*
*";TAB(14,22);gree
n$;"*****"
1670 IFmark=FALSE THENPRINTTAB(14
,18);red$;"*****";TAB(14,19)
;red$;"*
*";TAB(14,20);red
$;"* WRONG ! *";TAB(14,21);red$;"*
*";TAB(14,22);red$;"*****"
1680 IFmark=TRUE THENPROCup
1690 IFmark=FALSE THENPROCdown
1700 question_number=question_num
ber+1
1710 ENDPROC
1720 :

```

```

1730 DEFPROCup
1740 FORsound=100TO200
1750     SOUND&11,1,sound,1
1760     SOUND&12,1,sound,1
1770     SOUND&13,1,sound,1
1780     NEXT
1790 ENDPROC
1800 :
1810 DEFPROCdown
1820 FORsound=200TO100STEP-1
1830     SOUND&11,1,sound,1
1840     SOUND&12,1,sound,1
1850     SOUND&13,1,sound,1
1860     NEXT
1870 ENDPROC
1880 :
1890 DEFPROCoverall_marks
1900 PRINT" ";green$;"You answered";yellow$;"10";green$;"questions"
1910 PRINT" ";green$;"and got";yellow$;correct;green$;"of them correct"
1920 ENDPROC
1930 :
1940 DEFPROCcomputers_comment
1950 IFcorrect=10THENPRINT" ";gre
en$;"You did extremely well to ans
wer all!" " ";green$;"the questions
correctly."
1960 IFcorrect=9THENPRINT" ";gree
n$;"You did very well to answer al
l but" " ";green$;"one of the ques
tions correctly."
1970 IFcorrect=8THENPRINT" ";gree
n$;"You did well to answer eight o
f the" " ";green$;"questions corre
ctly."
1980 IFcorrect=7THENPRINT" ";gree
n$;"You did fairly well to get sev
en of" " ";green$;"the questions c
orrect."
1990 IFcorrect=6THENPRINT" ";gree
n$;"You didn't do too bad to get 6
of the" " ";green$;"the questions
correct."
2000 IFcorrect<=5THENPRINT" ";gre
en$;"You should really of got at l
east 6" " ";green$;"questions corr
ect. Practice your" " ";yellow$;"
alphabet";green$;"a bit more and t
hen try the" " ";green$;"test agai
n."
2010 ENDPROC
2020 :
2030 DEFPROCanother_90
2040 PRINT" ";green$;"Would you
like another 90?"
2050 PRINT"white_background$;TAB(
11);red$;"Press";blue$;" "Y""red$
;"or";blue$;" "N""

```

## BBC FORTH BBC FORTH

Level 9 Computing are pleased to announce a new compiler for the increasingly popular language FORTH on BBC A & B micros.

FORTH is a powerful, extensible language, simple in concept & use, that encourages structured programming and is good both for large programs and simple one-off utilities.

"r q FORTH" is supplied on cassette, with a 70 page technical manual and a summary card, for £15 including VAT/P&P. It:

- \* runs up to 10 times faster than BBC BASIC;
- \* includes a full screen editor, tailored for the BBC;
- \* is FORTH-79 STANDARD and provides fig-FORTH facilities so it is simple to use programs published in either dialect;
- \* provides 260 FORTH words (i.e functions) initially;
- \* is readily extensible (even defining words can be defined);
- \* allows full use of the M.O.S facilities from within FORTH;
- \* allows use of all graphic modes, even 0-2 (just!);
- \* provides recursion simply and naturally;
- \* needs no added hardware and will run on an unexpanded 'A';
- \* is available NOW.

## BBC adventures

Colossal Adventure: The classic mainframe game "Adventure" with all the original treasures & creatures & 70 extra rooms.

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Every Level 9 adventure is packed with puzzles and has over 200 individually described locations - a game can easily take weeks to complete! Only data and code compression allow so much to be provided.

Each adventure needs 32K and costs £9.90, including P&P/VAT.

Send order or SAE for catalogue, describing your computer, to

**LEVEL 9 COMPUTING**

Dept L, 229 Hughenden Road, High Wycombe, Bucks. HP13 5PG



```

2060 REPEATcontinue=GET
2070 UNTILcontinue=780Rcontinue
=89
2080 IFcontinue=89THENRUN
2090 ENDPROC
2100 :
2110 DEFPROCgoodbye
2120 PRINT" ";green$;"Goodbye"
2130 PRINT" "
2140 END
2150 :
2160 DEFPROCerror
2170 IFERR<>17THENREPORT:PRINT" a
t line ";ERL
2180 PROCtitle
2190 PRINT" ";green$;"You Pressed
the";yellow$;"ESCAPE";green$;"key
!"
2200 PRINT" ";green$;"Please";re
d$;"do not";green$;"press it again
"
2210 PROCdelay(5)
2220 RUN
2230 :
2240 :
2250 :
2260 REM Alphabet Tester
2270 REM by Paul Barbour
2280 :
2290 REM Version 1.0
2300 :
2310 REM (C) LASERBUG 1982
2320 :
2330 :
2340 :

```

## speeding up your programs

One question people ask me that is surprising is "I've got this program but it runs too slowly. Should I change it into machine code?" If you try suggesting to people to look in the manual on pages 194/195 they think you're stupid. "That won't do any good" they say.

Well, BBC BASIC is extremely fast. Out of all the machines that Personal Computer World has reviewed, the BBC Micro was the third fastest (ref: November '82, p.111) beaten only by the DAI and Olivetti M20. Although obviously there are times when speed can only be obtained to satisfaction by using machine code but generally by following the few simple tips given on pages 194 and 195 of the user guide your program can be speeded up enormously. Here I plan to examine exactly how much.

FOR... TO... NEXT loops can be speeded up in two ways - firstly by using an integer variable as the control parameter and secondly by not putting the control variable in the next statement. Below are two test programs. The first is a normal program and the second has had the two techniques applied to it.

```

>L.
10TIME=0
20FORX=1TO1000
30NEXTX
40PRINTTIME/100
>RUN
0.64
>L.
10TIME=0

```

```

20FORX%=1TO1000
30NEXT
40PRINTTIME/100
>RUN
0.19

```

As you can see this results in a saving of 70.3% of the execution time.

Another method of speeding up a program given in the user guide is to replace IF... THEN loops by REPEAT... UNTIL ones. Below this has been done, along with the variables changed from real to integer.

```

>L.
10TIME=0
20X=0
30X=X+1
40IFX<1000THEN30
50PRINTTIME/100
>RUN
2.72
>L.
10TIME=0
20X%=0
30REPEATX%=X%+1
40UNTILX%=1000
50PRINTTIME/100
>RUN
1.54
>

```

This speeds up the routine by 43.4%.

The third and final method we will look at by changing division from real to integer when only an integer value is needed.

```

10TIME=0
20X=0
30REPEAT
40A=RND(12)
50B=RND(144)
60C=B/A
70X=X+1
80UNTILX=1000
90PRINTTIME/100
>RUN
13.14
>L.
10TIME=0
20X%=0
30REPEAT
40A%=RND(12)
50B%=RND(144)
60C%=B%DIVA%
70X%=X%+1
80UNTILX%=1000
90PRINTTIME/100
>RUN
10.42

```

This results in a time saving of 20.7%.

From the three results I have given you here you can see that the time savings you can make are considerable. Hence if your program is working too slowly do try what the manual suggests. If a specific routine in your program takes 30 seconds and has three loops, doing what the manual suggests could take that time down to 8.91 seconds.

Paul Barbour







As it's Christmas this month we figured that a great deal of you would be investing your hard earned cash into software for your computer. Hence below is a much larger Softreview than usual which hopefully includes a good selection.

**ARCADE GAME PROGRAM:** Zombies

**SUPPLIER:** Software for All, 72 North Street, Romford, Essex.  
0708-752862

**REQUIRES:** 32k

**PRICE:** £7.95

**DESCRIPTION OF PROGRAM:** You may remember back in issue 4 we reviewed a tape from this company with Cobra and Robo-Swamp on it. This program is in fact a greatly improved version of Robo-Swamp - Zombie Island. For those who do not know the game, the idea is that you are on an island being chased by the Zombies. The island is full of swamps and the only way to kill the Zombies is to make them fall into one of these by leading them along, making sure that you don't fall into any swamps yourself. The program is well written and presented and makes an interesting and different game.

**PRESENTATION:** ★★★★★

**ADDICTIVE QUALITY:** ★★★★★

**USE OF GRAPHICS:** ★★★★★

**VALUE FOR MONEY:** ★★★★★

—o0o—

**UTILITY PROGRAM:** Diss

**SUPPLIER:** CJE Microcomputers, 25 Henry Avenue, Rustington, W. Sussex, BN16 2PA. 09062-6647

**REQUIRES:** 16k (?)

**PRICE:** £5.00

**DESCRIPTION OF PROGRAM:** This program performs two functions - a disassembler (see LASERBUG Issue 5 for our own disassembler) and a memory dump. The disassembler itself is fairly standard as is the memory dump routine. With the memory dump you can scroll up or down one line by using the cursor keys. On both programs you can use L to list out the last page. You can move between the two routines by pressing ESCAPE. Unfortunately the listing is protected and although this is easy to overcome (although I am not at liberty here to tell you how) it is unadvisable on a program that could do with more features which you cannot add if the listing is protected. For instance there is no facility to put the disassembled code out to a printer! This is vital if you are to use a disassembler properly. The program itself is reasonable but lack of potential has a bad effect on it.

**PRESENTATION:** ★★

**RESPONSE SPEED:** ★★

**SIZE:** 4.4k

**USEFULNESS:** ★★

**VALUE FOR MONEY:** ★★

—o0o—

**ARCADE GAME PROGRAM:** Beebmunch

**SUPPLIER:** Sinclair (IKJ Software), 55 Fitzroy Road, Bispham, Blackpool, Lancs.

**REQUIRES:** 32K

**PRICE:** £5.95

**DESCRIPTION OF PROGRAM:** I'll give you two guesses what Beebmunch is - yes you guessed it, this is another try to implement Pacman. Several companies have tried to imitate this game on the BBC Micro but so far I am afraid Acornsoft's Snapper is the only one I know of that has come even close. Sinclair's version is hard to control using a strange combination of keys and the ghosts move at greatly varying speeds from very slow to moving from one side of the screen to the other almost instantly. The power pills last for an extremely short time as well compared with the original program.

**PRESENTATION:** ★★

**ADDICTIVE QUALITY:** ★★

**USE OF GRAPHICS:** ★★

**VALUE FOR MONEY:** ★★

—o0o—

**ARCADE GAME PROGRAM:** The Frog

**SUPPLIER:** James Hager, Basset Street, Cambourne, Cornwall, TR14 8SW

**REQUIRES:** 32k

**PRICE:** £6.50

**DESCRIPTION OF PROGRAM:** The game plays the game of Frogger. You are a frog who must first cross a four lane motorway and then a river with 4 sets of creatures swimming across it. It is very well presented and although the colours in certain spots need a lot to be desired it plays a very hard game. The software from "cottage companies" such as this one tends in general to

be rather poor. This game is one of the better contributions and is enjoyable.

**PRESENTATION:** ★★★★★

**ADDICTIVE QUALITY:** ★★★★★

**USE OF GRAPHICS:** ★★★★★

**VALUE FOR MONEY:** ★★★★★

—o0o—

**BOARD GAME PROGRAMS:** Gomoko/Othello

**SUPPLIER:** '42' Software, 18 Mansel Street, Swansea, SA18 5SG.

**REQUIRES:** 16k

**PRICE:** £7.95

**DESCRIPTION OF PROGRAMS:** This cassette contains two versions of standard games. The first, Gomoko, is a fairly standard version of the game - nothing at all special here. The computer plays a good game but in relation takes a while to make its move. Both implementations are OK in themselves but not worth £8.

**PRESENTATION:** ★★

**USE OF GRAPHICS:** ★★

**RESPONSE SPEED:** ★★

**STANDARD OF GAME:** ★★

**VALUE FOR MONEY:** ★★

—o0o—

**MISCELLANEOUS PROGRAM:** Distances

**SUPPLIER:** Micro-Aid, 25 Fore Street, Praze-an-Beeble, Cambourne, Cornwall, TR14 0JX. 0209-831274

**REQUIRES:** 16k

**PRICE:** £2.95

**DESCRIPTION OF PROGRAM:** This program enables you to find distances between certain places in a defined area. The area can either be the UK, Europe or the whole world. You are presented with an outline map of the area, a list of names and an entry box. You enter the names of the two towns/cities/countries and the computer will tell you the distance between them in miles and kilometres. A semi-useful program with a fairly good set of hi-res maps and low cost. The best program I've seen so far from this company.

**PRESENTATION:** ★★

**USE OF GRAPHICS:** ★★

**VALUE FOR MONEY:** ★★

—o0o—

**GAMES PROGRAMS:** Games of Strategy (Galaxy/Gomoku/Masterbrain/Reversi)

**SUPPLIER:** BBC Soft, 35 Marylebone High Street, London, W1M 4AA  
(All programs copyright © Acornsoft)

**REQUIRES:** 16k

**PRICE:** £10.00

**DESCRIPTION OF PROGRAM:** There are four programs on this tape as described above. The first, Galaxy, is another Star Trek type game. Out of the many games of this type I have seen before for the BBC Micro, this one I am afraid is the poorest. The game itself is bug free but is rather hard to use compared with other versions. Gomoku is another fairly standard implementation of this game (aren't they all?) using teletext graphics. No skill levels are offered and hence the game is fairly hard to beat, playing a good game from the start. Masterbrain is a mastermind game where you play against the computer with you attempting to break his code and him attempting yours at the same time. The game is fairly good and the computer is very good to pick up if you try to cheat him! The final program is Othello and is my favourite version of this game. The method of determining your move is quite novel and the computer plays an excellent game.

**PRESENTATION:** ★★

**STANDARD OF GAMES:** ★★

**RESPONSE SPEED:** ★★

**VALUE FOR MONEY:** ★★

—o0o—

**ARCADE GAME PROGRAM:** Martians

**SUPPLIER:** Program Power, 8/8a Regent Street, Chael Allerton, Leeds 7

**REQUIRES:** 32k

**PRICE:** £5.95

**DESCRIPTION OF PROGRAM:** Martians is a different kind of game similar in many respects to the Atari VCS game Kaboom! Martians are falling from the skys and you must destroy them by making them fall onto your forcefield which you can move left and right. If the Martians get 6 deep or more then the invasion has been successful and you lose. To make the game harder, a few of the Martians are a different colour and if you touch



these with your forcefield you are instantly destroyed. An interesting game which makes a change from the normal invader types.

**PRESENTATION:** ★★★  
**ADDICTIVE QUALITY:** ★★★★★  
**USE OF GRAPHICS:** ★★★  
**VALUE FOR MONEY:** ★★★★★

—o0o—

**GAME PROGRAM:** Link 4 Plus  
**SUPPLIER:** ABC Software, Chorley, Lancs.  
**REQUIRES:** 16k  
**PRICE:** £6.95

**DESCRIPTION OF PROGRAM:** This program is a version of the popular game Connect 4. If we look at the game played, this is quite good and reasonably fast. It certainly gives you a run for your money (unless you are very good at this game) and offers 4 skill levels. Its graphics however could be improved greatly. The game used MODE 6 graphics for the actual game which is rather a surprise as most versions of this use MODE 5 for its graphical qualities. Although the game itself is good, the graphics make it less interesting than it need be.

**PRESENTATION:** ★★★  
**STANDARD OF GAME:** ★★★★★  
**USE OF GRAPHICS:** ★★  
**VALUE FOR MONEY:** ★★★

—o0o—

**GAME PROGRAM:** Superhangman  
**SUPPLIER:** SRL Software, 80 Gravesend Road, Strood, Medway, Kent, ME2 3PN.  
**REQUIRES:** 16k  
**PRICE:** £3.00

**DESCRIPTION OF PROGRAM:** Although the standard of the words used in this Hangman might be 'super', the quality of the graphics are not (compared with IJK Software's – see last month). The game only uses teletext graphics but to good effect and at only £3 for the program represents excellent value for money.

**PRESENTATION:** ★★★  
**STANDARD OF GAME:** ★★★  
**USE OF GRAPHICS:** ★★★  
**VALUE FOR MONEY:** ★★★★★

—o0o—

**GAME PROGRAM:** Billiards  
**SUPPLIER:** H & H Software, 53 Holloway, Runcorn, Cheshire  
**REQUIRES:** 32k  
**PRICE:** £8.50

**DESCRIPTION OF PROGRAM:** This program is basically Billiards except for a few minor changes in areas such as scoring. The program shows an overhead view of the table with you and your opponents balls (and of course the cue ball). To hit the ball you have to go through three stages. The first is positioning a 'cursor' to mark where you are aiming the ball for, second is the spin which determines how the ball stops and thirdly how much energy you are going to put into the hit. Full instructions are included in the program

**PRESENTATION:** ★★★  
**ADDICTIVE QUALITY:** ★★  
**USE OF GRAPHICS:** ★★★  
**VALUE FOR MONEY:** ★★★

—o0o—

**BUSINESS GAME PROGRAM:** Inheritance  
**SUPPLIER:** Simon W Hessel Software, 15 Lytham Court, Cardwell Crescent, Sunninghill, Berks.

**REQUIRES:** 32k  
**PRICE:** £5.95

**DESCRIPTION OF PROGRAM:** The first thing you notice about this program is its length. The program is 26k long (!!!) and so full marks must go simply to the person who wrote it, no matter what the game is like. If you are fed up with zapping the invaders and find adventures a bit too unreal then Inheritance might prove the game for you. The game works in two parts. The first part involves you making £100000 out of the £10000 you inherit through stock markets, metal exchanges and gambling enterprises – all within 26 weeks. The second part (if you manage the first successfully) involves you in making £1000000 out of the £100000. The program runs in teletext mode (what else with a 26k program) and makes a pleasant change from the normal type of game.

**PRESENTATION:** ★★★★★  
**STANDARD OF GAME:** ★★★★★  
**VALUE FOR MONEY:** ★★★★★

**GRAPHICS PROGRAM:** Creative Graphics (36 programs)

**SUPPLIER:** Acornsoft, 4a Market Hill, Cambridge, CB2 3NJ.

**REQUIRES:** 16k (Out of the 36 programs on this tape all but two of the programs will work fine on the Model A. The two that won't can be easily altered and how to do this is given in the instructions.

**PRICE:** £9.95 (separate book not reviewed here, £7.50)

**DESCRIPTION OF PROGRAMS:** The first thing I should mention is that this is designed primarily as a pack – book and cassette. Here we are only looking at the cassette (ask Acornsoft why they only sent me the programs to review, not me?) As said above there are 36 programs on this tape, all of them illustrating the graphical features of the BBC Micro. There are several different types of programs that appear on the cassette. The first three for example are designed to demonstrate different methods of performing the same thing (i.e. three different equations to draw a circle). Some programs make patterns by repeating the same shape, others by following a particular equation, a few rotate 3-D shapes and the last couple of programs produce animated displays. If you are interested in graphics I am sure that this pack will give you a good few ideas, as well as showing off your computer to its full capability.

**USE OF GRAPHICS:** ★★★★★  
**STANDARD OF GRAPHICS:** ★★★★★  
**VALUE FOR MONEY:** ★★★

—o0o—

**BUSINESS PROGRAM:** Desk Diary (Address Book & Planner)

**SUPPLIER:** Acornsoft (address above)

**REQUIRES:** 16k (although much more data can be held on 16k)

**PRICE:** £9.95

**DESCRIPTION OF PROGRAM:** Desk Diary consists of two programs and hence we will look at each one separately. Address Book performs a very good and comprehensive function and can hold over 200 names. Each persons entry consists of name, address, postcode, telephone number and two lines of any extra information required. The database can be completely edited and functions available to you are to (i) find an entry by name, (ii) find an entry by any other date and (iii) display all or some of the entries to screen and/or printer with all or certain information being given. Planner is a little more complicated. Basically it is a normal diary with several added features. Initially it asks for the date and time (with a 24-hour clock feature) and then gives you three selections. First is "day-to-day" in which you can make individual entries. Each entry can be either an appointment, reminder or unavailable. Also here you can delete entries or flick backwards or forwards through the diary. Plan ahead lists out all the reminders for the month of your choosing along with a calendar. Coming soon prints out all entries between 1 and 30 days ahead (depending on your choice). Both programs have the facility to load/save the databases to tape. I feel that they are very useful aids and would certainly recommend them. At the beginning this was described as a business review – these programs are just as suitable for the home user.

**PRESENTATION:** ★★★★★  
**MAXIMUM SIZE:** 200+ entries address book/300+ planner (32k)  
**FLEXIBILITY:** ★★★★★  
**VALUE FOR MONEY:** ★★★

—o0o—

**EDUCATIONAL PROGRAM:** Early Learning (Fractions/Multiplication/ Table/Smalldozer/Funnyman)

**SUPPLIER:** BBC Soft (address above)

**REQUIRES:** 16k

**PRICE:** £10.00

**DESCRIPTION OF PROGRAM:** Firstly let me point out that this review was carried out with the help of teachers. The first program on this tape is Fractions which as the name suggests tests the children on different aspects of fractions (the different types of fractions, changing one type of fraction to another, adding fractions). The program is very good in several ways. Firstly its presentation I found excellent. When a child takes too long to enter the answer the computer offers to help. If you accept then the child is shown graphically what they are trying to do. Table sets out to test you on general multiplication. You can choose a specific table or go through a test of 20 questions. You have 10 seconds to answer each and once you have finished all the questions they are marked in front of your eyes and a breakdown is given of the areas you need help in. Multiplication takes a child step by step through long multiplication with a test when required. Smalldozer is designed for young children and helps them on "magic e" words. Teletext graphics are used to good effect to reinforce principles. The final program, Funnyman, is a "toned down" version of Hangman. Instead of a hanging as the penalty water is dropped down by a clown. All the words are connected to the circus but you can easily alter this in the program. Unfortunately because of the limited space available to me I cannot go into detail about each

continued on page 14



At last we have gathered together a group of BBC Micro's, put in a good many man-hours and finally have the results of the LASERBUG 1982 Questionnaire. We must thank all those who made the effort to fill in and return the questionnaire as it provided invaluable information. The 1983 questionnaire will appear in the June '83 issue to coincide with the Earls Court Exhibition. It will be repeated in the September '83 edition as well.

## 1. Sex Of BBC Computer Owners

- 96% Male
- 4% Female

## 2. Age Groups That BBC Computer Owners Fall Into

- 12% Under 18
- 24% 18 to 26 inclusive
- 49% 27 to 40 inclusive
- 9% 41 to 50 inclusive
- 6% 50 plus

## 3. Average Age Of Owners

- 28 years

## 4. Model Of Computer Ordered

- 26% Model A
- 74% Model B

## 5. When Computers Were Ordered

- 13% September '81
- 10% October
- 6% November
- 10% December
- 34% January '82
- 7% February
- 6% March
- 14% April

## 6. When Computers Arrived

- 17% March '82
- 12% April
- 6% May
- 6% June
- 11% July
- 11% August
- 37% Hadn't arrived when questionnaire was filled in

## 7. Delivery Time From BL Marketing

- 9% 3 months
- 10% 4 months
- 15% 5 months
- 11% 6 months
- 40% 7 months
- 15% 8 months

## 8. Average Delivery Time

- 6 months

## 9. People With Previous Experience

- 66% Had some previous experience
- 34% Had no previous experience

## 10. If People Did Have Previous Experience, On What Micros Was That

- 27% ZX-range (80/81/Spectrum)
- 27% Apple II
- 21% PET
- 10% RM380Z
- 9% TRS-80
- 6% Video Genie

## 11. The Main Uses That The BBC Computer Will Be Put To

- 37% Education
- 30% Games
- 27% Business
- 23% Hobby
- 17% Programming
- 17% Entertainment/Pleasure
- 10% Electronics

## 12. Why People Bought The BBC Computer

- 47% Overall value for money
- 33% Graphics
- 27% Expandability
- 15% Best Specification
- 13% Magazine reviews
- 7% All British
- 7% Sound
- 5% Well supported in future

## 13. The BBC Computer's Strengths

- 77% Graphics
- 35% Expandability
- 29% Good BASIC
- 19% Sound
- 16% Speed
- 16% Assembler

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- 13% Value for Money
- 13% Keyboard
- 10% Teletext Compatible
- 10% Interfaces
- 10% ADC
- 6% 32K memory

## 14. The BBC Computer's Weaknesses

- 32% Delivery
- 20% Poor documentation
- 16% Amount of RAM left in higher resolution modes
- 16% Reliability
- 12% Unreliable CFS
- 12% Weak case
- 12% After sales service
- 12% Maximum memory
- 12% Heat that PSU works at
- 8% Noisy Speaker
- 8% Position of cursor/BREAK/ESCAPE keys
- 8% Heat that PSU works at

## 15. Peripherals That People Plan To Buy

- 75% Floppy Disks
- 69% Printer
- 28% Teletext Adaptor
- 28% Colour Monitor
- 22% Joysticks
- 13% Model B Upgrade
- 13% Prestel Adaptor
- 9% 2nd Processor
- 9% Word-processor
- 9% Speech Synthesis

## 16. Whether People Would Go To A National Meeting (Probably In London)

- 38% Yes
- 31% Probably
- 31% No

## 17. Whether People Would Go To A Local Meeting

- 72% Yes
- 25% Probably
- 3% No



**18. Whether People Would Be Willing To Help Organise Such A Meeting**

63% No  
22% Yes  
15% Probably

**19. What People Would Like To See At These Meetings**

73% Exchange of ideas  
45% Exchange of software  
32% Talks  
18% Exchange of hardware hints  
14% Exchange of problems

**20. Popularity Of LASERBUG Articles**

**20.1 - Issue 1**

1st Teletext Graphics Part I  
2nd User-definable Characters  
3rd Hardreview  
4th Bookreview  
5th Labyrinth  
6th Softreview

**20.2 - Issue 3**

1st Programmers Corner  
2nd Bookreview  
3rd Editorial  
3rd Softreview  
5th Prism  
6th Oddspot  
7th Screen Dump  
8th Telesoftware  
9th \*FX Part II  
10th Spectrum - Marvel or Fraud  
11th Artillery  
11th Letters  
13th Life  
14th Software Standards  
15th Line Structure and Merging  
16th Education  
17th Calender

**21. What People Would Like To See More Of In LASERBUG**

58% Hints and tips  
33% Programs  
25% Queries Page  
21% Reviews  
17% Educational Software  
16% Machine Code  
13% Applications  
13% Games  
10% Interfacing  
7% Applications

**22. What People Would Like To See Less Of In LASERBUG**

90% Nothing  
7% Games  
3% Errors

**NOTES:**

Some people were given copies of the preliminary results of the questionnaire.

The final results are completely different from those and only the above is correct.

Some questions do not add up to 100 because quite often people put down more than one answer.

Most categories are those you made up, not us.

Our opinions of the results appears in the editorial at the beginning of the magazine.

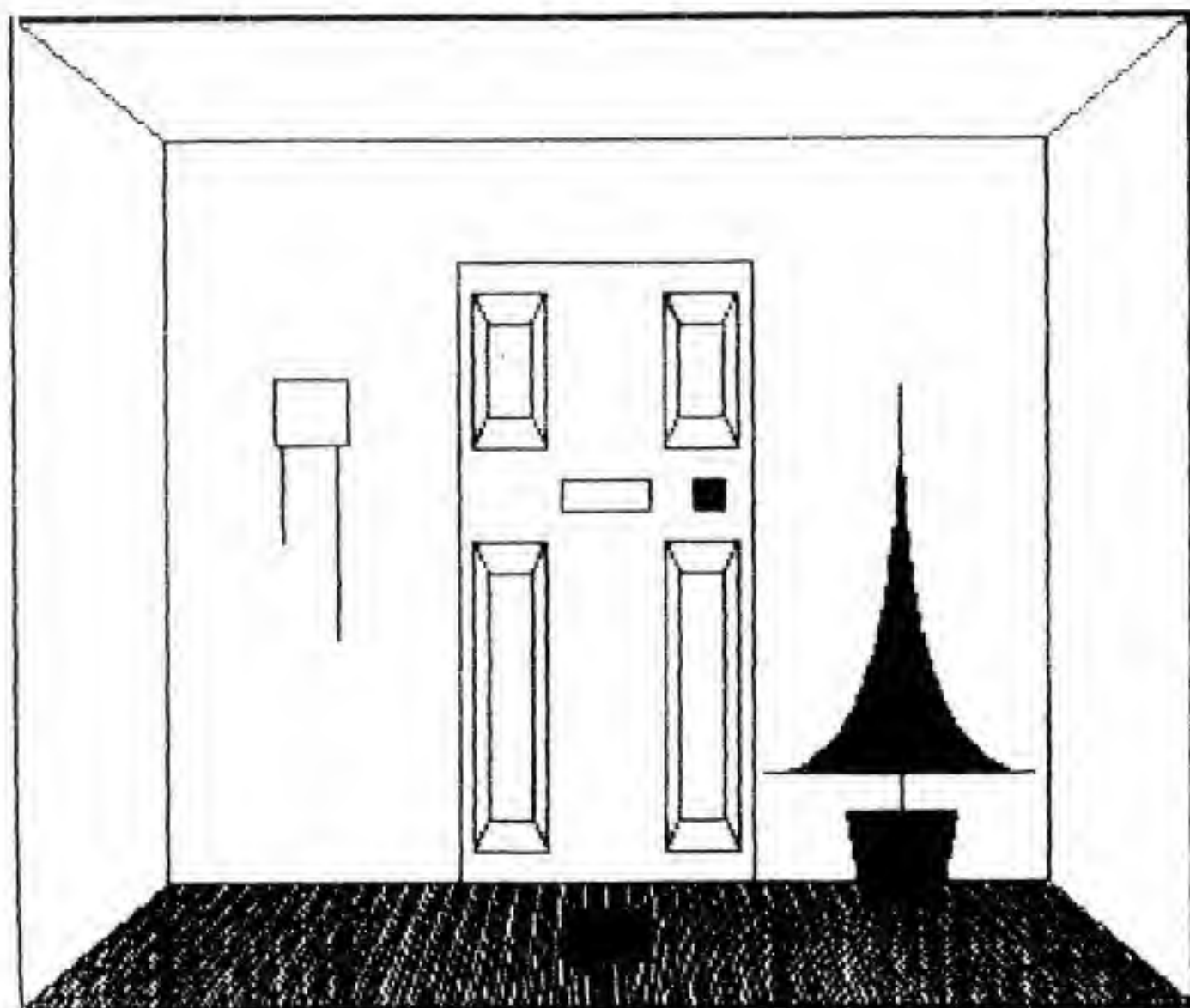
## a Christmas scene

The third program of our seasonal series appears below to get you in the mood for the Christmas festivities. It is considerably longer than the usual contributions here but as it is Christmas and you have a holiday coming up we thought you would enjoy a larger program.

To encourage you to type in the program we have two "screen dumps" below from various parts of the program. Unfortunately it is only suitable for a 32k machine but if you only have a 16k it could possibly be changed by putting the MODE0 work into MODE4 and alter the MODE1 material into MODE5.

I hope you all enjoy the program - it is our alternative to sending you all Christmas cards!

Paul Barbour



L.

```

10 REM      A Christmas Scene
20 :
30 REM (Seasonal 3 - December)
40 :
50 REM      by PAUL BARBOUR
60 :
70 REM      2/11/82
80 :
90 REM      Version 1.1
100 :
110 REM Takes up ~6.03k memory
120 :
130 REM and uses MODEs 0,1 & 7
140 :
150 REM      Requires 32k
160 :
170 REM      (C) LASERBUG 1982
180 :
190
200 MODE7:VDU23;8202;0;0;0;
210 PROCname
220 CLS
230 PROCmessage
240 MODE0:VDU23;8202;0;0;0;19,0,
4;0;0;
250 PROCroom
260 PROCdoor
270 PROCcarPet
280 PROCtree
290 PROCdoorbell
300 PROCpost
310 MODE1:VDU23;8202;0;0;0;19,0,
4;0;0;
320 PROCenvelope
330 CLS
340 PROCcard_on_screen

```



```

350 PROCcard_shrink
360 PROCcard_turn
370 CLS
380 PROCoutside_card
390 PROCmerry_christmas
400 PROCopen_card
410 PROCinside_card
420 PROCgoodbye
430 HIMEM=31744:END
440 DEFPROCname
450 PRINTCHR#129"MAY YOUR HUMBLE
COMPUTER OFFER YOU"CHR#129"SEASO
NS GREETINGS..."
460 PRINTCHR#130"I KNOW I'VE A
SKED YOU THIS QUESTION"CHR#130"MA
NY TIMES BEFORE BUT PLEASE COULD"
CHR#130"YOU ENTER YOUR NAME:"
470 PRINTCHR#131"> ";:INPUT"
name#
480 IFLEN(name#)>14THENPRINTCHR#133
" That is too long - Please e
nter"CHR#133"something shorter..."
:GOTO470
490 ENDPROC
500 DEFPROCmessage
510 PRINTTAB(0,7)CHR#133"TO:"CHR
#134name#
520 PRINTTAB(9)CHR#141CHR#131
"A CHRISTMAS SCENE"TAB(9)CHR#141C
HR#132"A CHRISTMAS SCENE"
530 PRINTCHR#129"FROM:"CHR#13
0"LASERBUG"
540 TIME=0:REPEATUNTILTIME>=500
550 ENDPROC
560 DEFPROCroom
570 MOVE0,0:DRAW160,128
580 DRAW160,896:DRAW0,1023
590 DRAW0,0:MOVE160,896
600 DRAW1120,896:DRAW1279,1023
610 DRAW0,1023:MOVE1120,896
620 DRAW1120,128:DRAW1279,0
630 DRAW1279,1023:MOVE1120,128
640 DRAW160,128:MOVE0,0
650 DRAW1279,0:ENDPROC
660 DEFPROCdoor
670 MOVE480,128:DRAW480,768
680 DRAW800,768:DRAW800,128
690 MOVE496,160:DRAW512,192
700 DRAW560,192:DRAW576,160
710 DRAW496,160:DRAW496,480
720 DRAW576,480:DRAW560,448
730 DRAW512,448:DRAW496,480
740 MOVE512,448:DRAW512,192
750 MOVE576,480:DRAW576,160
760 MOVE560,192:DRAW560,448
770 MOVE784,160:DRAW784,480
780 DRAW768,448:DRAW768,192
790 DRAW784,160:DRAW704,160
800 DRAW720,192:DRAW768,192
810 MOVE704,160:DRAW704,480

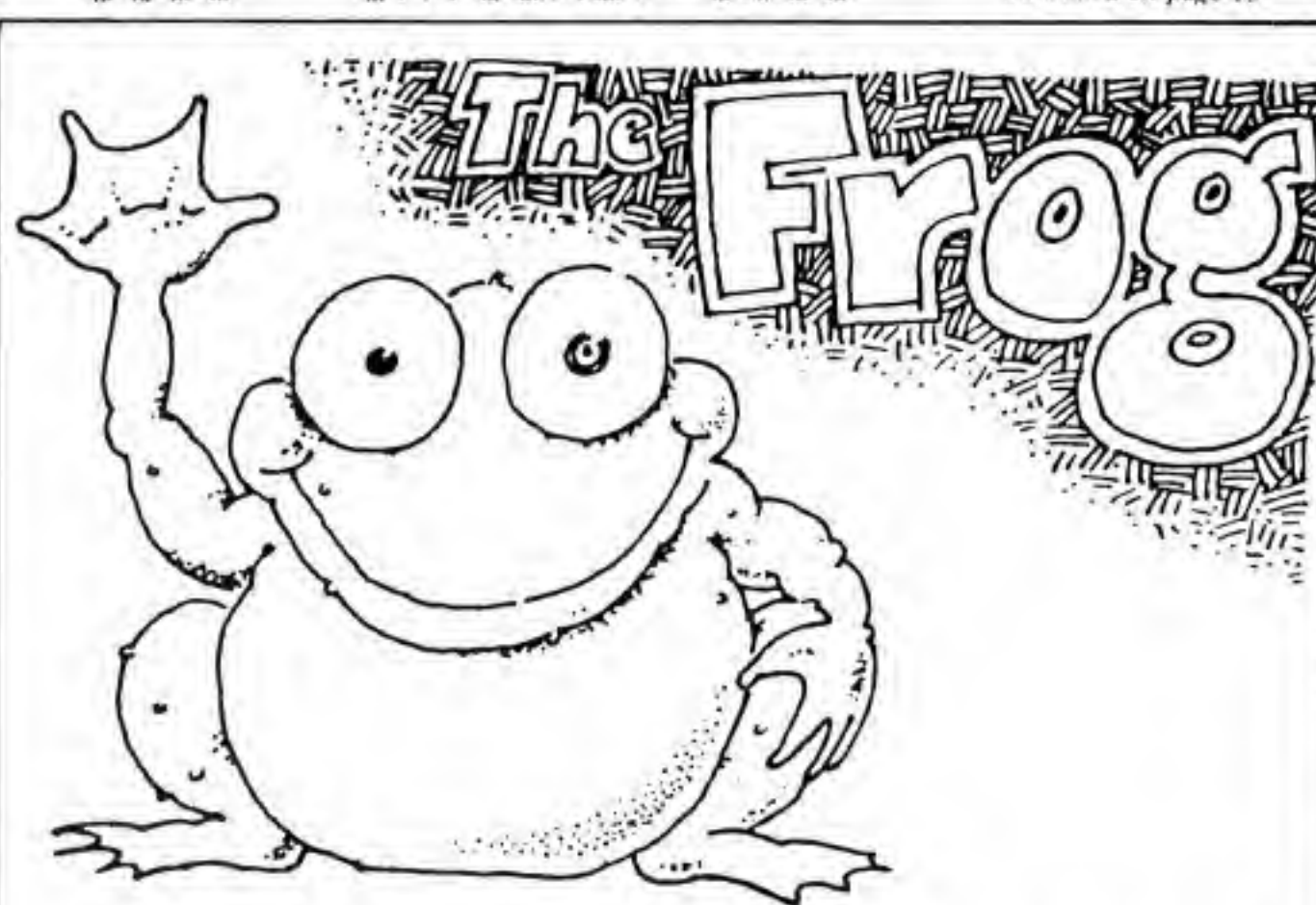
```

```

820 DRAW720,448:DRAW720,448
830 DRAW720,192:MOVE704,480
840 DRAW784,480:MOVE720,448
850 DRAW768,448:MOVE592,512
860 DRAW688,512:DRAW688,544
870 DRAW592,544:DRAW592,512
880 MOVE736,512:DRAW768,512
890 PLOT85,768,544:DRAW736,544
900 PLOT85,736,512:MOVE784,576
910 DRAW784,736:DRAW768,704
920 DRAW768,608:DRAW784,576
930 DRAW704,576:DRAW720,608
940 DRAW768,608:MOVE704,576
950 DRAW704,736:DRAW720,704
960 DRAW720,608:MOVE720,704
970 DRAW768,704:MOVE704,736
980 DRAW784,736:MOVE496,576
990 DRAW576,576:DRAW560,608
1000 DRAW512,608:DRAW496,576
1010 DRAW496,736:DRAW512,704
1020 DRAW512,608:MOVE496,736
1030 DRAW576,736:DRAW560,704
1040 DRAW512,704:MOVE560,704
1050 DRAW560,608:MOVE576,736
1060 DRAW576,576:ENDPROC
1070 DEFPROCcarPet
1080 X1=160:X2=0
1090 REPEATMOVEX1,128:DRAWX2,0
1100 X1=X1+4.8:X2=X2+6.4
1110 UNTILX2>=1280

```

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Get your frog across the motorway and river, but beware of the snakes and alligators, not to mention the diving turtles and beavers! Features include animation, 9 starting levels and software volume control.

### CENTIPEDE

Written in machine code this game has all the features of the arcade game.

You must kill the centipede which stealthily worms its way through the mushrooms towards you, before it reaches the bottom of the screen and invites some of its friends along. All the time you are harassed by the spider whose legs move in excited anticipation of his next meal: YOU!

Then there's the dive-bombing flea and the mushroom poisoning scorpion, but you'll find out about them soon enough!

Both games were written in MODE 2 for the BBC model 'B' and have colour and sound. They are available for £6.50 each from: James Hager, 7 Basset Street, Camborne, Cornwall TR14 8SW.



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program. I do feel however that this pack is one of the best selection of education programs I have seen to date and would recommend them to any first of middle school (primary or junior). Thanks must go to St. Marys C of E School for help in writing this review.

**PRESENTATION:** ★★★★★

**FOR AGES:** 6 to 12 (depending on program)

**SUBJECTS:** 3 x Maths/2 x English

**USEFULNESS:** ★★★★★

**NUMBER OF USERS:** 1

**VALUE FOR MONEY:** ★★★★★

—o0o—

**GAME REVIEW:** Powerboat

**SUPPLIER:** Futura Software, 63 Lady Lane, Chelmsford, Essex, CM2 0TQ

**REQUIRES:** 32k and Joystick

**PRICE:** £7.95

**DESCRIPTION OF PROGRAM:** Futura Software made rather a big thing of this program when they presented it to me for review so I was honestly expecting something really good. Well, as you come to learn in this business a good number of things are disappointing – this is no exception. The idea of this game is to race in three heat powerboat race against the computer and another player (although it can just be you against the computer.) The use of joysticks makes this the first game to use them but I feel here they have not been used to full effect. I think the use of MODE 2 for the game was a mistake as the race would have been much better in say MODE 1. The game is OK but not one I would recommend and in no way worth £8.

**PRESENTATION:** ★★★

**ADDICTIVE QUALITY:** ★★

**USE OF GRAPHICS:** ★★★

**USE OF JOYSTICKS:** ★★

**VALUE FOR MONEY:** ★★

—o0o—

**ARCADE GAME PROGRAM:** Invaders

**SUPPLIER:** MP Software & Services, 165 Spital Road, Bromborough, Merseyside, L62 2AE

**REQUIRES:** 32k

**PRICE:** £5.00 ???

**DESCRIPTION OF PROGRAM:** This program must be \*RUNed instead of CHAINED. It plays a game of space invaders with there being 8 x 8 invaders. The looks of the game are pretty standard although the graphics are quite good. Firing is a bit strange. The rule is that you can only fire once from one position. Hence if you want to shoot a volley of 3 shots you fire then move a litte, fire again, move again and fire again. The game is fine but preferred by younger players. Once you have worked out a "little trick" which I will not divulge here it is simple to clear the screen every time. There are one or two bugs in the game which results in when you get a high score occasionally the score will reset back to 0 for no apparent reason?

**PRESENTATION:** ★★★

**ADDICTIVE QUALITY:** ★★

**USE OF GRAPHICS:** ★★★★★

**VALUE FOR MONEY:** ★★★★★ (Depending on actual price?)

—o0o—

**GRAPHICS PROGRAM:** Designer

**SUPPLIER:** Quodlibet, 2 Victoria Terrace, Dorchester, Dorset, DT1 1LS

**REQUIRES:** 32k + OS 0.1

**PRICE:** £8 (or £1 for introductory game cassette and catalogue)

**DESCRIPTION OF PROGRAM:** The simplest way to describe this program is a complex character generator – however that would undermine the capabilities of this program. Firstly you choose what MODE you want to define your character in. A 16 x 16 grid is then printed up on the screen. You can then define any pattern you want within this grid as you would with any of the normal character generator programs. The difference with this program is that instead of defining the character in mono, you can in fact use any of the colours available in the MODE you are using. This means that instead of having to go through the complex process of VDU5 statements you can define a multi-coloured character in one go. After you have defined each character you must give it a name. When you have finished all the characters you press CTRL-P and the computer writes a program. Once the program is finished you may add your program around it. All the graphics characters you have made up are defined in the form of PROCedures at the end of the program. Whilst writing your program, when you want to print up one of your characters this is done by another PROCedure. The program is very useful and makes creating complex graphic displays much easier.

**PRESENTATION:** ★★★★★

**USE OF GRAPHIS:** ★★★★★

**USEFULLNESS:** ★★★★★

**VALUE FOR MONEY:** ★★★★★

**GRAPHICS PROGRAM:** BBC Artist

**SUPPLIER:** The Software House, 146 Oxford Street, London, W1.

**REQUIRES:** 32k (Joystick optional)

**PRICE:** £12.50

**DESCRIPTION OF PROGRAM:** This program is one of the most versatile I have seen so far to use the BBC Computer as your easel. The program will operate in any of the graphics modes and uses the default colour in each (although you can alter them in the beginning). The cursor is moved using the cursor keys with lines being drawn when the space bar is pressed. The user-definable keys also perform many functions. Firstly the background colour and current of reground colour can be altered. You can move between plotting single points and drawing lines. A little routine is included in the program to draw circles. An Airbrush mode is included in the program so that instead of drawing normally you can get your computer to give proper airbrush effects. A wide range of 'brushes' is included in the program but you could alter these yourself by re-defining specific characters. Normal text can be printed anywhere on the screen with the option of shadowed text! Pressing key f6 will superimpose a grid onto the screen for easy drawing. The screen can be saved on tape for future use at either a high or low speed. finally you do have the option of using either the keyboard (cursor keys) or a joystick. I was really impressed with this program. If you are into experimenting with graphics (abstract graphics mainly) then this program will certainly be a great aid to you.

**PRESENTATION:** ★★★

**USE OF GRAPHICS:** ★★★★★

**USEFULNESS:** ★★★★★

**VALUE FOR MONEY:** ★★★

—o0o—

**ARCADE GAME PROGRAM:** Academy

**SUPPLIER:** Swift Link Software, 118-120 Wardour Street, London, W1V 4BT.

**REQUIRES:** 32k

**PRICE:** £4.00

**DESCRIPTION OF PROGRAM:** Now heaven forbid that I should make any improper suggestions but this game looks remarkably familiar. Although of course there is different graphics and text in between games the actual game played looks so much like that of "ATTACK" as published in the first issue of the Owl it is unbelievable. Of course I am not suggesting that somebody somewhere has breached copyright – you would have to ask Swift Link and Computer & Video Games about that??? The game is nothing remarkable and relies to some extent on luck. Not one to write home about as they say.

**PRESENTATION:** ★★★

**ADDICTIVE QUALITY:** ★★

**USE OF GRAPHICS:** ★★★

**VALUE FOR MONEY:** ★★★

—o0o—

**EDUCATIONAL PROGRAM:** Multiply

**SUPPLIER:** Cottage Software, Heather Cottage, Selly Hill, Whitby, N. Yorkshire.

**REQUIRES:** 16k

**PRICE:** £7.50

**DESCRIPTION OF PROGRAM:** This program, like multiplication on Early Learning, tests the child on his or her long multiplication. You have the choice of either easy or hard questions and can ask for either 2 or 5 questions. Again the child is taken step by step through each question. If the child manages to get all the questions correct without making a single mistake they are allowed to play 6 games of noughts and crosses against the computer. The program is not as good as the one on the tape Early Learning but still provides a useful teaching aid with the added incentive of a game if you do well enough.

**PRESENTATION:** ★★★

**FOR AGES:** 10 – 12

**SUBJECT:** Maths (long multiplication)

**USEFULNESS:** ★★★★★

**NUMBER OF USERS:** 1

**VALUE FOR MONEY:** ★★★

—o0o—

I would like to thank Software for All, CJE Microcomputers, IJK Software, '42' Software, Micro-Aid, BBC Publications, ABC Software, SRL Software, H & H Software, Simon W Hessel Software, Acornsoft, Futurd Software, MP Software & Services, Quodlibet, The Software House, Swift Link Software and Cottage Software for supplying us their programs for review. The Program Power program was obtained from an independent source.

Next month we will be having a round-up on the adventure programs available.



continued from page 13

```

1120 ENDPROC
1130 DEFPROCtree
1140 MOVE920,100:DRAW1000,100
1150 PLOT85,1020,200:DRAW900,200
1160 PLOT85,920,100:FORX=640TO240
STEP-49
1170 MOVE960,X:DRAW960+((400-(X
-240))/2.7),X-(X-240)
1180 PLOT85,960-((400-(X-240))/
2.7),X-(X-240)
1190 NEXT:MOVE960,300:DRAW960,2
00
1200 ENDPROC
1210 DEFPROCdoorbell
1220 MOVE280,648:DRAW360,648
1230 DRAW360,580:DRAW280,580
1240 DRAW280,648:MOVE290,580
1250 DRAW290,480:MOVE350,580
1260 DRAW350,380:TIME=0
1270 REPEATUNTILTIME=300
1280 FORX=1TO250:SOUND&11,-15,150
,1
1290 SOUND&11,-15,200,1:NEXT:EN
DPROC
1300 DEFPROCpost
1310 C%=0
1320 FORX=510TO178STEP-25
1330 MOVE592,X:DRAW688,X
1340 DRAW688,X-50:DRAW592,X-50
1350 DRAW592,X:PROCdelay
1360 MOVE592,X-50:PLOT7,688,X-5
0
1370 C%=C%+1:SOUND&11,-10,100-C
%*3,10
1380 PLOT7,688,X:DRAW592,X-50
1390 PROCdelay:MOVE688,X
1400 PLOT7,592,X:PLOT7,592,X-50
1410 DRAW688,X-50:DRAW688,X
1420 PROCdelay:PLOT7,688,X-50
1430 PLOT7,592,X-50:PLOT7,688,X
1440 NEXT:MOVE592,100:DRAW688,1
00
1450 PLOT85,688,50:DRAW592,50
1460 PLOT85,592,100:TIME=0:SOUND0
,-10,4,2
1470 REPEATUNTILTIME=300:ENDPROC
1480 DEFPROCdelay
1490 TIME=0:REPEATUNTILTIME=10
1500 ENDPROC
1510 DEFPROCenvelope
1520 MOVE100,100:DRAW1179,100
1530 DRAW1179,923:DRAW100,923
1540 DRAW100,100:DRAW640,508
1550 DRAW1179,100:FORX=512TO923ST
EP2
1560 MOVE100,923:DRAW640,X
1570 DRAW1179,923:MOVE100,923
1580 PLOT7,640,X:PLOT7,1179,923
1590 MOVE100,923:DRAW640,512
1600 SOUND&10,-10,7,3:SOUND&11,
0,(520-(X-411))/3,3
1610 DRAW1179,923:NEXT
1620 X=923:REPEATMOVE100,X+4
1630 DRAW1179,X+4:PLOT69,100,X
1640 PLOT69,1179,X:MOVE100,X+4
1650 PLOT7,1179,X+4:X=X+4
1660 UNTILX=1023
1670 ENDPROC
1680 DEFPROCcard_on_screen
1690 FORX=-823TO100STEP4:MOVE100,
X
1700 DRAW1179,X:DRAW1179,X+823
1710 DRAW100,X+823:DRAW100,X
1720 PLOT7,1179,X:PLOT7,1179,X+
823
1730 PLOT7,100,X+823:PLOT7,100,
X
1740 NEXT:ENDPROC
1750 DEFPROCcard_shrink
1760 X1=100:X2=1179
1770 Y1=100:Y2=923
1780 REPEATMOVEX1,Y1:DRAWX2,Y1
1790 DRAWX2,Y2:DRAWX1,Y2
1800 DRAWX1,Y1:PLOT7,X2,Y1
1810 PLOT7,X2,Y2:PLOT7,X1,Y2
1820 PLOT7,X1,Y1:X1=X1+4
1830 X2=X2-4:Y1=Y1+4
1840 Y2=Y2-4:UNTILX1=220
1850 MOVEX1,Y1:DRAWX2,Y1
1860 DRAWX2,Y2:DRAWX1,Y2
1870 DRAWX1,Y1:ENDPROC
1880 DEFPROCcard_turn
1890 FORX=0TO90STEP4:S1=SINRAD(60
+X)*512+640
1900 S2=SINRAD(120+X)*512+640
1910 S3=SINRAD(240+X)*512+640
1920 S4=SINRAD(300+X)*512+640
1930 C1=COSRAD(60+X)*512+512
1940 C2=COSRAD(120+X)*512+512
1950 C3=COSRAD(240+X)*512+512
1960 C4=COSRAD(300+X)*512+512
1970 CLS:MOVES1,C1:DRAWS2,C2
1980 DRAWS3,C3:DRAWS4,C4
1990 DRAWS1,C1:NEXT:ENDPROC
2000 DEFPROCoutside_card
2010 MOVE380,100:DRAW900,100
2020 DRAW900,923:DRAW380,923
2030 DRAW380,100
2040 COLOUR1:PRINTTAB(15,4)"M E R
R Y"TAB(15,6)"CHRISTMAS"
2050 GCOLOR,1
2060 MOVE600,150:DRAW680,150
2070 PLOT85,700,250:DRAW580,250
2080 PLOT85,600,150
2090 GCOLOR,2:VDU19,2,2,0,0:FORX=
690TO290STEP-49
2100 MOVE640,X:DRAW640+((400-(X
-240))/2),X-(X-290)*.9
2110 PLOT85,640-((400-(X-240))/
2),X-(X-290)*.9

```

continued on page 20



Dear LASERBUG,

The delay in supplying software was mainly due to an overwhelming response requiring us to reprint titles in some cases. However we are now using a separate marketing organisation to despatch orders and the situation is rapidly clearing. We definitely regret this situation and would obviously prefer to be able to deliver on time and it is in no sense a "marketing policy".

Yours sincerely,  
D. Johnson-Davies (Director),  
Acornsoft.

(Acornsoft still did not reply to my main point which was why software was on sale at the PCW Show with a still huge backlog of outstanding orders (ref. LASERBUG Issue 5, pages 2 & 19). We are awaiting another letter - Ed.)

Dear LASERBUG,

I have been more than a little disappointed with my machine, the physical construction not being up to the quality one would expect from a device with the 'backing' of the BBC (maybe there is some truth to the rumours I've heard that the only backing the BEEB has recently been trying is OUT of the entire project?). (Not quite true - the BBC likes the computer and the Project but not the service from Acorn. The BBC will **not** be backing anything like this again though - Ed.) I appear to be more fortunate than most, at least I have the 'proper' manual - even though it does appear to be thrown together, and very badly collated. Even more depressing is the frequent reference to . . . . . 'only available on version 1.0 MOS' (my machine is two weeks old and has version 0.1). Now I am hearing of version 1.2!!!!

After only two weeks usage my machine will only produce legible displays on 3 out of the 8 modes - an all. Heatsink tied onto the video processing ULA with cotton rectifies the problem, meanwhile I am waiting for a replacement.

I have read that Acorn will replace version 0.1 EPROM MOS chips for free, my machine appears to be fitted with a ROM, but a \*FX0 command produces the response . . . . . vers 0.1 EPROM; do I qualify for free replacement? (Only if you need to have the chips replaced i.e. when you buy a disk interface, etc. - Ed.)

Sorry about the 'gripping', but I have suffered (god, have I suffered!) in the past with Nascom 1 etc. '78' vintage, and I really thought (fool!) that for £400 plus auntie BEEB things would be better . . . . .

I still think the machine is good, and would recommend it, albeit with some reservations, since much depends on Acorn's future performance. (Will BBC support and development be even further degraded by the advent of the Electron?, or will Acorn blow this too?)

I see the Teletext decoder has been announced for December at £200 + !! - what happened to the £100 unit talked of 11 months ago? (Maybe Maggie's single figure inflation is incorrect. I purchased a complete Teletext converter for my TV for less than £200, complete with neat wooden case . . . . . I feel a sense of 'deja-vu' over Acorn, following my earlier experiences with Nascom; in the former case, they had the excuse of being 'the first', and also only supplying kits; there are no excuses today for ready built £400 machines . . . . . nuff said.

Wouldn't it be nice if Acorn had spent a little more and fitted an audio output socket, the connections are available as two pads on the main board, 'PL16' and provide enhanced quality sound when connected to a hi-fi, although the level is well below the more usual 150mV level for most amplifier requirements.

Sorry about the gripes again, but if the machine and manufacturer were perfect it would be too boring to bother buying and everybody likes a challenge . . . . . don't they . . . . .?

Paul Wilson,  
Redhill, Surrey.

Dear LASERBUG,

I am writing as an author of software sold for the BBC Micro, in the hopes of enlisting your help.

It seems that with the release of the Dragon, Spectrum, etc. sales of the Model A BBC Micro have fallen significantly. Upgrades and Model B Machines are still selling well. We therefore are finding it not worthwhile developing programs specially to run in 16k machines. The problem will be made that much worse by the release of a new machine operating system and BASIC. We are facing the situation where some programs must be rewritten according to which machine is to be used, making supply of the correct program to the user that much more difficult. We intend to suggest to Acorn that from, say, 1st February 1983 all BBC Micros should be supplied with a minimum of OS1.2, new BASIC and 32k RAM as standard. Programs could then be developed on such a system in the sure knowledge that they would run on all new machines and any current ones with a cheap upgrade. It would not cost Acorn too much to do this: the sockets are there and memory is cheap, and the increased sales would more than make it up.

If you agree with the idea I would be very grateful if you could write to Acorn asking them if they would consider it. We feel it would be worthwhile for everyone (and consequent increase in sales) and make the supply of reliable software that much easier.

F. Skidmore,  
Saturn-Soft (Swansea).

## club reports

LASERBUG is presently actively involved in getting in touch with the smaller, local user groups around the country. If you run one of these groups the chances are that we have already contacted you, if not then please get in touch. We would like to see an information exchange between all these groups with LASERBUG acting as the central point. We are prepared to devote space each month to the local user groups for their own uses as well as giving details of their meetings, etc. We do run an affiliation scheme for other user groups so that your group could become affiliated to LASERBUG hence providing a 'big brother' for advice and support. Below is a report of the inaugural meeting of the North London BBC Microcomputer Users Group and Education Workshop.

Last year John Claydon organised a series of ZX81 weekends at Bounds Green Junior School. My Dad had taken me to one of them at which Steve Adams had talked about the hardware side of the 80 and 81. Out of the blue a letter had arrived announcing a series of monthly meetings of a New Users Group. How did he know we now had a BBC? Well, he didn't but it was a good guess. It took a while to load computer, TV, cassette recorder, magazines and books into the car and we were worried that if we were late for the 2.00 p.m. meeting we wouldn't be able to set up our machine because there wouldn't be enough power available. In practice we were just in time and power availability was no problem. A total of eight people attended and three machines were set up. John had written a menu driven program entitled SOUNDS AWFUL to demonstrate the sound possibilities of the machine. He gave a short talk about SOUND and ENVELOPE which made it clear how much more there was to learn. The themes of future meetings are IN THE MODE, GRAPHICALLY PUT, OUT OF THIN AIR (telesoftware of course), PORTS AND PADDLES, THE TUBE and so on.

Individual members are intended to demonstrate their programs and applications and there will be guest speakers. The meetings are held on the first SUNDAY each month at BOUNDS GREEN JUNIOR SCHOOL, PARK ROAD, N.11 from 2.00 pm to 5.00 pm. New members are always welcome.

Oliver Betts

## teletext substitute for OS 0.1

If you are lucky enough to have OS1.0 or above you will know how you can produce the teletext control codes by using SHIFT-fn. Full details are given on page 439 of the user guide. If you only have OS 0.1 then try typing in the following listing:

```
L"
10 REM BBC BASIC 0.1 VERSION
20 REM OF 1.0 VERSION SHIFT-
30 REM   fn TELETXT CODES
40 REM   by Paul Barbour
50 :
60 REM   (C) LASERBUG 1982
70 :
80 :
90 :
100 *KEY01110
110 *KEY1111A
120 *KEY2111B
130 *KEY3111C
140 *KEY4111D
150 *KEY5111E
160 *KEY6111F
170 *KEY7111G
180 *KEY8111H
190 *KEY9111I
```

This will simulate this capability, except that you do not press SHIFT to get the codes.

Paul Barbour



If you would like to get in touch with other local users but do not want to get involved in the organisations of a local group, try looking in the list below for some contacts. If you would like to be put on this list, please write to us at the usual LASERBUG address and mark the envelope Contacts.

- Dr D E Susans  
19 Rushout Avenue,  
Harrow,  
Middx. HA3 0AS  
01-907 1964
- Wayne Wealleans  
7 Hillman's Cottages,  
Ongar Road,  
Abridge,  
Essex RM4 1UL  
Theydon Bois 4154
- Dr John Willis  
27 Park Road  
Hampton Hill,  
Middx. TW12 1HG  
01-979 6655
- John Matchett  
01-940 9361
- W G Morley  
107 Sandfield Road,  
Arnold,  
Nottingham NG5 6QF  
0602-267635
- Mr John F Murphy  
10 Birchmore,  
Brookside,  
Telford,  
Shropshire  
0952-595959
- Mr P S Murphy  
01-740 8082
- G Musgrove  
16 Orchard Road, South Croydon  
Surrey CR2 9LU  
01-651 0011
- Nicholas D Lamb  
23 Gaywood Close,  
Caister-on-Sea,  
Gt. Yarmouth,  
Norfolk NR30 5RD  
0493-728442
- N Lambert  
11 Vinson Close,  
Orpington,  
Kent BR6 0EQ
- R W Macmillan  
38 Box Ridge Ave.,  
Purley,  
Surrey CR2 3AQ  
01-660 5615
- Mr Mark Cook  
165 Witham Road,  
Black Notley,  
Braintree,  
Essex CM7 8NB  
0376-23084
- R Hall  
89 Hicks Ave.,  
Greenford,  
Middx UB6 8EZ  
01-578 9136
- David N Hardwick  
Hagley 885183
- Laurie Hartman  
178 East Barnet Road,  
Barnet,  
Herts EN4 8RD
- John Harvey  
93 Southfield,  
Hessle,  
N. Humberside HU13 0ET  
0482 645905
- A R J Hunt  
22 Meyer Road,  
Erith,  
Kent  
Erith 38620
- David H M Glew  
20 Barnfield Wood Road,  
Beckenham,  
Kent  
01-650 1365
- E E Godfrey  
6 Wharf Road,  
Wraysbury,  
Nr. Staines,  
Middx. TW19 5JQ  
Wraysbury 2624
- D T Green  
Bay House, Painter's Forstal,  
Faversham,  
Kent ME13 0D  
Faversham 6483
- Peter Greenall  
77 Memorial Ave.,  
Stratford,  
London E15
- Paul E Firman  
63 Lady Lane,  
Chelmsford,  
Essex CM2 0TQ  
0245 50432
- P Y Norman  
Flat 2,  
3 Cedar Gardens,  
Sutton,  
Surrey SM2 5EQ  
01-643 1944
- Mr J D Osborn  
8 Chytroose Close,  
Helston,  
Cornwall TR13 8UY  
Helston 4121 Ext. 7378
- James Stewart  
Lammas Field,  
Baring Road,  
Cowes,  
Isle of Wight.  
Cowes 292107
- Mr Dilbagh Singh  
29 Wingfield Mount,  
Bradford,  
West Yorkshire BD3 0AG
- Mr M F Shirt  
30 Orchard Road,  
West Northenden,  
Manchester M22 4FD
- E A Watson  
19 Darrell Close,  
Chelmsford,  
Essex CM1 4EL  
Chelmsford 83790
- Ian Dennison  
38 Tankerville Road,  
London SW16 5LP  
01-764 4958
- Mr R W Thompson  
Redhill 63232
- Stephen E Parsons  
16 Primrose Hill,  
Haverhill,  
Suffolk CB9 9LS  
0440-70422 Ext. 52
- D I Pearce  
Little Orchard,  
Brentmoor Road,  
West End,  
Woking,  
Surrey
- Brian D Piper  
73 Fairlawn Drive,  
East Grinstead,  
West Sussex RH19 1NS  
0273-23373
- P W Rautenbach  
25 Bishopsfield,  
Harlow,  
Essex CM18 6UJ
- Mr H E Robson  
Church Farm,  
Stewkley,  
Nr. Leighton Buzzard  
0525-24244
- Paul Shaddick  
325 Wickham Lane,  
Abbey Wood,  
London SE2 0NT  
01-854 7766
- J M Stone  
8 Sandra Court,  
Spencer Road,  
Chiswick,  
London W4  
01-995 6144
- V A Amesbury  
33 King Edgar Close,  
Ely,  
Cambs. CB6 1DP  
Ely 3274
- C G Bartholomew  
102 Cranley Gardens,  
Muswell Hill,  
London N10 3AH  
01-883 2624
- Mr A J Beer  
2 Waterworks Cottages  
Dotton,  
Sidmouth,  
Devon EX10 0JY
- Rick Branston  
37 Princes Road,  
Romford,  
Essex  
Romford 61336
- Daniel O'Brien  
5 Highfields Mead,  
East Hanningfield,  
Chelmsford,  
Essex CM3 5XA
- B Buckland  
Purton 771669
- Simon Cheshire  
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Hildenborough 833108
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Winsford 51374
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31 Humphrey Road,  
Greenhill,  
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0742 745027
- T A Measures  
12 Lancaster Road,  
Bestwood Village,  
Notts, NG6 8TT
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Loughton,  
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01 508 8534
- Slough College of Higher  
Education,  
Computer Centre,  
Wellington Street,  
Slough SL1 1YG  
Slough 34585
- David Simpson,  
435 Fulham Palace Road,  
London SW6  
01-731 5281.
- A. S. Day,  
6 Raymead Way,  
Fetcham,  
Leatherhead,  
Surrey KT22 9LY.

Line 7 — Postcode  
Line 8 — Phone number

Entering this data is easy and can be done with a simple program.

```
10 DIMdata$(8)
20 FORdata=0TO8
30 READheading$
40 PRINTheading$ " ? "; INPUT "data$(data)"
50 NEXT
60 END
70 DATAName, Position, Company, Street, Town, City, County, Postcode, Phone-number
```

This program is OK in structure but is in no way suitable for a professional program.

For a start the formatting is very bad. There is no way to correct data after it has been entered, commas cannot be entered, i.e. as you would want in an address, the CAPS LOCK key is on all the time and hence the data entered doesn't look as neat as it should—in other words the program needs a great deal of improvement.

What I am going to do for this article is explain how this program should be fully developed. In the end the address will be both sent to the printer and stored on tape (remembering to use the bug fix from LASERBUG, Issue 3).

To tackle the problems in order: First the formatting. The position of the question marks is easy to alter using TAB commands. The other question is do we need 80-column text? It is unlikely that any line will exceed 40 characters and hence the teletext mode is the obvious choice. If we are using teletext do we need colour? Colour doesn't help the program but it does break up the monotony and as the program is likely to be used in the end to enter large amounts of data I think this can be used.

Next how do we correct data? The easiest way to do this is once the address etc. has been entered then print the data and ask if this is correct. If it isn't then we can reprint the data except we will number the lines. The offending line can then be picked out and altered. As we are using teletext graphics we can make the incorrect line flash quite easily.

With the program as it stands commas cannot be entered. The simple way to get around this is to use INPUTLINE instead of just INPUT. With the normal INPUT commas are used to separate data, with the other form the entire line is entered. This is all very good but quite often people forget to enter a comma and hence either the result will be uneven or the person will have to correct lines. This can be avoided if you check the line after it is entered using RIGHT\$. If the comma is missing then it can always be added in simply by data\$(data) = data\$(data)+",". We must be careful on lines 7 and 8 which will need full stops instead.

The CAPS LOCK key can be easily altered using ?216=32 to turn it on and ?216=48 to turn it off (this will probably only work on the 0.1 OS system—I would be grateful if somebody could verify this).

To send the data to the printer all we need to do is simply switch it on using VDU2, print the address on the screen and then switch it off again using VDU3.

For the cassette file, the first question is what to use as the file name? What we will do for this program is to use the name of the company. If the name is more than 10 letters then we will use a shortened version. If the name is more than one word then we will just use the first word. This case can be detected using INSTR.

All of the above will work fine with LASERBUG's address but what if it is another address where there is, say, no City to enter? What happens for the printer and cassette files? For the printer we must simply print nothing, for the cassette we must send an empty string.

This article is not really designed to be a lead-up to an address enterer program although you do have that into the bargain. The idea is to show you the kind of thoughts you should be having when thinking about writing a program. This is not really structured in a proper way but describes my thoughts as I had them. Next month we will be looking in proper detail at how you should go about writing a program.

Anyway, if nothing else, you have another short program you can adapt for your own business software.

Paul Barbour

## business spot

This month we decided to look at a part of data interrogation. Supposing you want to send a letter to a number of customers or you need to create a database of names and addresses. What you need is a program that will allow you to easily enter this data and correct it. For the purposes of this program the address we are going to try to store is:

Paul Barbour,  
Editor,  
LASERBUG,  
10 Dawley Ride,  
Colnbrook,  
Slough,  
Berks.,  
SL3 0QH.  
Colnbrook (02812) 3064.

This is 9 lines long and contains a wide variety of data.

The first thing we must do is number the lines. Paul Barbour will be line 0, Editor line 1, and the phone number line 8. The reason I started from 0 and not 1 is that the data will be stored in an array and the first element in an array is 0. We could have started at 1 but generally programs that deal with file-handling must be as compact as possible to allow more files to be stored.

The computer easily understands line 0 etc., but as the program is going to be used by humans as well it should be as friendly as possible. As far as the computer is concerned line 0 is line 0 but as an added touch for the human we will call it Name. All the lines can be called likewise:

Line 0 — Name  
Line 1 — Position  
Line 2 — Company  
Line 3 — Street  
Line 4 — Town  
Line 5 — City  
Line 6 — County



```

L.
10 REM * CFS Bug Fix *
20 !&70=&B8208085: !&74=&6080A5E
8: ?&20A=&70: ?&20B=0
30 MODE7
40 DIMdata$(9)
50 PROCcenter_address
60 PROCcorrect_address
70 PROCprinter_listing
80 PROCcassette_file
90 RUN
100 DEFPROCcenter_address
110 RESTORE210
120 LOCALdata
130 FORdata=0TO8
140 PROCcaps_off
150 READheading$
160 PRINTCHR$(129);heading$;TAB(14
);"?";CHR$(130);:INPUTLINE""data$(da
ta)
170 PROCcommas
180 NEXT
190 PROCcaps_on
200 ENDPROC
210 DATName.....,Position..
....,Company.....,Street.....,To
wn.....,City.....,County..
.....,Postcode.....,Phone-number.
220 DEFPROCcaps_on
230 ?216=32:ENDPROC
240 DEFPROCcaps_off
250 ?216=48:ENDPROC
260 DEFPROCcorrect_address
270 CLS
280 FORdata=0TO8
290 PRINTCHR$(131);data$(data)
300 NEXT
310 PRINT' 'CHR$(133)"Is this corre
ct ?"
320 reply$=GET$:IFreply$="Y"THEN
ENDPROC
330 IFreply$<>"N"THEN320
340 CLS
350 FORdata=0TO8
360 PRINT" "CHR$(134);" ";data+1;"
- ";data$(data)
370 NEXT
380 PRINT' 'CHR$(129);"Which line
is wrong ?"
390 A$=GET$:IFVAL(A$)=0THEN390
400 VDU30
410 FORflash=1TOVAL(A$):PRINT:NE
XT
420 VDU11,136
430 PRINTTAB(0,15)CHR$(130)"Re-ent
er the correct version of the"CHR
$(130)"line"
440 data=VAL(A$)-1
450 PROCcaps_off
460 PRINT'CHR$(131);:INPUTLINE""da
ta$(data)
470 PROCcaps_on
480 PROCcommas
490 CLS:GOTO270
500 ENDPROC
510 DEFPROCcommas
520 IFdata>6THEN560
530 IFRIGHT$(data$(data),1)=","O
Rdata$(data)=" "THENENDPROC
540 IFRIGHT$(data$(data),1)=","T
HENdata$(data)=LEFT$(data$(data),L
EN(data$(data))-1)+"," :ENDPROC
550 data$(data)=data$(data)+"," :
ENDPROC
560 IFRIGHT$(data$(data),1)=","O
Rdata$(data)=" "THENENDPROC
570 IFRIGHT$(data$(data),1)=","T
HENdata$(data)=LEFT$(data$(data),L
EN(data$(data))-1)+"," :ENDPROC
580 data$(data)=data$(data)+"," :
ENDPROC
590 DEFPROCprinter_listing
600 VDU2
610 PRINT'
620 FORdata=0TO8
630 IFdata$(data)=" "THEN640ELSEP
RINTdata$(data)
640 NEXT
650 VDU3
660 PRINT'
670 ENDPROC
680 DEFPROCcassette_file
690 IFdata$(data)=" "THENTitle$="
****":GOTO740
700 IFLEN(data$(2))<=10ANDINSTR(
data$(2)," ")=0THENTitle$=data$(2)
:GOTO740
710 IFINSTR(data$(2)," ")=0THENT
itle$=LEFT$(data$(2),10):GOTO740
720 title$=LEFT$(data$(2),INSTR(
data$(2)," "))
730 IFLEN(title$)>10THENTitle$=L
EFT$(title$,10)
740 file=OPENOUTtitle$
750 FORdata=0TO8
760 PRINT#file,data$(data)
770 NEXT
780 CLOSE#file
790 ENDPROC
800
810
820 REM GOTO830 will list the ca
ssette file
830 VDU2
840 REPEAT
850 file=OPENIN""
860 FORdata=0TO8
870 INPUT#file,data$
880 PRINTdata$
890 NEXT
900 CLOSE#file
910 UNTIL0

```



continued from page 15

```

2120 NEXT:MOVE640,350:DRAW640,2
50
2130 FORX=690TO340STEP-49
2140 MOVE640,X+50:DRAW640+((400
-(X-240))/2),(X-(X-290)*.9)+50
2150 PLOT85,640-((400-(X-240))/
2),(X-(X-290)*.9)+50
2160 NEXT:FORX=690TO390STEP-49
2170 MOVE640,X+100:DRAW640+((40
0-(X-240))/2),(X-(X-290)*.9)+100
2180 PLOT85,640-((400-(X-240))/
2),(X-(X-290)*.9)+100
2190 NEXT:GCOL0,3
2200 PROCstar(640,682,100):PROCsta
ar(512,400,10)
2210 PROCstar(764,400,10):PROCsta
r(488,344,15)
2220 PROCstar(788,344,15):PROCsta
r(464,288,20)
2230 PROCstar(812,288,20):PROCsta
r(580,300,RND(25))
2240 PROCstar(656,544,RND(25))
2250 PROCstar(612,448,RND(25)):PR
OCstar(688,464,RND(25))
2260 PROCstar(600,376,RND(25)):PR
OCstar(692,324,RND(25))
2270 PROCstar(692,392,RND(25))
2280 TIME=0:REPEATUNTILTIME=300:E
NDPROC
2290 DEFPROCstar(X,Y,R)
2300 VDU29,X;Y:PL0T69,0,0
2310 FORX=0TO360STEP15
2320 MOVE0,0:DRAWSINRAD(X)*R,CO
SRAD(X)*R
2330 SOUND&12,-10,X*0.708333333
1:NEXT:VDU29,0;0)
2340 ENDPROC
2350 DEFPROCmerry_christmas
2360 SOUND1,-15,53,10:SOUND1,-15,
73,10
2370 SOUND1,0,0,0:SOUND1,-15,73,7
2380 SOUND1,-15,81,7:SOUND1,-15,7
3,7
2390 SOUND1,-15,69,7:SOUND1,-15,6
1,7
2400 SOUND1,0,0,0:SOUND1,-15,61,1
0
2410 SOUND1,0,0,5:SOUND1,-15,61,1
0
2420 SOUND1,-15,81,10:SOUND1,0,0,
0
2430 SOUND1,-15,81,7:SOUND1,-15,8
9,7
2440 SOUND1,-15,81,7:SOUND1,-15,7
3,7
2450 SOUND1,-15,69,7:SOUND1,-15,5

```

# PRINT OUT



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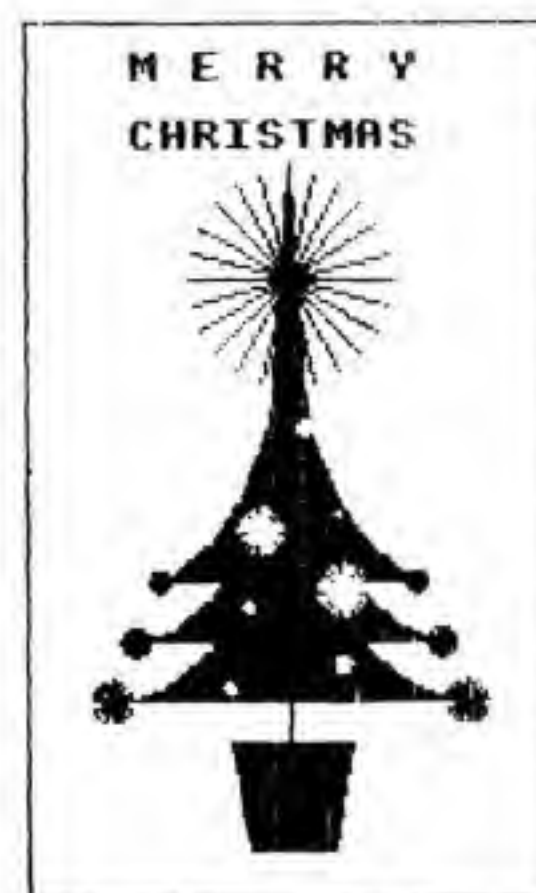
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Hampshire SP10 5AL



```

3,10
2460 SOUND1,0,0,5: SOUND1,-15,53,1
0
2470 SOUND1,-15,89,10: SOUND1,0,0,
0
2480 SOUND1,-15,89,7: SOUND1,-15,9
3,7
2490 SOUND1,-15,89,7: SOUND1,-15,8
1,7
2500 SOUND1,-15,73,7: SOUND1,-15,6
1,7
2510 SOUND1,-15,53,7: SOUND1,0,0,0
2520 SOUND1,-15,53,7: SOUND1,-15,6
1,7
2530 SOUND1,-15,61,7: SOUND1,-15,8
1,7
2540 SOUND1,-15,69,7: SOUND1,-15,7
3,15
2550 TIME=0: REPEATUNTILTIME=600
2560 ENDPROC
2570 DEFPROCopen_card
2580 GCOL0,3: FORX=896TO384STEP-4
2590   MOVEX,916: DRAWX,104
2600   MOVEX,916: PLOT7,X,104
2610   NEXT X1=920: X2=100: Y=376
2620 REPEATMOVEY,X1: DRAWY,X2
2630   MOVEY,X1: PLOT7,Y,X2
2640   PLOT69,Y,X1: PLOT69,Y,X2
2650   X1=X1+4: X2=X2+4: Y=Y-4
2660   UNTILY<=300: MOVEY,X1: DRAWY
,X2
2670 ENDPROC
2680 DEFPROCinside_card
2690 COLOUR2: PRINTTAB(13,4): "TO:"
2700 PRINTTAB(13,6): name#
2710 COLOUR3: PRINTTAB(15,12): "Bes
t Wishes"
2720 PRINTTAB(13,14): "for Christm
as"
2730 PRINTTAB(16,16): "and the"
2740 PRINTTAB(16,18): "New Year"
2750 COLOUR1: PRINTTAB(13,23): "FRO
M:"
2760 PRINTTAB(13,25): "Paul Barbou
r,"
2770 PRINTTAB(13,26): "LASERBUG"
2780 ENDPROC
2790 DEFPROCgoodbye
2800 SOUND1,-15,100,5: SOUND1,-15,
125,5
2810 SOUND1,-15,150,5: SOUND1,-15,
175,5
2820 SOUND1,-15,200,5: SOUND1,-15,
150,5
2830 SOUND1,-15,100,10
2840 TIME=0: REPEATUNTILTIME=200: #
FX15,1
2850 REPEATUNTILINKEY(0)>0
2860 VDU22,7: PRINTCHR#131"GOODBYE
"
2870 PRINT: ENDPROC

```



## queryspot

*If you have any queries, no matter what their nature, please write to us marking the envelope queryspot and we will do our best to answer you. Individual queries WILL be answered as long as you enclose an SAE.*

**Q.** Could you advise me where I can purchase or make a set of joysticks, perhaps using the joysticks available from Maplin Electronics.

**D. Didymus, Basingstoke.**

**A.** The Joysticks you can obtain from Maplin Electronics are compatible with the Atari VCS/400/800. Unfortunately Atari joysticks are not directly compatible with the BBC Micro. However it is my opinion (for what it's worth) that Atari Joysticks are the best around. So what do you do? Well, short of doing a conversion on the joysticks (or to be more precise the cable) the other alternative to you is to purchase an adaptor. The only adaptor I know of which allows you to connect Atari joysticks to the BBC Micro is made by Oakleaf Computers and costs £13.95. You would have to buy the joysticks separately though as this only covers the interface. The joysticks would not be connected through the Analogue port but via the 20 way user port – routines are given to use the devices. Your other alternative is to buy one of the joysticks that are directly compatible with the BBC Micro. The official BBC Joysticks costs £13 and should be available from most Acorn dealers. There are several other companies that manufacture different joysticks and we will be looking at them in the near future – most of these are of a high quality but unfortunately at a proportionate high cost.

Maplin Electronic Supplies Ltd., P.O. Box 3, Rayleigh, Essex.

Tel. Southend (0702) 552911/554155

Oakleaf Computers Ltd., 121 Dudley Road, Grantham, Lincs., NG31 9AD.  
Tel. 0476-76994

**Q.** I have been informed by Vixen Computer Systems (an official Acorn dealer) that my Model 'B' BBC Computer is in fact a Model 'A' upgraded to a 'B'. I purchased my computer from Eltec Services Ltd., 231 Manningham Lane, Bradford (Tel. (0274) 491372); also an official Acorn dealer, at £435 (+ £3 car.). On the receipt it stated that they were selling me "1 BBC Model 'B' Microcomputer S/N 110597". What do you advise I should do? Should I ask them to exchange my falsely claimed 'B' for a proper 'B' or ask for my money back? What is the difference between a Model 'A' upgraded to a 'B' and a model 'B'.

**H.R. Lees, Grimsby.**

**A.** There are two ways to look at this situation – practically and morally. There is no real difference between a fully upgraded 'A' and a 'B' – both should perform the same. If your pseudo-B is working well and has no faults then you shouldn't worry too much – however if there anything wrong with it all (perhaps that is why you were at Vixen ?) then you have due cause to complain back to Eltec. When Model B's were in very short supply several dealers (too many for most peoples liking) found an easy way to both make money and supply the demand. What they did, and you have become a victim of, is to buy readily available Model A's then convert them to Model B's and sell them as such (at higher prices – you paid almost £40 ovr the odds). Technically an upgraded A is a B but even so Eltec should have had the decency to put at least "Model B (upgraded A)" on the receipt. And what should you do? As I said above if a fault develops on your micro take it directly back to Eltec and make sure that they repair it. Other than that we will be contacting Eltec ourselves and will let you know what they say in due course.

Paul Barbour



Although written independently of the Spiral Patterns program that appears in LASERBUG No. 4 this has the same title. Although the actual program itself is standard, there is great room for expansion. Just altering a single variable or the step size in a loop can make the world of a difference.

Enter the program as it appears below, then try changing it around a bit—simply experiment. If you come up with any startling patterns let us know.

```

L.
10 REM      Spiral Patterns II
20 REM      by Phil Hirst
30 :
40 REM      11/9/82
50 :
60 REM      Version 1.0
70 :
80 REM      Takes up ~0.65k memory
90 REM      and uses MODE 2 only
100 :
110 REM      Requires 32k
120 :
130 REM      (C) LASERBUG 1982
140 :
150 :
160 :
170 MODE2:VDU23;8202;0;0;0;
180 VDU29,640;512;
190 radius%=1
200 MOVESINRAD(0)*radius%;COSRAD
(0)*radius%
210 colour%=1
220 REPEAT
230   FORIX=0TO359STEP8
240     GOQLO,colour%
250     DRAWSINRAD(IX)*radius%,C
OSRAD(IX)*radius%
260     IFIXMOD45=0THENradius%=r
adius%+3:colour%=colour%+1:IFcolou
r%=8THENcolour%=1
270     NEXT
280   UNTILradius%>=512
290   delay=10
300   A=1:B=2
310   REPEAT
320     VDU19,A,B,0,0,0
330     A=A+1:B=B+1
340     IFA=8THENA=1:B=B+1
350     IFB=8THENB=1
360     TIME=0:REPEATUNTILTIME=del
ay
370   UNTIL A=7AND B=7
380   delay=delay-1:IFdelay<1THEND
elay=1
390   GOTO290

```

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LASERBUG is edited by Paul Barbour.

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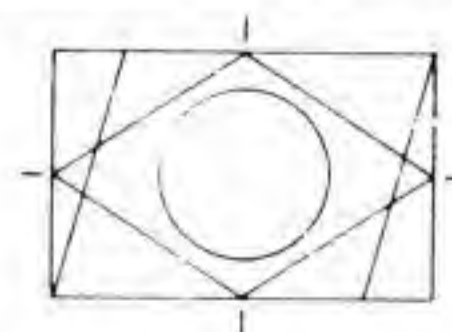
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## padreview

At the PCW Show a few months back a pack of 3 pads was being sold for use with the BBC Micro. This month we take a look at the pads themselves and assess their usefulness.

There were three pads being sold—flow-chart, screen layout and symbol design. At the PCW Show they were selling for £9 a set but this included binders for the pads and an empty folder with the BBC logo on it. I must admit that although I know they are made by PRESSBOARD Ltd., I do not know either their retail price or who markets them. I would be grateful if someone could enlighten me on this fact.

All of the pads are A4 size and hold 100 sheets each. The flowchart pad contains normal flowcharting paper and is not specialised to the BBC Machine. The paper is "griddled" into 6 × 11 squares and each square contains the outline for either statement, printout, decision or continuity boxes:



I know these names are not proper flowchart symbol names but they're the ones I'm used to using. We will be printing an article on flowcharting and how it helps programming in the future.

The symbol design pads are apparently for the BBC Micro but are no more than glorified graph paper. It is identical to normal graph paper except that the grids are based on 8 × 8 and not 10 × 10. In the top right hand corner there is a separate grid which has the numbers added onto the boxes. Apart from this you would be better off getting a normal piece of graph paper and ruling it up into 8 × 8 grids—it would probably be a lot cheaper.

The third and final pad is for screen layout and is the only one in my opinion that is really worth buying. It is really like a combination of pages 493/4 and is extremely useful. I use this paper quite often but unfortunately it isn't quite transparent enough to be able to copy maps, etc. easily.

Although all three pads are useful to some extent I would probably only be interested in buying the screen layout pad. Flowcharts I generally sketch out on pieces of scrap paper and as I said above I would use normal graph paper for symbol design or one of the character generator programs. I do not know the price of these items, as I explained above, but if other companies prices for similar products are anything to go by, they will price themselves out of the market.

Paul Barbour

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