ISSUE 2

£1

THE BEEBON

THARGOIDS – HI-RES GAME MODEL A/B

FULL BBC TEXT FONT EDITOR

NEWS ON NEW COMMERCIAL SOFTWARE

A/D CONVERTOR

BUG-BYTE SOFTWARE

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Contents

STOP PRESS...STOP PRESS...STOP PRESS...

Atari Clamp Down

News is just coming through of a clamp down on Software distribution which is in any way similar to the Atari Puc-Men. This has already effected Bug-Byte Software causing us to withdraw our program Vicmen. It is already suspected that several other Atari programs may have to be withdrawn by other companies who produce their own versions, otherwise Atari could make legal moves.

B.B.C. P.C.B. Problems

Problems with the B.B.C. P.C.B. which mean that certain expansion capabilities such as the floppy disc esconet and talking expansion no longer working means that in certain cases the whole P.C.B. has to be replaced free of charge. Either by your local dealer or the B.B.C. themselves, if any of the letter expansions are required.

More news in the next issue.

THE BEEBON
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AVAILABLE BY SUBSCRIPTION.
SEVEN POUND FIFTY PER YEAR.

The BEEBON is published bi-monthly on the third week of the month. All correspondence should be addressed to:-
THE EDITOR
THE BEEBON
106 THE ALBANY
OLD HALL STREET
LIVERPOOL
MERSEYSIDE
L3 9EP

Any letters which require a reply should be accompanied by a S.A.E As we are extremly busy those enquiries which are phrased so as to make them simple to answer will solicit the fastest response.

Programs and articles submitted for publication should preferably be typed or computer printout. Clear handwriting is also acceptable. All programs must be on tape or disk and have clear instructions for use and as much supporting documentation as possible. A day-time telephone number would be appreciated to allow for easier contact.

Payment is ten pounds per published page with part pages earning a proportional amount. we are prepared to negotiate for any very exceptional material.

EDITORIAL

We began the last issue of the BEEBON by pointing out how much of that first issue was influenced by the lack of information supplied to the proud owner of a brand new B.B.C MICRO, we are now very pleased to say that the final versions of the much awaited USER GUIDE are being sent out to those who were originaly sent the provisional user guide. We are hoping that the dispatch of these new manuals will be sent in the same order in which the microcomputers were sent out, so as to make the procedure as fair and effective as possible.If this is followed,it will hopefully mean that those owners who first recieved their micros back in FEBUARY, and have thus been patiently waiting the longest, will be rewarded first. We are ensured that every B.B.C MICRO which is dispatched after July will contain the new user guide, and all owners with the old guide should have been sent their new copies within three months, but with the record so far upheld by the B.B.C and ACORN, who knows.

More much awaited news is that the BASIC and M.O.S ROMS appearto have reached the final version. New B.B.C owners may find that when they type:-

*FXO

that their micro announces that they have ROM based BASIC VERSION 1,if so,you are one of the lucky owners who will not have a long and tortuous wait

to recieve their new ROMS as all those who already have their micros will.Look out for further details of the new ROM set in this and later issues of the BEEBON.

The number of B.B.C micros being despatched has rapidly improved since the last issue of the BEEBON.The situation with model A micros is very good with the word from ACORN that 10,000 have been despatched and that there should now be no more than a three week delay and upon recieving orders.I am afraid that the news for those awaiting model B micros has not changed and may have even got worse.About 8000 have been despatched by the time you read this, but as many as 11,000 may still be on order, so your patience will have to hold for quite a while yet.

On to better news, the amount of software available for the B.B.C micro appears to be on the increase with all the monthly and weekly magazines giving listings for it.A lot more companies seem to be entering the B.B.C software scene but the quality of all these I am not able to comment on as I have not personally seen a lot of them. I am afraid that in certain cases the writers have taken advantage of the fact that many new owners are very keen to get hold of software and send away for the first that they see, only to be sent a very poor quality game which does not reach the standard described in the original advert. (We at BUG-BYTE hope that we can not be accused of such schemes and would gratefully recieve any critical or constructive comments on our B.B.C software) so, since the last issue of the BEEBON, circumstances have improved slightly, but I am sure we all

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await the resoltion of some of the problems described in this and the previous editorial.
To close I hope you enjoy the contents of this issue of the BEEBON, and to those still awaiting their machines, I can only say have patience, you are awaiting a superb machine.

YOUR LETTERS

Each month will print a selection of letters which we consider of interest to owners of B.B.C micros. Some will be critical, others will be constructive, we will try and be as unbiased as possible. Writers of all printed letters will receive a BUG-BYTE tee-shirt.

Dear Sirs,

Many thanks for "The BEEBON". It is excellent - well done. One suggestion: Please do a renumber 10,10 on all listings before printing them (Eg BLITZ wasn't). Then we can all use AUTO and not have to type in line numbers and also missed lines are very easy to spot.The programmed examples you gave (including BLITZ) were excellent. Two minor quibbles: Warn users that you must issue a MODE command for the *TV 255,1 command, as published by you, didn't work (I found the fix by accident) ie. enter *TV command and then reissue appropriate MODE command. Also why print "£1" on the front of the cover and then tell readers that the magazine is ONLY available at a subscription rate of £7.50 for 6 issues.

Anyway, keep up the good work!

Ian D. Smith
Eastleigh,HANTS

ED: Thanks for the suggestions all listings should be renumbered from now on, the magazine has a £1 on the front cover because the magazine is available through certain B.B.C dealers.

Dear Sirs,
re: The BEEBON May 82 Page 7. The program SET IT UP.
This returns a fault on my model A of "Bad HEX at line 30".

Is this a fault in the program or do I have trouble in the computer? I've checked and double checked (with other help) to ensure I have entered the program correctly.
Yours faithfully,
L. Townend

ED: Put a dollar zero D INSTEAD OF $0D IN THE DATA STATMENT.

Dear Sir,
I have just recieved the first issue of "The BEEBON" and have thoroughly enjoyed running the "Blitz" game on my micro.
However I wonder if there is any way that I can improve the bomb dropping procedure, as pressing the space bar doesn't always cause a bomb to drop even long after the previous bomb has landed. It seems that the computer does'nt 'see' that a key has been pressed.
Yours faithfully
S.ANDREWS
HUNTINGDON,CAMBS

ED: The best way is to change the time delay of the INKEY routine in line 210

We recieved the following letter from a rightly irrate customer of the BBC and ACORN, the letter requested that the complaint was made public, so here it is to allow you to air your views on this particular customers problems.

BEEBON JULY 1982

Dear Sirs,
My model B BBC Microcomputer is serial £11435, order number NO5 ANAAA.

January 5th:
ordered and paid for in full; no acknowledgement

March-June:
four despatch dates promised and broken

July 1st:
arrived with no apparent post/packing damage,
:first fault- motor control not working properly .... would not CHAIN "WELCOME" CONSISTENTLY; *MOTOR 1/*M.1(ETC) did work.
:2nd fault-SAVED but would not reload my own programmes. Others OK. Heads cleaned.
:3rd fault- screen flicker/ blanked out; I assumed faulty coax connection. Keyboard disabled. Retrieved by BREAK. Program lost despite typing OLD etc.

July 2nd:
first and second faults intermittent; unreliable! third fault - longer losses of picture after coax replaced etc. Flicker worsening; loss of picture after c30 secs then "Bell" (CTRL G) sounded consistently. Still retrievable by BREAK.

JULY 3rd:
Flicker, lines on screen. Intermittent losses of 'picture'/keyboard functions. CAPS LOCK permanently lit during this phenomenon. Finally- complete loss (for good) of screen and keyboard. Loss of logo/two tone on switching on. Computer effectivly dead.

Now I am appalled that ACORN and the BBC should associate

themselves with such shambles.....the long wait/the impossibility (of phoning etc.) at Kettering and now the faults. Unless you can get back to me within a reasonable time a satisfactorily working machine and PRIORTISE THE REPAIR/REPLACEMENT I shall not keep to myself the wholly inadequate treatment I have had. I await you reply by return!

COPIES OF THIS LETTER WENT TO ALL THE FOLLOWING:

Micheal Harrison,BBC Director general's Dept/Acorn Computers

BL Marketing - BBC Microcomputers, Kettering/BBC Computer literacy Project

BEEBON MAGAZINE

London/BEEBUG USER GROUP

BUG-BYTE SOFTWARE NEWS

The amount of software now available from us for the BBC MICRO is on the increase, these include the following:

SPACE PIRATES

SPACE PIRATES is a very good quality hi-res arcade type game that will keep many ardent game players awake well into the early hours of the morning. More details in our adverts in this magazine.

B.B.C CHESS

BBC CHESS for the model B after long and unfavourable delays is finally available. It appears it was well worth waiting for, it makes full use of the BBC'S capabilities and thus plays a very good game against even the best of players. it has even been known to beat the author. Look out for this one in our advert as well.

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B.B.C MULTIFILE

This very comprehensive and flexible filing system appears to be the first piece of software for the BBC which is at all directed towards the bussiness man, but even the home user will find it usefull for keeping his personal records in order. Once again look out for more details in our advert.

Look out for new software from us the near future, possibly including a full three voice music synthesiser playing music from a microcomputer as it has never been heard before without the use of any external hardware. Also in the pipeline could be a full outer space flying program from the man who wrote 747 for the ACORN ATOM. This incredible program takes into account laws of relativaty and thus could be ideal for teaching purposes as well as being good fun to actually sit down and play. So its PROCYON HERE WE COME.

B.B.C MICRO TIP

Heres a small tip to improve your programs. In some programs the cursor is left flashing around the screen the following command will turn it off:

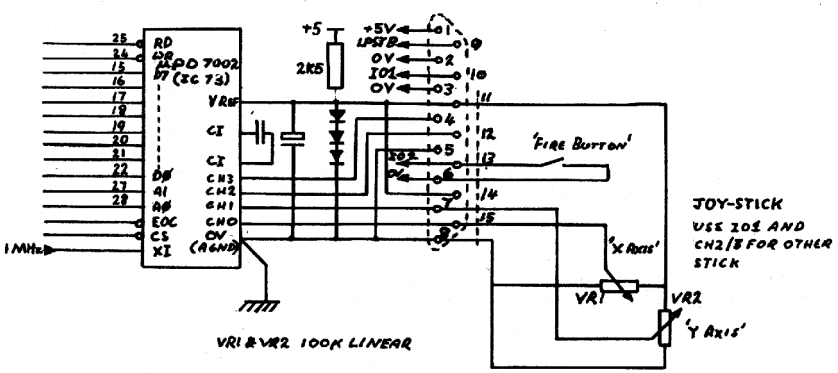
VDU 23;8202;0;0;0

THE ANALOGUE INTERFACE

This article is about the A/D converter installed on the model B. The A/D (analogue to digital) converter allows the user to feed a small voltage, from a laboratory experiment or a joy-stick for games.etc., into the Beeb and then be able to find a numeric or digital equivalent which can be accessed in a program. This can be used to gather information about the outside world, which rarely uses the nice discrete on/off information so loved by computers.

The actual hardware of the converter requires a voltage in the range 0 to 1.8 volts. This is then converted by the chip into a number in the range 0 to 4095, hence if a voltage of 1.8 volts is fed in the chip generates the value 4095, 0 volts fed in produces the value 0. A voltage halfway between 0 and 1.8 will generate a number halfway between 0 and 4095 and so on. There are four seperate analogue input lines on the Beeb, this allows for the simultanious input of four analogue signals.

To make things easier for those people who just want to connect up a simple joy-stick or paddle control for games etc., there is a reference voltage available on the conector at the back of the Beeb. This voltage is the voltage which the converter will convert to the number 4095. There is also an analogue ground connection, this is the voltage that the converter will convert to the number 0. A simple way of generating an analogue voltage is to just connect a potentiometer across these to voltages and feed the resulting voltage into one of the 4 analogue input connections. This is shown in the diagram below. The values given have not been calculated by any esoteric process but have been tested and found to work.



Circuit Diagram For **Single** Joy-Stick And Fire-Button

There are some faults/imperfections in the A/D section which is not surprising. The largest fault is the choice of device used to generate the reference voltage. The converter used is very accurate, 1 part in 4096, however the reference voltage is not. It is provided by 3 diodes, see above circuit, which will cause the reference to wander with varying temperatures and currents drawn, possibly by as much as 1 part in 10. This does not matter when the reference voltage is used directly, but any devices which generate their own voltages may appear to vary the voltage with time, in fact the voltage may be fixed just the reference changes. This makes things difficult. Another possible criticism is the speed of the converter, it can only manage 100 or so conversions a second, again fine for games but the serious user may require more speed.

Values are read in a Basic program by means of the ADVAL function. This function takes a single parameter in the range -9 to 4. The negative values are used to access information about the lengths of different queues, such as the sound queues, and have nothing to do with A/D conversion. The values 1 to 4 cause the function to return a value corresponding to the voltage on each of the 4 channels. This value will be an integer in the range 0 to 65520, which is the value produced by the converter multiplied by 4. The reason for this is apparently so that some time in the dim and very, very distant future a better A/D converter with a more accurate range can be used! ADVAL(0) returns a number determined by whether either or both of the digital input lines are at 0V (see diag) and also by which A/D channel was last scanned.

The connector used on the back of the Beeb is called a female DB15, so to connect anything to the A/D converter (its not recomended to just poke wires into the holes!) you should get hold of a male DB15 connector. A good joy-stick with 2 channels on it is available from Maplin,Technomatic or Tandy, I have used 2 of these and I get reasonable results with the above circuit. One button is mounted with each of the joy-sticks to act as a 'fire' button.

The only real problem I have found in using the paddles is a random oscillation in the value produced by ADVAL for each channel, this is probably caused by the length of the wires used to connect the joy-sticks up (about 2 metres). This causes a slight 'jitter' in any graphics etc. controlled directly by the stick. To overcome this problem I am working on several different input routines which employ a form of hysterisis and averageing to obtain a 'clean' signal.

The connector at the back is also used for light pens and we have heard that some people have been successfull in attatching a commercial light pens to the Beeb. The light pen used was manufactured by the Welsh company Arfon.

A FONT EDITOR FOR THE BEEB

This program is a relatively simple font editor for the Beeb. Unfortunately it will not fit on a model A because it makes extensive use of fairly large arrays and the mode 4 screen. It is quite simple to use, with a bit of practice characters can be defined very rapidly and incorporated into programs. The characters used in the Thargoids game in this issue were defined and incorporated into the program in about 5 minutes from start to finish! The main advantage of this font editor is the ability to create an EXEC file which will load the VDU 23 commands required to define the characters into any Basic program, so no more laborious work with pencil paper and hexadecimal arithmetic.

When you have typed in the program, its not really as long as it looks (honest), simply run it. When the two grids appear after the brief blurb at the begining you can start to create your characters. First of all you have to edit the character layout grid. Press 'C' a 'square' cursor will then appear in the bottom corner of the smaller grid. The position of this cursor is controlled by the normal editing cursor control keys. When the cursor is positioned at a point corresponding to a character position which you would like to define press the <COPY> key. The cursor will dissapear and you will be prompted for a character number. This number can be in the range 224 to 255, a restriction imposed because of differences between the old and new OS roms. The character number will then appear in the position where the cursor was last seen. At this point the cursor will reapear. To exit this editing mode press <RETURN> at any time whilst the square cursor is on the screen. In this way a pattern of characters can be built up corresponding to shapes composed of several user defined graphics.

The next stage is to actually define the characters themselves. Press 'B' to get into the correct editing mode. You will then be prompted for a character to edit, the number of this character must be present on the small character grid. A large cross will then appear after several seconds in the bottom corner of the large grid. As before the cursor control keys will move the cross about the grid. Pressing the <COPY> key will cause blank squares to become white and vice-versa. Again to exit just press <RETURN> whilst the cross cursor is visible. If you attempt to edit a character a second time the editor will remember the state of the character and restore the 'bit' grid to that state.

The final stage is to create the EXEC file, to do this press 'E'. You will then be prompted for a line number, this should be the line number you want the VDU 23 commands to define the characters to start at. The file will contain a series of lines starting at the specified line number and incrementing in tens. The file will contain a separate line for each character present in the character grid. Multiple occurences will be ignored. You will be prompted with the usual message when a program is being saved. When the editing grids re-appear you can stop the tape.

To use the file you have created rewind the tape and load in the program the characters were designed for. Then type:

*EXEC"" <RETURN>

This will cause the lines created by the font editor to be entered as though you typed them in yourself.

```
 10 MODE 4
 20 REM ******************************
 30 REM *                            *
 40 REM *   FONT EDITOR !!!!!!!!!    *
 50 REM *                            *
 60 REM *   Ver 2.0 by J.Clegg       *
 70 REM *                            *
 80 REM ******************************
 90 DIM BT(8,8),CH(4,4),CH_DATA%(16,8):UX=0:UY=0:CX=0:CY=0:CHAR=0
100 PROC_INITIALISE
110 CLS : PRINT : PRINT : PRINT
120 PRINT TAB(7);"F O N T   E D I T O R"
130 PRINT TAB(6);"-====================-"
140 PRINT : PRINT "   This program allows the user to"
150 PRINT "define the bit patterns which make up"
160 PRINT "the characters printed on the screen"
170 PRINT : PRINT "   Up to 16 characters can be displayed"
180 PRINT "on the screen simultaniously so that"
190 PRINT "pictures which are composed of several"
200 PRINT "characters, e.g. Space Invaders, can"
210 PRINT "easily be designed."
220 PRINT :PRINT "   It is possible to save the data"
230 PRINT "onto tape or to create an 'EXEC' file"
240 PRINT "to incorporate the characters into a"
250 PRINT "BASIC program"
260 PRINT :PRINT"   (Press any key to continue)";GET$
270 CLS:PROC_SET_UP_EDIT
280 PROC_MENU
290 END
300 DEF PROC_INITIALISE
310 LOCAL X,Y
320 FOR X=1TO8:FOR Y=1TO8
330     BT(X,Y)=0
340     NEXT Y:NEXT X
350 FOR X=1TO4:FOR Y=1TO4
360     CH(X,Y)=0
370     NEXT Y:NEXT X
380 FOR X=1TO16:CH_DATA%(X,0)=0:FOR Y=1 TO 8
390     CH_DATA%(X,Y)=0
400     NEXT Y:NEXT X
410 ENDPROC
420 DEF PROC_SET_UP_EDIT
430 CLS
440 PROC_DRAW_BIT_GRID
450 PROC_DRAW_CHAR_GRID
460 ENDPROC
470 DEF PROC_DRAW_BIT_GRID
480 LOCAL X,Y
490 FOR X=10TO610STEP75
500   MOVEX,1000:DRAWX,400
510   NEXTX
520 FOR Y=1000TO390STEP-75
530   MOVE10,Y:DRAW 610,Y
540   NEXT Y
550 ENDPROC
```

```
560 DEF PROC_SET_BIT(X,Y)
570 LOCAL LX,LY
580 LX=X*75+18:LY=Y*75+408
590 MOVE LX,LY:MOVE LX+60,LY
600 PLOT 85,LX+60,LY+59:MOVE LX,LY+59
610 PLOT 85,LX,LY
620 BT(X,Y)=1
630 ENDPROC
640 DEF PROC_RESET_BIT(X,Y)
650 LOCAL LX,LY
660 LX=X*75+18:LY=Y*75+408
670 MOVE LX,LY:MOVE LX+60,LY
680 PLOT 87,LX+60,LY+59:MOVE LX,LY+59
690 PLOT 87,LX,LY
700 BT(X,Y)=0
710 ENDPROC
720 DEF PROC_CURSOR(X,Y)
730 LOCAL LX,LY
740 LX=X*75+18:LY=Y*75+408
750 MOVE LX,LY:PLOT 6,LX+60,LY+59
760 MOVE LX+60,LY:PLOT 6,LX,LY+59
770 ENDPROC
780 DEF PROC_EDITBITS
790 LOCAL A
800 CX=0:CY=0
810 *FX 4,1
820 PROC_CURSOR(CX,CY)
830 REPEAT :A=GET
840   PROC_CURSOR(CX,CY)
850   IF A=136 THEN CX=CX-1
860   IF A=137 THEN CX=CX+1
870   IF A=138 THEN CY=CY-1
880   IF A=139 THEN CY=CY+1
890   IF A<>135 THEN 910
900   IFBT(CX,CY)=1 THEN PROC_RESET_BIT(CX,CY) ELSE PROC_SET_BIT(CX,CY)
910   CX=(CX+8)MOD8:CY=(CY+8)MOD8
920   PROC_CURSOR(CX,CY)
930   UNTIL A=&0D
940 *FX 4,0
950 PROC_CURSOR(CX,CY)
960 ENDPROC
970 DEF PROC_DRAW_CHAR_GRID
980 LOCAL X,Y
990 FOR X=800TO1200STEP100
1000   MOVEX,1000:DRAWX,800
1010   NEXT
1020 FOR Y=1000TO800STEP-50
1030   MOVE800,Y:DRAW 1200,Y
1040   NEXT
1050 ENDPROC
1060 DEF PROC_EDITCHARS
1070 LOCAL A
1080 UX=0:UY=0
1090 *FX 4,1
1100 PROC_CHAR_CURSOR(UX,UY)
1110 REPEAT :A=GET
1120   PROC_CHAR_CURSOR(UX,UY)
1130   IF A=136 THEN UX=UX-1
1140   IF A=137 THEN UX=UX+1
1150   IF A=138 THEN UY=UY-1
```

```
1170   IF A<>135 THEN 1190
1180   PROC_GET_CHAR(UX,UY)
1190   UX=(UX+4)MOD 4:UY=(UY+48)MOD 4
1200   PROC_CHAR_CURSOR(UX,UY)
1210   UNTIL A=&0D
1220 *FX 4,0
1230 PROC_CHAR_CURSOR(UX,UY)
1240 ENDPROC
1250 DEF PROC_CHAR_CURSOR(X,Y)
1260 LOCAL LX,LY
1270 LX=X*100+810:LY=Y*50+805
1280 MOVE LX,LY:PLOT 6,LX+80,LY
1290 PLOT 6,LX+80,LY+40:PLOT 6,LX,LY+40
1300 PLOT 6,LX,LY
1310 ENDPROC
1320 DEF PROC_GET_CHAR(X,Y)
1330 LOCAL LX,LY,CH
1340 LX=X*100+810:LY=Y*50+837
1350 MOVE LX,LY
1360 MOVELX+85,LY:PLOT87,LX+85,LY-30
1370 MOVELX,LY-30:PLOT87,LX,LY
1380 PRINT TAB(20,10);"CHARACTER CODE";
1390 INPUT CH
1400 IF (CH>255 OR CH<224) AND CH<>0 THEN 1380
1410 IF CH=0 THEN1430
1420 VDU 5:PRINT;CH;:VDU 4
1430 PRINTTAB(20,10);"                ";
1440 PRINTTAB(34,10);"    ";
1450 IF CH(X,Y)=CH THEN 1490
1460 PROC_DELETE_OLD(CH(X,Y))
1470 PROC_ALLOCATE(CH)
1480 CH(X,Y)=CH
1490 ENDPROC
1500 DEF PROC_DELETE_OLD(CHAR)
1510 LOCAL X,Y,DELT
1520 DELT=-1
1530 FOR X=1TO4:FORY=1TO4
1540      IF CHAR=CH(X,Y) AND NOT(X=UX+1 AND Y=UY+1) THEN DELT =0
1550      NEXT:NEXT
1560 IF NOT DELT  THEN ENDPROC
1570 X=0:REPEAT: X=X+1
1580   UNTIL CH_DATA%(X,0)=CHAR
1590 CH_DATA%(X,0)=0
1600 ENDPROC
1610 DEF PROC_ALLOCATE(CHAR)
1620 LOCAL X,ALLOC
1630 ALLOC=-1
1640 FOR X=1TO16
1650   IF CH_DATA%(X,0)=CHAR THEN ALLOC=0
1660   NEXT X
1670 IF NOT ALLOC THEN ENDPROC
1680 X=0:REPEAT:X=X+1
1690   IF CH_DATA%(X,0)=0THEN CH_DATA%(X,0)=CHAR
1700   UNTIL CH_DATA%(X,0)=CHAR
1710 ENDPROC
1720 DEF PROC_DRAW_CHARS
1730 LOCAL X,Y
1740 FOR Y=3TOOSTEP-1
1750   PRINTTAB(26,16-Y);
1760   FOR X=0TO3
1770     IFCH(X,Y) =0 THEN PRINT" ";:GOTO 1790
```

```
1780      PRINT;CHR$(CH(X,Y));
1790      NEXT:NEXT
1800 ENDPROC
1810 DEF PROC_MENU
1820 PRINTTAB(4,25);"SELECT -";
1830 PRINT"Edit Chars(C),Edit Bits(B)"
1840 PRINTTAB(11,26);"Quit(Q),";
1850 PRINT"Create Exec(E) "
1860 S$=GET$
1870 IF S$="C" THEN PROC_EDITCHARS
1880 IF S$="B" THEN PROC_EDIT_START
1890 IF S$="Q" THEN PROC_QUIT
1900 IF S$="E" THEN PROC_EXEC
1910 GOTO 1820
1920 DEF PROC_CONVERT_BYTE(ROW,BYTE)
1930 LOCAL X
1940 X=7
1950 REPEAT
1960   IF BYTE/2-INT(BYTE/2)>0.25THEN BT(X,ROW)=1 ELSE BT(X,ROW)=0
1970   BYTE=INT(BYTE/2)
1980   X=X-1
1990   UNTIL X<0
2000 ENDPROC
2010 DEF FN_CONVERT_ROW(ROW)
2020 LOCAL BYTE
2030 BYTE=0
2040 FOR X=0TO7
2050   BYTE=BYTE*2 + BT(X,ROW)
2060   NEXT
2070 =BYTE
2080 DEF PROC_EDIT_START
2090 LOCAL X,Y,CH,NM
2100 NM=0
2110 PRINTTAB(1,22);
2120 INPUT"WHICH CHARACTER ",CH
2130 IFCH=0THEN2360
2140 FOR X=1TO16
2150   IF CH_DATA%(X,0)=CH THEN NM=X
2160   NEXT:IF NM = 0 THEN 2110
2170 FOR Y=0TO7
2180   PROC_CONVERT_BYTE(Y,CH_DATA%(NM,Y+1))
2190   FOR X=0TO7
2200     IF BT(X,Y)=1THEN PROC_SET_BIT(X,Y)ELSE PROC_RESET_BIT(X,Y)
2210     NEXT
2220   NEXT
2230 PROC_EDITBITS
2240 MOVE 650,1000:MOVE 750,1000
2250 PLOT 87,750,400:MOVE 650,400
2260 PLOT 87,650,1000
2270 VDU 23,CH
2280 FOR  Y=7TO0 STEP-1
2290   CH_DATA%(NM,Y+1)=FN_CONVERT_ROW(Y)
2300   VDU CH_DATA%(NM,Y+1)
2310   NEXT
2320 FOR Y=0 TO 7
2330   MOVE 650,975-(7-Y)*75
2340   VDU 5:PRINT;CH_DATA%(NM,Y+1):VDU4
2350   NEXT
2360 PRINTTAB(1,22);"
2370 PROC_DRAW_CHARS
2380 ENDPROC
```

```
2390 DEF PROC_EXEC
2400 LOCAL X,Y,NUM
2410 CLS
2420 PRINTTAB(12,26);
2430 PRINT"Start line number";
2440 INPUT NUM
2450 PRINTTAB(12,25);
2460 *SPOOL"CHARACTER"
2470 FOR X=1TO16
2480   IF CH_DATA%(X,0)=0 THEN 2530
2490   PRINT;NUM;"VDU 23,";CH_DATA%(X,0);
2500   FOR Y=8TO1STEP-1
2510     PRINT;",";CH_DATA%(X,Y);
2520     NEXT:PRINT:NUM=NUM+10
2530   NEXT
2540 *SPOOL
2550 PROC_RESTORE_SCRN
2560 ENDPROC
2570 DEF PROC_QUIT
2580 CLS
2590 PRINTTAB(12,25);"Are you sure (Y/N)";
2600 INPUT Q$
2610 IF Q$="Y"THEN END
2620 ENDPROC
2630 DEF PROC_RESTORE_SCRN
2640 CLS
2650 PROC_SET_UP_EDIT
2660 PROC_RESTORE_CHARS
2670 ENDPROC
2680 DEF PROC_RESTORE_CHARS
2690 LOCAL X,Y
2700 FOR Y=0TO4:FOR X=0TO4
2710     MOVE X*100+810,Y*50+837
2720     IF CH(X,Y)<>0 THEN PRINTCHR$(5);CH(X,Y);CHR$(4);
2730     NEXT :NEXT
2740 ENDPROC
```

BBC MICRO TIPS

Try this small envelope command and sound, if any one experiments with send it in as a entry for the best sound effect or envelope:

```
ENVELOPE 1,1,-26,-36,-45,255,255,255,127,0,0,0,126,0
SOUND 1,1,1,1
```

T H A R G O I D S

by

J.S.Clegg

Thargoids is a short program for both the model A and model B Beebs. Though it may be necessary to leave out some of the text to fit it onto the model A. It will work in modes 0,1,2,4 and 6, though mode 6 is the only mode that will work on an 'A' and 4 is the recommended mode for the 'B'. This is changed by modifying line 20.

The game itself is based loosely on the old computer game 'Zombies', which may be familiar to many people. A rectangular area is scattered with objects deadly to both the computers 'Thargoids' and the player's character, these are the pools of explosive 'Gloop'. The computer guides the Thargoids towards the players character and the player tries to lure the Thargoids into contact with the 'pools' which destroys them. When all the Thargoids have been destroyed another screen is put up with a new set of Thargoids, the number of Thargoids is increased by one each set, up to a limit of twice the original number. The player character is 'killed' by contact with a Thargoid or a Gloop pool.

The game can be made easier or harder by varying the the number of Gloop pools, line 40 (GLOOP), and the initial number of Thargoids, line 30 (THARGS). More pools will destroy the Thargoids faster, so the player will not have to cope with close contact with many Thargoids. More Thargoids will obviously make the game harder. More than 12 Thargoids are extremely hard to cope with.

The characters were defined using the font editor, see else where in this issue, for those people who want to use the characters separately, the man is formed by characters 224 and 225 (lines 90-100), the Thargoid is formed by characters 226 and 227 (lines 110-120) and the hole/pool is formed by the four characters 228 to 231 (lines 130-160).

The envelope defined in line 10 was found by some careful experimentation. Using SOUND 0,1,80,1 a sound like a shell exploding is produced, several quick sounds together produce a fairly realistic salvo effect.

BBC MICRO HINTS

Many people have questioned the hole in the left hand side of the keyboard casing, all that would be said is that it could be used for plug in game cartridges in the near future by the BBC. Some people will notice that under this slot there is allowance for the plugging in of at least on ROM. What do they have in line for us now?

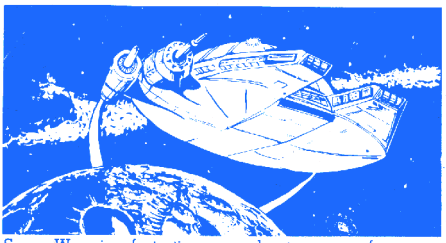
```
 10 ENVELOPE 1,178,-50,-75,-100,2,2,2,127,-20,-20,-20,126,50
 20 MODE 6:CLS:PRINTTAB(12,14);"T H A R G O I D S"
 30 WT=30:HT=10:THARGS=8:DIM LA(WT,HT),TH(THARGS*2,3),DM(7,2),MO(3,3)
 40 MX=0:MY=0:GLOOP=15:DEAD=FALSE:KILLED=0
 50 LIMIT=2*THARGS
 60 FOR X=0TO7:READ DM(X,1),DM(X,2):NEXT
 70 FORY=1TO3:FORX=1TO3:READ MO(X,Y):NEXT:NEXT
 80 FOR X =1TO WT:FOR Y=1TO HT:LA(X,Y)=0:NEXT:NEXT
 90 VDU 23,224,60,36,60,24,126,189,189,189
100 VDU 23,225,90,60,60,36,36,36,36,102
110 VDU 23,226,195,36,60,90,90,255,231,165
120 VDU 23,227,165,255,189,165,36,36,102,0
130 VDU 23,228,0,7,24,32,32,64,64,64
140 VDU 23,230,64,64,64,32,32,24,7,0
150 VDU 23,231,2,2,2,4,4,24,224,0
160 VDU 23,229,0,224,24,4,4,2,2,2
170 PRINTINKEY$(500):CLS:PRINTTAB(0,7)
180 PRINT"   You are stranded in a pen on the"
190 PRINT"planet Beetlejuice IV. The local"
200 PRINT"wildlife, the Thargoids, are hungry"
210 PRINT"and have decided that you would"
220 PRINT"make a nice change for lunch.":PRINT
230 PRINT"   Your only chance is to lead the"
240 PRINT"stupid an clumsy Thargoids into"
250 PRINT"the pools of explosive Gloop which"
260 PRINT"cover the area.":PRINT INKEY$(2000):CLS
270 PRINTTAB(0,7);"To move use the keys as shown below"
280 PRINTTAB(10,10);"I  O  P";TAB(10,12);
290 PRINT"K  L  +";TAB(10,14);"<  >  ?"
300 PRINTTAB(0,16);" 'L' means do not move, the rest"
310 PRINT"move you relative to your current"," position."
320 PRINTINKEY$(500):PRINT" G O O D   L U C K !"
330 INPUT"Press <RETURN> to continue"K$
340 CLS:PRINTTAB(0,3);"+";
350 DEAD=FALSE
360 FOR X=1TOWT:PRINT"-";:NEXT:PRINT"+"
370 FOR Y=1TO(2*HT):PRINT"|";TAB(WT+1);"|":NEXT:PRINT"+";
380 FOR X=1TOWT:PRINT"-";:NEXT:PRINT"+";
390 PRINTTAB(1,1);"HERE ARE THE GLOOP POOLS";
400 FOR C=1TOGLOOP
410   X=RND(WT-1):Y=RND(HT)
420   IF LA(X,Y)<>0 OR LA(X+1,Y)<>0 THEN 410
430   LA(X,Y)=3:LA(X+1,Y)=3
440   PROC_DRAW_HOLE(X,Y)
450   NEXT C
460 MX=X:MY=Y
470 PRINTTAB(1,1);"HERE ARE THE THARGOIDS  ";
480 FOR C=1TOTHARGS
490   X=RND(WT):Y=RND(HT)
500   IF LA(X,Y)<>0 THEN 490
510   TH(C,1)=X:TH(C,2)=Y:TH(C,3)=RND(8)
520   LA(X,Y)=2
530   PROC_DRAW_THING(2,X,Y)
540   NEXT
550 PRINTTAB(1,1);"AND HERE YOU ARE !!!       ";
560 X=RND(WT):Y=RND(HT)
570 IF LA(X,Y)<>0 THEN 560
```

```
580 LA(X,Y)=1:MX=X:MY=Y
590 PROC_DRAW_THING(1,X,Y)
600 PRINTTAB(1,1);"
610 ZAPPED=0
620 REPEAT
630   PRINTTAB(1,1);KILLED;"
640   PROC_MOVE_MAN
650   C=0
660   REPEAT
670     C=C+1
680     PROC_MOVE_THARGOID(C)
690     UNTIL DEAD OR C=THARGS
700   UNTIL DEAD OR ZAPPED=THARGS
710 FOR T=1TO4000:NEXT
720 PRINTINKEY$(500):CLS
730 IF ZAPPED=THARGS THEN THARGS=THARGS-NOT(THARGS=LIMIT):GOTO 890
740 IF LA(MX,MY)=3 THEN800
750 PRINTTAB(0,7);"Well never mind life was cruel"
760 PRINT"anyway. Take consolation in thefact"
770 PRINT"that the Thargoid that ate you had a"
780 PRINT"very bad case of indigestion."
790 GOTO840
800 PRINTTAB(0,7);"Your remains are smeared across a"
810 PRINT"major portion of the local landscape"
820 PRINT"and will be a source of great "
830 PRINT"olfactory discomfort for many months."
840 PRINTTAB(10,15);
850 *FX15,0
860 INPUT"Another game (Y/N)",A$
870 IF A$="N" THEN 930
880 KILLED=0:THARGS=LIMIT/2
890 FOR X=1TOWT:FORY=1TOHT:LA(X,Y)=0:NEXT:NEXT
900 GOTO340
910  DATA 0,1,1,1,1,0,1,-1,0,-1,-1,-1,-1,0,-1,1
920 DATA 5,4,3,6,0,2,7,0,1
930 END
940 DEF PROC_DRAW_THING(TYPE,X,Y)
950 LOCAL CH,LX,LY
960 LX=X:LY=24-2*Y
970 IF TYPE>2 OR TYPE<1 THEN ENDPROC
980 CH=TYPE*2+222
990 PRINTTAB(LX,LY);CHR$(CH);TAB(LX,LY+1);CHR$(CH+1);
1000 PRINTTAB(0,0);
1010 ENDPROC
1020 DEF PROC_MOVE_THARGOID(NM)
1030 LOCAL TX,TY,TD,DX,DY,DR
1040 TX=TH(NM,1):TY=TH(NM,2):TD=TH(NM,3)
1050 IF TX=0 THEN ENDPROC
1060 SOUND1,-9,10,1
1070 DX=2+SGN(MX-TX):DY=2+SGN(MY-TY)
1080 DR=MO(DX,DY)
1090 LA(TX,TY)=0
1100 IFDR=TD THEN1140
1110 IF RND(30)<=11THENTD=TD+(RND(3)-2):GOTO1130
1120 IF (DR-TD+8)MOD8>(TD-DR+8)MOD8 THEN TD=TD-1ELSE TD=TD+1
1130 TD=(TD+8)MOD8
1140 TX=TX+DM(TD,1):TY=TY+DM(TD,2)
1150 IF TX>WT THEN TX=TX-1
1160 IF TX<1 THEN TX=TX+1
1170 IF TY>HT THEN TY=TY-1
```

```
1180 IF TY<1 THEN TY=TY+1
1190 PROC_UNDRAW_THING(TH(NM,1),TH(NM,2))
1200 IF LA(TX,TY) = 0 THEN 1250
1210 IF LA(TX,TY) = 2 THEN TX=TH(NM,1):TY=TH(NM,2)
1220 IF LA(TX,TY) <> 3 THEN 1240
1230 ZAPPED=ZAPPED+1:KILLED=KILLED+1:SOUND0,1,80,1:TX=0:GOTO1270
1240 IF LA(TX,TY) = 1 THEN DEAD=TRUE:SOUND0,-15,7,100
1250 PROC_DRAW_THING(2,TX,TY)
1260 LA(TX,TY)=2
1270 TH(NM,1)=TX:TH(NM,2)=TY:TH(NM,3)=TD
1280 ENDPROC
1290 DEF PROC_UNDRAW_THING(X,Y)
1300 LOCAL LX,LY
1310 LX=X:LY=24-2*Y
1320 PRINTTAB(LX,LY);" ";TAB(LX,LY+1);" ";
1330 PRINTTAB(0,0);
1340 ENDPROC
1350 DEF PROC_DRAW_HOLE(X,Y)
1360 LOCAL LX,LY
1370 LX=X:LY=24-2*Y
1380 PRINTTAB(LX,LY);:VDU 228,229
1390 PRINTTAB(LX,LY+1);:VDU 230,231
1400 ENDPROC
1410 DEF PROC_MOVE_MAN
1420 LOCAL CH,DX,DY
1430 DX=0:DY=0
1440 *FX15,1
1450 CH=INKEY(300)
1460 IF CH=&49 OR CH=&4F OR CH=&50 THEN DY=1
1470 IF CH=&2C OR CH=&2E OR CH=&2F THEN DY=-1
1480 IF CH=&50 OR CH=&3B OR CH=&2F THEN DX=1
1490 IF CH=&49 OR CH=&4B OR CH=&2C THEN DX=-1
1500 IF MX+DX>WT OR MX+DX<1 THEN DX=0
1510 IF MY+DY>HT OR MY+DY<1 THEN DY=0
1520 PROC_UNDRAW_THING(MX,MY)
1530 LA(MX,MY)=0
1540 SOUND18,-7,10,20
1550 MX=MX+DX:MY=MY+DY
1560 IF LA(MX,MY)=0THEN 1620
1570 IF LA(MX,MY)<>2THEN 1600
1580 SOUND0,-9,10,100:SOUND1,-9,100,100:SOUND2,-9,125,100:SOUND3,-9,75,100
1590 GOTO1610
1600 SOUND0,1,80,100:SOUND1,-9,100,10:SOUND2,-9,125,10:SOUND3,-9,75,10
1610 DEAD=TRUE:ENDPROC
1620  PROC_DRAW_THING(1,MX,MY)
1630 LA(MX,MY)=1
1640 ENDPROC
```

ZX81 ..... B.B.C. MICRO ..... ATOM VIC

BBC SPACEWARP (32K)



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