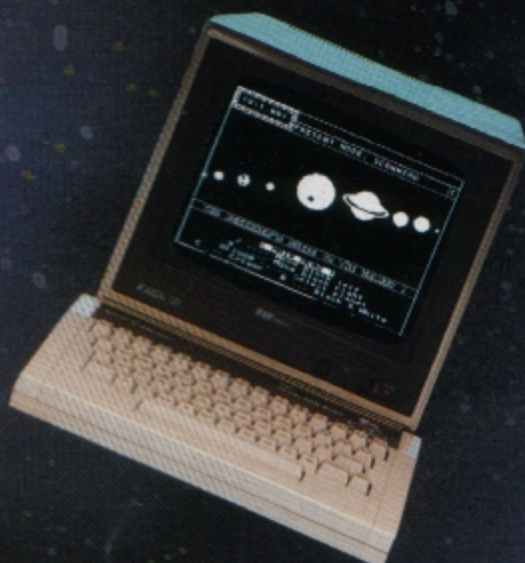


A Database Publication

electron user



Vol. 7 No. 10 July 1990 £1.25



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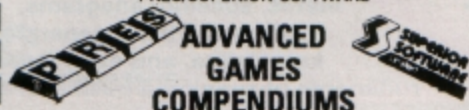
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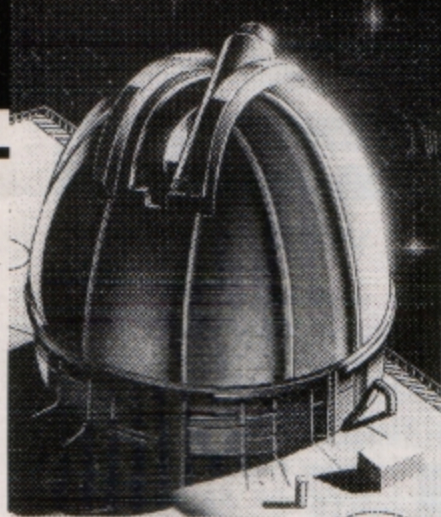
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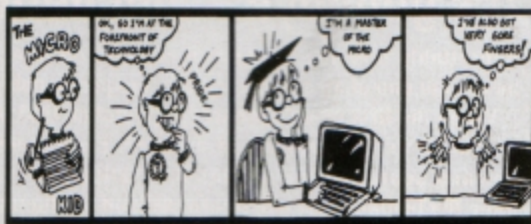
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Sam's on the ball

BILLED as the fastest, wackiest, toughest computer ball game yet, Ballistix will be the star offering on Play It Again Sam 14 from Superior Software (0652 58585).

A number one smash hit on the Atari ST and Amiga, Ballistix features 60 different action screens. Likely to be teamed with it will be Predator, the computer game of the Schwarzenegger film which challenges players to take a crack commando unit into the South African jungle to rescue a bunch of trapped diplomats.

Other titles for Sam 14 are still to be finalised, but Superior boss Steve Hanson is considering a new game, Star Port, from the author of Quest, Tony Oakden. It's a space version of Tony's previous arcade adventure Camelot. Also a likely contender is Network from Peter Scott. It's a similar but bigger



Predator



Ballistix

version of Peter's previous game Pandemonium, which was a hit on Sam 13.

Looking ahead, Superior will be going into the trivia quiz market. Christmas release will be The Quiz Challenge game which is a

typical trivia offering set to a snooker theme with coloured balls related to different questions. It comes from author Walter Mansell who also produced Smash & Grab and A Question of Sport.

Electrons tackle IT with ease

NEW information technology courses which are hitting the country's classrooms are sending many education authorities scurrying for the nearest Archimedes or PC dealer in the belief that they must go up market to achieve the stipulated results.

Few believe that they can reach the necessary criteria with anything as lowly as the Electron but down in Cornwall, staff at Falmouth School are of a different opinion.

For the last 12 years, the computer department of this 1200 pupil secondary school has revolved around 15 Electrons. They will continue to be used for the Information Technology courses which have now superseded the former Computer Studies classes.

"When we bought equipment for the computer department years ago, we went for a good hands-on machine rather than high quality", said IT co-ordinator Trevor Greenslade. "It was a good decision. The Electrons have been reliable and robust and even after seven years they are still going strong. They do a jolly good job.

"I have been involved in computer studies for as long as I can remember. I have often thought of upgrading to other machines but somehow we never seemed to have the money.

"Many of the schools down here have networks and that could be something for the future. Until then, we will continue with the Electrons. Trevor is confident that the Elks are quite capable of supporting the demands of the new IT syllabus. Even if he is successful in acquiring a network, there will still be plenty of work for them to do. They will be moved down into the lower school to give first and second year pupils their first introduction to secondary school computing.

E-Type draws the crowds

PLANS by Impact Software (0742 769950) to bring top Archimedes car racing game E-Type to the Electron have met with overwhelming support from the public.

Mark Botterill of Impact reports more than 500 advanced orders for the BBC/Electron version of which half are from Electron owners.

"This is the first car racing game for the Electron apart from the straight track Overdrive which was brought out five years ago," said Mark. "It has resulted in the largest number of advanced orders we have ever had for any game".

E-Type was originally due out on May 1 but had to be put back about five weeks because programmer Gordon Key was held up by his work on Apocalypse.

It's goodbye – and hello!

Regrettably this, the 82nd issue of *Electron User*, is the last. It marks the end of an era in computer magazine publishing.

When the first issue appeared, in October 1983, Acorn had just launched its mini-marvel of a micro. Excitement mounted as demand soared in the months that followed. Then, two years later, the bubble burst and Acorn stopped production.

But that was far from being the end of the Electron – or of *Electron User*. Warehouses were piled high with the machines, and they continued to be sold in large numbers.

And such was the loyalty of you, our readers, that *Electron User*, under the dedicated editorship of Roland Waddilove, has continued publishing for five long years after Acorn had finished supporting the machine. A remarkable record.

But now we feel it is time to move on. We know there is still lots to be discovered about the Electron, and many more games and utilities still to be written for it.

From now on you'll be able to find them in two completely different magazines. First, our big brother, *The Micro User*, will be featuring much more about the Electron in its pages, and it will be providing a monthly feast of entertainment and information for the serious Electron user.

But the really exciting news for users of all Acorn machines is the launch of a completely new dimension in computer magazine publishing – *Let's Compute!*

For a quick preview of what you can expect turn to the Centre Pages. But this can only give a brief indication of the fun times you are going to have, month after month, with *Let's Compute!* – and your Electron. We'll be seeing you!

DEREK MEAKIN

GALLUP

SOFTWARE CHART

THIS MONTH	LAST MONTH	TITLE (Software House)	COMMENTS	PRICE
1	●	PRO-BOXING Code Masters	It's Straight to the number one spot for budget king CodeMasters' cut price version of By Fair Means or Foul.	2.99
2	●	SUMMER OLYMPIAD Kixx	Summer is here, and this is your chance to be athletic without even going outside. Definitely value for money here.	2.99
3	2	PAPERBOY Encore	Still hanging around near the top of the charts. It's a pity about the flicker and slow speed. Get a turbo to improve matters.	2.99
4	5	YIE AR KUNG FU Hit Squad	There have been many clones and any combat game is invariably compared to it. A nice trip into meaningless violence if that's your thing.	2.99
5	9	BOXER Acornsoft	Feel that you want to hit something? This is your third chance so far in this month's chart. Take your feelings out on the keyboard and a little sprite.	2.99
6	10	STRIKE FORCE HARRIER Alternative	Now a budget title, you can take off with this excellent Mirrorsoft flight simulator. Good feel to the controls and realistic movement.	2.99
7	11	REPTON 2 Blue Ribbon	The little green friend has been revitalised in one of his earlier roles. Shame on you if you are missing this one from your collection.	2.99
8	12	COLOSSUS 4 CHESS CDS	The oldest strategy game in the world. Good training for a human versus human contest. So see if you can pit your wits against the computer and win.	9.95
9	13	TARZAN Alternative	If leaping from tree to tree appeals to you, and the voice of the wild beckons you may be a little disappointed with this one.	2.99
10	8	SPELLBINDER Superior	Another original from the Superior stable. Arcade adventure but with a little more to offer than some of its contemporaries.	9.95
11	14	CREEPY CAVE Atlantis	Budget time with a chilly underground arcade adventure. Why the ghost wants your house key is beyond me. But you'd better get him quickly.	1.99
12	15	JOE BLADE 2 Players	The graphics are good and the game very playable. The puzzle screens will keep you and community conscious Joe busy for hours.	1.99
13	16	PLAY IT AGAIN SAM 5 Superior	Another compilation of four games, this time covering the brilliant Imogen, colourful Elixir and new ones Bugblaster and Fortress.	9.95
14	17	RICOCHE Superior	Recognisable format, very addictive and a must if you are looking for something as challenging as Citadel and Palace of Magic.	2.99
15	●	ELIXIR Superior	Also on Sam 5, you are the unfortunate chemist transformed to the size of one of his own test tubes. Can you escape the laboratory alive?	9.95
16	●	CODENAME: DROID Blue Ribbon	Good old Stryker is off again, this time on his own and at a budget price. Easily one of the best arcade adventures around.	2.99
17	●	PALACE OF MAGIC Superior	There's a feel of Citadel about this arcade adventure full of puzzles and deadly encounters. Definitely one not to miss.	2.99
18	●	LAST OF THE FREE Audiogenic	Still hanging around the fringes of the charts. You will have to search out the shops that sell this old - but still not knocked out - timer.	7.95
19	●	JOE BLADE Players	The original Joe story, and though you don't need to buy both, you'll be missing out if you don't. Electron programming at its best.	1.99
20	5	GYROSCOPE Melbourne House	If you suffer from dizzy spells don't go for this one. Again an oldie making a comeback, buy it if you get the chance - it comes of a good vintage.	8.95

Cheat it again, Joe

Here's the final installment of the three part series in which Mark Gidley - author of the Cheat it Again series - has been helping you get to those high scores that were previously way out of reach

Volume 5

OUR bulging mailbag has confirmed that the 12 cheats published over the last two months have been very popular. Now, we're sure you'll be just as pleased with the last six cheats lifted from Cheat it Again, Joe volume 4.

This month there's cheats for the Last Ninja, Orbital, Pipeline, Repton Infinity, Zenon and the Play It Again Sam version of Killer Gorilla 2.

Just type in the listings and save them to your own blank disc or tape - not the one carrying the original software. Then run them and follow the on-screen instructions for more enjoyment from your favourite games.

Killer Gorilla Cheat

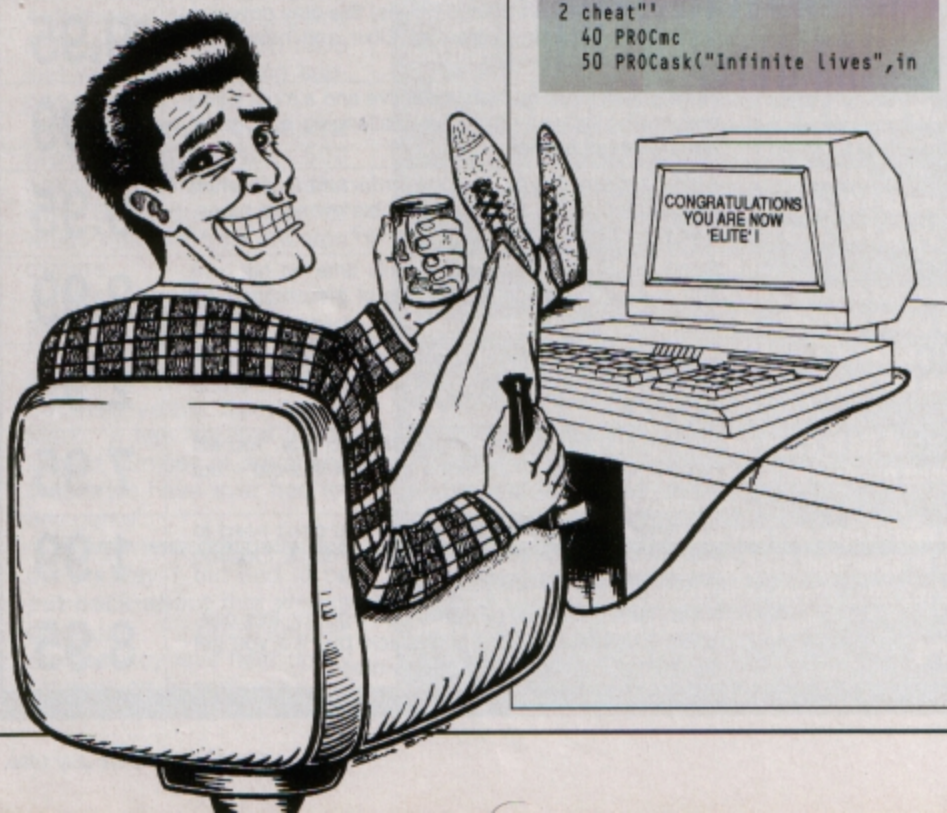
```
10 REM Killer Gorilla 2 cheat
20 REM Electron (Sam) version
30 MODE4:PRINT"Killer Gorilla
  2 cheat"
40 PROCmc
50 PROCask("Infinite Lives",in
```

Killer Gorilla 2 cheat

Infinite lives (Y/N) : Yes
Immortal (Y/N) : No

OK - Insert Killer Gorilla 2 tape and press play ...

```
Lives)
  60 PROCask("Immortal",inn)
  70 PRINT"OK - Insert Killer G
orilla 2 tape and press pl
ay ..."
  80 VDU28,0,13,20,10
  90 END
 100 */KILLER2
 110 END
 120 DEFPROCask(A$,AX)
 130 PRINT;A$;STRING$(26-LEN A$,
");"(Y/N) : ";AS=GETS:IF AS="Y"
THEN PRINT;"Yes" ELSE PRINT;"No"
:AX=&6D
 140 ENDPROC
 150 DEFPROCmc
 160 FORIX=0 TO 2 STEP2
 170 PX=&90D
 180 COPTIX
 190 .init
 200 LDA#0:STA&2E0D
 210 LDA#inter MOD 256:STA&22D:L
DA#inter DIV 256:STA&221:LDA#14:L
DX#4:JSR&FFF4
 220 RTS
 230 J:PX=&7F0D:COPTIX
 240 .inter
 250 PHP:PHA:TXA:PHA:TYA:PHA
 260 LDA&2E0D:CMPI#A9:BNEout
 270 JSRinLives:JSRinn
 280 LDA#13:LDX#4:JSR&FFF4
 290 .out PLA:TAY:PLA:TAX:PLA:PL
P:RTS
 300 .inLives LDA#A5:STA&6CF:RT
S
 310 .inn LDA#EA:STA&96D:STA&96
1:STA&964:STA&965:STA&2D06:STA&2D
07:STA&2D0B:STA&2D0A:STA&2D8C:STA
&2D8D:STA&A11:STA&A12:STA&A15:STA
&A16:STA&2CFD:STA&2CFD:RTS
 320 J:NEXT
 330 ENDPROC
```



The Last Ninja Cheat

The Last Ninja cheat

Number of lives (001-255) : 50
 Starting level (001-006) : 4
 Infinite lives (Y/N) : Yes
 No power loss in combat (Y/N) : Yes
 Walk over rivers (Y/N) : No

OK - Insert The Last Ninja tape and press play ...

```
10 REM The Last Ninja cheat
20 REM Electron version
30 :
40 MODE4:PRINT"The Last Ninja
  cheat"
50 lives=FNum("Number of lives",1,255,"001","255")
60 level=FNum("Starting level",1,6,"001","006")
70 PROCmc
80 PROCask("Infinite lives",in
  lives)
90 PROCask("No power loss in c
  ombat",inpower)
100 IF ?inpower<>860 THEN ?less
  power=860:GOTO120
110 PROCask("Less power loss in
  combat",lesspower)
120 PROCask("Walk over rivers",
  walk)
130 PRINT"OK - Insert The Last
  Ninja tape and          press pl
  ay ..."
```

```
150 *K.1 PAGE=&E00|MLOAD"LAST-N
  JA1"|F|M200!&C0=RD:CALL&D00|MRUN
  |F|M
160 *FX138,0,129
170 END
180 DEFPROCask(AS,AX)
190 PRINT;AS;STRING$(26-LENAS,"
  ");"(Y/N) : ";AS=GETS:IF AS="Y"
  THEN PRINT;"Yes" ELSE PRINT;"No"
  :?AX=&60
200 ENDPROC
210 DEFFNnum(AS,LX,MX,LS,MS)
220 PRINT;AS;STRING$(22-LENAS,"
  ");"("+LS+"-"+MS+) : ";
230 INPUT"a%:IF a%<LX OR a%>MX
  THEN GOTO220 ELSE =a%
240 DEFPROCmc
250 FORIX=0 TO 2 STEP2
260 PX=&D00
270 COPTIX
280 LDA#i MOD 256:STA&220:LDA#i
  DIV 256:STA&221
290 LDA#14:LDX#4:JSR&FFF4
300 LDY#Load DIV 256:LDX#Load M
```

```
OD 256
310 JSR&FFF7
320 LDA#13:LDX#4:JSR&FFF4
330 LDA#Lives:STA&239F
340 LDA#level+830:STA&226D:STA&
  227A
350 LDA#level-1:STA&22DD
360 JSRinlives:JSRinpower
370 JSRlesspower:JSRwalk
380 JMP&22DC
390 .inlives LDA#&A9:STA&24BD:R
  TS
400 .inpower LDA#0:STA&246F:RTS
410 .lesspower LDA#1:STA&246F:R
  TS
420 .walk LDA#0:STA&18FF:RTS
430 .i LDA&3CA:AND#254:STA&3CA:
  RTS
440 .load
450 J:$PX="LOAD NINJA-3"+CHRS13
: NEXT
460 ENDPROC
```

Orbital cheat

Infinite lives (Y/N) : Yes
 Immortal to Octopodes (Y/N) : No
 Infinite time (Y/N) : Yes

OK - Insert Orbital tape and press play ...

```
10 REM Orbital cheat
20 REM Electron version
30 :
40 MODE4:PRINT"Orbital cheat"
50 PROCmc
60 PROCask("Infinite lives",in
  lives):PROCask("Immortal to Octo
  podes",imm):PROCask("Infinite time
  ",time)
70 PRINT"OK - Insert Orbital
  tape and press          play ...
  ""
80 CALL&1800:PAGE=&E00:CHAIN"O
  RBITAL"
90 END
100 DEFPROCask(AS,AX)
```

Orbital Cheat

```
110 PRINT;AS;STRING$(26-LENAS,"
  ");"(Y/N) : ";AS=GETS:IF AS="Y"
  THEN PRINT;"Yes" ELSE PRINT;"No"
  :?AX=&60
120 ENDPROC
130 DEFPROCmc
140 FORIX=0 TO 2 STEP2
150 PX=&1800
160 COPTIX
170 SEI:LDA&204:STABYTE:LDA&205
  :STABYTE+1
180 LDA#0:STA&2700
```

```
190 LDA#inter MOD 256:STA&204
200 LDA#inter DIV 256:STA&205
210 CLI:RTS
220 J:PX=&4E50:COPTIX
230 .inter PHP:PHA:TXA:PHA:TYA:
  PHA
240 LDA&2700:CMPI#&A0:BNEout
250 JSRinlives:JSRimm:JSRtime
260 LDABYTE:STA&204:LDABYTE+1:S
  TA&205
270 .out PLA:TAY:PLA:TAX:PLA:PL
  P:JMP(byte)
280 .byte NOP:NOP
290 .inlives LDA#&A9:STA&12AD:R
  TS
300 .imm LDA#0:STA&1B98:RTS
310 .time LDA#0:STA&1781:STA&1
  93:RTS
320 J:NEXT
330 ENDPROC
```

Pipeline

Cheat

Pipeline cheat

Number of lives (001-255) : 99
 Infinite lives (Y/N) : Yes
 Immortal (Y/N) : No
 OK - Insert Pipeline tape and press play ...

```

10 REM Pipeline cheat
20 REM Electron version
30 :
40 MODE4:PRINT"Pipeline cheat
"
50 lives=FNnum("Number of live
s",1,255,"001","255")
60 PROCmc
70 PROCask("Infinite Lives",in
lives):PROCask("Immortal",immorta
l)
80 PRINT"OK - Insert Pipeline
tape and press play ...
"
90 *K.1 PAGE=&E00|MLOAD"PIPELI
NE"|F|M470CALL&900|MRUN|M
100 VDU7,21:*FX138,D,129
110 END
120 DEFPROCask(AS,AX)
130 PRINT;AS;STRINGS(26-LENAS,"
");"(Y/N) : ";AS=GET$:IF AS="Y"
THEN PRINT;"Yes" ELSE PRINT;"No"
:AX=&60
140 ENDPROC
150 DEFFNnum(AS,LX,MX,LS,MS)
160 PRINT;AS;STRINGS(22-LENAS,"

```

```

");"(LS;"-";MS;"") : ";
170 INPUT"aX:IF aX<LX OR aX>MX
THEN GOT0160 ELSE =aX
180 DEFPROCmc
190 FORIX=0T02 STEP2
200 PX=&900
210 COPTIX
220 LDA#in MOD 256:STA&220:LDA#
in DIV 256:STA&221:LDA#14:LDX#4:J
SR&FFF4
230 LDY#game DIV 256:LDX#game M
OD 256:JSR&FFF7
240 LDA#13:LDX#4:JSR&FFF4
250 LDA#lives:STA&236C
260 JSRinlives:JSRimmortal:JMP&
11F4
270 .inlives LDA#&A5:STA&2441:R
TS
280 .immortal LDA#&A5:STA&293C:
RTS
290 .in LDA&3CA:AND#254:STA&3CA
:RTS
300 .game
310 J:$PX="LOAD GAME"+CHRS13:NE
XT
320 ENDPROC

```

Repton

Cheat

Repton Infinity cheat

Infinite Lives (Y/N) : Yes
 Passwords not needed (Y/N) : Yes
 OK - Insert Repton Infinity tape and press play ...

```

10 REM Repton Infinity cheat
20 REM Electron version
30 MODE4:PRINT"Repton Infinit
y cheat"
40 PROCmc
50 PROCask("Infinite Lives",in
lives)
60 PROCask("Passwords not need
ed",nopass)
70 PRINT"OK - Insert Repton I
nfinity tape and press pl
ay ..."
80 CALL&900:PAGE=&E00:CHAIN""
90 END
100 DEFPROCask(AS,AX)
110 PRINT;AS;STRINGS(26-LENAS,"

```

```

");"(Y/N) : ";AS=GET$:IF AS="Y"
THEN PRINT;"Yes" ELSE PRINT;"No"
:AX=&60
120 ENDPROC
130 DEFPROCmc
140 FORIX=0T02 STEP2:PX=&900:CO
PTIX
150 LDA&204:STabyte:LDA&205:STA
byte+1
160 LDA#0:STA&3300
170 LDA#inter MOD 256:STA&204
180 LDA#inter DIV 256:STA&205
190 RTS
200 .inter
210 PHP:PHA:TXA:PHA:TYA:PHA
220 LDA&3300:CMPI#&4F:BNEout
230 JSRinlives:JSRnopass
240 LDabyte:STA&204:LDabyte+1:S
TA&205
250 .out
260 PLA:TAY:PLA:TAX:PLA:PLP:JMP

```

```

(byte)
270 .byte NOP:NOP
280 .nopass LDA#&EA:STA&21E6:ST
A&21E7:RTS
290 .inlives LDA#&A9:STA&FOA:LD
A#&B2:STA&FOB:RTS
300 J:NEXT
310 ENDPROC

```

*** REPTON INFINITY SCREEN ***:

Repton Infinity cheat

Infinite lives (Y/N) : Yes
 Passwords not needed (Y/N) : Yes
 OK - Insert Repton Infinity tape and press play ...

Wayne G Boyd shows how to build up a program from a library of procedures

WHY re-invent the wheel each time you write a program? You should be able to build up a library of routines – input, double height, menus and so on – and use them in every new program you write.

Once the library is constructed this routine, Compile, will help disc users put the procedures together. Tape users can use the method described in the panel.

When your procedures have been put together in this way you can write the core of the program to call them. Remember that if one procedure calls another you must always include both in your programs.

Compile displays the routines on your disc – currently the ones in the \$ directory – and lets you select the ones you want putting together. If you want to keep your procedures in a different directory just change line 150 to, say:

```
150 *DIR P
```

The program will ignore all filenames with a ! before them, so !BOOT and any other ! program will not be included in the menu. If you type the program in and save it as !MAIN it will remain hidden as your procedures are displayed.

When you save your procedures to disc you do so as a normal Basic program in the root directory. You don't need to adjust any data statements or to add the name of the new procedure to any menu list in this program because it automatically reads the disc's catalogue information.

When you use Compile, select the procedures required from the menu by entering the appropriate numbers. You can continue to enter numbers until you press H followed by Return.

Then Compile will put the selected procedures together in to one long program and ask you for the line number you want your new Basic program to start from. After this has been entered the new routine will appear on the screen ready for further work by the programmer.

Using tape?

As cataloguing a tape takes a long time, a program like Compile is not suitable for that medium. But you can still build up a library of procedures and build a program if you use this method:

- Save each procedure on a separate tape – or at least remember the index counter on your recorder – so that the appropriate one can be found quickly.

- Load the first routine as if it was a full program using:

```
LOAD "filename"
```

- Add other routines to the end of this

Building

Blocks

Procedure Compilation Program

Designed and Written By Wayne G Boyd

1. SCREEN
2. FILL
3. COLOUR
4. RAM
5. DISC
6. MODE9
7. CLS
8. INPUT
9. BACK G
10. LI BOX
11. SQ BACK
12. H LIGHT
13. DBL

Enter a proc number, or 'H' when happy

=>

Setting up

It is extremely important that the !boot file – or other start up file – be set up in the following manner:

```
S%=PAGE
PAGE=&4900
CHAIN"!MAIN"
```

It must be set up like this because the program needs to know the page of the micro so the procedures can be put there and the program itself must be run way above this.

```
10 REM *****
20 REM **
30 REM ** PROCEDURE COMPILER **
40 REM **
50 REM ** By **
60 REM ** Wayne G Boyd **
70 REM ** (c)Electron User **
80 REM **
90 REM *****
100 MODE6
110 *DIR $
120 PROCfIND
130 PROCdisplay
140 PROCask
150 PROCconstruct
160 PROCreturn
170 END
180 :
190 DEFPROCfIND
200 DIM procs(27)
210 osgbpb=&FFD1
220 h$=""
230 DIM parblk &0C
240 VDU23,255,255,255,255,255,255,
255,255,255
```

using:

```
OSCLI"LOAD filename "+STR$(TOP-2)
```

- Renumber your program using the command:

```
RENUMBER startline, step
```

Your routines will now be ready for you to add the main core of the program to.

This method will also work from disc, but is not as convenient to use as selecting filenames from a menu. However, the OSCLI command above is useful, combining two Basic programs whether you're using tape or disc.

```

250 DIM name$(100)
260 DIM filename 10
270 DF=1
280 AX=8
290 X%=parblk MOD &100
300 Y%=parblk DIV &100
310 parblk!9=0
320 REPEAT
330 parblk!1=filename
340 parblk!5=1
350 CALL osgbbp
360 IF parblk!5<>1 THEN PROCprint
370 UNTIL parblk!5=1
380 ENDPROC
390 DEF PROCprint
400 FOR i%=1 TO ?filename
410 LET h$h$+CHR$(filename?i%)
420 NEXT
430 IF INSTR(h$,"!")=0 THEN name$(DF
)=h$ ELSE h$="":GOTO 470
440 h$=""
450 DF=DF+1
460 g%=DF-1
470 ENDPROC
480 DEFPROCdisplay
490 VDU19,1,3,0,0,0,0
500 PRINTTAB(5,2)"Procedure Compilat
ion Program"
510 PRINTTAB(5,3)"-----"
-----
520 PRINTTAB(2,5)"Designed and Writt
en By Wayne G Boyd"
530 IF g%<13 THEN amount=g% ELSE amo
unt=13
540 FOR loop1=1 TO amount
550 IF loop1<10 THEN PRINTTAB(1,(7+
loop1));loop1;". ";name$(loop1) ELSE P
RINTTAB(0,(7+loop1));loop1;". ";name$(
loop1)
560 NEXT loop1
570 IF g%>13 AND g%>26 THEN amount=1
3
580 IF g%>13 AND g%<=26 THEN amount=
g%-13
590 IF g%<=13 THEN GOTO 630
600 FOR loop2=1 TO amount
610 PRINTTAB(18,(7+loop2));loop2+13;
". ";name$(loop2+13)
620 NEXT loop2
630 PRINTTAB(0,22)"Enter a proc numb
er, or 'H' when happy"
640 PRINTTAB(0,23)"=> "
650 ENDPROC
660 DEFPROCask
670 FOR loop=1 TO 26
680 PRINTTAB(3,23)SPC(30)
690 INPUTTAB(3,23)proc$:PROCcheck(VA
L(proc$))
700 IF (VAL(proc$)<=26 AND VAL(proc$
)>0 AND used=FALSE AND (VAL(proc$)<=g
%)OR proc$="H" THEN SOUND1,-15,165,5 E
LSE VDU7:GOTO 680
710 IF loop=g% OR loop=26 THEN numbe
r%=loop
720 IF proc$="H" OR proc$="h" THEN n
umber%=loop-1:loop=26:GOTO 740 ELSE pr
ocs(loop)=VAL(proc$)
730 PROChighlight(VAL(proc$))
740 NEXT loop
750 ENDPROC
760 DEFPROChighlight(number)
770 IF number<=13 THEN ypos=7+number
:xpos=0
780 IF number>13 THEN ypos=7+number-
13:xpos=18
790 PRINTTAB(xpos,ypos)CHR$(255);CH
R$(255);
800 ENDPROC
810 DEFPROCcheck(num)
820 used=FALSE
830 FOR check=1 TO 26
840 IF num=procs(check) THEN used=TR
UE
850 NEXT check
860 ENDPROC
870 DEFPROCconstruct
880 VDU23,1,0,0,0,0,0,0,0,0,0,0,0
890 page=S%
900 FOR loop=1 TO number%
910 OSCLI("LOAD "+name$(procs(loop))
+" "+STR$page)
920 AX=OPENIN(name$(procs(loop)))
930 len=EXT#AX
940 CLOSE#AX
950 page=page+(len-2)
960 NEXT loop
970 ENDPROC
980 DEFPROCreturn
990 PRINTTAB(0,22)"Please enter line
number to start from ";
1000 PRINTTAB(0,23)"=> ";SPC(30)
1010 INPUTTAB(3,23)linenum
1020 OSCLI("K.O PAGE="+STR$(S%)+"|MEN
D|MREN."+STR$(linenum)+"|MVDU6|MNO.7|M
LIST|M")
1030 VDU21
1040 *FX138,0,128
1050 END
1060 ENDPROC

```

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"A real challenge to the thinking football fan . . . Bobby Robson could do worse than have a crack at this in his preparation for the World Cup".

AMSTRAD ACTION
REVIEW

QUAL-SOFT COMMENT: At last an INTELLIGENT management game for the knowledgeable soccer enthusiast!

TAPE 1
QUALIFIERS

ROME 90*

TAPE 2
FINALS

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TAPE 1 (Qualifiers)

- ★ Current squad of 16 players + 20 user defined players.
- ★ Friendlies in Athens, at Wembley + South American tour.
- ★ ANY team formation you choose, 2 from 5 substitutes.
- ★ In match tactics any no. of individual player adjustments.
- ★ Your qualification group, full results and table.

TAPE 2 (Finals)

- ★ Choose a 20 man squad to take to the finals.
- ★ Group of 4 prelims, 16 to final knockout comp.
- ★ Extra Time, PENALTY SHOOT-OUTS, where relevant.
- ★ Formation and strength information on opposition.
- ★ 2 from 9 substitutes (the FA tells us so).

ENGLAND'S GAMES: FULL PITCH, 22 MAN, 3D GRAPHICS & SOUND EFFECTS

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The Commodore A500 Batman Pack must surely rank as one of the most popular computer packs ever! The pack features the Commodore Amiga 500 computer with mouse controller and TV modulator, plus four top software titles. The software includes: 'Batman The Movie' - Rid Gotham City of the cunning joker, in Ocean's top selling title based on the blockbuster Batman film; 'New Zealand Story' - high quality conversion of the leading arcade game; 'Interceptor' - Dogfight with two F-16's in this leading flight simulator; 'Deluxe Paint II' - top quality Amiga graphics package which set the standard for others to follow. Return the coupon for further details.

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AMIGA 2000



For the more serious or professional applications user, Commodore have a selection of systems based around the expandable Amiga 2000, at prices from £1295+VAT. The A2000 features a full 1Mb RAM (expandable to 9Mb), 9 system expansion slots, plus IBM compatibility with the use of PC-XT or PC-AT bridgeboards. Complete and return the coupon, putting a tick in the A2000 box, for details of A2000 computer systems.

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Flight of Fantasy is the very latest Amiga 500 pack from Commodore, featuring BRAND NEW software releases, to make this the most spectacular A500 pack ever! The pack features the Amiga 500 computer with mouse controller and TV modulator, as well as four top software titles. These include the following:

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ESCAPE / ROBOT MONSTERS:	RAINBOW ISLANDS:
Here's something completely different - a science fiction story with comic book style graphics. Our heroes Jake and Duke are on the Planet X rescuing Humans who have been captured by the Robot Monsters and forced to create an evil Robot Army to DESTROY EARTH! Jake and Duke fight their way through hordes of evil Robots to help the Humans escape.	Slip on your magic shoes, practise throwing a rainbow and you're ready to go island hopping. From the Island of Doh to Monater Island, you will encounter Doh himself, stinging insects, lethal combat machines, mechanical assassins, the formidable beings of legend and folklore. Finally enter the world of darkness and its inhabitants.
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Which computer(s), if any, do you own? A2000



The animated title screen.

Star Trek

Let Darren Bradley beam you up for a beginner's guide to the galaxy

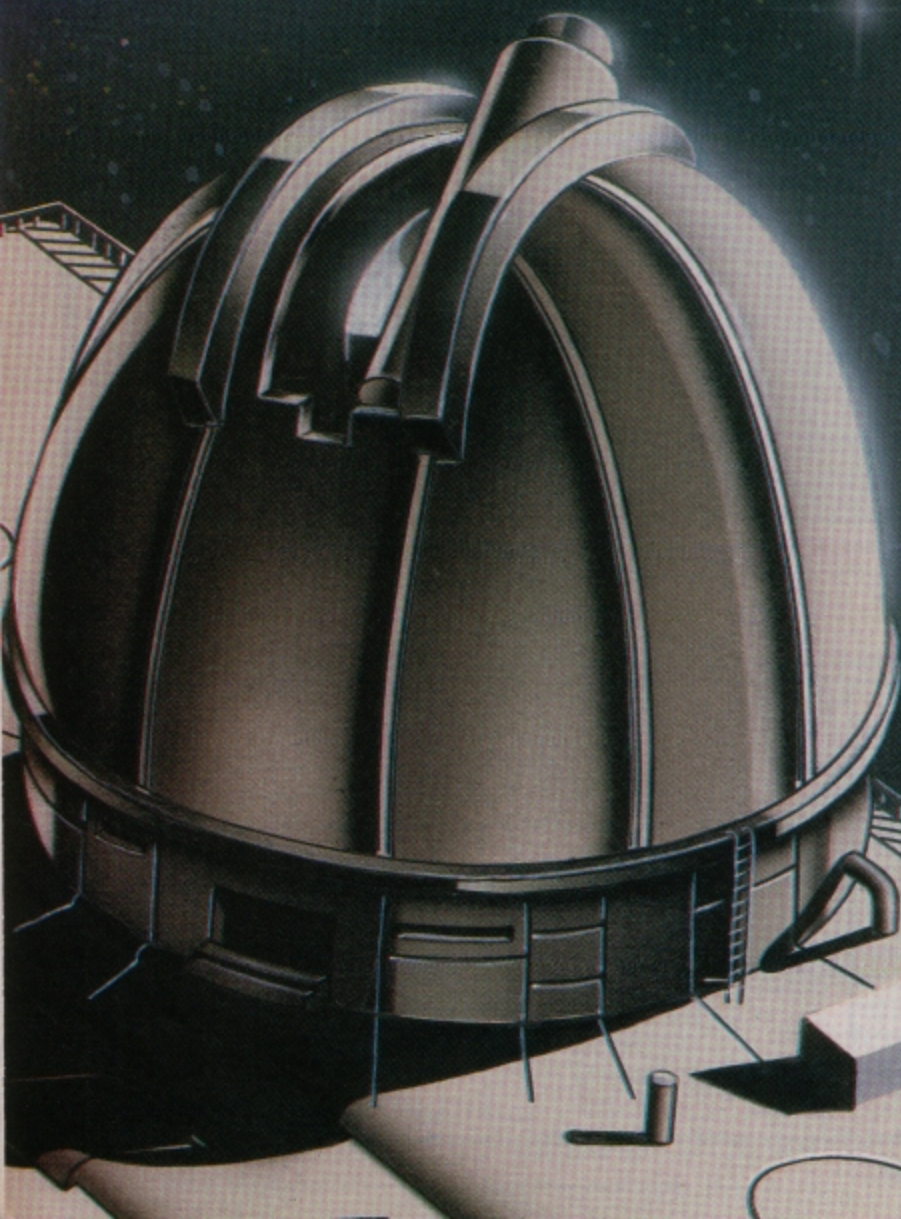
HERE's a package designed to aid budding young astronomers everywhere. With its unique ability to manipulate information, you can study the stars from the comfort of your armchair.

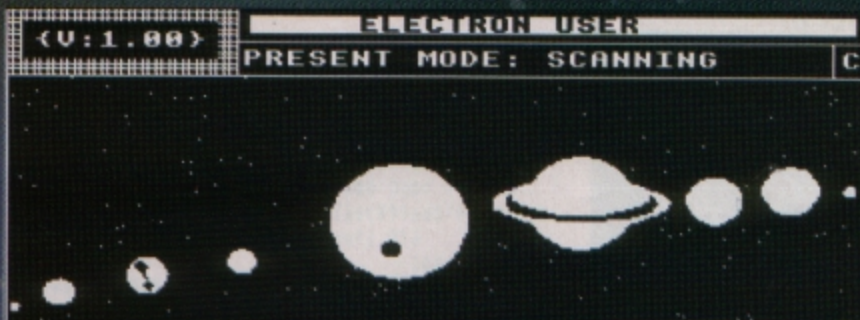
All the information in the program has been compiled from various books and charts available to anyone, but it is now presented in a much clearer and understandable way. It's an ideal introduction to the planets in our solar system.

The program consists of various sections, each giving detailed information on the nine known planets in the system of Sol. You can just browse around all the information as you wish.

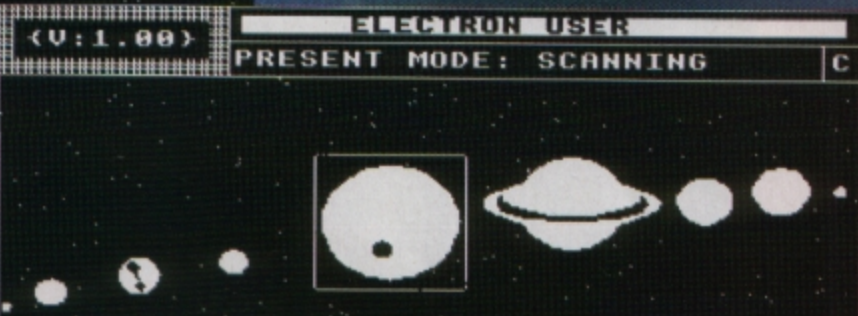
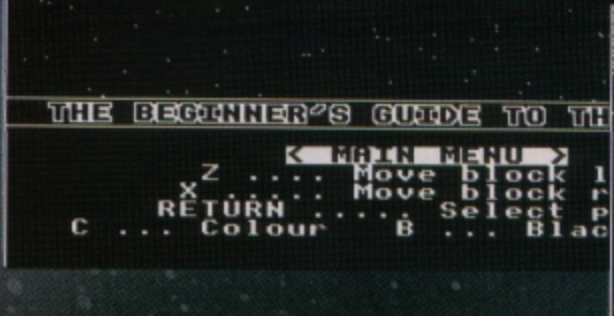
Using the routine you can easily compare the volumes of and measure the distance between any two planets. It's just as easy to display the orbital period in eight time phases and also give general background information on the selected body.

So type in the listing and select a planet from the chart displayed. The ease of use and versatility of the software makes it a pleasure to star-gaze and your knowledge of the planets will quickly increase. It's a super package for anyone with an interest in the world that lies beyond your sitting room.





Select the planet
you want to find
out details for



THE BEGINNER'S GUIDE TO THE GALAXY I
: JUPITER
or
nts ?
to continue...

Jupiter selected

THE BEGINNER'S GUIDE TO THE GALAXY I
Time take for JUPITER to complete
one rotation of the sun, in days.
One year on JUPITER is
equal to 4288 days.
Press <SPACE-BAR> to continue

The rotational
details of Jupiter



The structural details of Jupiter

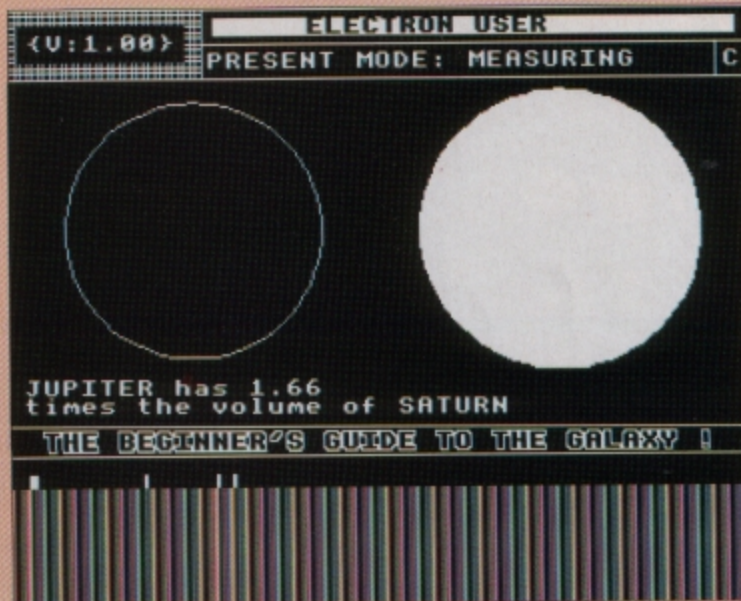


Measuring the distance from Jupiter to Saturn

```

10 REM*****
20 REM* THE BEGINNER'S GUIDE TO *
30 REM* THE GALAXY ! *
40 REM* BY DARREN BRADLEY *
50 REM* (c) Electron User *
60 REM*****
70 :
80 MODE4:VDU23;8202;0;0;19,1,3;0;
:OSCLI"FX229,1":ONERROR MODE6:REPORT:P
RINT" at line ";ERL:OSCLI"FX229,0":END
90 PROCva:PROCsc:PROCship:PROCmo:EN
D
100 :
110 DEFPROCva:DIMme$(3),sx%(50),sy%(
50),pl$(9),cx%(7),cy%(7),ro%(9),di%(9)
,de$(9,5),pn%(9),c(72),s(72),vo(9):VDU
23,224,0,4,6,255,255,6,4,0,23,225,0,0,
0,0,0,0,255,23,226,8,24,8,8,28,0,2
55,23,229,255,255,255,255,255,255,
255:te%=0
120 VDU23,254,8,24,8,8,28,0,255,23
,234,96,240,248,112,48,16,16,8,23,235,
0,12,30,12,4,0,0,0,23,230,1,2,4,8,16,3
2,64,128,23,231,128,64,32,16,8,4,2,1,2
3,232,0,0,0,0,24,36,66,129,23,233,255,
0,0,0,0,0,0,0:xc%=1:sp$=STRING$(10,CHR
$229)
130 sp$=STRING$(10,CHR$229):dv$=STRI
NG$(3,CHR$95)+CHR$254+STRING$(3,CHR$95
):FORn=0TO2:READme$(n):NEXT:x$=CHR$32:
y$=CHR$95
140 a$=x$+x$+CHR$232+x$+x$+x$+CHR
$230+CHR$233+CHR$231+x$+x$+CHR$232+x$+
x$+CHR$230+CHR$231+x$+x$+CHR$232+x$
+x$+CHR$230+CHR$233+CHR$231+x$+x$+C
HR$232+x$+x$+x$+x$+CHR$230+CHR$231+x$+
x$
150 a1$=y$+CHR$230+x$+CHR$231+y$+y$+
CHR$230+x$+x$+CHR$231+CHR$230+x$+CH
R$231+CHR$230+x$+x$+CHR$231+y$+CHR$230
+x$+CHR$231+CHR$230+x$+x$+CHR$231+y
$+CHR$230+x$+CHR$231+y$+y$+CHR$230+x$+
x$+CHR$231+y$
160 ENVELOPE1,0,127,127,127,255,255,
255,126,0,0,-126,126,126:FORn=1TO9:REA
Dpl$(n),ro%(n),di%(n),de$(n,0),de$(n,2
):NEXT:FORn=1TO45:READsx%(n),sy%(n):NE
XT:i=0:FORn=0TO315 STEP45:cx%(i)=640+(
COS(RAD(n))*210):cy%(i)=600+(SIN(RAD(n
))*210)
170 i=i+1:NEXT:FORn=1TO4:de$(n,1)="I
NNER":NEXT:FORn=5TO9:de$(n,1)="OUTER":
NEXT:FORn=0TO9:READa,b,c:de$(a,b)=c:
NEXT:FORn=5TO8:de$(n,4)="GASEOUS":de$(
n,5)="TOXIC GASES (HYDROGEN)":NEXT:FOR
n=1TO9:de$(n,3)="ANTI-CLOCKWISE":NEXT
180 de$(2,3)="CLOCKWISE":FORn=0TO360
STEP5:c(n/5)=COS(RAD(n)):s(n/5)=SIN(RA
D(n)):NEXT:FORn=1TO9:READpn%(n),vo(n):
NEXT:ENDPROC
190 :
200 DEFPROCsc:VDU18,0,1,5:DRAW0,1023
:DRAW1279,1023:DRAW1279,0:DRAW0,0:MOVE

```



Comparing the volumes of planets

```

0,300: DRAW1279,300: MOVED,900: DRAW1279,
900: MOVE1279,252: DRAW0,252: MOVE340,102
3: DRAW340,900: MOVE340,962: DRAW1279,962
:: MOVE1220,900: DRAW1220,962: FORn=0T034
OSTEP10
210 MOVE n,1023: DRAW n,900: NEXT: FORn=9
02T01022STEP10: MOVED, n: DRAW340, n: NEXT:
GCOLD, 0: FORn=994T0962STEP-16: MOVE26, n:
PRINTSTRING$(9, CHR$229): NEXT: MOVE42, 97
8: GCOLD, 1: PRINT"V:1.00": PROCTx("WELC
OME TO ...", 416, 868): VDU18, 0, 1
220 PROCTx("THE BEGINNER'S GUIDE TO
THE GALAXY!", 64, 290): VDU18, 0, 1, 5: MOVE
362, 1005: PRINTSTRING$(28, CHR$229): GCOL
0, 0: MOVE362, 1005: PRINT" ELECTRON U
SER ": VDU18, 0, 128, 18, 0, 1: MOVE348, 9
47: PRINT"PRESENT MODE:": ENDPROC
230 :
240 DEFPROCno: PROCpm(0): VDU28, 1, 30, 3
8, 25, 12: VDU5: MOVE1235, 945: GCOLD, 1: VDU6
7, 4: PROCpd: PROCcke: GCOLD, 0: PROCdr(46, 1)
: REPEAT: chX=xcX: IFINKEY-98 xcX=xcX-5: S
OUND1, -15, 150, 1
250 IFINKEY-67 xcX=xcX+5: SOUND1, -15,
150, 1
260 IFINKEY-83 SOUND1, -15, 200, 1: GCOL
0, 0: MOVE1235, 945: VDU19, 1, 3, 0, 5, 229: MOV
E1235, 945: VDU18, 0, 1, 67, 4
270 IFINKEY-101 SOUND1, -15, 100, 1: GCOL
0, 0: MOVE1235, 945: VDU19, 1, 7, 0, 5, 229: MO

```

```

VE1235, 945: VDU18, 0, 1, 66, 4
280 IFxcX<1 xcX=chX
290 IFxcX>45 xcX=chX
300 IFINKEY-74 SOUND1, 1, 200, 2: PROCpl
(xcX): PROCpm(0)
310 IFteX PROCdrII(chX): teX=NOT(teX)
320 PROCdr(chX, xcX): UNTILO: ENDPROC
330 :
340 DEFPROCtx(a$, xX, yX): LOCALaX, bX: V
DU18, 0, 1, 5: FORaX=yX-4 TOyX+4 STEP4: FOR
bX=xX-4 TOxX+4 STEP4: MOVEbX, aX: PRINTa$
: NEXT, : GCOLD, 0: MOVExX, yX: PRINTa$: VDU4:
ENDPROC
350 :
360 DEFPROCpm(w): VDU18, 0, 0, 5: MOVE796
, 947: PRINTsp$: GCOLD, 1: MOVE796, 947: PRIN
Tne$(w): VDU4: ENDPROC
370 :
380 DEFPROCdr(olX, nwX): GCOLD, 0: MOVEs
xX(olX), syX(olX): FORn=1T04: DRAWsxX(olX
+n), syX(olX+n): NEXT: MOVEsxX(nwX), syX(n
wX): FORn=1T04: DRAWsxX(nwX+n), syX(nwX+n
): NEXT: ENDPROC
390 :
400 DEFPROCpl(fX): caX=(fX/5)+1: CLS: P
RINTTAB(0, 0)"Planet Name: "; pl$(caX); T
AB(0, 1); "<D>etails, or""<M>easurement
s ?""<SPACE-BAR> to continue..."
410 OSCLI"FX21": waX=GET: IFwaX=68 PRO
Cpm(1): PROCde(caX): PROCcke: ENDPROC
420 IFwaX=77 PROCpm(2): PROCmes: PROCK
e: ENDPROC
430 IFwaX=32 PROCcke: ENDPROC ELSE410

```

```

440 :
450 DEFPROCmes: CLS: PRINTTAB(0, 0)"Pla
net Name: "; pl$(caX); TAB(0, 1); "<D>ista
nce apart, or""<S>ize difference ?""
"<SPACE-BAR> to continue..."
460 OSCLI"FX21": waX=GET: IFwaX=68 PRO
Cme(fX, caX): PROCcke: ENDPROC
470 IFwaX=83 PROCfi(caX): PROCcke: ENDP
ROC
480 IFwaX=32 PROCcke: ENDPROC ELSE460
490 :
500 DEFPROCme(frX, fnX): a=0: qX=0: qqX=
0: cX=0: ccX=0: ds$="": dsX=0: CLS: PRINTTAB
(0, 0); "Measuring from "; pl$(fnX); " to"
: VDU26, 28, 1, 30, 38, 26
510 INPUT">" a$: coX=-1: FORn=1T09: IF
a$=pl$(n) coX=n: NEXT ELSENEXT
520 GCOLD, 0: IFcoX=-1 ORa$="" ORa$=pl
$(fnX) CLS: PROCms: GOT0510
530 toX=((coX-1)*5)+1: qX=sX(frX+1)-
((sX(frX+1)-sX(frX))/2): qqX=sX(toX+
1)-((sX(toX+1)-sX(toX))/2): cX=qX+(qq
X-qX)/2: ccX=qqX+(qX-qqX)/2: FORg=0T01: M
OVEsxX(toX), syX(toX): FORn=1T04: DRAWsxX
(toX+n), syX(toX+n): NEXT: MOVEqX, syX(frX
+3)
540 DRAWqX, 450: DRAWqqX, 450: DRAWqqX, s
yX(toX+3): IFqqX<qX MOVEccX, 463: VDU5, 60
, 4 ELSEMOVEcX, 463: VDU5, 62, 4
550 dsX=ABS(diX(coX)-diX(fnX)): ds$=F
Nco(dsX): PRINT"Distance between them =
"; dsX; " million kilometres": IFa=0 PRO
Csb: a=1: VDU30: NEXT
560 NEXT: VDU12, 26, 28, 1, 30, 38, 25, 12: E
NDPROC
570 :
580 DEFPROCms: LOCALa, n: a=RND(4): ONa
GOSUB600, 610, 620, 630
590 FORn=0T02000: NEXT: CLS: ENDPROC
600 PRINT"I'm not having that!": RETU
RN
610 PRINT"Don't be so stupid!": RETU
RN
620 PRINT"You're not clever you know
!": RETURN
630 PRINT"Trying to confuse me, eh?":
RETURN
640 :
650 DEFPROCcke: CLS: PRINTTAB(12); VDU1
7, 129, 17, 0: PRINT"< MAIN MENU >": VDU17,
128, 17, 1: PRINTTAB(8)"2 ... Move block
left" TAB(7)"X ... Move block right
" TAB(6)"RETURN ... Select planet" TAB(2)"C ... Colour B ... Black & Whi
te": ENDPROC
660 :
670 DEFPROCde(noX): CLS: PRINTTAB(0, 0)
"Planet Name: "; pl$(noX); TAB(0, 1); "<R>
otation time, or""<S>tructural detail
s ?""<SPACE-BAR> to continue..."
680 OSCLI"FX21": waX=GET: IFwaX=82 PRO
Cro(noX): PROCcke: ENDPROC
690 IFwaX=83 PROCst(noX): PROCcke: ENDP
ROC
700 IFwaX=32 PROCcke: ENDPROC ELSE680
710 :
720 DEFPROCrc: LOCALn, o, k, k1, sX, aX: VD
U24, 4; 304; 1274; 896; 16, 26, 24, 4; 304; 1274
; 896; 28, 1, 30, 38, 25: sX=roX(pX)/8: aX=-sX
: PROCci(640, 600, 150, 150): VDU18, 0, 0, 5: M
OVE592, 632: PRINT"THE": MOVE592, 600: PRIN
T"SUN": VDU18, 0, 1, 4: FORn=0T07: VDU29, cxX
(n); cyX(n);
730 FORo=0T071STEP4: PLOT69, c(o)*35, s
(o)*35: NEXT: aX=aX+sX: ti$=FNco(aX): k=10
0+ABS(LEN(ti$)-2)*32: k1=(LEN(ti$)*32)/
2: VDU5: IFn=0 MOVE50, 32: PRINT; ti$; " to"
: MOVE50, 0: end$=FNco(roX(pX)): PRINT; end
$; " days." : NEXT
740 IFn=2 MOVE-k1, 75 ELSEIFn=6 MOVE-
k1, -43 ELSEIFn>2 ANDn<6 MOVE-(LEN(ti$)
)-k, 16 ELSE MOVE50, 16
750 PRINT; ti$: NEXT: VDU4: PRINTTAB(0, 2

```



The distance between the two extreme planets


```

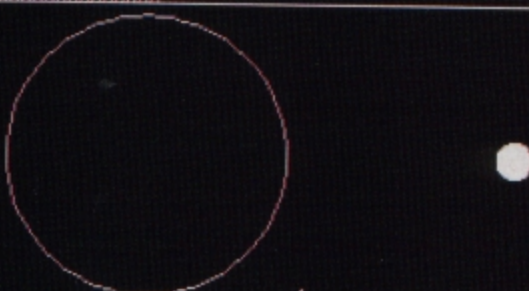
) "One year on ";pl$(p%);" is"" equal t
o ";ro$(p%);" days." :PROCsb:VDU29,0;0;
16,26,28,1,30,38,25,12:PROCpd:ENDPROC
760 :
770 DEFPROCro(p%):CLS:PRINT"Time tak
e for ";pl$(p%);" to complete""one ro
tation of the sun, in days." :PROCrc:te
x=-1:ENDPROC
780 :
790 DEFPROCsb:PRINT"Press <SPACE-BAR
> to continue":REPEATUNTILGET=32:ENDPR
OC
800 :
810 DEFPROCdriI(oL%):GCOL4,0:MOVESx%
(oL%),sy%(oL%):FORn=1T04:DRAWsx%(oL%+n
),sy%(oL%+n):NEXT:ENDPROC
820 :
830 DEFFNco(r%):a$=STR$(r%):IFLEN(a$
)<=3 num$a$=:num$
840 e=LEN(a$)-3:b$=RIGHT$(a$,3):c$=L
EFT$(a$,e):num$c$+","b$=:num$
850 :
860 DEFFNco2(r):a$=STR$(r):e=0:FORn=1T
OLEN(a$):IFMID$(a$,n,1)="." e=n
870 NEXT:IFe>0 r$=LEFT$(a$,e+2)
880 =r$
890 :
900 DEFPROCst(pl%):VDU12,24,4;304;12
74;896;16,26,28,1,21,38,4,12,17,129,17
,0:PRINTTAB(2,0);"< STRUCTURAL DETAILS
OF ";pl$(pl%);" >":VDU17,128,17,1:PRI
NTTAB(0,2)** EQUATORIAL DIAMETER:"** **
PLANETARY GROUP:"**
910 PRINT"* TURNS ON AXIS (ie:One da
y):""** ROTATIONAL DIRECTION:"""** PL
ANET'S SURFACE:"""** ATMOSPHERIC CONSI
STENCY:"":VDU17,129,17,0:i=0:FORn=3T013
STEP2:PRINTTAB(2,n);de$(pl%,i):i=i+1:
NEXT:VDU10,17,128,17,1:PROCsb:CLS
920 VDU28,1,30,38,25,24,0;0;1279;102
3;teX=-1:PROCpd:ENDPROC
930 :
940 DEFPROCci(x,y,a,b):FORn=0T071STE
P2:MOVEx,y:MOVEx+c(n)*a,y+s(n)*b:PLOT8
5,x+c(n+2)*a,y+s(n+2)*b:NEXT:ENDPROC
950 :
960 DEFPROCpd:RESTORE1190:PRINT"PLEA
SE WAIT ...":FORl=0T0200:PLOT69,RND(12
80),RND(600)+300:NEXT:FORl=0T012:READf
,g,h,i,j:GCOLOR,f:PROCci(g,h,i,j):NEXT:
VDU5:GCOLOR,0:MOVE194,575:VDU234,8,10,2
35:GCOLOR,1:VDU4:CLS:ENDPROC
970 :
980 DEFPROCfi(n%):CLS:VDU24,4;304;12
74;896;16,26,24,4;304;1274;896;28,1,30
,38,25:PRINTTAB(0,0);"Comparing the si
ze of ";pl$(n%);" to that of":VDU26,28
,1,30,38,27
990 INPUT">" a$:oX=-1:FORn=1T09:IFa
$=pl$(n) oX=n:NEXT ELSENEXT
1000 IFoX=-1 ORa$="" ORa$=pl$(n%) CLS
:PROCms:GOTO990
1010 MOVE325+c(0)*pn%(oX),640+s(0)*pn
%(oX):FORn=0T072:DRAW325+c(n)*pn%(oX),
640+s(n)*pn%(oX):NEXT:MOVE955+c(0)*pn%
(n%),640+s(0)*pn%(n%):FORn=0T072:DRAW9
55+c(n)*pn%(n%),640+s(n)*pn%(n%):NEXT:
VDU5:x=955:y=644+s(54)*pn%(n%):a=0:zX=
935-pn%(n%)
1020 zZ=345+pn%(oX):LX=(zX-zZ)/10:L
L=((640+pn%(n%))-(640-pn%(n%)))/4:pr=0
:p=(vo(n%)/vo(oX))/LL:pp=p:IFLL*p<1 p=
(vo(oX)/vo(n%))/LL:pp=p:pr=1
1030 VDU26:REPEAT:IFPOINT(x,y)=0 PLOT
77,x,y:y=y+4:p=pp:PROCpo(pr)
1040 la=a:GCOLOR,0:MOVEzZ+(la*LX),640
:VDU224,18,0,1:a=a+1:IFa=10 a=0
1050 MOVEzZ+(a*LX),640:VDU224:UNTILP
OINT(x,y):MOVEzZ+(a*LX),640:VDU18,0,0
,224,4,18,0,1:VDU28,1,30,38,25:PRINTTA
B(0,3);:PROCsb:VDU24,4;304;1274;896;16
,26,28,1,30,38,25,12:PROCpd:teX=-1:END
PROC

```

```

<U:1.00> ELECTRON USER
PRESENT MODE: MEASURING C

```



```

MERCURY has 25432.13
the volume of JUPITER
THE BEGINNER'S GUIDE TO THE GALAXY I
Comparing the size of MERCURY
to that of
=> JUPITER
Press <SPACE-BAR> to continue

```

Comparing the volume of the largest planet with the smallest

```

1060 :
1070 DEFPROCpo(a):VDU4:p$=FNco2(p):IF
pr=0 PRINTTAB(1,20);pl$(n%);" has ";p$
;" ";TAB(1,21);"times the volume of ";
pl$(oX):VDU5:ENDPROC
1080 PRINTTAB(3,20);pl$(n%);" has ";C
HR$11;dv$;CHR$10;STRINGS(7,CHR$8);p$;T
AB(3,21);"the volume of ";pl$(oX):VDU5
:ENDPROC
1090 :
1100 DEFPROCship:MOVE300,520:DRAW1000
,520:DRAW900,470:DRAW540,470:MOVE340,4
70:DRAW300,470:DRAW300,520:MOVE320,520
:DRAW320,670:DRAW420,670:DRAW520,570:D
RAW520,520:MOVE520,570:DRAW670,570:DRA
W720,520:MOVE370,495:DRAW570,495:DRAW4
70,420
1110 DRAW270,420:DRAW370,495:VDU4:PRI
NTTAB(1,19);a$;TAB(1,20);a1$;TAB(11,27
);"Press <SPACE-BAR>":FORn=0T01000:NEX
T:VDU28,1,18,38,6:FORn=1T015:VDU10:NEX
T:VDU26:REPEAT:OSCLI"FX19":b$=RIGHT$(a
$,37):b1$=RIGHT$(a1$,37):b$=b$+LEFT$(a
$,1)
1120 b1$b1$+LEFT$(a1$,1):a$b=b$:a1$b
1$:PRINTTAB(1,19);a$;TAB(1,20);a1$:UNT
ILINKEY-99:VDU24,4;304;1274;896;16,26:
ENDPROC
1130 :
1140 DATA SCANNING,DETAILS,MEASURING,
MERCURY,88,58,"4,850km",59 DAYS,VENUS,
225,108,"12,140km",247 DAYS,EARTH,365,
150,"12,756km",23 hrs:56 mins,MARS,687

```

```

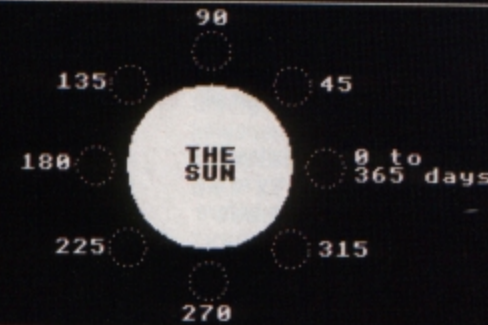
,228,"6,970km",24 hrs:37 mins,JUPITER,
4288,75,778,"142,600km",9 hrs:50 mins,
SATURN
1150 DATA 10767.5,1427,"120,200km",10
hrs:14 mins,URANUS,30660,2870,"49,000
km",10 hrs:49 mins,NEPTUNE,60225,4497,
"50,200km",15 hrs:48 mins,PLUTO,90520,
5900,"6,400km",6 DAYS:9 hrs,4,515,25,5
15,25,480,4,480,4,512,50,555,110,555,1
10,490,50
1160 DATA490,50,555,170,590,250,590,2
50,515,170,515,170,590,320,615,380,615
,380,540,320,540,320,615,470,765,695,7
65,695,530,470,530,470,765,705,805,995
,805,995,560,705,560,705,805,990,745,1
105,745,1105,630,990,630,990,745,1110,
760,1210
1170 DATA760,1210,650,1110,650,1110,7
60,1230,720,1265,720,1265,690,1230,690
,1230,720,1,4,SCORCHED ROCK,1,5,NONE,2
,4,HOT ROCK,2,5,CARBON DIOXIDE,3,4,MAN
AGABLE ROCK,3,5,NITROGEN/OXYGEN,4,4,RO
CK/DUST,4,5,MOSTLY NITROGEN,9,4,VERY C
OLD ROCK,9
1180 DATA5,NONE,30,597,80,9368,100,10
868,60,1773,240,15182986,220,9093101,1
80,616009,190,662384,40,1372
1190 DATA1,14,497,6,6,1,80,522,22,22,
1,210,552,30,30,1,350,577,20,20,1,582,
647,100,100,0,570,600,12,12,1,850,682,
80,80,1,850,682,130,40,0,850,682,110,3
0,1,850,692,100,30,1,1047,687,40,40,1,
1160,705,41,41,1,1247,705,8,8

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<U:1.00> ELECTRON USER
PRESENT MODE: DETAILS C

```



```

90
135 45
180 THE SUN 0 to 365 days.
225 315
270
THE BEGINNER'S GUIDE TO THE GALAXY I
Time take for EARTH to complete
one rotation of the sun, in days.
One year on EARTH is
equal to 365 days.
Press <SPACE-BAR> to continue

```

The well-known rotational for Earth

THE mists of time are fast gathering and a swirling in the air tells me that my time is at an end. Time that is for Pendragon to leave these walls and return once more to my fortress in the hills.

It seems as only a twinkling in the eye that I first put pen to paper and wrote of adventures old and new to you, my steadfast Electron users. Yet four years have passed and it is time for me to move on.

But I must not leave without bidding farewell and extending heartfelt thanks to many friends and allies I have met along the way.

To the readers I must thank both of you! No, seriously, gratitude must especially go to Harry Bastien, Sheila Beattie, Robert Henderson, Martyn Amos, Carys Jones, Emma Rutherford, Craig Romans, Les Shipton, Bill Trevelyan and many others for help and encouragement during my time here – and especially for all the cards and kindnesses during my ill health in 1987.

Special thanks must also go to Robert O'Leary of Robico, Geoff Larsen of Larsoft, and Steve Maltz of Shards for their support, not only to me but in various ways to the Electron as well. They are without doubt the masters of the Electron text adventure.

And a degree of gratitude should also be extended to Roland Waddilove – despite the fact that he often cut my copy with shears when I felt only nail-scissors would do – for his editorial skills, and to my colleague the Mad Hatter for painstaking help and advice whenever it has been needed.

Many have asked my name and who or what I am during these past 46 months, and that secret which is known to just a few, I now feel is time to reveal.

My name is Nic Outterside – a former assistant editor of Atari ST User – and my age falls somewhat more than 30 years. I am a father of two lovely children and reside in the wilds of the mountains of North Wales. That is all you need to know, and I hope it has satiated some curiosity.

Another question I am oft asked is what are my favourite Electron adventures. I have, at times, hinted at favourites of mine, and once I believe even detailed a list.

But here for posterity are what I believe to be the best adventures ever released for the Electron – for sanity's sake I have not included any BBC Micro games which happen to run on expanded 64k Electrons.

All are games which I will play again and again until my peripherals eventually wear out and my Electron is called to the great silicon shop in the sky.

They are also deemed as general classics of the genre and I recommend you try to lay your hands on at least a few of them before they are lost for eternity.

If adventures still trouble, be not afraid because my dear friend the Mad Hatter in *The Micro User* magazine has now inherited all of my adventure scrolls and promises to give help and succour to Electron adventurers while carrying out his tasks for BBC Micro users.

In the meantime, while you are all cheering my departure and scratching your heads in puzzlement, I continue my series of maps

ADVENTURES

By Pendragon

End of the never-ending journey

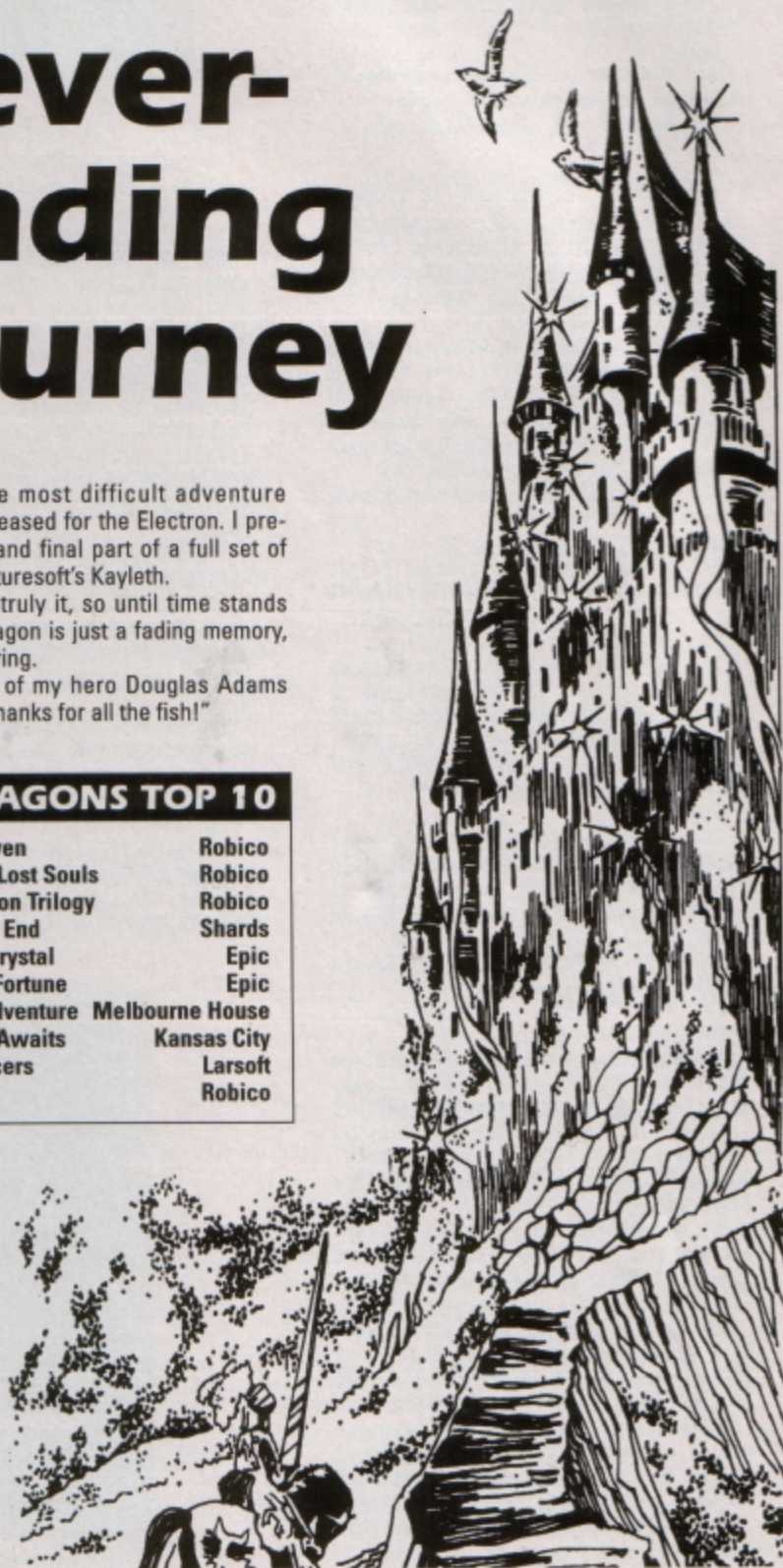
to some of the most difficult adventure games ever released for the Electron. I present the third and final part of a full set of plans to Adventuresoft's Kayleth.

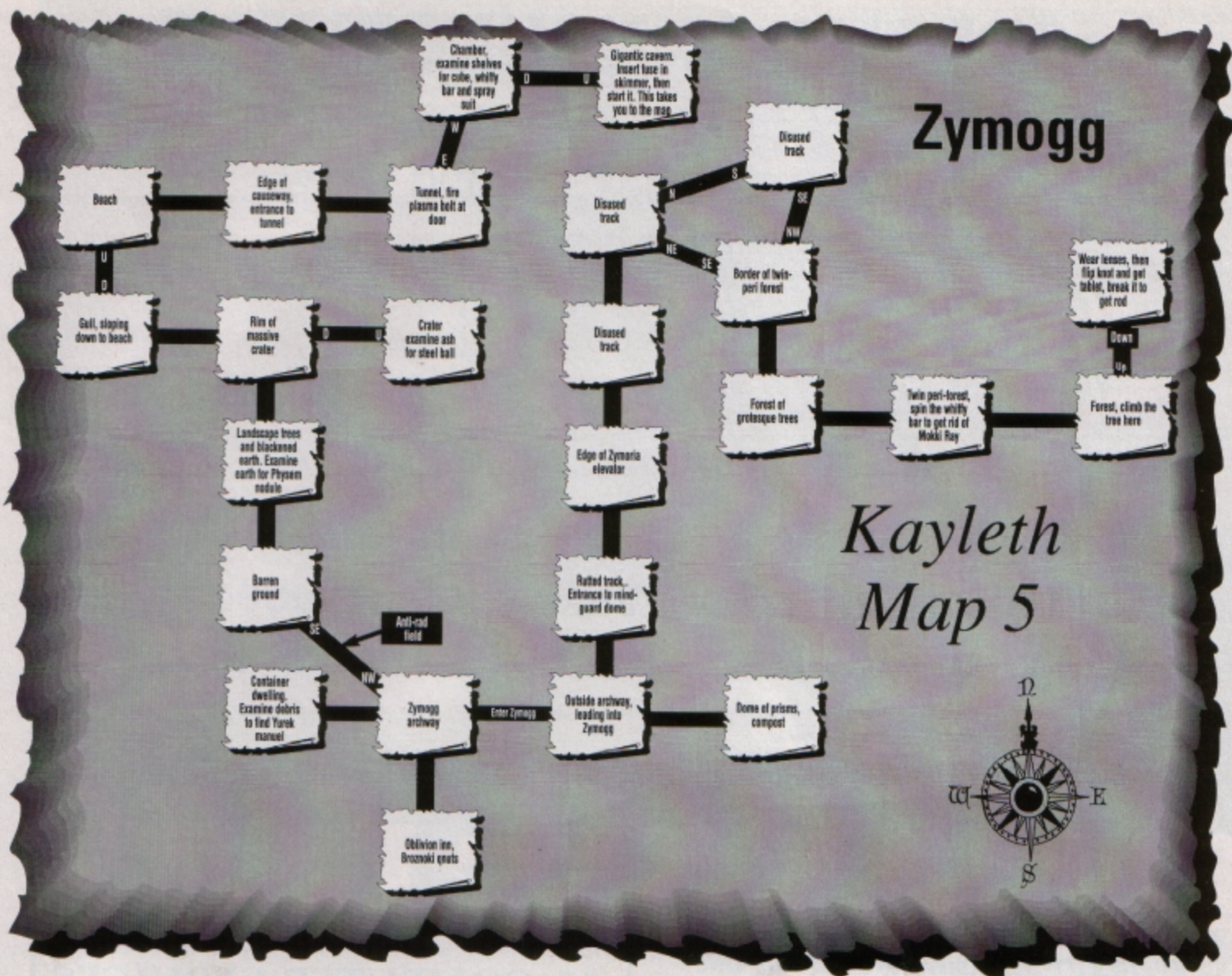
Well that is truly it, so until time stands still and Pendragon is just a fading memory, happy adventuring.

Or in words of my hero Douglas Adams "So long, and thanks for all the fish!"

PENDRAGONS TOP 10

1 Enthar Seven	Robico
2 Village of Lost Souls	Robico
3 Rick Hanson Trilogy	Robico
4 Woodbury End	Shards
5 The Lost Crystal	Epic
6 Wheel of Fortune	Epic
7 Classic Adventure	Melbourne House
8 Ferryman Awaits	Kansas City
9 Nine Dancers	Larsoft
10 The Hunt	Robico





Readers' Hall of Fame

Colossal Adventure
Sheila Beattie

Go South, South, East, West, West and GET DIAMOND. Continue East, East, Down, West, West to the cross-over passages. The pirate will appear at some point here, and when he does you must immediately journey South to the west end of the featureless hall.

Continue East, to the east end of the long hall. Go East to the west end of the Hall of Mists and South into the same maze. Continue East, South, South, South, North and East to the orange column.

Go North-West to the dead end, GET CHEST, GET DIAMOND and go South-East, West, South and Down to the splendid chamber. Now continue East and East.

SAY XYZZY, DROP DIAMOND, DROP CHEST, go East to the small hill and South to be lost in the forest. Travel South by the huge oak tree, and South again to the picnic area. GET SANDWICHES and go North and East.

SAY XYZZY, go West, West, West and Down to GET KEYS. Continue North, North, Down, West, West, DROP SAND, DROP

KEYS and GET BOTTLE. Go West to the Pit Room and West to the pit.

Go Down and WATER PLANT. Journey Up, East and North-East then East. Now go east again to the ante-room, GET GAZETTE, READ GAZETTE. Go East to Witts End and DROP GAZETTE.

Now travel South as many times as you need to get back to the ante-room. Go West, Up, east, East, Down, FILL BOTTLE, Up, West, west, West, West, Down and WATER PLANT.

Journey Up, East, Down to the oil by the well and FILL BOTTLE. Now go Up, West, Down and CLIMB BEAN. Walk West to the Giant's room, North to the rusty gate, OIL GATE and DROP BOTTLE.

Go North and GET TRIDENT, West, Down, South-East and South-East to the Swiss Cheese Room. Now continue North-East, East, North to the Shell Room.

OPEN CLAM, go Down to the sharp walled corridor, Down again into the cul-de-sac and GET PEARL. Go Up, Up, South, Up, East, Up and North. SAY PLUGH, DROP TRIDENT, DROP PEARL and SAY PLUGH again.

Now go South, Down, west, down, West, West and GET SAND, GET KEYS. Continue

North-West, West into the large low room, then go South-West into the twisting corridor.

Travel North onto the rickety bridge and DROP KEY. Go South-West, Down, South-East, South-East, West, West and Down. Now CLIMB BEAN, go west and GET EGG.

Continue North, North, West, Down, South-West and North again to the rickety bridge, North-East, GIVE EGG to troll and GET KEYS. Now SAY FEE, FIE, FOE, FOO.



Go North-East, East to the fork in the path, then go South-East to the steeply sloping limestone passage. Go Down to the barren room, East to FEED BEAR, UNLOCK CHAIN, DROP KEYS and GET BEAR.

Journey West, Up, Up, West, West, THROW BEAR at the troll, go North-East, East, South-East, Down, East, GET CHAIN and GET KEYS.

Go West, Up, Up, West, West, South-East, South-West, Down and South-East to the Oriental Room. Now go South-East, North-East, East, Up, East, Up and North.

SAY PLUGH, DROP CHAIN and SAY PLUGH again. Now climb the bean and get the eggs, before returning to SAY PLUGH and summon the Elf King.

SPECIAL ANNOUNCEMENT

To celebrate the 7th anniversary of **electron** user and  a Grand Draw will be held for all  customers during June 1990.

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**YES
PLEASE**



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MODE 7 Mk2 UNIT

Gives exactly the same Mode 7 display screen as the BBC.
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Price £49 for you to fit, or £59 fitted.
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Our equivalent of the Slogger Master RAM Board, with Turbo and 64K modes. Gives up to 300% speed increase and 28.5k program memory in all screen modes. Fits inside the Electron.
Price £59 for you to fit, or £69 fitted.

RS423 SERIAL CARTRIDGE

Connects the Electron to serial RS423/RS232 devices, eg. printers, modems. Allows the transfer of programs, data, etc. from one computer to another. Has the same socket, so uses the same leads as the BBC. Includes a socket for a 32k RAM or 16k ROM, eg. the Mode 7 ROM. Fits into a Plus One/ROMbox Plus slot.
Price £29.95 +5 for a case + £20 for a 32k RAM

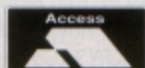
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YOU have been kidnapped by the Black Acorn – an interdimensional being who intends to rule the universe. His plan is to shanghai innocent people and convert them into pawns to serve in his Black Guards.

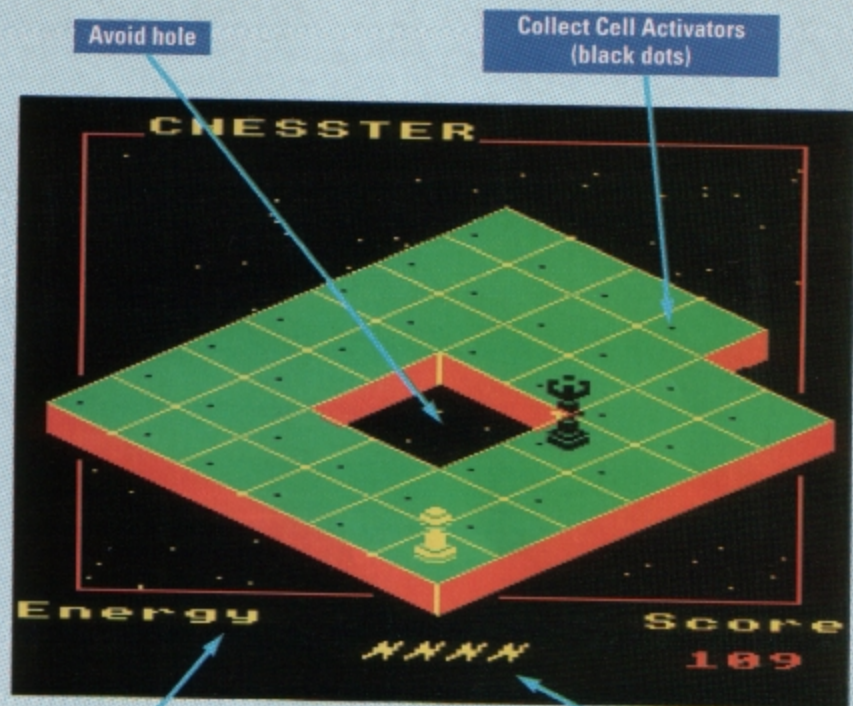
But you have escaped and located the ion panels which supply the whole of his empire with power. Each cell of the panels has a black activator which you can short circuit merely by landing on it.

Clear each panel three times and you'll move on to the next even harder one. And you'll find the guards even faster, so take care.

To help you in your quest you can use your stolen Nova device. By pressing the spacebar you'll draw a bolt of energy from nearby stars. This will replenish your power and repel any guards.

However, Nova will only function four times, so use it with care. Leaving the board will cause your Gyro Pak to operate, so if you're quick, you can return. This will reduce your energy, as will near proximity to one of the power-sapping guards.

If the energy bar reaches zero your mission is ended. Can you succeed? Type in the listing and find out!



Once energy reaches zero you are an ex pawn

Nova Counter – you can only use it four times

CHESSTER



Chess pieces move in new ways in this action-packed game from Lyn Davies

```

10 REM CHESSTER
20 REM By Lyn Davies
30 REM (c) Electron User
40 IF PAGE>8000 GOTO 1330
50 MODE5:DIM QX 5000:VDU5:SX=0:ENVE
LOPE1,129,-15,-8,-3,10,10,10,126,0,0,-
126,126,126:VDU23,1,0;0;0;0:ENVELOPE2
,1,6,6,6,2,2,1,120,0,0,-126,126,126:HX
=200
60 PROCstart:REPEAT:CALLloop
70 IFPOINT((?&70+?&71*255)+32,(?&72
+?&73*255)-48)<>3CALLsound:GOTO90
80 IFPOINT((?&74+?&75*256),(?&76+?&
77*256))=OCALLpoint:SOUND1,2,100,1:IX=
TX+1:RX=RX+1:PROCScore
90 IF?&82<48PROCend
100 IFTIME>UXCALLtail:TIME=0
110 UNTILFALSE
120 END
130 DEFPROCshot:VDU5:IX=540:GCOLOR,2:
REPEAT:MOVEIX,100:VDU231:IX=IX+64:UNTI
LIX=796:ENDPROC
140 DEFPROCstart:VDU23,224,24,60,60,
90,102,126,126,126,23,225,24,36,60,60,
60,60,60,60,23,226,126,189,219,231,126
,189,66,60,23,227,0,0,0,0,0,0,23,2
28,24,60,60,90,102,126,126,126,23,229,

```

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24,36,60,60,60,60,60,60
150 VDU23,230,126,189,219,231,126,18
9,66,60,23,231,9,27,26,62,60,108,200,1
36:PROCins:REPEAT:PROCtune:FORE=0T0200
:NEXT:UNTILINKEY(-99):FORE=0T033:VDU30
,11:FORF=0T050:NEXTF:NEXTE:PROCfirst:E
NDPROC
160 DEFPROCins:VDU4:FORE=0T033:COLOU
RRND(3):PRINTTAB(0,30)***ELECTRON**US
ER***:NEXT:VDU5,18,0,0:MOVE320,416:DR
AW960,416:PLOT85,960,896:MOVE320,416:D
RAW960,896:PLOT85,320,896:GCOL0,1:MOVE
320,416:DRAW320,896:DRAW960,896:DRAW96
0,416
170 DRAW320,416:GCOL0,2:MOVE608,640:
VDU226,8,11,225,8,11,224:VDU4:COLOUR2:
PRINTTAB(7,8)"A":PRINTTAB(12,8)"*":PRI
NTTAB(7,13)"?":PRINTTAB(12,13)"Z":COLO
UR1:PRINTTAB(6,6)"CHESTER":PRINTTAB(7
,16)"SPACE-";CHRS231
180 VDU19,3,2,0;:COLOUR3:PRINTTAB(8,
12)"/":PRINTTAB(11,12)"/":PRINTTAB(11,
9)"/":PRINTTAB(8,9)"/":VDU5:GCOL0,3:MO
VE336,428:DRAW948,428:DRAW948,884:DR
AW336,884:DRAW336,428:VDU4:ENDPROC
190 DEFPROCfirst:VDU19,1,0,0;:VDU19,
2,0,0;:VDU19,3,0,0;:PROCstar:PROCbase:
PROCshot:PROCvar:PROCcode:CALLgauge:TX
=0:UX=90:RX=0
200 PROCscore:PROCdot:VDU19,1,1,0;:V
DU19,2,3,0;:VDU19,3,2,0;:FORE=0T02000:
NEXT:CALLprint:CALLrook:ENDPROC
210 DEFPROCscore:VDU4:COLOUR1:PRINTT
AB(16,29);TX:VDU5
220 IFRX=36:FORE=160T0100STEP=4:SOUN
D1,2,E,2:NEXT:FORE=0T03000:NEXT:CALLro
ok:RX=0:UX=3-3:1878=142:1879=5:187A=3
:187B=3:187E=24:187F=21:PROCbaddie:PRO
Cchoose
230 IFUX<6UX=6
240 ENDPROC
250 DEFPROCscr:VDU4:VDU28,0,26,19,0:
FORF=0T0100STEP4:SOUND1,2,F,2:NEXTF:FO
RE=0T030:VDU30,11:NEXT:VDU26:VDU5:VDU1
9,1,0,0;:VDU19,2,0,0;:VDU19,3,0,0;:PRO
Cstar:PROCbase:ENDPROC
260 DEFPROCchoose:CALLprint:1870=110
:1871=2:1872=15:1873=1:187C=16:187D=11
270 IFTX=576PROCwin:ENDPROC
280 IFTX=540VDU4:PRINTTAB(3,4)"Show
own!":VDU5:PROCscr
290 IFTX=432VDU4:PRINTTAB(3,4)"Level
Five":VDU5:PROCscr
300 IFTX=324VDU4:PRINTTAB(3,4)"Level
Four":VDU5:PROCscr
310 IFTX=216VDU4:PRINTTAB(3,4)"Level
Three":VDU5:PROCscr
320 IFTX=108VDU4:PRINTTAB(3,4)"Level
Two":VDU5:PROCscr
330 VDU19,1,0,0;:VDU19,2,0,0;:VDU19,
3,0,0;:PROCdot:CALLprint
340 IFTX>539PROChole:PROCfive:GOT039
0
350 IFTX>431PROChole:PROCfour:GOT039
0
360 IFTX>323PROChole:PROCthree:GOT03
90
370 IFTX>215PROChole:PROCTwo:GOT0390
380 IFTX>107PROChole:PROCCone:GOT0390
390 VDU19,1,1,0;:VDU19,2,3,0;:VDU19,
3,2,0;:ENDPROC
400 DEFPROCwin:FORE=0T03000:NEXT:VDU
4:COLOUR3:FORF=0T06:FORG=0T04:PRINTTAB
(0,31):NEXT6:FORE=1T018STEP2:PRINTTAB(
E,27)CHRS227:PRINTTAB(E,28)CHRS228:PRI
NTTAB(E,29)CHRS229:PRINTTAB(E,30)CHRS2
30:NEXT:NEXTF
410 VDU5:GCOL0,2:MOVE256,480:DRAW960
,480:PLOT85,256,864:MOVE256,864:DRAW96
0,480:PLOT85,960,864:GCOL0,1:MOVE256,4

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80:DRAW256,864:DRAW960,864:DRAW960,480
:DRAW256,480
420 VDU4:COLOUR1:COLOUR130:PRINTTAB(
5,7)"WELL DONE!":PRINTTAB(6,9)"You hav
e":PRINTTAB(5,11)"saved the":PRINTTAB(
7,13)"World!":REPEAT:FORE=0T0150:NEXTE
:PROCtune:UNTILINKEY(-99):COLOUR128:PR
OCstart:ENDPROC
430 DEFPROChole:GCOL0,0:MOVE504,475:
DRAW796,475:PLOT85,650,550:MOVE504,475
:DRAW796,475:PLOT85,650,400:GCOL0,1:MO
VE450,500:DRAW500,475:PLOT85,650,550:M
OVE450,500:DRAW650,600:PLOT85,650,550:
MOVE800,475:DRAW850,500:PLOT85,650,550
440 MOVE850,500:DRAW650,600:PLOT85,6
50,550:GCOL0,2:MOVE650,550:DRAW650,600
:DRAW450,500:DRAW650,400:DRAW850,500:D
RAW650,600:PLOT69,600,450:PLOT69,650,5
00:PLOT69,725,475:ENDPROC
450 DEFPROCbaddie
460 IFTX=108VDU23,227,24,24,195,195,
153,153,219,255,23,228,126,60,24,36,60
,60,60,126,23,229,126,60,24,36,60,60,6
0,126,23,230,219,102,189,219,231,126,6

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0,24
470 IFTX=216VDU23,227,72,72,108,124,
126,108,126,114,23,228,126,126,74,96,1
12,62,94,96
480 IFTX=324VDU23,227,24,36,60,94,78
,102,118,126,23,228,126,60,24,36,60,60
,60,126
490 IFTX=432VDU23,227,24,90,129,231,
189,165,165,231,23,228,255,255,255,126
,24,36,60,90,23,229,231,126,60,24,36,6
0,60,126,23,230,255,126,189,219,231,12
6,60,24
500 IFTX=540VDU23,227,0,0,0,24,60,12
6,126,255,23,228,255,255,255,255,255,2
55,255,255,23,229,255,126,189,195,255,
255,126,126,23,230,60,24,192,248,124,1
4,1,0
510 ENDPROC
520 DEFPROCCone:GCOL0,3:MOVE650,800:D
RAW1050,600:PLOT85,1150,650:MOVE650,80
0:DRAW750,850:PLOT85,1150,650:GCOL0,1:
MOVE1100,582:DRAW1058,600:PLOT85,1150,
600:MOVE1150,650:DRAW1050,600:PLOT85,1
150,600
530 GCOL0,0:PLOT69,1000,650:PLOT69,9
00,700:PLOT69,800,750:PLOT69,700,800
540 GCOL0,2:MOVE650,800:DRAW1050,600
:DRAW1150,650:DRAW750,850:DRAW650,800:
MOVE750,750:DRAW850,800:MOVE850,700:DR
AW950,750:MOVE950,650:DRAW1050,700:MOV
E1250,500:DRAW1050,600:ENDPROC

```

```

550 DEFPROCTwo:GCOL0,3:MOVE250,400:D
RAW350,250:PLOT85,150,350:MOVE250,400:
DRAW350,250:PLOT85,450,300:GCOL0,1:MOV
E150,350:DRAW350,200:PLOT85,150,300:MO
VE150,350:DRAW350,200:PLOT85,350,250:M
OVE450,300:DRAW350,200:PLOT85,350,250
560 MOVE450,300:DRAW350,200:PLOT85,4
50,250:MOVE1050,600:DRAW1150,600:PLOT8
5,1100,575:MOVE1050,600:DRAW1150,600:P
LOT85,1150,650:GCOL0,3:MOVE1150,650:DR
AW850,700:PLOT85,1050,600:MOVE1150,650
:DRAW850,700:PLOT85,950,750
570 GCOL0,2:MOVE250,400:DRAW450,300:
DRAW350,250:DRAW150,350:DRAW250,400:MO
VE350,250:DRAW350,200:MOVE1150,550:DR
AW850,700:DRAW950,750:DRAW1150,650:DR
AW1050,600
580 MOVE250,300:DRAW350,350:MOVE950,
650:DRAW1050,700:GCOL0,0:PLOT69,200,35
0:PLOT69,300,300:PLOT69,1000,650:PLOT6
9,900,700:ENDPROC
590 DEFPROCThree:GCOL0,3:MOVE450,700
:DRAW250,800:PLOT85,350,850:MOVE450,70
0:DRAW350,850:PLOT85,550,750:MOVE850,7
00:DRAW950,850:PLOT85,1050,800:GCOL0,
1:MOVE900,675:DRAW1050,800:PLOT85,1050
,750
600 MOVE900,675:DRAW1050,800:PLOT85,
850,700:MOVE450,700:DRAW250,750:PLOT8
5,400,675:MOVE450,700:DRAW250,750:PLOT8
5,250,800:GCOL0,2:MOVE950,650:DRAW750,
750:DRAW950,850:DRAW1050,800:DRAW850,7
00:MOVE950,750:DRAW850,800
610 MOVE350,650:DRAW550,750:DRAW350,
850:DRAW250,800:DRAW450,700:MOVE350,75
0:DRAW450,800:GCOL0,0:PLOT69,300,800:P
LOT69,400,750:PLOT69,800,750:PLOT69,90
0,800:ENDPROC
620 DEFPROCfour:GCOL0,3:MOVE350,250:
DRAW350,350:PLOT85,250,300:MOVE350,250
:DRAW350,350:PLOT85,450,300:MOVE1050,3
00:DRAW1050,400:PLOT85,950,350:MOVE105
0,300:DRAW1050,400:PLOT85,1150,350:MOV
E850,700:DRAW850,800:PLOT85,750,750
630 MOVE850,700:DRAW850,800:PLOT85,9
50,750:MOVE250,600:DRAW250,700:PLOT85,
350,650:MOVE250,600:DRAW250,700:PLOT85
,150,650:GCOL0,1:MOVE250,250:DRAW450,2
50:PLOT85,350,200:MOVE250,300:DRAW350,
250:PLOT85,250,250:MOVE450,300:DRAW450
,250
640 PLOT85,350,250:MOVE950,300:DRAW1
150,300:PLOT85,1050,250:MOVE1150,350:D
RAW1150,300:PLOT85,1050,300:MOVE950,35
0:DRAW950,300:PLOT85,1050,300:MOVE900,
675:DRAW850,700:PLOT85,950,700:MOVE850
,700:DRAW950,700:PLOT85,950,750
650 MOVE200,575:DRAW250,600:PLOT85,1
50,600:MOVE150,650:DRAW150,600:PLOT85,
250,600:GCOL0,2:MOVE550,250:DRAW350,35
0:DRAW250,300:DRAW350,250:DRAW450,300:
MOVE850,300:DRAW1050,400:DRAW1150,350:
DRAW1050,300:DRAW950,350:MOVE950,650:D
RAW750,750
660 DRAW850,800:DRAW950,750:DRAW850,
700:MOVE150,550:DRAW350,650:DRAW250,70
0:DRAW150,650:DRAW250,600:GCOL0,0:PLOT
69,300,300:PLOT69,1000,350:PLOT69,800,
750:PLOT69,200,650:ENDPROC
670 DEFPROCFive:GCOL0,3:MOVE350,750:
DRAW350,850:PLOT85,250,800:MOVE350,750
:DRAW350,850:PLOT85,450,800:MOVE550,75
0:DRAW550,850:PLOT85,450,800:MOVE550,7
50:DRAW550,850:PLOT85,650,800:MOVE750,
750:DRAW750,850:PLOT85,650,800
680 MOVE750,750:DRAW750,850:PLOT85,8
50,800:MOVE950,750:DRAW950,850:PLOT85,
850,800:MOVE950,750:DRAW950,850:PLOT85
,1050,800:GCOL0,1:MOVE250,800:DRAW250,
750:PLOT85,350,750:MOVE250,750:DRAW450
,750:PLOT85,350,700
690 MOVE350,750:DRAW550,750:PLOT85,4

```

```
50,800:MOVE450,750:DRAW550,750:PLOT85,
500,725:MOVE750,750:DRAW850,750:PLOT85
,800,725:MOVE750,750:DRAW950,750:PLOT8
5,850,800:MOVE850,750:DRAW1050,750:PL
O85,950,800:MOVE1050,750:DRAW1050,800
700 PLOT85,950,750:GCOL0,2:MOVE850,7
00:DRAW650,800:DRAW450,700:MOVE250,800
:DRAW350,850:DRAW550,750:DRAW750,850:D
RAW950,750:DRAW1050,800:DRAW950,850:DR
AW750,750:DRAW550,850:DRAW350,750:DRAW
250,800
```

```
710 GCOL0,0:PLOT69,300,800:PLOT69,50
0,800:PLOT69,700,800:PLOT69,900,800:EN
DPROC
```

```
720 DEFPROCend:COLOUR1:PROCnana:FORE
=0T0400:NEXTE:VDU4:FORE=0T040:PRINTTA
B(0,31):FOR=0T050:NEXTE:NEXTE:PRINTTA
B(4,10)"Power Cells":COLOUR3:PRINTTAB
(8,12):TX:COLOUR2:VDU5:MOVE200,300:DR
AW200,750:DRAW1050,750:DRAW1050,300:DR
AW200,300
```

```
730 VDU4:FORE=2T017STEP3:PRINTTAB(E,
2)CHRS227:PRINTTAB(E,26)CHRS227::PRINT
TAB(E,3)CHRS228:PRINTTAB(E,27)CHRS228:
PRINTTAB(E,4)CHRS229:PRINTTAB(E,28)CHR
S229:PRINTTAB(E,5)CHRS230:PRINTTAB(E,2
9)CHRS230:NEXTE
```

```
740 IFTX>HXTHENHX=TX
750 COLOUR1:PRINTTAB(4,18)"Max Damag
e!":COLOUR3:PRINTTAB(8,20):HX:REPEAT:F
ORE=0T0150:NEXTE:PROCtune:UNTILINKEY(-
99):FORE=0T040:PRINTTAB(0,31):FORF=0T0
50:NEXTE:NEXTE:PROCstart:ENDPROC
```

```
760 DEFPROCnana:FORE=0T01000:NEXT:SO
UND1,-15,52,10:SOUND1,-15,40,10:SOUND1
,-15,60,5:SOUND1,-15,52,10:SOUND1,-15,
40,10:ENDPROC
```

```
770 DEFPROCtune:SX=SX+1
780 IFSX=36RESTORE800:SX=0
790 READN:SOUND1,-15,N,2
```

```
800 DATAS2,60,68,80,72,72,88,80,80,1
00,96,100,80,68,52,60,68,72,80,88,80,7
2,68,60,68,52,48,52,60,32,48,60,72,68,
60,68
```

```
810 ENDPROC
820 DEFPROCdot:GCOL0,0:XX=600:YX=750
:FORD=0T05:FORE=0T05:PLOT69,XX,YX:XX=X
X-100:YX=YX-50:SOUND1,-15,YXDIV3,1:NEX
TE:XX=XX+700:YX=YX+250:NEXTD:ENDPROC
```

```
830 DEFPROCbase:GCOL0,3:MOVE50,500:D
RAW650,800:PLOT85,1250,500:MOVE50,500:
DRAW650,200:PLOT85,1250,500
```

```
840 GCOL0,1:MOVE50,500:DRAW650,200:P
LOT85,650,150:MOVE50,500:DRAW650,150:P
LOT85,50,450:MOVE650,150:DRAW1250,500:
PLOT85,650,200:MOVE650,150:DRAW1250,50
0:PLOT85,1250,450
```

```
850 GCOL0,2:AX=650:BX=800:FORE=0T06:
MOVEAX,BX:DRAWAX+600,BX-300:AX=AX-100:
BX=BX-50:NEXTE
```

```
860 AX=650:BX=800:FORE=0T06:MOVEAX,B
X:DRAWAX-600,BX-300:AX=AX+100:BX=BX-50
:NEXTE:MOVE650,200:DRAW650,150
```

```
870 GCOL0,1:MOVE100,550:DRAW100,960:
DRAW1200,960:DRAW1200,550:MOVE1200,400
:DRAW1200,180:DRAW750,180:MOVE550,180:
DRAW100,180:DRAW100,400
```

```
880 VDU4:COLOUR2:PRINTTAB(3,1)"CHESS
TER":PRINTTAB(15,27)"Score":PRINTTAB(0
,27)"Energy":VDU5
```

```
890 ENDPROC
900 DEFPROCstar:GCOL0,2:FORE=0T0100:
PLOT69,100+RND(1100),180+RND(770):NEXT
:ENDPROC
```

```
910 DEFPROCvar:780=110:781=2:782=
15:783=1:pr=BFEE:key=BFEE:fx=BFEE4:
word=BFEE1:787=142:789=5:78A=3:78B
=3:78C=3:78D=16:78E=11:78F=24:78G
=21:78H=0:78I=15:78J=252:78K=0:78L
=2:78M=8DC
```

```
920 7800=0:7801=0:7802=1:7803=0:
7804=4:7805=0:7806=1:7807=0:7808=
```

```
1:7809=0:780A=1:780B=0:780C=80:780
D=0:780E=5:780F=0:ENDPROC
```

```
930 DEFPROCcode:FORE=0T02STEP2:PX=QX
940 COPE
```

```
950 .print:LDA#25:JSRpr:LDA#4:JSRpr:
LDA#70:JSRpr:LDA#71:JSRpr:LDA#72:JSRpr
:LDA#73:JSRpr:LDA#18:JSRpr:LDA#3:JSRpr
:LDA#1:JSRpr:LDA#226:JSRpr:LDA#8:JSRpr
:LDA#11:JSRpr:LDA#225:JSRpr:LDA#8:JSRpr
:LDA#11:JSRpr:LDA#224:JSRpr:JSRspot:R
TS
```

```
960 .spot:LDA#70:SEC:SBC#20:STA#74:L
DA#71:SBC#00:STA#75:LDA#72:SEC:SBC#20:
STA#76:LDA#73:SBC#00:STA#77:RTS
```

```
970 .point:LDA#18:JSRpr:LDA#0:JSRpr:
LDA#3:JSRpr:LDA#25:JSRpr:LDA#69:JSRpr:
LDA#74:JSRpr:LDA#75:JSRpr:LDA#76:JSRpr
:LDA#77:JSRpr:RTS
```

```
980 .loop:JSRupl:JSRdlt:JSRupr:JSRdr
t:JSRret:JSRsave:RTS
```

```
990 .upl:LDA#15:LDA#1:LDY#0:JSRpr:LD
A#129:LDA#190:LDY#FF:JSRfx:BCSul:RTS
1000 .ul:JSRprint:LDA#70:SEC:SBC#100:
STA#70:LDA#71:SBC#0:STA#71::LDA#72:CLC
```



```
:ADC#50:STA#72:LDA#73:ADC#0:STA#73:JSR
print:LDA#70:INX:STX#70:LDA#7C:DEX:STX
#7C:RTS
```

```
1010 .dlt:LDA#15:LDA#1:LDY#0:JSRpr:LD
A#129:LDA#158:LDY#FF:JSRfx:BCSdl:RTS
```

```
1020 .dl:JSRprint:LDA#70:CLC:ADC#100:
STA#70:LDA#71:ADC#0:STA#71:LDA#72:SEC:
SBC#50:STA#72:LDA#73:SBC#0:STA#73:JSRpr
int:LDA#7C:INX:STX#7C:LDA#7D:DEX:STX#
7D:RTS
```

```
1030 .upr:LDA#15:LDA#1:LDY#0:JSRpr:LD
A#129:LDA#183:LDY#FF:JSRfx:BCSur:RTS
```

```
1040 .ur:JSRprint:LDA#70:CLC:ADC#100:
STA#70:LDA#71:ADC#0:STA#71:LDA#72:CLC:
ADC#50:STA#72:LDA#73:ADC#0:STA#73:JSRpr
int:LDA#7C:INX:STX#7C:LDA#7D:INX:STX#
7D:RTS
```

```
1050 .drt:LDA#15:LDA#1:LDY#0:JSRpr:LD
A#129:LDA#151:LDY#FF:JSRfx:BCSdr:RTS
```

```
1060 .dr:JSRprint:LDA#70:SEC:SBC#100:
STA#70:LDA#71:SBC#0:STA#71:LDA#72:SEC:
SBC#50:STA#72:LDA#73:SBC#0:STA#73:JSRpr
int:LDA#7D:DEX:STX#7D:LDA#7C:DEX:STX#
7C:RTS
```

```
1070 .ret:LDA#15:LDA#1:LDY#0:JSRpr:LD
A#129:LDA#157:LDY#FF:JSRfx:BCScount:R
TS
```

```
1080 .count:LDA#4:CMPE#84:BNEfire:RTS
```

```
1090 .fire:JSRgauge:LDA#19:JSRpr:LDA#
0:JSRpr:LDA#3:JSRpr:LDA#0:JSRpr:JSRpr:
JSRpr:JSRprint:JSRprint:JSRprint:JSRpr
int:LDA#19:JSRpr:LDA#0:JSRpr:LDA#0:JSR
```

```
pr:LDA#0:JSRpr:JSRpr:JSRpr:JSRrook:JSR
bomb:LDA#84:INX:STX#84:RTS
```

```
1100 .bomb:LDA#7:LDA#08:LDY#89:JSRwor
d:JSRtoken:JSRzap:LDA#7A:SEC:SBC#65:ST
A#7A:LDA#7B:SBC#1:STA#7B:JSRzap:LDA#14
2:STA#78:LDA#5:STA#79:LDA#3:STA#7A:STA
#7B:LDA#24:STA#7E:LDA#21:STA#7F:RTS
```

```
1110 .token:LDA#18:JSRpr:LDA#0:JSRpr:
JSRpr:LDA#25:JSRpr:LDA#4:JSRpr:LDA#86:
JSRpr:LDA#85:JSRpr:LDA#100:JSRpr:LDA#0
:JSRpr:LDA#231:JSRpr:LDA#86:SEC:SBC#84
0:STA#86:LDA#85:SBC#0:LDA#85:RTS
```

```
1120 .rook:LDA#25:JSRpr:LDA#4:JSRpr:L
DA#78:JSRpr:LDA#79:JSRpr:LDA#7A:JSRpr:
LDA#7B:JSRpr:LDA#18:JSRpr:LDA#3:JSRpr:
LDA#3:JSRpr
```

```
1130 LDA#230:JSRpr:LDA#8:JSRpr:LDA#11
:JSRpr:LDA#229:JSRpr:LDA#8:JSRpr:LDA#1
1:JSRpr:LDA#228:JSRpr:LDA#8:JSRpr:LDA#
11:JSRpr:LDA#227:JSRpr:RTS
```

```
1140 .tail:JSRrook:JSRup:JSRdown:JSRl
eft:JSRright:JSRrook:LDA#0:STA#80:RTS
```

```
1150 .left:LDA#7C:CMPE#7E:BCCbl:RTS
```

```
1160 .right:LDA#7E:CMPE#7C:BCCbr:RTS
```

```
1170 .down:LDA#7D:CMPE#7F:BCCbdl:RTS
```

```
1180 .up:LDA#7F:CMPE#7D:BCCbu:RTS
```

```
1190 .same:LDA#7F:CMPE#7D:BEQequal:RTS
```

```
1200 .equal:LDA#7E:CMPE#7C:BEQsound:BE
Qsound:BEQsound:RTS
```

```
1210 .sound:LDA#7:LDA#0:LDY#89:JSRwor
d:JSRenergy:JSRenergy:RTS
```

```
1220 .bt:LDA#78:SEC:SBC#200:STA#78:LD
A#79:SBC#0:STA#79:LDA#7E:DEX:DEX:STX#7
E:RTS
```

```
1230 .bd:LDA#7A:SEC:SBC#100:STA#7A:LD
A#7B:SBC#0:STA#7B:LDA#7F:DEX:DEX:STX#7
F:RTS
```

```
1240 .br:LDA#78:CLC:ADC#200:STA#78:LD
A#79:ADC#0:STA#79:LDA#7E:INX:INX:STX#7
E:RTS
```

```
1250 .bu:LDA#7A:CLC:ADC#100:STA#7A:LD
A#7B:ADC#0:STA#7B:LDA#7F:INX:INX:STX#7
F:RTS
```

```
1260 .energy:LDA#25:JSRpr:LDA#4:JSRpr
:LDA#82:JSRpr:LDA#0:JSRpr:LDA#80:JSRpr
:LDA#0:JSRpr:LDA#25:JSRpr:LDA#7:JSRpr:
LDA#82:JSRpr:LDA#0:JSRpr:LDA#40:JSRpr:
LDA#0:JSRpr:LDA#82:DEX:DEX:DEX:DEX:STX
#82:RTS
```

```
1270 .gauge:LDA#252:STA#82:LDA#18:JSR
pr:LDA#0:JSRpr:LDA#1:JSRpr:LDA#25:JSRpr
:LDA#4:JSRpr:LDA#50:JSRpr:LDA#0:JSRpr
:LDA#80:JSRpr:LDA#0:JSRpr:LDA#25:JSRpr
:LDA#5:JSRpr:LDA#255:JSRpr:LDA#0:JSRpr
:LDA#80:JSRpr:LDA#0:JSRpr:LDA#25:JSRpr
:LDA#85
```

```
1280 JSRpr:LDA#50:JSRpr:LDA#0:JSRpr:L
DA#40:JSRpr:LDA#0:JSRpr
```

```
1290 LDA#25:JSRpr:LDA#4:JSRpr:LDA#50:
JSRpr:LDA#0:JSRpr:LDA#40:JSRpr:LDA#0:J
SRpr:LDA#25:JSRpr:LDA#5:JSRpr:LDA#255:
JSRpr:LDA#0:JSRpr:LDA#80:JSRpr:LDA#0:J
SRpr:LDA#25:JSRpr:LDA#85:JSRpr:LDA#255
:JSRpr:LDA#0:JSRpr:LDA#40:JSRpr:LDA#0:
JSRpr:RTS
```

```
1300 .zap:LDA#18:JSRpr:LDA#3:JSRpr:LD
A#2:JSRpr:LDA#0:again:LDA#25:JSRpr:LD
A#4:JSRpr:LDA#78:JSRpr:LDA#79:JSRpr:LD
A#7A:JSRpr:LDA#7B:JSRpr:LDA#78:CLC:ADC
#64:STA#78:LDA#79:ADC#0:STA#79
```

```
1310 LDA#25:JSRpr:LDA#5:JSRpr:LDA#78:
JSRpr:LDA#79:JSRpr:LDA#7A:JSRpr:LDA#7B
:JSRpr:LDA#7A:CLC:ADC#8:STA#7A:LDA#7B:
ADC#0:STA#7B:LDA#78:SEC:SBC#64:STA#78:
LDA#79:SBC#0:STA#79:INX:CPX#40:BNEagai
n:RTS
```

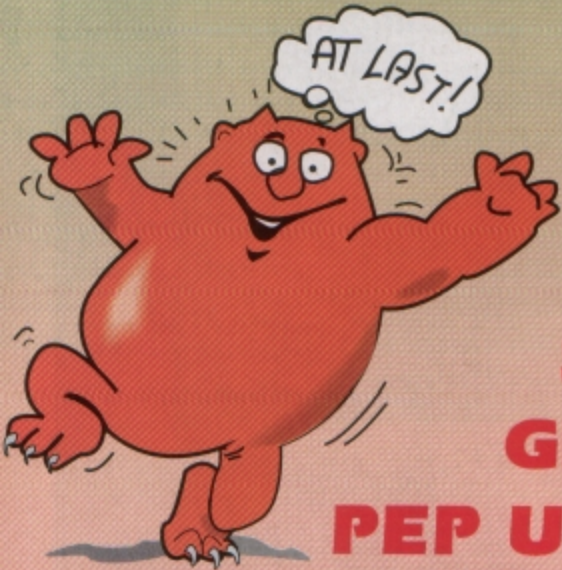
```
1320 J:NEXT:ENDPROC
```

```
1330 *KEYD *.IMDX=PAGE-&E00:FOR IX=
PAGE TO TOP STEP4:!(IX-DX)=IX:NEXT:PA
GE=&E00|MOLD|MRUN|M
```

```
1340 PRINTTAB(14,20)"Just a no!"
```

```
1350 *FX138,D,128
```

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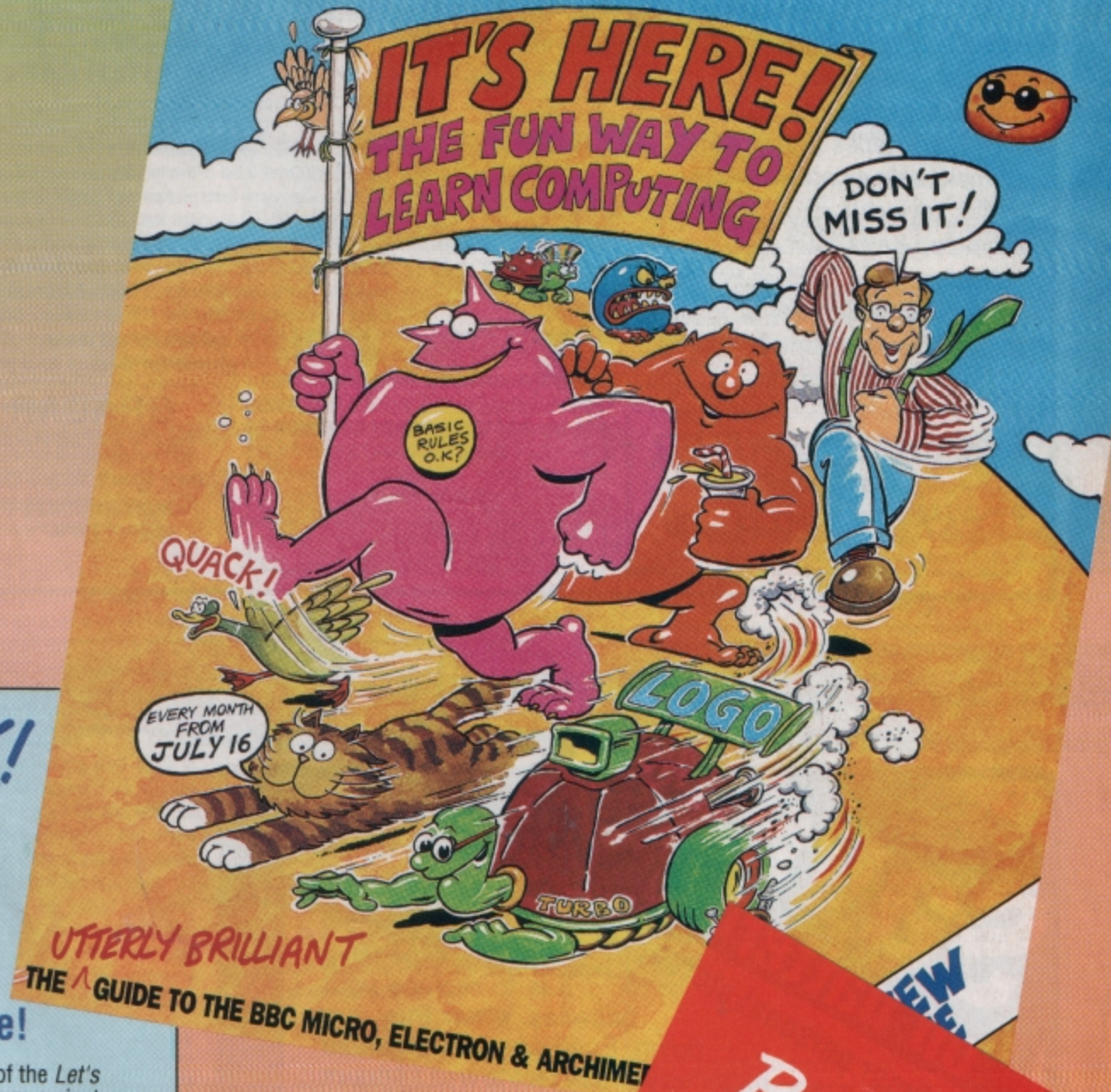
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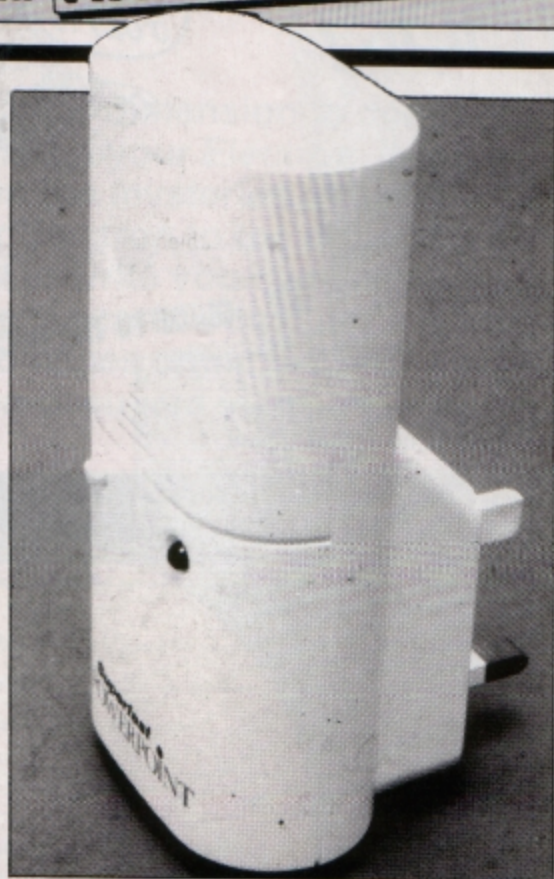
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TO ORDER PLEASE USE THE FORM ON PAGE 45

Banish those VDU blues!

ALTHOUGH modern dot matrix printers are extremely versatile, access to their many features is not easy. However, using the routine here – Easy Printer – you can easily send the complex sequence of VDU codes needed to produce the various styles.

It will also stop you making mistakes which would make your printer do something that was never intended.

The program is a menu driven Basic utility which allows the setting of up to 26 Epson compatible printer control codes and shows at a glance the options that have been set.

As well as allowing you to set all the usual options such as NLQ, compressed, emphasised, enlarged and so on you can also set things like form length, left and right margins and international character sets.

It is very easy to set your printer up for use with programs like View and Viewsheet, and a printer driver may only be needed for localised effects such as italics or underlining.

The program will produce a sample print-out, giving a preview of the effects you have set – useful for testing or comparing different types of printers.

Type in the program listing and save it under an appropriate filename. You should add REMs to the start of lines 70 and 80 until the program is working correctly but once you're sure it's right you must remove them or the program will not work as intended.

When run, you will first be asked for information about your printer. This enables the correct setting of the line feed option and the default right hand margin for either a normal or wide carriage printer. When this is

Leslie Goodridge offers a routine designed to set up your printer automatically

done the menu screen will be displayed listing the various options.

Initially these will be set to their default values which are either indicated in brackets or shown as a value against each option. The assumed values are shown in the panel.

If these values are only marginally different from your printer settings, it is probably not worth altering the DIP switches, since switching the control code options on and off again will reset them anyway.

To set up any combination of the displayed options, press any of the keys A to Z. For example, pressing C followed by G will

Initial settings

- Draft
- Pica characters
- U.S. character set
- Paper out enabled
- No skip over perforations
- Form length: 66 lines or 11 in
- Line spacing: 36/216in (equivalent to the normal 1/6in)

set the printer up to produce condensed italic characters.

When an option is set, an asterisk will appear beside it as a reminder. To reset the option press the key again and the asterisk will disappear showing the default setting has been reinstated.

Pressing f1 will reset all options to their default values – a very useful feature when a large number of options need resetting.

When changing form length and line spacing you will be prompted to enter an appropriate value when necessary.

If you select options B, C, D, N or O the number of characters which can be printed on a line will vary, a fact reflected in the value displayed for the right hand margin. Changing from pica to elite, for example, will cause the right hand margin value to change from 80 to 96.

Setting options U or V will fix the physical positions of the margins when printing. The number of printable characters between the them, however, still depends on the character pitch and the margin values displayed on screen will reflect any changes.

You may occasionally see slight differences in these values if you change character pitch a number of times. This is because they are displayed on screen as whole numbers, even though the actual values may be fractions of a character space.

The program also controls the interaction between the left and right hand margins to prevent them going out of range, and you may see an occasional error message to

This is Draft Pica US Chrs on the Panasonic KX-P1080 with descenders gjpqy and 1 line spacing 36/216 in.

This is NLQ Pica Condensed Italics US Chrs on the Panasonic KX-P1080 with descenders gjpqy and line spacing 36/216 in.

This is NLQ Pica Emphasized Proportional US Chrs on the Panasonic KX-P1080 with descenders gjpqy and line spacing 36/216 in.

This is Draft Elite Enlarged Emphasized Proportional US Chrs on the Panasonic KX-P1080 with descenders gjpqy and line spacing 36/216 in.

This is Draft Elite Enlarged Proportional Underlined US Chrs on the Panasonic KX-P1080 with descenders gjpqy and line spacing 36/216 in.

➤ warn you if there is a possibility of this happening.

Some control code combinations cancel or override each other. Character pitch, for example, has priority over some other character modes.

To avoid such problems the program prevents the selection of certain combinations. You cannot, for example, select superscript and subscript together, or select condensed, enlarged or elite if character pitch has already been set with options O or N.

Once you have set your options, you have

the choice of pressing function key f9 to exit from the program or pressing f5 to obtain a sample printout.

If you select the latter you will be prompted to enter the name of the printer, or to change the name if one has been entered already. Once this is done you will get a printout using the options previously selected.

This lists the options together with the actual effect and the printer name, thus giving you a complete record. When the printout is completed control passes back to the menu.

If you press f9 to exit from the program

you will see a short exit menu, allowing you to return to Basic or alternatively enter View or Viewsheets.

Pressing Break at any time will clear all variables and run the program again from the start. This allows you, for example, to reconfigure the program for a different printer with a different size of carriage.

Easy Printer will prove to be a very useful utility which will help you to control many of your printer's facilities. In fact it may even help you to discover some you did not know it had, or that you could not be bothered to use because of the hassle of entering all those VDU codes.

```

10 REM Easy Printer
20 REM by Leslie J Goodridge
30 REM (c) Electron User
40 :
50 ON ERROR GOTO3960
60 REM Until de-bugged add REMs to
the next two lines
70 *KEY10 OLD|M RUN|M
80 *FX229,1
90 :
100 MODE6:CLS
110 VDU19,1,6;0;
120 VDU23,1,0;0;0;0;
130 PROCcheck_printer
140 CLEAR
150 PROCsetup
160 PROCscreen
170 exit=FALSE:reset=FALSE
180 REPEAT
190 PROCclear_window
200 PROCmenu_choice
210 UNTIL exit OR reset
220 IF reset GOTO140
230 CLS:VDU20
240 PRINTTAB(5,10)"Exit to : "
250 PRINTTAB(14,12)"1...BASIC"
260 PRINTTAB(14,13)"2...VIEW"
270 PRINTTAB(14,14)"3...VIEWSHEET"
280 REPEAT
290 *FX21,0
300 exit$=GET$
310 exit%=INSTR("123",exit$)
320 UNTIL exit%
330 PROCtidy:CLS
340 ON exit% GOTO350,360,370
350 OSCLI("basic"):END
360 OSCLI("word"):END
370 OSCLI("sheet"):END
380 :
390 DEF PROCsetup
400 VDU2,1,27,1,64,3:REM Reset Printer
410 *FX11,0
420 *FX4,1
430 *FX225,128
440 wide=?%70/10:IF wide=0 wide=1
450 lm%=0:rm%=INT(80*wide+0.5):rmax%=
rm%:limit%=2:present=rmax%
460 alpha$="ABCDEFGHJKLMNPQRSTUVWXYZ"
470 valid$=alpha$+CHR$129+CHR$133+CHR$137
480 numeric=1:string=0
490 printer$=STRING$(25," ")
500 final$=printer$:change$=printer$
510 delete$=CHR$127+"."+CHR$8
520 clear$=STRING$(3,"")+STRING$(3,
CHR$8)
530 DIM selection$(26),on_off%(26),d
efault%(9),alt%(3),country$(19),cpi$(3
)
540 ENVELOPE1,1,13,2,1,1,2,126,0,0
,-126,126,126
550 RESTORE 4000
560 FORIX=1 TO 26
570 READ selection$(IX)
580 on_off%(IX)=0
590 NEXT
600 RESTORE 4090
610 FOR IX=1 TO 8
620 READ default%(IX)
630 NEXT
640 default%(9)=rm%
650 FOR IX=1 TO 3
660 alt%(IX)=0
670 NEXT
680 alt%(0)=36
690 RESTORE 4110
700 FOR IX=0 TO 19
710 READ country$(IX)
720 NEXT
730 RESTORE 4170
740 FOR IX=0 TO 3
750 READ cpi$(IX)
760 NEXT
770 ENDPROC
780 :
790 DEF PROCcheck_printer
800 ?%70=0:IF FNyn("Wide Carriage Pr
inter Y/N?",7,12) ?%70=17
810 yes=FNyn("Is Printer set for aut
o linefeed Y/N?",1,12)
820 IF yes OSCLI("fx6,10") ELSE OSCL
I("fx6,0")
830 CLS
840 PRINTTAB(0,10)"Make sure your p
rinter is switched on"
850 PRINTTAB(0,12)"and on line or th
e program will hang up"
860 PRINTTAB(8,16)"Press any key whe
n ready"
870 OSCLI("fx21,0"):key=GET:ENDPROC
880 :
890 DEF PROCclear_window
900 VDU28,0,24,39,19,12,26
910 ENDPROC
920 :
930 DEF PROCscreen
940 CLS
950 PRINTTAB(14,0)"EASY PRINTER"
960 PRINTTAB(14,1)"*****"
970 PRINTTAB(15,2)"** Menu **"
980 FOR item%=1 TO 26
990 letter$=CHR$(64+item%)
1000 IF item%<14 col%=1:row%=3 ELSE c
ol%=19:row%=-10
1010 PRINTTAB(col%,item%+row%);letter
$;" ";selection$(item%);
1020 IF item%=1 PRINT" (Draft)";
1030 IF item%=2 PRINT" (Pica)";
1040 IF item%=12 PRINT"(US)";
1050 IF item%>13 AND item%<23 PRINTTA
B(36,item%+row%);default%(item%-13)
1060 NEXT
1070 ENDPROC
1080 :
1090 DEF PROCmenu_choice
1100 clash=FALSE
1110 PRINTTAB(7,19)"A-Z to set Printe
r options"
1120 PRINTTAB(3,21)"f1=Reset":PRINTTA
B(25,21)"f5=Printout":PRINTTAB(16,23)"
f9=Exit"
1130 REPEAT
1140 *FX202
1150 *FX21,0
1160 choice$=GET$
1170 choice%=INSTR(valid$,choice$)
1180 UNTILchoice%
1190 IF choice%=CHR$129 reset=TRUE:EN
DPROC
1200 IF choice%=CHR$133 PROCtest_prin
ter:ENDPROC
1210 IF choice%=CHR$137 PROCset_exit:
ENDPROC
1220 IF choice%="A" AND choice%<="Z"
OSCLI("fx21,3"):PROCchange(choice%):I
F clash ENDPROC
1230 IF INSTR("BCDNO",choice$) PROCma
rgin
1240 IF choice%<"N" OR choice%>"V" GO
TO1130 ELSE ENDPROC
1250 ENDPROC
1260 :
1270 DEF PROCtest_printer
1280 other=on_off%(14) OR on_off%(15)
OR on_off%(16)
1290 escape=FALSE
1300 IF LEFT$(printer$,1)<>" " PROCch
ange_printer ELSE PROCget_printer
1310 IF escape ENDPROC
1320 VDU2,21
1330 PRINT"This is ";
1340 IF other PROCother_test ELSE PRO
Cnormal_test
1350 PRINT"on the ";printer$;
1360 PRINT" with descenders gjqy and
line spacing ";alt%(0);"/216 in."
1370 VDU6,3
1380 ENDPROC
1390 :
1400 DEF PROCother_test
1410 FOR IX=14 TO 16
1420 IF on_off%(IX) PRINT selection$(
IX);" ";alt%(IX-13) " ";
1430 IF IX=14 AND on_off%(IX) PROCmod
e

```

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```

n(choice%) ELSE PROCchange_off(choice%
)
1900 ENDPROC
1910 :
1920 DEF FNyn(message$,col,row)
1930 PRINT TAB(col,row)message$
1940 REPEAT
1950 *FX21,0
1960 ans$=CHRS(GET AND &F)
1970 UNTIL INSTR("YN",ans$)
1980 IF ans$="Y"=TRUE ELSE=FALSE
1990 :
2000 DEF FNget_input(len%,type)
2010 IF type=numeric first=48:last=57
ELSE first=32:last=126
2020 start$=STRING$(len%,".")+STRING$
(len%,CHRS8)
2030 final$=""
2040 VDU23,1,1,0;0;0;
2050 PRINT start$;
2060 REPEAT
2070 *FX21,0
2080 input$=GET$:input=ASC(input$)
2090 Ifinput$=CHR$27 escape=TRUE:GOTO
2150
2100 IF input$=CHR$13 AND final$<>"
GOTO2150
2110 IF input$=CHR$127 AND LEN(final$
)>0 final$=LEFT$(final$,LEN(final$)-1)
:PRINT delete$:GOTO2070
2120 IF input<first OR input>last OR
LEN(final$)=len% VDU7:GOTO2070
2130 PRINT input$;
2140 final$=final$+input$
2150 UNTIL input$=CHR$13 OR escape
2160 VDU23,1,0;0;0;0;
2170 =final$
2180 :
2190 DEF PROCmode
2200 PRINT("";
2210 IF alt%(1) AND 1 PRINT selection
$(2) " ";ELSE PRINT"Pica ";
2220 IF alt%(1) AND 4 PRINT selection
$(3) " ";
2230 IF alt%(1) AND 32 PRINT selectio
n$(4) " ";
2240 IF alt%(1) AND 8 PRINT selection
$(5) " ";
2250 IF alt%(1) AND 16 PRINT selectio
n$(6) " ";
2260 PRINT) " ";
2270 ENDPROC
2280 :
2290 DEF PROCchange_off(choice%)
2300 ON choice% GOTO2310,2320,2330,23
40,2350,2360,2370,2380,2390,2400,2410,
2420,2430,2440,2450,2460,2470,2480,249
0,2500,2510,2520,2530,2540,2550,2560
2310 VDU2,1,27,1,120,1,0,3:GOTO2570
2320 VDU2,1,27,1,80,3:GOTO2570
2330 VDU2,1,18,3:GOTO2570
2340 VDU2,1,27,1,87,1,0,3:GOTO2570
2350 VDU2,1,27,1,70,3:GOTO2570
2360 VDU2,1,27,1,72,3:GOTO2570
2370 VDU2,1,27,1,53,3:GOTO2570
2380 VDU2,1,27,1,84,3:GOTO2570
2390 VDU2,1,27,1,84,3:GOTO2570
2400 VDU2,1,27,1,112,1,0,3:GOTO2570
2410 VDU2,1,27,1,45,1,0,3:GOTO2570
2420 VDU2,1,27,1,82,1,0,3:GOTO2570
2430 VDU2,1,27,1,57,3:BS="on ":GOTO25
70
2440 VDU2,1,27,1,33,1,0,3:GOTO2570
2450 VDU2,1,27,1,119,1,0,3:GOTO2570
2460 VDU2,1,27,1,82,1,0,3:GOTO2570
2470 VDU2,1,27,1,67,1,0,1,11,3:GOTO25
70
2480 VDU2,1,27,1,67,1,66,3:GOTO2570
2490 VDU2,1,27,1,79,3:GOTO2570
2500 VDU2,1,27,1,51,1,36,3:GOTO2570
2510 VDU2,1,27,1,108,1,0,3:GOTO2570
2520 VDU2,1,27,1,81,1,default%(9),3:G
OTO2570
2530 VDU2,1,27,1,97,1,0,3:GOTO2570
2540 VDU2,1,27,1,97,1,0,3:GOTO2570
2550 VDU2,1,27,1,97,1,0,3:GOTO2570
2560 VDU2,1,27,1,115,1,0,3:GOTO2570
2570 IF choice%<14 OR choice%>22 val%
=0 ELSE val%=default%(choice%-13)
2580 PROCprint(choice%,val%," ")
2590 ENDPROC
2600 :
2610 DEFPROCprint(choice%,val%,CS)
2620 IF choice%<14 row%=3 ELSE row%=-
10
2630 IF choice%>13 PRINTTAB(18,choic
e%+row%)CS ELSE PRINTTAB(0,choice%+row%
)CS
2640 IF choice%>13 AND choice%<23 PRI
NTTAB(36,choice%+row%)clear$;val%
2650 IF choice%=13 PRINTTAB(13,16)BS
2660 IF choice%=20 alt%(0)=val%
2670 IF choice%=21 lm%=val%
2680 IF choice%=22 rm%=val%
2690 SOUND1,1,178,5
2700 ENDPROC
2710 :
2720 DEFPROCchange_on(choice%)
2730 escape=FALSE
2740 IF choice%>13 AND choice%<23 PRO
Cget_value(choice%)
2750 IF escape on_off%(choice%)=0:END
PROC
2760 IF choice%>13 AND choice%<17 alt
%(choice%-13)=value%
2770 ON choice% GOTO2780,2790,2800,28
10,2820,2830,2840,2850,2860,2870,2880,
2890,2900,2910,2920,2930,2940,2950,296
0,2970,2980,2990,3000,3010,3020,3030
2780 VDU2,1,27,1,120,1,1,3:GOTO3040
2790 VDU2,1,27,1,77,3:GOTO3040
2800 VDU2,1,27,1,15,3:GOTO3040
2810 VDU2,1,27,1,87,1,1,3:GOTO3040
2820 VDU2,1,27,1,69,3:GOTO3040
2830 VDU2,1,27,1,71,3:GOTO3040
2840 VDU2,1,27,1,52,3:GOTO3040
2850 VDU2,1,27,1,83,1,0,3:GOTO3040
2860 VDU2,1,27,1,83,1,1,3:GOTO3040
2870 VDU2,1,27,1,112,1,1,3:GOTO3040
2880 VDU2,1,27,1,45,1,1,3:GOTO3040
2890 VDU2,1,27,1,82,1,3,3:GOTO3040
2900 VDU2,1,27,1,56,3:BS="off":GOTO30
40
2910 VDU2,1,27,1,33,1,value%,3:GOTO30

```

This is Draft Elite Italic Superscript Proportional US Chrs on the Panasonic KX-P1080 with descenders gjpqy and line spacing 36/216 in.

This is Draft Elite Condensed Italic US Chrs on the Panasonic KX-P1080 with descenders gjpqy and line spacing 36/216 in.

This is Int char set 5 (Swedish I):- !"#\$%&'()*+,-./0123456789;:<=>?@ABCDEFGHIJKLMNQPQRSTUVWXYZäåü in Draft Elite Condensed Dble Strike Chrs on the Panasonic KX-P1080 with descenders gjpqy and line spacing 36/216 in.

This is Int char set 2 (German):- !"#\$%&'()*+,-./0123456789;:<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`'abcdefghijklmnopqrstuvwxy{!}~ in Draft Pica Chrs on the Panasonic KX-P1080 with descenders gjpqy and line spacing 36/216 in.

```

40
2920 VDU2,1,27,1,119,1,value%,3:GOTO3
040
2930 VDU2,1,27,1,82,1,value%,3:GOTO30
40
2940 VDU2,1,27,1,67,1,0,1,value%,3:GO
T03040
2950 VDU2,1,27,1,67,1,value%,3:GOTO30
40
2960 VDU2,1,27,1,78,1,value%,3:GOTO30
40
2970 VDU2,1,27,1,51,1,value%,3:GOTO30
40
2980 VDU2,1,27,1,108,1,value%,3:GOTO3
040
2990 VDU2,1,27,1,81,1,value%,3:GOTO30
40
3000 VDU2,1,27,1,97,1,3,3:GOTO3040
3010 VDU2,1,27,1,97,1,1,3:GOTO3040
3020 VDU2,1,27,1,97,1,2,3:GOTO3040
3030 VDU2,1,27,1,115,1,1,3:GOTO3040
3040 IF choice%<14 OR choice%>22 valu
e%=0
3050 PROCprint(choice%,value%,"")
3060 ENDPROC
3070 :
3080 DEF PROCget_value(choice%)
3090 PROCclear_window
3100 min%=0:max%=255:len%=3
3110 IF choice%=14 max%=63:len%=2
3120 IF choice%=15 max%=3:len%=1
3130 IF choice%=16 max%=19:len%=2
3140 IF choice%=17 max%=22:min%=1:len
%=2
3150 IF choice%=18 max%=127:min%=1
3160 IF choice%=19 max%=127
3170 IF choice%=20 min%=1
3180 IF choice%=21 max%=rm%-limit%:IF
max%<min% PROCno_change("Left"):ENDP
ROC
3190 IF choice%=22 max%=rm%:min%=ln
%+limit%:IF min%>max% PROCno_change("
Right"):ENDPROC
3200 PRINTTAB(12,23)"Escape to abort
"
3210 REPEAT
3220 PRINTTAB(7,20)"Enter a value (";
min%;"-";max%;"):";
3230 escape=FALSE:correct_val=FALSE
3240 value%=VAL(FNget_input(len%,nume
ric))
3250 IF escape GOTO3290
3260 IF choice%=21 AND value%=0 AND l
n%=0 VDU7:PRINTTAB(7,20)"Zero value al
ready set! ":PROCwait(200):GOTO3290
3270 IF value%>min% AND value%<=max%
correct_val=TRUE
3280 IF NOT correct_val VDU7
3290 UNTIL correct_val OR escape
3300 ENDPROC
3310 :
3320 DEF PROCcheck_clash
3330 IF choice%="N" AND(on_off%(2) OR
on_off%(3) OR on_off%(4) OR on_off%(5
) OR on_off%(6) OR on_off%(15)) GOTO34
20
3340 IF choice%>1 AND choice%<7 AND o
n_off%(14) GOTO3420
3350 IF choice%="O" AND(on_off%(2) OR
on_off%(3) OR on_off%(4) OR on_off%(1
4)) GOTO3420
3360 IF choice%>1 AND choice%<5 AND o
n_off%(15) GOTO3420
3370 IF choice%="P" AND on_off%(12) 0
R choice%="L" AND on_off%(16) GOTO3420
3380 IF choice%="Q" AND on_off%(18) 0
R choice%="R" AND on_off%(17) GOTO3420
3390 IF choice%="W" AND(on_off%(24) 0
R on_off%(25)) OR choice%="X" AND(on_o
ff%(23) OR on_off%(25)) OR choice%="Y"
AND(on_off%(23) OR on_off%(24)) GOTO3
420
3400 IF choice%="H" AND on_off%(9) OR
choice%="I" AND on_off%(8) GOTO3420
3410 ENDPROC
3420 clash=TRUE:ENDPROC
3430 :
3440 DEF PROCno_change(AS)
3450 PRINTTAB(9-LEN(AS),21)AS" margin
cannot be changed"
3460 PRINTTAB(7,23)"!max & min values
equal!"
3470 VDU7:PROCwait(300):escape=TRUE
3480 ENDPROC
3490 :
3500 DEF PROCwait(delay)
3510 REPEAT UNTIL INKEY(delay)
3520 ENDPROC
3530 :
3540 DEF PROCmargin
3550 elite=on_off%(2):condensed=on_of
f%(3):enlarged=on_off%(4)
3560 alternate%=on_off%(14) OR on_off
%(15)
3570 IF alternate% GOTO3670
3580 IF NOT(elite OR condensed OR enl
arged)result%=0
3590 IF elite AND NOT(condensed OR en
larged)result%=1
3600 IF condensed AND NOT(elite OR en
larged)result%=4
3610 IF condensed AND elite AND NOT e
nlarged result%=5
3620 IF enlarged AND NOT(elite OR con
densed)result%=32
3630 IF enlarged AND elite AND NOT co
ndensed result%=33
3640 IF enlarged AND condensed AND NO
T elite result%=36
3650 IF enlarged AND condensed AND el
ite result%=37
3660 GOTO3680
3670 IF on_off%(14) result%=alt%(1) A
ND 825 ELSE result%=alt%(2)
3680 IF result%=0 rmax%=INT(80*wide+0
.5):limit%=2
3690 IF result%=1 rmax%=INT(96*wide+0
.5):limit%=3
3700 IF result%=2 rmax%=INT(120*wide+
0.5):limit%=4
3710 IF result%=3 OR result%=4 rmax%=
INT(137*wide+0.5):limit%=4
3720 IF result%=5 rmax%=INT(160*wide+
0.5):limit%=4
3730 IF result%=32 rmax%=INT(40*wide+
0.5):limit%=1
3740 IF result%=33 rmax%=INT(48*wide+
0.5):limit%=1
3750 IF result%=36 rmax%=INT(68*wide+
0.5):limit%=2
3760 IF result%=37 rmax%=INT(80*wide+
0.5):limit%=2
3770 IF rmax%=137 default%(9)=132 ELS
E IF rmax%=68 AND wide=1 default%(9)=6
6 ELSE default%(9)=rmax%
3780 new=default%(9)
3790 IF on_off%(21) lm%=INT(lm%*(new/
present)+0.5)
3800 IF on_off%(22) rm%=INT(rm%*(new/
present)+0.5) ELSE rm%=default%(9)
3810 IF rm%>rmax% rm%=rmax%
3820 IF lm%>rm% lm%=rm%-limit%
3830 PRINTTAB(36,12)clear$;rm%
3840 PRINTTAB(36,11)clear$;lm%
3850 present=new
3860 ENDPROC
3870 :
3880 DEF PROCTidy
3890 *FX12,0
3900 *FX4,0
3910 *FX229,0
3920 *FX225,1
3930 VDU23,1,1,0;0;0;
3940 ENDPROC
3950 :
3960 PROCTidy
3970 REPORT:PRINT" at line ";ERL
3980 END
3990 :
4000 DATA NLQ,Elite,Condensed,Enlarge
d,Emphasized
4010 DATA Dble Strike,Italics,Supersc
ript,Subscript
4020 DATA Proportional,Underlined,UK
Chrs
4030 DATA Paper OUT on,Print mode,Cha
r pitch
4040 DATA Int char set,Form length in
,Form length Ln
4050 DATA Skip over perf,Line spc n/2
16,LH margin chrs
4060 DATA RH margin chrs,Auto justify
,Auto centre
4070 DATA RH align,Half speed
4080 :
4090 DATA 0,0,0,11,66,0,36,0
4100 :
4110 DATA (USA),(French),(German),(En
glish),(Danish I)
4120 DATA (Swedish I),(Italian),(Span
ish I),(Japanese)
4130 DATA (Norwegian),(Danish II),(Sp
anish II),(Latin American)
4140 DATA (French Canadian),(Dutch),(
Swedish II)
4150 DATA (Swedish III),(Turkish),(Sw
iss I),(Swiss II)
4160 :
4170 DATA (10 cpi),(12 cpi),(15 cpi),
(17 cpi)

```

This is Print mode 3 (Elite) Int char set 5 (Swedish I):- !"#%&'()*+,-./0123456789:;<=>?#ABCDE
FGHIJKLMNOPQRSTUVWXYZAÖÅ ðábcdefghijklmnopqrstuvwxyzäöå in NLQ Proportional Underlined Chrs on
the Panasonic KX-P1080 with descenders gjpqy and line spacing 36/216 in.

This is Int char set 5 (Swedish I):- !"#%&'()*+,-./0123456789:;<=>?#ABCDEFGHIJKLMNQRST
UVWXYZAÖÅ ðábcdefghijklmnopqrstuvwxyzäöå in NLQ Pica Emphasized Dble Strike Proporti
onal Underlined Chrs on the Panasonic KX-P1080 with descenders gjpqy and line spacing
36/216 in.

This is Draft Pica US Chrs on the Panasonic KX-P1080 with descenders gjpqy and 1
ine spacing 36/216 in.

Write your own arcade smashes using the

ARCADE GAME Creator

Arcade Game Creator is a suite of programs for the Electron and BBC Micros. Taken from the pages of *Electron User*, it lets you into the secrets of writing fast-action arcade games, and provides you with a number of utilities to make design and programming easier.

Among the programs are:

- A Mode 5 sprite editor that lets you design your own multi-coloured characters.
- A selection of fast print routines that will move sprites both in front or behind other objects on the screen.
- Map generators that will squeeze a Mode 5 screen into 8 bytes!
- Scrolling maps.
- Score update and printing routines. . . . and much, much more.

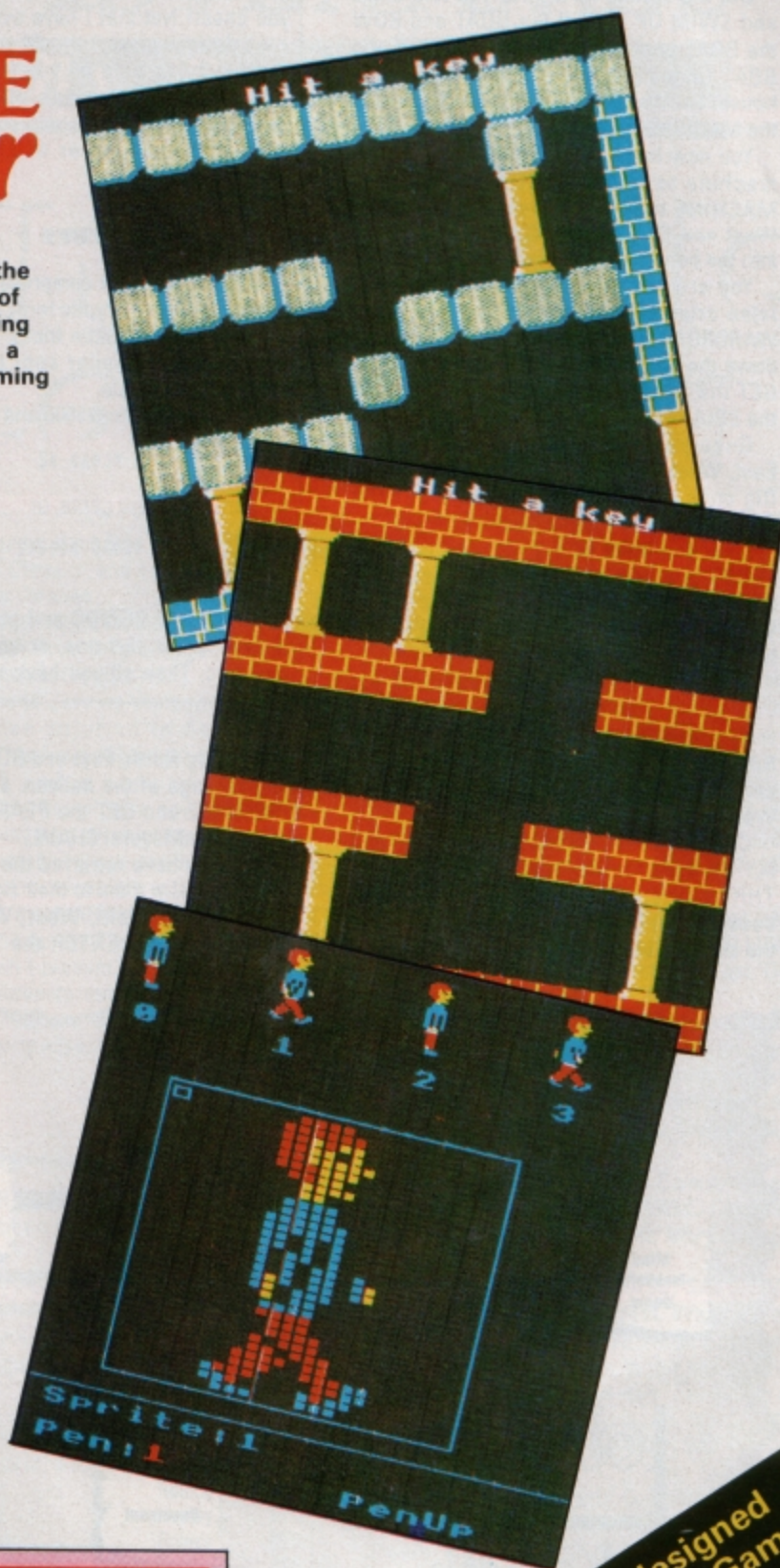
To help you make the most of the Arcade Game Creator, you will also get a comprehensive manual based on the original series.

Written in an easy to read style and with many illustrations and screen shots, it contains all the information you need to create and animate sprites, to design backgrounds and to link the two together into a complete arcade game.

If you are an aspiring games programmer, this is an offer you simply cannot afford to miss!

Arcade Game Creator

Tape + manual£9.95
Disc + manual£11.95



Screens designed
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 Tel: 081-861 1166

IN these days of ever increasing sophistication it is most refreshing to play a game as simple yet addictive as Audiogenic's Helter Skelter.

The storyline goes like this: The world has been overrun by herds of comical looking monsters and your mission is to bounce the little blighters into oblivion. I choose the word bounce specifically, since you are a red rubber sphere of considerable size.

Ball control is achieved by means of three keys – left, right and bounce and your mastery of the bounce button will determine the outcome of the game.

Oddly enough the world that you are defending is constructed in platform game fashion – single screens, with several platforms floating in mid-air. Each is inhabited by one or more randomly moving monsters just waiting to be bounced.

Being an ace tactician, my first inclination was to ricochet around the screen as fast as possible, obliterating everything that I touched.

After I had doubled the indigenous monster population in five seconds I decided to adopt a more subtle approach – so I sat down and read the instructions.

The accompanying script indicated that the programmers had anticipated my

sledgehammer approach by specifying the order in which the monsters must be despatched.

On all occasions, the next one to be blatted is highlighted by a large white arrow hovering above its head. Contact with any other beast induces instant binary fission, the result being two furry fiends scurrying around the screen instead of one.

Don't be put off by the fact that you can literally sprint through the first few screens, as this is a deliberate ploy to boost your confidence. Things soon begin to increase in both complexity and difficulty – don't forget that you have a total of 74 levels to complete before you reach the end!

Helter Skelter's monsters are not in any way harmful to the bouncing ball and the game's controlling factor is time.

A digital clock counts down the seconds as you race to obliterate the monster masses. Tension is heightened by a rapid ticking sound that starts at the 10 seconds marker.

Scoring is relatively simple. You receive 500 points for every monster you zap, a further 1,000 bonus for every second that remains on the clock, and a final skill bonus which is halved every time you press the bounce button.

This final bonus encourages a player to adopt the most economical approach to completing a screen – this is also probably the quickest.

Variety is introduced by means of various tokens that appear at random throughout

HELTER SKELTER

...bounce into action



electron
user

Golden
game

the game. Time limit permitting, you may be able to collect the letters E-X-T-R-A and be rewarded with an additional ball.

Alternatively there is a range of symbol tokens that can temporarily paralyse the monsters, interrupt the passage of time, or best of all, teleport you to the next level.

Sound is used sparingly: There is no title tune and the spot effects are simple, but this doesn't really detract from the game's appeal.

Considering the now ageing Electron's capabilities, Helter Skelter strikes a good balance between graphic detail and colour use. On the animation front, the characters exhibit flicker-free and fluid movement, with the realistic response of the ball to the apparent gravitational effects being worthy of note.

If you become bored with playing your way through the same old levels time after time and you're not good enough to get any further, try pressing E while you're on the title screen.

Once the discrete message Edit mode has disappeared you will be faced with a blank screen – a canvas upon which you can express the more devious side of your personality.

This built-in level designer allows you to create an infinite number of new screens, provided that you save them to disc or tape in groups of 40.

You are given total control over the size and location of all platforms, the number of monsters present, the starting position of your ball, the time allocation and the size of the low bounce bonus.

The only failing of this otherwise powerful editor is that you cannot edit a screen once you have committed it to memory. If you've used game editors in the past you will realise the magnitude of this omission.

There is no way that you will ever create a well balanced level at the first attempt – it will always be too easy, too difficult or just downright impossible!

I would rate Helter Skelter as one of the better platform games to have hit the market in recent years. Simplicity is the keyword throughout: Simple controls, simple gameplay, simply fun!

Jon Revis

Sound	7
Graphics	8
Playability	9
Value for money	9
Overall	8

FROM the very last issue of *Electron User* we travel back in time to the very first issue of this long-running magazine (the only Database Publications product that has lasted longer than *Electron User's* six years and ten months is the evergreen *The Micro User*).

This month we'll take a look at how *Electron User* started and what was in issue number one, volume one.

The first October 1983 issue was never sold as a standalone magazine and was, as our older readers will remember, a pullout section of *The Micro User*. In fact, this was the only reason I bought the magazine, and I'm sure many other readers felt the same way.

The cover pictured the Electron and introduced four features that were to become very familiar to its new readership. And talking of readership, even by looking at the front cover it was easy to see that the magazine was clearly aimed at a very young audience indeed.

Casting Agency introduced a revolutionary and unique shape dictionary – an essential source of off-the-shelf user defined characters ready to be incorporated into your own programs. These proved to be extremely popular, with reader submissions arriving by the sackful each month. Try this ballet dancer from Vol. 1 No. 1:

23,224,61,61,61,25,255,188,252,60
23,225,126,255,36,36,60,32,32,32

If you enter these two lines of code and then print character 224 on top of the 225 you should end up with a twirling ballet dancer!

Following a similar tack to Casting Agency was Sounds Exciting which aimed to build up a library of exciting sound effects. These snippets of Basic programs could then be included in your own masterpieces. From the October 1983 issue here is one of the first effects from Sounds Exciting called Attack of the Mutant Flies:

ENVELOPE 6,1,36,-36,0,20,20,0,126,
0,0,-126,126,126
SOUND 1,6,160,100

This first magazine also introduced an amusing cartoon character called Micro Kid. His antics kept readers smiling for quite a long time and was missed by many when he finally grew up and left for pastures new. At the foot of the page you'll find his first comic strip, in which he almost wears out

TIME WARP 1985

Journey back through the mists of time with Barry Woods' Tardis

his fingers typing in all the *Electron User* listings.

These listings were to form the backbone of the magazine, and in this particular little has changed over the years. Even now readers enjoy entering short game and utility program listings.

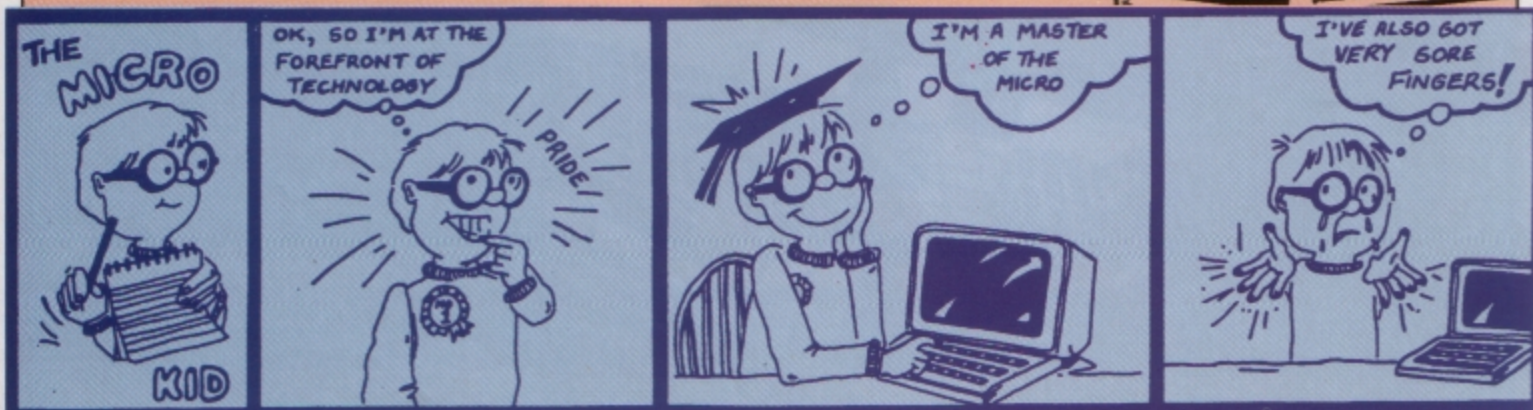
In fact, many of *Electron User's* arcade games were marketed by budget software supplier Alternative and they stormed the Gallup charts, at one time occupying almost all of the top 20 positions.

The fourth regular feature introduced on the first front cover was Software Surgery – a cartoon drawing of a surgeon operating on a joystick headed the first software reviews page.

What was available during that first month of the Electron's existence? Not surprisingly, the four titles reviewed were all from Acornsoft and included *Starship Command*, *Monsters*, *Meteors*, and *Draughts and Reversi*. All were to become classics and are great fun to play even now, six years after their release.

Last, but by no means least, Mike Cook injected useful technical knowledge for DIY enthusiasts and hardware boffins with an exploration and documentation of the Electron's gold-plated double sided 50-way edge connector at the rear of the case.

And that just about wraps up this trip back through the mists of time. Now it's back to the computing future!



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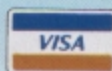
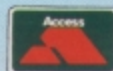
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Darren Bradley moves a classic game from paper to the screen

Micro

GUNBOAT is a micro version of the popular pastime Battleships, the nautical game of skill and strategy for two players. Each is an admiral of fleets of warships, engaged in a battle of mammoth proportions.

Each fleet consists of five ships, which vary in size and thus in the number of direct hits required to sink them. Once the micro has initialised the screen, player two will be asked to leave the room, while player one's fleet is established.

The ships are then erased from the screen and the process is repeated for player two. The battle now starts.

Shots are fired by entering the coordinates of the target square and pressing Return. Shots are alternated until one player is annihilated.

Full instructions – including the number of ships you have and their sizes – are contained in the program. So type it in and issue your orders.



Battleships

```

10 REM *****
20 REM *
30 REM * GUNBOAT *
40 REM * BY DARREN BRADLEY *
50 REM * (c) Electron User *
60 REM *
70 REM *****
80 :
90 MODE4:ONERROR PROCerr
100 PROCst:PROCenter:REPEAT:PROCbatt
le:UNTILMx=17 ORNx=17:PROCwin:VDU4:OSC
LI"FX15":RUN
110 :
120 DEFPROCerr:VDU22,6:SOUND1,-15,20
0,1:PRINT:IFERR=17 REPORT:PRINT" at li
ne ";ERL:END
130 PRINT"Hang on a minute ...":REP
ORT:PRINT" at line ";ERL:PRINT"And he
re's the offending line ...":OSCLI"FX1
5":OSCLI"KEYOLIST"+STRSERL+"M":OSCLI"
FX138,0,128":END
140 :
150 DEFPROCst:o=&FFEE:p=&CFB;q=&70:r
=&71:s=&FFF1:DIMQX400,n$(4,1),p$(4),x(
16,2),y(16,2):FORnX=0TO2STEP2:PX=qX:CO
PTnX:.S:LDA#5:JSR0:LDA#0:STAq:.T:LDXq:
LDA&110,X:CMPh13:BEQU:STAR:INX:STXq:LD
X#r:LDY#0:LDA#&A:JSRs:LDX#1:LDY#0:LDAr
,X:STAp,Y
160 INX:INX:LDAr,X:STAp,Y:INX:INX:IN
Y:LDAr,X:STAp,Y:INX:INX:LDAr,X:STAp,Y:
INX:INX:INX:LDAr,X:STAp,Y:INX:LDAr#0:ST
Ap,Y:INX:LDAr#0:STAp,Y:LDA#&FF:JSR0:JMP
T:.U:LDA#4:JSR0:RTS:.I:LDA#0:STAq:.J:L
DXq:LDA&110,X:CMPh13:BEQK:STAR:INX:STX
q:LDX#r
170 LDY#0:LDA#&A:JSRs:LDX#1:LDY#0:LD
Ar,X:LSRA:STAp,Y:INX:INX:LDAr,X:LSRA:S
TAp,Y:INX:INX:LDAr,X:STAp,Y:INX:INX:LD
Ar,X:STAp,Y:INX:INX:LDAr,X:STAp,Y:INX:
INX:LDAr,X:ASLA:STAp,Y:INX:INX:LDAr,X:
ASLA:STAp,Y:INX:INX:LDAr,X:ASLA:STAp,Y
:LDA#&FF
180 JSR0:JMPJ:.K:RTS:J:NEXT:VDU23;82
02;0;0;19,0,4;0;19,1,3;0:PROCbo:PRO
Cwi(32,912,1248,1008):PROCtx("G U N B
O A T",432,992):PROCsm("BY DARREN BRAD
LEY",368,946):PROCtx("I N S T R U C T
I O N S",272,864):VDU28,1,31,38,7
190 PRINT"Introduction:""" Gunboat
is a version of the classic""two play
er game, ";PROCit("BATTLESHIP").":PR
INT"" This simulation allows two play
ers""to fight it out at sea, by atten
pting""to find the opponent's hidden
ships,"
200 PRINT"and ultimately, to sink th
eir fleet."" Each fleet consists of
five ships: ""1.) The Aircraft Carri
er""2.) The Battleship""3.) The Destr
oyer""4.) The Submarine""5.) The Tug
Boat"" The ships are of different s
izes,"
210 PRINT"and thus require a varying
number of ""hits to sink."":PROCspscr:
PRINT"How to play:""" Each player mus

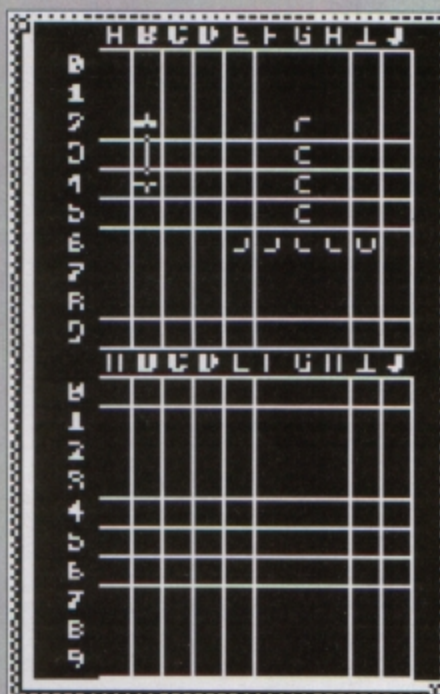
```

t in turn, set the""coordinates of th
eir fleet, on the""appropriate grid."
"" While a player is setting up their
""
220 PRINT"fleet, their opponent must
leave the""room or close their eyes,
so as""not to see the location of th
e other""player's ships."" The keys
with which to set up the""fleet are:
""Z .. Move Cross Left""X .. Move C
ross Right"
230 PRINT"" .. Move Cross Up""? ..
Move Cross Down""<RETURN> .. Set Ship
""<SPACE-BAR> .. Confirm Direction""
<SHIFT> .. Unset Ship":PROCspscr:PRINT
"" Once a player has positioned their""
fleet, the coordinates are stored"
240 PRINT"and the ships are erased f
rom sight."" The second stage of the
game is""the battle. Each player, in
turn, ""inputs a pair of coordinates,
in""the hope of hitting one of the""
opponent's ships. The winner is the""
250 PRINT"player who sinks their opp
onent's""fleet first."" The keys for
battle are: ""<A-J> .. First Coordin
ate""<0-9> .. Second Coordinate""<DE
LETE> .. Alter both coordinates"":PRO
Cit("GOOD LUCK !"):PROCspscr:VDU26,12:
RESTORE1210
260 FORnX=0TO4:READn\$(nX,0),n\$(nX,1)
,p\$(nX):NEXT:MX=0:NX=0:ENVELOPE1,4,4,8
,128,4,8,128,126,0,0,-126,126,126:OSCL
I"FX9,1":OSCLI"FX10,1":VDU23,224,170,8
5,170,85,170,85,170,85,23,225,0,0,20,4
2,85,170,85,170,23,226,24,24,24,255,25

```

5,24,24,24
270
VDU23,227,0,60,66,66,66,66,60,0,
23,228,0,60,126,126,126,126,60,0,23,2
2
9,255,255,255,255,255,255,255,255,23,
2
30,16,16,56,120,244,228,66,2,23,231,8
,
8,28,30,47,39,66,64:SPS=STRINGS(11,CH
R
$229):COS=">> : <<":FORnX=0TO4
280
PRINTSTRINGS(255,CHR$224):NEXT:
VDU5:MOVE1122,30:PRINTSTRINGS(6,CHR$2
2
4):PROCbo:FORnX=0TO6:READa,b,c,d:PROC
w
i(a,b,c,d):NEXT:x=128:FORy=40TO480STE
P
44:MOVE128,y:DRAW568,y:MOVEx,40:DRAWx
,
480:MOVE128,y+484:DRAW568,y+484:MOVEx
,
524
290
DRAWx,964:x=x+44:NEXT:a=65:b=48:
y=956:FORx=136TO532STEP44:MOVEx,1000:
V
DUa:MOVE80,y:VDU6:MOVEx,516:VDUa:MOVE
8
0,y-484:VDU6:a=a+1:b=b+1:y=y-
44:NEXT:P
ROCtx(p$(0),800,988):PROCtx(p$(1),800

```



Player one positioning ships while player two is out of the room

BATTLESHIP
BY BARRIE BRADLEY

INSTRUCTIONS

Introduction:

BattleShip is a version of the classic two player game.

This simulation allows two players to fight it out at sea, by alternating in firing the opponent's hidden ships, and ultimately, to sink their fleet.

Each fleet consists of five ships:

- 1.) The Aircraft Carrier
- 2.) The Battleship
- 3.) The Destroyer
- 4.) The Submarine
- 5.) The Lug Boat

The ships are of different sizes, and thus require a varying number of hits to sink.

Press <SPACE-BAR>

The instructions are comprehensive

```
460):PROCship(750,816):PROCship(750,28
8):ENDPROC
300 :
310 DEFPROCbo:GCOL0,1:MOVED,0:DRAW0,
1023:DRAW1279,1023:DRAW1279,0:DRAW0,0:
ENDPROC
320 :
330 DEFPROCwi(a,b,c,d):VDU18,0,129,1
8,0,0,24,a-16;b-16;c-16;d-16;16,26:MOV
Ea-16,b-16:DRAWc-16,b-16:DRAWd-16,d-16
:DRAWa-16,d-16:DRAWa-16,b-16:VDU18,0,1
28,18,0,1,24,a;b;c;d;16,26:MOVEa,b:DRA
Wc,b:DRAWd:DRAWa,d:DRAWa,b:ENDPROC
340 :
350 DEFPROCtx(a$,x,y):VDU18,0,1,5:FO
Ryy=y-4TOy+4STEP4:FORxx=x-4TOx+4STEP4:
MOVExx,yy:PROCit(a$):NEXT,1:GCOL0,0:MOV
Ex,y:PROCit(a$):VDU18,0,1,4:ENDPROC
360 :
370 DEFPROCsm($$110,x$,y$):MOVEx$,y$
:CALLS:ENDPROC
380 :
390 DEFPROCit($$110):CALLI:ENDPROC
400 :
410 DEFPROCspscr:LOCALa$,b$,c$,a$:OS
CLI"FX21":a$=STRING$(19," ")+"Press <S
PACE-BAR>":REPEAT:b$=INKEY$0:c$=RIGHT$(
a$,1):a$=c$+LEFT$(a$,35):PRINTTAB(1,2
3);a$:FORa%=0TO100:NEXT:UNTILb$=" ":SO
UND1,-15,152,1:CLS:PROCbo:ENDPROC
420 :
430 DEFPROCship(x,y):RESTORE1230:MOV
Ex,y:FORn%=0TO41:READa,b,c:PLOta,b,c:N
EXT:GCOL0,0:FORn%=0TO3:READa,b,c:PLOta
,b,c:NEXT:VDU18,4,0,5:MOVEx-60,y-26:PR
INTSTRING$(17,CHR$(225)):MOVEx-60,y-58:P
RINTSTRING$(17,CHR$(224)):VDU18,0,1,4:EN
DPROC
440 :
450 DEFPROCcenter:LOCALz:r%=1:GCOL4,0
:REPEAT:PROCsm(p$(0),804,612):PROCsm(p
$(2),692,588):PROCsm(p$(1),804,84):PRO
Csm(p$(3),740,60):IFz=0 PROCset(1)
460 z=z+1:UNTILz=2:PROCerase(y3,r%):
z=0:r%=2:REPEAT:PROCsm(p$(0),804,612):
PROCsm(p$(3),740,588):PROCsm(p$(1),804
,84):PROCsm(p$(2),692,60):IFz=0 PROCse
t(2)
470 z=z+1:UNTILz=2:PROCerase(y3,r%):
ENDPROC
480 :
490 DEFPROCset(z):S%=0:VDU5:FORn=0TO
4:IFz=1 y=956:y1=y:y2=560:y3=704 ELSEy
=472:y1=y:y2=76:y3=176
500 d=0:x=136:MOVE963-((LENN$(n,0)*3
2)/2),y3:PROCit(n$(n,0)):MOVEx,y:VDU22
6:REPEAT:IFINKEY-98 ANDx>136 PROCpr:x=
x-44:PROCpr ELSEIFINKEY-67 ANDx<532 PR
OCpr:x=x+44:PROCpr
510 IFINKEY-73 ANDy<y1 PROCpr:y=y+44
:PROCpr ELSEIFINKEY-105 ANDy>y2 PROCpr
:y=y-44:PROCpr
520 IFINKEY-74 SOUND1,-15,150,1:ox=x
:oy=y:d=FNst(ox,oy,y1,y2,n,z)
530 UNTILD:MOVE963-((LENN$(n,0)*32)/
2),y3:PROCit(n$(n,0)):NEXT:ENDPROC
540 :
550 DEFPROCpr:MOVEx,y:VDU226:ENDPROC
560 :
570 DEFFNst(ox,oy,y1,y2,n,z):x1=ox-(
VALn$(n,1))-1)*44:x2=ox+(VALn$(n,1))
-1)*44:y1=oy-(VALn$(n,1))-1)*44:y2=oy
+(VALn$(n,1))-1)*44:PROCch:PROCpr2:e=
0:f=0:REPEAT
580 IFINKEY-98 ANDx1>135 PROCpr2:x=x
1:y=oy:PROCpr2 ELSEIFINKEY-67 ANDx2<53
3 PROCpr2:x=x2:y=oy:PROCpr2
590 IFINKEY-105 ANDy1>y2-1 PROCpr2:y
```

```
=ya:x=ox:PROCpr2 ELSEIFINKEY-73 ANDy<
y1+1 PROCpr2:y=yb:x=ox:PROCpr2
600 IFINKEY-99 SOUND1,-15,80,1:MOVEo
x,oy:VDU226:PROCpr2:f=FNdrsh(z):e=-1
610 IFINKEY-1 e=-1:f=0:PROCpr2:SOUND
1,-15,30,1:x=ox:y=oy
620 UNTILE:=f
630 :
640 DEFPROCch:IFox-((VALn$(n,1))-1)*
44>136 x=x1 ELSEx=x2
650 ENDPROC
660 :
670 DEFPROCpr2:MOVEox+16,oy-16:DRAWx
+16,y-16:MOVEx,y:VDU226:ENDPROC
680 :
690 DEFFNdrsh(z):IFx<ox w=FNchl(x,ox
,z) ELSEIFox<x w=FNchl(ox,x,z) ELSEIFo
y<y w=FNchr(oy,y,z) ELSEIFy<oy w=FNchr
(y,oy,z)
700 IFw=0 x=136:y=y1:MOVEx,y:VDU226:
=0 ELSE=-1
710 :
720 DEFFNchl(d,d1,z):k=0:l=0:FORH=d
TOD1 STEP44:l=FNss(H,y,z):IFl k=-1
730 NEXT:IFk PROCillegal:=0 ELSEFORH
=d TOD1 STEP44:MOVEH,y:VDU227:ONz GOSU
B740,750:NEXT:=-1
740 x(S%,0)=H:x(S%,1)=y:S%=S%+1:RETU
RN
750 y(S%,0)=H:y(S%,1)=y:S%=S%+1:RETU
RN
760 :
770 DEFFNchr(d,d1,z):k=0:l=0:FORH=d
TOD1 STEP44:l=FNss(x,H,z):IFl k=-1
780 NEXT:IFk PROCillegal:=0 ELSEFORH
=d TOD1 STEP44:MOVEH,x:VDU227:ONz GOSU
B790,800:NEXT:=-1
790 x(S%,0)=x:x(S%,1)=H:S%=S%+1:RETU
RN
800 y(S%,0)=x:y(S%,1)=H:S%=S%+1:RETU
RN
810 :
820 DEFFNss(q,r,z):LOCALa$:b%=0:FORa
%=0TO16:ONz GOSUB830,840:NEXT:=b%
830 IFx(a$,0)=q ANDx(a$,1)=r b%=-1:R
ETURN ELSERETURN
840 IFy(a$,0)=q ANDy(a$,1)=r b%=-1:R
ETURN ELSERETURN
850 :
860 DEFPROCillegal:MOVE963-((LENN$(n
,0)*32)/2),y3:PROCit(n$(n,0)):MOVE723,
y3:PROCit("ILLEGAL PLACING"):FORv=0TO1
4:SOUND1,-15,20,1:SOUND1,-15,8,1:NEXT:
```

```
MOVE723,y3:PROCit("ILLEGAL PLACING"):M
OVE963-((LENN$(n,0)*32)/2),y3:PROCit(n
$(n,0))
870 ENDPROC
880 :
890 DEFPROCerase(y3,r%):LOCALt$,h%:R
EPEAT:PROCsm("ALL SHIPS O.K.",739,y3-9
2):PROCsm("PRESS <SPACE-BAR>",692,y3-1
16):IFTx=0 OSCLI"FX21":REPEATUNTILGET=
32
900 t%=t%+1:UNTILTx=2:VDU5:FORh%=0TO
16:ONr% GOSUB910,920:NEXT:SOUND1,1,28,
6:SOUND1,0,0,3:SOUND1,1,28,6:ENDPROC
910 MOVEx(h%,0),x(h%,1):VDU227:RETUR
N
920 MOVEy(h%,0),y(h%,1):VDU227:RETUR
N
930 :
940 DEFPROCbattle:PROCpl1:IFMx=17 EN
DPROC ELSEPROCpl2:ENDPROC
950 :
960 DEFPROCpl1:hit%=-1:GCOL4,0:PROCn
(p$(0),804,612):PROCsm(p$(2),692,588)
:PROCsm(p$(1),804,84):PROCsm(p$(4),724
,60):VDU5
970 GCOL0,1:MOVE787,704:PRINTCOS:MOV
E883,704:w=FNkey(472):IFw=0 MOVE787,70
4:GCOL0,0:PRINTSPS:GOTO970
980 FORn=224TO140STEP-4:SOUND1,-15,n
,1:NEXT:FORj%=0TO16:IFy(j%,0)=a% ANDy(
j%,1)=b% ANDy(j%,2)<1 hit%=j%
990 NEXT:IFhit%>-1 PROChit(298):y(hi
t%,2)=1:Mx=Mx+1 ELSEMOVEa$,b%:VDU227
1000 MOVE787,704:GCOL0,0:PRINTSPS:GCO
L4,0:PROCsm(p$(0),804,612):PROCsm(p$(2
),692,588):PROCsm(p$(1),804,84):PROCsm
(p$(4),724,60):ENDPROC
1010 :
1020 DEFFNkey(e%):OSCLI"FX21":REPEAT:
a%=GET:UNTILa%>64ANDa%<75:PRINTCHR$a%
;" ":SOUND1,1,200,2:a%=136+((a%-65)*
44):REPEAT:b%=GET:UNTILb%>47ANDb%<58:V
DUBx:SOUND1,1,200,2:b%=e%-(b%-48)*44)
:REPEATUNTILINKEY-90ORINKEY-74
1030 IFINKEY-90 THEN=ELSE=-1
1040 :
1050 DEFPROCchit(f%):VDU19,0,12,0;:SOU
ND0,-15,20,40:PROCboom(770,f%):FORg=0T
01200:NEXT:PROCboom(770,f%):VDU19,0,4;
0;:MOVEa$,b%:VDU228:ENDPROC
1060 :
1070 DEFPROCboom(x,y):LOCALa$,b%,c%:R
ESTORE1250:GCOL4,0:MOVEx,y:FORa%=0TO23
```


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Same game, different name

I RECENTLY bought the new Code Masters release Pro-Boxing Simulator. When I tried it I discovered that it is identical to By Fair Means or Foul from Superior Software.

Please could you explain this coincidence? – David Milliken, Renfrew, Scotland.

● You're right, Pro-Boxing Simulator is exactly the same as By Fair Means or Foul. A spokesman for Code Masters told *Electron User* that he apologised for the misunderstanding and the cassette inlays will be reprinted to clarify the matter for future customers.

Anyone who has bought Pro-Boxing who already has By Fair Means should send it to Code Masters with a covering letter. They will be given the choice of a new game from the current catalogue.

Listing hide and seek

COULD you please tell me where the listings for the speeding spiral in the May issue are?

● The two short listings you need are on page 28.

Phantom letter changes

I HAVE had an Electron for about four years and have been very pleased with its operation, and have regularly bought Electron User.

However I have run into a snag with the Data Delver September 1989 issue, taken from the accompanying tape.

When I run the program, instead of getting a menu I get:

```
No such variable
"5480BCS not_decompress"
```

This is just a message and copy of line

You just need a break

I HAVE reached the eighth screen of Superior's Perplexity and believe that it is impossible to complete unless one of the keys at the top right is facing left instead of right. Is there a fault or is it just me? – E. J. Byne, Sunbury on Thames, Middx.

● Steve Hanson, Superior Software, replies: There is nothing wrong with the keys, but some early copies of Perplexity were produced with a piece of wall on Screen 8 placed in the wrong position.

Once spotted, these copies were

destroyed, but unfortunately a few seem to have got into circulation. To recognise whether you have one of these rogue versions, check the top right of Screen 8.

The wall below the pair of keys at the top should have a break in it. If you have a faulty copy please return just the cassette – without the case or inlay – to Superior Software for a replacement. Please accept our apologies in advance.

If you have a faulty copy and wish to proceed, the password for Screen 9 is OSMIUM.

5480 that is printed by the error trapping routine, but I have checked the program over – even though it has been taken from tape – but cannot see an obvious mistake.

Please can you advise me what's wrong? – H. F. Knott, Wantage, Oxon.

● The magazine listing is correct, but somehow an e was changed to an a in line 5510 during the tape duplication process – Side 1 only. The correct line 5510 is:

```
5510 not decompress
```

There is, in fact, a backup of all the programs on the other side of the tape. Although this came from the same master disc, it is correct.

Electron/BBC Micro games compatibility

WE have recently bought a BBC Master to replace our broken down Electron and were told that our games could be converted to be used on it.

Unfortunately, since being told this, we have learned from someone else that it isn't possible to use them after all.

Can you please let me know whether Electron games can be used on a Master, and if so, how can it be done?

Thank you for *Electron User*: We have all found it very helpful on many occasions. – Pauline Wise, Harrow Weald, Middx.

● The only sure way to find out if a game will work is to try it. Some will work but oth-

ers will not.

However, when a game works, you may find it's too fast to play on the Master. Also, even if it seems to work well you may be missing some of the features of an actual Master version.

You'll find that some companies put the BBC Micro and Master version on the other side of the tape so you can just use that.

In a frenzy for a high score

IN December 1984 I bought myself an Electron and the first game I played on it was Frenzy.

Since then I have tried many other games, messed about with various programs and so on but always had the desire to beat the 600,000 author's score on Frenzy.

Today I did it at last. I scored 723,192 on my seventh attempt of the day. But what a let down: I expected at least a well done message from the game.

There was nothing: No trumpets or flags flying, just another score line. Talk about Frenzy.

But I do play other games. Here's my reader's point of view Top Twenty:

- 1 Frenzy
- 2 Chuckie Egg
- 3 Danger UXB
- 4 Repton
- 5 Ravage.
- 6 Condition Red
- 7 Plan B
- 8 Test Match
- 9 Quest
- 10 Palace of Magic
- 11 Elite
- 12 Gauntlet
- 13 Rig Attack
- 14 Stranded
- 15 Percy Penguin
- 16 Moonraider
- 17 Blockbuster
- 18 Astro Plumber
- 19 Strykers Run
- 20 Beach Head

You'll note that Frenzy is still at the top of the list. I recommend this game for anyone. It's simple but addictive and must be one of the

most under exposed games ever. – G Davies, Irlam, Manchester.

● It's amazing how the reader's points of view vary. We can only see one similarity – the classic Elite – between this list and the one expressed by Simon Tarry in the June issue.

More modes for the screen dump

I HAVE just received my April monthly cassette and had a few problems loading Tetron. However, I soon solved these but I still have a problem with Addend. When I loaded the game and entered the two names I got the message:

```
No such variable at line 550
Bad program
```

This mystified me as line 550 was exactly as in the magazine. Have you any idea why this is happening?

Thank you for the Screen Dump program – Micro Messages, August 1989. As printed, it works in Mode 2 so I have made the following changes for other modes:

Mode 5: Change line 360 to read:

MiCRO MESSAGES

```
360 EQUB 0:EQUB 5*6:EQUB 6*6: EQUB 7*6
```

Mode 1: Change line 360 as above then change lines 240 and 280 to read:

```
240 LDX #3
280 CLC:LDA x:ADC #4:STA x:LDA x+1:ADC #0:STA x+1 \x=x+4
```

Mode 4: Change lines 240 and 280 as above and line 360 to read:

```
360 EQUB 0:EQUB 7*6
```

I have been trying to convert the program to Mode 0 but without success. Please could any other reader help? – David McMullen, Clayton Bridge, Manchester (age 14)

● Thanks for your program modifications. Your problem with Tetron must have been a clash between the program's machine code and a rom in your micro. The cure is to disable or remove roms if you have problems.

Addend needs PAGE set to &1900. Tape

users should load with the command:

```
PAGE=&1900:CHAIN""
```

Disc users who have Page at a different setting on their micro can either do the same or put an extra line in Addend:

```
0 IF PAGE <> &1900 THEN PAGE=&1900:CHAIN"ADDEND"
```

Three ways to go wrong

I TYPED in the Commando Cheat exactly as printed in the May issue. But, when I run it I get the message Syntax error at line 220.

I looked back at the list and I have typed it as shown in the magazine. Why is it that I get the Error message? – Stuart Gentry, Beverley, N. Humberside.

● There are certainly no errors in the line:

```
220 [OPTIX
```

We can only assume you have not entered it as printed. We can see three places where you could have gone wrong:

◇ It is a square left-hand bracket – Shift with Copy – not either of the other shapes.

Try to spot the difference

I HAVE a basic Electron with no add-ons. Could you please list a simple memory editor? And what is the difference between a memory editor and dissembler, if any?

Also, could you please tell me what the significance of Lines 1710 and 1720 in the Patience listing of The June 1987 issue of Electron User is?

These lines, or others almost the same, appear in a number of listings. – A. Langley, Stevenage, Herts

● There was a memory editor in the May issue of Electron User. A memory editor just shows you what's in each byte of memory and allows you to change it byte by byte.

A dissembler takes the bytes and converts them into assembler language. To illustrate, here's the same section of memory looked at by each method:

```
0200 10 E3 02 B4 93 DC 89 DE .....
0208 89 DF 72 E7 EB E7 A4 E0 ...r...
0210 C5 DE 1B FF 1E FF 21 FF .....!
0218 24 FF 27 FF 2A FF 2D FF $.'.*.-.
0220 A6 FF A6 FF A6 FF A6 FF .....

```

A section of memory looked at with an editor

```
0200 10 E3 .. BPL &01E5
0202 02 . EQUB &02
0203 B4 93 .. LDY &93,X
0205 DC . EQUB &DC
0206 89 . EQUB &89
0207 DE 89 DF ... DEC &DF89,X
020A 72 r EQUB &72
020B E7 . EQUB &E7
020C EB . EQUB &EB
020D E7 . EQUB &E7
020E A4 E0 .. LDY &E0
0210 C5 DE .. CMP &DE
0212 1B . EQUB &1B
0213 FF . EQUB &FF
0214 1E FF 21 ..! ASL &21FF,X
0217 FF . EQUB &FF
0218 24 FF $. BIT &FF
021A 27 ' EQUB &27
021B FF . EQUB &FF
021C 2A * ROL A
021D FF . EQUB &FF
021E 2D FF A6 -.. AND &A6FF
0221 FF . EQUB &FF
0222 A6 FF .. LDX &FF

```

... and the same section viewed with a dissembler

Moving on to your other question, as your Electron is unexpanded the two lines you mention are not needed and will never be called. In Patience, they are called by line

40 if PAGE is higher than &E00 and move the program down in memory.

When a disc system – or other add-on like a rom cartridge – is added to your Electron it needs some memory. This is taken from &E00 upwards and your Basic program will then be higher – &1900 for DFS. This means that there is less room for the program to store variables and a long program may run out of memory. To prevent this happening, the disc interface is turned off – by the *T. in the line – and the program is moved over the disc workspace.

It's a good idea to put lines like this in your programs wherever possible so you can be sure they will work on tape or disc.

But remember that as the disc interface is then inactive you can't use disc, so the technique is no use if your program needs to save, say, a high score table to disc.

```
40 IF PAGE>&E00 GOT01700
1700 REM Relocate
1710 *KEY0 *T.|MDX=PAGE-&E00:
FORIX=PAGE TO TOP STEP4:!(IX-D
%):!IX:NEXT:PAGE=&E00|MOLD|MRU
N|M
1720 *FX138,D,128

```

The sections of listing from the June 1987 issue

◇ The word OPT begins with 0, not zero.

◇ The variable I is a letter, not the number one.

Units that will not work together

I'VE owned and operated an Acorn Electron and Plus 1 for a couple of years and was fortunate to obtain a Plus 3. Unfortunately I have not been able to utilise all components together.

The Plus 3 does not operate with the Plus 1 attached and the response when the Welcome disc is inserted is Disc error 61 at :3/056C69 on channel 189.

Can you please advise me how these problems might be resolved to give me full use of the micro? I am hoping to utilise the View wordprocessor for business letters and mailouts but I am reluctant to buy a printer until these problems are rectified. — Tony Mahood, Wellington, New Zealand.

● The units are designed to work together so we can only suggest that one of them is faulty.

Tape troubles terminated

I WAS interested to read Mr. D. B. Johnson's letter in the March issue, referring to your response to my letter about tape loading problems in the January one.

When I wrote to you I had already tried all the checks mentioned in your reply to me, including changing the connect cable — which was brand new anyway. It made no difference.

The oddity about my Sony recorder lay in the fact that listening to a tape after I had attempted to record a program using it gave the usual noise. However, any attempt to load it into the micro was unsuccessful.

Paradoxically, the Sony would successfully load programs from commercial tapes or my own tapes saved on another recorder. I have simply dumped the Sony and bought the dedicated Acorn Data Recorder, which has eliminated all the problems I was encountering.

The Acorn Recorder was obtained — new and with a year's guarantee — from a mail order firm at a very low price. — S. H. Braithwaite, Lincoln.

● Sony recorders are usually good quality, so we can't understand why you had such problems. However, it could be that it is stereo rather than mono.

Mono recorders are best for use with the Electron, but a stereo one will usually work. You may have to experiment to find which channel to use or whether using both is best.

The Acorn unit is ideal for the job —

MiCRO ESSAGES

recording data rather than music — but we find that excellent results can be obtained from most recorders.

Called to the bar

COULD you please help me with the cheat for Commando in the May issue of Electron User? I would like to know what the lines are on either side of the F and on either side of MRUN in line 130:

```
130 *KEY1 LOAD "Command 2"|F|  
M250 CALL&900|MRUN|M
```

I typed it in, missing the lines out, as I did not know what they were. I tried the command RUN, put in all of the cheats, heard the beep and started the tape, but nothing happened.

Could you please tell me what these are? — Paul Davidson (Age 12), Jesmond, Newcastle-upon-Tyne

● The lines are the bar character, and you'll find it on the key to the left of Break — hold Shift as you press it.

When it is used in a *key command it has the same effect as pressing Control with a key. So IM is the same as if you hold Control down and press M.

There are two of these control codes used in this line — IM and IF. The former is the same as Return: you can prove this by pressing Control+M instead of Return.

To explain IF you first need to look at line 140 of the program:

```
VDU7,21
```

This is really two VDUs together:

```
VDU7  
VDU21
```

The first one just makes a beep each time you type it — as does pressing Control+G. The second is the one we are interested in: To use the User Guide's technical terms, VDU21 switches the VDU drivers off.

Put simply, it switches the display off. If you type the command and press Return, you'll find that nothing else will show on the screen until the drivers are switched on again.

To turn the screen on you need to press F while holding Control down — or put IF in a *key command that is eventually called.

So let's briefly explain what is happening in the Commando cheat. Function key 1 is defined in line 130 then line 140 causes a beep, switches the display off and then the *fx138 command causes the same effect as

if the function key was pressed manually.

The commands in that line are then obeyed:

LOAD "COMMAND2" loads the program. The display is off from line 140 so you don't see anything happen.

IF switches the display on.

IM(T)Presses Return.

250 CALL&900IM is the same as typing a new line 250 and pressing Return, so it replaces the line 250 in **COMMAND2**.

RUNIM: Run Command 2 with the new line 250 which calls the code put in by the cheat at &900 — see line 210.

Interested in Art Studio

COULD you please review the Electron program, The Art Studio from Impact Software? This is probably the only art package available for an unexpanded Electron.

It is available for the Electron or BBC Micro on tape or disc for use either with keyboard or joysticks. I feel that a lot of people who read Electron User would be interested to know that a cheap and easy to use art package is available to them.

The review would also be a change from all games reviews. I hope that you will decide to review the Art Studio in a future issue. — Andrew Sage, Honiton, Devon.

● The Art Studio is one of the products that we'll be looking at in the first issue of *Let's Computel*. It will be packed full of information for users of all Acorn micros, including the Electron.

There are more details about it on page 24.

Cleaning up the contacts

IN the May issue of Electron User you published a letter from Tina Wall, saying that the down cursor key on her Electron had ceased to function. A similar thing happened to me a few months ago when the N on my machine suddenly became defunct.

I thought the problem might be that the contact under the key had become corroded, so I removed the screws and took the top off the machine to have a proper look under the key.

It appeared all right but I squirted a few drops of WD-40 under it to remove any corrosion that might be present. Then I pressed the key down a few times and it started to function again and has been all right ever since.

It could be that Tina has a more serious problem with her machine than mine proved to be, but it would be worth her while to try this remedy.

It must be very frustrating for her not to be able to use one of the cursor keys. — Joan Barnard, Buckhurst Hill, Essex.



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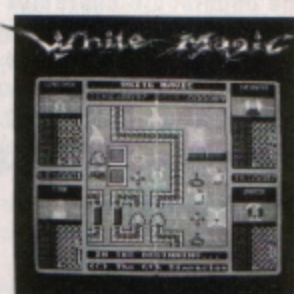
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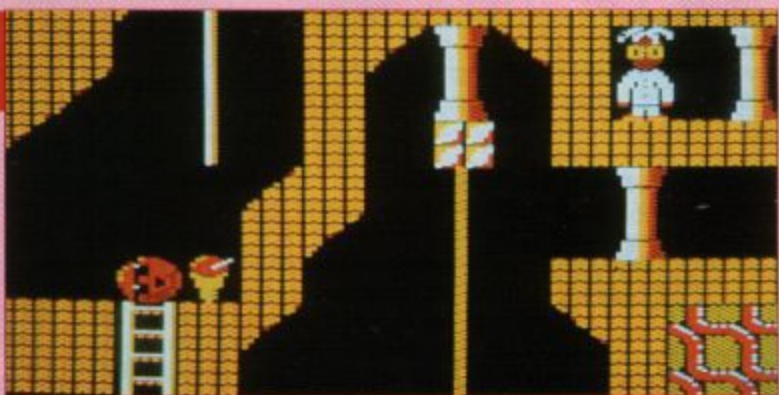


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"There's just one word to describe E-Type: Fantastic. Graphics 10. Value for Money 10." - *The Micro User, Dec '89*

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Due to overwhelming public demand The 4th Dimension has now produced 2 volumes of extra courses for their superb 3D golf game Holed Out. Each volume contains 2 superbly designed brand new courses. These courses are a lot trickier than the 2 courses which are on the original Holed Out!

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"The best golf simulation I've ever seen on any Acorn machine." - *The Micro User, June '89*
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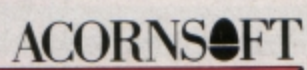
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