

A Database Publication

# electron

## user

Vol. 7 No. 3 December 1989 £1.25

# RICOCHET

We test out Superior's blockbuster - plus all the other latest games

TYPE 'EM IN!

DIY Break key disabler

Speedy wordsquare solver

Machine code screen fader

Sideways scrolling arcade fun

Major enhancement for Renumber

**PUPIL POWER!**  
Schools test out educational software

# THE 4TH



## U.I.M.

U.I.M. is a massive 3D arcade adventure set in the future. 2 1/2 years of dedicated design and programming have produced this massive game. The "greenhouse" gases melted the icecaps and all life now exists in the oceans. There are over 65000 underwater ports each with their own colonies.

You must travel the oceans, trading in commodities, shares and currency. There are over 250 missions to complete before you will find your goal - the U.I.M. - created to be almost a god! Your craft is a highly manoeuvrable (and expandable) futuristic submarine named Black Satyr.

On your travels you will encounter many submarine types. Many of the most advanced and aggressive submarines do not appear until you reach later networks of ports. In addition you will also meet the Replicants - man-made underwater machines which have gone "renegade" and are capable of reproduction.

As you progress it is therefore essential to avail yourself of the highly sophisticated range of combat and defensive equipment available. The quest for the U.I.M. will be long and involved, the dangers intense, but the reward priceless!

U.I.M. is disc only and will run on BBC B or B+ with 16K of sideways RAM, BBC Master series and all Archimedes Computers.



BBC



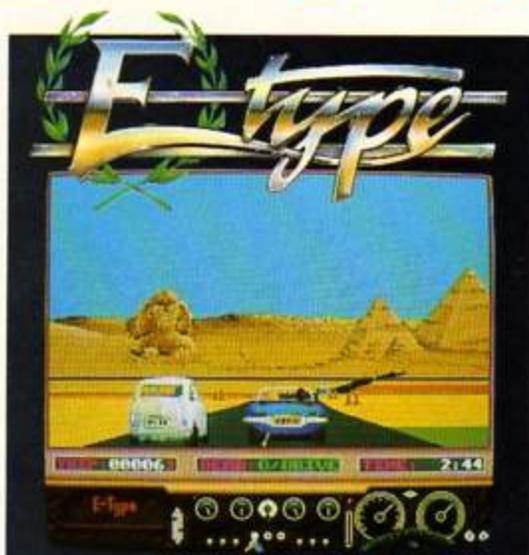
BBC



ARCHIMEDES



ARCHIMEDES



## E-TYPE

Take control of £70,000's worth of gleaming "E-Type" and head off for the drive of a lifetime. Hear the digitised roar of the 5.3 litre 12 cylinder engine as you tear along lanes, motorways and desert tracks at over 150 mph.

"E-Type" takes racing simulations into the world of 32-bit RISC processing and gives you smoother, faster and more detailed graphics than you are even likely to see in the arcades.

If you're new to driving you can take the easy-to-drive automatic for a spin but experienced drivers can optimise their performance in the faster 5 speed manual "E-Type". There are hazards galore including other cars, roadworks, trees, rocks, bushes, billboards oilspills, etc. etc.

"E-Type" has been produced by the highly acclaimed and experienced Gordon Key who also produced the best-seller Holed Out.

### E-Type Designer

Design your own "E-Type" tracks with this highly advanced but simple to use designer. It is enormously flexible to produce an endless variety of tracks to challenge you and your friends. (N.B. You need the original E-Type in order to use this designer).



ARCHIMEDES



ARCHIMEDES



ARCHIMEDES



ARCHIMEDES



## WHITE MAGIC

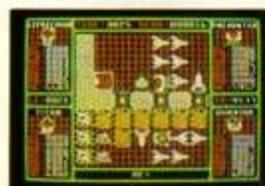
White Magic is a unique arcade adventure in which you control 4 varied adventures:-

Kaldor the Leprechaun, Cheysul the Titan, Moriana The Warrior and Mandrake the Enchanter.

You can transform between all 4 characters at will and use their much needed special abilities.

It features 32 massive action-packed levels filled with aggressive guards and trolls, haunting ghosts and spectres, curious objects to find and use, and much more.....

White Magic is not a game for the faint-hearted; it is a fast-action game which requires fierce hand-to-hand combat and frantic weapon fire.



BBC



ARCHIMEDES



*The Fourth Dimension*

PRICES AND AVAILABILITY	ARCHIMEDES 31/2" DISC	BBC B/MASTER 51/4" DISC	BBC AND ELECTRON CASSETTE	MASTER COMPACT 31/2" DISC
U.I.M.	29.95*	19.95	-	21.95
E-Type	19.95	-	-	-
E-Type Designer	16.95	-	-	-
The Olympics (6 Events)	19.95*	-	-	-
White Magic	19.95	12.95	9.95	13.95
White Magic 2	19.95	12.95	9.95	13.95
Holed Out	19.95	14.95	12.95	15.95
Holed Out Extra Courses 1	16.95	11.95	9.95	12.95
Holed Out Extra Courses 2	16.95	11.95	9.95	12.95
Holed Out Designer	19.95	-	-	-
Arcade Soccer	19.95	12.95	9.95	13.95

\*The Olympics and U.I.M. Archimedes versions due for release 5th December, 1989.

# DIMENSION

ARCHIMEDES  
BBC MICRO  
ELECTRON



## WHITE MAGIC 2

This includes 32 brand new and highly dangerous levels plus a complete level designer.

The level designer is a doddle to use and can be used to alter or design levels from scratch.

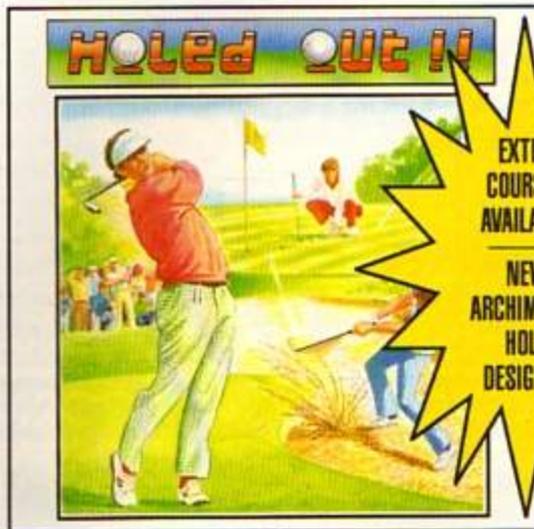
An extra invisible feature in White Magic 2 will really confuse our adventurers!

### Reviews of White Magic

"The graphics are superb ... An absolute winner" *Electron User Golden Game August '89.*

"Playability is good and I had to tear myself away in order to write this update review."

*Archie review - The Micro User, October 1989.*



## HOLED OUT

The most comprehensive, realistic and highly acclaimed golf simulation on the market today. This volume contains the original 2 contrasting 18 hole courses and comes complete with an easy to follow 16 page manual.

"I play golf and this game is the closest thing I've seen to the real game on a computer." *Archie, June 1989*

"I wouldn't have thought it possible to get a better simulation out of the beep." *BBC Acorn User, June 1989*

"The 3D perspective graphics are stunning." *Electron User GOLDEN GAME June 1989*

"Holed Out is great ... The game plays very well and the graphics are superb." *Popular Computing Weekly, March 1989*

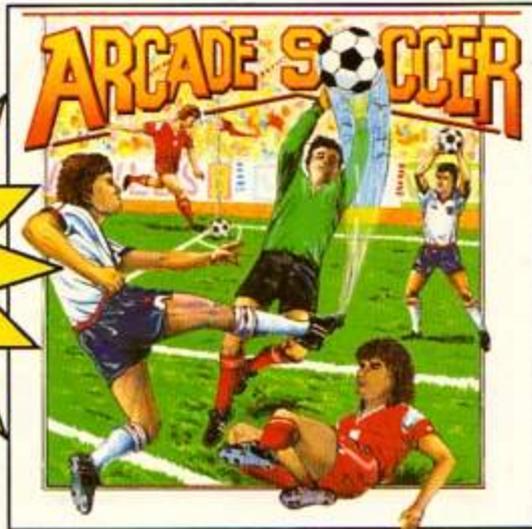
"The Electron version is brilliant - it's almost the same as playing at Gleneagles. Unreservedly recommended." *A & B Computing Game of the Month, June 1989*

### HOLED OUT EXTRA COURSES

In response to your many requests we have now produced 2 volumes of extra courses. Each volume contains 2 superbly designed brand new courses plus the original Holed Out program; therefore you do not need the original Holed Out to play them. Each course has been meticulously created to test your golfing abilities to the limits. The holes are very varied and even Nick Faldo would need to use his skills to keep up his recent record.

### ARCHIMEDES HOLE DESIGNER

Create your own golf courses with this easy - to - use yet highly sophisticated hole designer. Its flexibility allows you to define all aspects of the holes from their pars to the position and size of the lakes. It will keep you enthralled for years.



## ARCADE SOCCER

Arcade Soccer really is football action at its very best.

Using an overhead view to make game play as exciting as possible it features everything that you could want in a football game. Corners, sliding tackles, throw-ins, goal kicks, dribbling, shooting, passing and much more. But not only does Arcade Soccer give you Total Action it also puts you in Total Control.

Firstly you can play with either keyboard or joysticks, against the computer and/or with up to 23 friends. The options are almost limitless; you can choose the skill of the goalkeepers, the speed and length of the game, play "friendlies" or tournaments and even enter the most coveted of championships - the World Cup.

"The game is very playable and you do get a feeling of involvement as you knock the ball into the corner of the net straight past the diving goalie. It's definitely one to play again, and if you've enough friends it could make for a good day of enjoyment - and not a lot of games can do that. Value for money ... 10 out of 10". *The Micro User, October '89.*



## ELECTRON



## BBC



## ELECTRON



## BBC



## BBC



## ARCHIMEDES



## ARCHIMEDES



## ARCHIMEDES



## BBC



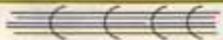
## BBC

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See also Page 36

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school**

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Order on Page 45

## CDS HAS ALL THE ANSWERS

AN Electron version of TV quiz show Sporting Triangles is due out in January, courtesy of CDS Software (0302 321134).

After successfully negotiating the computer game licence from Central TV, CDS has been producing this popular quiz game across all formats. The dual BBC/Electron cassette will cost £9.99.

The next three months will see nine titles out on budget release under the Blue Ribbon label. The games, on licence from Superior Software, will be sold in packs of three at £2.99.

First offering includes Around the World in 80 Screens, Palace of Magic and Elixir. Next will be Life of Repton, Spellbinder and Quest and the start of 1990 will see Spycat, Repton thru' Time and Pipeline.

## Last Ninja is fighting back

SUPERIOR Software (0652 58585) has chosen a new Electron version of an all-time favourite to mark a milestone in its six year history.

For its hundredth release, Superior has picked Last Ninja II based on the company's best-selling Electron game of 1988, The Last Ninja.

"The Last Ninja is now up

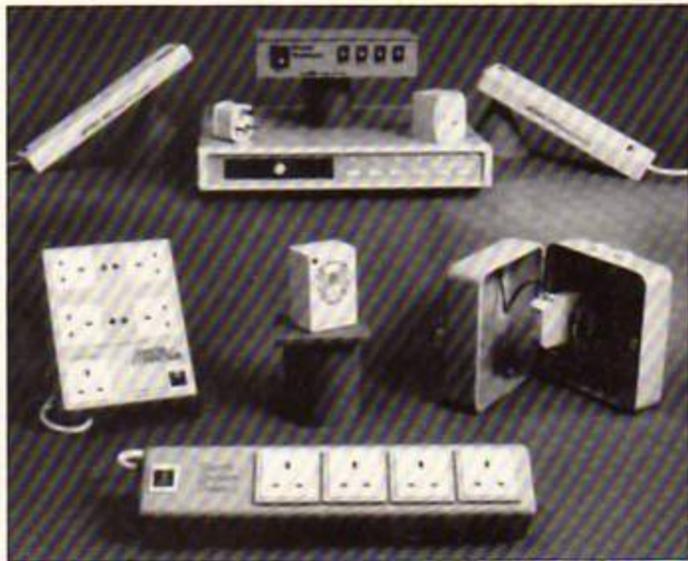
to 20,000 sales", said partner Steve Hanson. "The great popularity of the original game is one of the main reasons why we have decided to bring out this new version".

With Last Ninja II the action moves from Japan to the streets of downtown Manhattan. There are more baddies to fight and Peter Scott's new scenario allows

for more colour and better graphics than in the original Ninja.

BBC/Electron tape costs £9.95.

Latest news on the Play It Again Sam front is that number 12 will include boxing simulation By Fair Means or Foul and a prize-winning game from the Repton Infinity competition.



## Cut the crashes

APOLLO Electronic Products (04858 8156) has launched a range of 19 devices designed to give protection against mains spikes and surges.

They range from a surge protector plug at £12.50 up to the Power Director which at £225 offers full surge, spike and RFI protection.

## An Electron a day keeps worries at bay

A RECENT study at Nottingham University has scotched the hypothesis that computer addicts suffer stunted psychological and social development.

Research has shown that computer dependency can actually be therapeutic for those who find it hard to relate to other people.

The findings have been published in a book Computer Addiction? written by Dr. Margaret Shotton of the university's Department of Production Engineering and Production Management (0602 484848).

It follows the study initiated to investigate the syndrome of computer dependency and to see if obsessive dependency is detrimental to psychological and social development.

Volunteers who admitted they were dependent on computers were compared

with control groups of non-dependent computer owners and people who did not own a computer.

As expected, the computer dependent individuals, mainly well educated males, spent significantly more time computing than the other groups but were found to use computers in a more exploratory and self-educational manner, rarely having a definite end product in mind.

Investigation showed that the computer dependent people had experienced different types of parenting from the control groups, leading them to become object rather than people centered at an early age.

This bias had been perpetuated throughout life, leaving them shy and

unable to form satisfactory relationships. Their lives had become dominated by task and object related activities with computing being the ultimate hobby, offering them a controllable form of interaction which they had not been able to find elsewhere.

Although some marriages had suffered because of the computer dependency of one partner, most volunteers were quite happy about their dependency.

They felt the positive benefits gained by their use of computers far outweighed any disadvantages. Most had increased their social circles, had gained in confidence and self-esteem and had improved their job prospects.

## Rookie out on the beat

COPS is a new text only adventure game for the Electron. It comes from Alpine Software (0762 342510), developers of the ALPS adventure creator package.

The player becomes a rookie cop on a tough beat in the Hall Street precinct. Detective work is needed to solve the case of the lunch-money thief at Blue Street school and the more serious disappearance of police chief Davids.

Nothing in Hall Street is quite as simple as it appears, with many problems and dangers arising.

Only available on disc, Cops costs £13.95 for 40 or 80 track DFS or £14.95 for 3.5in ADFS.

# SOFTWARE

*Bargains*

## JOYSTICKS

To operate a joystick from the Electron, you will require an interface of some sort. We supply a single unit Commander 3 interface, which will take most 'Atari-Type' joysticks, is with a 5 pin 'D' connecting plug. The PLUS 1 interface as well as having 2 ROM cartridge slots, & printer port, also has in-built, an analogue joystick interface, compatible only with joysticks with a 15 pin 'D' connecting plug.

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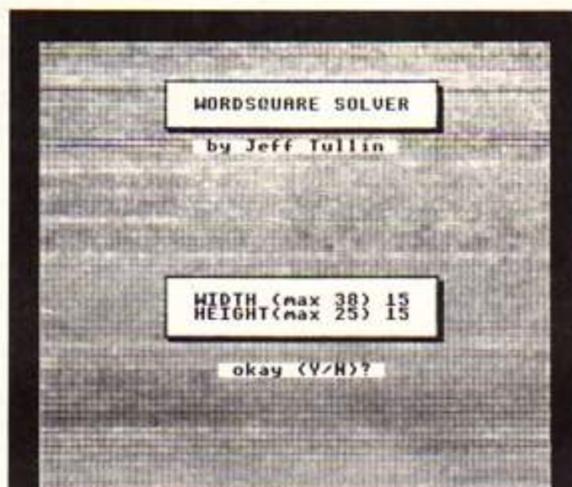
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# Square up to those puzzles



Setting the width and height of the Wordsquare

**M**Y mother loves wordsquare puzzles. Every week a good half dozen women's magazines land on her doormat, packed full of recipes, knitting patterns, advice, and competitions. At least five will have a wordsquare contest, and these are good for at least an hour each.

Most are quite easy, and she gets on with them by herself, but the ones with good prizes, like a holiday for two in Corfu, are immense monsters which always seem to contain at least one word that she can't find for love nor money. Then the whole family gets press-ganged until the offending word or phrase is found.

There are two main ways of solving wordsquares. The first and most common is to sit and stare blankly at the thing until you spot a couple of letters near each other which remind you of the word you are looking for. The second, systematic method, involves starting at the top and working through the whole wordsquare, letter by letter for every word.

Computers do a lot better at the second method, especially with giant wordsquares, and this program does most of the hard work for you. I say most, because you still have to enter all the letters from the printed page into the computer's memory. However, once this is done the program is capable of finding any word hidden in the square, in any of eight possible orientations, within a few seconds.

On running the program the first question you are asked for is the size of the wordsquare. This can be up to 38 characters wide by 25 characters deep - it doesn't have to be square.

Once the size has been entered, the screen clears and a blank grid is drawn in blue using user-defined characters. You then type in the letters as you see them on the page. For convenience, the cursor will move automatically to the next square after each letter and drop to the next row at the end of a line. Unfortunately, Delete won't work but if you make a mistake just use the cursor keys as you would in a word processor to take the cursor over the incorrect letter and then type over it. Press the Return key when the whole grid is full.

That's the hard work over. Now the com-

## Jeff Tullin presents a clever utility for solving wordsquares

puter prompts you to enter a hidden word. If it is too long to fit within the grid it will be ignored.

The program starts at the top left corner and scans each letter in turn until it finds one the same as the first letter of the word you typed. Every time this happens it branches to a new routine, which checks each of the adjacent eight characters in a clockwise direction to see if they correspond to the second letter of the word you gave. If one does, the rest of the word is checked, and if found, the word is coloured blue to make it stand out against the white letters of the grid.

If, however, this search failed to find the remainder of the word, the program carries on from the next letter of the grid until it reaches the end.

The fastest searches are therefore those which find a word near the top of the grid and read normally from right to left. The slowest searches are those which are looking for words which are backwards, and oriented northwest from near the bottom of the grid. Even in the worst cases, however, the word - if it exists - is usually found in under 10 seconds.

If there are many words which overlap in the grid, and the most difficult wordsquares revel in this, as you progress the area of blue text can in itself become confusing. You can reset the whole grid to white by entering the word XCLEAR instead of a hidden word. In similar fashion, you can type XEND to quit the program, and XNEW to create a new grid.

And that about wraps it up. Except as a postscript, I ought to mention one problem I encountered when using the program. Just to make it really hard, one competition organiser set a wordsquare where the words were given as anagrams. So we still had to sit for hours to work out the anagrams first.

Any ideas, anybody?

```

10 REM Word Square Solver
20 REM by Jeff Tullin
30 REM (c) Electron User
40 :
50 MODE1
60 VDU23,0,10,64,0;0;0;0;
70 VDU23,224,255,129,129,129,1
29,129,129,255
80 VDU19,2,4,0,0,0,0,0,0
90 :
100 PROCvariables
110 PROCdimensions
120 PROCletter_entry
130 :
140 REPEAT
150 PROCword_entry
160 PROCfind_word
170 UNTIL 0
180 :
190 DEF PROCvariables
200 finished=0
210 DIM arrayX1200
220 FOR XX=0 TO 1200 STEP 4
230 XX!arrayX=0:NEXT
240 ENDPROC
250 :
260 DEF PROCdimensions
270 :
280 GCOLOR,129:CLG
290 PROCopenwind(10,3,21,3)
300 PRINT:PRINT" WORDSQUARE SO
LVER"
310 VDU26:PRINT TAB(12,7)" by J
eff Tullin "
320 REPEAT
330 PROCopenwind(10,17,21,4)
340 :
350 PRINT TAB(2,1)"WIDTH (max 3
8) ** ";
360 REPEAT
370 INPUT TAB(17,1)width%
380 UNTIL width%>0 AND width%<3
9
390 :
400 PRINT TAB(2,2)"HEIGHT(max 2
5) ** ";
410 REPEAT
420 INPUT TAB(17,2)height%
430 UNTIL height%>0 AND height%
<26
440 :
450 VDU28,14,23,26,23,12
460 PRINT" okay (Y/N)?";VDU 8
470 *FX15
480 REPEAT:AS=GET$
490 UNTIL INSTR("yYnN",AS)
500 UNTIL INSTR("yYnN",AS) <3
510 ENDPROC
520 :

```

```

OWERTYVREDSFAGU
CBTGAHJIKLOPFGA
ZLECTRONCUBGST
RFDSHINPLAUBXFR
QWEMICROKINDFDS
ISULFROPMBUCKX
ASMOERBNDFSGETW
ROYTUHIJKOLPMAN
VBCUXCZFDASRWE
GTHYJUKILOPORJS
HDGFTRYVEUWTOOHG
FSDHNSFBUCZNRCH
FDYTEIPRVIUHKSE
FKSJUMXMBUJHDS
VETRUWFDSFJUXVU

```

Please enter hidden word  
.....

Searching for hidden words

```

JGDFUVWTUSJXHYX
NBXHCYDIWTEGDJJ
XCUNGFHICRBJMHG
SHMGJHGTFEHELECK
JHEMHKYGGKMUJBK
JHELECTRONKBFJR
UYTKHFUMRKFJWKA
CORNJHFKDUKM

```

Use cursor keys plus A-Z  
to enter data  
RETURN when finished

Entering the Wordsquare data

```

530 DEF PROCletter_entry
540 :
550 VDU26:GCOLO,129:CLG
560 COLOUR 2
570 FOR HX = 1 TO heightX
580 FOR WX = 1 TO widthX
590 PRINT TAB(WX,HX)CHR$(224)
600 NEXT: NEXT
610 COLOUR 3
620 PROCopenwind(7,27,26,3)
630 PRINT " Use cursor keys plus
A-Z"
640 PRINT " to enter data"
650 PRINT " RETURN when finish
ed ";
660 :
670 HX=1:WX=1:CX=9
680 *FX4,1
690 VDU 26
700 PRINT TAB(WX,HX);:VDU CX,8
710 REPEAT
720 *FX15
730 PRINT TAB(WX,HX);:VDU 9,8
740 IX=GET
750 WX=WX+(1 AND IX=137 AND WX<
widthX)-(1 AND IX=136 AND WX>1)
760 HX=HX+(1 AND IX=138 AND HX<
heightX)-(1 AND IX=139 AND HX>1)
770 CX=9
780 IF IX>64 AND IX<91 CX=IX:(
arrayX+((HX-1)*widthX)+WX-1)=IX
790 PRINT TAB(WX,HX);:VDU CX,8
800 IF WX<widthX AND CX<>9 THE
N WX=WX+1:ELSE IF WX=widthX AND H
X < heightX AND CX<>9 THEN WX=1:H
X=HX+1
810 UNTIL IX=13
820 ENDPROC
830 :
840 DEF PROCword_entry
850 :
860 REPEAT
870 PROCopenwind(7,27,26,3)
880 PRINT " Please enter hidden
word"
890 PRINT " .....
..";
900 INPUT TAB(3,1)"word$
910 UNTIL LEN(word$) AND (LEN(w
ord$) <= widthX OR LEN(word$) <=
heightX)
920 ENDPROC
930 :
940 DEF PROCfind_word
950 :
960 PROCopenwind(7,27,26,3)
970 IF word$="XCLEAR" THEN PROC
white:ENDPROC
980 IF word$="XEND" THEN END
990 IF word$="XNEW" THEN RUN
1000 PRINT:PRINT " SEARCHING...
"
1010 VDU 26
1020 found=FALSE
1030 FOR start = arrayX TO array
X+(widthX*heightX)-1
1040 PRINT TAB((start-arrayX)MOD
widthX+1,(start-arrayX)DIV width
X+1)"";
1050 IF ?start= ASC(LEFT$(word$,
1)) PROCcheck
1060 IF found VDU 7:start=arrayX
+2000
1070 NEXT
1080 ENDPROC
1090 :
1100 DEF PROCcheck
1110 IF FNeast ENDPROC
1120 IF FNsoutheast ENDPROC
1130 IF FNsouth ENDPROC
1140 IF Fnsouthwest ENDPROC
1150 IF FNwest ENDPROC
1160 IF FNnorthwest ENDPROC
1170 IF FNnorth ENDPROC
1180 IF FNortheast ENDPROC
1190 found=0:ENDPROC
1200 ENDPROC
1210 :
1220 DEF FNeast
1230 =FNsearch(0,1)
1240 :
1250 DEF FNsoutheast
1260 =FNsearch(widthX,1)
1270 :
1280 DEF FNsouth
1290 =FNsearch(widthX,0)
1300 :
1310 DEF Fnsouthwest
1320 =FNsearch(widthX,-1)
1330 :
1340 DEF FNwest
1350 =FNsearch(0,-1)
1360 :
1370 DEF FNnorthwest
1380 =FNsearch(-widthX,-1)
1390 :
1400 DEF FNnorth
1410 =FNsearch(-widthX,0)
1420 :
1430 DEF FNortheast
1440 =FNsearch(-widthX,1)
1450 :
1460 :
1470 DEF FNsearch(hdirX,wdirX)
1480 LOCAL WX,HX,XI
1490 newbyteX=start
1500 found=TRUE
1510 FOR XI= 2 TO LEN word$
1520 newbyteX = newbyteX+ hdirX+
wdirX
1530 IF ?newbyteX<> ASC(MID$(wor
d$,XI,1)) THEN found=FALSE :XI=LE
N word$
1540 NEXT
1550 IF NOT found THEN =found
1560 REM else highlite word in b
lue..
1570 :
1580 origin = start
1590 COLOUR 2
1600 origin = origin-wdirX-hdirX
1610 FOR XI= 1 TO LEN word$
1620 origin = origin+ wdirX+ hdi
rX
1630 PRINT TAB((origin-arrayX)MO
D widthX+1,(origin-arrayX)DIV wid
thX+1)CHR$(?origin);
1640 NEXT
1650 COLOUR 3
1660 =found
1670 :
1680 DEF PROCopenwind(x,y,len,ht
)
1690 VDU 28, x, y+ht-1, x+len-1,
y,12
1700 PROCrect(x*32-8, 1016-(y+ht
)*32, len*32+12, ht*32+12, 0)
1710 PROCrect(x*32, 1008-(y+ht)*
32, len*32+16, 8, 1)
1720 PROCrect((x+len)*32+8, 1008
-(y+ht)*32, 8, ht*32+8, 1)
1730 ENDPROC
1740 :
1750 DEF PROCrect(x,y,l,w,f)
1760 MOVE x,y
1770 DRAW x+l,y
1780 IF f=0 DRAW x+l,y+w ELSE PL
OT 85,x,y+w
1790 IF f=0 DRAW x,y+w ELSE PLOT
85,x+l,y+w
1800 MOVE x,y+w
1810 IF f=0 DRAW x,y ELSE MOVE x
,y
1820 ENDPROC
1830 :
1840 DEF PROCwhite
1850 VDU 26:COLOUR 3
1860 FOR XI= arrayX TO (widthX *
heightX)+arrayX
1870 PRINT TAB((XI-arrayX)MOD wi
dthX+1,(XI-arrayX)DIV widthX+1)CH
RS(?XI);
1880 NEXT
1890 ENDPROC

```

# Gallup Software Chart



THIS MONTH	LAST MONTH	TITLE (Software House)	COMMENTS	PRICE
1	1	<b>PLAY IT AGAIN SAM 10</b> <i>Superior</i>	Now superceded by Sam 11, this arcade compilation re-runs Zalaga, 3D Dotty, Repton thru Time and debuts Qwak.	9.95
2	•	<b>ASTRO PLUMBER</b> <i>Blue Ribbon</i>	Ever wondered where plumbers get to? Well this one's been mending leaking pipes in space stations since 1985.	1.99
3	•	<b>INDOOR SOCCER</b> <i>Alternative</i>	If you're tired of the outdoor variety, it's probably time to go inside. Not the best football implementation though.	1.99
4	•	<b>SUBWAY VIGILANTE</b> <i>Players</i>	A new one this time, and not a re-entry. Be it London, Paris or New York - can you keep the streets safe? Try it and see.	2.99
5	2	<b>FRAK!</b> <i>Alternative</i>	Original, and of its time, an unusual and addictive adaptation of platform games. Now available on its own or in Play it Again Sam 4.	1.99
6	•	<b>TOMCAT</b> <i>Players</i>	Players are still committed to the Electron and it's always nice to see well written original budget games from them.	1.99
7	9	<b>LAST OF THE FREE</b> <i>Audiogenic</i>	Here's another title which keeps reappearing in the software chart. Still selling very well even without a budget label.	7.95
8	•	<b>DEATH STAR</b> <i>Blue Ribbon</i>	Another oldie but goodie with a futuristic Star Wars-type scenario. Again you are pitted against horrendous odds.	1.99
9	•	<b>SUPERIOR SOCCER</b> <i>Superior</i>	Brilliant - full-priced and worth every penny, whether you want to play football or just manage your favourite team.	9.95
10	8	<b>STORMCYCLE</b> <i>Atlantis</i>	Save Earth from imminent invasion and disaster by finding five diodes, killing the enemy and beating the clock.	1.99
11	•	<b>MINI OFFICE</b> <i>Alternative</i>	A superb package of word processor, database, spreadsheet and graphics program. A bargain at the price and not to be missed.	1.99
12	•	<b>YIE AR KUNG FU</b> <i>Hit Squad</i>	All combat games are compared to this - now a little dated, but still a classic in its own right. Just the job for venting aggression.	2.99
13	•	<b>KARATE COMBAT</b> <i>Blue Ribbon</i>	Staying with the violent theme and in the same part of the world. Another chance to try a little oriental manoeuvring.	2.99
14	•	<b>GOLF</b> <i>Blue Ribbon</i>	A more peaceful pursuit in this simple implementation. Not very clean graphics, but not at all bad for the price.	1.99
15	•	<b>FOOTBALLER OF YEAR</b> <i>Gremlin</i>	With new football games appearing each year this old one retains its staying power. Not bad, but there are better implementations.	9.95
16	•	<b>G. GOOCH TEST CRICKET</b> <i>Alternative</i>	Originally released by ASL, it is more suited to the budget label. Recommended if you are totally disheartened with English cricket.	1.99
17	•	<b>PLAY IT AGAIN SAM 8</b> <i>Superior</i>	This Sam compilation offers - Winter Olympiad, Quest, Around the World in 40 Screens as well as Mr Wiz. The best bargain this month?	9.95
18	•	<b>SNAPPER</b> <i>Superior</i>	If you search hard you can still find the full-priced version, though it's better value for money as part of the Sam 7 compilation.	9.95
19	•	<b>BUSINESS GAMES</b> <i>Acornsoft</i>	It never was a real top seller, but another prolonged search will unearth this oldie on the Superior/Acornsoft label.	9.95
20	12	<b>SMASH AND GRAB</b> <i>Blue Ribbon</i>	If you're feeling especially villainous and dastardly you can break the law in this budget title. Playable and addictive.	1.99

**Spruce up graphics and games with Robert Henderson's screen fade routines**

**F**ADER is a collection of fast machine code routines that fade the screen display in and out of view, effects often seen in commercial games software such as *Impossible Mission*. Now you can add these professional routines to your own home grown programs.

To see the routine in action enter and run the demonstration program. The screen display is drawn and then copied to a reserved area of memory, and there will be a slight delay while this is done. Wait a few seconds, then tap the spacebar to see the result.

To use it yourself you'll have to cut out the appropriate section of code and paste it in your own program. Each effect is clearly labelled in the listing and here is a breakdown of what each one does:

**Appear:** This makes the display instantly appear by poking the screen start registers with the address of the hidden screen in memory.

# Fade into the big game

**Up and Down:** Draws the screen starting from the bottom and working upwards, or from the top and working downwards.

**Partial:** Draws one half of the screen

upwards and the other downwards, interlacing the two halves.

**Vertline:** This uses the logical AND function to draw the screen in a similar way to the shutter effect, but vertically.

**Outward:** Draws the screen from the middle and works toward the edge.

**Inward:** The opposite to the Outward effect.

**Blockfade:** Hundreds of small blocks are printed which eventually come together to make up the picture. Two random numbers are selected and converted to x,y coordinates. The eight by eight pixel block is then copied from the hidden screen to the displayed screen. After most of the blocks have been copied the rest are then filled in.

**Shutter:** This draws the screen display rather like opening a Venetian blind. One line in every eight is drawn, and the process is repeated eight times with a different line each time to produce the whole display.

There is only one problem with these fade routines. As they directly address the screen memory they won't work if you have a Slogger Master Ram Board and the micro is running in 64k mode. However, you can simply flick the switch and run the demonstration in normal Electron mode.

```

10 REM Screen fader
20 REM R.Henderson
30 REM (c) Electron User
40 MODE 5:HIMEM=&2A00
50 PROCdraw_scrn:PROCread
60 PROCassemble
70 PROCdemo:GOTO 70
80 END
90 DEF PROCassemble
100 PROCand:??74=255
110 FOR ix=0 TO 2 STEP 2
120 PX=&2B00
130 [ OPT ix
140 \ Subroutine calls
150 .appear JSR tair:RTS
160 .up JSR adr:JSR updr:RTS
170 .down JSR dat:RTS
180 .partial1 JSR scn
190 JSR dat:RTS
200 .partial2 JSR scn
210 JSR adr:JSR updr:RTS
220 .partial3 JSR adr
230 JSR updr:JSR dat:RTS
240 .partial4 JSR adr
250 JSR updr:JSR adr
260 JSR updr:RTS
270 .vertline JSR ad:RTS
280 .inward JSR outin
290 JSR strt:RTS
300 .outward JSR inout
310 JSR strt:RTS
320 .blockfade LDX #&14
330 STX &79:STX &6D:STX &6E
340 .fde JSR fade:DEC &79
350 LDA &79:BNE fde
360 JSR inward:RTS
370 .shutter1 LDA #&FF
380 STA &75:LDX #&8:.shutin
390 INC&75:JSR lineapp
400 DEX:BNE shutin:RTS
410 .shutter2 LDA #&8:STA &75
420 LDX #&8:.shutout
430 DEC &75:JSR lineapp
440 DEX:BNE shutout:RTS
450 \ =====
460 \ M A I N C O D E
470 \ =====
480 \ Screen draw downwards
490 .dat
500 LDA #&00:STA &70:STA &72
510 LDA #&30:STA &71
520 LDA #&58:STA &73
530 .cp LDA (&70),Y:AND &74
540 STA (&72),Y:LDX #&4
550 JSR delay:INY
560 BNE cp:INC &71
570 INC &73:BPL cp:RTS
580 .scn LDA #&0:STA &70
590 STA &72:LDA #&30:STA &71
600 LDA #&58:STA &73:LDY #&0
610 .draw LDA (&70),Y:AND &74
620 STA (&72),Y:LDX #&8
630 JSR delay:INY:INY
640 BNE draw:INC &71:INC &73
650 BPL draw:RTS
660 .adr LDA #&0:STA &70
670 STA &72:LDA #&58:STA &71
680 LDA #&80:STA &73:RTS
690 \ Draws screen upwards
700 .updr LDY #&0
710 sup LDA (&70),Y:AND &74
720 STA (&72),Y:LDX #&1
730 JSR delay:DEY
740 BNE sup:DEC &71:DEC &73
750 LDA &73:CMP #&57
760 BNE updr:RTS
770 .upfd LDY #&0
780 .fup LDA (&70),Y
790 STA (&72),Y
800 LDX #10:JSR delay
810 DEY:DEY:BNE fup
820 DEC &71:DEC &73:LDA &73
830 CMP #&57:BNE upfd:RTS
840 \ Screen swap + copy
850 .tair LDA #&18:STA &FE03
860 LDA #&0:STA&FE02:LDY#0
870 JSR dat:LDA #&2C:STA&FE03
880 LDA #&0:STA &FE02:RTS
890 \ Fade 7 code
900 .ad LDX #&4
910 .lp STX &79:LDA &79,X
920 STA &74:JSR dat:DEC &79
930 LDX &79:LDA &79,X
940 STA &74:JSR adr:JSR updr
950 DEC &79:LDX &79:BNE lp
960 LDA #&FF:STA &74
970 RTS
980 \ Short delay routine
990 .delay DEX:BNE delay:RTS
1000 \ Fade 8 data
1010 .outin LDY #&0
1020 LDA #&0:STA &70
1030 STA &72:STA &75:STA &77
1040 LDA #&58:STA &78:STA &71
1050 LDA #&80:STA &73
1060 LDA #&30:STA &76:RTS

```

Turn to Page 12 ►

◀ From Page 11

```

1070 \ Fade 9 data
1080 .inout LDA #80
1090 STA #72:STA #75:STA #77
1100 LDA #86C:STA #71:STA #73
1110 LDA #844:STA #76:STA #78
1120 RTS
1130 \ Fade 8/9 code
1140 .strt LDA (#75),Y
1150 STA (#70),Y:NOP:NOP
1160 INY:BNE strt
1170 .strt2 LDA (#77),Y
1180 STA (#72),Y:LDX #81
1190 JSR delay:DEY:BNE strt2
1200 INC #71:DEC #73
1210 DEC #78:INC #76:LDX #71
1220 CPX #881:BNE strt:RTS
1230 \ Fade 10 code
1240 \ Block fade
1250 .fdd LDX #8FF:STX #75
1260 .fade JSR rnd:LDA #7E
1270 STA #76:LDA #814
1280 JSR rnd:LDA #7E:STA #78
1290 LDA #80:STA #77
1300 STA #70:STA #72
1310 LDA #858:STA #71
1320 LDA #830:STA #73:CLC
1330 ASL #78:ROL #77:ASL #78
1340 ROL #77:ASL #78:ROL #77
1350 LDX #76:BEQ out:lupe
1360 LDA #72:ADC #838:STA #72
1370 LDA #73:ADC #81:STA #73
1380 DEX:BNE lupe:JMP block
1390 .out LDA #830:STA #73
1400 .block CLC:LDA #72
1410 ADC #78:STA #72:LDA #73
1420 ADC #77:STA #73

```

```

1430 CLC:LDA #73:ADC #828
1440 STA #71:LDA #72
1450 STA #70:LDY #8F:LDY #8F
1460 LDA (#72),Y:STA (#70),Y
1470 DEY:BPL lup
1480 DEC #75:BNE fade:RTS
1490 \ Fade 11/12 code
1500 \ Shutter effect
1510 .lineapp LDY#0
1520 LDA #75:STA #70:STA #72
1530 LDA #830:STA #71
1540 LDA #858:STA #73
1550 STA #76:.linedraw
1560 LDA (#70),Y:STA (#72),Y
1570 INY:INY:INY:INY
1580 INY:INY:INY:INY
1590 BNE linedraw:INC #71
1600 INC #73:BPL linedraw:RTS
1610 \ Fast random number
1620 \ For block fade
1630 .rnd LDA #7F:ASL A:ASL A
1640 SEC:ADC #7F:EOR #29F
1650 EOR #240:AND #83F
1660 STA #7E:STA #7F
1670 RTS:J:NEXT
1680 ENDPROC
1690 DEF PROCand:RESTORE 1700
1700 FOR rdX=0 TO 3:READ daX
1710 ?(&7A+rdX)=daX:NEXT
1720 DATA 255,119,102,68
1730 ENDPROC
1740 DEF PROCdemo:CLS
1750 CALL appear:PROCKey
1760 CALL up:PROCKey
1770 CALL down:PROCKey
1780 CALL partial1:PROCKey
1790 CALL partial2:PROCKey
1800 CALL partial3:PROCKey

```

```

1810 CALL partial4:PROCKey
1820 CALL vertline:PROCKey
1830 CALL outward:PROCKey
1840 CALL inward:PROCKey
1850 CALL blockfade:PROCKey
1860 CALL shutter1:PROCKey
1870 CALL shutter2:PROCKey
1880 ENDPROC
1890 DEF PROCKey
1900 SOUND 1,-15,200,2:REPEAT
1910 UNTIL INKEY(0)=32
1920 CLS:ENDPROC
1930 DEF PROCdraw_scrn
1940 VDU 23,1,0;0;0;0;
1950 FOR xX=0 TO 100:GCOL 0,RND(
3)
1960 DRAW RND(1278),RND(1024):NE
XT
1970 GCOL 0,3:MOVE 0,0:DRAW 1278
,0
1980 DRAW 1278,1020:DRAW 0,1020
1990 DRAW 0,0:GCOL 0,1:MOVE 8,4
2000 DRAW 1270,4:DRAW 1270,1016
2010 DRAW 8,1016:DRAW 8,4
2020 COLOUR 131:COLOUR 1
2030 PRINT TAB(4,12);"PRESS SPA
CE"
2040 PRINT TAB(6,19);"TO FADE"
2050 COLOUR 129:COLOUR 2
2060 PRINT TAB(6,4);"FADER BY"
2070 PRINT TAB(4,30);"R. HENDERS
ON"
2080 COLOUR 128:COLOUR 3
2090 ENDPROC
2100 DEF PROCread
2110 FOR FX=0 TO #2800 STEP 4
2120 !((FX+#3000)=!(FX+#5800)
2130 NEXT:ENDPROC

```

QUAL-SOFT

# THOUGHTWARE

Sports simulations

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

AMSTRAD ACTION  
REVIEW

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

TAPE 1  
QUALIFIERS

## ROME 90\*

TAPE 2  
FINALS

### A WORLD CUP MANAGEMENT SIMULATION

Summer 1988 and English International football is at its lowest ebb. We have failed miserably for the European Nations Cup, and had a string of very poor International results. In a few months we will set out on the '90 World Cup qualifying trail. You have been given the most important job of restoring English pride in their football. You have a match in Athens, Denmark at Wembley, and a South American tour, to assemble a team, first to qualify, and then to beat the world's best in Rome.

#### TAPE 1 (Qualifiers)

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

#### TAPE 2 (Finals)

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

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

QUAL-SOFT comments: With 5 levels of play 12 depths of sophistication, and "fun" graphics, this game can be enjoyed by an 8 year old youngster as a "fun" game, and by the most sophisticated as a tactical/strategy challenge of the highest order.

PACKAGE: Tape 1 plus Tape 2 plus 20 Page Manual **£9.95** (57k RAM usage. *Some would call this a MEGAGAME. YES IT WILL RUN ON YOUR 32k BBC.*

**QUALSOFT GUARANTEE:** Sent by 1ST CLASS POST on day of the order with P.O., Cheque, Access payment is received. Telephone Access orders accepted.

\* ROME '90 is an update of the classic MEXICO '86

QUAL-SOFT  
Dept. EU  
18 Hazelmere Rd.,  
Stevenage, Herts SG2 8RX.

Tel: 0438  
721936

Please supply:  
ROME '90  
Electron   
BBC'B'

Name:.....  
Address:.....  
.....  
Access No. (if applicable) .....

Product: Ricochet  
 Price: £9.95  
 Supplier: Superior Software, 3 Manor Drive,  
 Scawby, Brigg, S. Humberside DN20 9AX.  
 Tel: 0652 58585

RICOCHET is more than just another arcade adventure from the Superior stable. It's brilliant. After the disappointment of Baron in the Sam 11 compilation I needed something to lift my spirits and Ricochet did the job admirably.

Anyone who has seen Citadel or Palace of Magic will instantly recognise the format. The display is a side view of the current location and moving off the left, right, top or bottom quickly flicks to the next screen.

In this game you control Sprat – the Small Partially Robotic Alien Time-traveller – a cute little rubber ball with a happy smiling face and sunglasses. You don't walk. You roll or bounce your way around the ladders and levels, or take a swim.

Levels that can't be reached can quite often be bounced up to. You hold down the Squish key to squash Sprat as flat as possible then let go and he springs up.

Aiming straight up isn't a problem, but trying to make Sprat go in any other direction is difficult to say the least – he flies around the screen bouncing off every object within reach. It's very frustrating, but good addictive fun, trying to get him through a small hole to the left or right.

Your aim, amid all this mayhem, is to collect an hourglass from each of the five worlds of Ricochet and then teleport out. You are given a password on doing this, so you can skip the completed levels on subsequent games. You start on the mystical Fortress world, then move on to the exciting futuristic Techlev and dismal Derelict worlds.

Your energy is displayed as a bar running up the right-hand side of the screen and is depleted by rolling into the various monsters that inhabit the worlds or the dangerous



Bounce your way out of trouble

## Having a ball

objects that litter each screen. Energy is increased by eating the food left lying around.

Keys must be collected in order to open doors – usually one key will open one particular door. Other objects can be found, such as a tomato, a coin and a spade, but I'm not yet sure what to do with them. They can be placed on pads located in certain places and I'm sure that they'll have some beneficial effect when I've located the right pad for each object.

The graphics are among the best seen on

the Electron, and the sprites are superbly animated. The title screens are particularly well drawn and are worth the wait while they load. The sound effects are minimal, but didn't affect my enjoyment.

This latest arcade adventure is causing me a few headaches and sleepless nights – it is very addictive. If you have completed Citadel and Palace of Magic and are looking for a fresh challenge Ricochet fits the bill quite nicely.

Roland Waddilove

Sound .....	6
Graphics .....	10
Playability .....	10
Value for money .....	10
Overall .....	9

## Second Opinion

Not since Palace of Magic have I been hooked to an arcade adventure, but this frustrating game has me securely in its grip. The way the ball bounces round the screen drives me round the bend. The objects and obstacles are mini puzzles – find the object and place it on the corresponding pad. A brilliant game that makes a welcome change from the usual Sam repeats.

Janice Murray



The mystical maze-like Fortress

Product: *Play It Again Sam 11*

Price: £9.95

Supplier: Superior Software, 3 Manor Drive,  
Scawby, Brigg, S. Humberside DN20 9AX.  
Tel: 0652 58585

GOOD Old Sam is playing them yet again in his eleventh compilation of golden oldies, plus a newcomer not seen before. The latest addition to the Superior stable is an arcade adventure in the Citadel mould called **Baron**.

In it, your father, the king, has heard that his best friend, the wizard, has been kidnapped by an evil baron. Your father gathers his army and marches towards the baron's castle to rescue his friend. You, the prince, have taken a short cut and sneaked into the baron's castle to rescue the wizard by yourself.

This is the scenario for a rather poor follow-up to the very successful Citadel and Palace of Magic. You wander from screen to screen climbing ladders, jumping from level to level and zapping a variety of dangerous creatures.

There are many objects to be collected and some to be avoided, as they sap your strength. Lose too much energy on a screen and you are sent back to the point at which you entered.

Some creatures bounce up and down or sideways, while others, like the guards follow you closely, depleting your energy. Fortunately, they can be shot, but this is difficult as you have to hit them right between the eyes and as they are sometimes taller than you this has to be done while jumping.

The Mode 5 graphics are quite poor by current standards and are shown up by the other games in this compilation. The characters are exclusively ORed on to the screen and whenever they pass in front of an object you just see garbage on the screen. Surely a proper sprite routine could have been used?

There isn't much sound to speak of. Again, another let down, and running in Mode 5 where there should be memory to spare, so there's no excuse.

If you are addicted to this type of arcade

adventure Baron is worth a look. However, it's not the best of its type and I think many will give it a miss.

Best of this compilation is the outstanding **Pipeline**. Released over a year ago, it never made much of an impression on the software chart. It deserved to do much better.

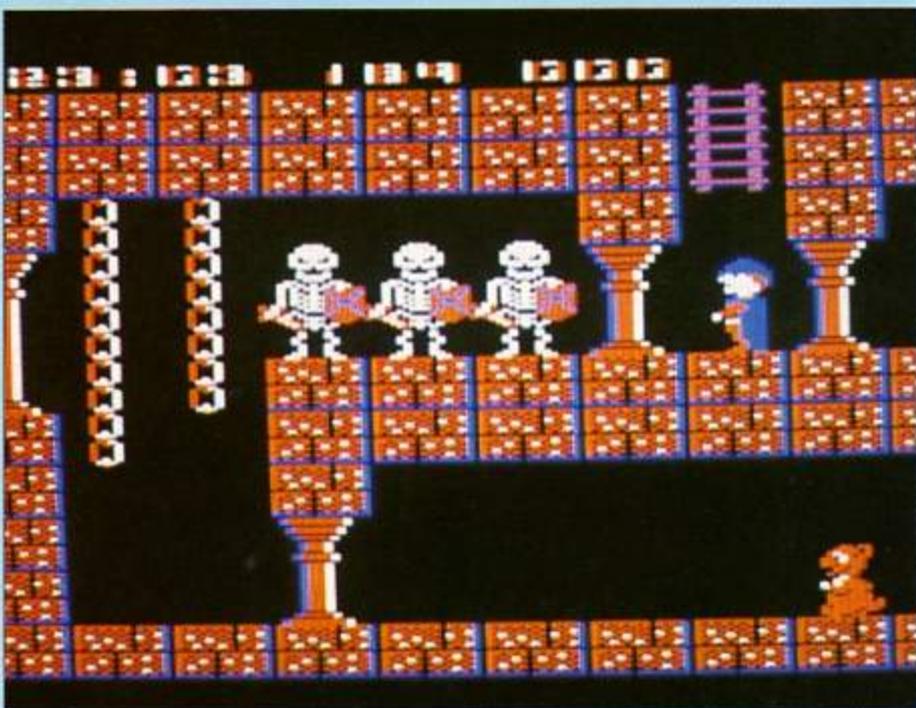
Pipeline is set in the far future at a sulphur mining station on Jupiter's moon, Io. Volcanic activity has surrounded the robot-controlled mining platform with a sea of burning sulphur. So desperate is Earth's need for it that you have been despatched

to Io to collect every single drum of sulphur and close down all four mining operations.

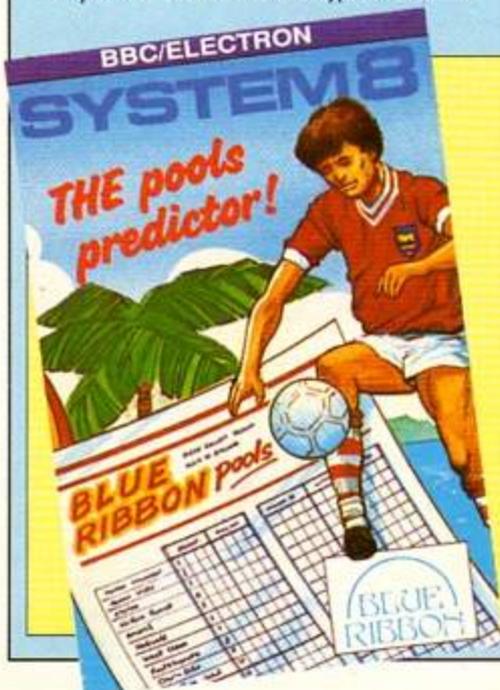
The dimensions of Pipeline make Repton look like a screen from Pacman. If you were impressed when you first saw the map to Repton 3, prepare to be amazed by the Pipeline layout. Each of the four levels is twice the size of a Repton scenario.

The action is viewed from above as you control the hero who scuttles around a beautifully drawn, complex and often deadly maze. The screen scrolls in four directions – like Repton – as you move about. Not only

# Baron



Get past these guys in Baron



## So do you feel lucky?

Product: *System 80*

Price: £2.99 (tape)

Supplier: Blue Ribbon Software, Nimrod  
House, Beckett Road, Doncaster DN1 4AD.  
Tel: 0302 321134

EVERY week for the last 11 years I have religiously completed my 8 out of 10 column on the pools coupon. The more astute members of *Electron User* readership will deduce that I have still to land my first big pools win, since I am still writing reviews and not living it up on my private Caribbean island.

System 8, from Blue Ribbon, is a football pools predictor program that may improve your chances of winning. I use the word may because Blue Ribbon merely hints that its program will improve your success rate.

According to the cassette inlay card the

do you receive a top-quality arcade adventure, you also get character and level designers, and a mission generator.

Sam slays it again with the highly controversial **Barbarian**, notorious for featuring the ample assets of model Maria Whittaker. In this one or two player game you fight the 10 minions of the sorcerer Drax, and finally, Drax himself.

You have a choice of either combat practice or the game itself, which is a fight to the death. The former allows you to perfect your attacking and defensive moves against a

passive opponent. The slain opponent's body is dragged away by a goblin in a highly amusing scene.

In the fight to the death you start off against a fairly good, but easily beaten sword-wielding barbarian. After 12 hits, or after being decapitated, he falls to the ground and his place is taken by a slightly more skilled opponent.

The only disappointment is with the lack of variety in the graphics. The quality is excellent, but the game lacks quantity. The sound effects are as good as can be

expected bearing in mind the Electron's limited capacity for special effects.

The final offering, **Monsters**, has been dredged up from the mists of time. It was a hit way back in the very early days of the Electron's history, when it was one of the best ladders and levels games around. But today it is merely run-of-the-mill.

Run up and down the ladders and along the brick levels, dodging the marauding bug-eyed monsters. You have a pick axe with which to defend yourself, but it's not to hit the poor blighters with, you use it to dig holes. Wait for a monster to fall in, then scamper up and fill up the hole up, burying the monster.

Leave it too long in the hole and it will escape and turn into a very angry, vicious green monster. These are best avoided.

Monsters is a simple, undemanding game that can be used to pass away an afternoon or two. It's not in the same league as Pipeline, but good fun all the same.

Baron alone does not justify the the asking price for Sam 11, so if you've got the other three games in this compilation, Sam 11 can't be recommended. However, if you haven't yet bought Barbarian or Pipeline separately this compilation becomes a must.

Roland Waddilove

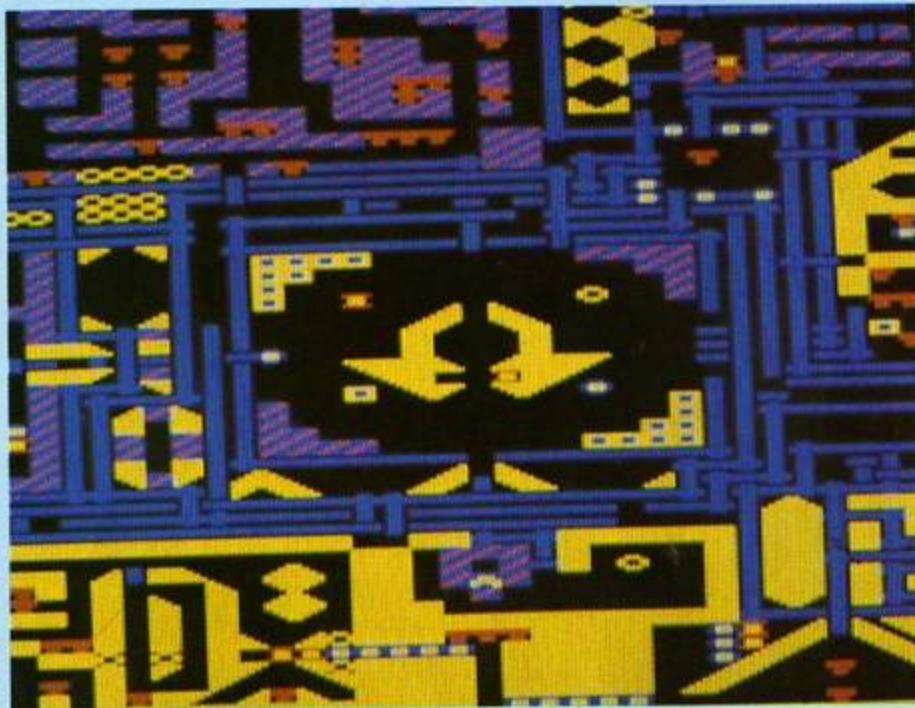
Sound .....	6
Graphics .....	8
Playability .....	9
Value for money .....	9
Overall .....	8

## Second Opinion

*A very mixed bag of games in Superior's latest Sam compilation, ranging from the superb Pipeline to the ancient, but good Monsters and the brand new, but disappointing Baron. Its value for money must depend on how many of the other titles you have already collected.*

Janice Murray

# the bore



program's database must contain at least four weeks' results before any level of prediction accuracy can be assumed. This means that you must persevere with the program for a whole month before you can begin to reap the benefits – although you could enter past results.

The data file on the tape is not intended for use with predictions – I know this because when I asked the program for its predictions based upon that data it selected all 10 matches from division one. Now this may have been a genuine prediction but I have a sneaking suspicion that sticking pins in the coupon would have proved more successful.

System 8 was written in 1988, so the default teams in each division aren't much use for the 1989/90 football season. Job number one therefore is to get hold of your

latest pools coupon and shuffle the teams up and down between the various divisions until they are correct, then save the lot to a tape.

While on the subject, I would have found the program far more useable had it included a routine to transfer itself to disc – saving files to tape is positively primitive in these days of cheap disc drives. Perhaps they assume the software will only be bought by hard-up and desperate types!

Setting up the divisions is a once a season task, a more frequent chore is creating the weekly match list for every match in all seven divisions. For Saturday matches this list can be prepared in advance and saved ready for vidi-printer time on Saturday afternoon.

Result entry is actually the easiest routine in the whole program. The day's games are

displayed on the screen one by one and all you have to do is press an S for a score draw, N for a no score draw, H for a home win and so on until every game has an associated result. Data entry complete, you can save your work in preparation for the following weeks matches.

System 8 will predict possible score draws for your treble chance entry or produce Perm against Plan columns that are ready to be copied straight to your coupon. At a price of £2.99 what have you got to lose?

James Riddell

Sound .....	6
Graphics .....	10
Playability .....	10
Value for money .....	10
Overall .....	9



The players available for selection, with their strength and ability ratings



This weeks games

## Tricky tactics tackler

**Product:** Superior Soccer  
**Price:** £11.95 (disc) £9.95 (tape)  
**Supplier:** Superior Software, 3 Manor Drive, Scawby, Brigg, South Humberside DN20 9AX.  
**Tel:** 0652 58585

IN the past, football programs have tended to concentrate upon playing the game or managing it. With the advent of Superior Soccer you can do both. Once you have specified whether or not you will be playing alone or with a friend, your next job is to decide which sections you intend to tackle.

Realising that you may not always have a full evening free, Superior allows you to play either the arcade or the management part in isolation. The arcade game provides a comprehensive list of options. The 10 skill levels determine the ability of the opposition in the one-player game or the skill of both goalkeepers when using the two-player option.

Other niceties allow you to specify the duration of a match or change the colours of the teams' shirts.

Superior Soccer does not support a joystick option so you and your opponent must each select a set of keys with which to control your respective teams. You control only one player at a time and he is identified by arrows. The program determines which player you control by always selecting the one nearest the ball when you relinquish control of the current one. This feature can be over-riden to some degree by keeping a man moving once he has been chosen.

Players can perform a whole range of footballing type antics, such as passing, tackling, heading and throwing – providing that you can master the controls, that is.

The instructions mention that some of the activities require a great deal of practice before you can execute them fluently. They are not kidding: I must have made 20 abortive attempts to pass the ball before I eventually succeeded. The best way to practise your ball skills is to select the two-player option and then play alone – your chances of winning are also improved slightly.

Superior Soccer's graphics are very good. A large central window follows the movement of the ball as it is booted around the pitch by the Gauntlet-style players.

Player movement off the ball and your position in relation to the whole pitch can be monitored by glancing at the Pitch Scanner. This small green rectangle is a map of the pitch on which both teams and the ball are represented by different coloured dots – not that you will find much time to look at it.

One of the game's fun features is the cartoon commentator who issues forth a constant stream of David Colemanisms, but only in speech bubbles. If you begin to find the arcade action a little too hectic you can always sit back and play at being the boss.

Starting in any of the four divisions you must fight your way into one of the top two positions in order to achieve promotion. Your best bet is to gain some experience and money by spending a couple of seasons

in division four, before making a concerted effort for the big time.

Your first task as manager is to survey your squad and assess which players are at peak fitness – this can be deduced by observing their skill and strength ratings.

When playing the management game alone, you just sit and wait for the match results to be displayed on the screen. Following a brief look at the league table you can nip down to the transfer market. Here you can offer one of your down-and-outs for sale and hope that some mug will bid a million.

As you reach the end of the season you may just about be able to afford to buy a new striker, if one is available. The program determines what calibre of player is to be sold and at what price. If either of these factors do not meet your requirements then that's too bad, because there won't be another sale until after next week's game.

The secret of good management is to monitor the skill and strength values of each team member closely. If each player is not rested at regular intervals the performance of the whole team can suffer dramatically.

If you have a spare evening at your disposal you can take a shot at both managing and playing. But with 11 games per season this may prove a little taxing for all but the most ardent of football fanatics.

By combining both the arcade and management routines into one composite program, Superior has given the punter the best of all worlds. No longer can the relegated manager blame lady luck for his downfall. By stepping out on to the pitch with his lads he has nobody to blame but himself.

Jon Revis

Sound .....	6
Graphics .....	8
Playability .....	8
Value for money .....	9
Overall .....	8

### Second Opinion

First it was golf and now it's soccer, here we go... Not being an arcade game fan I only took a passing glance at the "tactical" part of the game – the David Coleman-clone was mildly amusing but his comments were limited and continued even when there was no action on the pitch. The managing section was very simple to use but definitely fun – it kept my attention quite thoroughly for several hours. And I'd recommend it for a quiet evening's entertainment.

Steve Turnbull

# CASTLE ASSAULT

IN September's Micro Messages, grandad R. Gerrard asked for help with Superior Software's arcade adventure hit, Ravenskull. Janet Kiff of Sutton, a grandma, offers this solution to level one in aid of grandparents' lib. She completed the game by Easter, 1987, just in time to enter the competition. Unfortunately, she didn't win a T shirt, but all that hard work hasn't gone to waste, as she can now reveal the full solution in Arcade Corner.

If you don't complete level one with all three lives and you lose a life later on you have to start at the beginning all over again. You can't use the jump facility.

## Ravenskull Level 1

Go West and collect key one. Go East, North, West then South around the castle to the main gate. Open it and drop the key outside. Go East into the entrance hall chamber, then South, West, North and collect pickaxe one (at the southern end of the west side).

Go South, East then North back the way you came to entrance hall chamber. Go Northeast (exploring the corridor to the south on the way for treasure). Travel South into the yellow maze. Pick up scroll one, use it then drop it. Return the way you came.

Journey North and West past the ravenbee. Go North and collect key two in the northwest turret. Go East for treasure. Return the way you came to the entrance hall chamber.

Go East to the central chamber. Use key two at the northern gate off the central chamber. Go North, East, North, East to the south eastern chamber of the four that lock automatically. Pick up scroll two - a transporter - and use it. You are transported to the south eastern turret.

Drop the scroll and travel West then North and collect pickaxe two. Return to the turret then go North. At the northeast turret go West, collect the treasure then go South. Go West as far as you can (into the north-western chamber of the four that lock automatically). Collect key three.

Use both pickaxes on the north wall and exit the castle North, dropping both pickaxes. Make your way West and South to the main gate. Pick up key one and use it again (don't worry about dropping it outside, it's not needed again so drop it inside). Head back to the central chamber. Use key three on the south side gate. Go South.

The next part is quite difficult, so take

care. When you come to the crossroads there is treasure East and South. Don't collect the treasure to the South. Go East then West through the purple maze. Head West, dodging the ravenbee until you come to the southwest turret. Collect scroll three, but don't use it yet.

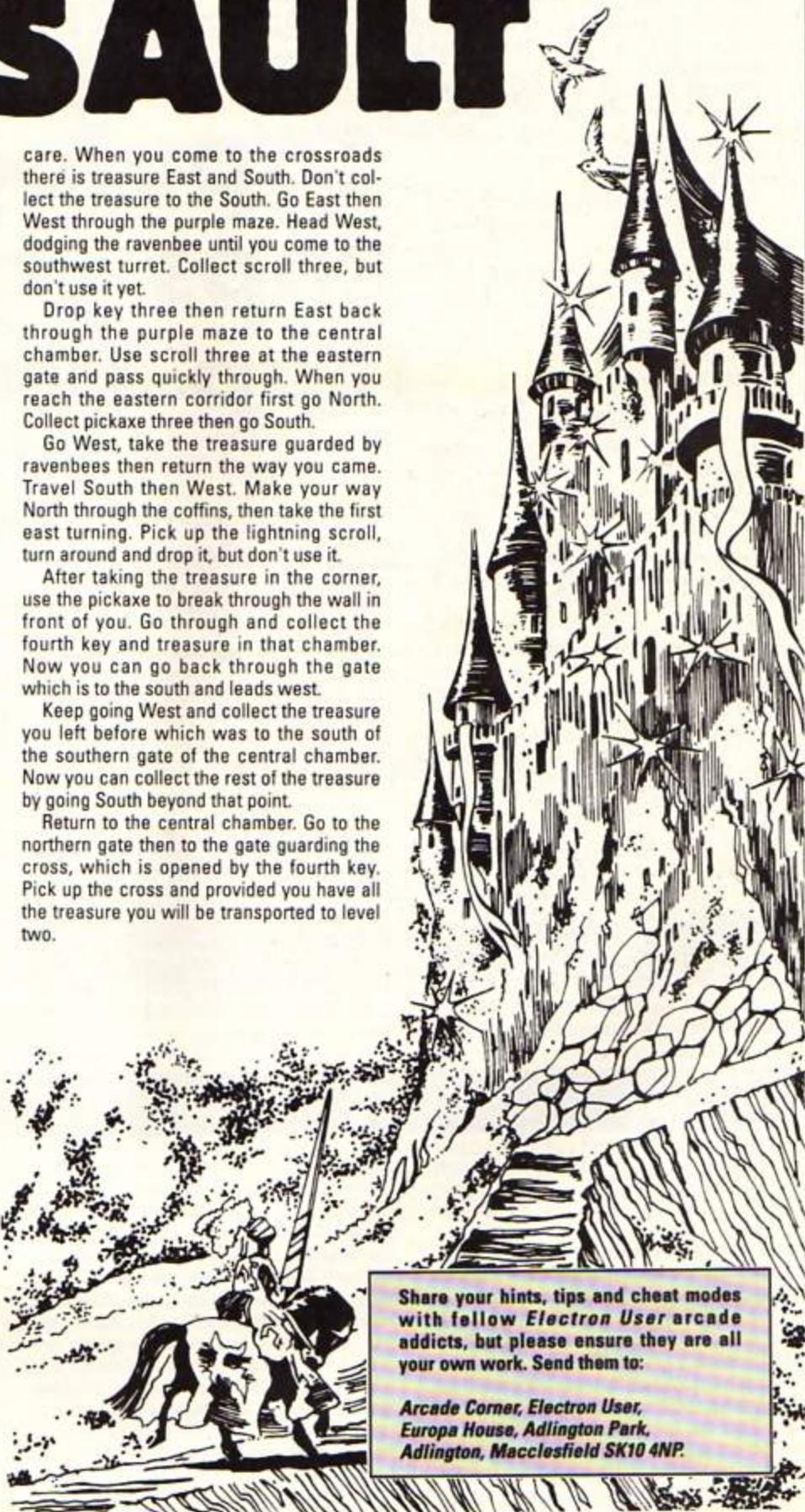
Drop key three then return East back through the purple maze to the central chamber. Use scroll three at the eastern gate and pass quickly through. When you reach the eastern corridor first go North. Collect pickaxe three then go South.

Go West, take the treasure guarded by ravenbees then return the way you came. Travel South then West. Make your way North through the coffins, then take the first east turning. Pick up the lightning scroll, turn around and drop it, but don't use it.

After taking the treasure in the corner, use the pickaxe to break through the wall in front of you. Go through and collect the fourth key and treasure in that chamber. Now you can go back through the gate which is to the south and leads west.

Keep going West and collect the treasure you left before which was to the south of the southern gate of the central chamber. Now you can collect the rest of the treasure by going South beyond that point.

Return to the central chamber. Go to the northern gate then to the gate guarding the cross, which is opened by the fourth key. Pick up the cross and provided you have all the treasure you will be transported to level two.



Share your hints, tips and cheat modes with fellow *Electron User* arcade addicts, but please ensure they are all your own work. Send them to:

ArCADE CORNER, *Electron User*,  
Europa House, Adlington Park,  
Adlington, Macclesfield SK10 4NP.

**T**HE north wind is biting through my iron plate, while the chill in my bones and the warmth in my heart tell me that Christmas is once more upon us. My knights are again gathering in Camelot to tell of past adventures and to exchange software goodies to help while away the ensuing months.

After carving the Christmas venison and sipping once more from the Grail, I will venture forth de novo to adventures new and cobwebbed classics from my vast vault of Electron textual tales.

I have set my sights this yuletide on completing both Quondam and Gateway to Karos. Hopefully by the next issue I will be able to offer assistance for both of these complex teasers.

It seems only right that we hold forth to the latest readers' top twenty of Electron adventures. This chart – as always – is compiled by the votes you have sent in for your favourite Electron adventures. And this new parade has a definite classic ring to it.

At first glance it may seem that Electron adventures have come full circle, or we have entered via a time slip into 1985. This impression is, of course, due to the recent re-release of four Acornsoft classics, now totally reworked and recoded by Topologika and available on disc for the standard Electron.

It is also partly due to the longevity of all time greats such as Wheel of Fortune and Sphinx Adventure which continue to reappear in the chart as the novelty of newer games wane.

However, with new releases Avon and Return to Doom also holding prominent positions, Topologika maintains a bold sway. In fact it is warming to see that along with Robico, no less than 11 ranks are occupied by this master of the classics – including the top seven positions. Also notable is that eight of the chart titles are available only on disc, which must say something for the upward mobility of Electron users.

If you couple this with the fact that only 24 per cent separates the top and the number 20 positions – and that is a new pinnacle of 74 per cent – you can clearly see the high

# Adventures

By Pendragon

## Topologika tops your Top Twenty

regard with which readers hold these eternal games.

Keep those votes coming in, and the next readers' chart – which will be essential voyeurism – will appear in the June 1990 issue of *Electron User*.

Back to a seasonal note. I sincerely hope you all receive the adventures you desire this Christmas and have a happy and rewarding time. My own shopping list includes the reworked Acheton, Avon and Labyrinth's new Quest for the Pendragon – basking in ego, not II

Finally, this month's featured map is of the opening scenario to Riverdale's yankee soap spoof, American Suds. I hope this will help adventurers who may still be stuck at the outset of this voyage through the TV ridiculous.

Next month I continue this popular series with a guide to the openings to one of my all-time favourites, Kingdom of Hamil. So until Santa forgets to come, happy adventuring.

### Reader's Top Twenty

1	Enthar Seven	Robico	98%
2	Blood of the Mutineers	Robico	97%
3	Avon	Topologika	96%
3	Acheton	Topologika	96%
5	Kingdom of Hamil	Topologika	94%
6	Village of Lost Souls	Robico	93%
7	Return to Doom	Topologika	90%
8	Stranded	Heyley	88%
9	The Lost Crystal	Epic	87%
10	Dreamtime	Heyley	86%
11	Countdown to Doom	Topologika	86%
12	Myorem	Robico	85%
13	The Hunt	Robico	83%
14	Sphinx Adventure	Acornsoft	80%
14	Twin Kingdom Valley	Bug Byte	80%
16	Philosopher's Quest	Topologika	79%
17	The Nine Dancers	Larsoft	78%
18	Wheel of Fortune	Epic	76%
19	The Taroda Scheme	Heyley	75%
20	American Suds	Riverdale	74%

### Readers' Hall of Fame

#### Acheton Bob Purder

**Due to the massive size of the adventure, this solution is being serialised in several parts over the coming months.**

Return to the slab then enter Star Room 1 and drop the ebony, mace and pearls. Turn the lamp off, SAY ZOOGE and turn the lamp on again. Go back to the slab and drop everything – ensure you empty your pockets. Take the lamp, coat, violin, therm and tongs.

Now go Up and North and play the violin. Go East, take the salver and return West.

Journey North, North and West to the T Maze, get the ermine and sceptre.

Travel back to the slab and then to Star Room 1. Drop the salver and the violin. Turn the lamp off, SAY ZOOGE and turn the lamp on again. Go once more to the slab and drop everything. Now take the lamp, cloth and matches. Collect the pot and scissors and go to Beach two, then turn the lamp off.

Embark and wait to land. Collect the emeralds, doubloons and the keg. Wait for the pirates and get the coins. Go and take the driftwood. Now wait for the white flagged ship, light the match and light the fire.

Go to the harbour cave and turn the lamp

on. Travel to Star Room 1, drop the emeralds, doubloons, coins and the keg. Turn the lamp off, SAY ZOOGE and turn the lamp on again. Now go to the slab, drop everything and take the lamp.

Go round Scylla and collect the tiara. Now go to the slab and take the sceptre. Continue in your collection of royal treasures by going to Cave 9 and getting the crown and orb.

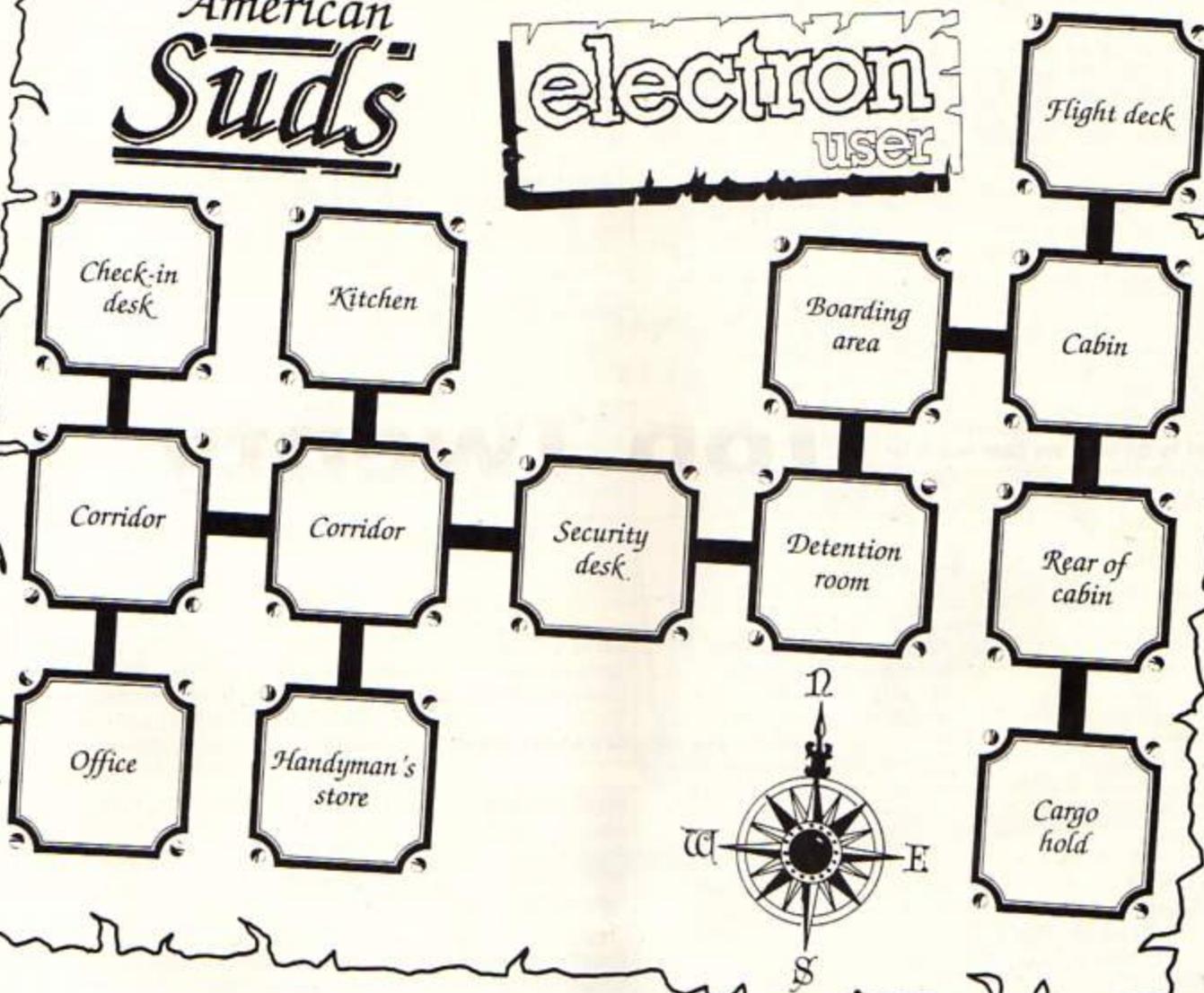
Go to Cave 17 and collect the chest. Now once more return to the slab then Star Room 1. Drop everything, take the lamp, turn the lamp off, SAY ZOOGE and turn the lamp on again.

(To be continued next month)

# Opening Gambit Map No. 11

## American *Suds*

## electron user



## Problems Solved

I BEGIN this section by thanking Darren Betts for answering a recent plea and providing me with a most concise map to Adventureland. A copy of Lothlorien's Special Operations is now winging its way to Darren as a token of my thanks.

My gratitude must also extend to Barbara Gibb, as thanks to her I now have a solution to part one of Aussie Suds. I am therefore able to offer help to each of the three Riverdale games.

The problems this month also appear to exclusively concern some older Electron classics. Vicky Selby writes to ask a real chestnut concerning the situation of the crown in Sphinx Adventure.

If my memory serves me well, you will find the ceremonial headgear in the west ante-chamber across the lake. But you may have greater problems crossing the lake in the first place.

Meanwhile Kenneth MacLeod of Menstrie asks how he can re-light the lamp

in the same game. Just remember what Aladdin did, Kenneth, and follow suit.

Kenneth is also stuck at the grating in Epic's Lost Crystal. He has tried bashing it with the hammer, but to no avail. You will find that it is impossible to open the grating from above. You need to unbolt it from below once you are in Merlin's cell. I think the words you must use are UNBOLT GRATING.

Kenneth finally asks what he should do after escaping from the prison and entering the brass door in Twin Kingdom Valley. After giving the diamond to the guard and getting the amulet, you must return to the cave through the door to get the rod and crystal ball. Now you are ready to enter the twisty maze.

In the same adventure John Gates wants to know how to get to the giant and the princess. There are two routes, one from the clearing, and the other is down from the castle.

For the first you will need the gold and bronze keys. From the clearing go: Down, North, North, West, West, Down, Down, North, North, North, North, North and North.

From the grand stairs in the castle go Down, Down, East, East, East, Down, Down, Down and North. You must be wearing the amulet to stop the princess fleeing. When you have done everything, have a second look at the treasures you have found.

In another oldie, Micropower's Adventure, Sarah Collins wishes to know how to kill the rat. This is a question I have answered many times in the past. You must turn your lamp off and hoot and the owl will do the rest.

Finally, in Classic Adventure, Alan Jones asks what he should say at location Y2. According to my ancient and dusty scrolls you say PLOVER to get the platinum pyramid and PLUGH to get the nugget. Have fun!

Turn to Page 20 ►



Scott Moore presents a computerised version of the celebrated scientist's cradle

# Knock on Newton!

**Y**OU must have seen Newton's Cradle, that fascinating demonstration of conservation of energy and (almost) perpetual motion consisting of several steel balls hanging by threads.

Set the end one swinging and when it hits the other balls, the one at the other end flies off. When that returns the original one flies up again. It's the sort of ornament or Yuppie toy found in puzzle and trinket shops.

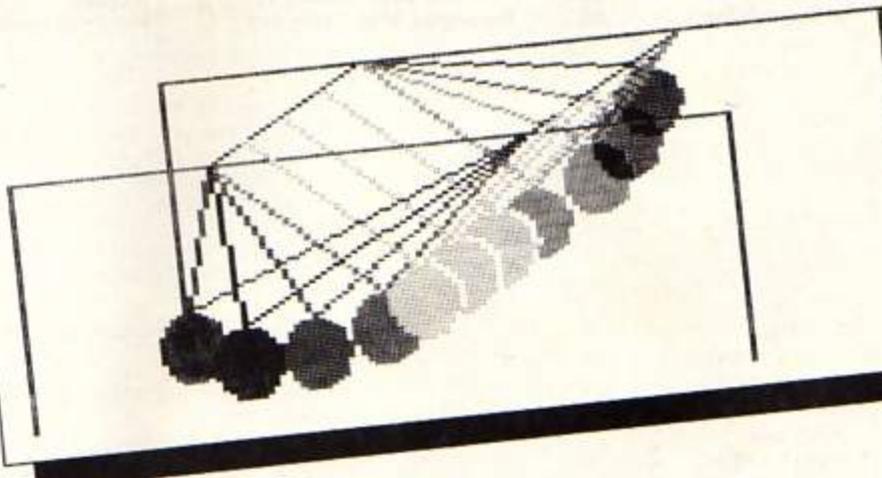
In this equally fascinating program, five balls are slung from the cradle and the end ones appear to swing in perpetual motion. In fact, nothing really moves, as 11 balls are drawn on the screen and the animation is achieved through a simple palette switching routine.

Some of the balls' colours are turned to black, while the ones making up the cradle are redefined as green. The effect is quite impressive.

When the end ball hits the main bunch a loud click is heard. This noise is not made through the Electron's internal speaker using a SOUND statement, but is made by switching the cassette motor relay on and off.

There are some useful animation and sound techniques to be learnt from this simple graphic demonstration, so get typing and try it for yourself.

Newton's cradle  
By Scott Moore



```

10 REM Newton's Cradle
20 REM By Scott Moore
30 REM (c) Electron User
40 MODE 2
50 VDU 29,50;0;
60 DIM OFX(4),FX(4),KX(7,4),SX
(36),CX(36)
70 VDU 23;8202;0;0;0;
80 FOR AX=0 TO 36
90 SX(AX)=SIN(RAD(AX*10))*40
100 CX(AX)=COS(RAD(AX*10))*40
110 NEXT
120 FOR AX=1 TO 10
130 READ QX,WX,EX,RX
140 PROCCIRC(QX,WX,EX,RX)
150 NEXT
160 GCOL 0,14
170 MOVE -50,320
180 DRAW -50,600
190 DRAW 200,600
200 DRAW 400,700
210 DRAW 800,700
220 DRAW 600,600
230 DRAW 850,600
240 DRAW 850,320
250 MOVE 800,700
260 DRAW 1050,700
270 DRAW 1050,420
280 MOVE 400,700
290 DRAW 150,700
300 DRAW 150,420
310 MOVE 200,600
320 DRAW 600,600
330 FOR AX=1 TO 4
340 READ QX,WX,EX,RX
350 PROCCIRC(QX,WX,EX,RX)
360 NEXT
370 COLOUR 14
380 FOR AX=1 TO 7
390 READ KX(AX,1),KX(AX,2),KX(AX,3),KX(AX,4)
400 NEXT
410 PRINT TAB(3,2)"Newton's cradle" ' ' " By Scott Moore"
420 FOR AX=1 TO 15
430 VDU 19,AX,0;0;
440 NEXT
450 VDU 19,14,1;0;19,12,3;0;19,4,3;0;
460 PX=1:DX=1:LX=2
470 FOR XX=1 TO 4
480 OFX(XX)=FX(XX)
490 FX(XX)=KX(LX,XX)
500 NEXT
510 FOR XX=1 TO 4
520 VDU 19,OFX(XX),0;0;19,FX(XX),3;0;
530 NEXT
540 IF LX=7 OR LX=1 DX=-DX ELSE IF LX=4 OSCLI("MOTOR"+STRS(PX)):
PX=PX EOR 1
550 LX=LX+DX
560 GOTO 470
570 DATA 752,625,1,13,720,580,1,2,680,544,1,9,600,500,1,1,558,479,0,0,550,475,0,4,508,454,0,0,500,450,0,4,458,429,0,0,400,400,1,8,450,425,0,4,312,380,1,5,160,400,0,6,226,376,1,3
580 DEF PROCCIRC(CX,YX,GX,CX)
590 GCOLGX,CX
600 MOVE XX,YX+40
610 FOR ZX=1 TO 36
620 MOVE XX,YX
630 PLOT 85,XX+SI(ZX),YX+CX(ZX)
640 NEXT
650 GCOL 0,CX
660 IF CX=4 THEN 680 ELSE IF CX=0 ENDPROC
670 IF YX<400:MOVE 400,700:DRAW XX,YX+40:DRAW 800,700:ENDPROC ELSE MOVE 200,600:DRAW XX,YX+40:DRAW 600,600:ENDPROC
680 MOVE XX-200,YX+200
690 DRAW XX,YX+40
700 DRAW XX+200,YX+200
710 ENDPROC
720 DATA 8,15,13,13,8,15,2,11,8,11,9,11,8,1,1,1,5,1,1,1,7,3,3,1,7,6,6

```

# Make a date

... with Roger Starkie,  
who has a neat little  
utility program to print  
out a calendar for you

**T**HE New Year is almost here. It's the end of a decade which has seen enormous changes in home entertainment and the computer industry. What will the 1990s hold in store for us?

With computer shows and product launches already planned for next year, take care not miss out by putting a ring around the dates as they are announced in *Electron User's* news pages. What? Haven't got a calendar? Don't worry, as Multi-Calendar will print one out for any year from 1987 onwards.

```

10 REM Multi Calendar
20 REM By Roger Starkie
30 REM (c) Electron User
40 REM
50 ON ERROR VDU23,1,0;0;0;:R
EPORT:PRINT" at Line ";ERL:END
60 MODE6
70 VDU23,1,0;0;0;0;
80 DIM SUX(6,12),MOX(6,12),TUX
(6,12),WEX(6,12),THX(6,12),FRX(6,
12),SAX(6,12),P(12),C(8),DS(8)
90 CLS
100 PRINT"" Mult
i Calendar"" By Roge
r Starkie"
110 PRINT"Enter the year."
120 INPUT Y
130 A=5
140 IF Y<1987 THEN 120
150 CLS::VDU23,1,0;0;0;0;
160 PRINT"" Mult
i Calendar"" By Roge
r Starkie"
170 PRINT"" WAIT
A MINUTE"
180 IF Y>1987 PROCm
190 DIM Da$(7)
200 IF Y MOD 4=0 AND FNexption
=0 LY=1 ELSE LY=0
210 DATA S,M,T,W,T,F,S
220 FOR I=1 TO 7:READ Da$(I):NE
XT
230 D1=1:MX=1:WX=1:D2X=1:D3X=A
240 DIM MONTHX(12)
250 DATA 31,28,31,30,31,30,31,3
1,30,31,30,31
260 FOR I=1 TO 12:READ MONTHX(I
):NEXT:IF LY MONTHX(2)=29
270 REPEAT
280 ON D3X GOTO290,300,310,320,
330,340,350
290 SUX(WX,MX)=D2X:GOTO 360
300 MOX(WX,MX)=D2X:GOTO 360
310 TUX(WX,MX)=D2X:GOTO 360
320 WEX(WX,MX)=D2X:GOTO 360
330 THX(WX,MX)=D2X:GOTO 360
340 FRX(WX,MX)=D2X:GOTO 360
350 SAX(WX,MX)=D2X:GOTO 360
360 D2X=D2X+1:D3X=D3X+1
370 IF D2X>MONTHX(MX) D2X=1:MX=
MX+1:WX=1
380 IF D3X>7 WX=WX+1:D3X=1
390 UNTIL MX=13:VDU19,1,1;0;
400 PRINTTAB(0,11);SPC(40):PRIN
TTAB(0,23)" Press SPACE fo
r the menu"
410 REPEATUNTILGET=32:MODE6:PRO
Cmenu
420 VDU23,1,0;0;0;0;
430 IF B=2 THEN RUN
440 IF B=3 PROCday:GOTO400
450 IF B=4 PROCprint:GOTO400
460 IF B=1 INPUT"Enter month "
M
470 IF M<1 OR M>12 THEN 460
480 DATA JANUARY,FEBRUARY,MARCH
,APRIL,MAY,JUNE,JULY,AUGUST,SEPT
EMBER,OCTOBER,NOVEMBER,DECEMBER
490 RESTORE480:FOR I=1 TO M:REA
D MS:NEXT
500 MS=MS+" "+STR$(Y)
510 MODE6:PRINTTAB(20-LEN MS/2,
5);MS
520 PRINTTAB(10,8)"S M T W
T F S"
530 FOR I=1 TO 7:FORJ=1 TO 6
540 ON I GOTO 550,570,590,610,6
30,650,670
550 IF SUX(J,M)>0 PRINTTAB(10,1
0+2*J);SUX(J,M):GOTO690
560 PRINTTAB(10,10+2*J);"-":GOT
690
570 IF MOX(J,M)>0PRINTTAB(13,10
+2*J);MOX(J,M):GOTO690
580 PRINTTAB(13,10+2*J);"-":GOT
690
590 IF TUX(J,M)>0 PRINTTAB(16,1
0+2*J);TUX(J,M):GOTO690
600 PRINTTAB(16,10+2*J);"-":GOT
690
610 IF WEX(J,M)>0 PRINTTAB(19,1
0+2*J);WEX(J,M):GOTO690
620 PRINTTAB(19,10+2*J);"-":GOT
690
630 IF THX(J,M)>0 PRINTTAB(22,1
0+2*J);THX(J,M):GOTO690
640 PRINTTAB(22,10+2*J);"-":GOT
690
650 IF FRX(J,M)>0 PRINTTAB(25,1
0+2*J);FRX(J,M):GOTO690
660 PRINTTAB(25,10+2*J);"-":GOT
690
670 IF SAX(J,M)>0 PRINTTAB(28,1
0+2*J);SAX(J,M):GOTO690
680 PRINTTAB(28,10+2*J);"-":GOT
690
690 NEXT,
700 PRINT":GOTO400
710 DEF PROCm
720 FOR I=1988 TO Y
730 IF ((I-1) MOD 4>0 OR (I-1)
MOD 4=0 AND FNexption=1) AND A<7
A=A+1:GOTO780
740 IF ((I-1) MOD 4>0 OR (I-1)
MOD 4=0 AND FNexption=1) AND A=
7 A=1:GOTO780
750 IF (I-1) MOD 4=0 AND A<6 A=
A+2:GOTO780
760 IF (I-1) MOD 4=0 AND A=7 A=
2:GOTO780
770 IF (I-1) MOD 4=0 AND A=6 A=1
780 NEXT:ENDPROC
790 DEF PROCmenu
800 PRINT"" Multi Cal
endar Menu.""
810 PRINT"1) Enter a month in
";Y;" to see"
820 PRINT"2) Start a new year
"
830 PRINT"3) Dates on one day
"
840 PRINT"4) Print out the ";
Y;" calendar"
850 B=GET-48
860 IF B<1 OR B>4 THEN 850
870 ENDPROC
880 DEF PROCday
890 INPUT"Day? 1=Sun .... 7=S
at. "D
900 CLS
910 DATA SUNDAYS,MONDAYS,TUESDA
YS,WEDNESDAYS,THURSDAYS,FRIDAYS,S
ATURDAYS
920 RESTORE 910
930 FOR Z=1 TO D:READ FS:NEXT:P
S="THE "+FS+" IN "+STR$(Y)+"":PR
INTTAB(20-LEN(PS)/2,4);PS
940 PRINTTAB(0,7);" J F M
A M J J A S O N D"
950 FOR P=1 TO 12:P(P)=10:NEXT
960 FOR W=1 TO 6:FOR M=1 TO 12
970 PRINTTAB(M*3,P(M));:P(M)=P(
M)+2
980 ON D GOTO 990,1010,1030,105
0,1070,1090,1110
990 QS=STR$(SUX(W,M)):IF QS="0"
QS=""
1000 PRINT QS:GOTO1130
1010 QS=STR$(MOX(W,M)):IF QS="0"
QS=""
1020 PRINT QS:GOTO1130
1030 QS=STR$(TUX(W,M)):IF QS="0"
QS=""
1040 PRINT QS:GOTO1130
1050 QS=STR$(WEX(W,M)):IF QS="0"
QS=""
1060 PRINT QS:GOTO1130
1070 QS=STR$(THX(W,M)):IF QS="0"
QS=""
1080 PRINT QS:GOTO1130

```

When run the program will ask you the year for which you want the calendar printing. After this there will be a pause of several seconds (the later the year, the longer the pause), while the program initialises itself. The main menu will then appear.

Choosing option one will prompt you for a month (1 to 12) which it will display on screen. Option two returns you to the beginning to choose another year. Option three will prompt you for a day of the week - 1 being Sunday and 7 Saturday - which it will print out every date this particular day appears in the year. This can be useful to, for instance counting the number of Saturdays until Christmas.

Option four lets you print out a calendar for the whole year.

Answering Y on the prompt: *Automatic?* gives several printouts without having to set the printer up each time. Simply enter the

JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
-	1	2	3	4	5	6	-	-	-	1	2	3	4	5	6	7	8	9	10	
7	8	9	10	11	12	13	4	5	6	7	8	9	10	11	12	13	14	15	16	17
14	15	16	17	18	19	20	11	12	13	14	15	16	17	18	19	20	21	22	23	24
21	22	23	24	25	26	27	18	19	20	21	22	23	24	25	26	27	28	29	30	31
28	29	30	31	-	-	-	-	-	-	25	26	27	28	-	-	-	-	-	-	-

APRIL							MAY							JUNE						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
-	-	-	-	-	-	-	-	1	2	3	4	5	-	-	-	1	2			
1	2	3	4	5	6	7	6	7	8	9	10	11	12	3	4	5	6	7	8	9
8	9	10	11	12	13	14	13	14	15	16	17	18	19	10	11	12	13	14	15	16
15	16	17	18	19	20	21	20	21	22	23	24	25	26	17	18	19	20	21	22	23
22	23	24	25	26	27	28	27	28	29	30	31	-	-	24	25	26	27	28	29	30
29	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Part of a simple calendar produced by this program

number of copies you want.

Pressing N at the prompt prints out just one copy. You are asked if you wish to print out another when it has finished printing the first. Answering N returns you to the main menu. To work out the calendar it is necessary to know which years are leap years. Generally, if you divide the year by four and there is no remainder, it is a leap year. The exception is the change of centuries, which

is not a leap year - and the exception to the exception, is that if the century is divisible by 400 it is a leap year!

The program first works out the day of January 1st of that year, by already knowing that the first day of January 1987 was a Thursday. The first day of the next year was one day after, so the first day of 1988 was a Friday. After a leap year, it is two days later, so the first day of 1989 was a Sunday.

```

1090 QS=STRS FRX(W,M):IF QS="0"
QS=" "
1100 PRINT QS:GOTO1130
1110 QS=STRS SAX(W,M):IF QS="0"
QS=" "
1120 PRINT QS:GOTO1130
1130 IF QS=" " P(M)=P(M)-2
1140 NEXT,
1150 ENDPROC
1170 DEF PROCprint
1180 FORI=1 TO 8:DS(I)="":NEXT
1190 PRINT""Automatic?":AS=GETS
:IF AS="Y" PROCauto ELSE autoX=0
1200 AX=10:XX=870:YS=STRS(Y):FOR
ZZZ=1 TO 4:ZZZ$=MID$(YS,ZZZ,1):B
=ASC ZZZ$
1210 AS=CHRS(B)
1220 IF AS="0" AS="0"
1230 IF B=48 B=ASC"0"
1240 ?XX=B
1250 YX=0
1260 CALL &FFF1
1270 FOR I=1 TO 8
1280 C(I)=XX?I
1290 NEXT
1300 FOR I=1 TO 8
1310 D=C(I)
1320 IF D<128 THEN DS(I)=DS(I)+
":GOTO1350
1330 C=D-128:D=C
1340 DS(I)=DS(I)+AS
1350 IF D<64 THEN DS(I)=DS(I)+
":GOTO1380
1360 C=D-64:D=C
1370 DS(I)=DS(I)+AS
1380 IF D<32 THEN DS(I)=DS(I)+
":GOTO1410
1390 C=D-32:D=C
1400 DS(I)=DS(I)+AS
1410 IF D<16 THEN DS(I)=DS(I)+
":GOTO1440
1420 C=D-16:D=C
1430 DS(I)=DS(I)+AS
1440 IF D<8 THEN DS(I)=DS(I)+
":GOTO1470
1450 C=D-8:D=C
1460 DS(I)=DS(I)+AS
1470 IF D<4 THEN DS(I)=DS(I)+
":GOTO1500
1480 C=D-4:D=C
1490 DS(I)=DS(I)+AS
1500 IF D<2 THEN DS(I)=DS(I)+
":GOTO1530
1510 C=D-2:D=C
1520 DS(I)=DS(I)+AS
1530 IF D<1 THEN DS(I)=DS(I)+
":GOTO1560
1540 C=D-1:D=C

```

```

1550 DS(1)=DS(1)+AS
1560 DS=DS+" ":NEXT,
1570 IF autoX=1 PROCauto_print
LSE PROCman_print
1580 ENDPROC
1590 DEF PROCheading:VDU2,1,27,1
,33,1,24:FORI=1 TO 8
1600 PRINTSPC(20):DS(I)
1610 NEXT
1620 ENDPROC
1630 DEF PROCcalendar
1640 VDU2,1,27,1,33,1,0
1650 PRINT""SPC(1):STRINGS(76,"
*)
1660 PRINTSPC(1):" * JANU
ARY * * MARCH *
1670 PRINTSPC(1):STRINGS(76,"*)
1680 PRINT" * S M T W T F
S * S M T W T F S *
S M T W T F S *
1690 PROCp(1,3):GOTO1890
1700 DEF PROCp(QQQ,PPP)
1710 PRINT"";
1720 FORW=1 TO 6:PRINT"";:FOR
M=QQQ TO PPP
1730 IF SUX(W,M)=0 PRINT"- ";
1740 IF SUX(W,M)>0 TS=STRS(SUX(W
,M)):PRINT;TS;:IF LEN TS=1 PRINT"
"; ELSE PRINT"";
1750 IF MOX(W,M)=0 PRINT"- ";
1760 IF MOX(W,M)>0 TS=STRS(MOX(W
,M)):PRINTTS;:IF LEN TS=1 PRINT"
"; ELSE PRINT"";
1770 IF TUX(W,M)=0 PRINT"- ";
1780 IF TUX(W,M)>0 TS=STRS(TUX(W
,M)):PRINTTS;:IF LEN TS=1 PRINT"
"; ELSE PRINT"";
1790 IF WEX(W,M)=0 PRINT"- ";
1800 IF WEX(W,M)>0 TS=STRS(WEX(W
,M)):PRINTTS;:IF LEN TS=1 PRINT"
"; ELSE PRINT"";
1810 IF THX(W,M)=0 PRINT"- ";
1820 IF THX(W,M)>0 TS=STRS(THX(W
,M)):PRINTTS;:IF LEN TS=1 PRINT"
"; ELSE PRINT"";
1830 IF FRX(W,M)=0 PRINT"- ";
1840 IF FRX(W,M)>0 TS=STRS(FRX(W
,M)):PRINTTS;:IF LEN TS=1 PRINT"
"; ELSE PRINT"";
1850 IF SAX(W,M)=0 PRINT"- *
":GOTO1870
1860 IF SAX(W,M)>0 TS=STRS(SAX(W
,M)):PRINTTS;:IF LEN TS=1 PRINT"
* "; ELSE PRINT"";
1870 NEXT:PRINT""SPC(1):";:NEXT
1880 ENDPROC

```

```

1890 PRINTSTRINGS(75,"*)
1900 PRINTSPC(1)" * APR
IL * * MAY *
1910 PRINTSPC(1):STRINGS(76,"*)
1920 PRINTSPC(1):" * S M T W
T F S * S M T W T F S
* S M T W T F S *
1930 PROCp(4,6)
1940 PRINTSTRINGS(75,"*)
1950 PRINTSPC(1)" * JUL
Y * * AUGUST *
* * SEPTEMBER *
1960 PRINTSPC(1):STRINGS(76,"*)
1970 PRINTSPC(1):" * S M T W
T F S * S M T W T F S
* S M T W T F S *
1980 PROCp(7,9)
1990 PRINTSTRINGS(75,"*)
2000 PRINTSPC(1)" * OCTOB
ER * * NOVEMBER *
* * DECEMBER *
2010 PRINTSPC(1):STRINGS(76,"*)
2020 PRINTSPC(1):" * S M T W
T F S * S M T W T F S
* S M T W T F S *
2030 PROCp(10,12)
2040 PRINTSTRINGS(75,"*)
2050 VDU3:ENDPROC
2060 DEF FNexception
2070 IF Y MOD 100>0 THEN =0
2080 IF Y MOD 400=0 THEN =0
2090 =1
2100 DEF PROCauto
2110 autoX=1
2120 INPUT"How many copies",copi
es%
2130 ENDPROC
2140 DEF PROCauto_print
2150 FOR ecX=1 TO copies%
2160 PROCheading:PROCcalendar
2170 VDU2
2180 VDU1,12:NEXT
2190 VDU3
2200 ENDPROC
2210 DEF PROCman_print
2220 REPEAT
2230 PRINT"Position printer corr
ectly, then SPACE":REPEATUNTILGET
2240 PROCheading:PROCcalendar
2250 VDU2,1,12,3
2260 PRINT""Another?":AS=GETS
2270 ENDPROC

```

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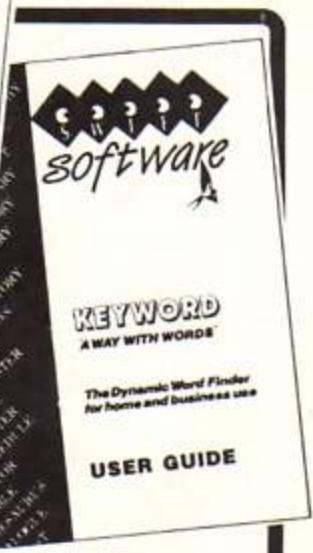
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**Extend the range of Basic's renumbering facility with a utility from John Geraghty**

WHEN developing your Basic programs do you ever find that you need to shift a section of code from one place to another? You might, for instance, have merged a procedure on to the end of your program and would like to shift it to a more logical position. Or you might want to move a block of data out of the way to the end of the listing.

However, copying even a short section of program one line at a time is a tedious business, and what is needed is an automatic way of carrying out this chore. That's where Renumb+ comes in. This utility is an extension to the normal built-in Basic RENUMBER command, which as you know, only accepts two parameters – the new number for the first line of the program and the step between the lines.

With this utility installed you have the option of specifying two extra parameters, like this:

```
RENUMBER start,end,newstart,step
```

The variables *start* and *end* are the starting and ending line numbers of the section of program you want to renumber. The third parameter, *newstart*, is the first new line number for that section. Since the line numbers of the renumbered program are always in sequence, *newstart* determines the new position of the section within the program. The final *step* parameter is the gap between the lines.

Note, however, that you can still use the original renumber command; the new one is used only if there are four parameters.

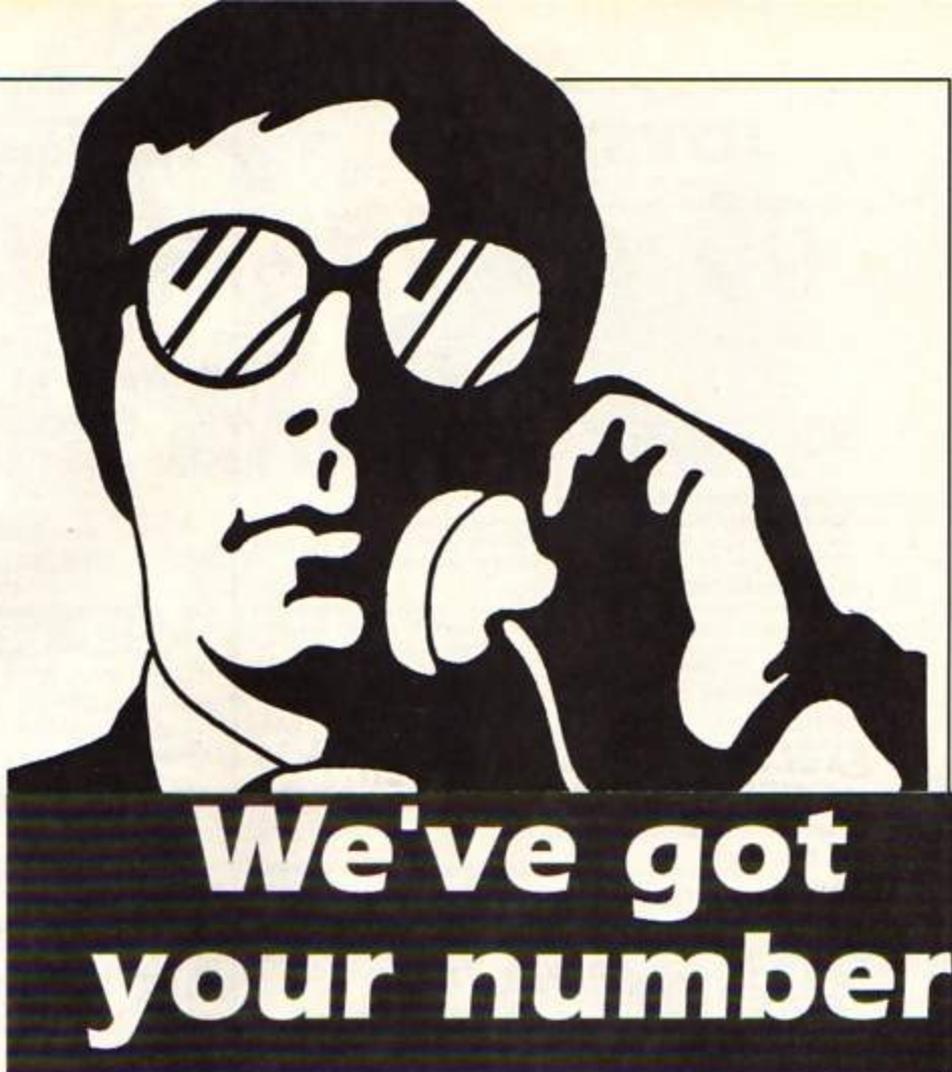
To see how this works in practice, let's take a program numbered from 10 to 1,000 in steps of 10. To move the section of code from line 500 to 580 to a new position between line 100 and 110 you would enter:

```
RENUMBER 500,580,101,1
```

The *step* parameter is set to one in this case simply because the nine lines to be shifted have to fit in to the gap between lines 100 and 110. If you were to choose any other number for *step* some of the relocated lines would be numbered greater than 110, and so would either interlace with existing lines or replace them. This can't be allowed so an error message is printed: *New line error x*, where *x* represents the first new line number which would have caused problems.

A point to note about the *step* parameter is that it is always taken to be greater than zero and less than 256. In other words, the number you input is reduced MOD 256, and incremented if the result is zero.

Sometimes you might want to renumber right to the end of the program. You can set the second parameter, *end*, to zero, which saves you the bother of finding out what the last line number is. So, taking the original



program as an example:

```
RENUMBER 300,0,2000,10
```

renumbers all the lines from 300 onwards as 2000, 2010, 2020 and so on.

Whenever a section is being renumbered, the old number of the line being dealt with is displayed and you get the message *Done* when the process is complete.

To create the utility, type in the listing and save it as RSOURCE. The machine code is saved as RENUMB+ and can be reloaded

whenever you need it – you don't need the Basic program. To turn the utility on you must enter:

```
CALL &A00
```

The message *RENUMBER+* is printed on the screen. You can turn off the utility with:

```
OFF
```

which allows you to recover the memory used by the program – pages &A &C.

```

10 REM RSOURCE
20 REM Partial Renumber
30 REM and block shift
40 REM By John Geraghty
70 MODE6
80 PROCassemble
90 PRINT""Saving..."
100 OSCLI"SAVE RENUMB+ A00"+CHR.
$32+STR$PX
110 END
120 :
130 DEF PROCassemble
140 paras=&70
150 inc=&70
160 newstart=&72
170 oldend=&74
180 oldstart=&76
190 lineaddr=&78
200 newline=&7A
210 startaddr=&7C
220 addr=&7E
230 flag=&80
240 delimit=&81
250 flag2=&82
260 prev_nladdr=&84
270 temp=&86
280 :
290 ptr=&80B
300 ptr_index=&80A
310 page=&18
320 inta=&2A
330 brkv=&202
340 input=&700
350 osnewl=&FFFE7
360 oswrch=&FFFE
370 :
380 REM Basic 2 rom routines
390 decode_num=&97DF
400 print_num=&9923
410 linesrch=&9970
420 delline=&BC20
430 insline=&BC80
440 break=&B402
450 :
460 FOR pass=0 TO 2 STEP2
470 PX=&A00
480 COPT pass
490 LDX #main MOD&100

```

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```

500 LDY #main DIV&100
510 SEI
520 STX brkv
530 STY brkv+1
540 CLI
550 BRK
560 EQUB 99
570 EQU$ CHR$204+"+"
580 BRK
590 :
600 .main
610 PHP
620 PHA
630 TXA
640 PHA
650 TYA
660 PHA
670 \"Silly" or "Syntax error"?
680 LDY #0
690 LDA (&FD),Y
700 BEQ over
710 CMP #&10
720 BNE exit
730 :
740 .over
750 \remove leading spaces
760 LDX #&FF
770 JSR spaces
780 \check for OFF tkn
790 CMP #&B7
800 BNE not_off
810 LDX #break MOD&100
820 LDY #break DIV&100
830 SEI
840 STX brkv
850 STY brkv+1
860 CLI
870 BRK
880 EQUB 99
890 EQU$ "Off"
900 BRK
910 :
920 .not_off
930 \check for RENUMBER tkn
940 CMP #&CC
950 BNE exit
960 \set ptra to input buffer
970 STY ptra
980 LDY #7
990 STY ptra+1
1000 DEY
1010 :
1020 .para_chk1
1030 \4 numbers following RENUMBER?
1040 LDA #ASC", "
1050 JSR get_para
1060 BNE exit
1070 DEY
1080 DEY
1090 BNE para_chk1
1100 LDA #&B0D
1110 JSR get_para
1120 BEQ para_chk2
1130 :
1140 .exit
1150 PLA
1160 TAY
1170 PLA
1180 TAX
1190 PLA
1200 PLP
1210 JMP break
1220 :
1230 .para_chk2
1240 \if oldstartYlast line, finish
1250 LDX oldstart
1260 LDY oldstart+1
1270 JSR get_addr
1280 SFX startaddr
1290 STY startaddr+1

```

```

1300 LDY #1
1310 LDA (startaddr),Y
1320 BMI finish
1330 :
1340 \if oldend=0, set oldend=&F00
1350 LDA oldend
1360 ORA oldend+1
1370 BNE not_max
1380 DEC oldend+1
1390 :
1400 .not_max
1410 \if oldstartYoldend, finish
1420 LDA oldend
1430 INY
1440 CMP (startaddr),Y
1450 LDA oldend+1
1460 DEY
1470 SBC (startaddr),Y
1480 BCC finish
1490 :
1500 \if oldend=&FF00, get highest line no. into oldend; if oldend doesn't exist, get next lower
1510 LDY #3
1520 JSR start_to_end
1530 \Y=1; flag -ve if oldend last line in prog
1540 LDA (addr),Y
1550 STA oldend+1
1560 INY
1570 LDA (addr),Y
1580 STA oldend
1590 :
1600 \if flag -ve and if newstartYoldend or address of oldstart=PAGE, no section movement, no need to check for line clash
1610 LDY flag
1620 BPL skip
1630 \is newstartYoldend?
1640 LDA oldend
1650 CMP newstart
1660 LDA oldend+1
1670 SBC newstart+1
1680 BCC ren_option
1690 \PAGE=startaddr?
1700 LDA startaddr
1710 BNE skip
1720 LDA startaddr+1
1730 CMP page
1740 BEQ ren_option
1750 :
1760 .skip
1770 \check for line clash
1780 LDY #&FF
1790 STY prev_nladdr
1800 STY prev_nladdr+1
1810 INY
1820 JSR start_to_end
1830 :
1840 \is section moving back, forwards or remaining where it is?
1850 LDX newstart
1860 LDY newstart+1
1870 JSR get_addr
1880 TYA

```

```

1890 LDY #&FF
1900 CMP startaddr+1
1910 BNE not_equal
1920 CPX startaddr
1930 BEQ ren_option
1940 :
1950 .not_equal
1960 CPX startaddr
1970 SBC startaddr+1
1980 TYA
1990 ADC #2
2000 TAY
2010 :
2020 .ren_option
2030 \Y=-1...no movement
2040 \Y=1...backwards
2050 \Y=2...forwards
2060 JSR start_to_end
2070 :
2080 .finish
2090 BRK
2100 EQUB 99
2110 EQU$ "Done"
2120 BRK
2130 :
2140 .start_to_end
2150 STY flag
2160 LDA newstart
2170 STA newline
2180 LDA newstart+1
2190 STA newline+1
2200 LDA startaddr
2210 STA lineaddr
2220 LDA startaddr+1
2230 STA lineaddr+1
2240 :
2250 .do_a_line
2260 \Escape?
2270 LDA &FF
2280 BMI finish
2290 LDA lineaddr
2300 STA addr
2310 LDA lineaddr+1
2320 STA addr+1
2330 :
2340 \flag=0...check line number
2350 LDA flag
2360 BEQ line_chk
2370 :
2380 \flag=3...getting oldend
2390 CMP #3
2400 BEQ continue
2410 :
2420 \print line num being renumbered
2430 JSR set_inta
2440 JSR print_num
2450 LDA #&B0D
2460 JSR oswrch
2470 :
2480 \flag=1 or 2...section movement
2490 LDA flag
2500 BMI no_move
2510 JSR move
2520 BNE lineaddr_ok \always
2530 :
2540 .no_move
2550 LDA newline
2560 LDY #2
2570 STA (lineaddr),Y
2580 DEY
2590 LDA newline+1
2600 STA (lineaddr),Y
2610 :
2620 .continue
2630 JSR inc_lineaddr
2640 .lineaddr_ok
2650 \increment newline
2660 CLC
2670 LDA inc

```

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```

2680 BNE inc_ok
2690 SEC
2700 .inc_ok
2710 ADC newline.
2720 STA newline
2730 BCC hi_ok
2740 INC newline+1
2750 \limit of 32767
2760 BMT brk
2770 .hi_ok
2780 \TOP?...
2790 LDY #1
2800 LDA (lineaddr),Y
2810 BPL oldend_chk
2820 STA flag
2830 RTS
2840 :
2850 .oldend_chk
2860 \finish if oldendXXcurrent l
ine
2870 INY
2880 LDA oldend
2890 CMP (lineaddr),Y
2900 DEY
2910 LDA oldend+1
2920 SBC (lineaddr),Y
2930 BCS do_a_line
2940 RTS
2950 :
2960 .line_chk
2970 \mustn't have new line crea
ted between current line and olde
nd
2980 \if oldendXXnewline, ok
2990 LDA oldend
3000 CMP newline
3010 LDA oldend+1
3020 SBC newline+1
3030 BCC line_chk2
3040 \if current lineY=newline,
ok
3050 LDY #2
3060 LDA (lineaddr),Y
3070 CMP newline
3080 DEY
3090 LDA (lineaddr),Y
3100 SBC newline+1
3110 BCC brk
3120 :
3130 .line_chk2
3140 LDX newline
3150 LDY newline+1
3160 JSR get_addr
3170 \preserve addr for prev_nla
ddr
3180 TXA
3190 PHA
3200 TYA
3210 PHA
3220 JSR range
3230 \C clear if addr within reg
ion which will have been deleted
ie. oldstart to current line
3240 PHP
3250 \flag2=1 if newline already
exists; error if addr of newline
not in safe area
3260 LDA flag2
3270 BEQ dont_exist
3280 PLP
3290 PHP
3300 BCS brk
3310 :
3320 .dont_exist
3330 \if previous newline and cu
rrent newline don't have same add
r, an old line between; if old li
ne in safe area, ok, else error
3340 LDX prev_nladdr
3350 LDA prev_nladdr+1
3360 CPX temp
3370 SBC temp+1

```

```

3380 BCC chk_oldline
3390 PLA
3400 BCS set_pnla
3410 :
3420 .chk_oldline
3430 LDY prev_nladdr+1
3440 JSR range
3450 PLA
3460 AND #1
3470 ADC #0
3480 BEQ set_pnla
3490 :
3500 .brk
3510 \print new line number+err
message
3520 JSR set_inta0
3530 JSR print_num
3540 BRK
3550 EQUB 99
3560 EQUB CHR$202+CHR$32+CHR$134
+CHR$32+CHR$133
3570 BRK
3580 :
3590 .set_pnla
3600 PLA
3610 STA prev_nladdr+1
3620 PLA
3630 STA prev_nladdr
3640 JMP continue
3650 :
3660 .range
3670 \if addr in X and Y is with
in region oldstart to current lin
e, C=0
3680 STX temp
3690 STY temp+1
3700 CPX startaddr
3710 TYA
3720 SBC startaddr+1
3730 BCC not_in_range
3740 LDA lineaddr
3750 CMP temp
3760 LDA lineaddr+1
3770 SBC temp+1
3780 BCC not_in_range
3790 CLC
3800 RTS
3810 .not_in_range
3820 SEC
3830 RTS
3840 :
3850 .move
3860 JSR set_inta
3870 LDA (lineaddr),Y
3880 PHA
3890 .relocate
3900 INY
3910 LDA (lineaddr),Y
3920 STA input,Y
3930 CMP #80b
3940 BNE relocate
3950 JSR delline
3960 JSR set_inta0
3970 LDY #4
3980 JSR inline
3990 PLA
4000 LDY flag

```

```

4010 DEY
4020 BEQ into_inc_lineaddr
4030 RTS
4040 :
4050 .inc_lineaddr
4060 LDY #3
4070 LDA (lineaddr),Y
4080 .into_inc_lineaddr
4090 CLC
4100 ADC lineaddr
4110 STA lineaddr
4120 BCC ilend
4130 INC lineaddr+1
4140 .ilend
4150 RTS
4160 :
4170 .spaces
4180 INX
4190 .spaces2
4200 LDA input,X
4210 CMP #820
4220 BEQ spaces
4230 RTS
4240 :
4250 .get_para
4260 STA delimit
4270 JSR spaces
4280 CMP #880
4290 BNE gpend
4300 STX ptr_index
4310 TYA
4320 PHA
4330 JSR decode_num
4340 PLA
4350 TAY
4360 LDA inta
4370 STA paras,Y
4380 LDA inta+1
4390 STA paras+1,Y
4400 LDX ptr_index
4410 JSR spaces2
4420 CMP delimit
4430 .gpend
4440 RTS
4450 :
4460 .set_inta
4470 LDY #1
4480 LDA (lineaddr),Y
4490 TAX
4500 INY
4510 LDA (lineaddr),Y
4520 INY
4530 BNE lab
4540 .set_inta0
4550 LDA newline
4560 LDX newline+1
4570 .lab
4580 STX inta+1
4590 STA inta
4600 RTS
4610 :
4620 .get_addr
4630 STX inta
4640 STY inta+1
4650 JSR linesrch
4660 \if line found, C=0 and (&3
D;&3E) points to CR+3; else point
s to CR at start of next line
4670 LDX #1
4680 BCC stx
4690 DEX
4700 .stx
4710 STX flag2
4720 LDX #3D
4730 LDY #3E
4740 BCS not_found
4750 DEX
4760 DEX
4770 DEX
4780 CPX #8FD
4790 BCC not_found
4800 DEY
4810 .not_found
4820 RTS
4830 J: NEXT:ENDPROC

```

**E**VERYONE who has used the Electron will have accidentally pressed the Break key at some time. How frustrating and annoying this is depends on what is being done at the time.

If you are using View to write a letter no harm will be done as Break simply returns you to command mode without losing the text. However, pressing Break in the middle of a game can result in much wailing and gnashing of teeth.

The fact that, unlike the Escape key, Break cannot be easily disabled is not just a problem for games players. In Basic, of course, typing OLD will restore the program, but anyone using any other language has the problem that if Break is accidentally hit all their programming is lost.

I teach craft, design and technology and use three Electrons in the workshop for computer experiments in control and there have been a number of occasions when pupils have inadvertently pressed Break and have lost their work because the programming language used is Logo.

This has happened sometimes because the Break key is so near the cursor keys used for editing and sometimes because their own computer, not being an Electron, has Return or Enter in a similar position.

For this reason, a method of disabling the Break key had to be found, and as it could not be done through software there were two alternatives. The first was to make a cover which fitted over the Break key like the one featured in the August 1987 issue of *Electron User*, and the second was to wire in a switch so that the key could be turned on or off.

Not liking any more bits that could fall on

the floor and get trodden on, the switch was chosen as the better option.

This isn't a particularly original idea, because the BBC Micro has a partial provision for one to be added at the back of the computer through the reset hole, and only requires the circuit board to be cut in one place. It was with this thought in mind that the four screws underneath the Electron were undone and the micro opened.

By gently easing the keyboard connecting cable from the row of pins on the main circuit board the keyboard can be taken off for easier access and closer examination. The Break key solution is easier than you might at first think. All that is required is for a cut to be made in the track on the circuit

# Take a quick break

**Peter Julian shows how to add a switch so you can disable the Electron's Break key**

Turn to Page 30 ►

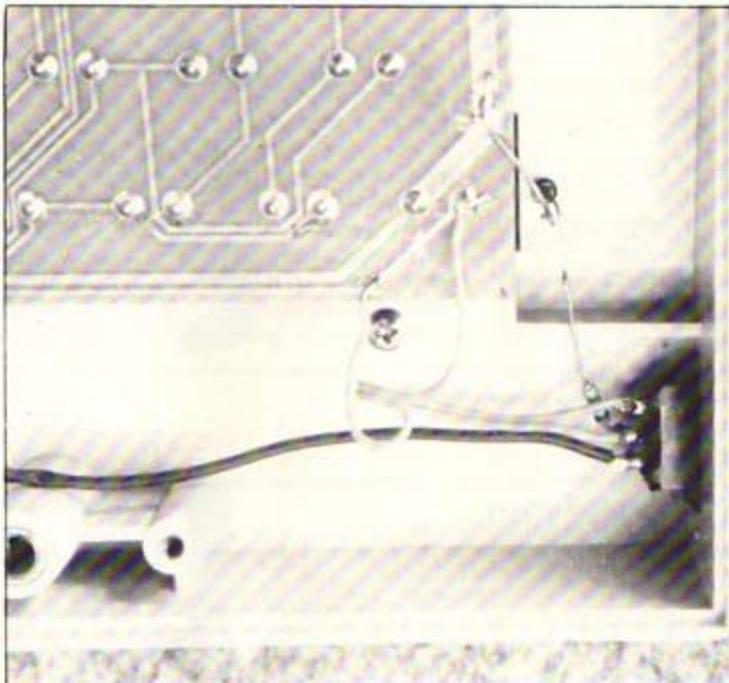


Figure I: The switch intercepts the track from the Break key and an LED shows whether the Break key is on or off

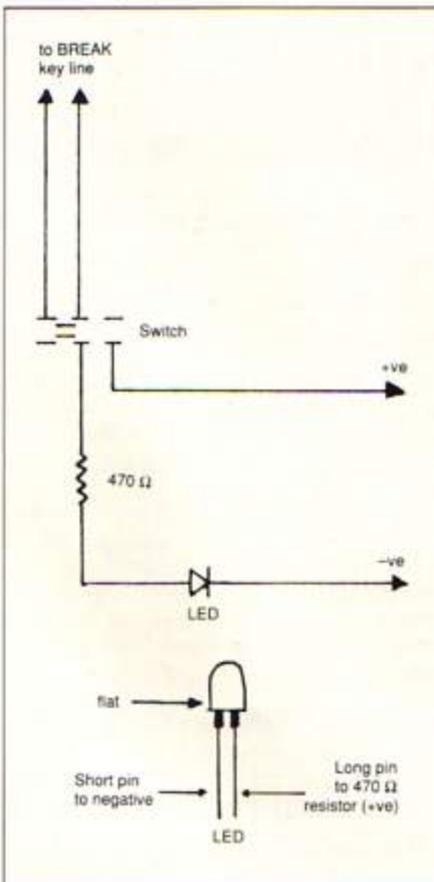


Figure III: The circuit diagram showing how the switch and LED are connected

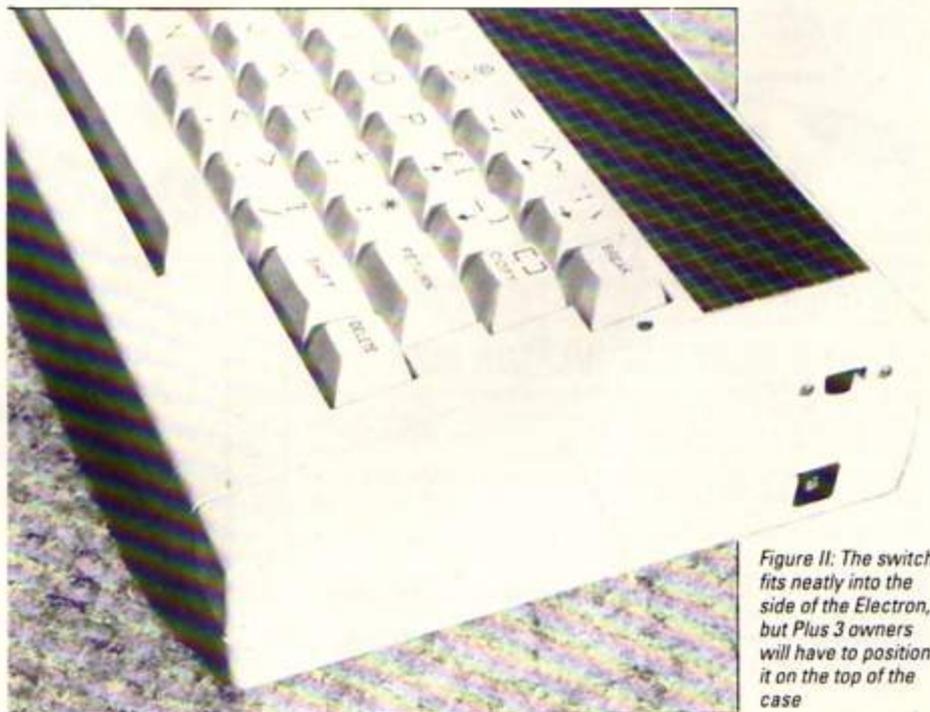


Figure II: The switch fits neatly into the side of the Electron, but Plus 3 owners will have to position it on the top of the case

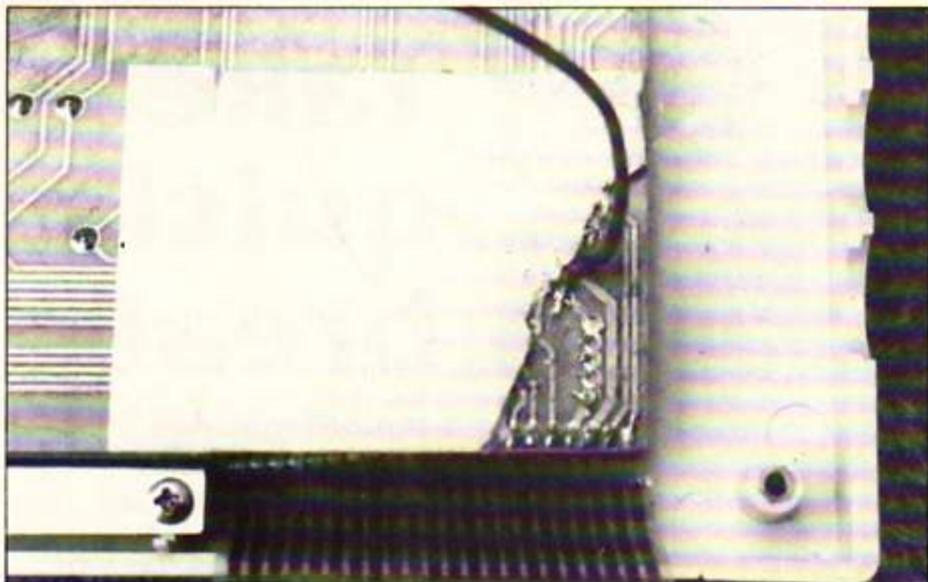


Figure IV: Power for the LED is taken from the keyboard underneath the protective pad next to the ribbon cable

◀ From Page 29

board that leads from the Break key, as shown in Figure I.

The next step is to fit a two position double-pole switch in the side of the Electron (see Figure II). If a Plus 3 is fitted the switch will have to go on top of the case.

A slide switch was chosen and a template was first made so that the slot and fixing holes could be marked out. Two holes

were drilled, one at each end of the slot and a small file used to enlarge and square the holes until the slot was the correct size.

The fixing screw holes were drilled and countersunk with a larger drill bit. This is best done by hand, holding the drill bit in your fingers and twisting it around, because even using a hand drill, it is quite easy to go straight through the plastic, making a hole which is much too big.

It is possible to fit a toggle switch, with

### Components

- Two position double-pole switch
- 3mm light emitting diode
- 470ohm resistor
- Plastic covered connecting wire

the advantage that only one hole has to be drilled. The disadvantage is that the lever sticks out and could easily be knocked by mistake, switching the Break key on again and so losing protection. It's worth the extra effort to put a slide switch in.

Finally, a 3mm hole is drilled next to the Break key to take a 3mm light emitting diode. This draws power from the keyboard and turns on when the Break key is switched off to remind you that it won't work.

The circuit is shown in Figure III and Figure I shows where and how the switch and LED are wired to the keyboard. Figure IV shows the point under the protective insulating pad where power is taken from the keyboard to light the LED. The spongy keyboard pad has to be pulled back to reveal the connection and for safety a thin piece of card must be taped over the exposed circuit board once the wire is soldered in place.

This modification has been made to two of the three Electrons so far and it has proved a cheap and satisfactory solution to an irritating problem.



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# SIGN OF THE TIMES

Teacher Rog Frost introduces two new programs to his primary school pupils

**S**OFTWARE writers have become adept at squeezing gallons out of a pint pot these days. The capability of 8 bit 32k micros can at times be truly amazing and the Sign Writer program from Wright Scientific allows very professional banners, signs and posters to be produced from the humble Electron computer.

Some additional hardware is required. Firstly, a standard Epson compatible, nine pin dot matrix printer needs to be attached. This includes the very popular Panasonics and Taxans - I have used both and others will do the job just as well.

Also required is a disc filing system. I use the normal DFS, but am assured by Wright that its system works even better with ADFS. DFS users will need access to more than one 80 track disc surface.

The original program comes on two sides of a disc so you might think that access to a double sided drive would be essential. It is, however, possible to configure the system for any disc drive arrangement. This involves converting a font into a usable form from data on drive 0.

Boot up and select the Process Font option from the main menu. It takes a long time, but requires no user input once the process has started. Wright Scientific recommends that a back-up disc is made and the original kept as a master copy.

Once Sign Writer is configured to your liking, it is time to boot up your back-up

copy and enter your first sign. After a whirr from the disc drive, you are asked a series of questions.

The first decision required is whether the sign should be horizontal or vertical. Then there are border sizes, whether the sign should be in a box, its width and so on.

All questions requiring a numerical response have sensible default values so

## *Electron User*

when learning the system it is possible to press Return and let the program make decisions.

Text is entered a line at a time with a sensible word processor style editor. It is possible to alter the size of the characters for a whole line. All sizes are given in millimetres. Further alterations are available when you become more confident.

The positioning of a whole line of text can be specified. This feature can allow different sized characters to be used on one line. The horizontal position can be altered - set left, right, centred or indented. Text can be underlined and the spacing between indi-

vidual characters set by the user or left in default proportional mode.

Normal keyboard characters can be directly typed but there is also a technique for allowing other characters with Ascii codes outside the normal range to be entered.

When the sign is complete it is saved to disc as a text file and can be edited within a normal word processor. The well-written manual gives help on the file's structure.

Printing is a straightforward process. Select the Print Sign option and then select any required features. It is also possible to send the output to a disc file so that it can be printed later. A draft quality option may be selected and the sign can be scaled down. An interesting option is the mirror image printout, included so that messages can be ironed on to T-shirts. The manual gives phone numbers for T-shirt suppliers and the required ribbons. It is just possible to use a normal ribbon if the T shirt has white spirit on it, but the final print quality is rather pale.

Printing is slow and the more complex the sign the slower it becomes, with an average A4 sign taking at least 15 minutes. If a line of text is too complex, the computer can't hold it in memory and the program fails. These signs can often be printed if done vertically.

It is possible to create your own fonts or modify existing ones, the design program being entered via the Alter Font option. Characters are entered as lines and arcs based on a large grid. The manual suggests that most characters should be kept to a grid size of 160 x 160.

I found this utility slow and awkward, but it is possible to produce a huge variety of characters. Fortunately for those of us who want to create signs and not the fonts, Wright Scientific have a large range of them which can be bought for less than £10.

Many are standard English fonts, but there are also Arabic, Greek and Hebrew as well as others devoted to chess pieces, Christmas and zoo animals. Even the standard fonts may have characters such as arrows or faces associated with characters 1 to 31.

Wright Scientific is at pains to point out that the program was originally written for 16 bit IBM machines and tends to apologise for its limitations on the Electron. On a standard machine, the screen display is muddled during printing. Otherwise, it all works fine. I think this is a very good product, ideally suited for those who require top quality lettering.

Product: Sign Writer  
Price: £29.00  
Supplier: Wright Scientific, 44 Roan Street,  
London SE10 9JT.  
Tel: 01-858 2699

# Entertaining history

**T**IME Lines is a data management program with a historical context. The idea is that pupils, or teachers or parents, set up a database on a particular historical topic. This can be stored on a disc as a resource so that other people can gain easy access to the material.

Each historical record is kept in a card format with dates and title first, followed by the body of text. Three linking references can be set up for each record and it is possible to create teletext-style pictures to accompany some of them. A special symbol is also added to each record to indicate the nature of its information.

Three types of record are possible. Individual Dates allows an entry to be made for just one year. A Span has a precise beginning and end while an Era is a bit fuzzy at either end.

The heart of the program is the Time Line. This runs across the screen and has dates marked on it at intervals which can be set from 10 years upwards. The special symbols of records will be shown above and below the time line along with the spans and eras which have been set up.

The above and below the line idea is very clever, as the two areas are, in fact, separate databases, and this allows for comparisons – you could set up a family history above the line set in the context of general history below the line.

Cursor keys are used to scroll through the time line. At any point you can stop and press D to see the details for that year. This will show a record card if one exists, and when this is on screen the cursor keys allow you to skim through to neighbouring records.

Searches are also possible, from both the time line and from record cards. Searches can be for dates, specific titles or for the special symbols that give a category for each record. The cross reference system allows for rapid searching for linked records.

There are two aspects of design within

the program. Firstly, it is possible to set up your own special symbols to use as labels. These are generated very easily on a grid system. Teletext graphics can also be created (and linked to particular records) using a more than adequate design program.

The support materials with this package comprise a clearly written manual plus a number of aids to help with gathering and collating data. These include forms for

within five minutes. Apparently it will be of great help with implementing the new national curriculum in science.

The next day, the geography people decided it was essential. It seems they do work on family history, and soon after that I was approached by the history department who also felt that Time Lines had a great deal to offer – particularly by being able to relate one aspect of history to another.

Eleven and 12-year-old pupils started entering their own family history and found it quite straight forward.

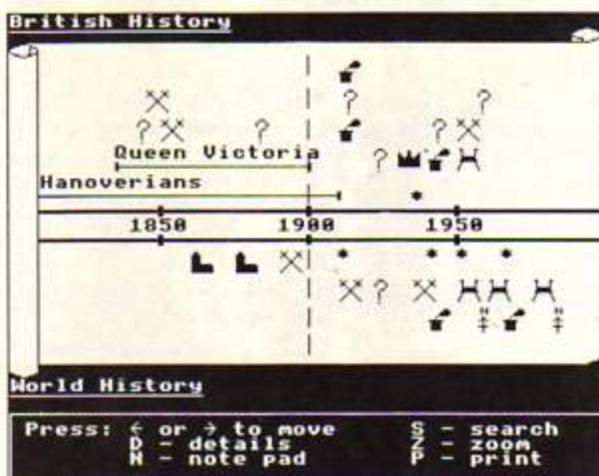
All of these people are aware that Time Lines is a little greedy on hardware. While it can be used with a single drive this does involve quite a bit of disc swapping and there is no doubt that two disc drives help a great deal.

The amount of data which can be stored on a disc depends on the format. A 40 track disc can store 160 records and 27 pictures while with an 80 track disc the number of records increases to 220. With the ADFS version this figure can be increased to 300 records.

Time Lines is intelligent and will set up the maximum space when you start a new database. The Archimedes version, which I'm told is coming soon – can store more than 1,000 records, including drawings.

There is one other limitation. The text entry system is not via a word processor. You have to press Return to end each line of text, and mistakes on a line can only be rectified by deleting and starting again. A careful user can quickly learn this procedure and data can be entered at rapidly.

I would certainly commend Time Lines, not only to junior and secondary schools, but also to individuals or history societies. It is a first rate package.



Scrolling Time Line screen

putting dates and general headings on and forms for preparing Time Lines record cards.

There are design sheets for symbol creation and a very useful sheet for the teletext graphic designing. Another reference card shows the pre-designed symbols and has space for new ones to be added. These cards are all copyright free for use in schools.

I can best put a value on Time Lines by describing what happened in my school when I first received an inspection copy (Soft Teach will issue most of its programs on approval). I showed the program to the librarian who had decided within 10 minutes that Time Lines was an essential for the library, particularly for setting up a local history database.

When the head of science came in he had pledged the money to buy the program

Product: Time Lines  
Price: £25.65 (disc only)  
Supplier: Soft Teach, Sturgess Farmhouse,  
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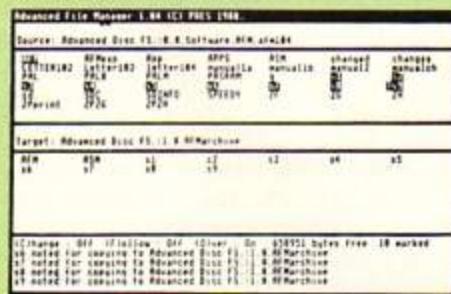
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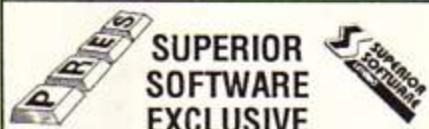
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Multiply: First step in those times tables and the 'X' sign

### Adder Sums Age 7-8yrs

Cheshire Cat **ADDER SUMS** includes  
Multiplication: Calculate the cost of items shown in the grocer's shop window  
Addition: Correctly total the shopping bill from the grocers  
Division: Share out the biscuits using the simple technique provided  
Time: Learn to tell the time of day, days of the week and the months of the year  
Tables: Make a start or improve on those important times tables

### Sum Times Age 8-9 yrs

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### Sum Measure Age 9-13 yrs

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Length: Work out the length of a line in centimetres or millimetres  
Area: Find the area of a rectangle using cm<sup>2</sup>  
Volume: Give the volume of a cuboid in cm<sup>3</sup>  
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# Wishing Wells



**Try your hand at being a wizard in this clever fairy tale arcade game devised by Den Miller**

**T**HIS is an unusual Basic/machine code hybrid sideways scrolling arcade game, in which you play the part of Haggleton's town wizard, Duffa. The jealous wizard Aargh has stolen 21 wishing scrolls from the town and hidden them down seven wells. It is your task to retrieve them.

There are two scenes to be played. The first is your journey to each well and this is set against a sideways scrolling mountain background. You start on the left-hand side of the screen and make your way to the right. Aargh casts evil spells at you which can be avoided by ducking under or leaping over them, or neutralised by casting your own spells.

Once at the well you descend into the depths. Unfortunately, it is so dark you can't even see a hand in front of your face. Working blind, you try to locate the wish scrolls by trial and error.

Try moving up, if that doesn't work go down, or left or right. Fortunately, you can cast a spell of light which leaves a strange green glow wherever you've been, which makes it easy to retrace your steps should you come to a dead end.

With seven wishing wells and two arcade scenes for each well, this game should keep you busy for quite some time.

#### Controls

Z	Left
X	Right
Return	Up or jump
Shift	Down or cast spell

```

10REM The Wishing Wells
20REM By Den Miller
30REM (C) 1989 Electron User
35IF PAGEYY&E00 GOTO 9000
40MODE5:PRINT":PROCwizzdat
50PROCset
60CLEAR
70lastX=0:hiX=0
80MODE6:VDU23;8202;0;0;0;
90PRINTTAB(11,1)"THE WISHING W

```

ELLS"" The evil wizard Aargh ha

s stolen 21""wishes from the good people of Haggletonand hidden them in 7 dark wells.As Duffathe old town wizard,travel to each well,avoiding or shooting spells and enter"

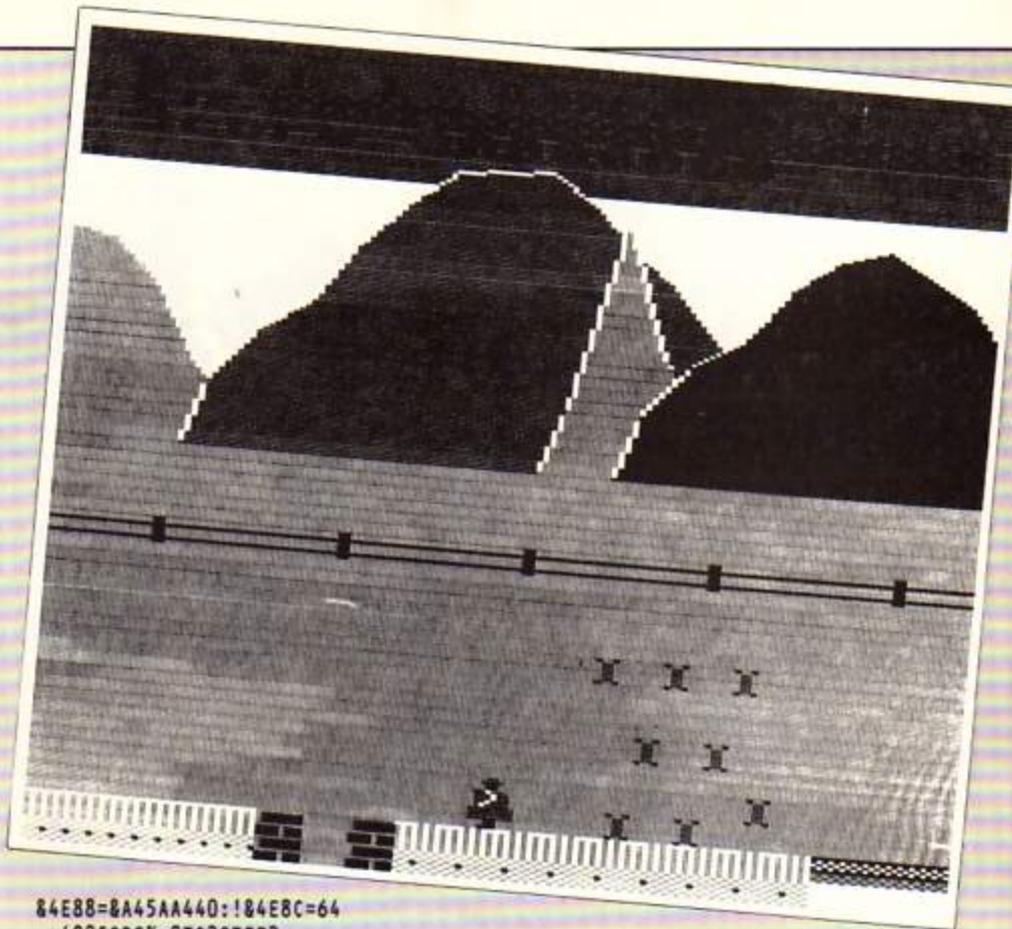
100PRINT"the magic maze to retrieve the lost""wishes!""Keys t

Turn to Page 38 ▶

◀ From Page 37

```

o use""TAB(10)"Z = left, X = rig
ht""TAB(2)"RETURN = jump/up, SHIF
T = fire/down"
110PRINT""Last score : ";lastX
;SPC4"Hi score : ";hiX
120PRINTTAB(7,22)"Press space b
ar to start":REPEATUNTILINKEY-99
130MODE5:VDU23;8202;0;0;0;:LevX
=1:!!84600=0:!!84604=0
140VDU19,1,2;0;19,2,4;0;19,0,6;
0;
150COLOUR128:CLS:stgX=1:PROCsc
160COLOUR129:PRINTTAB(0,16)SPC2
40SPC40
170PRINTTAB(2,17)"YYYY THIS WAY !
YYYY"
180PROCmoun
190?KX=0:!!880=87B98:PROCreset:C
ALLFX
200!!880=87B98:FORGX=&A00T0&A3CS
TEP4:!!GX=0:NEXT
210FORGX=0T0252STEP4:GX!!5ACO=&
F9F6F6F9:NEXT:?EX=0:EX?1=0:NX!-4=
0
220PRINTTAB(2,17)SPC16
230RESTORE240:FORGX=1T0LevX:REA
D?NX,NX?1:NEXT
240DATA7,7,6,3,7,2,7,1,2,1,4,2,
4,1
250EX?2=0:!!UX=0:CALLMX:COLOUR12
9
260IFEX?1 PROCdie:GOTO320
270IF?KX=249 PROCrejoice
280VDU26:COLOUR128:CLS:EX?1=0:s
tgX=2:PROCmaze:IFEX?1 GOTO320
290LevX=LevX+1:IFLevX=8GOTO300
ELSECOLOUR128:CLS:GOTO140
300VDU20,12:LevX=2:VDU19,1,0;0;
:COLOUR129:CLS:VDU19,0,1;0;19,2,0
;0;19,3,0;0;:COLOUR128:FORGX=5T01
5:PRINTTAB(0,GX)SPC40:NEXT
310PROCmoun:COLOUR129:COURO:P
RINTTAB(0,20)"" You win this tim
e Duffa ... but I'll be back!""
:FORGX=0T012000:NEXT
320FORGX=0T010000:NEXT
330lastX=0:FORGX=7T00STEP-1:las
tX=lastX+(?(&4607-GX))*10*GX:NEXT
:IFlastXYYhiX hiX=lastX
340GOTO80
350DEFPROCreset
360AX=0:BX=RND(-LevX):FORGX=&4F
10T0&4FFESTEP2
370IFRND(4)=2 AX=(RND(4)-1)*2
380?GX=AX*8:GX?1=(AX+1)*8
390NEXT
400!!&4F00=0:!!&4F04=0:!!&4F08=838
300000:!!&4F0C=&83804840
410ENDPROC
420DEFPROCset
430!!&5400=&666666690:!!&5404=&906
66666
440VDU23,224,0,118,0,94,0,124,0
,0
450ENVELOPE1,2,12,0,0,100,0,0,0
,0,0,0,0,0:ENVELOPE2,1,100,50,20,
2,2,2,0,0,0,0,0,0:ENVELOPE3,1,-12
9,0,0,100,0,0,0,0,0,0,0,0
460FORGX=&4EC0T0&4EFCSTEP4:!!GX=
&FFF0F0F:NEXT:!!&4EEO=&3FFF3F3F:!!
&4EE4=&3FFF3F3F
470!!&4E80=&21522110:!!&4E84=16:!
```



```

84E88=&A45AA440:!!84E8C=64
480FORGX=0T02STEP2
490PX=&4600
500COPTGX
510.sc EQUDD:EQUDD:.en .EX EQUB
0:.dead EQUBO:.stak EQUBO:.t EQU
0:.T EQUBO
520.IX DECstak:LDX#7:.ins1 INCs
c,X:LDA#8:CLC:ADC#10:BNE#X:LDA#0:ST
Asc,X:DEX:CPX#255:BNEins1
530.SX LDA#17:JSR&FFEE:LDA#130:
JSR&FFEE:LDA#31:JSR&FFEE:LDA#7:JS
R&FFEE:LDA#3:JSR&FFEE:LDY#0:.sc1
LDA#8:CLC:ADC#48:JSR&FFEE:INY:C
PY#8:BNEsc1:RTS
540.FX LDA#870:STA#71:LDA#880:S
TA#70:LDA#87E:STA#73:LDA#8C0:STA#
72:LDA#86F:STA#75:LDA#8C0:STA#74
550LDA#0:STA#flag
560.pgr LDAX:CLC:ADC#flag:TAY:
LDA#4F00,Y:TAX:LDY#0:.pgr1 LDA#9
00,X:STA(&70),Y:LDA#950,X:STA(&72
),Y:INY:INX:CPY#8:BNEpgr1
570LDA#70:CLC:ADC#8:STA#70:LDA#
71:ADC#0:STA#71:LDA#72:CLC:ADC#8:
STA#72:LDA#73:ADC#0:STA#73:LDAGfl
ag:CLC:ADC#1:STA#flag:CMP#40:BNEp
rgr
580.fence LDAX:AND#1:BNEend1
590.f1 LDAX:LSRA:AND#7:ASLA:ASL
A:ASLA:STA#flag:LDA#0:STA#flag
600.f2 LDAX:LDY#0:.f3 LDA#4
ECO,X:STA(&74),Y:INY:CPY#8:BN
EF3:LDA#74:CLC:ADC#8:STA#74:LDA#7
5:ADC#0:STA#75
610LDA#flag:CLC:ADC#8:STA#flag:
CMP#64:BNEf4:LDA#0:STA#flag
620.f4 INC#flag:LDAGflag:CMP#40
:BNEf2
630.end1 JSRwizz:RTS
640.x .KX EQUBO:.y .LX EQUBO:.g
flag EQUBO:.fflag EQUBO:.jf EQUBO
650.wizz .WX LDXchar:LDY#0:.wz1
LDA#5200,X:STA(&80),Y:INX:INY:CP
Y#16:BNEwz1:JSR#320:LDY#0:.wz2 LD
```

```

A&5330,X:STA(&80),Y:INX:INY:CPY#1
6:BNEwz2:JSR#320:RTS
660.RX LDY#0:LDA#15:.wz3 STA(&8
0),Y:INY:CPY#16:BNEwz3:JSR#320:LD
A#15:LDY#0:.wz4 STA(&80),Y:INY:CP
Y#16:BNEwz4:JSR#320:RTS
670.a320 LDA#80:CLC:ADC#64:STA#
80:LDA#81:ADC#1:STA#81:RTS
680.s320 DEC#81:DEC#81:LDA#80:C
LC:ADC#192:STA#80:LDA#81:ADC#0:ST
A#81:RTS
690.char .UX EQUBO:.firef EQUBO
:.fired EQUBO:.wishes EQUBO:.char
f EQUBO:.fx EQUBO:.fy EQUBO:.time
r EQUBO50
700.jso EQUDD&10011:EQUDD&20000
710.eso EQUDD&20011:EQUDD&40000
720.fso EQUDD&30011:EQUDD&40000
730.nso EQUDD&10011:EQUDD&40080
740.jumpso LDAY:ASLA:ASLA:STA#js
o+4:LDX#jso MOD256:LDY#jso DIV256
:LDA#7:JSR&FFF1:RTS
750.enso LDX#eso MOD256:LDY#eso
DIV256:LDA#7:JSR&FFF1:RTS
760.fso LDX#fso MOD256:LDY#fso
DIV256:LDA#7:JSR&FFF1:RTS
770.nso LDX#nso MOD256:LDY#nso
DIV256:LDA#7:JSR&FFF1:RTS
780:
790.MX JSRbads:JSRhits:LDA#stak:
BEQdelay:JSRix
800.delay LDX#240:.one INY:BNEo
ne:INX:BNEone:DECtimer:BNEleft:LD
A#100:STA#timer:JSRVX:JSRnoso
810.left LDA#129:LDX#89E:LDY#&F
F:JSR&FFF4:CPY#0:BEQright:LDAX:BE
Qright:DECX:JSRlechar:JSRallri:JS
Rhits
820.right LDA#129:LDX#8BD:LDY#&
FF:JSR&FFF4:CPY#0:BEQfire:INX:JS
Rrichar:JSRalle:JSRhits
830.fire JSRFX:LDA#129:LDX#&FF:
LDY#8FF:JSR&FFF4:CPY#0:BEQmob:LDA
```

```

firef:BNEmob:LDA#1:STAFiref:LDAch
ar:AND#32:CLC:ADC#1:STAFired:JSRb
set:JSRball:LDA#1:STAFiref:JMPjum
p
840.mob LDAfiref:BEQjump:JSRmba
ll:INCFiref:LDAfiref:CMF#8:BNEjum
p
850LDA#0:STAFiref:JSRball:LDA#0
:STA883
860.jump LDA#129:LDX#8B6:LDY#8F
F:JSR8FFF4:CPY#0:BEQdown:LDAjf:BN
Edown:LDAy:BNEdown:LDA#7:STAJf
870.down .DX LDAjf:BNEup:LDAy:B
Equp:LDA#15:LDY#0:.d1 STA(880),Y:
INY:CPY#16:BNEd1:DECy:JSRa320:JSR
wizz:JMPesc
880.up LDAjf:BEQesc:DECjf:LDAjf
:CMF#3:BMiesc:INCY:JSRa320:LDA#15
:LDY#0:.u1 STA(880),Y:INY:CPY#16:
BNEu1:JSRs320:JSRs320:JSRwizz:JSR
jumpso
890.esc LDA#129:LDX#88F:LDY#8FF
:JSR8FFF4:CPY#0:BNEbye:LDAx:CMF#2
49:BEQbye:LDAdead:BNEbye:JMPMX:.b
ye LDAstak:BEQout:JSRiX:JMPbye:.o
ut RTS
900.lechar LDAchar:AND#32:CMF#3
2:BNElechar1:LDA#0:STAchar:RTS:.l
echar1 INCcharf:LDAcharf:CMF#2:BN
Elechar2:LDA#0:STAcharf:LDAchar:E
OR#16:STAchar:.lechar2 RTS
910.richar LDAchar:AND#32:CMF#3
2:BEQrich1:LDA#32:STAchar:RTS:.ri
ch1 INCcharf:LDAcharf:CMF#2:BNEri
ch2:LDA#0:STAcharf:LDAchar:EOR#16
:STAchar:.rich2 RTS
920.ball LDY#0:.b1 LDA&4E80,Y:E
OR(882),Y:STA(882),Y:INY:CPY#16:B
NEb1:RTS
930.mball LDAfired:CMF#1:BNEmri
:JSRball:DEC883:LDA&82:CLC:ADC#24
8:STA882:LDA&83:ADC#0:STA883:JSRb
all:DECfx:RTS
940.mri JSRball:LDA&82:CLC:ADC#
8:STA882:LDA&83:ADC#0:STA883:JSRb
all:INCfx:RTS
950.bset LDA#100:STAFso+4:JSRfr
so:LDA&80:CLC:ADC#48:STA882:LDA&8
1:ADC#1:STA883:LDAy:STAFy:LDAfire
d:CMF#1:BNErt:LDA#17:STAFx:RTS:.r
t LDA882:CLC:ADC#32:STA882:LDA&83
:ADC#0:STA883:LDA#21:STAFx:RTS
960.bads LDX#t MOD256:LDY#t DIV
256:LDA#3:JSR8FFF1:LDA#t:AND#7:STA
by:INCBc:LDAbc:CMF#1:BEQbadm:RTS
970.by EQUBO:.bc EQUBO:.badno E
QUBO:.newb EQUBO:.NX EQUB4:.bl EQ
UB1
980.badm LDABY:CMF#1:BMIBadmove
:SEC:SBCNX:STABY:JMPbadm
990.badmove LDA#0:STABc:STABadn
o
1000.bad1 JSRbadin:LDA&7B:CMF#1:
BEQbadle:CMF#0:BEQnew:JSRbadright
:JMPnext
1010.badle JSRbadleft:JMPnext
1020.new LDAbadno:CMF#1:BNENex
t:LDA#78:STA&78:LDA#7D:STA&79:L
DABY:CMF#0:BEQnewok:LDY#0:.new1 D
EC&79:DEC&79:LDA&78:CLC:ADC#192:S
TA&78:LDA&79:ADC#0:STA&79:INY:CPY
by:BNENew1
1030.newok LDA#39:STA&7A:LDABY:S
TA&7C:LDA#1:STA&7B
1040.new2 JSRbadel
1050.next JSRbadout:LDAbadno:CLC
:ADC#8:AND#63:STABadno:BEQbadbye:
JMPbad1
1060.badbye LDAnwb:CLC:ADC#8:AN
D#63:STANwb:RTS
1070.badel LDY#0:.bad2 LDA(878),
Y:EOR&5400,Y:STA(878),Y:INY:CPY#8
:BNEbad2:RTS
1080.badin:LDY#0:LDXbadno:.bad3
LDA&A00,X:STA&78,Y:INY:INX:CPY#5:
BNEbad3:RTS
1090.bck LDA&7A:CMF#0:BEQstop:CM
P#39:BEQstop:CMF#255:BEQstop:CMF#
40:BEQstop:RTS:.stop LDA#0:STA&7B
:JSRbadel:RTS
1100.hits LDA#0:STABadno
1110.hit1 JSRbadin:LDA&7B:BEQhit
2:LDA&7A:CMF#19:BEQhit3:CMF#20:BE
Qhit3:LDAfiref:BEQhit2:LDA&7C:CMF
fy:BEQhit5
1120.hit2 JSRbadout:LDAbadno:CLC
:ADC#8:AND#63:STABadno:BNEhit1:RT
S
1130.hit3 LDA&7C:CMF#1:BEQhit4:CL
C:ADC#255:CMF#1:BEQhit4:JMPhit2
1140.hit4 JSRVX:LDA#0:STA&7B:JMP
hit2
1150.hit5 LDAfx:CMF#7A:BEQhit6:C
LC:ADC#1:CMF#7A:BEQhit6:JMPhit2
1160.hit6 LDA#0:STA&7B:JSRbadel:
LDAbadno:STAFso+4:JSRfrso:LDAstak
:CLC:ADC#2:ADCfy:STAstak:JMPhit2
1170.badout LDY#0:LDXbadno:.bad4
LDA&78,Y:STA&A00,X:INY:INX:CPY#5
:BNEbad4:RTS
1180.VX LDAen:CLC:ADC#248:STAen:
TAX:LDY#0:LDA#240:.en1 STA&5AC0,X
:INX:INY:CPY#8:BNEen1:LDAen:STAes
o+4:JSRenso:LDAen:BEQdie:RTS
1190.die LDA#1:STAddead:RTS
1200.badleft JSRbadel:DEC&79:LDA
&78:CLC:ADC#248:STA&78:LDA&79:ADC
#0:STA&79:DEC&7A:JSRbadel:JSRbck:
RTS
1210.badright JSRbadel:LDA&78:CL
C:ADC#8:STA&78:LDA&79:ADC#0:STA&7
9:INC&7A:JSRbadel:JSRbck:RTS
1220.allri LDA#0:STABadno:.ar1 J
SRbadin:LDA&7B:CMF#0:BEQnext:JSR
badright:.next JSRbadout:LDAbadn
o:CLC:ADC#8:AND#63:STABadno:BNEar
1:RTS
1230.allle LDA#0:STABadno:.al1 J
SRbadin:LDA&7B:CMF#0:BEQnext:JSR
badleft:.next JSRbadout:LDAbadno
:CLC:ADC#8:AND#63:STABadno:BNEal1
:RTS
1240.CX JSRa320:LDA&80:STA&7E:LD
A&81:STA&7F:JSRs320:LDY#14:.sk1 L
DA(87E),Y:INY:STA(87E),Y:DEY:DEY:
CPY#255:BNEsk1:LDY#7:LDA(880),Y:L
DY#0:STA(87E),Y:LDY#15:LDA(880),Y
:LDY#8:STA(87E),Y
1250LDY#14:.sk2 LDA(880),Y:INY:S
TA(880),Y:DEY:DEY:CPY#255:BNEsk2:
LDA#15:LDY#0:STA(880),Y:LDY#8:STA
(880),Y:RTS
1260.ZX
1270DECTimer:LDAtimer:BNEZdelay:
LDA#20:STAtimer:JSRVX
1280.zdelay LDX#200:.two INY:BNE
two:INX:BNETwo
1290LDA#129:LDX#89E:LDY#8FF:JSR&
FFF4:CPY#0:BEQzright:JSRlechar:JS
Rzlm
1300.zright LDA#129:LDX#8BD:LDY#
8FF:JSR8FFF4:CPY#0:BEQzup:JSRrich
ar:JSRzrm
1310.zup LDA#129:LDX#8B6:LDY#8FF
:JSR8FFF4:CPY#0:BEQzdown:JSRzum
1320.zdown LDA#129:LDX#8FF:LDY#8
FF:JSR8FFF4:CPY#0:BEQztest::JSRzd
m
1330.ztest JSRa320:JSRa320:LDY#0
:LDA(880),Y:STAz1:LDY#8:LDA(880),
Y:STAz2:JSRs320:JSRs320:LDAz1:CMF
#255:BNEesc2:LDAz2:CMF#255:BNEesc
2:JSRgetwish
1340.esc2 LDAdead:BNEmazo:LDAwi
shes:CMF#3:BEQmazo:LDA#129:LDX#8
8F:LDY#8FF:JSR8FFF4:CPY#0:BEQloop
y:.mazo RTS:.loopy JMPZX
1350.zdm JSRa320:JSRa320:LDY#0:L
DA(880),Y:AND#240:STAz1:LDY#8:LDA
(880),Y:AND#240:STAz2:JSRs320:JSR
s320:LDAz1:BNEzmo:LDAz2:BNEzmo:
JSRRX:JSRa320:JSRwizz:RTS
1360.zlm DEC&81:LDY#248:LDA(880)
,Y:AND#240:STAz1:JSRa320:LDA(880)
,Y:AND#240:STAz2:JSRs320:INC&81:L
DAz1:BNEzmo:LDAz2:BNEzmo:JSRRX:
DEC&81:LDA&80:CLC:ADC#248:STA&80:
LDA&81:ADC#0:STA&81:.zmo JSRwizz
:RTS
1370.z1 EQUBO:.z2 EQUBO
1380.zrm LDY#16:LDA(880),Y:AND#2
40:STAz1:JSRa320:LDA(880),Y:AND#2
40:STAz2:JSRs320:LDAz1:BNEzmo:LD
Az2:BNEzmo:JSRRX:LDA&80:CLC:ADC#
8:STA&80:LDA&81:ADC#0:STA&81:JSRw
izz:RTS
1390.zum LDY#0:JSRs320:LDA(880),
Y:AND#240:STAz1:LDY#8:LDA(880),Y:
AND#240:STAz2:JSRa320:LDAz1:BNEzL
mo:LDAz2:BNEzmo:JSRRX:JSRs320:JS
Rwizz:RTS
1400.getwish JSRa320:JSRa320:LDY
#0:TYA:.gw1 STA(880),Y:INY:CPY#16
:BNEgw1:JSRnos:INCwishes:JSRs320
:JSRs320:LDA#0:STAz1:.gw2 JSRiX:I
NCz1:LDAz1:CMF#40:BNEgw2:RTS
1410J
1420NEXT
1430RESTORE1440:FORGX=&900T0&98C
STEP4:READAS:!GX=VAL("&"+AS):NEX
T:FORGX=&990T0&99F:7GX=15:GX?-80=
15:NEXT
1440DATAA0A0A00,A0A0A0A,A0A0A0A,
A0A0A0A,8F8F4F33,8F8F8F8F,1F1F2EC
C,1F1F1F1F,AA55AFFF,5AA55AFF,AA55
AFFF,5AA55AFF,7F7F7F0F,FFFFFF0F,F
FFFFFF0F,7F7F7F0F,0,0,0,0
1450DATA50A050A,50A051B,50A050A,
50A050A,8F8F8F8F,334F8F8F,1F1F1F1
F,CC2E1F1F,0,0,0,0,7F7F7F0F,FFFFF
0F,FFFFFF0F,7F7F7F0F
1460ENDPROC
1470DEFPPROcmoun
1480dispX=(levX-1)*400:RESTORE15
00:FORGX=1T012:READXX,LLX,HHX,CC
X:IF(XXX-dispYY=1280)OR(XXX+LLXX=
dispX)GOTO1490 ELSEPROCmt(XX-di
spX,LLX,HHX,CCX)
1490NEXT
1500DATA-200,400,200,1,200,800,3

```

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```
00,2,700,150,250,1,1350,150,250,1
,800,600,230,3
1510DATA2000,200,160,1,1600,600,
50,1,2200,1000,300,3,2800,300,300
,3,3000,300,300,3,3300,600,350,3,
2900,800,70,1
1520ENDPROC
1530DEFPROCsc:COLOUR130:PRINTTAB
(O,0)SPC100:COLOUR3:PRINTTAB(1,1)
"Well ";levXTAB(10,1)"Stage ";stg
XTAB(1,2)"En."TAB(1,3)"Score":CAL
LSX:ENDPROC
1540DEFPROCdie:IfstgX=2 GOTO1580
ELSE REPEAT:IF?LX CALLD%:SOUND1,2
,5*?LX,2:FORJX=0TO300:NEXT
1550UNTIL?LX=0:GCOLD,3:VDU29,608
;64;
1560FORGX=64TODSTEP-4:SOUND&11,3
,GX,3:FORJX=0TO100:NEXT:FORHX=0TO
56STEP8:IFPOINT(HX,GX)XXYY1 PLOT69,
HX,GX
1570NEXT,
1580FORJX=16TODSTEP-1:SOUND17,1,
JX*4,4:CALLCX:FORGX=0TO500:NEXT,:
PRINTTAB(8,17)"GAME"TAB(8,21)"OVE
R"
1590ENDPROC
1600DEFPROCrejoice:?LX=4+?LX:REP
EAT:CALLDX:SOUND17,1,5*?LX,2:FORJ
X=0TO400:NEXT:UNTIL?LX=0:REPEAT:C
ALLVX:SOUND17,3,2EX,10:FORGX=1TO1
0*levX:CALLIX:NEXT:UNTIL?EX=0:END
PROC
```

```
1610DEFPROCwizzdat:RESTORE1620:F
ORGX=0TO28STEP4:READAS:GX!&5820=E
VAL("&"+AS):READAS:GX!&5960=EVAL(
"&"+AS):NEXT
1620DATA1F3C1E0F,F0F26858,58683C
1F,4F7F0F4,8FC3870F,F8F065E1,E1E
1638F,6F4FF0F2,1F1F3C1E,F4F0F278,
7868683C,1F1F1FF0,8F8FC387,F2F8F0
A1,61E1E163,CF8F8FF0
1630FORGX=1020TO960STEP-4:FORHX=
0TO120STEP8:GCOLD,POINT(248-HX,GX
):PLOT69,HX,GX:NEXT,:FORGX=0TO380
STEP4:GX!&5200=GX!&5800:NEXT:ENDP
ROC
1640DEFPROCmt(XX,LEX,HEX,COX):VD
U29,XX;512;:MOVED,0:L=LEX/PI:0XX=
-32:0YX=0:AX=RND(-3)
1650FORX=0TOLEX*STEP64:yX=40+RND
(40)+HEX*SIN(XX/L)
1660GCOLD,COX:MOVEXx,yX:MOVEXx,0
:PLOT85,0XX,0YX:PLOT85,0XX,0:GCOL
D,0:MOVE0XX,0YX+4:DRAWXx,yX+4:0XX
=xX:0YX=yX:NEXT
1670DRAWXx+16,4:GCOLD,COX:MOVE0X
X,0:MOVE0XX,0YX:PLOT85,xX+16,0
1680ENDPROC
1690DEFPROCmaze
1700RESTORE1840:VDU20,19,2,0;0;1
9,1,2;0;
1710PROCsc:COLOUR130:VDU28,0,31,
19,7,12
1720FORGX=1TOlevX:READseedX,revX
,qX,mS::NEXT
1633AS=" "+CHR$8+CHR$8+CHR$10+"
":COLOUR128
```

```
1740AX=RND(-seedX):FORGX=1TOrevX
:PRINTTAB(RND(17),RND(22))AS:NEXT
1750COLOUR131:COLOUR2:FORGX=1TO9
STEP4:XX=VALMID$(qX,GX,2):YX=VALM
ID$(qX,GX+2,2):PRINTTAB(XX,YX)CHR
$224:NEXT
1760XX=VALMID$(mS,1,2):YX=VALMID
$(mS,3,2):!&80=&6DC0+(XX*16)+(YX*
320):CALLWX
1770VDU26:COLOUR128:COLOUR3
1780FORGX=0TO252STEP4:GX!&5ACO=&
F6F9F9F6:NEXT:?EX=0
1790CALLZX
1800IFEX?1 PROCdie:ENDPROC
1810VDU19,2,4;0;:REPEAT:CALLVX:S
OUND&11,1,2EX,2:FORGX=1TOlevX*2:C
ALLIX:NEXT:UNTIL?EX=0
1820CALLRX:FORGX=&6200TO&8000STE
P4:IF!GX=&F0F0F0!GX=0:SOUND&11,
2,GX,1:CALLIX
1830NEXT:EX?1=0:ENDPROC
1840DATA17,86,041602181515,1307
1850DATA30,80,161516190107,1401
1860DATA255,113,030411030212,040
1
1870DATA2,73,051406171410,0602
1880DATA6432,101,030807100120,17
04
1890DATA111,71,121309041717,1305
1900DATA1,102,032109121509,0101
9000*K.O *T.|MDX=PAGE-&E00:FOR I
X=PAGE TO TOP STEP4:!(IX-DX)=!IX:
NEXT:!(TOP-DX)=&FF0D:PAGE=&E00|MO
LD|MRUN|M
9010*FX138,0,128
```

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# MICRO MESSAGES

I BORROWED some old back issues of Electron User from a friend and as I have just bought Slogger's 32k sideways ram cartridge I thought I would give your Toolkit rom from the February 1986 issue a try. I typed in the machine code program and attempted to enter it into my sideways ram, but without success. All I got were Bad program error messages.

I couldn't get to grips with the instructions in the accompanying article. Where does PROCram\_write come into it, and how is it called up? How do you enter a program into sideways ram?

One last question: What does the following command do:

```
VDU 23;8202;0;0;0;
```

— Kenneth MacLeod, Menstrie, Clackmannanshire.

PS. I have heard that the Electron User office is a shambles in the morning. Is it true that you spend the first half hour oggling the Sun?

● The Toolkit rom will work in any sideways ram cartridge or chip, and the only problem is how to get it loaded. PROCram\_write was designed to write the program automatically into the Pres sideways ram cartridge and won't work with others.

The procedure could be adapted, but if you are intending to write rom software it would be best to buy a utility rom such as Slogger's Elkman. This has two commands for loading and saving rom images, RLOAD and RSAVE.

The VDU command simply switches off the Electron's cursor. There is no truth in the rumour (started by Pete Bibby in the November 1985 issue) that Electron User staff oggle Page three of the Sun. However, the editor is always grumpy first thing in the morning until he has read the Financial Times and counted his money.

## Petitioning for more games

I HAVE now had my Electron for five years and thanks to your excellent magazine I have upgraded it with an AP1, AP3, View, Viewsheets and a Star LC10 printer.

Apart from word processing for my schoolwork I also like playing games and have a collection of about 90. There aren't enough games for the Electron because there are few major software suppliers — Superior, Tynesoft, Fourth Dimension and Impact.

The Electron is capable of running con-

## The way into sideways ram

versions of all Commodore 64 games, and why be outdone by the inferior Spectrum? With enough support we should receive more and better quality games.

Come on everyone, even if you don't play games that often, write to US Gold (Units 2/3 Holford Way, Holford, Birmingham) and ask for conversions of Strider and Forgotten Worlds; Ocean (6 Central Street, Manchester) and ask for conversions of Robocop, New Zealand Story and Dragon Nija.

I hope all Electron users will respond to this plea and I am eager to see the outcome. — Simon Tarry, Netherlands.

## Graphic output is a dump!

HAVING recently expanded my system with a disc drive and Centronics GLP printer, I would now like to be able to print graphics from your Elkpaint program published in the October 1989 issue of Electron User and other various graphic sources.

To this end, I now require a screen dump utility for my printer. I have a program for the Epson FX80, but unfortunately it prints spaces between each line. I have tried to rectify this program, but with no success. I would be grateful if you could recommend a suitable program to give me graphic output

All programs printed in this issue are exact reproductions 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

on my printer. Also do you know of any program that would enable me to print a small motif at the top of my View processed letters? — Andy Collins, Chipping Sodbury, Bristol.

★ ★ ★

FOR some time now I have been trying to obtain a June 1986 back issue of Electron User as I believe it has a listing for a screen dump that is compatible with my Panasonic KX-P1081 printer.

So far it has been impossible to get any back issue more than 12 months old. — P.E. Oliver, Preston, Lancashire.

● Most screen dump programs are designed for Epson-compatible printers — you'll find one in Micro Messages in the August issue of Electron User. We haven't used your particular printer, but it sounds as though your problem could be something to do with the line feed. Try setting the DIP switches inside the printer so that line feeds are not automatically generated, also try \*FX6,10 or \*FX6,13 and see if this solves the problem.

One other solution would be to rewrite the software so that only half the paper feed is produced. This is a simple matter involving changing a couple of control codes. Find the codes in your GLP printer manual that control line feed — probably Escape A — and check that you can increment it in steps of 1/72 inch. If it's 1/32 inch then Epson compatible screen dumps will not work.

We published a letterhead designer in the March 1988 issue of Electron User that can be used to design motifs at the top of your letters.

## Moving up in the palace

I WOULD like to thank Julie Boswell for her titrations program in the August issue of Electron User. Titration was the first unit in my A level course so the help was gladly appreciated.

The equations program was good practice too, but I think a few of the answers

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were incorrect. However, all it took was a few simple changes to the data statements to put matters right.

Concerning *The Palace of Magic* map in the June and July issues, it says Use the rope at the location of key C to climb up, but exactly how do you do this? Is there a special key or combination of keys to do this? – **Spencer Liddicoat, St. Austell, Cornwall.**

- Can any readers tell Spencer exactly how to use the rope at this location?

## Hunting a one arm bandit

I HAVE played various fruit machine simulators on the Spectrum, Commodore 64 and Amstrad and thoroughly enjoyed them. Are there any similar programs available for the Electron? If so, where can I get them? – **Eddie Henderson, Edinburgh.**

- A long time ago Superior Software produced a fruit machine simulator. There are

still a few copies available from mail order companies and it's only £1.99.

## Old drivers for new printers

COULD you please publish a good View printer driver (I have a Panasonic KX-P1081) and tell me if I can print page numbers as in a book. Also, is there any way to stop the paper scrolling through several blank lines before printing the first line of text?

I see many letters asking you for various things, but all you reply is See back issue... I, probably like many other people who write in, don't always have these back issues, so why can't you sometimes reprint the answers to requests?

Finally, could you tell me how much a genlock system would cost and where I could get one from? – **Martin Bastable, Stafford, Staffordshire.**

★ ★ ★

I OWN an Electron, Plus 1 and Citizen 120D printer. I use View a lot on my GCSE coursework and find it excellent, but I would like to

use highlights and underlining.

Unfortunately, I haven't a printer driver and wondered if any of your readers could supply me with a photocopy of one out of the back issues of *Electron User* (which are no longer available). I started collecting the magazine just after the View printer driver was published and unfortunately missed it.

I also have a query regarding the Pres Advanced Control Panel. I like the idea of writing my own operating system, but could I use it as I haven't got a disc drive, DFS or ADFS? Thanks for a great magazine. – **Neil Mistry, Loughborough, Leicestershire.**

★ ★ ★

I HAVE been the proud owner of an Electron and Plus 1 for about four years now and have recently upgraded my system with a Plus 3 and a Pres ABR with E00 ADFS. A few days ago I bought a Star LC10 colour printer to use with the View word processor. Could you or any Electron User readers tell me which is the most suitable printer driver?

Watford Electronics produces a View printer driver for the BBC Micro. Would it be possible to use this rom with the Electron? Thank you for supporting the Electron with your brilliant magazine. Keep up the good work. – **A. Smith, Ryhall, Stamford.**

- We published two good View printer drivers in the August 1986 and August 1987 issues of *Electron User*. As it is such a popularity, and these issues are no longer available, here it is below left.

We haven't tried Watford Electronics' View printer driver rom with the Electron, but other drivers for the BBC Micro that we tried worked without any problems.

When printing book pages from View you'll need to enter the stored command TS (two sided) to force the headers and footers to the left or right margin. On a blank line at the start of the text press Fuct+O then type TS and press Return.

At the end of each chapter use OP (odd page eject) or EP (even page eject) to force the start of a new chapter on either an even or odd page number.

The page number is held in a variable called P and should be set to the value 1 on the first page of the first chapter using the stored command:

```
SR P 1
```

The page numbers can be placed in a footer using the following stored command line:

```
DF //Page |P/|
```

This will print the word Page followed by the current value of P – which is automatically incremented by View each time a new page is started.

To prevent View leaving several blank lines at the top of the page use the stored commands:

```
TM 0
HM 0
```

These set the distance between the header and the top of the page and the

```

10 a$="Printer Driver II"
20 REM By Julie Boswell
30 REM (c) Electron User
40 MODE 6
50 ESC=27
60 PRINT''''a$
70 INPUT''Input pad character:
"pad$
80 areg=890:yreg=891
90 FOR pass=4 TO 6 STEP 2
100 PX=8400:OX=8C00
110 [OPT pass
120 JMP .print_char
130 JMP .printer_on
140 JMP .printer_off
150 JMP .exit
160 JMP .exit
170
180 .on EQUB 0
190
200 .print
210 PHA
220 LDA #1:JSR &FFEE
230 PLA
240 AND #87F:JMP &FFEE
250
260 .printer_off
270 LDA #0:STA on
280 LDA #3:JMP &FFEE
290
300 .printer_on
310 LDA on:BNE .exit
320 INC on
330 LDA #2:JSR &FFEE
340 LDA #ESC:JSR .print
350 LDA #ASC"a":JSR .print
360 .exit
370 RTS
380
390 .print_char
400 CMP #ASC pad$:BNE not_pad
410 LDA #32
420 .not_pad
430 CMP #128:BPL highlight
440 JMP &FFE3
450 .highlight
460 CMP #144:BCS .exit
470 STA areg:STY yreg
480 AND #87F:ASL A:ASL A:TAY
490 LDA table+1,Y:EOR #880:STA
table+1,Y
500 AND #880:BNE here
510 INY:INY
520 .here
530 LDA table,Y:AND #880:BEQ no_esc
540 LDA #27:JSR .print
550 .no_esc
560 LDA table,Y:JSR .print
570 LDA table+1,Y:JSR .print
580 LDA areg:L0Y yreg
590 RTS
600
610 .table
620 ]
630 NEXT
640 i=128
650 PRINT''Enter highlight ";i;
"(Y/N)?";
660 IF INSTR("Nn",GET$) OSCLI"SAVE Driver COO D00":END
670 INPUT LINE'' On:"a$
680 INPUT LINE "Off:"b$
690 !OX=FNcode(a$)+810000*FNcode(b$)
700 OX=OX+4:i=i+1
710 GOTO 650
720
730 DEF FNcode(a$)
740 CX=0
750 IX=INSTR(a$,"")
760 CX=CX OR EVAL(a$)
770 IF IX=0 THEN =CX
780 a$=MID$(a$,IX+1)
790 IF CILTNGTR27 THEN =CX+8100*EVAL(a$)
800 CX=880:GOTO 750

```

header and the start of text to zero.

No genlock system is available for the Electron – you would need a Commodore Amiga or Atari ST. The Advanced Control Panel is best used with a disc filing system.

## Turbo tape cut short

AFTER seeing the Turbo Tape program in the December 1987 issue I thought of a much more convenient method of achieving the same effect. Before saving a program, type the following code:

```
PX=&7D
[ LDA #0 : STA &240 : RTS : ]
?&220=&0 : ?&71=0
*FX14,4
```

Now save your program to tape, waiting for about a second before pressing Return after the Record then Return message appears. This is because the code removes the blank tone at each end of file, but the tape recorder may need a tone at the beginning to adjust its record level. After the program has finished saving, use \*FX13,4 to disable the routine.

The code works by using an event to continually poke zero into the cassette filing system's timer which the operating system uses to time the inter-block gaps. The timer can be accessed with osbyte &B0. – Anthony Houghton, Woolston, Southampton.

## Stamping with database software

I ENJOY using my Electron, but I just can't grasp programming. I need a program for storing stamps by year and country under three headings – animals, fish and sport.

I need to be able to list all the stamps in these categories and if possible, be able to change the text colour of issues I have obtained and to add new issues as they are released.

Can you tell me of any listing that can do this? – A.W. Crabb, Writtle, Chelmsford.

● We published a good database program in the June 1989 issue of *Electron User*. You'll need a disc system to make use of it.

## Spelling out a tape problem

I recently received the September issue of *Electron User* with cassette. I must point out an error in line 5480 of *Ceemags*, the magazine database, supplied on the cassette. It is a simple spelling mistake – an a in place of an e. How did it manage to get on to the tape when the magazine listing was correct? – J.D. Hatfield, Hull.

● Both the magazine listing and our master disc version are correct, so we haven't a clue where the error came from.

# Joystick conversion

I HAVE been in contact with the very helpful ladies of your subscription department, but they have been unable to help me with one particular problem. I am a subscriber to *Electron User* and I am the proud owner of two *Electrons*, one fitted with a Plus 1. I also have a pair of analogue joysticks which are not useable with a lot of my games software such as early *Micropower* games.

Because of this I was pleased to read in your March 1986 issue of *Electron User* of a program called *Joyplus* that was printed in the April 1985 issue. This program will convert most of the early *Micropower* games to work with analogue joysticks.

Unfortunately, I wasn't then a subscriber to the magazine and do not have a copy of that issue. Your subscription department have told me that although back issues for April 1985 are no longer available from them, you may be able to help me with a copy of *Joyplus* from your files. – John Latham, Doncaster, South Yorkshire.

● See what you are missing if you don't subscribe to *Electron User*! The *Joyplus* program is much too big to reprint in *Micro Messages*, so here is a similar keyboard-to-joystick converter published in the November 1987 issue:

```
10 REM Keyboard-GTRJoystick
20 REM By R.A.Waddilove
30 REM (c) Electron User
40 MODE 6
50 *KEY10 OLD|MRUN|M
60 IF ?&20BLTN&80 CALL!-4
70 PRINT"Keyboard to Joystick
Converter"
80 LX=FNkey("LEFT")
90 RX=FNkey("RIGHT")
100 UX=FNkey("UP")
110 DX=FNkey("DOWN")
120 FX=FNkey("FIRE")
130 PRINT"Where shall I store
the code?"
140 PRINT"(Hit RETURN if you're
not sure)":*FX21
150 INPUT "Address=&"a$
160 IF a$="" a=&110 ELSE a=EVAL
("&"a$)
170 vector=&20A
180 FOR i=0 TO 2 STEP 2
190 PX=a
200 [OPT i
210 SEI
220 LDA vector
230 STA osbyte+1
240 LDA vector+1
250 STA osbyte+2
260 LDA #joystick MOD 256
270 STA vector
280 LDA #joystick DIV 256
290 STA vector+1
300 CLI
310 RTS
320
330 .joystick
340 CMP #&81
350 BNE osbyte \INKEY?
360 CPY #&FF
370 BNE osbyte \INKEY(-n)?
380 TXA:PHA:TYA:PHA
390 LDA #&80
400 CPX #256-FX
410 BNE left
420 .fire
430 LDX #0
440 JSR osbyte
450 TXA:AND #&3
460 BNE pressed
470 .not_pressed
480 LDX #0
490 LDY #0
500 BEQ here
510 .pressed
520 LDX #&FF
530 LDY #&FF
540 .here
550 PLA:PLA
560 RTS
570
580 .left
590 CPX #256-LX
600 BNE right
610 LDX #1
620 .read1
630 JSR osbyte
640 CPY #200
650 BCS pressed
660 BCC not_pressed
670
680 .right
690 CPX #256-RX
700 BNE up
710 LDX #1
720 .read2
730 JSR osbyte
740 CPY #32
750 BCC pressed
760 BCS not_pressed
770
780 .up
790 CPX #256-UX
800 BNE down
810 LDX #2
820 BNE read1
830
840 .down
850 CPX #256-DX
860 BNE exit
870 LDX #2
880 BNE read2
890
900 .exit
910 PLA:TAY:PLA:TAX
920 LDA #&81
930 .osbyte
940 JMP 0
950 ]
960 NEXT
970 CALL a
980 CLS
990 PRINT"Now load and run the
game,"
1000 PRINT"BREAK disables the r
outine."
1010 END
1020
1030 DEF FNkey(a$)
1040 PRINT"Hold down the "a$" k
ey:";
1050 KX=0
1060 KX=KX+1:IF KX=127 KX=1
1070 IF INKEY-KX ELSE 1060
1080 PRINT"ok"CHR$7:*FX21
1090 IF INKEY-KX GOTO 1090
1100 =KX
```

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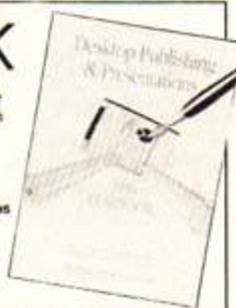
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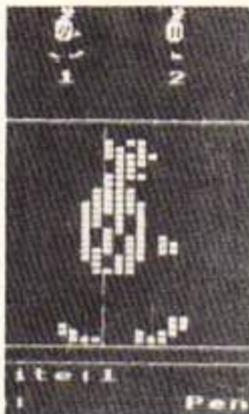


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\* = Due for release 6th December, 1989  
 All the above games will work on Archimedes A3000, 310 or 400 series.

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"I play golf and this game is the closest thing I've seen to the real game on a computer". Archie, June 1989  
 "I would have thought it possible to get a better simulation out of the best." BBC Acorn User, June 1989.  
 "The 3D perspective graphics are stunning". Electron User GOLDEN GAME, June '89  
 "Holed Out is great... The game plays very well and the graphics are superb."  
 Popular Computing Weekly, March 1989.  
 "The best golf simulation I've ever seen on any Acorn machine." The Micro User, June 1989  
 "The Electron version is brilliant - it's almost the same as playing at Glenlives. Unreservedly recommended."  
 A & B Computing Game of the Month, June 1989

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## U.I.M. (ULTRA INTELLIGENT MACHINE) from The Fourth Dimension

Possibly the most exciting BBC release for a long time. U.I.M. is a massive 3D vector graphic action adventure set in the future. The greenhouse effect has melted the icecaps and all life now exists in hundreds of colonies under the sea. You must travel the oceans, completing missions, trading in currencies, commodities and shares in search of the U.I.M. There are many types of ship you will encounter. In your highly manoeuvrable futuristic submarine and you must develop your weaponry and equipment to deal with the challenges you will face. U.I.M. is an opportunity to step into another world. It will fascinate you for weeks and possibly months to come.

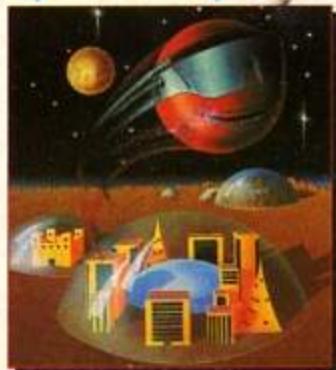
U.I.M. is disc only and will run on BBC B or B+ with sideways RAM and Master Series Computers. The full colour Archimedes version is due for release 6th December.

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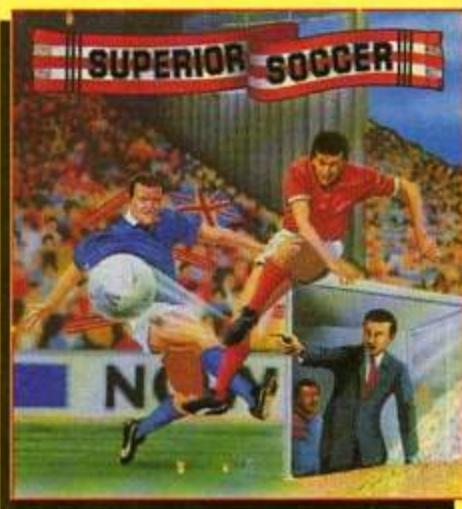
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