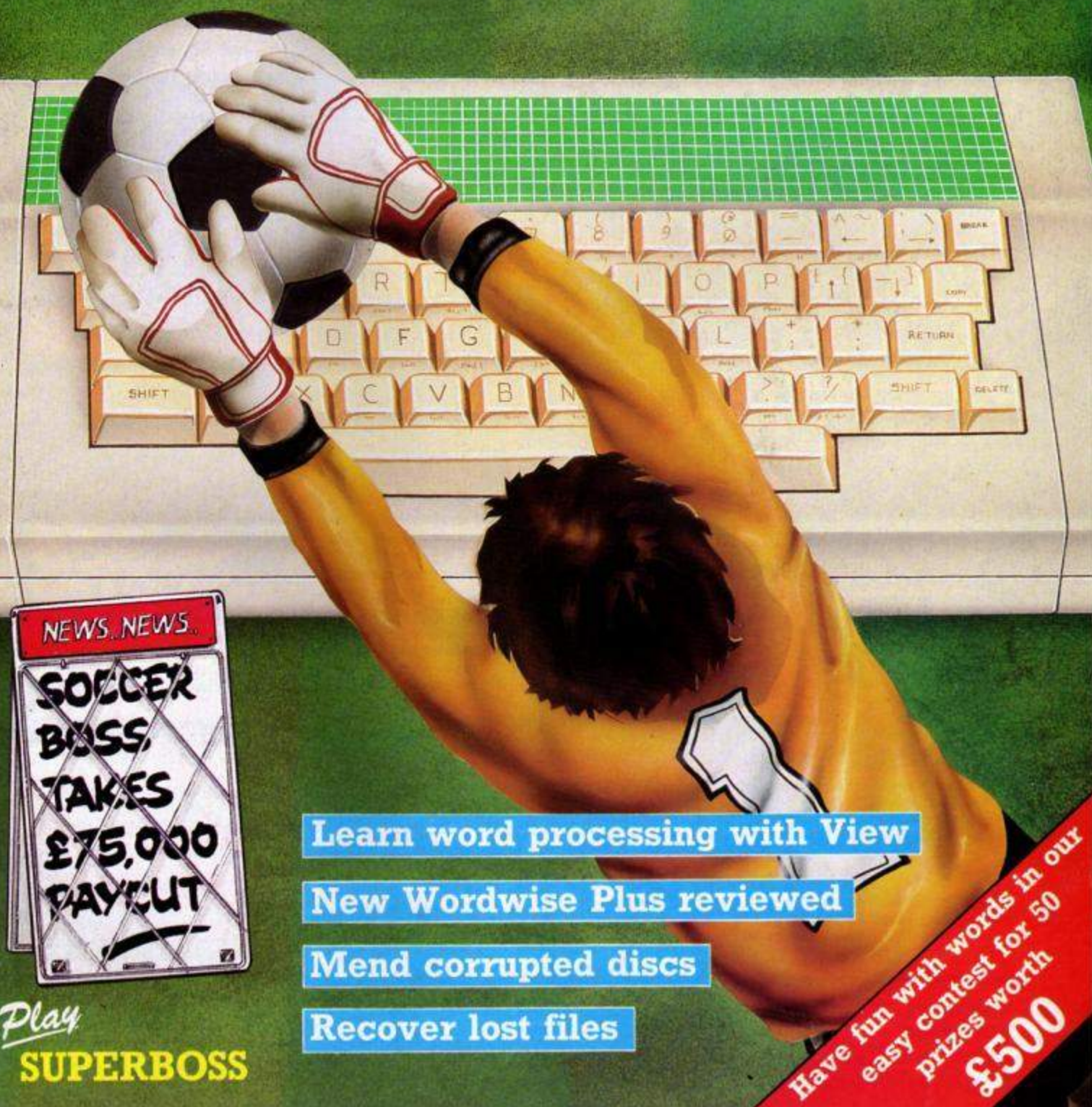


electron

A Database Publication

user

Vol. 4 No. 6 March 1987 £1



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Mend corrupted discs

Recover lost files

Have fun with words in our
easy contest for 50
prizes worth
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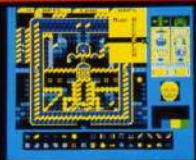
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Collecting a Golden Crown

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Our original Repton game was immediately acclaimed as a refreshingly new concept: a game requiring dexterity to complete its arcade-style elements, and clear logical thinking to solve its strategic puzzles. Repton involves retrieving treasure from cleverly-constructed traps of falling rocks whilst avoiding the fearsome monsters and haunting spirits. "This is an astounding game reaching new heights in BBC arcade adventures," enthused the Micro User magazine.

Last Christmas saw the release of Repton 2, larger and much more challenging than before. Acorn User's Technical Editor Bruce Smith wrote: "Repton 2 is better than anything I've played on the BBC Micro or Electron. Brilliant!"

Now, completely rewritten and improved for the Commodore, Amstrad, BBC Micro and Electron, we proudly present Repton 3. For the first time, a screen-designer is included: try to devise screens that will perplex your friends, then see if you can solve their newly-designed screens. Another innovation is the character-designer which enables you to design your own monsters, rocks, eggs, spirits, diamonds... any or all of the game's characters can be redefined as you wish.

Repton 3 is much larger than its predecessors — it has 24 fascinating screens, and players who are skilful enough to complete them all can enter our prize competition described below. All the favourite Repton characters have been retained, together with several new features: a creeping poisonous fungus which grows at an alarming rate; time bombs and time capsules (for puzzles in the 4th dimension); and golden crowns as well-deserved rewards for your endeavours. **Can YOU complete Repton 3?**

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If you complete Repton 3, you can enter our competition. Prizes include over £200 in cash, with T-shirts, mugs, badges and pens for runners-up.

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The screen pictures above show the BBC Micro version of Repton 3.



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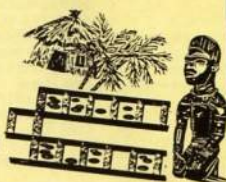
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electron NEWS

user

March 1987

ACORN has given the green light for production to start on the Plus 1, the main expansion unit for the Electron.

It is now to be made under licence by Surrey-based Advanced Computer Products, a leading manufacturer of peripherals.

And the company hopes to be able to bring it to market for less than £50. It was originally sold for £69.

The move is being seen as providing a fresh lease of life for the Electron and its 250,000-strong user base.

For Acorn stopped manufacturing the Plus 1 back in November, 1985, with supplies effectively drying up one year later.

Demand

In all some 49,000 Plus 1s came off the production line before the company decided to call a halt.

At the time this was viewed by many as Acorn effectively withdrawing its support from the Electron.

However demand for the product, which enables the machine to run everything

from a joystick to a printer, has become overwhelming of late.

"We've had a tremendous increase in calls from customers who need the Plus 1 as a means of using our own Electron products", says John Huddleston of ACP.

"In fact at the beginning of the year our phones were completely blocked with people wanting the Plus 1".

As part of the licensing agreement with Acorn, ACP now has access to all the Plus 1 tools and moulding equipment.

It also means that ACP will now accept responsibility for providing a one-year warranty for the Plus 1.

"We believe there is still a

huge market out there for the unit", says John Huddleston.

"After all, this was the interface that effectively transformed the Electron from a toy into a useful machine.

Sales

"It will mean that a lot of machines that have found their way into the attic after people got fed up playing games with them can now be dusted off and put to some real use".

Nor does ACP anticipate sales of the Plus 1 being limited to the UK.

"We expect to sell them abroad as well, particularly to Holland", he said.

Plus 1 going back into production

Say it in Greek

A SERIES of fonts for use with its Wordpower word processor has been released for the Electron by Ian Copestake Software.

Power Fonts allow full control over extra characters for foreign languages and scientific symbols.

The series covers Cyrillic and Greek alphabets, physics and astronomy. Each costs £24.50.

Also available is PowerFont NTQ, a special version of the Permanent Memory Systems package Multi-Font NTQ.

Price £35.25.

RUSH TO MEET THE SHOW DEADLINE

A TEAM at Advanced Computer Products is working against the clock to get the new Plus 1 ready in time for this month's Electron & BBC Micro User Show.

"We are pulling out all stops to get them there", said John Huddleston of ACP, "for the restart of production of these interfaces is an event of major importance to the Electron market.

"And what better place to unveil them than at the northern showcase for Acorn products".

All the signs point to the show attracting a record

number of visitors and new products alike.

The event, which takes place at the Renold Building, UMIST, Manchester, on March 20, 21 and 22, is the 15th in a series which started way back in 1983.

All the evidence of the Electron's new and powerful role in home computing can be seen at UMIST where more than 70 exhibitors will be offering their latest add-ons and software.

Advanced Computer Products has also selected the event to unveil a 250k ram cartridge which plugs directly

into the Electron's cartridge port or conventional user port.

In the entertainment sector Tynesoft will be launching its latest sport simulation for the Electron, boxing game Big K.O., price £7.95 on tape, £12.95 on disc.

Shards Software has converted its range of adventures to run on the Electron. The single disc compendium contains Operation Safras, Woodbury End, Pettigrew's Diary, Mystery of the Java Star and Galilee.

Micro Media Computer Supplies is launching a range

of copyholders which includes an A3 version for books and magazines and a desktop model. Prices from £12 to £40.

The show will again feature the popular Acorn Theatre where leading micro experts will offer information and advice about the latest peripherals and software releases.

The Renold Building will be open from 10am to 6pm Friday and Saturday and from 10am to 4pm on Sunday.

A money-saving advance ticket order form appears on Page 13.

Software house picks Electron

TWO years ago when Geoff Larsen went shopping for a better micro than his ZX-Spectrum he had the Sinclair QL very much in mind.

"I was surprised to find that the Electron - which I hadn't previously considered - totally won me over", he recalls.

"Two years on I'm still as completely satisfied and impressed with the service my Electron has provided as I was the first day I got it".

That trusty micro has now become the foundation stone of a new software house dedicated to producing top class adventure games for Electron users.

Trading as Larsoft, Geoff has released three programs - The Rising of Salandra, Wychwood and The Nine Dancers - that have been praised by leading reviewers

like *Electron User's* Merlin and Pendragon.

As a result of the warm reception for his first efforts, Geoff is working on more entertainment software for the Electron.

He told *Electron User's*: "Being keen on crosswords it was natural that adventure games should interest me.

"But I found that many relied too much on the use of magic words and illogical situations which tend to distract.

"The whole point of Larsoft games is that all the puzzles have totally logical solutions, they shun pointless violence and are aimed at both sexes.

"Not unlike the artist who conceals a mouse somewhere within his paintings, I enjoy concealing certain references - including



Geoff Larsen: 'Electron won me over'

acknowledgement to The Quill - in each adventure game I write.

"Adventurers playing my latest games may discover jokes from previous programs.

"I'm currently working on a new adventure called The Puppet Man and I already have an idea for a possible follow-up to that one too".

The Rising of Salandra costs £4.95, Wychwood and The Nine Dancers cost £3.95 each.

Comms packages launched

SOFTWARE developer George Rawlins believes the Electron with a Plus 1 makes "an extremely versatile micro which is ideal for communications purposes".

And as boss of Andyk he has just given practical expression to his opinion in the form of two new comms packages for the machine.

Communications Package 1 is designed to allow the user with a little programming ability to set up a custom-designed terminal.

It consists of an RS423 interface, eeprom cartridge and Computer Concepts' Termi II rom, allowing connections to non-Prestel type systems like MicroLink.

Communications Package 2 for the serious user can be used as a VT100 terminal for low-cost interfacing with mainframe computers.

Rawlins is also developing the Electron to interface with the Red Box home security and domestic appliance control package from General Information Systems.

"I am also working on a new user port to be launched with an eeprom programmer designed specifically for the Electron", he told *Electron User's*.

"The programmer will program 8k and 16k eeproms using a fast method.

"The on-board control program will be menu-driven and allow files to be programmed into an eeprom".

Be a TV producer

A PROGRAM that lets Electron users produce their own TV shows has been released by Squirrel Software.

Users provide their own sound track, usually from a cassette player. When this and the computer video output are routed to a video recorder the result is a stand alone video that can be shown on a TV set.

There are two main programs, one being Picture Maker for building images which can be used in the video programme and the other called TV Studio which has two separate areas.

The first is Gallery which has eight preview monitors covering a possible 80 pictures.

The second is Program Review which allows the user to see the programme outside the Gallery.

Camera sequences and picture sources can be stored on tape and viewed at any time, with or without a video recorder. Price £11.65.



Soccer on Electron

LATEST release from CDS is a version of its bestselling football simulation for the Electron.

The game has followed its predecessors by shooting straight into the software charts and a spokesman for the company told *Electron User's*: "We expect the game to follow in the footsteps of

Colossus Chess".

Brian Clough's Football Fortunes challenges the user to top the League, win the FA Cup and go as far as possible in European matches.

Also incorporating a board game, the program was written with plenty of advice from Brian Clough himself. Price £14.95

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Electron User, June '86

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Acorn User, July '86

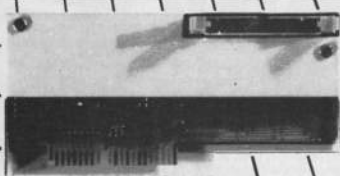
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AMX PACKAGE

Plug the MOUSE into the user port, and the EPROM into your A.P. 5. The latter contains fast machine code routines for creating on-screen windows, icons and pointers. And means that the MOUSE buttons can be programmed for use with commercial software such as Wordwise and View. There are two manuals included, explaining how to operate the MOUSE and the ROM routines, which are available in both basic and machine code programs.

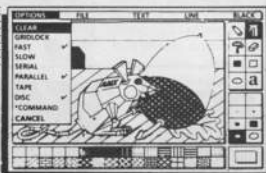
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ICON DESIGNER is an invaluable program for creating and storing icons for use in your OWN programs.

The ACP/AMX mouse package may be used on an ELECTRON fitted with a PLUS I & AP5. The 'ART' software is supplied on cassette but can be transferred to DISC (DFS not ADFS)

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Wordwise Plus

WORDWISE by Computer Concepts was the very first word processor that appeared for the BBC Micro, and it became the standard.

But when the Electron appeared Wordwise could not be transferred across because there wasn't the facility to plug the rom in – it used Mode 7 for editing and poked the screen directly.

Then two years ago came the next stage – Wordwise Plus, something completely new in word processing.

Now, five years later, Electron users can benefit from this tremendous rom.

The bad news is that you can only use it if you have PMS's E2P-6502 cartridge.

This isn't an eeprom, it contains another 6502 microprocessor with its own 64k of ram. E2P is a second processor for the Electron and was itself reviewed in the October 1986 issue of *Electron User*.

The version of Wordwise Plus you get is a rom image of Hi-Wordwise Plus saved on disc. The Hi means that you get an extra 10k of ram for storing your text.

Why have this set-up? Well, if you have two microprocessors operating together you can split the work in half and run the program almost twice as fast.

So while your Electron looks after the key presses and screen display, the E2P holds the Wordwise Plus program and the text you are typing in.

To start up Hi-Wordwise Plus the E2P must be plugged in and initialised.

Shift+Break boots Hi-Wordwise Plus from disc and you are presented with the Mode 6 main menu screen shown in Figure 1.

Press the key number of the option required, or press

STEVE TURNBULL enthuses over this powerful word processor, now available on disc for the Electron

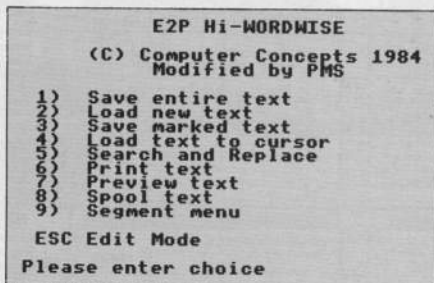


Figure 1: Hi-Wordwise Plus main menu

Escape to take you to the main screen for editing your text. You can also press * for a system commander or : for a special Wordwise Plus command.

There is a moment's delay when you switch to edit mode while the program brings up its edit screen.

Wordwise Plus keeps the main menu screen and the edit screen as separate ram areas and swaps them over.

Once in edit mode you can start typing. The text occupies most of the screen, with the beginning and end of text marked with START and END in black on white.

At the top of the screen is one line which, from left to right, gives a word count, a free character count – more than 42000 bytes or roughly six A4 pages of solid text – and I for insert or O for overwrite. Figure 11 shows a typical screen.

As you type the letters appear on the screen almost immediately, but there is a very slight delay because if

you hold down a single key and allow it to auto-repeat the screen display cannot quite keep up.

There is automatic word-wrap, which means that if a word runs over the right hand edge of the screen the whole word is moved to the next line so avoiding a split.

This essential feature can be switched off and on with Ctrl+F.

Moving around the text is simple using the cursor keys

to move left, right, up and down by a single line or character.

For larger jumps you use other keys with the Func key. This seems a slightly odd arrangement but you soon get used to it.

As you can see from Figure 11, Wordwise Plus is not WYSIWYG – What You See Is What You Get – so you have to format the text for output using embedded commands.

These are typed into the text and processed as the text is printed.

Each embedded command must be preceded by a G code selected with Func+1 and terminated by a W code selected with Func+2.

You can see one in the second paragraph of Figure 11. The command is LS2, standing for "line space 2", which inserts a blank line between each printed line.

Embedded commands are used to control left margin, line length, page length, indentation and so on. Other

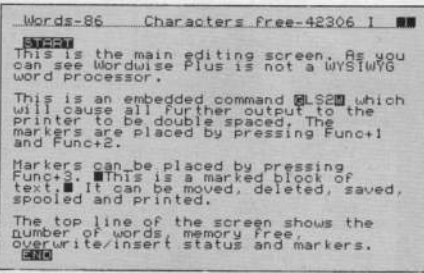


Figure 11: A typical edit screen

commands can be used to send operating system commands during print out, get additional text from files, print numbers and calculations within a line and even execute segment programs – see later about segment programs.

Func+0 switches between insert and overwrite mode when typing data in, this changes the I letter on the top right of the edit screen.

Pressing Func+3 sets a marker in the text, and puts a block in the top right corner of the edit screen. Markers are used to indicate the beginning and end of a piece of text. After text has been so marked you can do things to just that marked section – delete it, move it somewhere else in the text, save it and so on.

Func+4 waits for you to press another character, then moves the cursor to where it next appears in the text. If it can't find the character the cursor ends up at the end of the text, which can be very annoying.

Func+5 also waits for another character and then counts the words up to that character – not a particularly useful operation.

Func+6 waits for a character and then deletes all the text up to that character – a very dangerous option if you aren't careful.

The final three function keys, 7, 8 and 9, are all used with a marked section of text.

Func+7 deletes the text between the markers, Func+8 moves the text between the markers to wherever the cursor key has been positioned and Func+9 copies the marked text to the cursor, leaving the original text and markers in place.

Pressing the Escape key when you are in edit mode takes you back to the menu.

The first two options on the main menu save and load text, but Wordwise Plus is careful to make sure you don't make mistakes.

When you save text it gives you the name of the file you loaded (if any) which you can copy and if you do save under the same

| | |
|---|---|
| Cls | Clear the screen |
| Cursor at <expr> | Move cursor to position in line |
| Cursor left <expr> | |
| Cursor right <expr> | |
| Cursor up <expr> | |
| Cursor down <expr> | |
| Cursor top | |
| Cursor bottom | |
| Delete at <expr> | Delete character(s) at the cursor |
| Delete left <expr> | Delete character(s) backwards |
| Delete marked <expr> | Delete marked text |
| Delete markers <expr> | Remove the markers |
| Delete word <expr> | Delete word(s) at cursor |
| Delete text | Delete text in selected area |
| Display | Show the currently selected text area on screen |
| Endproc | End of procedure |
| Find <\$expr> | Move cursor to the beginning of the next occurrence of the string |
| Proc <label name> | Call a procedure |
| Repeat ... until <expr> | Loop |
| Replace <\$expr>, <\$expr> | Replace next occurrence of first string with the next |
| Select text | Select the main text area |
| Select segment <expr> | Select one of the segments |
| Type <\$expr> | Puts string into the text area selected |
| <expr> | Means a number expression, for example, 5 or 3+N%. |
| <\$expr> | Means a string expression, such as "hello" or CHR\$(55+Z%). |
| <label name> | Means any name, such as input, skip5, test13b and so on. |

Table 1: Some keywords

name it asks you if you want to overwrite the previous file, and aborts if you don't.

When you select the load option it checks if there is any text in memory, and if so makes sure you really want to load.

I would have preferred if it took notice of whether you had edited the text in memory or not, so that you could keep loading different files without having the annoying beep and the "Are you sure? (Y/N)" coming up every time.

It should only check if you wanted to load new text over the top of text which you had edited but hadn't saved.

You can mark a piece of text when in edit mode and option three allows you to save that section only.

Option four lets you join text files together by inserting the new text file at the cursor position in your text.

Search and replace – option five – works in two ways.

Take the global option and every time the search string is found it is replaced by the replace string.

If you opt for the selective mode, each time the search string is found you are asked whether you want to replace it or not.

It allows you to search for Returns, Tabs and the

embedded command G and W characters using special codes.

Even handier, you can use the # symbol for a wildcard, which means that if you want to replace every occurrence of the word "Beeb" or "beeb" with "BBC Micro", you can use "#eeb" to match the upper or lower case B.

In the selective mode the computer beeps every time a match is found – an option to turn the noises off would have been nice, although you can use *FX210.

The next three options (six, seven and eight) are all variations on the same theme – output.

Option six, Print text, prints the text, or just the marked section.

Option seven, Preview text, displays the text in Mode 0 as it would appear if it were printed, with a long dotted line showing where the page break would be.

And option eight, Spool text, first asks you for a file name, then sends the preview of the text (or marked section) to that file.

One additional choice on the spool option is whether you want any of the printer control codes to be sent to the file as well.

The main menu option nine, Select Menu, marks the point where Wordwise Plus stops being an ordinary word processor and becomes something completely different – a text processing language interpreter.

Selecting this option takes you to the menu shown in Figure III.

Apart from the main text area for editing, Wordwise Plus possesses 10 other text areas called segments, each of which can contain ordinary text, which means you can edit up to 11 documents at one time, or they can contain segment programs.

A segment program is written using a built-in language which looks a lot like Basic designed to handle text.

Table I gives a list of the

Review

From Page 11

major keywords. By pressing : from a menu you can type immediate commands such as:

```
[
:NEW
]
```

which will reset everything, clearing all text and segments.

With segment programs you can create address lists, mail merging, notepads, and spelling checkers limited only by your imagination. You have 26 integer variables, A% to Z%, and 26 string variables, A\$ to Z\$, although there is limited string space of only about 435 bytes.

The true power of the segment programs lies in extending the utilities available when you are word processing.

To run the program that is in segment zero you press Func+A, for the program in segment one Func+B, and so on. This means that each segment program is available from edit mode.

A frequent word processing error is to type two letters in the wrong order, like this:

Happy Birthday

You could change this every time you make the mistake but this takes quite

```
REM ** Search & Replace **
CLS
PRINT "Search and Replace"
PRINT "Global or Selective (G/S):"
SELECT TEXT
REPEAT
  AS=CHR$(ASC GCKS AND BSF)
  UNTIL AS="G" OR AS="S"
  PRINT AS
  TYPE "%*%"
  PRINT
  PRINT "Search string?"
  S$=GLKS
  PRINT
  PRINT "Replace string?"
  R$=GLKS
  PRINT
  IF AS="G" THEN GOTO global
  .select
  FIND S$
  IF EOT THEN GOTO endloop
  DISPLAY
  VDU 7
  AS=CHR$(ASC GCKS AND BSF)
  IF AS<>"T" THEN GOTO skip
  CURSOR LEFT
  REPLACE S$,R$
  .skip
  CURSOR RIGHT
  GOTO select
  .global
  FIND S$
  IF EOT THEN GOTO endloop
  CURSOR LEFT
  REPLACE S$,R$
  CURSOR RIGHT
  GOTO global
  .endloop
  CURSOR TOP
  FIND "%*%"
  DELETE AT 4
  DISPLAY
```

Listing II: Search and Replace segment program

SEGMENT MENU

(C) Computer Concepts 1984
Modified by PMS

- 1) Save segment
- 2) Load segment
- 3) Save marked text
- 4) Load text to cursor
- 5) Select segment (0)
- 6) Print segment
- 7) Preview segment
- 8) Delete segment
- 9) Main menu

ESC Edit Mode

Please enter choice_

Figure III: Segment menu

```
REM ** Char Swap **
SELECT TEXT
AS=GCTS
DELETE LEFT
CURSOR RIGHT
TYPE AS
DISPLAY
```

Listing I: Character swap segment program

a few key presses.

Look at Listing I, a segment program to make the transposition for you.

You place the cursor on the first of the misplaced letters and press Func+A (assuming the program is in segment zero).

Whenever you write a segment program the first thing you must do is SELECT the area of memory that the commands are going to affect, in this case the TEXT area.

The first character to be

swapped is read into the variable A\$ with the GCTS function (Get Character from Text).

This function also moves the cursor one place on and the character just read is DELETED.

The cursor is moved right one character and the character in A\$ is TYPED in at the current cursor position and the screen displayed.

Note that you have to DISPLAY the screen otherwise nothing happens on screen until you press the next key.

Listing II shows a more complex segment program to perform the search and replace option which demonstrates loops and jumping within the segment.

Because segment programs are available from edit mode you don't have to go to the main menu to search and replace.

The other use of segments is to hold data, Listing III shows a segment to find all the different words used in a piece of text, placed in alphabetical order, storing all the words in segment 9.

I hope I have been able to prompt your interest in this very flexible and powerful word processor with its unique text handling capabilities. For serious word processing this is definitely the best buy.

Product: Wordwise Plus
Price: £39.95
Supplier: Permanent Memory Systems, 38 Mount Cameron Drive, St. Leonards, East Kilbride, G74 2ES

```
REM ** Word Compiler **
SELECT SEGMENT 9
DELETE TEXT
TYPE ""
```

```
SELECT TEXT
CURSOR TOP
REPEAT
  PROC getword
  IF EOT THEN GOTO quit
  PROC insert
  SELECT TEXT
  .quit
  UNTIL EOT
  SELECT SEGMENT 9
  DISPLAY
  VDU 7
  END
```

```
.getword
SELECT TEXT
PROC skips
IF EOT THEN ENDPROC
BS=AS
REPEAT
  PROC getch
  IF AS THEN BS=BS+AS
  UNTIL AS=FALSE
  ENDPROC
```

```
.skips
REPEAT
  PROC getch
  UNTIL AS
  ENDPROC
```

```
.getch
ZI=ASC GCTS
AI=(ZI>64ANDZI<91)OR(ZI>96
ANDZI<123)
AS=CHR$ ZI
ENDPROC
```

```
.insert
SELECT SEGMENT 9
CURSOR TOP
FX=FALSE
BI=ASC BS
IF BI<ASC GCTS THEN GOTO
skip
REPEAT
  CURSOR LEFT
  CURSOR DOWN
  UNTIL BS<ASC GCTS
  CURSOR UP
  .skip
  CURSOR LEFT
  REPEAT
    CS=GLTS
    IF BS<CS THEN GOTO exit
    IF BS<CS THEN GOTO loop
  CURSOR UP
  TYPE BS+"R"
  .exit
  FX=TRUE
  .loop
  UNTIL FX
  DISPLAY
  ENDPROC
```

Listing III: Word compiler segment program

Two shows Electron users shouldn't miss

Renold Building
UMIST
Sackville Street
Manchester

20-22
MARCH

10am-6pm, Friday March 20
10am-6pm, Saturday March 21
10am-4pm, Sunday March 22

ELECTRON &

BBC MICRO

USER SHOW

New Royal
Horticultural Hall
Westminster
London SW1

8-10
MAY

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10am-6pm, Saturday May 9
10am-4pm, Sunday May 10

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Hazel Grove, Stockport SK7 5NY.

Name

Address

Signed

PHONE ORDERS: Ring Show Hotline: 061-480 0171

Please quote credit card number and full address. Ref EUC



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London, May 8-10

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Total

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Europa House, 68 Chester Road,
Hazel Grove, Stockport SK7 5NY.

Name

Address

Signed

PHONE ORDERS: Ring Show Hotline: 061-480 0171

Please quote credit card number and full address. Ref EUC

Willy jets on

Program: *Jet Set Willy II*

Price: £7.95

Supplier: Tynesoft, Addison Industrial Estate, Blaydon, Tyne & Wear NE21 4TE.

Tel: 091 414 4611

WILLY first appeared on our screens in *Manic Miner* after which he evidently spent his profits on the mansion which featured in *Jet Set Willy*.

It appears that Willy has been having a lot of building alterations, since the mansion now has over 100 new rooms.

This doesn't seem to please Maria the housekeeper who is most insistent that Willy should tidy up after the builders.

She is preventing our hero from reaching the master bedroom until her bidding is done, and has also set a time limit of midnight so it's a race against the clock.

Under your control the poor chap will do his best, but you'll encounter the most amazing assortment of nasties, ranging from mutant camels to something that looks like a refugee from a Happy Eater restaurant.

The fun starts off in the bathroom where all you have to contend with is a killer bath sponge, a dodgy toilet lid and some joker who keeps firing arrows across the screen.

The rooms themselves all have names, ranging from the conventional Butler's Pantry to the bizarre Fallout Shelter.

And whoever heard of a room called Ethel the Aardvark? So far I've conquered about 25 of these rooms but as in real life the Wine Cellar is my ruin every time.

Willy is free to wander from room to room but will only score points when objects are collected, usually at great risk.

One plus point is that to make Willy jump you use the asterisk key - it's nice to see Return getting a rest.

A minus point is that although Willy receives a generous number of lives he is reincarnated at exactly the same place he died. So if the noxious nasty is still there another life is lost immediately, and again, if you're not quick.

Unfortunately, my first impressions of this game are not favourable. The title



screen is unimaginative, the sound is non-existent and the graphics poor in comparison to recent bestsellers.

So why do I find myself still playing it at midnight? The reason is the author, Chris Robson, has made each screen a separate series of puzzles for which a solution is often obscure.

The result is a game which is extremely addictive.

I must go now as I think I've just worked out how to get across Willy's Bird Bath.

Beejay

| | |
|-------------------|---|
| Sound | 6 |
| Graphics | 7 |
| Playability | 9 |
| Value | 8 |
| Overall | 8 |

Enthusiasm pays off

Program: *Adventure 4 Pack*

Price: £5.95

Supplier: Potter Programs, 7 Warren Close, Sandhurst, Camberley, Surrey GU17 8JR

Tel: 0252 877608

WHENEVER I see compilation tapes at bargain prices I am always a little worried about the quality of the software.

I was especially concerned in this instance when I discovered that each adventure had been written by an enthusiastic amateur.

But my prejudice proved ill-founded as I soon found that *Adventure 4 Pack* is a smashing collection of text-only adventures.

Philosopher's Stone, written by Graham Barlow, opens side one.

It employs a very clever loading screen and an excellent choice between normal Mode 4 text or a mystical re-defined script.

You take the role of Daverick Harpmoon on a quest to find the philosopher's stone, a rare substance which will change base metals into gold and produce an elixir of life.

You will soon find that the forest is a series of dead ends - but you will also come across a kleptomaniac pixie who

is guarding a dog's dinner.

The second adventure is *Hexagram* of Trutania Valley, which I have to admit is my favourite of the four.

It is written by Michael Winter and Simon Clifford and involves a search to find six coloured triangles which together make up a hexagram.

You begin your task in a town centre but after a few moves you find yourself walking through fields of turnips, oats and barley.

The exit descriptions are excellent and remind me of the Level 9 style of writing.

You need to read these descriptions carefully to discover some poison and meat which can be used to kill the lion that guards the first triangle.

Inner Space is an anonymously-written adventure which is quite mystic and off-the-wall in character.

The opening scenario is streets of derelict houses infested with flies which need swatting.

In the back garden of one such house is a ladder to the clouds which is definitely worth climbing.

The opening 30 moves require the seemingly random collection of objects in order to solve equally obscure problems.

The final offering is a Quill-written



adventure titled *Stranded on Iloofrax*.

Author Matthew O'Donnell informs you that while you're working on a new form of teleport, an experiment in your lab goes terribly wrong and you find yourself transported to the small planet of Iloofrax.

This adventure was spoilt for me by some unfortunate errors in the location descriptions but was otherwise an enjoyable romp through a maze-ridden planet.

All in all, well worth the money and the best thing Potter has produced to date.

Pendragon

| | |
|--------------------------|----|
| Presentation | 3 |
| Atmosphere | 8 |
| Frustration factor | 7 |
| Value for money | 10 |
| Overall | 9 |

Alphabet antics

Program: *The Giddy Game Show*
Price: £9.95
Supplier: Mirrorsoft, Maxwell House, 74
 Workshop Street, London EC2A 2EW.
Tel: 01-377 4600

THE Giddy Game Show is a suite of early learning programs based around the characters used in Yorkshire Television's popular series. The principal aim is to get children to recognise the shapes of letters and the sounds they represent.

Program one is an alphabet book with 26 pages – one for each letter. Each page features one of the Giddy Game Show characters (Gorilla, Gus the Professor, or Giddy) plus a picture of an object.

The name of the object is written in large and well-formed text with the initial letter of the word picked out in a different colour. It looks very impressive – but does nothing that a book can't.

A criticism of this program and the other three is that the programmers forgot that sound is different on the Electron and BBC Micro: Some weird noises result on the Electron.

Game two is a jigsaw puzzle in which the child must assemble letters of the alphabet. Again the visual qual-

ity is good and children are led sensibly through a sequence of operations. The reward for success is a screen full of Giddies.

It's a pity the programmers didn't take off the keyboard repeat – that little omission makes it hard for heavy-handed youngsters to control the moving cursor.

Game three requires children to fly Giddy on his magic wand towards some food that Gorilla wants.

The name of the food is clearly shown and various pictures of food appear with their initial letters.

If the child gets the right food, Gorilla eats the word while the picture vanishes down Giddy's wand. Selecting a wrong food causes Gorilla to growl and frown.

This program is great fun but because the cursor keys are used there is a real danger of pressing Break in error.

That problem does not occur on the simpler of the two levels as Giddy flies automatically and the child hits the spacebar at the correct food.

The final program is a maze game in which children can help to rescue the King who is imprisoned in a castle.

They do this by guiding Princess Galaxena around the maze past five objects. Some objects begin with for-



bidden letters and these cause the Princess to use up one of her three lives.

The child has to hit the spacebar when the required option is highlighted. Inevitably, youngsters are going to get the wrong options as the highlight moves on.

The whole package is a very attractive set of simple games aimed at children who are learning to read. The niggles I have are minor, and can easily be remedied by a Basic programmer.

One final complaint is that the instructions are barely adequate, but overall, there are a lot of good bytes for your money and I would recommend the program.

Rog Frost

| | |
|-------------------|----|
| Sound | 2 |
| Graphics | 10 |
| Educational value | 6 |
| Value for money | 6 |
| Overall | 7 |

Elite takes off again

Program: *Elite*
Price: £12.95 (cassette)
Supplier: Superior Software, Regent
 House, Skinner Lane, Leeds LS7 1AX.
Tel: 0532 459453

HEY! There's a great new game on the market called Elite. You play the role of an interplanetary trader flying a Cobra Mk3 who spends a great deal of time shooting up pirates – what do you mean you've already got a copy?

As a result of the Acornsoft/Superior Software alliance Elite has been relaunched.

It is now sold in a sturdy plastic case complete with a revamped manual. Not only that, it is cheaper than before.

Elite is a game which is best categorised under the heading arcade/strategy.

Using shrewd financial wheeling and dealing you earn money which can be used to improve the standard of your spaceship.

You start the game with a Cobra Mk3 Popular, equipped with a pulse laser, a small cargo bay and very little else.

Following a few nights of hard graft you should have upgraded her to the Ghia version with beam lasers, large cargo bay, docking computer, energy bomb – the list is endless.

You will then be in control of one of the fastest, meanest fighting machines in the galaxy.

Your adventure begins on a space station orbiting the planet Lave.

All planets are given a rating as to how far they have developed technically. You can use this to indicate the probable price of goods – on a low-tech planet furs will be cheap but computers expensive and vice versa for a high-tech planet.

Once you're confident enough you can try your hand at dealing in narcotics when the rewards – and the dangers – are higher.

Even by today's standards the graphics used in Elite are excellent. Once out in space you enter a world of three-dimensional line drawings, most of which are out to blow you to pieces.

The dogfights are a delight and you'll need every ounce of cunning and skill if you are to survive.



Each kill you make adds to your skill rating. Starting off as "Harmless" you must face many a sleepless night if you are to reach the dizzy heights of the "Elite".

Elite has been off the market for over a year, so it's likely that there are a number of new Electron users out there who don't own a copy of what is quite simply the best game for the Electron.

Jon Revis

| | |
|-----------------|----|
| Sound | 6 |
| Graphics | 9 |
| Playability | 10 |
| Value for money | 10 |
| Overall | 9 |

It's a knockout

Program: The Big KO
Price: £7.95 (cassette)
Supplier: Tynesoft, Addison Industrial Estate, Blaydon upon Tyne, Tyne & Wear NE21 4TE.
Tel: 091-414 1611

THE noble art of boxing comes to the Electron courtesy of Tynesoft. Trade blows with eight mean opponents on your way to The Big KO.

On loading you are presented with a very comprehensive menu. You can have a one or two player game using either joystick or keyboard.

Options are also there for sound on or off, user-defined keys, load or save the high-score table and load a new boxer.

You have to press three keys to throw a punch – a combination of left/right, head/body and punch.

Using this system – and a little skill – you can launch a flurry of different blows that will penetrate your opponent's guard.

The graphics used are very large with each boxer one third of the screen in height.

A punch which lands on target is

registered with a thud and a visible response from the other fighter – either a flinch or, in the case of Sippo the clown, a nose which lights up.

Before the bout begins your four punches are listed in order of power, so too are those of your opponent. This information can be used to formulate a plan of attack – which can be surprisingly effective.

In the first bout you face Heap Big Nose, a redskin with a tendency to stick his chin out too far. Lefts and rights to the head will soon leave him with reservations.

While fighting you will see two horizontal bars above the fighters. The green one represents strength – don't let this fall to zero or you'll be powerless to defend yourself.

The blue bar is the KO meter – once this has reached 100 per cent your opponent will go down.

Following your victory you are given a password which is requested before you are allowed to load the next boxer.

Eight fighters are supplied on the cassette so leave the play key down when the game has loaded.

After much sweating, shouting and



keyboard bashing, I had fought my way through to the fourth bruiser.

Handsome Devil, as he is known to his fans, is a rather robust chap with the complexion of a lobster and some suspiciously pointed ears.

My best result so far against this beast is taking him to the third round before losing.

The Big KO is one of the best boxing games I have played on any computer. It requires skill, concentration, cunning and – most of all – a cast iron chin.

Jon Revis

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

A rival for Adams

Program: The Nine Dancers
Price: £3.95
Supplier: Larsoft, 4 Chantry Road, Clifton, Bristol BS8 2QD.

I WAS brought up to believe that you only get what you pay for. While that adage is true for most things in life it certainly doesn't always apply to computer software.

At only £3.95 I can safely say that Nine Dancers compares favourably with many adventures at three times that price.

The program is packaged in a very professional manner with superbly atmospheric background notes to prepare you for the adventure ahead.

"In the Nine Dancers you play the part of a reporter for a local newspaper who has been asked to write an article on the stories connected with some of the local tourist sites."

One such tourist attraction is a circle of nine standing stones about which legends and flights of fantasy abound.

You begin your quest at a bus stop in a narrow country lane outside the village of Steignton.

A quick glance around reveals a litter bin (full of messy rubbish), an old button, a bus shelter and a sign post.

My first instinct was to examine the sign which told me that Wychwood was only seven miles away. Having already been there, I turned my attention to the old button.

This button, it turns out, is part of a very clever chaining puzzle involving a needle and some thread – but I'll leave you to solve that one.

The village of Steignton provides much of the focus of the adventure and all the shops are worth examining.

The postcards and advertisements in the window of the general store reveal the first evidence of the debt that author Geoff Larsen obviously owes to Scott Adams in the writing of adventures.

The humour is refreshing and touches upon contemporary life. Above the door of the tea shop an emblazoned sign proudly displays the longevity of the company's continued business – EXAMINE SIGN shows: Purveyors of fine teas since 1986.

Also watch out for the antique dealer who is bound to rob you blind!

The inlay notes hint at magic and mysticism which certainly have a home in this adventure.

The first sticking points could be the policeman who blocks your way to the



Nine Dancers and, outside the general store, an alarm which must need ringing.

If you want an adventure which compares to Scott Adams at his best, then this is it.

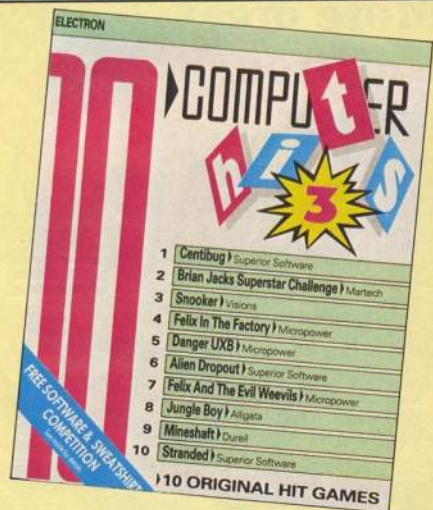
Pendragon

| | |
|--------------------------|----|
| Presentation | 8 |
| Atmosphere | 8 |
| Frustration factor | 8 |
| Value for money | 10 |
| Overall | 8 |

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TO ORDER TURN TO THE FORM ON PAGE 53

More great Electron games

This month we introduce a new volume in our Ten of the Best series - 10 more games to give you many hours of fun and entertainment.

These three packages are crammed with the best games from the last 18 months of Electron User. As an added bonus a previously unpublished game has been added to each one - stunning machine code masterpieces from our technical wizard, Roland Waddilove.

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Jam Butty: Machine code simulation of high drama on a building site.

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Atom Smash: Machine code thrills as you help to save the world from destruction.

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Castles of Sand: Build castles - but beware the rising tide and hungry sandworms.

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Solitaire: The Electron version of the age-old game of logic and patience.

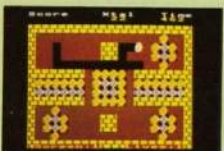
Jumper: Jump for your life in this exciting arcade action game.

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Star Fighter: Attack the bandit ships in this fast-moving 3D punch-up.



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Rockfall: Come diamond mining in this fun packed game with its own screen designer.

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Grand Prix: Battle your way into the lead in this tricky racing simulation.

Invasion Force: Can you survive wave after wave of relentlessly advancing aliens?

Grebit: Guide the frog across the busy road then across the fast-flowing river!

Fruit Worm: Steer the worm towards the fruit while avoiding rocks and its ever-growing tail.

Manic Mole: Watch out for melting platforms and conveyor belts in your quest for jewels.

Skramble: Fly your fighter fast and low over the landscape to penetrate enemy territory.

Mr Freeze: You'll need speed and strategy to reach the ice blocks before they melt away.

Paint Roller: Steer a speeding roller, run over paint pots but keep clear of the rocks.

TO ORDER TURN TO THE FORM ON PAGE 53

AWARI is a traditional African game for two played on a board with 14 holes arranged in an elliptical format.

Six belong to each side, with the end ones being the home holes. Within these you sow seeds. Initially three for each hole are provided.

The object of the game is to get more seeds in your home than your opponent.

Play consists of taking the seeds in one of your own holes and distributing them, one by one, anti-clockwise round the holes, starting at the adjacent one.

Seeds that fall in your own home hole will stay there. Apart from these there are only two more rules to learn:

● If, on your turn, you sow seeds which result in your last seed falling into your home you can have a second turn.

● If your last seed falls into an empty hole and the opposite – whether your own or your opponent's – hole contains some seeds, then you capture these, plus the one you were putting into the empty hole, and add the lot to your home hole.

The game is over when one side or the other has completely empty holes.

The board is numbered 1 to 6 for the left hand player's holes and 8 to 13 for the right hand player's holes, also the computer's holes.

To specify a move you need only type in the hole's number from which you will be sowing from. ■

PROCEDURES

| | |
|------------------------|--|
| Title | Sets up heading and asks if instructions are wanted and the number of players. |
| Board | Draws the board setting up the first scores, three seeds in each hole. |
| Mistake (H%,O%) | Tells you the wrong hole has been used. |
| Seed | A player has tried to use a hole with no seeds in it. |
| Time(W%) | Causes a pause. |
| Score | Puts the new scores on the board. |
| Move | Sets up new score values after a move. |
| Instruct | Gives instructions. |



AWARI

By MARTYN EWERS



VARIABLES

| | |
|------------------|--|
| 5%(I) | Number of seeds in each hole. |
| H\$(I) | First four letters of players names for printing on the board. |
| F% | Used as a flag. 0 = one player, 1 = two players. |
| EX% | Used to see if an extra go is allowed. |
| GO% | Hole chosen. |
| L1% | See if last seed will land on the computer's home. |
| L2% | See if last seed will land on an empty hole when the opposite has seeds in it. |
| T% | Number that fits in with the L1%, L2% searches. |
| K% | Number of the hole plus the number of seeds in it. |
| TempS%(I) | Holds the number of the hole that was found in the L1%, L2% search. |
| R% | Randomly chooses one of TempS%(I) for the computer's go. |
| L3% | If L2% or L1% found nothing then L3% looks for a hole whose opposite is zero and chooses this one so that these seeds cannot be taken by the opponent. |

Full listing starts on Page 20

From Page 19

```

10 REM *** Awari *****
20 REM *By Martyn Ewers*
30 REM (c) Electron User
40 IF PAGE#4000 GOTO 207
50 DIM SX(14),H$(2),Temp
SX(14)
60 MODE1:COLOUR1:PROCTit
le:PROCBoard
70 DEF FNY(X)= SX(1)+SX(
2)+SX(3)+SX(4)+SX(5)+SX(6)
80 DEF FNC(X)= SX(8)+SX(
9)+SX(10)+SX(11)+SX(12)+SX(
13)
90 REM * Play game *
100 COLOUR130:COLOUR0:CLR
$=STRING$(35," ")
110 IF FX=0THEN PRINTTAB(
5,25);"Do you want to go f
rst (Y/N) ?" ELSE GOTO 130
120 Q$=GET$:IF Q$="Y"THEN
370 ELSE GOTO 500
130 GX=0
140 GX=GX+1
150 EXX=0
160 EXX=EXX+1:PRINTTAB(5
,20);CLR$:TAB(5,25);CLR$
170 PRINTTAB(5,25);"It's
";H$(GX);"'s go.";
180 INPUT:G0$
190 IF GX(1) THEN 210
200 IF VAL(G0$)<1 OR VAL(
G0$)>6 THEN PROCmistake(1,6
):GOTO170 ELSE GOTO220
210 IF VAL(G0$)<8 OR VAL(
G0$)>13 THEN PROCmistake(8,
13):GOTO 170
220 G0X=VAL(G0$)
230 IF SX(G0X)=0THEN PROC
Seed:GOTO170
240 PROCmove
250 IF MX=7 OR MX=14THEN
300
260 IF GX=2THEN 290
270 IF SX(MX)-1=0 AND SX(
14-MX)>0 THEN SX(7)=SX(7)+S
X(14-MX)+1:SX(14-MX)=0:SX(
MX)=0
280 GOTO300
290 IF SX(MX)-1=0 AND SX(
14-MX)>0 THEN SX(14)=SX(14)+
(SX(14-MX)+1):SX(14-MX)=0:S
X(MX)=0
300 PROCscore
310 IF FNY(X)=0 OR FNC(X)
=0 THEN 1840
320 IF GX=2THEN 340
330 IF MX=7 AND EXX=1 THE
N PRINTTAB(5,20);"Another g
o allowed.":PROCTime(200):G
OTO 160
340 IF MX=14 AND EXX=1 TH
EN PRINTTAB(5,20);"Another
go allowed.":PROCTime(200):
GOTO 160
350 IF GX=2 THEN 130 ELSE
GOTO 140
360 :
370 GX=1
380 PRINTTAB(5,25);CLR$:T
AB(5,20);CLR$
390 PRINTTAB(5,25);"Type
in your move";
400 INPUT:G0$
410 IF VAL(G0$)<1 OR VAL(
G0$)>6 THEN PROCmistake(1,6
):GOTO390
420 G0X=VAL(G0$):IF SX(G0
X)=0THENPROCSeed:GOTO390
430 PROCmove
440 IF MX=7 OR MX=14 THEN
460
450 IF SX(MX)-1=0 AND SX(1
4-MX)>0 THEN SX(7)=SX(7)+SX
(14-MX)+1:SX(14-MX)=0:SX(M
X)=0
460 PROCscore
470 IF FNY(X)=0ORFNC(X)=0
THEN1840
480 IFMX=7 AND GX=1 THENG
=2:PRINTTAB(5,20);"Another
go allowed.":PROCTime(200)
:GOTO390
490 GX=0:G0X=0
500 TX=0
510 EXX=0
520 EXX=EXX+1
530 LIX=7
540 LIX=LIX+1
550 IF SX(LIX)=0THEN 590
560 KX=SX(LIX)+LIX
570 IFKX>14 THENKX=KX-14:
GOTO 570
580 IFKX=14THENLIX=TX+1:Te
mpSX(TX)=LIX
590 IF LIX <13 THEN 540
600 LIX=7
610 LIX=LIX+1
620 IF SX(LIX)=0THEN680
630 KX=SX(LIX)+LIX
640 IF KX>14 THENKX=KX-14
:GOTO640
650 IFKX=7 OR KX=14 THEN
680
660 IF KX=LIX THEN 680
670 IF SX(KX)=0 AND SX(14
-KX)>0 THEN TX=TX+1:TempSX(T
X)=LIX
680 IF LIX<13 THEN 610
690 IF TX=0 THEN 800
700 IF TX=1 THEN G0X=Temp
SX(TX):GOTO 720
710 RX=RND(TX):G0X=TempSX
(RX)
720 PRINTTAB(5,25);CLR$:T
AB(5,20);CLR$:TAB(5,25);"My
move is hole ";G0X
730 PROCtime(200):PROCmov
e:PROCTime(200)
740 IF MX=7 OR MX=14 THEN
760
750 IF SX(MX)-1=0 AND SX(
14-MX)>0 THEN SX(14)=SX(14)+
(SX(14-MX)+1):SX(14-MX)=0:S
X(MX)=0
760 PROCscore
770 IF FNY(X)=0 OR FNC(X)
=0THEN1840
780 IF MX=14 AND EXX=1 TH
EN PRINTTAB(5,20);"Another
go allowed.":PROCTime(200):
TX=0:EXX=2:GOTO520
790 PROCtime(200):EXX=0:G
OTO 370
800 LIX=7
810 LIX=LIX+1
820 IF SX(LIX)=0 THEN 840
830 IF SX(14-LIX)=0 THEN
TX=TX+1:TempSX(TX)=LIX
840 IF LIX <13 THEN 810
850 IF TX>0 THEN 700
860 G0X=RND(6)+7
870 IF SX(G0X)=0 THEN680
880 GOTO720
890 :
900 DEFPROCBoard
910 VDU19,130,2,0:0:COLO
UR130:CLS
920 GCOL0,0:MOVE150,394:P
LOTS,1174,394:PLOT85,150,76
9:PLOT85,1174,768
930 GCOL0,0:MOVE160,374:P
LOTS,1184,374:PLOT85,160,75
8:PLOT85,1184,758
940 COLOUR129:PRINTTAB(15
,3)" A W A R I "
950 FORIX=1TO14:SX(IX)=3:
NEXT: SX(7)=0:SX(14)=0
960 PRINTTAB(10,6)" 6 5
4 3 2 1 ";TAB(10,2
1)" 8 9 10 11 12 13 "
970 COLOUR129:PRINTTAB(5
,10)H$(1);TAB(5,10)"HOME"
980 PRINTTAB(33,10)H$(2);
TAB(33,10)"HOME"
990 PROCscore
1000 GCOL3,3
1010 FORIX=16TO1184STEP12
8:MOVEDX,374:DRAWX,758:NEX
T
1020 MOVE160,502:DRAW1184,
502:MOVE160,630:DRAW1184,63
0
1030 ENDPROC
1040 :
1050 DEFPROCtitle
1060 VDU7,T$="A W A R I "
1070 PRINTTAB(15,10);
1080 VDU23,1,0;0;0;0;
1090 FORLX=1TO9
1100 PX=4BFF+8*ASC(MID$(
T$,LX,1))-32:VDU23,224
1110 FOROX=1TO4:VDUPX2OX,P
X2OX:NEXT:VDU23,225
1120 FORRX=5TO8:VDUPX2RX,P
X2RX:NEXT:VDU224,10,8,225,1
1
1130 NEXT:COLOUR2
1140 PRINTTAB(12,15)"By Ma
rtyn Ewers":COLOUR3
1150 PRINTTAB(5,20)"DO YOU
WANT INSTRUCTIONS (Y/N)"
1160 *FX15,0
1170 Q$=GET$:IF Q$="Y"ORQ$
="N"THEN180 ELSEGOTO160
1180 IF Q$="Y"THENPROCinst
ruct
1190 *FX15,0
1200 CLS:PRINTTAB(10,10);"
1 or 2 Players ?"
1210 PLI=GET$:IF PLI<49 OR
PLI >50 THEN1200
1220 IF PLI=49THEN H$(2)*=
MY$:GOTO1290
1230 INPUT"First players
initials ";H$(1)
1240 IF H$(1)=""THENH$(1)=
"TWIT"
1250 INPUT"Second players
initials ";H$(2)
1260 IF H$(2)=""THENH$(2)=
"BURK"
1270 DEF PROCerror
1280 FX=1:ENDPROC
1290 INPUT"What are your
initials ";H$(1)
1300 IF H$(1)=""THENH$(1)=
"TWIT"
1310 H$(1)=LEFT$(H$(1),4):
FX=0:ENDPROC
1320 :
1330 DEF PROCmistake(PX,QX
):

```

| H W A R I | | | | | | | |
|-----------|---|---|----|----|----|----|------|
| | 6 | 5 | 4 | 3 | 2 | 1 | |
| Tom | 5 | 5 | 1 | 1 | 0 | 0 | Sue |
| | | | | | | | |
| | 5 | | | | | | 6 |
| | | | | | | | |
| HOME | 0 | 4 | 1 | 0 | 4 | 4 | HOME |
| | 8 | 9 | 10 | 11 | 12 | 13 | |

It's Sue's go. ?10

```

1340 SOUND1,-15,1,20
1350 PRINTTAB(5,29)"You ca
n only use holes ";H$;" to
";0%
1360 PROTIME(300):PRINTTA
B(5,29):CLR#;TAB(5,25):CLR#
:ENDPROC
1370 :
1380 DEF PROCInstruct
1390 CLS:PRINTTAB(15,2);"A
W A R I";6COL0,1;MOVED,925
:DRAW1279,925
1400 COLOUR 2:PRINT"" AWA
RI is a game for two player
s. But you can play ag
ainst the computer if you
wish."
1410 PRINT"" The object o
f the game is to end up"
1420 PRINT"with more seeds
in your HOME than the"
1430 PRINT"other person, o
r the computer."
1440 PRINT"" When you sav
e you type in the hole"
1450 PRINT"from which you
wish to use your seeds."
1460 PRINT"they are then s
pread one in each"

```

```

1470 PRINT"hole. If the la
st seed lands on your"
1480 PRINT"HOME you will g
et another go,unless"
1490 PRINT"you have alread
y had one."
1500 PRINT"" Also if your
last seed falls into an"
1510 PRINT"empty hole,then
your home base gets"
1520 PRINT"added to it the
opposites amount plus"
1530 PRINT"the seed that l
anded in the empty hole."
1540 PRINT"" The game end
s when one side does not"
1550 PRINT"have any more s
eeds left."
1560 REPEAT:PRINTTAB(10,29
)"
1570 COLOUR3:PRINTTAB(10,2
9)"Press space to play.";PR
DCTIME(5)
1580 UNTIL INKEY(-99):ENDP
ROC
1590 :
1600 DEF PROCtime(WX)
1610 TIME=0:REPEAT UNTIL T
IME=WX

```

```

1620 ENDPROC
1630 :
1640 DEF PROCSeed
1650 SOUND1,-15,1,20
1660 PRINTTAB(5,29);"There
are no seeds there !!!"
1670 PROTIME(250):PRINTTA
B(5,29):CLR#;TAB(5,25):CLR#
1680 ENDPROC
1690 :
1700 DEF PROCSScore
1710 COLOUR3:COLOUR129
1720 ZX=7
1730 ZX=ZX-1:PRINTTAB((ZX*
4)+7,10);" "
1740 PRINTTAB((ZX*4)+7,10)
:ZX=ZX-1
1750 IF ZX=1 THEN 1730
1760 PRINTTAB(7,14);SX(7);
TAB(35,14);SX(14)
1770 XX=0
1780 XX=XX+1:PRINTTAB((XX*
4)+7,10);" "
1790 PRINTTAB((XX*4)+7,10)
:ZX=ZX+7
1800 IF XX<6 THEN1790
1810 COLOUR0:COLOUR130
1820 ENDPROC
1830 :

```

```

1840 REM "A WINNER !! "
1850 PRINTTAB(5,25);CLR#;T
AB(5,29):CLR#
1860 IF FX=0 THEN1910
1870 IF SX(7)=SX(14)THENPR
INTTAB(5,25);H$(1);"You both equ
alised with ";SX(7); points.
";PROTIME(300)
1880 IF SX(7)>SX(14)THENPR
INTTAB(5,25);H$(1);" beat "
;H$(2);" by ";SX(7)-SX(14);
PROTIME(300)
1890 IF SX(7)<SX(14)THENPR
INTTAB(5,25);H$(2);" beat "
;H$(1);" by ";SX(14)-SX(7);
PROTIME(300)
1900 GOTO1940
1910 IF SX(7)=SX(14)THENPR
INTTAB(5,25);"We equalised
with ";SX(7);" each.";PROCT
ime(300):GOTO 1940
1920 IF SX(7)>SX(14)THENPR
INTTAB(5,25);"You beat ME !
by ";SX(7)-SX(14);PROCTim
e(300):GOTO1940
1930 PRINTTAB(5,25);"I beat
you by ";SX(14)-SX(7);PROCT
ime(300)
1940 REM NEW GAME
1950 PRINTTAB(5,29)"Do you
wish to play again";TAB(10
,30)"TYPE Y or N."
1960 IF INKEY(-69)THEN RUN
ELSE IF INKEY(-86)THEN END
1970 GOTO1960
1980 :
1990 DEFPROCMove
2000 MVX=60X+5X(60X):SX(60
X)=0;MX=60X;CX=60X
2010 REPEAT
2020 CX=CX+1;MX=MX+1
2030 IF MX>14 THEN MX=1
2040 SX(MX)=SX(MX)+1
2050 UNTIL CX= MVX
2060 ENDPROC
2070 REM Relocate
2080 *KEY0 *T.1;M0X=PA.-6E0
0;F.1X=PA. TO TOP 5.4;((IX-
DX)=IX;N.1PA.=6E00;((TOP-D
X)=6FF00;0.;MRUN;M
2090 *FX138,0,128

```

This listing is included in this month's cassette tape offer. See order form on Page 53.



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The winners are

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We'll be discussing word processing using View, spreadsheets using Viewsheet and the languages Pascal, Lisp and Logo.

These very powerful packages, available on rom cartridge, are currently being sold for a fraction of their original recommended retail price and are bargains not to be missed.

We'll be showing just what they are capable of and how to get the best out of them.

To kick off this new series I'll be taking a close look at View, one of the most powerful word processing packages available for the Electron.

In fact it compares well with packages costing 10 times as much running on powerful micros such as the IBM PC.

It is similar to Wordstar, which is perhaps the most popular word processor around and shares many of the commands and key functions.

Using View you can write letters, articles, documents, reports and even whole books on your micro.

With a suitable printer you can print them in a wide variety of type styles, underlining titles and headlines, emphasising important sections, numbering pages and so on.

Of course, you can do all this with a simple typewriter. However the great advantage of a word processor is that when you've finished typing you can go

back easily to alter, modify and correct the text until it's perfect.

You'll find that in the long run it is quicker and the final product is much more professional.

This month's article is devoted to beginners discussing how to get started, input text and use some of the common editing commands. Next month we'll investigate formatting and page layout.

Finally I'll be presenting a View spelling checker complete with its own dictionary of several thousand words.

This will proof read your text and point out any typing errors or slips you've made.

Let's first see how to get started: Plug View into your Plus 1 or Rombox and switch your Electron on. What happens now depends on what equipment you've got.

You should find that your micro starts up in View with

the message:

```
VIEW
Bytes free 16894
Editing No File
Screen mode 6
```

=>

If you don't see this type:

```
*WORD
```

to enter View.

The amount of memory free will vary and also depends on what extras you've got attached.

You are in command mode now and View will accept a number of commands such as LOAD, SAVE, MODE and so on, plus all the star commands you normally use from Basic.

To return to Basic at any time you can type:

```
*BASIC
```

Try it and see and while you're in Basic change the

background colour to blue with:

```
VDU 19,0,4,0,0,0
```

and return to View with:

```
*WORD
```

and you're back in command mode with a blue screen.

Tap the Escape key to enter Edit mode. You'll see a flashing cursor sandwiched between a dotted line and a row of asterisks. Now you are ready to enter text.

Try typing in a few words – the first paragraph of this article will do – and see what happens.

Don't bother about correcting typing mistakes, and when you get to the end of the first line pay no attention and carry on regardless. View will automatically move on to the next line.

You should end up with something like Figure 1.

You can move the cursor back and forth through the

FJ

```
.....*.....*.....*.....*.<
In this series we're going to be
looking at some of the more
serious software available for the
Electron. We'll be discussing word
processing using View,
spreadsheets using Viewsheet and
the languages Pascal, Lisp and
Logo.
```

Figure 1: Using the cursor controls



character and type in paragraph two.

Your screen should now look like Figure 11.

We'll try some block editing commands, so move your cursor to the start with Func+2 and press Func+Q.

View is now waiting for you to press a number and prints MK in the top left corner of the screen.

Press 1 and the the start of a block of text will be marked by inverting the first character.

Now move to the end of the first paragraph — use cursor down followed by Func+3 to move to the end of the line.

Press Func+Q again followed by 2 to mark the end of the block. The character at the cursor is inverted again.

Now you have two markers, 1 and 2, enclosing a block of text.

There are several commands operating on such blocks and the simplest is probably Copy.

Move to the end of text with Func+3 and press Return to start a new line. Now press the Copy key and the text between the markers will be copied to the current cursor position.

Note that the markers are still present around the first paragraph. You could go back and delete them, but we'll use them for the next command.

Delete the text enclosed by the markers by pressing Func+V.

The overall result is that the first paragraph has now been moved to the end. We could have moved it in one operation by pressing Func+N but I wanted to demonstrate copy and delete.

To round off this month's tutorial press Escape to return to command mode. Type:

COUNT

and View will tell you how many words you've written.

Now save them with:

SAVE name

where *name* is the filename. Notice that you don't need quotes like Basic.

If you name your work with:

NAME name

View will print:

Editing name

in the title message and you can type SAVE without a name to save the text.

You can load the View file next time you switch on with:

READ name

Disc drivers can use LOAD as well. It does the same job as READ but is faster.

● And that's where we'll leave it for now. Next month we'll see how to format the text and design our page layout.

From Page 25

typed in and press Escape to re-enter edit mode. Now type in the first paragraph again.

You should have a screen looking like Figure 1, so now we'll move on and enter the second paragraph.

First press Func+3 to move to the end of the text and press Return to move to a fresh line. Press Func+I to insert an invisible tab

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Thinking back to last month you'll no doubt recall that we came across the PLOT command. This takes the form:

```
PLOT code,xCoordinate,yCoordinate
```

where *xCoordinate* and *yCoordinate* are the familiar screen coordinates we've met when using MOVE and DRAW.

The *code* parameter is used to select what PLOT does. From this you'll see that there's more than one type of PLOT.

In fact we've already come across two uses of it. The first, with *code* equal to 5, corresponds to the DRAW command. The second, when *code* is 4, does the same job as MOVE.

This means that:

```
PLOT 5,250,123
```

is the same as:

```
DRAW 250,123
```

just as:

```
PLOT 4,245,897
```

is in effect identical to:

```
MOVE 245,897
```

Should you have any lingering doubts about PLOT 4 and PLOT 5, Program 1 should soon have you thinking along the right lines.

It shouldn't be too hard to see how the sequence of commands:

```
MODE 1
PLOT 4,500,500
PLOT 5,700,700
PLOT 5,800,750
```

results in two lines

```
10 REM Program 1
20 MODE 1
30 FOR loop=1 TO 100
40 choice=RND(2)
50 IF choice=1 THEN code=4
ELSE code=5
60 GCOL 0,RND(3)
70 PLOT code,RND(1279),RND(1023)
80 NEXT loop
```

Program 1

Follow that PLOT

Part thirteen of the Electron graphics series by TREVOR ROBERTS

appearing on the screen. Figure 1 shows the coordinates involved.

Let's look at these instructions in terms of the invisible graphics cursor. The first PLOT moves this elusive beast from its original position at 0,0 to (roughly) the centre of the screen.

The next PLOT then moves the cursor from 500,500 to 700,700 leaving a line behind it as it travels.

Finally our long-suffering cursor is ordered to 800,750 – again trailing a line behind it.

This final move can be looked at in another way. Instead of telling the graphics cursor to go from where it is (700,700) to 800,750 we could use a second method.

We could, in effect, say

"go 100 units along the x axis, and then 50 along the y axis" or, more succinctly, "100 across, 50 up". Either way the result is the same.

The first method is the one we've used with our PLOTS and DRAWS and uses absolute coordinates.

This means that the numbers used to specify where the graphics cursor is to end up are the real, actual, absolute screen coordinates based on the bottom left corner being 0,0.

The second method we haven't come across before. Here the coordinates used are relative coordinates.

They specify where the cursor is to end up by giving its desired position compared to, or relative to, the point the cursor is already at.

It's a bit like giving direc-

tions. You can give the map reference of the desired place (the absolute method) or directions for getting there (the relative method).

Sometimes relative coordinates are more useful than absolute ones. The Electron allows us to use relative coordinates by way of a PLOT command with *code* equal to 1.

To see this in action, try the following set of commands:

```
MODE 1
PLOT 4,500,500
PLOT 5,700,700
PLOT 1,100,50
```

The first three instructions put the micro into Mode 1 and draw a line from point 500,500 to 700,700.

The last instruction uses PLOT 1 to get the computer

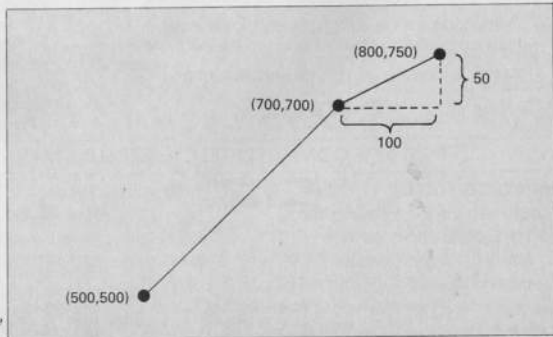


Figure 1:
Coordinates,
both absolute
and relative

Graphics

From Page 27

to move the graphics cursor from its present position leaving a line to mark its path. Its final position is to one with an x coordinate 100 greater and y coordinate 50 greater than the original point.

Hence the final point will be at 800 (700+100), 750 (700+50). This duplicates the previous sequence of commands but now PLOT 1 is used instead of PLOT 5.

If you want to see the difference

Table 1:
The PLOTs
so far.

| code | action |
|------|-----------------------------|
| 0 | move relative to last point |
| 1 | draw relative to last point |
| 4 | move absolute |
| 5 | draw absolute |

ference between absolute and relative coordinates then use:

```
GCOL 0,2
PLOT 4,500,500
PLOT 5,700,700
PLOT 5,100,50
```

Now a line is drawn from 700,700 to the absolute position 100,50. Program II shows PLOT 1 in action. Can you explain what happens when all its PLOT 1s are replaced by PLOT 5s?

Just as PLOT 1 corresponds to the DRAW com-

mand - the only difference being the use of relative coordinates - so there's a relative MOVE. It's PLOT 0 which you'll see in action if you type in:

```
MODE 1
PLOT 1,300,300
PLOT 0,150,200
PLOT 1,300,300
```

The gap is produced by the PLOT 0 moving the graphics cursor without leaving a line.

All four code parameters

```
10 REM Program III
20 MODE 1
30 FOR loop=1 TO 100
40 choice=RND(2)
50 IF choice=1 THEN code=0
ELSE code=1
60 GCOL 0,RND(3)
70 PLOT code,RND(100),RND(100)
80 NEXT loop
```

Program III

we've come across for PLOT are shown in Table 1. Program III shows both relative PLOTs in use. Notice how the lines always slope upwards from left to right. Can you do something about this?

● That should keep you busy until next month when the PLOTs get even thicker!

```
10 REM Program II
20 MODE 1
30 FOR loop=1 TO 10
40 GCOL 0,loop MOD 2
50 PLOT 1,100,100
60 NEXT loop
```

Program II

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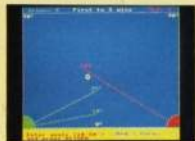
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SUPERBOSS

By ANDREW OLDACRE



VARIABLES

| | |
|--------|-------------------------|
| YS | Your side. |
| AS(I) | First division teams. |
| BS(I) | Second division teams. |
| SQS(I) | Your squad. |
| TR(I) | Players' talent rating. |

PROCEDURES

| | |
|---------|--------------------------|
| STATS | Display match facts. |
| RESULTS | Display the results. |
| CUP | Play cup rounds. |
| FINAL | Play cup final. |
| INJ | Decide players' fitness. |
| MARKET | Buy and sell players. |

Full listing starts
on Page 34

SuperBoss listing

From Page 33

```

10 REM SuperBoss
20 REM By Andrew Oldacre
30 REM (C) Electron User
40 IF PAGE>6000 THEN 3600
50 SFS=" :LCS=Man United"
:CLS:"Liverpool":IN$="1":SQ=12
:MON+41000:MON+45
60 VDU 23,1,0,0,0,0;
70 DIM AS(10),BS(10),A(10),
B(10),CUPS(20),LOS(20),PS(10),
RS(10),STS(15),TR(15),WGE(15),
G(15),STS(15),TFS(30),WAGE(30),
RAT(30),RIS(5),AIS(5),R2S(5),
A2S(5),CFS(2),CF(2),RH(5),RA(5),
RHH(5),RAA(5)
80 DIM AAS(10),BBS(10),FCS(
30)
90 FOR X=1 TO 10:READ AS(X)
:NEXT
100 FOR X=1 TO 10:READ BS(X)
:NEXT
110 FOR X=1 TO 20:FC$(X+10)=
AS(INT(10*WGE(1)+1)):NEXT
120 FOR X=1 TO 10:FC$(X)=BS(
INT(10*WGE(1)+1)):NEXT
130 FOR X=1 TO 30:READ TFS(X)
:NEXT
140 FOR X=1 TO 12:STS(X)=TFS
(X):NEXT
150 FOR X=1 TO 12:TFS(X)="*
:NEXT
160 FOR X=1 TO 10:AAS(X)=AS(
X):BBS(X)=BS(X):NEXT
170 SQS(13)="*":SQS(14)="*":
SQS(15)="*
180 FOR X=1 TO 30
190 RAT(X)=INT(10*WGE(1)+1):
WAGE(X)=RAT(X)+1000
200 IF X<13 TR(X)=INT(10*WGE
(1)+1):WGE(X)=TR(X)+1000
210 NEXT
220 DATA Arsenal,Chelsea,Eve
rton,Liverpool,Man United,Nott
s Forest,Tottenham,West Ham,Lu
ton Town,Sheff Wed
230 DATA Man City,Newcastle,
Oxford,Ipswich,Norwich,Crystal
Pal,Leeds,Utd,Watford,Aston V
illa,Southampton
240 DATA N.Southend,G.Stevens
,K.Sanson,K.Ratcliffe,B.Mount
field,P.Kleid,G.Rix,G.Hodde,M.
Hately,B.Oldacre,A.Oldacre,P.B
racewell,L.Rush,F.Stapleton,G.
Lineker,M.Hughes,P.Walsh,K.Dal
glish,G.Souness,L.Brady,C.Nich
olas
250 DATA M.Platini,D.Maradona
,A.P.Beardsley,R.Wilkins,B.Robs
on,L.Chapman,F.McAvennie,P.Nev
in,K.Dixon
260 VDU 19,0,4,0,19,1,7,0;:C
LS:PRINTTAB(14,37):SUPERBOSS<
TAB(10):LOAD SAVED GAME(I)/N
70:INPUTS
270 IF QS="Y" PROCLOAD ELSE
PROSELECT
280 FOR X=1 TO 10:AX(X)=0:BXC
(X)=0:NEXT
290 MOR=45:IN$="I"
300 FOR X=1 TO 10:CUPS(X)=AS
(X):NEXT
310 FOR X=1 TO 20:CUPS(X)=B
SX(10):NEXT
320 FOR X=1 TO 20:LOS=X:IN$="E
XT
330 VDU 19,0,1,0,19,1,7,0;:C

```

```

LS:PRINTTAB(9,5)*** CHARITY S
HIELD ***TAB(2):***LEAGUE
CHAMPIONS V CUP WINNERS***:HS
=INT(5*WGE(1)):AS=INT(5*WGE(1)
)
340 IF LCS=CWS CLS:PRINTTAB
(8)*** CHARITY SHIELD ***T
AB(2):***DOUBLE WINNERS A & B
SIDES***
350 PRINTTAB(9)CLS V C
WS
360 PRINTTAB(7,21):PRESS SPA
CE BAR FOR RESULT:REPEATUNTIL
GET:CLS:PRINTTAB(10,5):CHARITY
SHIELD RESULT***TAB(9)CLS
:HS; CWS AS:SOUND0,3,-
4,8:SOUND0,3,-4,6
370 *FX21
380 PRINTTAB(11)***PEACE
WAIT***:NOW=TIME:REPEATUNTIL
IME=NOW+330
390 FOR X=1 TO 10:BBS(X)=BS(
X):AAS(X)=AS(X):NEXT
400 FOR X=1 TO 15:STS(X)="
:G(X):0:NEXT
410 VDU 19,0,5,0,19,1,0,0;:C
LS:PRINTTAB(10,1)*YS:Fixtur
es**TAB(12)*DIVISION :D;*
420 IF D=2 GOTO 450
430 PRINTTAB(10)AS(2):TAB(1
0)AS(3):TAB(10)*FA CUP ROUND
1**TAB(10)AS(4):TAB(10)AS(5):
TAB(10)*FA CUP ROUND 2**TAB(
10)AS(6):TAB(10)AS(7):TAB(10)
*FA CUP ROUND 3**TAB(10)AS(8)
:TAB(10)*FA CUP SEMI-FINAL**
TAB(10)AS(9)
440 PRINTTAB(10)*FA CUP FIN
AL**TAB(10)AS(10):TAB(10)*E
nd of Season*:GOTO470
450 PRINTTAB(10)BS(2):TAB(1
0)BS(3):TAB(10)*FA CUP ROUND
1**TAB(10)BS(4):TAB(10)BS(5):
TAB(10)*FA CUP ROUND 2**TAB(
10)BS(6):TAB(10)BS(7):TAB(10)
*FA CUP ROUND 3**TAB(10)BS(8)
:TAB(10)*FA CUP SEMI-FINAL**
TAB(10)BS(9)
460 PRINTTAB(10)*FA CUP FIN
AL**TAB(10)BS(10):TAB(10)*E
nd of Season*
470 PRINTTAB(10,21):PRESS S
PACE BAR:REPEATUNTILGET:CLS
480 PICK0:GME=0
490 PROCTIME
500 PROCSATS
510 PROCMATCH
520 PROCSRESULTS
530 PROCSABLES
540 IF QS<15 PROCMARKET
550 PROCSSELL
560 PROCSFINANCE
570 PROCSINJ
580 IF GME=2 OR GME=4 OR GME
=6 OR GME=7 PROCPUC
590 IF GME=8 PROCFINAL
600 IF GME=9 PROCPEND ELSE 49
0
610 DEFPROSELECT
620 CLS:PRINT
630 FOR X=1 TO 10:PRINTTAB(1
2):X;TAB(15)BS(X):NEXT:PRINTT
AB(12):PICK A SIDE:INPUTN
640 IF N=10 OR N=1 THEN 620
ELSE 140:BS(10)=2:TS=BS(1):BS(
1)=YS:BS(1)=TS
650 FOR X=1 TO 10:BBS(X)=BS(
X):NEXTX
660 ENDPROC

```

```

670 DEFPROCTEAM
680 VDU 19,0,4,0,19,1,7,0;:C
LS:PRINTTAB(7,1)YS Division
:
690 PRINTTAB(12,2)No. Player
....Skill,Worth.Goals.pdf1
700 X=1
710 PRINTTAB(2):X;TAB(5);SQS
(X):TAB(10);TR(X);TAB(22):E;
WGE(X);TAB(31);G(X);TAB(37);ST
S(X):X=X+1:IF X>15 THEN 720 EL
SE 710
720 PRINT:PRINTTAB(11):Playe
rs Picked::PICK
730 PRINT *P=Picked,d=Drop
ped,i=Injured,f=Fit
740 *FX21
750 IF PICK<11 THEN 800
760 IF PICK<12 PRINT *PICK
A PLAYER OR RETURN TO PLAY::
INPUTN:IF N=0 ENDPROC
770 IF N=1 OR N=15 THEN 680
780 IF STS(X)=N OR STS(N)=
1 OR STS(N)=0 THEN 680
790 PICK=PICK+1:STS(N)=P:G
OTO680
800 PRINT *DROP A PLAYER::
INPUTN
810 IF N=0 THEN 680
820 IF N=1 OR N=1 THEN 680
830 IF STS(N)<P THEN 800
840 STS(N)=P:PICK=PICK+1:G
OTO680
850 DEFPROCSATS
860 CLS
870 VDU 19,0,1,0,19,1,7,0;:C
LS:PRINTTAB(10,3)*MATCHFACTS<
880 GME=GME+1:OPP=GME+1
890 IF D=1 OP$=AS(OPP) ELSE
OP$=BS(OPP)
900 CT=0
910 X=1:REPEAT
920 IF STS(X)=P CT=CT+TR(X)
)
930 X=X+1:UNTILX>15
940 CT=CT/11:CT=INTCT
950 OP$=INT(10*WGE(1))
960 IF D=2 AND OP$=2,7 OP$
VE=OP$+INT(2*WGE(1)+1)
970 IF D=1 AND OP$=3 OP$
VE=OP$+INT(2*WGE(1)+1)
980 PRINTTAB(10):OPPOSITION
*OP$
990 PRINTTAB(10):AVERAGE SK
ILL :OP$VE
1000 PRINTTAB(10):OUR AVERAG
E :CT
1010 PRINTTAB(10):TEAM MORAL
E :MOR;T
1020 PRINTTAB(10):CLUB MONEY
E :MON
1030 PRINTTAB(10):MATCH NUMB
ER :GME
1040 PRINTTAB(10):PLAYERS PI
CKED :PICK
1050 PRINTTAB(10):PRESS SPA
CE BAR:REPEATUNTILGET:CLS:ENDP
ROC
1060 DEFPROCMATCH
1070 HS=AS:AS=0:PS=5:T=0
1080 VDU 19,0,4,0,19,1,7,0;:C
1090 PRINTTAB(10,1)******FOOTB
ALL LEAGUE DIVISION :D;*****
**
1100 PRINTTAB(7,3)YS :HS;
*OP$ :AS
1110 PRINTTAB(15,20)*Time :
T;M:SOUND1,1,-1,1:NOW=TIME:

```

```

REPEATUNTILTIME=NOW+25
1120 CH=INT(2500*WGE(1)+1)
1130 IF CH=1212 OR CH=1232 OR
CH=1322 OR CH=987 OR CH=2211
OR CH=345 THEN 1390
1140 IF CH=1242 OR CH=1252 OR
CH=1321 OR CH=986 OR CH=2111
OR CH=344 THEN 1470
1150 IF OP$=CT AND CH<120
THEN 1390
1160 IF OP$=2<CT AND CH=98
THEN 1390
1170 IF PICK<11 AND CH<290 TH
EN 1470
1180 IF OP$=3<CT AND CH=85
THEN 1390
1190 IF CT<OP$ AND CH<120
THEN 1470
1200 IF CT<2<OP$ AND CH<13
0 THEN 1470
1210 IF CT<3<OP$ AND CH=98
THEN 1470
1220 IF D=1 AND CH>2470 THEN
1470
1230 IF CH<40 AND AS=0 THEN 1
470
1240 IF MOR>76 AND CH>2349 TH
EN 1390
1250 IF MOR>62 AND CH>2359 TH
EN 1390
1260 IF MOR>39 AND CH>2379 TH
EN 1470
1270 IF MOR>29 AND CH>2369 TH
EN 1470

```

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```

1280 IF MOR<19 AND CH>2349 TH
EN 1470
1290 T=T+1:IF T=31 THEN 1320
1300 IF T=61 THEN 1330
1310 GOTO 1100
1320 PRINTTAB(12,22):HALF TIM
E :HS; :AS:NOW=TIME:REPE
ATUNTILTIME=NOW+330:PRINTTAB
(10,22)
:GOTO1100
1330 IF T=61 PRINTTAB(12,22):
FULL TIME :HS; :AS:NOW=TIME:
IME:REPEATUNTILTIME=NOW+330:C
LS
1340 IF HS=AS MON=MON+2000:MO
R=MOR+1
1350 IF HS=AS MON=MON+6000:MO
R=MOR+4.5
1360 IF HS=AS MON=MON-1900:MO
R=MOR-4.5
1370 ENDPROC
1380 FF=INT(10*WGE(1)+1):IF F
F=5 THEN 1100
1390 SOUND 0,3,-2,3:SOUND0,4,
-4,2:SOUND0,2,-3,1:NOW=TIME:R
EPEATUNTILTIME=NOW+100:SOUND0
,3,-1,2
1400 PL=INT(15*WGE(1)+1):IF S
TS(PL)<P THEN 1400
1410 G(PL)=G(PL)+1:SCS=SQS(PL
)
1420 TT=INT(10*WGE(1)+1):IF T
T=5 OR TT=3 SCRS=(Pen) ELSE
SCRS="
1430 PRINTTAB(7,PS)SCS:SCRS:
T;T: Mins
1440 HS=HS+1

```

```

1450 PS=PS+1
1460 GOTO 1100
1470 FF=INT(7*RND(1)+1):IF FF
=4 THEN 1100
1480 AS=AS+1:SOUND 0,3,-4,5:S
OUND0,2,-1,3:GOTO1100
1490 DEFPROCRESULTS
1500 IF D=1 R1S(1)=Y5:ATS(1)=
OPPS:RH(1)=HS:RA(1)=AS:AS(1)=
"AS(OPP)"=
1510 IF D=2 R2S(1)=Y5:AS(1)=
OPPS:RH(1)=HS:RA(1)=AS:AS(1)=
"AS(OPP)"=
1520 X=1:IF D=1 X=X+1
1530 NN=INT(10*RND(1)+1)
1540 IF AS(NN)=X THEN 1530
1550 NA=INT(10*RND(1)+1)
1560 IF AS(NA)=X THEN 1550
1570 IF NN=NA THEN 1550
1580 R1S(X)=AS(NN):ATS(X)=AS(
NA):AS(NN)=X:BS(NA)=X
1590 X=X+1:IF X>5 THEN 1600 E
LSE 1530
1600 X=1:IF D=2 X=X+1
1610 NN=INT(10*RND(1)+1)
1620 IF BS(NN)=X THEN 1610
1630 NA=INT(10*RND(1)+1)
1640 IF BS(NA)=X THEN 1630
1650 IF NN=NA THEN 1610
1660 R2S(X)=BS(NN):AS(X)=BS(
NA):BS(NN)=X:BS(NA)=X
1670 X=X+1:IF X>5 THEN 1680 E
LSE 1610
1680 X=1:REPEAT
1690 AS(X)=AS(X):BS(X)=BS(X
):X=X+1:UNTILX=10
1700 X=1
1710 RH(X)=INT(6*RND(1)+1):RAX(X
)=INT(6*RND(1)+1):RAA(X)=INT(6*R
ND(1)+1):RHH(X)=INT(6*RND(1)+1)
1720 IF D=1 AND X=1 RH(1)=HS:
RAX(1)=AS
1730 IF D=2 AND X=1 RH(1)=HS
:RAA(1)=AS
1740 X=X+1:IF X>5 THEN 1750 E
LSE 1710
1750 X=1
1760 N=1
1770 IF R1S(N)=AS(X) OR ATS(N
)=AS(X) THEN 1780 ELSE N=N+1:GO
TO1770
1780 IF R1S(N)=AS(X) AND RH(N
)=RAA(X) AX=X+3
1790 IF R1S(N)=AS(X) AND RH(N
)=RAA(X) AX=X+1
1800 IF R1S(N)=AS(X) AND RH(N
)=RAA(X) AX=X+1
1810 IF R1S(N)=AS(X) AND RH(N
)=RAA(X) AX=X+3
1820 X=X+1:IF X=10 THEN GOTO
1830 ELSE GOTO 1760
1830 N=1
1840 X=1
1850 IF R2S(N)=BS(X) OR A2S(N
)=BS(X) THEN 1860 ELSE N=N+1:G
OTO1850
1860 IF R2S(N)=BS(X) AND RHH
(N)=RAA(N) BX=X+3
1870 IF R2S(N)=BS(X) AND RHH
(N)=RAA(N) BX=X+1
1880 IF R2S(N)=BS(X) AND RHH
(N)=RAA(N) BX=X+1
1890 IF R2S(N)=BS(X) AND RHH
(N)=RAA(N) BX=X+3
1900 X=X+1:IF X=10 THEN 1910
ELSE 1840
1910 VD 19,0,4,19,1,7,0;C
LS:PRINTTAB(10,2)*** RESULTS
***TAB(12)DIVISION 1

```

| No. | Player | Man City | Division | 2 | Skill | Goals | pdfi |
|-----|---------------|----------|----------|-------|-------|-------|------|
| 1 | H. Southern | 6 | 9 | 26000 | 0 | | P |
| 2 | G. Stevens | 9 | 9 | 29000 | 0 | | P |
| 3 | K. Sansom | 6 | 2 | 26000 | 0 | | P |
| 4 | K. Ratcliffe | 6 | 2 | 26000 | 0 | | P |
| 5 | D. Mountfield | 1 | 1 | 21000 | 0 | | P |
| 6 | P. Reid | 1 | 4 | 21000 | 0 | | P |
| 7 | G. Rix | 4 | 4 | 24000 | 0 | | P |
| 8 | B. Huddle | 5 | 5 | 25000 | 0 | | P |
| 9 | M. Hately | 5 | 5 | 25000 | 0 | | P |
| 10 | D. Oldacre | 10 | 10 | 29000 | 0 | | P |
| 11 | R. Oldacre | 10 | 10 | 29000 | 0 | | P |
| 12 | P. Bracewell | 6 | 2 | 26000 | 0 | | P |
| 13 | L. Chapman | 3 | 3 | 21000 | 0 | | P |
| 14 | * | 8 | 8 | 26000 | 0 | | P |
| 15 | * | 8 | 8 | 26000 | 0 | | P |

Players Picked 11

p=Picked, d=Dropped, i=injured, f=Fit
 PICK A PLAYER OR RETURN TO PLAY?

```

1920 X=1
1930 PRINT
1940 PRINTTAB(3)R1S(X)TAB(16)
:RH(X):TAB(19)A2S(X)TAB(33):R
AX(X):SOUND1,1,-1,1:NOW=TIME:R
EPEATUNTILTIME=NOW+185:PRINTX
=X+1:IF X=5 THEN 1950 ELSE1940
1950 PRINTTAB(3)PRESS SPACE
BAR FOR DIVISION 2*:REPEATUN
TILTIME=99:VDU 19,0,4,19,1,7,0;C
LS:PRINTTAB(10,2)*** RESULTS
***TAB(12)DIVIS
ION 2
1960 X=1
1970 PRINT
1980 PRINTTAB(3)R2S(X)TAB(16)
:RH(X):TAB(19)A2S(X)TAB(33):R
AX(X):SOUND1,1,-1,1:NOW=TIME:
REPEATUNTILTIME=NOW+185:PRINT
X=X+1:IF X=5 THEN 1990 ELSE 1
980
1990 PRINT:PRINTTAB(3)PRESS
SPACE BAR FOR LEAGUE TABLES:
REPEATUNTILINKEY(-99):ENDPROC
2000 DEFPROCBETS
2010 VDU 19,0,4,19,1,7,0;C
LS:PRINTTAB(5,4)Football Leag
ue Division One..TAB(5)Pos..
Teams.....Pld..Pts
2020 MAX=3:GME=PP=0
2040 X=1
2050 IF AX(X)=MAX PRINTTAB(6);
PP+1:TAB(10)BS(X)TAB(28):GME,T
AB(33):BX(X):SOUND1,1,-1,1:PP=P
P+1:IF GME=9 RS(PP)=AS(X)
2060 X=X+1:IF X=10 THEN 2070
ELSE 2050
2070 MAX=MAX+1:IF MAX<0 THEN
2080 ELSE 2040
2080 PRINT PRESS SPACE B
AR FOR DIVISION TWO
2090 REPEATUNTILINKEY(-99):VD
U 19,0,4,19,1,7,0;C:CLS:PRI
NTTAB(5,4)Football Leagu Div
ision Two..TAB(5)Pos..Teams
.....Pld..Pts
2100 MAX=3:GME=PP=0
2110 PRINT
2120 X=1
2130 IF BX(X)=MAX PRINTTAB(6);
PP+1:TAB(10)BS(X)TAB(28):GME,T
AB(33):BX(X):SOUND1,1,-1,1:PP=P
P+1:IF GME=9 PS(PP)=BS(X)
2140 X=X+1:IF X=10 THEN 2150
ELSE 2130
2150 MAX=MAX+1:IF MAX<0 THEN

```

```

2160 ELSE 2120
2160 PRINT:PRINTTAB(2)PRESS
SPACE BAR FOR TRANSFER MARKET
:REPEATUNTILINKEY(-99):CLS:END
PROC
2170 DEFPROCMARKET
2180 PL=INT(30*RND(1)+1):IF T
FS(PL)=X THEN GOTO 2180
2190 *FXZ1
2200 VDU 19,0,4,19,1,3,0;12:
PRINTTAB(10,5)*TRANSFER MARKE
T**TAB(10)*CLUB FUNDS £:MON
TAB(10)*PLAYER FTS(PL)*TAB
(10)*SKILL RAT(PL)*TAB(10)*F
ORMER CLUB FCS(PL)*TAB(10)*W
ANT £WAGE(PL)*TAB(10)*INPUT
OFFER £:INPUT
2210 WT=WAGE(X)+INT(3000*RND
(1)+1):INT(2000*RND(1)+1):OTS=A
S(INT(10*RND(1)+1))
2220 IF O=0 ENDPROC
2230 IF O=WT PRINT BID IS
REFUSED*TAB(2)OTS SIGN HIM U
P:FCS(PL)=OTS:SOUND0,4,-3,8:N
OW=TIME:REPEATUNTILTIME=NOW+
400:ENDPROC
2240 IF O=WT PRINT BID
IS ACCEPTED, WELL DONE!!!:MON
=MON+OTS:SQ=SQ+1
2250 X=1:REPEAT
2260 IF SQS(X)=X SQS(X)=TFS
(PL):TR(X)=RAT(PL):WGE(X)=WAGE
(PL):GX(X)=OTS(X):IF GOTO 22
80
2270 X=X+1:GOTO 2260
2280 FCS(PL)=X:TFS(PL)=X:
WAGE(PL)=O:RAT(PL)=O
2290 NOW=TIME:REPEATUNTILTIM
E=NOW+300
2300 ENDPROC
2310 DEFPROCCELL
2320 VDU 19,0,4,19,1,7,0;C
LS:PRINTTAB(10,5)**CLUB OFFE
R***
2330 LET CLB=INT(20*RND(1)+1)
:IF CLB<11 THEN CLBS=AS(CLB):E
LSE CLBS=BS(CLB-10)
2340 IF CLBS=Y5 THEN 2330
2350 NO=INT(15*RND(1)+1):IF S
QS(NO)=X THEN 2350
2360 WE=GE(NO)+INT(3000*RND
(1)+1):INT(2000*RND(1)+1)
2370 IF WE<800 THEN 2360
2380 *FXZ1
2390 PRINTTAB(10)CLBS*TAB(10)
*HAVE OFFERED £:WE*TAB(10):
FOR 'SQS(NO)'TAB(10)'WHO IS S

```

```

KILL 'TR(NO)'TAB(10)'AND WOR
TH £:WGE(NO)'TAB(10)'DO YOU
ACCEPT?:INPUTAS:IF QS<0"Y" EN
DPROC ELSE 2400
2400 X=1
2410 IF TFS(X)=X TFS(X)=SQS
(NO):RAT(X)=TR(NO):WAGE(X)=WE
(NO):FCS(X)=CLBS:GOTO 2430
2420 X=X+1:IF X=30 THEN 2430
ELSE 2410
2430 SQ=SQ+1:IF STS(NO)=P P
ICK=PICK-1
2440 MON=MON+WE:SQS(NO)=X:W
GE(NO)=O:TR(NO)=O:G(NO)=O:STS
(NO)=O
2450 PRINTTAB(5)*YOU HAVE SO
LD HIM TO*TAB(14):CLBS=NOW=TI
ME:REPEATUNTILTIME=NOW+350:E
NDPROC
2460 DEFPROCINI
2470 INJ=INT(5*RND(1))
2480 FOR X=1 TO 15
2490 IF STS(X)=I STS(X)=I
2500 NEXT
2510 X=1:REPEAT
2520 IN=INT(15*RND(1)+1)
2530 IF SQS(N)=X THEN 2520
2540 IF STS(N)=P PICK=PICK-
1
2550 STS(N)=I:X=X+1:UNTILX>
15
2560 ENDPROC
2570 DEFPROCUP
2580 IF IN=0 ENDPROC
2590 VDU 19,0,4,19,1,3,0;C
LS:SOUND0,4,-5,2:SOUND0,4,-2,5
:SOUND1,1,-1,2
2600 IF GME=2 PRINTTAB(1,1)*
*****THE FA CUP FIRST ROUND*
*****
2610 IF GME=4 PRINTTAB(1,1)*
*****THE FA CUP SECOND ROUND*
*****
2620 IF GME=6 PRINTTAB(1,1)*
*****THE FA CUP THIRD ROUND*
*****
2630 IF GME=7 PRINTTAB(1,1)*
*****FA CUP SEMI-FINAL DRAW*
*****
2640 IF D=2 10S(1)=O ELSE
10S(1)=O
2650 CLB=INT(20*RND(1)+1):IF
10S(CLB)=O OR CUPS(CLB)=Y5 T
HEN 2650
2660 CLBS=CUPS(CLB)
2670 PRINTTAB(7)Y5 V CLB
S*****TAB(7)PRESS SPACE BA
R FOR RESULT:REPEATUNTILGET:CLS
:HS=INT(6*RND(1)):AS=INT(5*RND
(1)):PRINTTAB(10,5)**FA CUP
RESULT *****
2680 PRINTTAB(10)YSTAB(26):HS
:SOUND0,4,-4,9:NOW=TIME:REPE
AUNTILTIME=NOW+340:PRINTTAB
(10)CLSBTAB(26):AS
2690 NOW=TIME:REPEATUNTILTIM
E=NOW+240
2700 IF HS<AS AND GME=7 SFS=C
UPS(CLB)
2710 SOUND0,4,-3,4:IF HS>AS P
RINTTAB(10)'YOU ARE THROUGH!
!!:SOUND1,1,-1,1:SOUND0,4,-3,
2:SOUND0,7,-6,1:MON=MON+340:M
OR=MON+3:10S(CLB)=O:NOW=TIM
E:REPEATUNTILTIME=NOW+340:END
PROC
2720 SOUND0,4,-3,4:IF HS<AS P

```

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Towers of Hanoi



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ODD MAN OUT

Find the word that does not fit – before your time runs out

TO ORDER TURN TO THE FORM ON PAGE 53

SuperBoss listing

From Page 35

```

RINT TAB(10) YOU ARE OUT OF T
HE CUP! :SOUND0,3,4,5:MON=MO
N+900:MON=MOR+1:INS=0:NOW=T
IME:REPEATUNTILTIME=NOW+340:
ENDPROC
2730 SOUND0,4,-3,4:IF HS=AS P
RINT "WATCH DRAWN PRESS SPACE
BAR FOR REPLAY:REPEATUNTILGE
T:CLS:PRINTTAB(10,5)*FA CUP R
EPLAY":GOTO2670
2740 DEFPROCFINAL
2750 VDU 19,0,4:0,19,1,7;0:;C
LS:PRINTTAB(10,5)*FA CUP F
INAL ***
2760 E=INT(20*RAND(1)+1):F=INT
(20*RAND(1)+1)
2770 IF E=F OR CUPS(E)=YS OR
CUPS(F)=YS OR IOS(E)=0 OR IO
S(F)=0 THEN 2760
2780 CFS(1)=CUPS(E):CFS(2)=CU
PS(F)
2790 IF INS="I" CFS(1)=YS
2800 IF SFS=">" CFS(2)=SFS
2810 IF CFS(1)=CFS(2) THEN 27
60
2820 PRINTTAB(10,10)CFS(1)'
V "CFS(2)"TAB(10)PRESS S
PACE BAR FOR MATCH:REPEATUNTIL
GET:CLS:PRINTTAB(10,5)*WERBL
EY CUP FINAL"
2830 HS=0:AS=0:T=0
2840 PRINTTAB(10,9):CFS(1):TA
B(27,9):HS:PRINTTAB(10,14):CFS
(2):TAB(27,14):AS:PRINTTAB(12,
17):TIME "T":SOUND1,1,-1
1:NOW=TIME:REPEATUNTILTIME=N
OW+75
2850 CH=INT(165*RAND(1)+1)
2860 IF CH=37 OR CH=47 OR CH=
57 OR CH=67 OR CH=11 HS=HS+1:S
OUND0,8,-8,7:SOUND0,2,-3,2
2870 IF CH=97 OR CH=17 OR CH=
55 OR CH=60 OR CH=14 AS=AS+1:S
OUND0,8,-8,7:SOUND0,2,-3,2
2880 T=T+1:IF T=31 PRINTTAB(1
2,20)*HALF-TIME*:SOUND0,4,

```

```

-4,4:NOW=TIME:REPEATUNTILTIME
=NOW+300:PRINTTAB(12,20)'
:GOTO 2840
2890 IF T=61 PRINTTAB(12,20)'
**FULL-TIME*:SOUND0,4,-4,4:N
OW=TIME:REPEATUNTILTIME=NOW+
300:GOTO 2910
2900 GOTO 2840
2910 NOW=TIME:REPEATUNTILTIME
E=NOW+240
2920 IF HS=AS AND CFS(1)=YS M
OR=MOR+6:MON=MON+15000
2930 IF HS=AS CWS=CFS(1)
2940 IF HS=AS CWS=CFS(2)
2950 IF HS=AS PRINT "PRESS S
PACE FOR FOR CUP FINAL REPLAY"
:REPEATUNTILGET:CLS:PRINTTAB(1
0,5)*CUP FINAL REPLAY*:GOT
O 2820
2960 CLS:FOR X=1 TO 23:PRINTT
AB(8):CWS:WON THE FA CUP!':S
OUND0,3,-3,3:NEXTX
2970 NOW=TIME:REPEATUNTILTIME
E=NOW+500:ENDPROC
2980 DEFPROCROW
2990 CLS
3000 LCS=RS(1):RUS=RS(2):SS=P
S(1):SSS=PS(2)
3010 PRINTTAB(1,7)*CHAMPIONS
:CLS
3020 PRINTTAB(1,9)*RUNNERS UP
:RUS
3030 PRINTTAB(1,11)*CUP WINNE
RS :CWS
3040 PRINTTAB(1,13)*PROMOTED
:SS:TAB(11):SSS
3050 TS=RS(9):TTS=RS(10):RS(9
)=PS(1):RS(10)=PS(2):PS(1)=TS:
PS(2)=TTS
3060 FOR X=1 TO 10:AS(X)=RS(X
):BS(X)=PS(X):NEXT
3070 FOR X=1 TO 10:AAS(X)=AS(X
):BBS(X)=BS(X):NEXT
3080 X=1
3090 IF AS(X)=YS TS=AS(1):AS(
1)=YS:AS(X)=TS:D=1:GOTO 3110
3100 X=X+1:IF X>10 THEN 3110
ELSE 3090

```

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SKILL 3

FORMER CLUB Luton Town

WANT £3000

INPUT OFFER ?4000

BID IS ACCEPTED, WELL DONE!!!

```

3110 X=1
3120 IF BS(X)=YS TS=BS(1):BS(
1)=YS:BS(X)=TS:D=2:GOTO 3140
3130 X=X+1:IF X>10 THEN 3140
ELSE 3120
3140 FOR X=1 TO 10:CUPS(X)=AS
(X):CUPS(X+10)=BS(X):NEXT
3150 FOR X=1 TO 30:RAT(X)=INT
(10*RAND(1)+1):WAGE(X)=RAT(X)*1
000:NEXT
3160 PRINT "PRESS SPACE BAR
TO CONTINUE...."REPEATUNTIL
GET
3170 FOR X=1 TO 15:IF SQS(X)<
>X THEN TR(X)=INT(10*RAND(1)+
1):WGE(X)=TR(X)*1000:G(X)=0:ST
S(X)=X
3180 NEXT
3190 VDU 19,0,4:0,19,1,7;0:12
3200 PRINTTAB(11,7)*END OF S
EASON"
3210 IF LCS=YS PRINTTAB(5)*"
YOU ARE LEAGUE CHAMPIONS"
3220 IF RUS=YS PRINTTAB(5)*"
YOU ARE LEAGUE RUNNERS UP"
3230 IF S=YS PRINTTAB(5)*"Y
OU ARE 2ND DIVISION CHAMPIONS"
3240 IF SS=YS PRINTTAB(5)*"Y
OU ARE PROMOTED"
3250 IF CWS=YS PRINTTAB(5)*"
YOU WON THE FA CUP"
3260 IF LCS=CWS PRINTTAB(5)*
":CLS:WON THE DOUBLE!":SOUN
D0,3,-2,3
3270 PRINT "PRESS SPACE
BAR:REPEATUNTILGET
3280 PICK=0
3290 *FX21
3300 CLS:PRINTTAB(1,10)*CHANG
E CLUB(F/N)":INPUTAS:IF QS<"
Y" THEN 3380
3310 CLB=INT(20*RAND(1)+1):IF
CUPS(CLB)=YS THEN 3310 ELSE 33
20
3320 PRINT"YOU WILL MANAGE "
CUPS(CLB)"NEXT SEASON"
3330 IF CLB=10 YS=BS(CLB-10):
TS=BS(1):BS(1)=YS:BS(CLB-10)=
YS:D=2
3340 IF CLB<11 YS=AS(CLB):TS=
AS(1):AS(1)=YS:AS(CLB)=TS:D=1
3350 PRINT "DO YOU WISH TO
CONTINUE (Y/N)":INPUTAS
3360 IF QS<"N" AND QS<"NO"
THEN 280
3370 PRINT"INSERT TAPE"

```

```

3380 S=OPENOUT"FILE"
3390 X=1:REPEAT
3400 IF X<11 PRINT#S,AS(X):PR
INT#S,BS(X):PRINT#S,AAS(X):PRI
NT#S,BBS(X)
3410 IF X<16 PRINT#S,SQS(X):P
RINT#S,TR(X):PRINT#S,WGE(X):PR
INT#S,G(X):PRINT#S,STS(X)
3420 PRINT#S,TS(X):PRINT#S,F
CS(X):PRINT#S,WAGE(X):PRINT#S,
RAT(X)
3430 X=X+1:UNTILX>30
3440 PRINT#S,LCS:PRINT#S,CWS:
PRINT#S,SQS:PRINT#S,MON:PRINT#
S,D:PRINT#S,YS
3450 CLOSE#S
3460 RUN
3470 DEFPROCLOAD
3480 S=OPENIN"FILE"
3490 X=1:REPEAT
3500 IF X<11 INPUT#S,AS(X):IN
PUT#S,BS(X):INPUT#S,AAS(X):IN
PUT#S,BBS(X)
3510 IF X<16 INPUT#S,SQS(X):I
NPUT#S,TR(X):INPUT#S,WGE(X):I
NPUT#S,G(X):INPUT#S,STS(X)
3520 INPUT#S,TS(X):INPUT#S,F
CS(X):INPUT#S,WAGE(X):INPUT#S,
RAT(X)
3530 X=X+1:UNTILX>30
3540 INPUT#S,LCS:INPUT#S,CWS:
INPUT#S,SQS:INPUT#S,MON:INPUT#
S,D:INPUT#S,YS
3550 CLOSE#S
3560 DEFPROCFINANCE
3570 DEFPROCINWAGE
3580 IF MON<0 VDU 19,0,1;0:19
,1,7;0:CLUB IS IN THE RED YOU ARE SA
VED!!":NOW=TIME:REPEATUNTIL
TIME=NOW+400:RUN
3600 REM Relocate
3610 DI=PAGE-6000+7.
3620 *KEY0 FOR1=PAGE TO TOP
STEP:1:(11-DI)=1:1:NEXT:1:(TOP-
DI)=8FFD0:PAGE=6000:MOLD:MRUN:
N
3630 *FX130,0,128

```

MATCHFACTS

OPPOSITION Newcastle
AVERAGE SKILL 7

OUR AVERAGE 6

TEAM MORALE 45%

CLUB MONEY £41000

MATCH NUMBER 1

PLAYERS PICKED 11

PRESS SPACE BAR

This listing is included in this month's cassette tape offer. See order form on Page 53.

Four new fields to conquer...

HOT news this month includes an announcement from Adventure Soft UK that it has just released four new adventures for the Electron.

The titles are Kayleth, Temple of Terror, Sword of the Samurai and Super Adventure. They are available at £7.99 each either direct from Adventure Soft or from your usual supplier.

I am also in receipt of an apology from Robico that their western adventure, Blazing Star, won't be available on general release until the beginning of May.

This is apparently due to

the high demand for the bargain priced Rick Hanson trilogy.

A pigeon from Essex tells me that May is also the time to look out for the new Shards adventure – a sequel to The Mystery of the Java Star. Sounds promising.

The new Lever/Jones extravaganza, Dodgy Gees, has now been released by Melbourne House for the Electron. If you thought Hampstead and Terror-molinos were a good wheeze, try this!

My database of adventures for the Electron and BBC Micro is nearly

completed and hopefully will be ready for publication very soon.

If any of you have last minute details about newly-formed adventure software companies please let me know quickly.

To continue with Sheila Beattie's idea of listing when help has been given for specific adventures, this month it is the turn of Wheel of Fortune.

The following back copies will furnish you with useful information: August, October, November and December 1985, January, February, April, May, June, July,



August, September and December 1986.

Now on to the promised special on Kansas City's The Ferryman Awaits.

I am grateful to Colin Rothery and Sheila Beattie for their routes around the game.

I am also deeply indebted to Bill Trevelyan for his most detailed solution of the adventure and explanation of its inner workings.

A hints program specially written by him for this adventure can be found on this month's tape and it's essential reading for anyone having difficulty.

Ferryman must be the most macabre and one of the most difficult adventures I have come across.

Its complexity is partly due to some obscure problems and a sneaking suspicion I have that it was originally much longer and was shortened for the Electron. Perhaps the author, John Nevins, can put me right on that one.

The verb list is an important tool as in Ferryman it is essential to give correctly worded instructions, otherwise odd things may happen. For instance try entering NORTH WEST (NW) in the Valley of the Shadow of Death!

It has about 90 evocatively described locations which on occasions give a chill of horror ... "The smell of the air reminds you of places where mould grows on rotting flesh".

In other places the atmos-

BEGINNERS

Last month I began to explain some simple mapping procedures for text adventures. I further mentioned that the grid map – although the most widely used – comes undone when adventures do not follow logical routes.

An alternative is to produce a random mapping diagram. This is similar to a grid map in that it displays the adventure in a series of boxes and lines. The main dif-

ference is the random map usually drawn on plain paper and the room connections do not necessarily follow compass directions.

To make a random map draw a box or circle in the middle of a piece of paper and mark it as the starting point.

Now draw your connecting arrows to other locations in any direction which leads to a blank piece of paper. Follow compass directions only

when convenient.

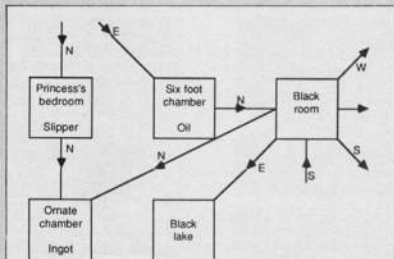
The insert in Micro Power's Adventure gives an example of a random map in use.

This method may require lines curving in directions which have no relation to compass locations and the finished result may look like something of which Pablo Picasso would be proud.

However a random map does enable you to come to terms with adventures which twist and turn in many directions, have confusing mazes or equally, like Sphinx Adventure, have a number of Up and Down routes.

Secondly, a random map will last much longer than its grid equivalent as it will not need re-writing as often – as those of you who have experimented with grid maps will have found out.

● Next month we will look at a non-pictorial approach to mapping.



Directions which are not natural are annotated

there is quite haunting... "Towering above you is a stone tree, its roots dive into the rock and its trunk holds its vast branches high into the sunless sky".

There are also 30 interesting objects which perform a variety of peculiar functions.

Bill Trevelyan tells me that the adventure uses Page D, so it is best to disable your Plus 1 before CHAINING.

VERB LIST

ATTACK BURN BLOW
CONSUME CLOSE DROP
DESTROY DIG DOWN
DRAW DRINK EAST EXAM-
INE EAT GET HIT INVENT-
ORY JUMP KILL LIST
LOOK LEAP LOCK NORTH-
EAST MURDER MEND
NORTH NORTHWEST OPEN
PULL PUSH PUT QUIT RE-
STORE SOUTH SOUTHEAST
SAVE SCREAM SHOUT
SOUTHWEST SMASH SPIT
SAY SHAKE SWALLOW
SWIM TAKE THINK TUG UP
UNLOCK WEST WAVE WAIT
WEAR

Most of the above can be abbreviated to their first three letters. Nouns will be discovered as the adventure progresses.

You begin the adventure as a ready made sacrifice: "You have been magically paralysed from the neck down... the Priest raises a small yellow stone above your head".

Your actions now must be quick and decisive: SAY NIMLAX - DOWN - PUSH PRIEST - DOWN - SOUTH - DOWN.

Here are some of the objects you will find:

Amulet: In the secret chamber west of the altar hall - needed to work the horn.

Bar: With the rope - used first to ascend to tower roof from the temple, then to climb up gravel slope.

Chalk: Receive this from the old man in the stone tree in exchange for the rod. Use it to draw the pentagram.

Cube: Hallucinogenic drug - don't eat it, but a lick might defy time!

Door: The cell door is "Light but strong." It is useful as a bridge over the gap.

Fungus: Will be found growing on the dead guard's body. GET FUNGUS and drop it in the mud lake

to eliminate the weed creature.

Horn: Use with the mouthpiece and amulet - SAY MOLD to be transported to the chamber.

Jerkin: Wear it to enter the pirate's cave.

Keg: In the storeroom. Exchange it for a lump of sticky tar in the pirate's cave.

Mirror: Found in the temple. EXAM MIRROR shows what you are.

Mouthpiece: At the mound. This is needed for the horn.

Parrot: Carry the dead parrot when you visit the pirate's cave. (Shades of Monty Python, I think!)

Pie: It is poisoned. Eat for quick passage to the valley of the shadow of death, later.

Rags: You are wearing them. They may be exchanged for the robe or pirate garb.

Rod: Exchange for the chalk at the stone tree.

Spear: Left at the bridge. Throw it at the parrot.

Sulphur: Yellow disc or

slaying stone. Operated by SAY NIMLAX.

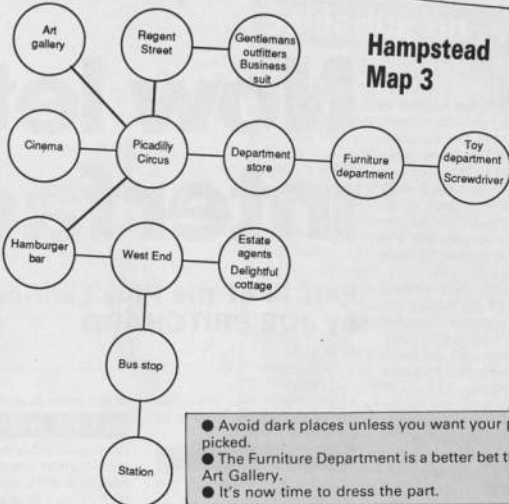
Sword: Given to you in exchange for the flint at the pool.

Tar: Given by the pirate in exchange for the keg.

Tricorn: To be found at the end of the passage. Must be worn to get the tar.

As with the opening sequence, in the final conflict it is essential that each

Hampstead Map 3



- Avoid dark places unless you want your pockets picked.
- The Furniture Department is a better bet than the Art Gallery.
- It's now time to dress the part.

action is carried out correctly and that no moves are wasted: N - DRAW PENTAGRAM - SMASH BOTTLE - THROW TAR - SAY NAGROGORGGA - SAY NIMLAX - KILL.

I hope I have left enough undone to still make Ferryman Awaits a challenge to the most seasoned campaigner.

KNIGHTS OF THE ROUND TABLE

Don't forget that if you write to one of my knights for help please enclose a stamped addressed envelope.

Kneel and rise Sir Mike Thomas of 64, Brynau Road, Castle Park, Caerphilly, Mid Glamorgan, South Wales, CF8 1PG, who offers help with: Adventureland, Pirate Adventure, Secret Mission, Voodoo Castle, The Count, Strange Odyssey, Mystery Fun House, Pyramid of Doom, Ghost Town, Savage Islands 1 & 2, Sorcerer of Claymorgue Castle, Spiderman, The Hulk, Quest Probe 3, Gremlins, Golden Baton, Time Machine, Arrow of Death 1, Escape from Pulsar 7, Robin of Sherwood, Perseus and Andromeda and Rebel Planet - do you own shares in Adventure Soft UK, Mike?

He can also give assistance with: Crown Jewels, Sphinx Adventures, Rick Hanson, Project Thesius, Myorem, Wychwood, Countdown to Doom and Classic Adventure.

LAST month we looked at the Plus 1's analogue port and discussed the function of each of the pins. Now we're going to move on and see how we can use it with a very simple project.

The easiest pins to use on the analogue port are the push button inputs PB0 and PB1.

These allow us to connect any type of switch to the port and monitor whether it's on or off, closed or open. These inputs are normally connected to the fire buttons of joysticks.

Connect a switch to one of the push button inputs (either pin 13, PB0 or pin 10, PB1) and one of the digital ground pins 2, 3 or 6.

All the switch must do is connect the push button input to the digital ground which, you may remember from last month, is at 0 volts.

Figure 1 shows a simple switch. Although fairly primitive, this will do the job.

For a more professional look Tandy can supply a suitable switch - part number 275-1566. And a 15-way D type plug to fit the analogue port can be obtained from Maplin.

They are both very common components and you should not have any difficulty obtaining them.

The switch is a push-to-make, release-to-break type and is often found in things like doorbells.

Take care with the wiring and make sure there are no short circuits between any of the pins on the plug - often caused by splashes of solder connecting them together.

Having built the hardware we'll move on to the software.

At the heart of any interfacing project using the analogue port is the Basic ADVAL function or its machine code equivalent.

ADVAL is used like any

Now let's get interfacing...

Part III of the Plus I series by JOE PRITCHARD

other function. We can assign the value returned to a variable:

```
x=ADVAL(n)
```

or print it's value on the screen:

```
PRINT ADVAL(n)
```

The value of *n*, the argument of the function, controls what ADVAL does. Setting *n* equal to zero makes ADVAL read the state

of the push button inputs:

```
PRINT ADVAL(0)
```

detects whether either of the push button inputs are connected to 0V. In other words, the value returned reflects the status of the inputs to pins 10 and 13, PB1 and PB0 respectively.

Bit zero set indicates that switch PB0 is on or closed and bit one set indicates that switch PB1 is on or closed.

The other bits should be ignored so it is best to AND the result with either 1 to find the status of bit zero or with 2 for bit 1. If the result is

```
10 REM Program 1
20 REPEAT
30 pressed=ADVAL(0) AND 2
40 IF pressed THEN PRINT "On"
50 UNTIL FALSE
```

Program 1

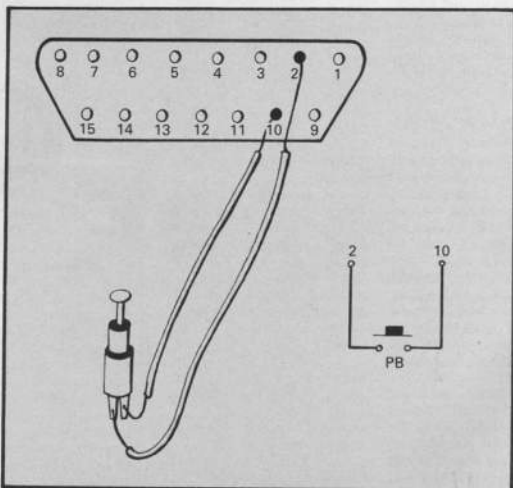


Figure 1: Using the push button inputs

```

10REM Program 11
20REPEAT
30PRINT "Reaction Timer...."
40PRINT "Please press the"
50PRINT "button when you he"
60PRINT "re the 'beep'."
70PRINT "50% = RND(20)"
80FOR I=1 TO 1000
90NEXT
100IF Fbutton<>0 THEN PRINT
110"OK wise guy, no cheating!!!"
120GOTO 140
130TIME=0:VDUT
140REPEAT
150UNTIL Fbutton<>0
160time%=TIME
170PRINT "Your time is: ";ST
180PRINT "centiseconds:PRIN
190T:PRINT:
200PRINT "Press RETURN to pl
210ay again"
220REPEAT UNTIL GET=13:PRINT
230UNTIL FALSE
240DEFFNbutton=(ADVAL(0) AND
2502)

```

Program 11

zero the switch is off (open), if the result is non-zero the switch is on (closed).

Now we can test our simple circuit. Enter and run Program 11.

Line 30 gets the status of push button 1 – bit one of ADVAL(0) by ANDING the value returned with 2. This will be one if PB1 is pressed or zero if it isn't.

Running the program and pressing the button will result in On or Off being printed on the screen.

Try replacing the push button with a silver foil strip switch as shown in Figure 11 – putting it across a door would make a simple burglar alarm.

Program 11 can be used to

time your reactions.

There are many other uses for the switch inputs; fire buttons on joysticks or games paddles and extra keys for the keyboard.

And if you put the switch on a cat flap you could even get your micro to tell you whether your cat is in or out. I'm sure you can think of many more applications.

Try connecting a second switch to the other PB input and ground allowing two switch inputs. All the switch does is connect the PB input to digital ground.

● *That just about wraps it up for now. Next month we'll see how to use the four analogue inputs.*

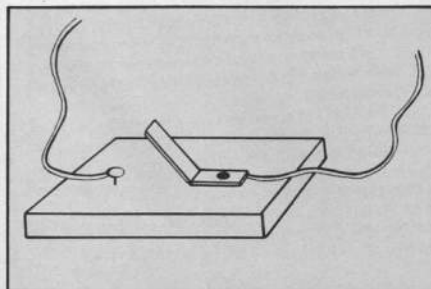


Figure 11: A simple home-made switch

Soldering on ...

USE a good soldering iron. This should be a 10 to 15 watt electrical device – heavy duty electrical soldering irons and the like are out unless you want a glob of molten plastic and metal where your circuit should be.

Soldering guns are also available and are perfectly ok, but a little expensive for the occasional user.

A small 15 watt iron is perfectly adequate and costs less than £10.

The iron needs a bit, which transfers heat to the joint to make. Get one that is quite narrow; 1/16th of an inch or thereabouts is best for fine work.

Solder is an alloy of lead and tin which melts at a relatively low temperature (180-240 degrees Celsius).

You should use resin cored solder which contains a chemical to make the solder flow properly when heated. The thick bar solder used by plumbers is not suitable.

Anything to be joined by soldering must be clean and grease free. Use fine emery paper or a scalpel to gently scrape the wires to be soldered clean.

Grease – easily delivered by grubby fingers – is probably the main problem to watch for.

The first time you use the iron, heat it up and get a slightly damp cloth. When hot wipe the bit with the cloth and then liberally coat the bit with solder until it's shiny all over.

Wipe off the excess solder with the cloth and repeat these two steps until the bit is shiny all over. This is called tinning the bit.

Any bare copper wires that you intend soldering should also be tinned in this way, though the leads of many components are already tinned.

Throughout the soldering process, the bit should be kept clean with the damp cloth.

Some components are very sensitive to heat so take care. I'll point out any delicate components that we use, but it's good practice to treat all components like this.

A good soldered joint should be shiny and smooth. If it's lumpy, dull, grainy or blobby, or any combination of these, then the joint must be redone.

Bad joints, apart from having a tendency to fall to bits, might not even conduct electricity.

BACK TO BASICS

Part seven of
TREVOR ROBERT'S
down-to-earth
series



Remarks about nothing

STRANGE as it might sound there's a Basic command that's useful because it doesn't do anything. Or, rather, appears to do nothing.

It's the REM - REMark - statement which tells the Electron to ignore everything that appears after it and go on to the next line. Try entering:

```
10 REM This doesn't do anything
20 REM Neither does this
30 REM Yet REMs can be very important
```

and use RUN to run it. As you'll see nothing appears to happen.

This is because each line starts with a REM. As soon as the Electron finds this keyword it ignores the rest of the line. Hence the above program achieves nothing.

It may seem strange but having the REM command is very useful. For a start it enables us to label our programs clearly as in:

```
10 REM Program I
20 aNumber=3
30 bNumber=4
40 product=aNumber*bNumber
50 PRINT "Product is ";product
```

Line 10 actually adds nothing to the program. When the Electron is told to run the code, it starts at line 10 finds the REM and goes on to line 20. The "Program I" after the REM is ignored.

However, ignored by the computer though it may be, it's very useful to us mere humans. Now we can refer to Program I and it's there, labelled for us to identify.

```
5 5 REPEAT
10 10 NODE6:PROCTitle
15 15 NODE5:PROCstart
20 20 REPEAT:REPEAT
```



Some REMarkable facts

REM has a much more important role than just labelling bits of code. It's used to explain how they work. Take a look at Program II, neatly labelled with its initial REM statement:

```
10 REM Program II
20 aNumber=3
30 bNumber=4
35 REM Multiply the numbers together
40 product=aNumber*bNumber
45 REM Print the result
50 PRINT "Product is ";product
```

This is much the same as Program I but now two lines have been added, 35 and 45. These both begin with REM so they're ignored by the micro and hence have no effect on the way the computer executes the program.

So if they aren't used by the computer, why are lines 35 and 45 in the program?

The answer is that they're there to explain what the program does and how it does it. Compare Program I and Program II and decide for yourself which is easier to understand.

While our programs this far are so simple that they don't really need much in the way of explanatory REMs, get into the habit of using them.

You'll find that as your code gets more complex and needs altering or rewriting, well placed REMs can be a blessing.

They may not affect the program but they do make the programmer's life a lot easier. So use them to annotate your masterpieces.

Before we leave REMs, can you explain what happens when you change line 20 in Program II to:

```
20 REM aNumber=3
```


Re RENUMBER

TAKE a look at Program III and you'll see that it's just the same as Program II except for the fact that the lines have been renumbered:

```
10 REM Program III
20 aNumber=3
30 bNumber=4
40 REM Multiply the numbers together
50 product=aNumber*bNumber
60 REM Print the result
70 PRINT "Product is ";product
```

This was achieved using the RENUMBER command which we came across last month. As we saw then, RENUMBER takes the program in memory, gives its lowest line the number 10, the next the number 20 and so on up in tens.

So line 35 became line 40, 40 became 50, 45 became 60 and so on. Once this was done the REM of line 10 was changed – by the programmer, not by the RENUMBER – the Electron isn't that clever!

While RENUMBER on its own always has the program starting at line 10 with the line numbers going up in gaps of ten, it can be used another way. Type in:

```
RENUMBER 5,100
```

and (apart from the program number in the first REM changing) you'll see Program III turn into:

```
5 REM Program IV
105 aNumber=3
205 bNumber=4
305 REM Multiply the numbers together
405 product=aNumber*bNumber
505 REM Print the result
605 PRINT "Product is ";product
```

This happens because the RENUMBER command can be followed by two parameters (numbers to you and me), separated by commas.

The first parameter gives the line number you intend to be the first line of the renumbered program. The second tells the Electron the gap between the line numbers. In other words the RENUMBER command takes the form:

```
RENUMBER start,gap
```

Hence our:

```
RENUMBER 5,100
```

has the program beginning at line 5 with the line numbers going up in hundreds.

Should one or both of the parameters be left out then the micro assumes that you want the program to start at line 10 and go up in tens as usual.

Try your own versions of RENUMBER such as:

```
RENUMBER 7,25
```

or:

```
RENUMBER 4
```

and see what happens. Particularly interesting is:

```
RENUMBER 1000,1000
```

The same but different

PROGRAM V uses the Electron to calculate the area of a rectangle of sides 10 and 5. Even without any explanatory REMs it's fairly obvious what's happening.

```
10 REM Program V
20 length=10
30 breadth=5
40 area=length*breadth
50 PRINT "The area is ";area
```

While in this case it's easy enough to do the calculation in your head, it's not always that way. Suppose *length* were 11.03 and *breadth* 6.97?

Not so simple is it? However we'll stick to easy numbers for the present and just pretend that we don't trust our mental arithmetic. We'll use the Electron to check it. Now with sides 15 and 7 it's easy to see that the calculation can be done with Program VI:

```
10 REM Program VI
20 length=15
30 breadth=7
40 area=length*breadth
50 PRINT "The area is ";area
```

This is constructed from Program V by changing lines 20 and 30 to give *length* and *breadth* the new values.

If you think about it, the program itself hasn't really changed, just the values given to *length* and *breadth*. The rest of it stays the same.

Now suppose that you had a lot of area calculations to do. The Electron is made for the job, but it's a nuisance to have to keep changing the lines each time. There's a lot easier way of doing it, using the INPUT command shown in Program VII. More on this next time.

```
10 REM Program VII
20 INPUT length
30 INPUT breadth
40 area=length*breadth
50 PRINT "The area is ";area
```

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Magicarpet

LINERS

The following short program by Den Miller produces an impressive graphic display of a carpet with an intricate design. Select the mode to be used when asked then sit back and watch. When it's finished tap the spacebar to flip the colours for an alternative view.

```

1 REM Magicarpet
2 REM By Den Miller
3 MODE6:INPUT "Which MODE
(1,2 or 5):";MX:MODEM1:=FX16
4 VDU23;8202;0;0;0;:PROCas
semble:870=HIMEM MOD256:871=
HIMEM DIV256:CALLQX
5 GCOL3,1:FORGX=0TO1020STE
P4:MOVEB,512:DRAW640,GX:DRAW12
76,512:NEXT
6 GCOL3,2:FORGX=0TO656STEP
8:MOVEG,1020:DRAWB,512:DRANGX
,B:MOVE1276-GX,B:DRAW1276,512:
DRAW1276-GX,1020:NEXT
7 REPEAT:VDU7:A=GET:870=H
IMEM MOD256:871=HIMEM DIV256:
CALLQX:UNTILFALSE
8 DEFPROCassemble DIMAX 10
0:FORGX=0TO2STEP2:P1=Q1
9 10PT0:..loop LDY#B:LDX(87
0),Y:EOR#855:STA(870),Y:INY:LD
A(870),Y:EOR#8A:STA(870),Y:LD
A(870):CLC:ADC#2:STA870:LDX#71:A
DC#B:STA871:CMF#8B:BNEloop:RT
S
10 J:NEXT:ENDPROC

```

Loggems

THIS interesting 10 liner from Geoff Stanton produces delicate butterfly patterns. It is based on a mathematical formula using logarithms and requires three parameters to be input, x, y and the multiplier. Try x and y equal to 10 and the multiplier set to 0.1 to start with. Different values will give slightly different results.

```

1 MODE 6:INPUT "Input x(-1
0 to +10)":X:INPUT "Input y (-10
to +10)":Y:INPUT "Multiplier A":
*FX16
2 MODES:CX=1:IX=0
3 VDU19,3,6;0:29,640,512;
4 REPEAT:IX=IX+1
5 IF IX MOD 100=0 CX=CX+1
6 IF CX=4 CX=1
7 IF X=0 OR A=0 PRINT:TRY
NON-ZERO NUMBERS:RUN
8 GCOLB,CX:PLOT69,X+5,Y+5
9 NX=10*(LOG(ABS(X+A)))-INT
(LOG(ABS(X+A)))
10 NY=5-X:X=NX:Y=NY:UNTIL A
BS(Y+5)>512:END

```




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Even the simplest tasks — from buying food to taking buses — place you at risk. And to add to your problems you've got limited funds: "Should I hitch a lift or take the train?", "Do I sell my belongings or get a job?"

Whatever you decide to do, time is short. And there are always people willing to denounce you...

French on the Run is that rare combination: A truly educational program that's also a thoroughly enjoyable game. This text adventure not only tests your grammar and vocabulary, but your knowledge of France and the French way of life.

And as your French improves the language problems get harder and the situations become progressively more dangerous. There are four routes to complete in sequence — you need the password from the last before attempting the next. The standard of French required is about O level, though on the last route it rises to just below A level.

And there's a chance for you to try out the French you'll learn in practice: We are offering a **FREE WEEKEND IN PARIS** as a prize to the first person to get back to England alive, having broken a code near the end of the final route.

For teachers: French on the Run uses multi-choice questions with randomised distractors, all carefully chosen to illustrate linguistic points or points concerning things French. The program is meant for individual assessment, but can be used just as effectively for classroom work. A sealed envelope contains details of how the secret passwords are created.

TO ORDER TURN TO THE FORM ON PAGE 53

Micro Messages

IN RESPONSE to D.J. Gormley's letter in the January 1987 issue of *Electron User*, I too have experienced the weakness and slowness of Acornsoft's chess program and was no more impressed by MicroPower's version. I had drawn the conclusion that the *Electron* was just too slow and inefficient in its hardware capability to play the game well, but now I have changed my mind.

Colossus 4 by Martin Bryant, available from CDS Software, is easily the strongest and fastest chess program available for the *Electron*.

Unfortunately it may be too strong for its own good, as even when taking 10 seconds on average per move it is capable of easily beating the flippant chess player.

It even plays a good endgame if given a little longer to consider its moves. — A.R. Lissamore, (Rushal Chess Club) Wednesfield, Wolverhampton.

★ ★ ★

D.J. Gormley should try White Knight MkII from BBC Software for a fast and reasonable game of chess.

At present, only a cassette

The Grand Master of chess programs

version is available, but if enough of us write in perhaps we will be rewarded with a 3.5in disc version.

The address is BBC Software, 35 Marylebone High Street, London W1M 4AA. — B.P. Turnbull, Old Basing, Hamps.

No joy from sticks

I HAVE just bought Strike Control joysticks to use with my Acorn *Electron* using a Plus 1 interface.

To the whole family's great disappointment we have discovered we can use the joysticks with very few games.

Some ask for the joystick address: How do I discover this information? It isn't with any literature supplied with the joystick or with the Plus 1.

With other games the fire

button operates but the direction control does not function. Could you please give me some help as to how I can put this product to some better use?

I have returned them to the supplier, whose response was that the *Electron* was not designed for using joysticks and the Plus 1 was not a good interface.

I was left with the impression that I had a problem that had no solution and had bought a product that I could not use. Is this true? I anxiously await your response. — Roger Newtim, Oxtou, Birkenhead, Merseyside.

● The Plus 1 is an excellent interface and absolutely essential if you intend expanding your *Electron* further.

However, there are a couple of problems concerning joysticks. The first is that there is a lot of software around that simply isn't designed to be used with

them. And Acorn was rather slow off the mark in producing the Plus 1 and several other companies managed to get their own joystick interfaces on the market first.

Unfortunately, these use a completely different design and the two types are not compatible.

Some software companies, particularly Micro Power, wrote software specifically for the First Byte type of interface.

This required you to load a conversion program to a particular address halfway through loading the game.

Unfortunately, Plus 1 owners cannot use their joysticks with this type of software and must stick with the keyboard.

However, looking to the future, the situation can only improve. There are so many Plus 1s in use that software companies cannot afford to ignore it.

Any software released in the future that uses joysticks is more likely to be written for the Plus 1 than any other type. Some even work with both.

Mode 7 simulator in ram

AFTER reading the article in the January 1987 issue of *Electron User* concerning the impressive Mode 7 simulator, I thought I would enquire if it is possible to put this program into ACP's sideways ram and if it is, what modifications would need to be made to the program?

I have a Plus 3 and the program resides in the memory required by the ADFS. So to use the Mode 7 simulator with any software I already have, this software would need to be loaded from tape as the ADFS would be disabled by the Mode 7 program.

Although I am one of the

original £200 *Electron* owners, I have not read your magazine from issue one because I used to think it was trivial and not worth the £1 cover price.

Instead I bought another magazine catering for all Acorn machines, but as more variations of the BBC Micro came out, less and less space in that magazine was concerned with the *Electron*.

I then looked at *Electron User* again and what an improvement! I have been so impressed that I have had to buy some back issues!

Finally, you'll be interested to know that I have not even had to tear myself

away from the *Electron* keyboard to write this letter as it was written using View and printed on my superb GLP printer — a bargain at the last *Electron* and BBC Micro User show.

I shall read every issue of *Electron User* from now on. — P.J. Garrett, Potters Bar, Herts.

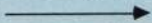
● You can put the Mode 7 simulator in sideways ram, however, it would not work as it stands. It may be possible to alter it but unfortunately large sections of complicated machine code would have to be rewritten requiring a lot of time and effort. The end result would not really justify it.

Software shortage

WE HAVE owned an *Electron* computer now for two years and find it a very good reliable machine.

The only problem we have come across is obtaining software in our area. W.H. Smith and Boots no longer stock any software at all, and Hobbyte only keep around a dozen titles.

I have tried shopping in



From Page 47

the surrounding towns, Watford and Luton but the result is the same. It seems software is only available by the means of mail order through companies advertising in Electron User.

What are your comments on this issue? Has any other reader found this problem? — T.A. Gammon, St. Albans, Herts.

● It is true that there is a shortage of Electron software in the high street stores, yet literally hundreds of titles are available through mail order, often at very low prices. We are just as puzzled as you!

More screens for Repton 3

I AM writing to you concerning Repton 3, as I'm sure I'm not the only one who has finished the 24 screens.

I have designed another 24 and was wondering if anyone else has done the same. If so could they send them to me on a C15 tape and I would be only too pleased to send them mine?

I have made the screens harder than the originals, including some new features. — Steve Gainham, 41 Somerville Road, Alrewas, Nr. Burton on Trent, Staffs. DE13 7EP.

Loading off discs

ONE DAY I was waiting for one of Superior Software's games to load and I thought how nice it would be if I could load them off 3.5in Plus 3 discs.

From the advertisements I see that they sell software for the Master Compact on 3.5in discs, so why not for the Electron? (They sell more Electron games on cassette than BBC games.)

Surely they could come up with 3.5in discs which hold both the Compact and Electron versions of the

WHAT would you like to see in future issues of Electron User?

What tips have you picked up that could help other readers?

Here is your opportunity to share your experiences.

Remember that these are the pages that you

write yourselves. So tear yourself away from your Electron keyboard and drop us a line.

The address is:

Micro Messages
Electron User
Europa House
68 Chester Road
Hazel Grove
Stockport SK7 5NY.

game!

As the Compact accepts double sided discs, why not have the Electron version on side 0 of the disc and the Compact version on side 1?

This would save time because they would not have to put Electron games on a separate disc and would not really involve any extra cost. So come on Superior, think about it.

Perhaps failing that they could put the Electron version on a different disc?

So come on Electron users, write to Superior and show them the demand is there. — S.M. Forrester, Sevenoaks, Kent.

● If demand keeps up Superior will shortly be producing software on Plus 3 disc for the Electron.

It's up to you to let Superior Software know there is a market for good quality disc software — and to support the company once it does take the plunge.

Tracked to source?

I OFTEN wonder where computer programmers get their ideas for top computer games. Well, concerning Ravenskull, (which is a brilliant game) I think I have the answer.

Superior Software is a Leeds based firm and I think they must have gone to the Leeds Bowl which is our bowling centre.

I often spend a lot of time on the arcade games and one of them is Gauntlet by Atari.

It seems to have all the same characteristics of Ravenskull. There is a

wizard, an elf and a warrior but instead of just an ordinary adventurer, there is a woman. There is also health, keys, potions and food.

I can only say that Ravenskull certainly has a lot more. — Michael Hughes, (Age 12) Bramhope, Leeds.



Easier sleigh ride

HERE ARE a few tips for those who are stuck on Santa's Sleigh (Electron User December 1986).

You can have any number of lives by changing the value of live% in line 240 to the number of lives you want.

You can also start on any level by changing the value of stage% in line 240 to the level number you want.

I hope these changes help. — Simon Doyle, Taunton, Somerset.

Reading fire button

I HAVE an Electron, Plus 1 and Joystick. Eager to incorporate joystick control into my own programs I was scanning through some of your old issues of Electron User to see if I could find any help.

I found an article in your December 1985 issue that showed me how to move a little man left, right, up and down.

This was fine until I discovered that the article made no mention of how to detect when the fire buttons were pressed. Can you tell me how this is done? — James Grant, Sherborne, Dorset.

● Reading the fire buttons is quite easy. If ADVAL(0) is zero neither button is pressed. If it is one, button one is pressed, two means button two and three means both buttons at the same time.

Here's a short program to demonstrate this:

```
10 MODE 6
20 REPEAT
30 IF ADVAL(0)=0 THEN PRINT
  'No buttons pressed'
40 IF ADVAL(0)=1 THEN PRINT
  'Button 1 is pressed'
50 IF ADVAL(0)=2 THEN PRINT
  'Button 2 is pressed'
60 IF ADVAL(0)=3 THEN PRINT
  'Both buttons are pressed'
70 UNTIL FALSE
```

Printer driver poser

WHEN I had finished typing in the printer driver program that appeared in the August 1986 issue of Electron User I kept getting an error on line 150.

This began to annoy and frustrate me, so I decided to take the safest step and purchase your pre-recorded tape from that month's issue.

Christmas came and I received the word processor. View from my wife as promised. After a few trial attempts at using it I decided to load the driver to see what it could do.

Then even more problems started. All I got was a full screen of white and the keyboard was disabled. This was very annoying as I had just spent £3.75 on the tape.

I have an Epson RX80 printer that seems to work very well with your excellent Mini Office.

I do hope you can help me with my problems as they seem to be really getting me

frustrated at the moment.

Please keep printing your excellent magazine as I find it a real help, as I am trying to master the excellent Electron. — Philip Storey, Droitwich, Worcs.

● The printer driver listing is correct and you simply made a typing error in line 260.

Always remember that your Electron is fallible and occasionally states that an error is in one line when in fact it's at a completely different one.

The tape version is also fine. Do not try to load it into View, it is a printer driver generator — it creates the printer driver when you load and run it using Basic.

The program created by the Basic listing should be loaded into View.

Straying off memory map

I HAVE frequently experienced problems when loading software from tape and suspect that programmers tend to stray from the recommended memory map utilising memory assigned to the Plus 1 interface.

I have discovered that typing in:

*B2AC=0

before loading has overcome the problem in all cases up to quite recently when I purchased *The Last of the Free*, *Thunderstruck* and *Vindaloo*.

These programs produce a new problem. In each case the computer locks at the point of loading the screen and in the cases of the first two programs produces a continuous tone until Break is pressed.

The programs load satisfactorily without the Plus 1 and Plus 3 unit attached. I find this totally frustrating. Can you help? — David Higham, Fulwood, Preston, Lancs.

● Some software will not load unless you totally disable the Plus 1 and Plus 3. If you have a Plus 3 type:

*B0F4=B9C

and press Control+Break to

disable it. The Plus 1 is disabled with:

*FX163,128,1
*B212=B06
*B213=B6F1
*B2AC=0

Do not press Break after entering this, just continue and load the software as normal. Always disable the Plus 3 first if you have both the Plus 3 and Plus 1.

Slipping standards

I FELT that I must write and complain about your January 1987 cover program, *Grid Warrior*.

There are a lot of people who rely on your normally excellent magazine for their "standards" in good programming technique. *Grid Warrior* contains some very poor examples, which people may assume are OK because they saw it in *Electron User*.

The GOTO 180 at the end of line 590 is in fact causing return from PROChuman, line 590 is reached via the GOTO 580 at the end of line 320.

On arrival at line 180 the poor Electron, now totally confused, objects to MODE 6 because it knows it is still in PROChuman.

To make matters worse, on invoking the ON ERROR in line 70, which really ends PROChuman, there is no REPORT as recommended in your 18 Commandments (*Electron User* March 1985), just another GOTO 180 which attempts to recover from the original blunder.

The same error is repeated by the GOTO at the end of line 600, although this in itself does not actually cause an error as no mode change is attempted.

It actually looks as though the procedures were an after-thought, as the GOTO 290 in line 610 is in fact never executed. These errors in an otherwise excellent game are not typical of *Electron User* and I would hope not to see such examples repeated. — R.Hewett, Swanley, Kent.

● You are right, the programming isn't the most elegant we've seen but as you say, the game is excellent.

Grid Warrior was not intended to be an article on good programming techniques, it is an arcade game that is great fun to play that everyone will enjoy.

We decided that the end result justified the means, though this isn't always the case and we do watch out for poor programming whenever possible.

Accent on games

I RECENTLY purchased an *Electron* and felt it was similar to the BBC Micro and might run programs written for the BBC Micro and indeed it does.

However, having subscribed to *Electron User* for some months now I am surprised to find that 90% of the programs are games or other things of little use to the serious user.

I am a radio amateur, and would like to see programs of a more scientific nature now and again. What about a beam antenna program or perhaps some of the many RTTY or morse learners programs.

I am sure there must be many people with an engineering or electronic background who would really enjoy such programs.

Perhaps even chemical formulae would be of interest, not forgetting weather predictions and so on.

In closing may I say that I do enjoy reading your magazine and feel it would increase its circulation if the above points were taken on board. — R.W.Hardie, Cockburnspath, Berwickshire, Scotland.

● Hardware Projects, a series for the more technically minded started in the January 1987 issue of *Electron User*.

This will show you how you can use your *Electron* and Plus 1 for simple control and sensing applications.

Another new series starts this month and kicks off by looking at word processing using *Acornsoft's View*. This is specifically aimed at the serious user, though we're not completely forgetting the fun side of the *Electron* and have some great arcade and educational games lined up.

More room for reviews

RAVENSKULL is brilliant! I agree with everything your reviewer said. Although I have only managed to master 18% of the game, I would recommend it to anyone.

The brilliant graphics, scrolling and ingenuity reflect the dramatic rise in standard of *Electron* games, from good to better and then even better than that!

The only other thing I wish to add, is please, please could you print more software reviews as many good games go unnoticed, and this is a great shame.

Keep up the good work in 1987 and help show that the *Electron* is best. — Christian Savvides, Edgware, Middx

ALL programs printed in this issue are exact reproduction of listings taken from running programs which have been thoroughly tested.

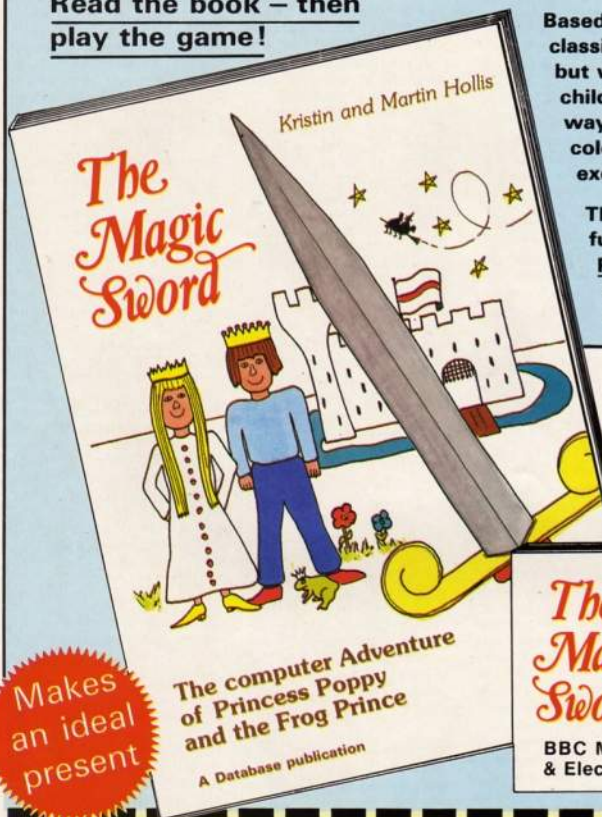
However on the very rare occasions that mistakes may occur corrections will be published as a matter of urgency. Should you encounter error messages when you type in a program

they will almost certainly be the result of your own typing mistakes.

Unfortunately we can no longer answer personal programming queries concerning these mistakes. Of course letters about suggested errors will be investigated without delay, but any replies found necessary will only appear in the mail pages.

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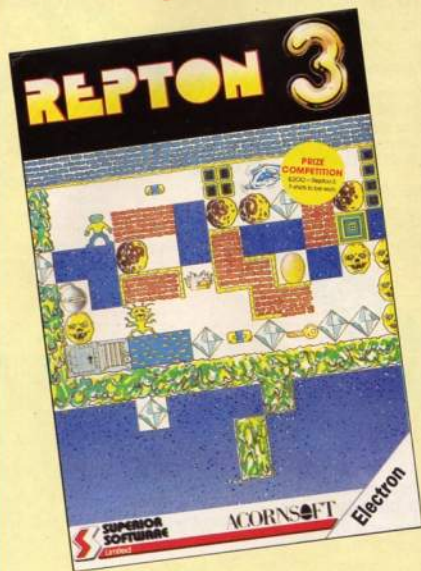
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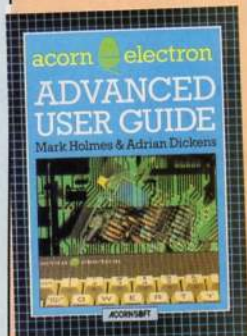
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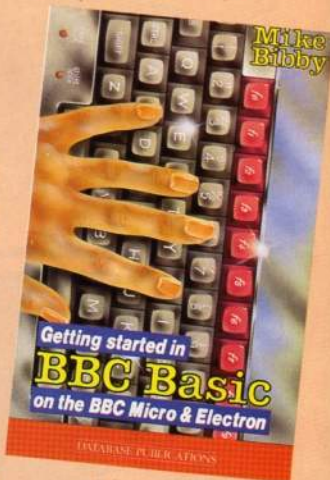
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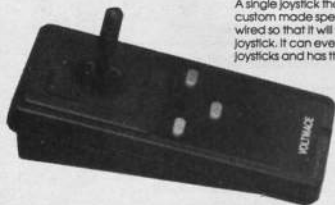
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ELKZAP

CORRUPTION of data on discs and losing files accidentally with ***WIPE** or ***DELETE** are just two of the problems you can have with discs and disc filing systems.

Problems like these can be resolved using special utility roms and discs such as Advanced Computer Products' ADT.

However, for those without a suitable utility here is a simple program to help you out.

Elkzap is a disc sector editor and recover program for ACP's Plus 4 and Plus 3 owners with ACP's DFS rom or E00 DFS.

It will not work with the ADFS, but similar programs can be found in the March and April 1986 issues of *Electron User*.

For a complete guide to how data is stored on discs refer to the disc series which started in the August 1985 issue of *Electron User*.

Type in the program and save it, then get a disc which does not have anything important on it - a typing error could result in the pro-

gram causing rather than correcting disc corruption.

When you run Elkzap you will see a menu with five options.

The first allows you to select the track and sector to edit. Type in the track number, which can run from 0 to 39 for 40 track discs and 0 to 79 for 80 track discs. Then type in the sector number which is always 0 to 9.

Please note that if you are using an 80 track drive you will need to change line 520 to:

```
450 max_sectors=10:max_tracks  
s=80
```

The program will then display the sector as a hex/Ascii dump in Mode 3 and you can examine or edit it before copying it back to the

A simple disc editor and recover program

By STEVE TURNBULL

disc.

The display is in two parts. The big block of numbers in the middle shows each of the 256 bytes of the sector as hexadecimal numbers.

On the right are the same bytes shown as Ascii characters if in the range 32 to 126, or as a full stop if less or greater than these values.

Figure 1 shows the display you'll get when editing a sector and Table 1 gives a list of the keys to use.

Control-I toggles between editing the hex or Ascii blocks and the cursor flashes beneath the character to be altered.

When editing the hexadecimal block use the cursor keys to move to the byte to be altered and simply type the two digits that you want.

Remember though you

can only use the hexadecimal digits 0 to 9 and A to F. Figure 11 shows what happens when entering a hexadecimal number.

When editing the Ascii display you can type any normal keyboard character and the cursor moves along automatically.

Pressing Copy writes the sector back to the disc and prompts you for the next. Return skips to the prompt and leaves the disc unaltered.

You can use the edit option to create protected discs with invisible catalogs by inserting character 21 (&15) at the start of the title string - byte 0, track 0 sector 0.

With a little more experience you will be able to modify the catalogue to change the load address of a file, its execution address, its length or even where the DFS thinks the file starts on a disc.

Pressing Escape at any time returns you to the main menu.

The second option is to search the disc for a string. It is quite slow but very thorough and will find any string anywhere on the disc, even if it crosses over from one sector to the next.

When the string has been found the editor is entered with the cursor flashing at the start of the string.

The search option can be used to help you find lost files that have been accidentally deleted. If you always put the name of your program in a REM statement

| | |
|--------------------|---|
| Control-I | Toggles between hex and Ascii editing. |
| Copy | Copies the sector back to the disc. |
| Return | Finishes editing, but doesn't alter the disc. |
| Cursor keys | Moves the cursor. |

Table 1: The control keys

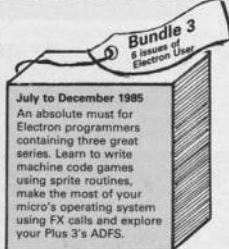
Display Track 1 Sector 0

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 00 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 | |
| 01 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
| 02 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
| 03 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
| 04 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
| 05 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
| 06 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
| 07 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
| 08 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
| 09 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
| 0A | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
| 0B | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
| 0C | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
| 0D | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
| 0E | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
| 0F | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |

Figure 1: Editing a sector



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March 1987

Super Boss Try for the league and FA cups in this exciting football management simulation. **Awari** A classic African board game for one or two players. **Elkzap** Recover lost files with this powerful Plus 4 disc editor. **10 Liners** Two short, yet impressive listings.

February 1987

Maze Escape from the creepy castle. **Keyboard Player** Turn your micro into an electronic organ. **Tommy** Guide little Tommy through the woods. **Carpet** An impressive graphics display. **GCOL** Experiment with extra colours. **10 Liners** Two short but impressive listings.

January 1987

Grid Warrior Battle with alien gladiators deep in space. **Mode 7** A Mode 7 simulator providing teletext graphics. **Smiley Hunt** The final version of AI's scintillating magagame. **10 Liners** Zap the alien intruder and dodge the asteroids. **Listar** A utility to enable you to list programs directly from disc or tape.

December 1986

Santa's Sleigh Help Father Christmas fill his sleigh with presents in this fast arcade game. **Yule Spell** Spelling can be fun with this seasonal variation on the old favourite hangman. **Pogo** A Logo turtle graphics compiler. **Function Key** **Listar** Keep track of your function key definitions with this helpful utility. **10 Liners** Two short but impressive graphics demonstrations.

November 1986

TRAIN TROUBLE You've just robbed a bank. Can you escape the forces of law and order in this chase over the carriages of a fast moving express? **DAY AT THE RACES** You can gamble away to your heart's content in safety with our entertaining two player horse racing game. **BASIC COMPILER** This superb utility will turn your Basic programs to machine code in no time at all. **10 LINERS** A routine from our fascinating

series of short programs.

October 1986

RAT CATCHER Try your hand at pest control with this fast action arcade game. **MATHS RUN** Put your powers of mental arithmetic to the test with this educational program. **BOS** This on screen editor will take the tedium out of debugging listings and sort out your typing slips. **CROSSWORD** Two programs for crossword lovers – one to design crosswords and the other to help you solve them. **+ BONUS game:** **QUASIMODO'S QUEST** Rescue Esmerelda in this colourful version of the all time favourite.

September 1986

CAVERN CAPERS Blast your way from the depths of the labyrinth to escape from the planet. **DRAW WRITER** A superb utility to translate your on screen graphics to the procedures to create them. **COMPANY COUNT** Work your way up the company pecking order in this educational maths test. **TEN LINERS** Another short but fascinating program. **+ BONUS game:** **ROCKFALL** Go diamond mining in this intriguing multi-screen arcade romp.

August 1986

HOWZAT! A vivid recreation of a day's test cricket for two players. **3D MAZE** Quick reactions and a sense of direction are needed to escape from our twisty maze. **TEXTED** Let this versatile text editor turn your micro into an electronic typewriter. **DRIVER** A powerful printer driver for View.

July 1986

ROYAL WEDDING Celebrate the royal event with our ingenious sliding block puzzle. **SNAPDRAGON** Two player version of the classic card game. **ATTRIBUTES** Colourful two player strategy game. **FORMATTER** Make your listings easier to read. **DISCS** Extended star commands. **EXTRA COMMANDS** A WHILE... WEND command for your micro. **PLUS** superb digitised picture of Andrew and Sarah.

June 1986

FISHING Enjoy a quiet day by the river, and maybe catch your tea as well! **TACTICAL PURSUIT** A two player strategy game played with pawns on a chess board. **MINIBASE** Create an electronic telephone directory. **EXTRA COMMANDS** Add more commands to Basic. **SCREEN DUMP** Multi-tone screens dumps for Epson compatible printers.

May 1986

MISSILE JAMMER Defend the city of Pexina from a missile invasion. **VECTOR LETTERS** Use *LINE to create double height text. **DEGREES** Convert from Centigrade to Fahrenheit and vice-versa. **CROCODILE TEARS** Spell well or end up as a crocodile's dinner. **ZAP** Blast the marauding aliens. **EXTRA COMMANDS** Adding new keywords to Basic.

April 1986

INVASION FORCE Exciting zap 'em space game. **EASTER EGG HUNT** Seasonal game using compass points. **BACH TO BASICS** Music tutor. **NOTICE BOARD** Text scrolling utility. **SEARCH AND RECOVER** Two routines from the disc utility. **NOTEBOOK** Recursion backwards.

March 1986

GRAND PRIX Exciting race game. **DICER** A clever test of strategy. **MARCHING ORDER** Counting and ordering numbers. **FIND AND REPLACE** Useful editing program. **SECTOR EDITOR** Excellent disc utility. **TIMEPIECE** Superb graphics demonstration. **OXO** Game of cunning. **TRICIRC** A circle of triangles.

February 1986

NECROMANCER Superb test adventure. **GREBIT** Arcade action. **FAST BACKUP** Disc utility. **MACHINE CODE** How to write an arcade game. **TAPEDISC** More software transferring techniques. **SIWAYS** RAM Example program.

To order, use the form on Page 53

Elkzap listing

From Page 57

```

15
1000 PRINTFNhex(X);:NEXT
1010 PRINT$PC10STRINGS(47,-
")
1020 FOR YX=0 TO 255 STEP 16
1030 PRINTSP6FNhex(YX); " ";
1040 FOR XX=0 TO 15
1050 PRINTFNhex(BX?(XX+YX));:
NEXT
1060 PRINT " ";:FOR X=0 TO 1
5
1070 PRINTFNasci(BX?(X+YX))
::NEXT
1080 PRINT:NEXT:ENDPROC
1090 DEFFNhex(HX)=STR$(HXDIV
16)+STR$(HXMOD16)+ "
1100 DEFFNasci(AX)=IF AX>31 I
F AX<127 =CHR$AX ELSE = "
1110 DEF PROCedit(flag,PX)
1120 REPEAT
1130 PROCplace(TRUE):VDU31FNx
(PX)FN(PX)
1140 IF flag a$=hex$ ELSE a$=
all$
1150 i$=c$+copy$+tab$+cr$+a$
1160 C$=FNin(i$):PROCplace(FA
LSE)
1170 IF C$<5 PROCmove(CX)
1180 IF C$=5 PROCcode(6):PROC
write(drive,track,sector,buffe
r)
1190 IF C$=6 flag=NOTflag

```

```

1200 IF CX>7 PROCchange(MIB$(
15,CX,1))
1210 UNTIL CX=5 OR CX=7:ENDPR
OC
1220 DEF FN(PX)PX=PMOD16:IF
flag THEN=10+PX+3 ELSE=60+PX
1230 DEF FN(PX)=PXDIV16+2
1240 DEF PROCmove(CX)
1250 IF CX=1 PX=FNpos(-1)
1260 IF CX=2 PX=FNpos(+1)
1270 IF CX=3 PX=FNpos(-16)
1280 IF CX=4 PX=FNpos(+16)
1290 ENDPROC
1300 DEF FNpos(QX)
1310 QX=PX+QX:IF QX<0 THEN =Q
X+256
1320 IF QX>255 THEN =QX-256 E
LSE =QX
1330 DEF PROCchange(C$):IF NO
Tflag V$=ASC$C$
1340 IF flag V$=buffer1?PX+1
6+INSTR(hex$,C$)-1)AND&FF
1350 buffer1?PX+V$=QX:IF N
OTflag QX=FNpos(-1)
1360 DEF PROCplace(IX):PROCco
lour(IX):QX=PX
1370 LOCAL Y$,flag:Y$=FNy(PX)
1380 PRINTTAB(FN(PX),Y)FNas
ci(buffer1?PX);
1390 flag=NOTflag
1400 PRINTTAB(FN(PX),Y)FNhe
x(buffer1?PX);
1410 PX=QX:ENDPROC
1420 DEF PROCcolour(IX)

```

```

1430 LOCAL FX,BX:FX=1:BX=128
1440 IF IX FX=0:B$=BX+1
1450 COLOUR FX:COLOUR BX:ENDP
ROC
1460 DEF PROCsearch
1470 PROCgettrack("Search fro
m")
1480 PRINT"String: ";
1490 XI=POS:YI=VPOS:PROCcon
1500 REPEAT INPUTAB(XI,YI):$
1510 UNTIL t$="":$buffer3+=t$
VI=-1
1520 BX=buffer3:JX=LEN$buffer
3-1
1530 REPEAT VI=VI+1
1540 PRINTTAB(11,20)"Searchin
g ";drive";track";:sector
1550 PROCread(drive,track,sec
tor,buffer1):PROCincrm
1560 PROCread(drive,track,sec
tor,buffer2):PX=999
1570 FOR YX=0 TO 255:FOR LX=0
TO JX
1580 IF buffer1?(YX+LX)<>BX?L
X LX=999
1590 NEXT:IF LX=JX+1 PX=YX:YX
=999
1600 NEXT:UNTIL PX<256 OR V$=
max_sectors*max_tracks
1610 IF PX<256 PROCdecrm
1620 ENDPROC
1630 DEF PROCincrm
1640 sector=sector+1:IF secto
r=max_sectors track=track+1:se

```

```

ctor=0
1650 IF track=max_tracks trac
k=0
1660 ENDPROC
1670 DEF PROCdecrm
1680 sector=sector-1:IF secto
r=-1 sector=max_sectors-1:trac
k=track-1
1690 IF track=-1 track=max_tr
acks-1
1700 ENDPROC
1710 DEF PROCrescue
1720 PROCcn("Rescue in progre
ss...":VPOS+7)
1730 IF PX=999 PROCcn("No Tra
ck or Sector":VPOS+2):ZX=FNin(
"):ENDPROC
1740 PX=(HIMEM+100)AND&FF00
1750 FOR BX=PX TO &5F00 STEP
256
1760 PROCread(drive,track,sec
tor,BX)
1770 PROCincrm:NEXT:=FX18
1780 PAGE=PX:KEYBMODE6:MOLD
IMLIST:MINI
1790 *FX138,0,128
1800 PROCcon:END

```

This listing is included in this month's cassette tape offer. See order form on Page 53.

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The game is now almost three times the size of the original, using two tapes plus the multiple datafiles. But

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DEALER ENQUIRIES WELCOME

Hardware review

WHEN Acorn designed the Electron the aim was to produce a cut down BBC Micro and some of the most useful features were omitted in order to keep the cost down, including Mode 7, the serial interface, printer port and user port.

Most people don't miss the user port, but the lack of Mode 7 and printer port is a much more serious problem.

A Plus 1 adds a printer port, and software can be written to avoid Mode 7, but anyone wishing to use the Electron to control and sense the outside world is stuck – a user port is essential.

This is one of the reasons why the BBC Micro is widely used in schools and by electronics and radio enthusiasts who want to use their micros to control other electrical devices.

The Project Expansions user port is built into a rom cartridge and fits into the Plus 1. It sets out to provide Electron users with a port to match the one on the BBC Micro.

Before I go on to look at how well it does this, let's start at the beginning – what is a user port?

Simply put, it's a socket that allows you to pass electrical signals to the computer from external devices and vice versa.

The socket has 8 pins enabling 8 separate electrical signals to pass between the computer and external circuits at the same time. For this reason it's called an 8 bit port.

Both the BBC Micro user port and Project Expansion (PE) port are mapped into the main memory and are programmed by poking and pecking.

The PE port is addressed at memory locations &FCB0 to &FCBF. So the user port is treated as a byte of memory and can be written to and read from as if it were any other memory location.

The difference is that any bits that are set in a byte written to the user port will cause the relevant pin of the socket to carry a 5 volt signal.



Now we have contact..

And each zero bit written causes the relevant pin to carry a 0 volt signal. These signals can be used to control external devices.

Similarly, if we're reading a byte of data from the user port, a 5 volt input to any of the pins will be read as a 1 bit and a 0 volt signal as a 0 bit.

Once you've got a user port the world of robotics

electronic devices.

The PE user port uses the same Versatile Interface Adaptor (VIA) chip, as the BBC Micro's port. The electronic design looks good and no unusual chips have been used, which should make any repairs, however unlikely, reasonably easy.

The main chip, a 6522, is very versatile providing two ports and a variety of timing

arranged differently and addresses &FE60 onwards are used for other purposes.

As well as providing a user port the timers in the 6522 VIA can be used in programs to provide accurately timed interrupts or time delays.

A tape of software was provided with the review port, all of which was quite interesting. Especially useful to me was a short routine for decoding radio teletype signals off air and displaying them on-screen.

Another program demonstrated the use of the VIA timers and there is a simple but effective program to monitor the port if it's set up as 8 inputs.

The problem with reviewing a user port is that it either works or it doesn't; it's not like a game or educational software where you can tell how effectively it works.

Much of the value of a user port comes from how it's programmed, and of course this is up to you.

That said, overall the port and accompanying software are well worth considering by all intrepid Electron interfacers.

JOE PRITCHARD tries out a unit linking your Electron with a wider world

and interfacing is wide open. You can use it to control motors, monitor sensors such as switches, light sensors, temperature sensors and so on.

Radio amateurs and electronics enthusiasts can use their micros to read morse code and teletype signals – providing they've got a suitable radio set – or even monitor electronic circuits to find out what's wrong with them.

If you're interested in putting your micro to this sort of work, take a look at Mike Cook's Body Building Course in *The Micro User* for some idea of what can be done.

The uses of such a port are only limited by your imagination – and your ability to write the programs to handle the new add-on

functions which can be used by machine code programmers to good effect.

Only one of the available ports is used here. And the socket in the cartridge that allows you to connect things to the user port is identical to that on the BBC Micro.

This enables PE user port owners access to at least some of the hardware produced for connection to the BBC Micro.

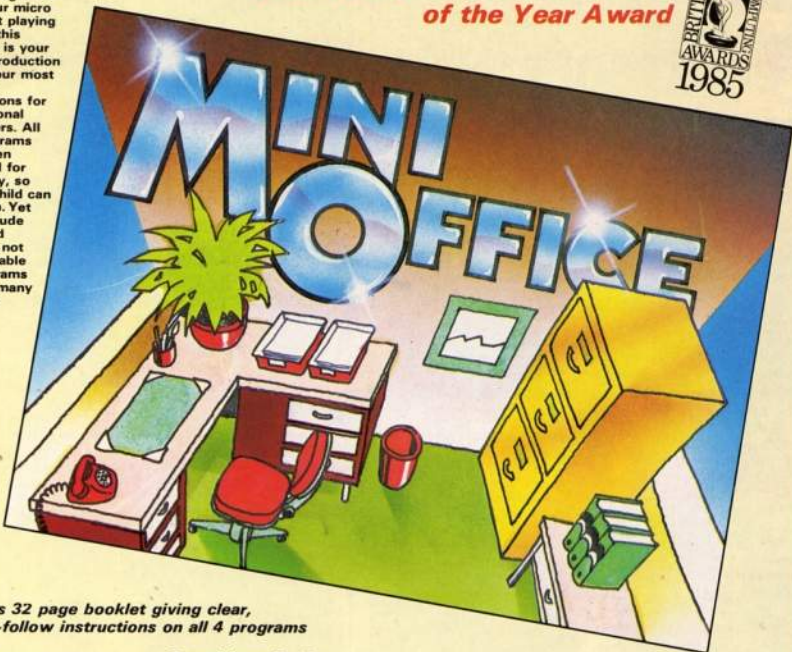
As already mentioned the PE port uses addresses &FCB0 to &FCBF. The BBC Micro port uses addresses &FE60 to &FE6F, so if you're using programs that were originally written for the BBC Micro you'll need to alter them before they'll work properly on the Electron.

The reason for this is that the Electron's hardware is

Product: Project Expansions User Port
Price: £29.95
Supplier: Project Expansions, 5 Teal Close, Fareham, Hants PO16 8HG.
Tel: 0329 221109

If you want to start doing more with your micro than just playing games, this package is your ideal introduction to the four most popular applications for professional computers. All the programs have been designed for simplicity, so even a child can use them. Yet they include advanced features not yet available on programs costing many times as much!

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USER PORT AS FEATURED IN THIS ISSUE

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Close-up of a Crystal Ball



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Your task is to save the village of Austburg from imminent devastation. You must enter Ravenskull Castle and retrieve the silver crucifix which the evil Baron Strieg has stolen. Only then will Austburg be safe from the Zombies who inhabit the swamp surrounding the medieval castle.

Ravenskull is a massive arcade-adventure featuring smooth 4-way screen scrolling over the 4 levels of play. Each level is 64 times the size of the screen, and there is an initially-bewildering variety of game characters including: acid pools, man-eating plants, time-doors, keys, pick-axes, scythes, spades, bows and arrows, dynamite, bells, food and wine (beware! It may be poisonous or have strange side-effects). There are also several magical scrolls and potions to be found. These may be good or evil; for example the strength scroll gives you the power to push wooden casks, whereas the lightning-strike scroll is fatal if used.

The guardians of the castle, the vicious Ravenbees have to be avoided or, in some cases, destroyed — but there is only one way to kill them; you must discover how as you venture through the dank passages of the castle. Your quest is not an easy one — only with time, experience and a little luck will you unravel all the mysteries within Ravenskull Castle.

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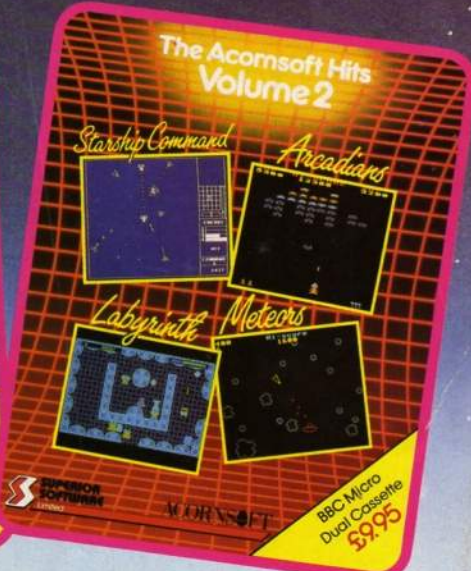
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Rocket Raid A superb sideways-scrolling arcade style game. You must fly your spaceship through the planetary caverns wherein are deadly aliens, guided missiles meteor storms and many other hazards.

Acornsoft Hits Volume 2

Starship Command Command a starship against the attacking aliens in this demanding high-resolution graphics game. Your ship is equipped with shields, long and short-range scanners and a sector display of the stars and alien ships.

Arcadians Watch out for the deadly dive-bombing tactics of the Arcadians as they fly in convoy overhead. 1-player and 2-player options, intriguing music and a demonstration mode are some of the features of this excellent game.

Meteors Steer your laser-ship through a hail of meteors, smashing them with your laser bolts as they hurtle towards you on all sides. Avoid being hit by missiles from the flying saucers. The hyperspace escape facility is available as a last resort.

Labyrinth Guide Mark through the labyrinth, eating fruit to replenish his dwindling energy supply. Crush the Tiger Moths, shoot the Filterbugs and dodge the Threshers as you venture towards the magic crystals.

Acornsoft Hits Volume 1

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Acorn Electron Versions

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The Acornsoft Hits Volume 2 features:
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