

A Database Publication

electron user

Vol. 7 No. 1 October 1989 £1.25



Type it in!

The greatest
Electron paint
program yet



REVIEWS

Rodeo Games, Hi Q Quiz and Spooksville tested by our games experts

FEATURES

Help with Exile and a DIY Electron carry case for you to build

LISTINGS

Spinning Frustration, Jet Bike, Robokill and disc menu creator



SIMPLY SUPERIOR

A selection of four of the best games ever released by Superior Software

Repton Infinity

Repton Infinity is the best game yet in the Repton series. It features four games, each with numerous mind-bending puzzles, and also comes with a complete game-designing system.

With it you get a Sprite and Map Editor plus an easy-to-use programming language that lets you create your own unique games. They compile to stand-alone games you can load up and run on their own.



RRP £12.95
Our Price
£9.95

Elite

This has to be THE classic arcade adventure of all time.

Can you work your way up from Harmless to Elite by flying from planet to planet, selecting goods at the best prices and trading them for a profit on other planets?

Will you survive the hectic space flights and docking procedures, all shown in superb 3D?

If you don't already own a copy of Elite, this is one game you simply MUST have in your collection!



RRP £12.95
Our Price
£9.95

Barbarian

Barbarian is a fierce game of combat which will tax your skill and reflexes to the limit.

When you start you can choose either a male or female character, then you have to hack and slay your way through dozens of punishing screens on your way to the Dungeon of Drax.

When you get there your mission is to kill the evil Drax himself – but be careful, you'll need all your wits about you to have any chance of success against your dastardly opponent.



RRP £9.95
Our Price
£7.95

The Last Ninja

The secrets of the Ninjitsu way had been jealously guarded for centuries, only once every decade were the scrolls seen at the ritual of the White Ninja. None coveted these secrets more than the evil Shogun. Seizing the opportunity of the ritual he sprang a fiendish trap that destroyed the brotherhood, except for one... You. The Last Ninja.

Your sworn oath is to recover the scrolls, you travel to the mystical lands of the Shogun. Already his guards are mastering the ways of the Ninjitsu. To reach the Shogun's Palace you must use all your weapon craft and fighting skills as you travel through dangerous wastelands and magnificent gardens, then descend into the direst dungeons before the final confrontation.



RRP £9.95
Our Price
£7.95

To order please use the form on page 45

CONTENTS



Cover Story

10 Elkpaint

Brush up on your drawing techniques and splash some colour on your monitor screen with this powerful art package.

5 News

All the latest developments in the world of the Electron. Plus the latest Gallup chart.

7 Software

Yeee... Haaa... Rodeo Games receives top honours this month. Spooksville and Hi Q Quiz are also revealed.

13 Disc Menu

Make your floppy discs user friendly with this easy-to-use menu program.

17 Arcade Corner

Top tips, clues and help with Superior Software's arcade adventure hit, Exile.

18 Spinning

This fast paced ball game will drive you batty as you try to knock the bricks out of a wall.

22 Portable

Make a handy stow-away case for your micro with this complete DIY guide.

26 Pendragon

More hints and tips for frustrated adventurers plus a guide to The Ferryman Awaits.

31 Jet Bike

Try your hand at being a futuristic motorcycle messenger in this type-in arcade game.



35 Robokill

Enter this listing and wipe out those renegade robots on the run. Fast, furious arcade fun.

37 Micro Messages

A selection of the many lively and interesting letters you have been sending us over the past few weeks.

43 10 Liners

More mini programming marvels from our talented readers.

Published by
Database
Publications Ltd
Europa House,
Adlington Park, Adlington,
Macclesfield SK10 4NP.

Editorial, Admin, Advertising:
Tel: 0625 878888
FAX: 0625 879966
Telex: 9312188888 DB
MicroLink: MAG001
Prestel: 614568383

Subscriptions:
051-357 2961

ABC

22,033 Jan-June 1988

Managing Editor
Derek Meakin

Features Editor
Roland Waddilove

Production Editor
Peter Glover

Reviews coordinator
Pam Turnbull

Promotions Editor
Christopher Payne

Advertising Sales
John Snowden
Peter Babbage

News trade distribution:
Diamond Europress Sales & Distribution, Unit 1, Burgess Road, Iyhouse Lane, Hastings, East Sussex TN35 4NR. Tel: 0424 430422.

Printed by Carlisle Web Offset

Electron User is an independent publication. Acorn Computers Ltd. are not responsible for any of the articles in this issue or for any of the opinions expressed.

Electron User welcomes program listings and articles for publication. Material should be typed or computer-printed, and preferably double-spaced. Program listings should be accompanied by cassette, tape or disc. Please enclose a stamped, self-addressed envelope, otherwise the return of material cannot be guaranteed. Contributions accepted for publication will be on an all-rights basis.

ISSN 0952-3057

© 1989 Database Publications Ltd. No material may be reproduced in whole or in part without written permission. While every care is taken, the publishers cannot be held legally responsible for any errors in articles or listings.

Database Publications is a
division of Europress Ltd.

Back to school

10 educational games for
the Electron for just
£5.95

Order on Page 45



SOFTWARE

Bargains



COMPILATIONS

TITLE	F	RRP	SALE
ACORNSOFT HITS 1 (Magic Mushroom, Maze, Planetoid, Monster)	C	9.95	4.95
ACORNSOFT HITS 2 (Starship Command, Arcadians, Snooker, Meteors)	C	9.95	4.95
MICRO POWER MAGIC 1 (Stock Car, Felix Evil Weevils, Esc. Moonbase, Swag, Chess, Bandits at 3, Galactic Commander, Adventure, Cybertron Mission, European Knowledge)	C	7.95	5.75
MICRO POWER MAGIC 2 (Bumble Bee, Gauntlet, Rubble Trouble, The Mine, Frenzy, Felix Fruit, Danger UXB, Swoop, Positron, Killer Gorilla)	C	7.95	5.75
PLAY IT AGAIN SAM (Citadel, Thrust, Strykers Run, Ravenskull)	C	9.95	6.95
PLAY IT AGAIN SAM 2 (Repton 3, Craze Rider, Galaforce, Codename Droid)	C	9.95	6.95
PLAY IT AGAIN SAM 3 (Commando, Palace of Magic, K. Gorilla, K. Gorilla 2)	C	9.95	6.95
PLAY IT AGAIN SAM 4 (Frak, Spellbinder, Cosmic Camouflage, Guardian)	C	9.95	6.95
PLAY IT AGAIN SAM 5 (Imogen, Bug Blaster, Moonraider, Elvir)	C	9.95	6.95
PLAY IT AGAIN SAM 6 (Galaforce 2, Hunchback, Hopper, Video's Revenge)	C	9.95	6.95
PLAY IT AGAIN SAM 7 (Firetrack, Snapper, Bone Cruncher, Ghouls)	C	9.95	6.95
PLAY IT AGAIN SAM 8 (Winter Olympiad '88, Quest, Around the World, Mr Wiz)	C	9.95	6.95
PLAY IT AGAIN SAM 9 (Camelot, Steve Davis Snooker, Spycat, Life of Repton)	C	9.95	6.95
PLAY IT AGAIN SAM 10 (Zalaga, Qwak, 3d Doty, Repton Thru Time)	C	9.95	6.95
PLUS 3 GAMES (Planetoid, Firebug, Maze)	D	9.95	4.95
SUPERIOR COLLECTION 3 (Syncon, Repton, Repton 2, Karate Combat, Deathstar, Mr Wiz, Smash & Grab, Overdrive)	C	9.95	6.95

RECENT RELEASES AT SPECIAL PRICES

TITLE	RRP	OFFER
A Question of Sport	12.95	8.95
Ballistic	9.95	7.95
Barbarian	9.95	6.95
Bone Cruncher	9.95	1.95
By Fair Means or Foul	9.95	6.95
Circus Games	9.95	6.95
Elvir	9.95	1.95
Exile	12.95	8.95
Life of Repton	9.95	1.95
Palace of Magic	9.95	1.95
Pipeline	9.95	6.95
Predator	9.95	6.95
Quest	9.95	1.95
Repton 3	9.95	1.95
Repton Infinity	12.95	8.95
Repton Thru Time	9.95	1.95
Spellbinder	9.95	1.95
Spy Cat	9.95	1.95
Superman	9.95	6.95
Tank Attack	12.95	8.95
The Last Ninja	9.95	6.95
3D Pool	9.95	6.95

SPORT

TITLE	F	RRP	SALE
By Fair Means or Foul	C	9.95	6.95
Brian Clough's Football	C	14.95	11.95
Commonwealth Games	C	7.95	6.95
G. Gooch Test Cricket	C	9.95	6.95
Goal!	C	7.95	6.95
Ian Botham Cricket	C	7.95	6.95
Indoor Sports	C	9.95	6.95
Superior Soccer	C	9.95	7.95
Winter Olympiad '88	C	9.95	6.95
Winter Olympics	C	6.95	5.25

JOYSTICKS

Electron Joystick (Interface)	14.95
Quickshot II Turbo (Joystick)	13.95

OFFER.. BUY BOTH FOR £24.95!

Quickshot I Joystick	4.95
Quickshot II	6.95
Cheetah 125 Joystick	6.95

FOR USE WITH PLUS 1 ONLY

VOLTMACE
3B TWIN JOYSTICK

RRP £21.95
NOW ONLY
£19.95!!



VOLTMACE

DELTA 3B Single Joystick

RRP £14.95... OFFER £13.95!
(Both potentiometer type)

ELITE

ZIPSTICK Joystick

RRP £15.95... OFFER £10.95!

COMPETITION PRO £22.45... £19.95
(Both digital type)

AMAZING OFFER!

Gyroscope
Adventure
Bumble Bee
Chess (Micro Power)
Chess (Acornsoft)
Croaker
Cybertron Mission
Danger UXB
Draw
Electron Invaders
Escape from Moonbase

Felix and The Fruit Monsters
Felix and The Evil Weevils
Felix in The Factory
Frenzy
Galactic Commander
Gauntlet
Ghouls
Intergalactic Trader
Jet Power Jack
Killer Gorilla
Lisp

Moonraider
Positron
Rubble Trouble
Stock Car
Swag
Swoop
The Mine
Where?
Business Games
Complete Cocktail Maker
Magic Mushrooms

Snapper
Boxer
Theatre Quiz
Science Fiction
Stranded
Invaders
Tempest
Reversi
Drafts
Fruit Machine
Centbug

Alien Dropout
Chess (Superior)
Overdrive
Mastermind
Quizmaster
Know Your Personality

Educational

Desk Diary
Workshop
Talkback

English
Maths O Level 2
Biology
Linkword Spanish
Linkword Italian
Turtle Graphics
Constellation
Disassembler
World Geography
Junior Maths
European Knowledge

Or £1.95
Each

ANY 10 FOR ONLY £9.95!!

Please give 2 additional choices,
in case of non-availability

MINI OFFICE

RRP £5.95 OFFER £4.75

WORD PROCESSOR Ideal for writing letters & reports. There is a constant display of both time & word count, plus a words-per-minute display to encourage the budding typist! A unique feature is the double-size text option in both edit & printer mode - perfect for young children & people with poor vision.

DATABASE You use this for storing information, just like an office filing cabinet. Facts you have entered can be quickly retrieved by just keying in a word or part of a word. They can be sorted, replaced, saved for future use or printed out.

SPREADSHEET Enables you to use your micro for home accounts or pocket money records. It creates a display of numbers in rows & columns. Continuous updating is possible & a changed figure can be instantly reflected throughout the rest of the spreadsheet. Your results can be saved, to be used for future updates, or can be fed into its associated program.

GRAPHICS Part of the spreadsheet section, it lets you draw bar charts, pie charts & histograms to give a graphic presentation of your statistics. Helps to give life & colour to the dulllest figures!

**STRIP
POKER 2
ONLY
£5.95!**

SPECIAL OFFERS!

Breakthrough	£6.95
5 Star Games Vol 3	£6.95
Phantom Combat	£5.95
Future Shock	£5.95
Jet Set Willy	£5.95
Phantom	£5.95

ROM CARTRIDGE OFFERS

View	14.95
Viewsheets	14.95
Buy both for £19.95 and get Me and My Micro book FREE!	
Logo	24.95
Lisp	9.95
Turtle Graphics (Cass)	2.95

Now get all three for £19.95!

ELECTRON MAINS ADAPTOR
Only £9.95!

FUN SCHOOL 2 !!

ELECTRON CASSETTE:

RRP £9.95 OFFER £7.95

(Please state age-range required)

UNDER 6's A suite of eight programs is available for this age group. From counting Teddies, through spelling and guessing games. Children are encouraged to master the likes of numeracy, literacy and concentration.

6-8 YEARS For this age group, programs are devised to provide various levels of difficulty from words and numbers to coordination and logical thinking.

OVER 8's Older children face the challenge of an adventure game combined with a series of short puzzles. Seven of the programs are self contained but each of these has to be solved before the eighth title can be tackled.

ADVANCED USER GUIDE
Only £1.95!

- Please add 95p P&P (Overseas £4.50).
- All prices include VAT
- Goods despatched within 48 hours - subject to availability
- Out of hours answerphone; 0532 436300

SOFTWARE
Bargains

Dept. EUA9, C/O Northwood House,
North Street, Leeds, LS7 ZAA.
Telephone: 0532 436300



In order to preserve our low prices and fast service, we can only accept orders having a total value in excess of £4.

We supply a catalogue of our entire stock range per machine type with every order.

A fortune in your keyboard

THE first pools predictor for the Electron has been launched by Blue Ribbon (0302 321134). System 8 - The Pools Predictor aims to increase the chance of a win by using a stored database compiled from previous results to calculate the possible outcome of current matches.

It predicts results in the four English and three Scottish leagues and also makes filling in the coupon easier. A perm against plan option displays the punter's selection ready to be copied directly on to the coupon.

The week's data can be entered then saved for future reference by using the save data option.

"The only thing it can't do is lick the stamp", said Mal Thomas, marketing manager of Blue Ribbon.

System 8 - The Pools Predictor costs £2.99.



FOR seven days hundreds of clever canines weaved through poles, padded over seesaws and leapt fences. The country's largest dog agility event was voted a huge success - and it was largely due to an Electron computer.

The contortions of these agile animals and their sprinting owners have turned into

The Electron that leads a dog's life

a boom sport, but its popularity has given Tony Veal a headache.

For six years he has organised the huge South of England Agricultural Society dog agility and obedience show in Sussex, but it became such a daunting task this year that he resorted to Electron help.

It was an unlikely step for a self confessed "non-computer" person, but with a program specially compiled by his friend Paul Gaffney, Tony slashed the organisation time for the show and is now a total convert to the Acorn machine.

Using the Electron proved so successful that Paul's pro-

gram may now be taken up by organisers of other dog shows throughout the country.

Known to thousands of young viewers as the dog agility consultant on BBC TV's Blue Peter, Tony is a self-employed salesman from West Kingsdown, Kent and met Croydon-based Paul through business.

"When Paul suggested a computer I thought it would be useless", he told Electron User. "He persuaded me and then spent nine months writing the necessary program. In the end it was marvellous. It saved me weeks of work".

The Electron program printed entry listings, competitors labels and made random draws for up to 250 dogs in each class. It also dealt with the payments for camping fees over the seven days, the accounts for social events throughout the week and many other administrative tasks.

Teamed with a Pegasus disc system from Slogger and a Panasonic KX-P1081 printer, the dog show software was developed on Paul's 32k Electron then used on the 64k Electron bought specially by Tony.

Video in the office

ELECTRON owners who opt for Mini Office, the small business package from Database Software (0625 878888), stand the chance of winning a £500 video recorder.

As sales of Mini Office approach 500,000, Database will present a Sony SLV 401 to the buyer of the half millionth copy revealed by registration cards. The video recorder features slow motion digital effects, perfect pausing, picture in picture and editing.

Launched in October 1984, the original Mini Office broke the price mould for business packages when it was offered for the BBC Micro and Electron at £5.95. It was also the first business package to enter the software charts.

Time called on the pub pirates

A SWINTON licensee took swift action when FAST (The Federation Against Software Theft) stepped in to tell him an illegal software copying den was being run in the back room of his pub.

John Heaton of The Beehive Hotel, Swinton, called time on the pirates and vowed they would never return.

FAST was tipped off about the piracy meetings by a software dealer whose staff had gone along to see what was going on.

Members of Bolton Computer Club and

Swinton Computer Club were believed to be involved but officials of the clubs have stressed that the undercover activities were entirely unofficial and in no way condoned by them.

"It was so blatant", said a spokesman for FAST. "They apparently moved into the pub, set up their machines and started copying. We are sure that copying has now ceased in the pub concerned but you can never be certain that it has not moved somewhere else".

Gallup Software Chart



THIS MONTH	LAST MONTH	TITLE (Software House)	COMMENTS	PRICE
1	●	PLAY IT AGAIN SAM 10 <i>Superior</i>	The latest but not the last of the Sam compilations. This one re-runs Zalaga, 3D Dotty, Repton thru Time and debuts Qwak.	9.95
2	△ 8	JOE BLADE 2 <i>Players</i>	The graphics are good and the game very playable. The puzzle screens are wicked and will keep you busy for hours.	1.99
3	△ 9	YIE AR KUNG FU <i>Hit Squad</i>	There have been many clones of this and any combat game is invariably compared to it. A nice trip into meaningless violence.	2.99
4	●	SOCCER BOSS <i>Alternative</i>	Back into the charts again this month. Not very new but if you fancy your chances for soccer boss stardom, then try this one out.	1.99
5	●	BALLISTIX <i>Superior</i>	Cross between pinball and shove ha'penny. Original, fun and very addictive. A new challenge – different and full of surprises.	9.95
6	▽ 2	SPOOKSVILLE <i>Blue Ribbon</i>	Ghost hunting time again. An arcade adventure, simple and a little dated now. Good value though as you search for your spellbook.	2.99
7	●	RETURN OF R2 <i>Blue Ribbon</i>	Should be entitled the Return of the Return. A budget game on a budget label. Not bad value and will while away an hour or two.	1.99
8	△ 13	RAVENSKULL <i>Blue Ribbon</i>	A classic and a bargain even at full price. This excellent arcade adventure will have you enthralled for days.	2.99
9	△ 11	GRAHAM GOOCH TEST CRICKET <i>Alternative</i>	Originally released by ASL, it is more suited to the budget label. Recommended if you are totally disheartened with the Test season.	1.99
10	△ 20	STORMCYCLE <i>Atlantis</i>	Save Earth from imminent invasion and disaster by finding five diodes, killing the enemy and beating the clock.	1.99
11	●	TURF FORM <i>Superior</i>	Another returning to the charts – after the good going for the racing season you may feel lucky. Test your skill all you have to lose is £1.99.	2.99
12	▽ 5	PREDATOR <i>Superior</i>	Here is your chance to take on the mantle of Schwarzenegger to rescue the diplomats and destroy the marauding alien.	9.99
13	▽ 4	GALAFORCE <i>Blue Ribbon</i>	One more from the Superior/Blue Ribbon deal to bring you the classics of yesteryear at a budget price. Well worth the money.	2.99
14	●	GOLF <i>Blue Ribbon</i>	Going back to the sporting theme, drive, putt and birdie your way through a variety of courses and obstacles.	1.99
15	●	REPTON 2 <i>Blue Ribbon</i>	Surfacing again, this is one of a variety of opportunities to obtain Repton 2 and complete the tale of the little green adventurer.	2.99
16	●	CITADEL <i>Blue Ribbon</i>	A classic of Ravenskull proportions and a great way to introduce anyone to games on the Electron. Superb.	2.99
17	●	INDOOR SOCCER <i>Alternative</i>	If you are tired of the outdoor variety it is probably time to go inside. Not the best football implementation though.	1.99
18	●	MINI OFFICE <i>Alternative</i>	Now available at a budget price this is an integrated package – a good introduction to more serious applications.	1.99
19	●	PERCY PENGUIN <i>Blue Ribbon</i>	Not quite in the league of Citadel or Ravenskull, but fun, nice looking and very enjoyable to play. At only £1.99 it's a bargain.	1.99
20	●	STEVE DAVIS SNOOKER <i>Blue Ribbon</i>	Yes he's back again – and if there is anyone out there who hasn't yet played this game, do so. A budget game at a budget price.	1.99

Product: Buffalo Bill's Wild West Rodeo Games
 Games
 Price: £9.95 (tape) £11.95 (disc)
 Supplier: Tynesoft, Addison Industrial Estate,
 Blaydon, Tyne & Wear NE21 4TE.
 Tel: 091-414 4611

TO say that Buffalo Bill's Rodeo Games is an immaculately programmed and superbly presented package would be an understatement – this game is a classic. Not only are the six events extremely playable, they are also crammed with sound effects and illustrated with some of the best colour displays I have seen on the Electron.

Up to four players can enjoy the events, the first being the **Trick Shooting**, a difficult test of hand-eye coordination. Superimposed on a desert background is a floating gunsight, the vertical and horizontal movement of which is under your control.

One by one, a series of cardboard cut-out characters begin to flip up with increasing regularity and you must knock them down again before the brief time limit expires and they fall automatically. Variety is provided with the inclusion of good guys who should not be gunned down and vultures that can be plugged for a handsome bonus.

The fun continues in true western style as you enter part two of this event. A lone character tosses bottles into the air which act as flying targets and a real test of marksmanship.

Each event is followed by a resounding *Yee-ha* and very impressive league table. Staying with the target practice theme, we move on to event number two – the **Knife Throwing**.

Following a dramatic increase in scale we are treated to the view of an Indian squaw strapped tightly to a rotating wheel as she trustingly waits for her partner to launch eight-inch, razor-sharp blades in her general direction. The tension builds as each blade thuds into the spinning wheel, surely your luck – or should it be hers? – can't hold out much longer. Finally the inevitable happens and the badly judged projectile elicits a scream from the unfortunate assistant.



Yeeee... Haaaaaa!

Calf Roping is the order of the day as we reach the half-way stage of Bill's Wild West extravaganza. An aerial view is used to follow the progress of galloping calf and pursuing cowboy. The trick is to ride alongside the animal and then throw a rope around its neck without taking a tumble yourself.

This is easily the most difficult event so far, since the mini steer has no intention of giving up peacefully and will try its best to unsaddle you – a technique at which it is most competent.

I found the **Bronco Riding** by far the briefest of the six events – especially when I was playing. Sat astride a fiercely bucking bronco, your sole objective is to stay in contact with your mount. An arrow system indicates the direction in which you are currently overbalancing, your job is to pound the key to move you in the opposite direction. It's not easy.

Steer Wrestling is similar in many respects to calf roping. A gallop at full speed followed by an athletic leap on to the charging steer and you are expected to pit your 12 stone frame against over a tonne of thrashing bone and muscle. No mean feat for Arnold Schwarzenegger, yet your fearless reviewer's keyboard bashing technique was more than man enough for the job.

In event number six you are called upon to retrieve a stagecoach that has been stolen by rogue indians. By pumelling the Z and X keys you gallop towards the speeding vehicle with the intention of leaping aboard when alongside. Unfortunately the indian on the roof has other ideas and continually

tosses the passengers' luggage in your path.

Once on the stagecoach you climb to the roof and slug it out with the renegade redskin. The loser is the one who falls from the still speeding coach.

All of the events consist of three separate rounds, often of increasing difficulty. A very welcome feature that Tynesoft implemented is the replay facility – at the end of the third round you are always offered an opportunity to play the complete event again.

Buffalo Bill's Wild West Rodeo Show is the best multi-event game to be released for the Electron this year. It is a product that further reinforces Tynesoft's mastery of this genre of game. Yee-ha!

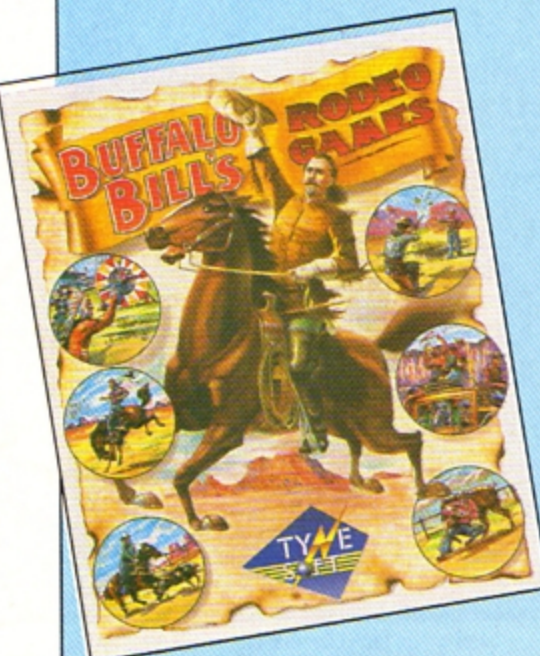
James Riddell

Second Opinion

Another in a long line of multi-part games from Tynesoft, and it's sure to be a winner. The variety of games, the superb graphics and addictive gameplay means you won't tire of this package as quickly as some of the cheaper offerings currently on sale.

Janice Murray

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



Product: Spooksville
Price: £2.99 (tape)
Supplier: Blue Ribbon Software, CDS House,
Beckett Road, Doncaster DN2 4AD.
Tel: 0302 321134

IN Spooksville, you play the part of Gaston the Intrepid who is trying to find a spellbook stolen from a great magician many centuries ago by Count Dracula.

The spells can only be used every 500 years, and that time is just about due. The book is hidden in the town of Spooksville – so in you Gaston, jolly well go to face Frankenstein, Dracula and sundry other horrors.

This torrid scenario paves the way for another arcade adventure game in the style of that old favourite Citadel. The graphics and sound are also closely based on the older game.

Gaston can travel left and right, as well as up and down ropes and ladders. From time to time objects found may help solve the game. For example, the stake will kill Dracula and the barrel will enable Gaston to escape from Frankenstein's lair. Other objects include crosses, holy water, rope, a lamp, gold bars, fireballs, a rod and a sword.

A fairly comprehensive "what does what" list is given in the instructions. Essential to success are the ring – hidden in the crypt – and the scroll, one of the few items whose location and purpose is not revealed before you start.

Old time Citadel players will remember the ghostly cloaked figures which needed a magic spell fired between the eyes to remove them from screen. Spooksville has these, or similar figures, in abundance.

In fact, there is one in every room except the starting screen and all need to be shot smartly in order to survive. A strange feature of your weapon is that you must be moving when you fire it.

Its range is short so don't fire till you see the red of their eyes. Tall monsters can't be destroyed by the standard technique – it is essential to find the correct object to dispose of them.

This is yet another budget game which has not been written well on the Electron. If you can imagine playing Citadel with your feet stuck in syrup then that's what you've got here. Mind you, things are changed out of all recognition if you own a Slogger Turbo. Then the game is almost too fast, but certainly playable.

I would strongly commend the original Citadel as a far more interesting game, but if you've completed that Spooksville will do at a pinch.

Rog Frost

Second Opinion

This is another spin-off based on the highly successful Citadel. While not quite matching up to the original, it is nevertheless very enjoyable. If you like this sort of game then at only £2.99 it represents a bargain and will provide many hours of entertainment.

Roland Waddilove

Trivial touch

Product: Hi Q Quiz
Price: £2.99 (tape only)
Supplier: Blue Ribbon, CDS House, Beckett Road, Doncaster DN2 4AD.
Tel: 0302 321134

EVERY once in a while a software house produces something that is so out-dated and run-of-the-mill that you wonder why it ever bothered. Blue Ribbon has done this with its latest release, Hi Q Quiz.

Basically a budget version of Trivial Pursuit, the board consists of a wheel with four spokes, around which each of the two to four players move. Each segment on the wheel and spokes bears a symbol which indicates the type of question that you have to answer when you land on it – sport, sciences, history/art and natural history.

The questions vary in difficulty from easy: *What is the name given to a baby cat?* To relatively hard: *Where were the 1932 Olympics held?*

The questions are randomly selected from data files which don't seem to be large enough to prevent repetition – the same

questions keep turning up and the one about the venue of the 1960 Olympics has been asked in every game I've played.

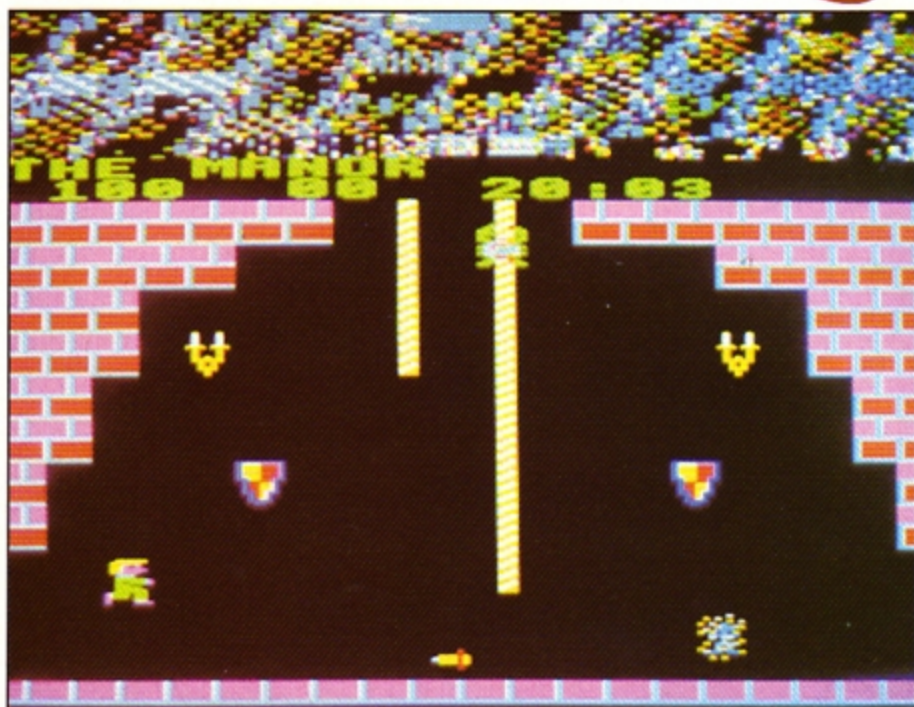
There are four levels of play, the higher you select, the more questions you need to answer to win. Success goes to whoever answers the required number of questions in each category and then returns to the centre and gives the correct answer to a final randomly selected question.

You stop the roll of dice on screen by hitting the spacebar then use the cursor keys to move your marker. You can set a device to limit the time in which the questions have to be answered and there are segments which allow you to roll again if you land on them.

There are a few differences between Hi Q Quiz and Trivial Pursuit, but not many. For instance, you can't pass over a segment occupied by another player's marker and you can't pass through into the centre unless you roll the exact number needed. Even then you can go there only if you have answered enough questions to qualify for the final one.

The graphics are a bit squashed to make room for as many segments as possible, and

Haunting



Spooksville is similar to that old favourite, Citadel



as such the game looks cluttered. Sound is minimal – the rolling dice give a random toned chattering and you get one of two different noises depending on whether or not you answer a question correctly.

There is also a little jingle at the end when

the game declares the winner – and that's just about it.

To sum up, the game is fairly cheap, the whole thing takes just a few minutes to load in by tape and occasionally comes out with some tough questions. It is simple to play

and contains elements that would make it a fairly nice piece of educational software for the young.

However, it fails badly as a quiz for those with a reasonably high IQ and would only just make a passable magazine listing game. There isn't even a facility for entering the players' names. I can think of much better ways of spending three quid.

Desmond

Second Opinion

I was initially confused by this trivia quiz as the correct answer is always displayed on the screen following the question. The idea is that you ask your opponents the question and press Y or N depending on whether he or she answers correctly.

Once I had got the hang of it, I quite enjoyed it. Not as much fun as the board game, but still quite good family entertainment.

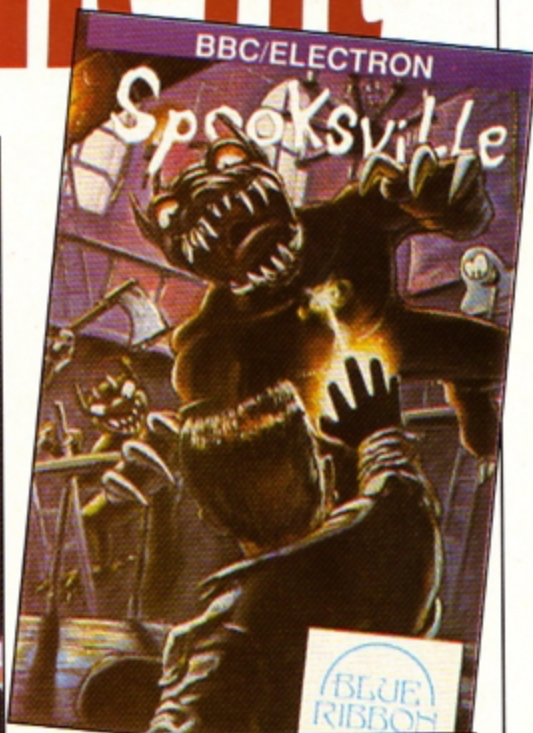
Janice Murray

Graphics	6
Sound	5
Playability	4
Value for money	6
Overall	5

Entertainment



Play is quite slow, and is much better with a Turbo



Graphics	7
Sound	5
Playability	6
Value for money	7
Overall	7

Electronic artistry

Show off your hidden talents with Stuart Bain's paint program

ELKPAINT is the most powerful art package available for the Electron and includes many features that have not been seen before in previous art software.

It was written after seeing the wide range of facilities available in Photon Paint running on the Commodore Amiga. Not wishing to be outdone, here's a rival package for the Electron.

Elkpaint runs in four colour Mode 5. The colours are chosen by pressing keys zero to three. The Z, X, * and ? keys move the cursor and there are six different speeds - set them by pressing Shift+1 (slow) to Shift+6 (fast). Both colour and speed can be changed at any time.

Rubberbanded lines can be drawn. Move the cursor to start position and press B. The line will then follow the cursor. Fix the line by



VARIABLES

X%,Y%	Cursor coordinates
col%	Colour
sp%	Speed
s%(24)	Table of sin values

```

10REM Elkpaint by Stuart Bain
20REM (c) Electron User
30ONERRORMODE6:REPORT:PRINT" a
t line ";ERL:END
40MODE5:PROCinit:MOVED,836:DRA
W1279,836:VDU24,0;0;1279;831;23,1
,0;0;0;0;
50PRINTTAB(0,0)"COL 3""SPE 1"
:PROCCurs(X%,Y%):PROCCscr(0)
60REPEATPROCmove:IFKX=66PROCba
nd ELSEIFKX=67PROCCcirc ELSEIFKX=8
2PROCCrect
70IFKX=69PROCCellip ELSEIFKX=70
PROCCfill ELSEIFKX=87ORKX=81PROCCwi
pe
80IFKX=77PROCCzoom ELSEIFKX=80P
ROCCcut ELSEIFKX=65PROCCbrush
90IFKX=83PROCCscr(0)ELSEIFKX=85
PROCCscr(1)ELSEIFKX=84PROCCtext
100IFKX=76ORKX=75PROCCfile(KX-75
)
110PRINTTAB(0,3)SPC14:UNTILO
120DEFPROCmove
130KX=INKEYD:*FX15
140IFKX>32ANDKX<39spX=8*(KX-32)
:PRINTTAB(4,1);spXDIV8ELSEIFKX>47
ANDKX<52colX=KX-48:PRINTTAB(4,0);
colX
150xX=XX:yX=YX:XX=XX+(INKEY-98-
INKEY-67)*spX:IFX<0X=0ELSEIFX>
1279X=1279
160YX=YX+(INKEY-105-INKEY-73)*s
pXDIV2:IFYX<0Y=0ELSEIFYX>831YX=8
31
170PROCCurs(xX,yX):PROCCurs(XX,
YX)
180ENDPROC
190DEFPROCcurs(A%,B%)GCOL3,3:MO
VEAX-24,BX+12:VDU5,225,4:ENDPROC
200DEFPROCbp:SOUND1,-10,170,2:E
NDPROC
210DEFPROCband
220PRINTTAB(0,3)"RUBBER BANDING
":REPEATrxX=XX:ryX=YX:GCOL3,3:PLO

```

pressing the spacebar and continue with another, or press Return to fix it and exit rubberbanded mode.

Circles are simple. Move the cursor to the centre and press C. The dotted circle will follow the cursor. Press the spacebar to draw the circle and continue with another from the same centre, or press Return to draw it and exit circle mode.

Ellipses are drawn in the same way as circles, except that you press E instead of C.

To draw a rectangle press R to fix one corner then drag the rubberbanded box to the correct size. The spacebar fixes it in place and gets ready to start the next one, while Return draws it and exits rectangle mode.

Five brushes including an airbrush are available by pressing A. Select the one you want with 1 to 5. Hold down the spacebar and move the cursor to draw. Return exits. Colour 0 can be used as an eraser.

A simple fill is accessed by pressing F. It fills until a non-background colour is found.

Press M to enter Magnify mode. You can now draw in the zoom window in the top right-hand corner of the screen. Use the spacebar to draw. The cursor keys scroll the window. Press Return to exit Magnify mode.

Text is entered by pressing T. Now you can type in at the cursor position. Use Delete as normal. Return fixes the text in position and the whole screen can be cleared by pressing Q and W together.

A useful Undo facility is available. Press S

to store screen in memory, then recall it by pressing U to swap between present screen and the stored one. Press K and enter the filename to save the picture, while L loads one.

PROCEDURES	
band	Rubberband mode
circ	Circle mode
dots	Draw dotted circle
ellip	Ellipse mode
ell	Draw dotted ellipse
rect	Rectangle mode
box	Draw rectangle
fill	Fill area
wipe	Clear screen

A powerful facility not seen on Electron art packages is cut and paste. Press P to fix one corner of a rubberbanded box, drag it over the area to be cut then press the spacebar. Drag the box to the new position and press Return followed by spacebar for a normal copy, H for a horizontal flip, V for a vertical flip and R to rotate. Use Z and X to rotate about the bottom left corner, then press Space to confirm.

Note that this routine only copies the pixels from one spot to another, so don't overlap the boxes or the screen will be corrupted. It

Command Key	Summary
Z X * ?	Move cursor
0-3	Choose colour
Shift+1-6	Choose speed
B	Rubberband
C	Circle
E	Ellipse
R	Rectangle
A	Airbrush
F	Fill
S	Store screen
U	Swap screens
T	Text
P	Cut+paste
Q+W	Clear screen
K	Save screen
L	Load screen
M	Magnify
Spacebar	Confirm/fix
Return	Exit drawing mode
Cursors	Scroll magnified view

is also quite slow and you may need to tidy up the object with the Magnify option after a rotation.

A large chunk of memory is used for storing the alternate screen (8k) so the program may be tight on memory if an ADFS is fitted, though there is plenty of memory with a tape system.

```
T69,X%,Y%
230REPEATPROCmove:MOVEx%,y%:DRA
Wrx%,ry%:DRAWX%,Y%:FORI%=0TO30:NE
XT
240UNTILINKEY-99ORINKEY-74:PROC
curs(X%,Y%):GCOL0,col%:MOVEX%,Y%:
DRAWrx%,ry%:PROCCurs(X%,Y%)
250UNTILINKEY-74:PROCbp:ENDPROC
260DEFPROCcirc
270PRINTTAB(0,3)"CIRCLE":REPEAT
rx%=X%:ry%=Y%:PROCdots
280REPEATPROCdots:PROCmove:PROC
dots:UNTILINKEY-99ORINKEY-74:IFIN
KEY-74ret%=1ELSEret%=0
290PROCCurs(X%,Y%):PROCCdots:GCO
LO,col%:MOVErx%+r%,ry%:FORI%=0TO1
9:DRAWrx%+r%*s%(I+5)DIV100,ry%+r
%*s%(I)DIV100:NEXT
300X%=rx%:Y%=ry%:PROCCurs(X%,Y%
):PROCbp:UNTILret%:ENDPROC
310DEFPROCdots:r%=SQR((X%-rx%)^
2+(Y%-ry%)^2):GCOL3,3:FORI%=0TO18
STEP2:PLOT69,rx%+r%*s%(I+5)DIV10
0,ry%+r%*s%(I)DIV100:NEXT:ENDPRO
C
320DEFPROCellip
330PRINTTAB(0,3)"ELLIPSE":REPEA
Trx%=X%:ry%=Y%:PROCell
340REPEATPROCell:PROCmove:PROCe
LL:UNTILINKEY-99ORINKEY-74:IFINKE
Y-74ret%=1ELSEret%=0
350PROCCurs(X%,Y%):PROCell:GCOL
0,col%:MOVErx%+r%,ry%:FORI%=0TO19
:DRAWrx%+r%*s%(I+5)DIV100,ry%+s%
*s%(I)DIV100:NEXT
360X%=rx%:Y%=ry%:PROCCurs(X%,Y%
):PROCbp:UNTILret%:ENDPROC
370DEFPROCell:r%=ABS(X%-rx%):s%
=ABS(Y%-ry%):GCOL3,3:FORI%=0TO18S
TEP2:PLOT69,rx%+r%*s%(I+5)DIV100
,ry%+s%*s%(I)DIV100:NEXT:ENDPROC
380DEFPROCrect
390PRINTTAB(0,3)"RECTANGLE":REP
EATrx%=X%:ry%=Y%:GCOL3,3:PROCbox
```

```
400REPEATPROCbox:PROCmove:PROCb
ox
410UNTILINKEY-99ORINKEY-74:IFIN
KEY-74ret%=1ELSEret%=0
420PROCCurs(X%,Y%):GCOL0,col%:P
ROCBbox:PROCCurs(X%,Y%):PROCBp:UNT
ILret%:ENDPROC
430DEFPROCbox:MOVErx%,ry%:DRAWX
%,ry%:DRAWX%,Y%:DRAWrx%,Y%:DRAWr
x%,ry%:ENDPROC
440DEFPROCfill
450PRINTTAB(0,3)"FILL":PROCCurs
(X%,Y%):Z%=POINT(X%,Y%):GCOL0,col
%:GCOL0,Z%+128
460PROCflood(X%,Y%,4):PROCflood
(X%,Y%-4,-4):PROCCurs(X%,Y%):GCOL
0,128:PROCBp:ENDPROC
470DEFPROCflood(A%,B%,D%)
480IFPOINT(A%,B%)<>Z%ENDPROC
490REPEATPLOT77,A%,B%:B%=B%+D%:
UNTILPOINT(A%,B%)<>Z%:PROCflood((
!8314*8+!8310)DIV2AND&FFFF,B%,D%)
:ENDPROC
500DEFPROCwipe:IFINKEY-34ANDINK
EY-17CLG:PROCBp:PROCCurs(X%,Y%)
510ENDPROC
520DEFPROCzoom
530PRINTTAB(0,3)"ZOOM":PROCCurs
(X%,Y%):VDU26:GCOL0,3:MOVE752,102
3:DRAW752,847:MOVE1136,1023:DRAW1
136,847
540PROCpixel:A%=5:B%=5:PROCCro:
REPEATX%=GET:PROCCro:*FX15
550IFK%=90ANDAX%>0AX%=AX-1ELSEIFK
%=88ANDAX%<10AX%=AX+1ELSEIFK%=58AND
B%<10B%=B%+1ELSEIFK%=47ANDB%>0B%=
B%-1
560IFK%>47ANDK%<52col%=K%-48:PR
INTTAB(4,0):col%ELSEIFK%=32GCOL0,
col%:MOVE768+AX*32,863+B%*16:VDU5
,224,4:PLOT69,rx%+AX*8,ry%+B%*4
570IFK%=136X%=X%-24ELSEIFK%=137
X%=X%+24ELSEIFK%=138Y%=Y%-12ELSEI
FK%=139Y%=Y%+12
```

```
580IFK%>135ANDK%<140PROCpixel:A
%=5:B%=5
590PROCCro:UNTILINKEY-74:VDU24,
752,847,1136,1023,16,24,0,0,1279;
831;:PROCCurs(X%,Y%):PROCBp:ENDPR
OC
600DEFPROCpixel:rx%=X%-40:ry%=Y
%-20:IFrx%<0rx%=0ELSEIFrx%>1192rx
%=1192
610IFry%>791ry%=791ELSEIFry%<0r
y%=0
620VDU5:FORI%=0TO10:FORJ%=0TO10
:GCOL0,POINT(rx%+I*8,ry%+J*4):M
OVE768+I*32,863+J*16:VDU224:NEX
T,:ENDPROC
630DEFPROCCro:GCOL3,3:MOVE768+3
2*AX,863+16*B%:VDU5,226,4:ENDPROC
640DEFPROCcut
650PRINTTAB(0,3)"CUT+PASTE":rx%
=X%:ry%=Y%:PROCBbox
660REPEATPROCbox:PROCmove:PROCb
ox:UNTILINKEY-99:PROCCurs(X%,Y%):
IFX%<rx%a%=X%:X%=rx%:rx%=a%
670IFY%<ry%a%=Y%:Y%=ry%:ry%=a%
680C%=rx%:DX%=ry%:EX%=X%-rx%:FX%=Y
%-ry%:PROCCurs(X%,Y%):REPEATPROCb
ox:PROCmove:rx%=X%-EX:ry%=Y%-FX:P
ROCBbox:UNTILINKEY-74:PROCBbox
690PROCCurs(X%,Y%):REPEATX%=GET
:UNTILAX%=32ORAX%=72ORAX%=86ORAX%=82:
step%=8
700IFAX%=82PROCrotate:cos=COSRAD
an%:sin=SINRADan%:step%=4:IF(an%>
40ANDan%<140)OR(an%>220ANDan%<320
)sin=sin*2
710FORI%=0TOEXSTEPstep%:FORJ%=0
TOFXSTEPstep%DIV2:GCOL0,POINT(C%+
I%,D%+J%)
720IFAX%=32PLOT69,rx%+I%,ry%+J%
ELSEIFAX%=72PLOT69,rx%+EX-I%,ry%+J%
ELSEIFAX%=86PLOT69,rx%+I%,ry%+FX-J
%ELSEPLOT69,rx%+I%*cos-J%*sin,ry%
```

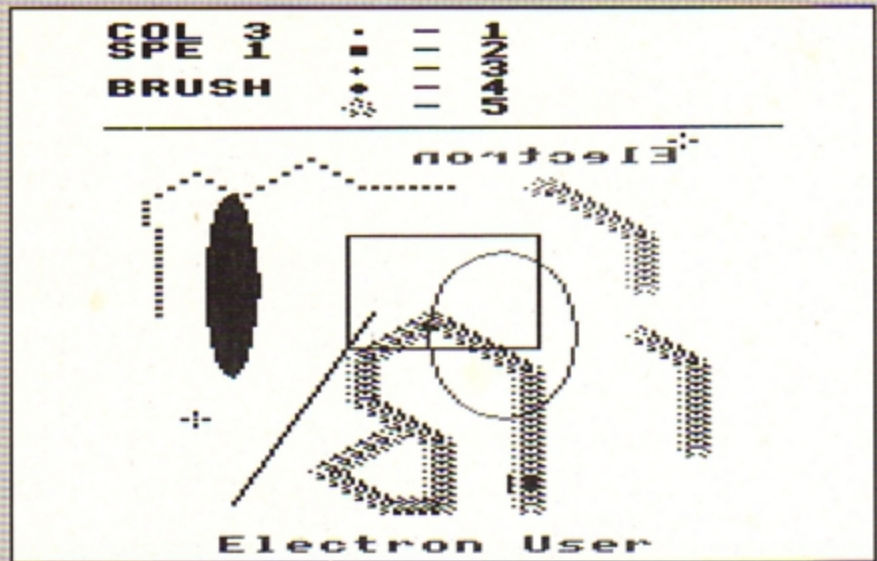
Turn to Page 12 ▶

◀ From Page 11

```

+sin*IxDIV4+JX*cos
73ONEXT,:PROCCurs(X,Y):PROCBP
:ENDPROC
740DEFPROCrotate:anX=0:PROCLine
750REPEATIX=anX+10*(INKEY-67-IN
KEY-98):IFI<0IX=350ELSEIFI>350I
X=0
760IFI<>anXPROCLine:anX=IX:PRO
CLine
770UNTILINKEY-99:PROCLine:ENDPR
OC
780DEFPROCLine:MOVErX+60*COSRA
DanZ,ryZ+60*SINRADanZ:DRAWrX,ryZ
:DRAWrX+10*COSRAD(anX+90),ryZ+10
*SINRAD(anX+90):ENDPROC
790DEFPROCbrush
800FORIX=0TO4:PRINTTAB(7,IX)CHR
$(227+IX)" - ";IX+1:NEXT:PRINTTAB
(0,3)"BRUSH":REPEATIX=GET-49:UNTI
LIX=>0ANDIX<5
810REPEATPROCmove:IFINKEY-99PRO
CCurs(X,Y):GCOLOR,colX:MOVEX-24
,YX+12:VDU5,227+IX,4:PROCCurs(X,
YX)
820UNTILINKEY-74:FORIX=0TO4:PRI
NTTAB(7,IX)SPC8:NEXT:PROCBP:ENDPR
OC
830DEFPROCtext
840PRINTTAB(0,3)"TEXT":AS="":rx
X=X-24:ryX=YX+12
850REPEATREPEATIX=GET:UNTILIX>3
1ANDIX<128ORIX=13:PROCCurs(X,YX)
:MOVErX,ryX:VDU5:PRINTAS
860IFI>31ANDIX<127ANDIX<1216AS
=AS+CHR$IX:XX=X+64ELSEIFI=127AN
DAS<>"AS=LEFT$(AS,LEN(AS)-1):XX=
XX-64
870MOVErX,ryX:PRINTAS:PROCCurs
(X,YX):UNTILIX=13
880GCOLOR,colX:MOVErX,ryX:VDU5:
PRINTAS:VDU4:PROCBP:ENDPROC
890DEFPROCfile(IX)

```



```

900VDU28,0,4,19,0,12:INPUT"Fil
ename ?"AS:IFAS<>"":PROCFI2(IX)
910CLS:PRINT"COL ";colX" "SPE ";
spX/8:PROCBP:ENDPROC
920DEFPROCfi2(IX)
930PRINT":IFI<OSCLI"LOAD "+AS+
" 5F80"ELSEOSCLI"SAVE "+AS+" 5F80
8000"
940ENDPROC
950DEFPROCscr(CX)PROCCurs(X,Y
):!870=85F80:!872=SX:AX=CX:CALLQX
:PROCCurs(X,Y):PROCBP:ENDPROC
960DEFPROCinit:*FX229,1
970DIMSX8320,sX(24):FORIX=1TO25
:sX(IX-1)=100*SINRAD(IX*18):NEXT:
*FX4,1
980VDU23,224,240,240,240,240,0;
0;23,225,16,16,0,198,0,16,16,0,23
,226,0,96,96,0,0;0;23,227;0;24,24
;0;0;
990VDU23,228,0,0,60,60,60,60,0;
23,229,0,0,0,16,56,16;0;23,230,0,
0,24,60,60,24,0;23,231,16,8,34,8,
130,33,20,34
1000XX=0:YX=0:spX=8:colX=3:FORIX
=0TO2STEP2:PX=8900:COPTIX
1010.QXTAX:Ldy#0:.s1:LDA(870),Y:
CPX#0:BNEsw:STA(872),Y:SEC:BCS2:
.sw:PHA:LDA(872),Y:STA(870),Y:PLA
:STA(872),Y
1020.s2:INC870:BNEs3:INC871:.s3:
INC872:BNEs4:INC873:.s4:LDA871:CM
P#80:BNEs1:RTS:JNEXT:ENDPROC
>*SPOOL

```

electron user MAIL ORDER OFFERS electron user MAIL ORDER OFFERS

**Solar powered,
see through calculator.
FREE with orders
over £25***

EXCLUSIVE

Using state-of-the-art technology this calculator has an invisible membrane keypad, runs from solar cells (so you'll never need any batteries), and because it's only the size of a credit card it fits easily in your wallet or pocket.

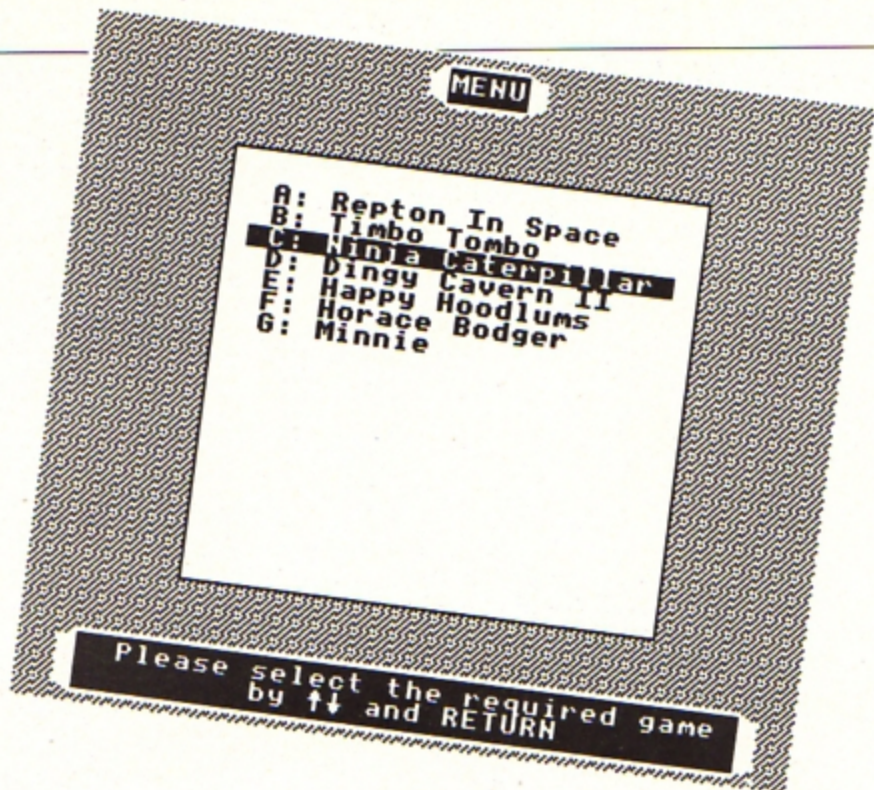
This exclusive limited edition calculator can be yours for just £7.95 – or we'll send you one ABSOLUTELY FREE with every order over £25!



* UK orders only (not subscriptions). Subject to availability

TO ORDER PLEASE USE THE FORM ON PAGE 45

Should you fancy a tasty dish...



DISC MENU is a user friendly menu system designed to make the process of loading and running disc files as easy as possible. The utility is written in Basic, but you can load Basic, machine code or even *EXEC Ascii text files.

To set up the menu, enter the Basic listing below. The data statements at the end will need to be altered slightly for each disc you intend putting the menu on. Line 2020 holds the number of items on the menu, and the following lines hold the information for each file.

The first item is the index letter on the menu, the second is the text which is printed on the menu screen and the third is the

Steve Wyeth has cooked up this very attractive disc menu program

method of loading, for instance, CHAIN or *RUN. The fourth item is the filename and the full pathname of the file is required with *EXEC and *RUN.

The last item specifies the screen mode to change to when the program is loaded - for instance, some games require Mode 6. If a mode change is required M followed by the mode number is used, like M6 for Mode 6.

Save the menu program onto your disc and then enter:

```
*OPT4,3
*BUILD !BOOT
CHAIN "MENU"
```

Press Escape after the last line. Now you can press Shift+Break to run the menu. The cursor up and down keys move the highlight up and down the list of files.

The letter keys A to Z move the highlight immediately to the specified item if such a letter is on the menu. The Return key selects the currently highlighted program then loads and runs it.

```
10 REM Disc Menu
20 REM By Steve Wyeth
25 REM (c) Electron User
30 MODE 4
40 *FX 4,1
50 REM *FX 229,1
60 PROC_variable_definitions
70 PROC_fill_arrays
80 PROC_print_screen
90 PROC_print_menu_items
100 REPEAT
110 PROC_print_current_option
120 PROC_accept_input_from_user
130 IF flag = FALSE THEN PROC_delete_current_option
140 UNTIL flag = TRUE
150 *FX 4,0
160 PROC_load_game
170 END
180 :
190 DEF PROC_variable_definitions
ns
200 blue = 4
210 white = 7
220 background = 0
230 foreground = 1
240 current_entry = 1
250 READ menu_entries
260 DIM position$(menu_entries)
270 DIM entry$(menu_entries)
280 DIM loading$(menu_entries)
290 DIM filename$(menu_entries)
300 DIM note$(menu_entries)
310 pos = 0
320 old_entry = 1
330 flag = FALSE
340 entry_flag = FALSE
350 User_Input$ = ""
360 ENDPROC
370 :
380 DEF PROC_fill_arrays
390 FOR loop% = 1 TO menu_entries
es
400 READ position$(loop%)
410 READ entry$(loop%)
420 READ loading$(loop%)
430 READ filename$(loop%)
440 READ note$(loop%)
450 NEXT loop%
460 ENDPROC
470 :
480 DEF PROC_print_screen
490 VDU 19,background,blue;0;
500 VDU 19,foreground,white;0;
510 PROC_character_definitions
520 VDU 23,8202;0;0;0;
530 PROC_print_background
540 PROC_pretty_border(584,1008,4)
550 MOVE 584,992
560 PRINT "MENU"
570 VDU 4
580 COLOUR 129
590 COLOUR 0
600 PROC_rectangle(250,200,782,650)
610 PROC_pretty_border(96,108,3)
620 PROC_pretty_border(96,76,34)
)
630 PRINTTAB(3,29);" Please select the required game "
640 PRINT TAB(5,30);SPC(7);"by ";CHR$(130);CHR$(131);" and RETURN"
650 GCOL 0,1
660 PLOT 69,1184,72
670 PLOT 69,1184,76
680 ENDPROC
690 :
700 DEF PROC_character_definitions
710 REM Up Arrow
720 VDU 23,130,24,60,60,126,24,24,24
730 REM Down Arrow
740 VDU 23,131,24,24,24,24,126,60,60,24
750 REM Background Character
760 VDU 23,132,146,36,73,146,36,73,146,36
770 ENDPROC
780 :
790 DEF PROC_print_background
800 FOR loop%=0 TO 31
810 PRINT TAB(0,loop%);STRING$(40,CHR$(132));
820 NEXT loop%
830 VDU 5
840 MOVE 0,28
850 PRINT STRING$(40,CHR$(132))
Turn to Page 14 ▶
```

◀ From Page 13

```

860 ENDPROC
870 :
880 DEF PROC_pretty_border(X_Co
_ord%,Y_Co_ord%,String_Length%)
890 GCOL 0,0
900 Y_Adjustment%=Y_Co_ord%-64

910 X_Adjustment%=X_Co_ord%+Str
ing_Length%*32
920 MOVE X_Co_ord%,Y_Co_ord%
930 MOVE X_Co_ord%,Y_Co_ord%-16

940 PLOT 85,X_Co_ord%-32,Y_Co_o
rd%-16
950 PLOT 85,X_Co_ord%-32,Y_Co_o
rd%-48
960 MOVE X_Co_ord%,Y_Co_ord%-48

970 PLOT 85,X_Co_ord%,Y_Co_ord%
-16
980 MOVE X_Co_ord%,Y_Co_ord%-48

990 MOVE X_Co_ord%-32,Y_Co_ord%
-48
1000 PLOT 85,X_Co_ord%,Y_Co_ord%
-64
1010 MOVE X_Adjustment%,Y_Co_ord
%
1020 MOVE X_Adjustment%,Y_Co_ord
%-16
1030 PLOT 85,X_Adjustment%+32,Y_
Co_ord%-16
1040 PLOT 85,X_Adjustment%+32,Y_
Co_ord%-48
1050 MOVE X_Adjustment%,Y_Co_ord
%-48
1060 PLOT 85,X_Adjustment%,Y_Co_
ord%-16
1070 MOVE X_Adjustment%,Y_Co_ord
%-48
1080 MOVE X_Adjustment%+32,Y_Co_
ord%-48
1090 PLOT 85,X_Adjustment%,Y_Co_
ord%-64
1100 MOVE X_Co_ord%,Y_Co_ord%
1110 MOVE X_Co_ord%,Y_Adjustment
%
1120 PLOT 85,X_Adjustment%,Y_Co_
ord%
1130 PLOT 85,X_Adjustment%,Y_Adj
ustment%
1140 GCOL 0,1
1150 MOVE X_Co_ord%,Y_Co_ord%-8
1160 MOVE X_Co_ord%,Y_Adjustment
%+8
1170 PLOT 85,X_Adjustment%,Y_Co_
ord%-8
1180 PLOT 85,X_Adjustment%,Y_Adj
ustment%+8
1190 GCOL 0,0
1200 ENDPROC
1210 :
1220 DEF PROC_rectangle(X_Co_ord
%,Y_Co_ord%,Width%,Height%)
1230 VDU 24,X_Co_ord%,Y_Co_ord%,
X_Co_ord%+Width%,Y_Co_ord%+Height
%;
1240 CLG
1250 VDU 26
1260 GCOL 0,1
1270 MOVE X_Co_ord%,Y_Co_ord%
1280 DRAW X_Co_ord%,Y_Co_ord%+He
ight%
1290 DRAW X_Co_ord%+Width%,Y_Co_
ord%+Height%
1300 DRAW X_Co_ord%+Width%,Y_Co_
ord%
1310 DRAW X_Co_ord%,Y_Co_ord%
1320 ENDPROC
1330 :
1340 DEF PROC_print_menu_items
1350 COLOUR 1
1360 COLOUR 128
1370 FOR loop% = 1 TO menu_entr
ies
1380 PRINT TAB(10,loop%+6);posit
ion$(loop%);": ";entry$(loop%)

```

```

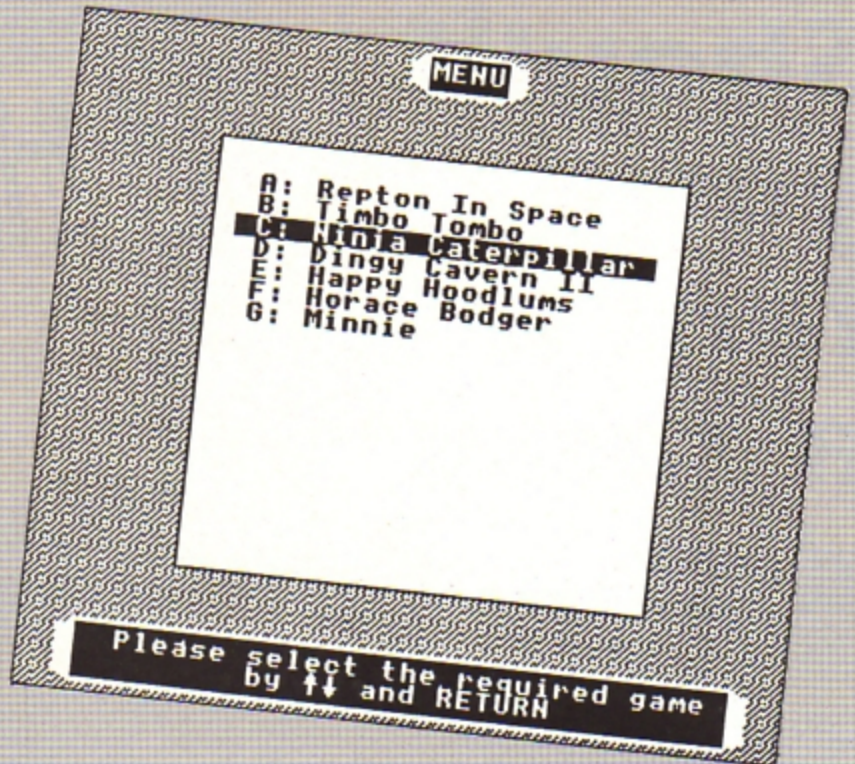
1390 NEXT loop%
1400 ENDPROC
1410 :
1420 DEF PROC_print_current_opti
on
1430 COLOUR 0
1440 COLOUR 129
1450 PRINT TAB(9,current_entry+6
);": ";position$(current_entry);":
";entry$(current_entry);
1460 pos = POS
1470 FOR loop% = pos TO 30
1480 PRINT " ";
1490 NEXT
1500 ENDPROC
1510 :
1520 DEF PROC_accept_input_from_
user
1530 *FX 15
1540 entry_flag = FALSE
1550 User_Input$ = ""
1560 REPEAT
1570 User_Input$=INKEYS(20)
1580 PROC_validate_input
1590 UNTIL entry_flag = TRUE
1600 old_entry = current_entry
1610 IF User_Input$ = CHR$138 TH
EN current_entry = current_entry
+1
1620 IF User_Input$ = CHR$139 TH
EN current_entry = current_entry
-1
1630 IF User_Input$ = CHR$13 THE
N flag = TRUE
1640 IF (ASC(User_Input$)-64)>0
AND (ASC(User_Input$)-64)<=menu_e
ntries THEN current_entry = (ASC(
User_Input$)-64)
1650 IF User_Input$ = CHR$138 AN
D (current_entry > menu_entries)
THEN current_entry = 1
1660 IF User_Input$ = CHR$139 AN
D (current_entry < 1) THEN curren
t_entry = menu_entries
1670 ENDPROC
1680 :
1690 DEF PROC_validate_input
1700 IF User_Input$=CHR$139 OR U
ser_Input$=CHR$138 OR User_Input$
=CHR$13 THEN entry_flag=TRUE
1710 IF (ASC(User_Input$)-64)>0
AND (ASC(User_Input$)-64)<=menu_e
ntries THEN entry_flag = TRUE
1720 ENDPROC
1730 :

```

```

1740 DEF PROC_delete_current_opt
ion
1750 COLOUR 1
1760 COLOUR 128
1770 PRINT TAB(9,old_entry+6);":
";position$(old_entry);": ";entry
$(old_entry);
1780 pos = POS
1790 FOR loop% = pos TO 30
1800 PRINT " ";
1810 NEXT
1820 ENDPROC
1830 :
1840 DEF PROC_load_game
1850 PROC_check_notes
1860 IF loading$(current_entry)
= "CHAIN" THEN CHAIN filename$(cu
rrent_entry)
1870 IF loading$(current_entry)
= "EXEC" THEN OSCLI("EXEC" + fil
ename$(current_entry))
1880 IF loading$(current_entry)
= "RUN" THEN OSCLI("RUN" + filen
ame$(current_entry))
1890 ENDPROC
1900 :
1910 DEF PROC_check_notes
1920 IF INSTR(note$(current_entr
y),"M") = 1 THEN VDU 22,VAL(MID$(
note$(current_entry),2,1))
1930 ENDPROC
1940 :
1950 REM *****
1960 REM ** Data Area **
1970 REM *****
1980 REM :
1990 REM OSCLI (e.g. *RUN) calls
need
2000 REM full pathname including
drive
2010 REM :
2020 DATA 7
2030 DATA A,Repton In Space,CHAI
N,REPTILE,XX
2040 DATA B,Timbo Tombo,*EXEC,:2
.!BOOT,XX
2050 DATA C,Ninja Caterpillar,*R
UN,:0.NINJ,XX
2060 DATA D,Dingy Cavern II,CHAI
N,DINGY,M6
2070 DATA E,Happy Hoodlums,*EXEC
,:2.HELLO,M6
2080 DATA F,Horace Bodger,CHAIN,
HORACE,XX
2090 DATA G,Minnie,CHAIN,Min,XX

```



★ Computer shopping is fun at the Computer Shopper Show! ★



Yes, for three exciting days in November, Computer Shopper will turn Alexandra Palace into the world's greatest computer show. Everything you need for business and leisure computing will be available under one roof – with experts to help you make the right choice!

The Computer Shopper Show is your chance to meet the dealers with the bargains, the manufacturers with the latest machines – and to take away the things you buy on the day!

Auctions, demonstrations, competitions . . . everything that you've ever wanted from an exhibition will be happening at the Computer Shopper Show – the only show for the direct buyer and the ultimate computer shopping experience!

And, with Computer Shopper you know you'll save money!

Why not start right here! By ordering your tickets in advance you will save £££! Simply complete and return the coupon with your payment or telephone the Credit Card Hotline on 051-357 2961 to place your order.

Prestel or Microlink

To place your order by Prestel, Key +89, then 614568383. Microlink users should key 72MAG 001. Please quote your credit card numbers and your full name and address when you place your order.

COMPUTER SHOPPER SHOW '89
NOVEMBER 24 - 26, ALEXANDRA PALACE

The Computer Shopper Show

Alexandra Palace, London

10am-6pm Friday, November 24

10am-6pm Saturday, November 25

10am-4pm Sunday, November 26

SAVE £££ WHEN YOU BUY OUR TICKETS IN ADVANCE!

Yes! Please send me my tickets for the Computer Shopper Show! £

- Adult tickets at £3 (Save £1!) _____
 - Under 16s tickets at £2 (Save £1!) _____
 - Family tickets - admits up to 2 adults and 2 children - £9 (Save £5!) _____
- TOTAL _____

I would like to pay by -

- Cheque made payable to Database Exhibitions Ltd
- Credit card Access Visa Expiry Date _____

No. _____

Signed _____

Name _____

Address _____

Postcode _____

Please return your completed order form to -
The Computer Shopper Show Ticket Office, Database Exhibitions Ltd, PO Box 2, Ellesmere Port, South Wirral L65 3EA. A761

- ★ Over 250 stands serving every major make and model – the ultimate computer hypermarket, packed with pre-Christmas bargains and offers.
- ★ Incorporates the Amstrad Computer Show, the Atari Computer Show, the Electron & BBC Micro User Show and much, much more!
- ★ On-site car parking for hundreds of cars – ideal for taking away your computer bargains on the day!
- ★ Excellent public transport network with courtesy coach link to the local British Rail station.
- ★ Special show features and entertainment to make your shopping experience fun!
- ★ Special discount tickets for under 16s and family groups.

Sponsored by **COMPUTER SHOPPER**

Organised by **DATABASE EXHIBITIONS**

TELEPHONE HOTLINE
Place your orders for tickets by calling
051-357 2961

New Educational Bundle

For a limited period we are offering ALL THREE Fun School 1 AND Nursery Rhymes in a special educational bundle.

FUN SCHOOL!

Ages 2-5

Alphabet
Colours
Counting
House
Magic Garden
Matchmaker
Numbers
Pelican
Seaside
Snap



PELICAN
Teach your children to cross the road safely at a Pelican crossing

Ages 5-8

Balance
Castle
Derrick
Fred's Words
Hilo
Maths Test
Mouser
Number Signs
Seawall
Super Spell



NUMBER SIGNS
Provide the correct arithmetic sign and aim to score ten out of ten

- Use your BBC Micro to teach and amuse your children at the same time.
- Three packages crammed full of educational programs – and so easy to use!
- Each program has been educationally approved after extensive testing in the classroom.

RRP £20.80

OUR PRICE

£9.95

Ages 8-12

Anagram
Codebreaker
Dog Duck Corn
Guessing
Hangman
Maths Hike
Nim
Odd Man Out
Pelmanism
Towers of Hanoi



HANGMAN
Improve your child's spelling with this fun version of the popular game

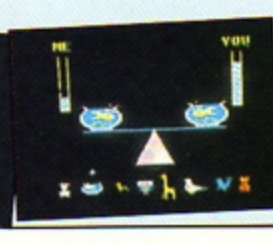
NURSERY RHYMES

5

fun-packed educational programs . . . for young children everywhere

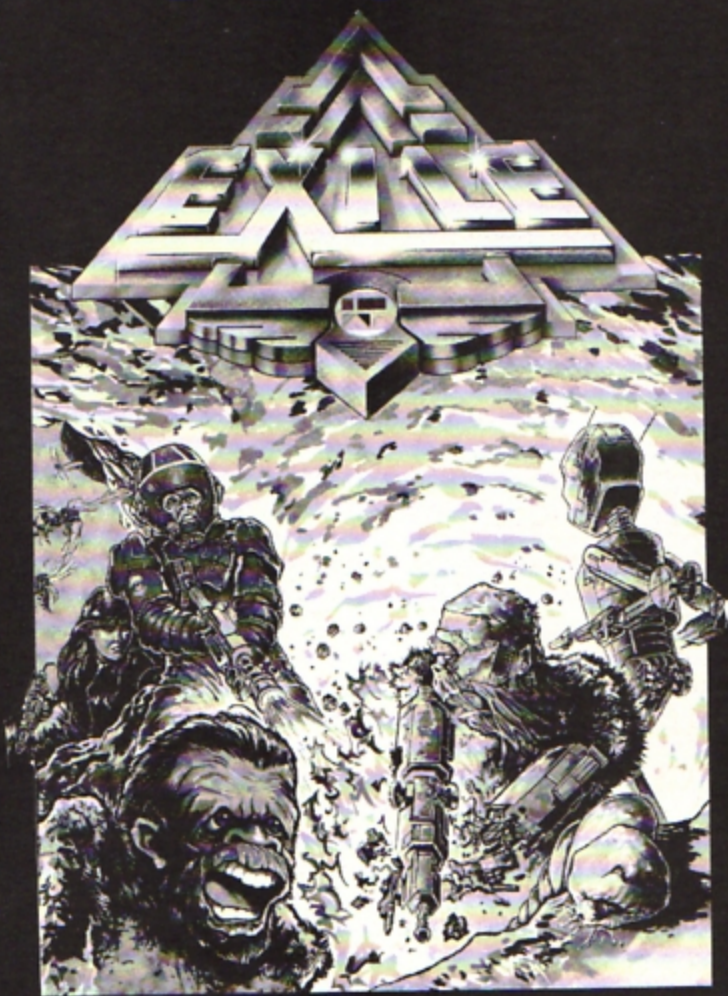
This delightful collection of programs is based around children's favourite Nursery Rhymes. There's plenty of sparkling colour, sound and captivating animation to keep them riveted – and as they play they'll be learning all the way.

- ★ Tell the time with Hickory Dickory Dock.
- ★ Assemble the jigsaw in Humpty Dumpty.
- ★ Learn to spell with Jack and Jill.
- ★ Match the animals in See Saw Marjory Daw.
- ★ Play an exciting game in Hey Diddle Diddle.



Send for your collection today using the form on Page 45

ESCAPE FROM



LETTERS have been flooding in requesting help with that highly entertaining but difficult Superior Software game, *Exile*. Escaping from the central cavern and collecting the weapon seem to be causing a few problems.

Thanks to Leo McCann of Streatham, London, we can now help all those readers who've been scratching their heads in front of their Electron over the last few months. Before entering the cave complex go to the spaceship's undercarriage on the surface after getting the grenade from the bush on the right. There should be a series of red and yellow hatches above you.

Hold down the full boost thrust key and you will hit the cannon above, making it fly into the air. Keep the thrust keys pressed and when the cannon lands on your head move to the left. You should now have entered the spaceship.

Collect the grenade and shift the cannon to your left. Leave through the hatch. Fly over the top of the ship to a cabin with a horizontal door. Drop a grenade on the right-hand edge at the end of the door and move well away from the blast. Both the grenades inside the cabin should be intact, so pick them up and blast the door into the cavern.

Go up the diagonal tunnel and descend the vertical one. Enter the tunnel on your left and grab a grenade which is placed high up on the wall. Beware of the wasps. It is best to remember the location outside the wasp room and teleport out once you have the grenade safely in your pocket.

Enter the central cavern, where you will find a little cabin with a robot, a gun and a teleporter. Drop a grenade on the ledge below the door, but be careful as there is a bird here.

The robot will now be after you. Try to get into the cabin and collect the gun (if it hasn't been moved). Turn on the teleporter and lure the robot into it, which is easier said than done. Leave the teleporter on. Shoot the bird about 15 times and it will turn into a fireball.

To get out of the cavern go down to a bush with a pack of annoying monkeys. You will find a blue and yellow hatch to the left. Go through it, move to your left and up into a room which holds a wasp's nest and an oversized urn.

Fly in and take the urn. It is too big to be stuffed into your pocket, so you can't teleport with it. The next task is difficult and frustrating. Walk forward towards the door until you are in front of the nest. The wasps come out when the door closes.

Jump up and throw the urn out of the door, then teleport out. Collect the urn and go out of the hatch and leave it on the ground to the west of the hatch. Now you must collect a key.

Switch off the teleporter in the robot's cabin. Press R inside the cabin and fly out so that the robot follows you. Press T, switch on the teleporter, and get in it.

Quickly fly up to a hole in the ceiling, avoiding the flock of birds. Press R and slowly fly out. Hold down the downthrust and pickup buttons and collect the key. Press T and go back to the central cavern.

There is another grenade to collect here. Go to the large east wall of the cavern, fly down and take the grenade that is stuck in the floor by the gun. Return to collect your urn.

Travel west and drop it in the water to fill it up. Any sudden movement will upset it, calling for a refill. Go west to a hatch above a fire. Enter the room, leaving the urn in the middle of the door. Go to the monkey bush and fly over the hatch into a small chamber.

You will hear a door open. Lure a monkey into this chamber by shooting one. Teleport back to the door with urn and the door will open so you can get the RCD. Store it and retrieve your urn; leave it in a safe place.

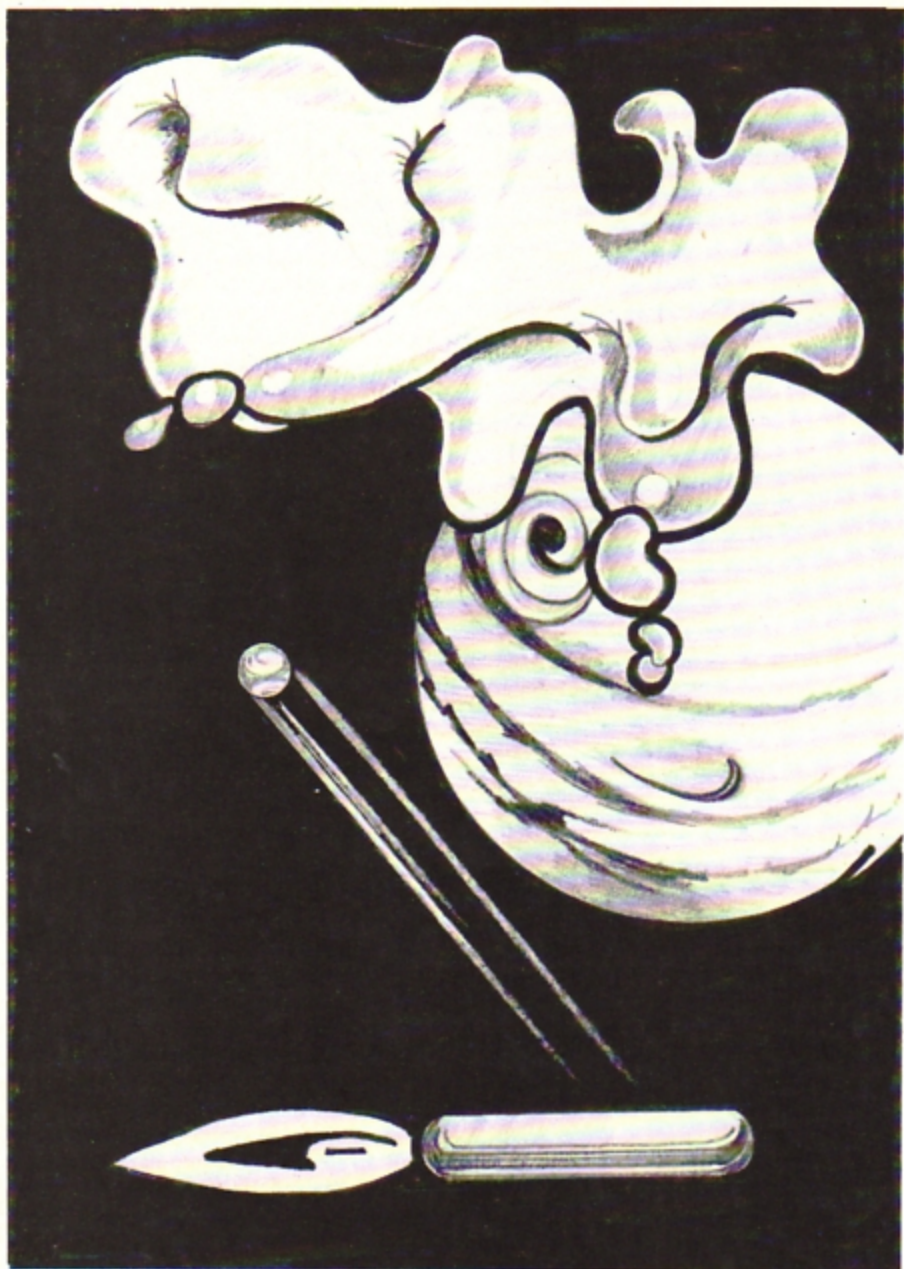
Now go to the entrance to the cave complex. Kill the funny round creatures, which only need to be shot once. Hold the RCD and aim it at the door next to their nest. Use it, then store it.

Throw a grenade inside the door and close it. The robot should blow up or be blown back into the cave. Fly through the cave into an alcove containing a bed, avoiding the other robot's fire. Lie on the bed, then aim your gun down and shoot so it moves. Under the bed is a secret manhole by the wall. Climb down it. Now you will be in a circular room.

Fly up and aim your gun at a button on the wall. Shoot it. A robot will probably appear with more round creatures. Shoot them and get the robot to go into the west teleporter.

Aim your fire at an icon you can see on a ledge between the teleporters. Keep shooting it so it gets blown back into the teleporter. Go around and follow it in by using that teleporter. Get the icon.

That should be enough information to get you well into the game. Have fun!



Going for a spin

Try this addictive but frustrating bat 'n' ball game by the inventive Nicholas Jameson

SPINNING Frustration is a variation on the old arcade game Breakout. In this clone of the classic the object is to knock out all the blocks of fungus at the top of the screen with a spinning ball which bounces around at high speed.

The ball is trapped and can't get away,

but if it hits the wall at the bottom of the screen directly after hitting a block the fungus grows and you lose some of the bonus points available.

You can prevent this from happening by hitting the ball back up the screen with the bat, which you can move left and right at the bottom of the screen.

You score points for knocking out fungus blocks and a bonus is available. However, the game will be over if your bonus falls to zero. Also if the fungus gets down to the same level as your bat you lose.

Part of the game is written in machine code for extra speed and smooth animation

```

10 REM Spinning Frustration
20 REM By Nicholas Jameson
30 REM (c) Electron User
40 REM
50 *FX200,1
60 MODE4:VDU23,1,0;0;0;
70 PROCtitle
80 PROCscores
90 PROCassemble
100 CLS:VDU19,1,7;0;
110 REPEAT
120 PROCinstruct
130 MODE5:VDU23,1,0;0;0;
140 PROCgame
150 MODE4:VDU23,1,0;0;0;
160 PROCreport
170 IFIX=0 GOT0130
180 UNTILO
190 REM High scores
200 DATA Fred,Jim,Sheila,User,E
    lectron,Nick,Tim,Mick,Andy,Bruno
210 REM Graphics data
220 DATA1,3,112,112,112,3,1,0,8
    ,12,224,224,224,12,8,0
230 DATA1,33,112,52,22,3,1,0,8,
    12,14,134,194,192,8,0
240 DATA16,18,22,22,22,18,16,0,
    128,132,134,134,134,132,128,0
250 DATA1,3,22,52,112,33,1,0,8,
    192,194,134,14,12,8,0
260 DATA7,225,225,225,225,225,2
    4,0
270 REM Data for tune
280 DATA80,76,72,68,255,80,255,
    100,255,116,255,116,108,108,104,1
    08,108,100,96,100,100,96,92,96,96
    ,88,84,88,80,76,72,68,80,255,100,
    255,68,64,60,60,255,80,255,96,255
    ,96,88,84,88,80,76,72,68,255,52,2
    55,32,255,52,68
290 DATA80,76,68,60,255,48,255,
    32,255,48,60,99
300 DEFPROCassemble
310 FORbyte=0T071
320 READdata
330 byte?&C00=data
340 NEXT
350 byte=0
360 REPEAT
370 READdata
380 IFdata=99 GOT0420
390 byte?&4900=data
400 byte=byte+1
410 UNTILO
420 FORpass=0T02STEP2
430 P%=&5000
440 COPTpass
450 .init \initialisation and s
    ummary
460 LDA#850:STA&70 \ball positi
    on
470 LDA#&71:STA&71
480 LDA#0:STA&72 \balls old pos
    ition
490 LDA#&80:STA&73
500 \ &74 and &75 - reserved fo
    r checking
510 LDA#&88:STA&76 \batters pos
    ition
520 LDA#&7B:STA&77
530 LDA#0:STA&78 \batters old p
    osition
540 LDA#&80:STA&79
550 LDA#0:STA&7C \location for
    data for ball

```

so take care when entering the listing. The interrupt-driven music which accompanies the game can be turned off by pressing Q.

CONTROLS

Z Left
X Right
Return Freeze game
* Unfreeze game
? Abort game
Q Sound off
S Sound on

```

560 LDA#8C:STA&7D
570 LDA#2:STA&C4A \direction of
ball
580 LDA#0:STA&7A \pointer for I
RQ driven music
590 LDA#849:STA&7B
600 LDA#16:STA&C4B \counter for
IRQ driven music
610 LDA#1:STA&C48:STA&C49 \posi
tion of ball and counter for spin
ning rate
620 LDY#8:LDY#0:LDA#214:JSR&FFF
4
630 LDA#1:STA&C52
640 LDA#86:STA&8E \counter for
blocks left
650 LDA#1:STA&8F
660 LDA#0:STA&C4C \score
670 LDA#0:STA&C4D
680 LDA#88:STA&C53 \bonus
690 LDA#13:STA&C54
700 LDA#0:STA&C4E \dead yet?
710 LDY#service AND &FF
720 LDY#service DIV &100
730 SEI
740 STX&204
750 STY&205
760 CLI
770 LDA#&A0:STA&7E
780 LDA#&5F:STA&7F
790 .blockloop1
800 LDY#&F0
810 .blockloop2
820 TXA:CLC:ADC&7E:STA&80
830 LDA&7F:ADC#0:STA&81
840 LDY#7
850 .blockloop3
860 LDA&C40,Y:STA(880),Y
870 DEY:BPLbLckloop3
880 TXA:SEC:SBC#8:TAX:BNEbLckl
oop2
890 LDA&7F:CMP#&6E:BEQendsub
900 LDA&7E:CLC:ADC#&40:STA&7E
910 LDA&7F:ADC#1:STA&7F
920 JMPbLckloop1
930 .endsub
940 LDA#&A0:STA&7E \location fo
r fungus to grow
950 LDA#&6C:STA&7F
960 JMPml
970 .service
980 TYA
990 PHA
1000 TXA
1010 PHA
1020 LDA&C52:BEQoldvector
1030 INC&C4B:LDA&C4B:CMP#19:BNEo
ldvector
1040 LDA#0:STA&C4B
1050 .sound
1060 LDA#0:STA&C4B
1070 LDY#0:LDA(87A),Y
1080 LDA(87A),Y:TAX:LDA#213:JSR&
FFF4
1090 LDA#21:LDY#5:JSR&FFF4
1100 LDA#7:JSR&FFEE
1110 LDA&7A:CLC:ADC#1:STA&7A:CMP
#71:BNEgap
1120 LDA#0:STA&7A
1130 .gap
1140 LDA(87A),Y:CMP#255:BNEoldve
ctor
1150 LDA#236:STA&C4B
1160 LDA&7A:CLC:ADC#1:STA&7A
1170 .oldvector
1180 PLA
1190 TAX
1200 PLA
1210 TAY
1220 JMP&DB47
1230 .ml
1240 JSRdirection
1250 LDA&C4C:STA&C4F
1260 JSRprint
1270 JSRbatter
1280 LDA#&81:LDX#&EF:LDY#&FF:JSR
&FFF4:TYA:BEQon
1290 LDA#0:STA&C52
1300 .on
1310 LDA#&81:LDX#&AE:LDY#&FF:JSR
&FFF4:TYA:BEQabort
1320 LDA#1:STA&C52
1330 .abort
1340 LDA#&81:LDX#&97:LDY#&FF:JSR
&FFF4:TYA:BEQhold
1350 LDA#2:STA&C4E:JMPdead
1360 .hold
1370 LDA#&81:LDX#&B6:LDY#&FF:JSR
&FFF4:TYA:BEQnofreeze
1380 LDA&C52:STA&C50
1390 LDA#0:STA&C52
1400 .freeze
1410 LDA#&81:LDX#&B7:LDY#&FF:JSR
&FFF4:TYA:BEQfreeze
1420 LDA&C50:STA&C52
1430 .nofreeze
1440 JSRpause
1450 LDA&C4E:BNEdead
1460 LDA&8F:BNEml
1470 LDA&8E:BNEml
1480 .dead
1490 RTS
1500 .pause
1510 LDY#15
1520 LDY#0
1530 .ploop
1540 DEX:BNEploop
1550 DEY:BNEploop
1560 RTS
1570 .direction
1580 LDA&C57:BEQcheckpos1
1590 LDA&71:CMP#&7B:BNEcheckpos:
JSRfungli
1600 LDA&C4E:BEQcheckpos
1610 RTS
1620 .checkpos LDA&71:CMP#&7C:BN
Echeckpos1:JSRfungli
1630 LDA&C4E:BEQcheckpos1
1640 RTS
1650 .checkpos1
1660 LDA&70:SEC:SBC#&40:STA&74
1670 LDA&71:SBC#1:STA&75
1680 LDY#0
1690 LDA(874),Y:BEQunderneath
1700 CMP#7:BNEcarr
1710 JSRblank
1720 .carr
1730 LDA&C4A:CMP#1:BNEother
1740 LDA#4:STA&C4A
1750 .other
1760 LDA&C4A:CMP#2:BNEunderneath
1770 LDA#3:STA&C4A
1780 .underneath
1790 LDA&70:CLC:ADC#&40:STA&74
1800 LDA&71:ADC#1:STA&75
1810 LDA(874),Y:BEQlefthand
1820 CMP#7:BNEcarr1
1830 JSRblank
1840 .carr1
1850 LDA&C4A:CMP#4:BNEother1
1860 LDA#1:STA&C4A
1870 .other1
1880 LDA&C4A:CMP#3:BNElefthand
1890 LDA#2:STA&C4A
1900 .lefthand
1910 LDA&70:SEC:SBC#8:STA&74
1920 LDA&71:SBC#0:STA&75
1930 LDA(874),Y:BEQRighthand
1940 CMP#7:BNEcarr2
1950 JSRblank
1960 .carr2
1970 LDA&C4A:CMP#1:BNEother2
1980 LDA#2:STA&C4A
1990 .other2
2000 LDA&C4A:CMP#4:BNERighthand
2010 LDA#3:STA&C4A
2020 .righthand
2030 LDA&70:CLC:ADC#16:STA&74
2040 LDA&71:ADC#0:STA&75
2050 LDA(874),Y:BEQmove
2060 CMP#7:BNEcarr3
2070 JSRblank
2080 .carr3
2090 LDA&C4A:CMP#2:BNEother3
2100 LDA#1:STA&C4A
2110 .other3
2120 LDA&C4A:CMP#3:BNEmove
2130 LDA#4:STA&C4A
2140 .move
2150 LDA&C4A:CMP#1:BEQupleft
2160 LDA&C4A:CMP#2:BEQupright
2170 LDA&C4A:CMP#3:BEQdownright
2180 LDA&70:CLC:ADC#&38:STA&70
2190 LDA&71:ADC#1:STA&71
2200 RTS
2210 .upleft
2220 LDA&70:SEC:SBC#&48:STA&70
2230 LDA&71:SBC#1:STA&71
2240 RTS
2250 .upright
2260 LDA&70:SEC:SBC#&38:STA&70
2270 LDA&71:SBC#1:STA&71
2280 RTS
2290 .downright
2300 LDA&70:CLC:ADC#&48:STA&70
2310 LDA&71:ADC#1:STA&71
2320 RTS
2330 .print
2340 LDY#2
2350 .loop1
2360 LDY#15
2370 .loop2
2380 LDA(87C),Y:EOR(872),Y:STA(8
72),Y
2390 DEY:BPLloop2
2400 TXA:CMP#2:BNEfido
2410 JSRspin
2420 .fido
2430 LDA&70:STA&72
2440 LDA&71:STA&73
2450 DEX:BNEloop1
2460 RTS
2470 .batter
2480 LDA#&81
2490 LDY#&9E
2500 LDY#&FF
2510 JSR&FFF4
2520 TYA:BEQright
2530 LDA&76:SEC:SBC#16:STA&76
2540 LDA&77:SBC#0:STA&77
2550 .right
2560 LDA#&81
2570 LDY#&BD
2580 LDY#&FF
2590 JSR&FFF4
2600 TYA:BEQchecker
2610 LDA&76:CLC:ADC#16:STA&76
2620 LDA&77:ADC#0:STA&77
2630 .checker
2640 LDA&76:CMP#&F8:BNEcheck1:LD
A&77:CMP#&7A:BNEcheck1:LDA#8:STA&
76:LDA#&7B:STA&77
2650 .check1 LDA&76:CMP#8:BNEbat
print:LDA&77:CMP#&7C:BNEbatprint:
LDA#&F8:STA&76:LDA#&7B:STA&77
2660 .batprint
2670 LDA#1:STA&C56
2680 LDY#2
2690 .loop3
2700 LDY#63
2710 .loop4
2720 LDA&C56:BNEostripe
2730 LDA#&A0:EOR(878),Y:STA(878)
,Y
2740 .nostripe
2750 INC&C56:LDA&C56:CMP#2:BNEst
ripes
2760 LDA#0:STA&C56
2770 .stripes
2780 DEY:BPLloop4
2790 LDA&76:STA&78
2800 LDA&77:STA&79
2810 DEX:BNEloop3
2820 RTS
2830 .blank
2840 LDA#1:STA&C57
2850 LDA&8E:SEC:SBC#1:STA&8E
2860 LDA&8F:SBC#0:STA&8F
2870 LDY#7:LDA#0
2880 .bLoop
2890 STA(874),Y
2900 DEY:BPLbLoop
2910 LDA&74:STA&7E
2920 LDA&75:STA&7F
2930 LDA&C4C:CLC:ADC#3:STA&C4C
2940 LDA&C4D:ADC#0:STA&C4D
2950 RTS
2960 .ascend
2970 LDA#0:STA&C48
2980 LDA&7E:SEC:SBC#&80:STA&7E
2990 LDA&7F:SBC#2:STA&7F
3000 JMPcountdown
3010 .fungli
3020 LDA#0:STA&C57
3030 LDA&7E:CLC:ADC#&80:STA&7E
3040 LDA&7F:ADC#2:STA&7F
3050 CMP#&7B:BNEok
3060 LDA#3:STA&C4E:RTS
3070 .ok

```

Turn to Page 21 ▶

Here's how you can get the very best out of your Electron

Within the pages of these three books you'll find ALL the information you need to fully harness the power of your Electron. They cover Basic, machine-code programming and the operating system, and between them they also show how to combine all three to create more powerful and effective programs.

For the give away price of just £7.95 for the three, these books represent exceptional value and are a must for any serious Electron user.

Electron Advanced User Guide

This detailed guide to the Electron's operating system is packed full of invaluable information. It shows you how to:

- Implement the powerful *FX/OSBYTE calls
 - Write your own paged roms
 - Program the ULA
 - Make every byte count where program space is tight
 - Use the Electron's exciting capabilities to the full by following the complete circuit diagram
- ...and much, much more.

This essential handbook will help you to exploit the full potential of your Electron. And for just £2.95, saving £6.50 off the recommended price, can you afford not to miss this offer?

Electron Assembly Language

The Electron Assembly Language reference guide will help you get to grips with machine code in next to no time. Whether you're a beginner or are already fairly proficient, there is something for you in this book.

It has over 200 pages packed with hints, tips and example programs on subjects ranging from basic hex, binary and decimal number theory and logical operators, through addressing modes, stacks and loops, to subroutines, jumps and calls.

Every aspect of machine-code programming is covered in this book in a friendly, readable style, and there's also a comprehensive index. If you want to get more out of your micro, but thought machine code was indecipherable, this is the book for you. *Save £3 off the recommended retail price.*

Getting started in BBC Basic on the BBC Micro & Electron

This is the ultimate guide available on BBC Basic. Written by a leading expert on the language, it will lead you through each Basic function in a simple, easy-to-follow style.

Whether you are a beginner or more advanced, there are examples of commonly-needed routines and neat tricks you can use to make Basic jump through hoops.

By working through its many examples you will gain a clear insight into structured programming and will quickly acquire the ability to use structured techniques in creating your own programs. *Save £3 off the recommended retail price.*

Only
£7.95 for all three



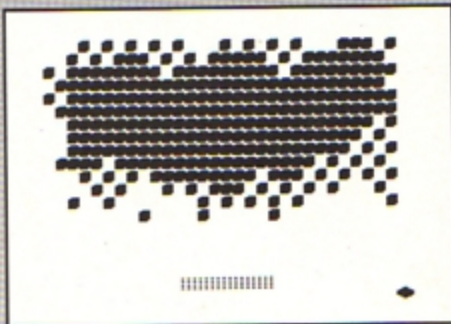
TO ORDER PLEASE USE THE FORM ON PAGE 45

◀ From Page 19

```

3080 LDA#7F:CMF#87C:BNEOK1
3090 LDA#3:STA#C4E:RTS
3100 .ok1
3110 LDY#0
3120 LDA(#7E),Y:BNEascend
3130 LDA#1:STA#C48
3140 .countdown
3150 LDA#8E:CLC:ADC#1:STA#8E
3160 LDA#8F:ADC#0:STA#8F
3170 LDY#7
3180 .funLoop
3190 LDA#C40,Y:STA(#7E),Y
3200 DEY:BPLfunloop
3210 LDA#C54:STA#C51
3220 LDA#C53:SEC:SBC#50:STA#C53
3230 LDA#C54:SBC#0:STA#C54
3240 LDA#C51:SEC:SBC#C54:BCSgrow
er
3250 LDA#1:STA#C4E
3260 LDA#0:STA#C53:STA#C54
3270 RTS
3280 .grower
3290 LDA#C58:BEQsize
3300 LDA#7E:SEC:SBC#840:STA#7E
3310 LDA#7F:SBC#1:STA#7F
3320 .size
3330 RTS
3340 .spin
3350 INC#C48:LDA#C48:CMF#14:BEQangle
ngle
3360 RTS
3370 .angle LDA#1:STA#C48
3380 INC#C49:LDA#C49:CMF#5:BNEone
e
3390 LDA#1:STA#C49
3400 .one
3410 LDA#C49:CMF#1:BNETwo
3420 LDA#0:STA#7C:LDA#C:STA#7D
3430 JMProtend
3440 .two
3450 LDA#C49:CMF#2:BNETHree
3460 LDA#10:STA#7C:LDA#C:STA#7

```



```

D
3470 JMProtend
3480 .three
3490 LDA#C49:CMF#3:BNefour
3500 LDA#20:STA#7C:LDA#C:STA#7
D
3510 JMProtend
3520 .four
3530 LDA#30:STA#7C:LDA#C:STA#7
D
3540 .rotend
3550 RTS
3560 .endtone
3570 LDX#847
3580 LDY#8DB
3590 SEI
3600 STX#204
3610 STY#205
3620 CLI
3630 RTS
3640 J
3650 NEXT
3660 ENDPROC
3670 DEFPROCgame
3680 MOVE28,0:DRAW1252,0:DRAW125
2,990:DRAW28,990:DRAW28,0
3690 CALL#5000
3700 IF ?#C4E=1 COLOUR1:PRINTTAB
(3,14);"Bonus is zero"TAB(6,16);
"Game over":GOTO3750
3710 IF ?#C4E=2 COLOUR1:PRINTTAB
(3,14);"Game aborted"TAB(6,16);"N
o bonus":?#C53=0: ?#C54=0: ?#8E=0: ?

```

```

#8F=0:GOTO3750
3720 IF ?#C4E=3 COLOUR1:PRINTTAB
(3,14);"The fungus"TAB(3,16);"has
killed you":?#8E=0: ?#8F=0:GOTO37
50
3730 COLOUR2
3740 PRINTTAB(3,14);"Congratulat
ions"
3750 TIME=0:REPEATUNTILTIME=400
3760 CALLendtone
3770 ENDPROC
3780 DEFPROCscores
3790 VDU23,250,24,36,66,126,66,3
6,24,0
3800 DIM S$(10),HIX(10)
3810 FORIX=1TO10
3820 READS1$
3830 S$(IX)=S1$+" "+CHRS250
3840 HIX(IX)=2000+(IX*200)
3850 NEXT
3860 ENDPROC
3870 DEFPROCinstruct
3880 PRINT"" Spinning Frustrat
ion"
3890 PRINT" =====
="
3900 PRINT" The idea of this gam
e is to knock out"" all the fun
gus at the top of the"" screen
with a spinning ball which"" bo
unces about the screen. If the b
all"" hits the bottom directly
after hitting""
3910 PRINT" a block the fungus g
rows and you loose"" some bonus
. You have to stop this"" from
happening by catching the ball""
"" with the bat which you can mov
e left"" and right at the botto
m of the screen""
3920 PRINT" If the fungus reache
s the level of"" your bat the g
ame will be over. You"" score
points for hitting blocks."" Pr
ess space to scroll."
3930 REPEATUNTILINKEY=99
3940 PRINT"" The game will be o
ver also if your"" bonus falls
to zero. The little symbol"" ("
;CHRS250;") in the high score tab
le means that"" it is a name pu
t in by the computer."" These a
re your keys:"" Z.....Left"
3950 PRINT" X....Right"" Retur
n....Freeze game"" *....Unfreez
e game"" ?....Abort game"" Q.
...Sound off"" S....Sound on""
" Press space to start the game."
""
3960 AS="...Spinning Frustration
...devised and programmed and mus
ic composed by Nicholas Jameson (
Aged 11)...For the Lancaster Roya
l Grammar School minibus appeal..
...."
3970 COLOUR129:COLOUR0
3980 REPEAT
3990 PRINTTAB(2,28);MIDS(AS,1,36
)
4000 TIME=0:REPEATUNTILTIME=5 OR
INKEY=99
4010 AS=AS+MIDS(AS,1,1)
4020 AS=MIDS(AS,2,158)
4030 UNTILINKEY=99
4040 ENDPROC
4050 DEFPROCreport
4060 CX=0

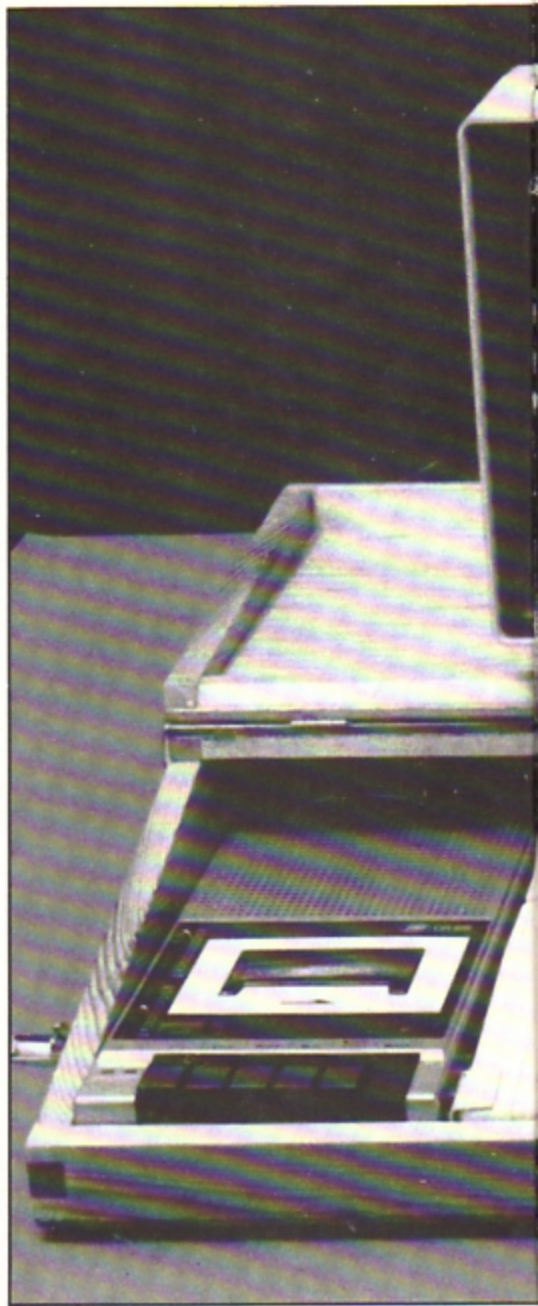
```

```

4070 *FX4,1
4080 SCX=?#C4C
4090 SC1X=?#C4D
4100 SC1X=SC1X*256
4110 SCX=SCX+SC1X
4120 BOX=?#C53
4130 BO1X=?#C54
4140 BO1X=BO1X*256
4150 BOX=BOX+BO1X
4160 SCX=SCX+BOX
4170 COX=?#8E
4180 CO1X=?#8F
4190 CO1X=CO1X*256
4200 COX=COX+CO1X
4210 SCX=SCX-COX
4220 IFSCX<HIX(1) PRINT"" Yo
ur score is ";SCX ELSE PRINT""
Please enter your name ":PROCTa
ble
4230 PRINT"" High scores:"
4240 FORIX=10TO1STEP-1
4250 IFCX=IX PRINT"" ";HIX(IX);
".....";DX=POS:EX=VPOS:PRINT:
GOTO4270
4260 PRINT"" ";HIX(IX);".....
";S$(IX)
4270 NEXT
4280 IFCX>0 PROCname
4290 PRINTTAB(4,28);"Press space
for another go"" or press
I for instructions"
4300 *FX21,0
4310 REPEAT:key=GET:UNTIL key=AS
C"i" OR key=ASC"i" OR key=32
4320 IFkey=32 IX=0 ELSEIX=1
4330 ENDPROC
4340 DEFPROCtable
4350 FORIX=10TO1STEP-1
4360 IFSCX>HIX(IX) PROCshift:END
PROC
4370 NEXT
4380 ENDPROC
4390 DEFPROCshift
4400 CX=IX
4410 FORBX=1TOIX
4420 S$(BX-1)=S$(BX)
4430 HIX(BX-1)=HIX(BX)
4440 NEXT
4450 HIX(IX)=SCX
4460 ENDPROC
4470 DEFPROCname
4480 *FX21,0
4490 S$(CX)=""
4500 LX=0
4510 VDU31,DX,EX
4520 REPEAT
4530 key=GET
4540 IFkey=13 PRINTTAB(3,3);"
":UNTILkey=13
ELSE IFkey=127 AND LX=0:UNTIL0 EL
SE IF key=127 S$(CX)=MIDS(S$(CX),
1,LEN(S$(CX))-1):LX=LX-1:VDU127:U
NTILO ELSE IFLX<13 VDUkey:S$(CX)=
S$(CX)+CHRSkey:LX=LX+1:UNTILOELSE
GOTO4570
4550 ENDPROC
4560 SOUND1,-15,10,3
4570 UNTILO
4580 DEFPROCTitle
4590 VDU19,1,3,0;
4600 PRINTTAB(8,12);"By Nicholas
Jameson..."
4610 VDU31,10,14
4620 AS="Spinning Frustration"
4630 MOVE320,504
4640 FORLX=1TO20
4650 ?#70=ASC(MIDS(AS,LX,1))
4660 AX=10:XX=#70:YX=0:CALL#FFF1
4670 VDU23,224
4680 FORKX=0TO7
4690 VDU?(#71+(KXDIV2))
4700 NEXT
4710 VDU23,225
4720 FORKX=0TO7
4730 VDU?(#75+(KXDIV2))
4740 NEXT
4750 VDU224,8,10,225,11
4760 DRAW320+(LX*32),504
4770 SOUND1,-15,40+(LX*8),2
4780 TIME=0:REPEATUNTILTIME=6
4790 NEXT
4800 VDU19,1,3,0;
4810 TIME=0:REPEATUNTILTIME=300
4820 ENDPROC

```

Have suitcase, will compute



Leslie Goodridge shows how to make sure your Electron is always ready for action

IN common with most home computers, the Electron suffers from the drawback that several items need connecting each time it is used, resulting in a tangle of wires and equipment. One solution is to leave everything permanently set up in a room. More often than not however, the Electron will be left in a cupboard and brought out

infrequently because of the hassle of setting it up each time.

The answer is to make a custom built carrying case, transforming your machine into a portable go-anywhere computer. The case described here has the keyboard, tape recorder, disc drive and so on permanently fixed inside and the machine's RGB, video and UHF/TV outlets are extended to the rear.

Power is supplied by a single mains lead which plugs into a connector at the back of the case. Further socket outlets at the rear provide power for the other items such as the monitor or a printer. Additionally, the front section of the lid folds back flat to provide a base on which to place the monitor.

When not needed the carrying case can

be stored upright, taking up very little floor space, yet within less than two minutes your computer can be ready to use.

The materials used to construct the case are relatively cheap and are easily obtainable from any good DIY or hardware store. The front, back and side rails for the base unit and lid are made from 15mm thick planed timber, with the base and lid sections of 6mm plywood. The lid sections are linked with three small brass hinges; others connect the rear lid section to the back rail of the base unit.

Four quick release toggle catches secure the lid sections to the base, and a lie-flat handle is fastened to the front rail for carrying. Rubber feet are glued to the bottom of the case and, if needed to the back rail to keep



the case upright when stored.

Small brackets made by bending strips of aluminium are used to hold the Electron and other items securely in the case, as shown in the photographs. These brackets are fastened to the base with small countersunk bolts and nuts. Other items such as the Plus 3's transformer can be secured with nuts and bolts passing through rivet holes. Sufficient brackets should be used to prevent equipment from sliding around or falling out of the case.

Once you have determined the dimensions for the case (see panel), cut out all the sections shown in the diagram. Box joints are used where shown as they are strong and simple to make. The remaining joints for the lid are 90 degree or 45 degree butt joints. All

sections are glued together with PVA wood adhesive which is strong enough for all but the very sloppiest of box joints.

Start construction by gluing the base unit together. This is best done on a flat surface such as a table – but beware of marking it! Assemble and glue the four sides together then glue them to the base, making sure that everything is square. Use plenty of glue to ensure good adhesion and wipe off any excess.

Weigh the sides down to make sure they fit properly on to the plywood base, and hold joints together with sticky tape until the glue has set.

Next make up the two lid sections. These should be glued together on top of the base

unit to ensure an accurate fit. Use strips of polythene to prevent the two lid sections from sticking to each other or to the base.

The back rail of the front lid section will first need shaping to fit flush up against the rear lid. Sticky tape should again be used to hold the lid sections on to the base, as well as holding joints firmly together until the glue sets. Finally, glue the lid sections on to their plywood tops.

When everything has thoroughly set plane or sand off any excess material and round off any sharp corners and edges to give a smooth finish. At this stage it is best to cut the holes at the rear of the case for the

Turn to Page 24 ►

Shaping up

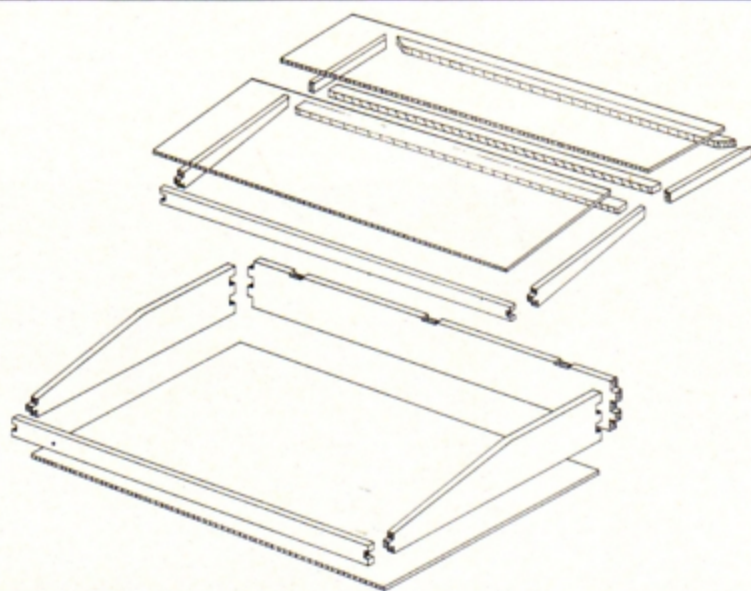
The exploded diagram and photographs show the case's basic design. No absolute measurements are given as these will depend on how much equipment it is to hold. So the first step is to assemble all your equipment to determine the various dimensions. There are however, a few points to bear in mind when doing this.

- The front rail of the base unit should be about 35mm high, which is approximately the height of the front of the Electron's keyboard. Any higher than this will cause trouble when typing. It may also be necessary to remove a section from the bottom rail, with a corresponding extension in the lid to allow easy insertion of discs – particularly with the Plus 3.

- The overall internal height of the case with the lid closed must be sufficient to allow clearance for any cartridges or interfaces. Allowance must also be made at the back of the case for the internal electrical connections.

- The front section of the lid must be sufficiently deep to take a monitor, but not so deep that it overhangs excessively when folded back. Between 9in to 11in is about right.

- Don't just design the case for your present equipment – make allowances for later expansion.



Exploded diagram of the main components of the case



Front view of the case showing the internal layout of the components



Fastening components into the case using aluminium brackets and small bolts

◀ From Page 23

electrical connections, described later.

You will also need to drill 0.75in or 0.5in ventilation holes spaced 0.5in apart in the plywood base. You can decide where to put them by roughly assembling the equipment in the case and noting where the equipment vent holes are. All this completed, give the case a few coats of varnish.

The case is now ready to assemble. Connect the front and rear lid sections together with three small brass hinges, flush fitted so that the front section hinges back on to the rear section. The rear lid section should then be hinged to the back rail of the base unit. If you feel confident and want a neat finish you can recess the hinges. If you are not too confident, simple flush fitting is quicker and more accurate.

When the lid is fitted attach the quick release toggle catches, then fit the carrying handle and rubber feet. The final stage of assembly involves fitting the equipment into the case and fastening it down, but before this is done make all the electrical connections.

All the items needed can be obtained from electronics suppliers such as Tandy, or mail order firms like Maplins and Watford Electronics. Wiring up is best done with the lid removed to give better access.

To extend the Electron's RGB, video and UHF/TV inputs you will need two phono plugs, a dual phono jack board, a 6 pin flanged DIN

socket, a 6 pin DIN plug and also single and 5 core screened lead.

Cut holes in the left-hand side of the back rail and fit the dual phono jack board and 6 pin flanged DIN socket. These should then be connected to the Electron using the appropriate plugs and screened lead.

The video and UHF/TV outlets are simple to wire up using the single screened lead and phono plugs. The DIN connectors for the RGB output are a little more involved, as there are six connections to solder at each end.

Using the 5 core screened lead, join pins 1 to 6 on the socket to pins 1 to 6 on the plug, with pin 5 connected to the cable's screening. As a rough guide you will need two metres of single and one metre of 5 core screened lead.

The mains input into the case is made using IEC/CEE connectors - the sort used on electric kettles.

To link up to the mains you will need a 13 amp 3 pin plug, four metres of 13 amp mains cable, an IEC/CEE panel mounted inlet connector and free socket, both with screw terminals. You will also need a single or dual gang 13 amp 3 pin socket outlet and a surface mounting terminal block.

Fit the flanged IEC/CEE inlet connector and 13 amp socket outlet into holes cut in the back rail, as shown in the photographs. They should be as close together as possible, but not so close to the phono connections to cause shorting.

Using colour coded 13 amp mains wire connect the live, neutral and earth terminals on the IEC connector to the 13 amp socket outlet. At the same time run wires to the surface mounted terminal block which should be fastened in a convenient location.

This terminal block allows the tape recorder or disc drive power supply to be wired easily into the mains input. If these items have moulded-on plugs they will first need cutting off. The alternative is to place additional socket outlets inside the case for them to plug into.

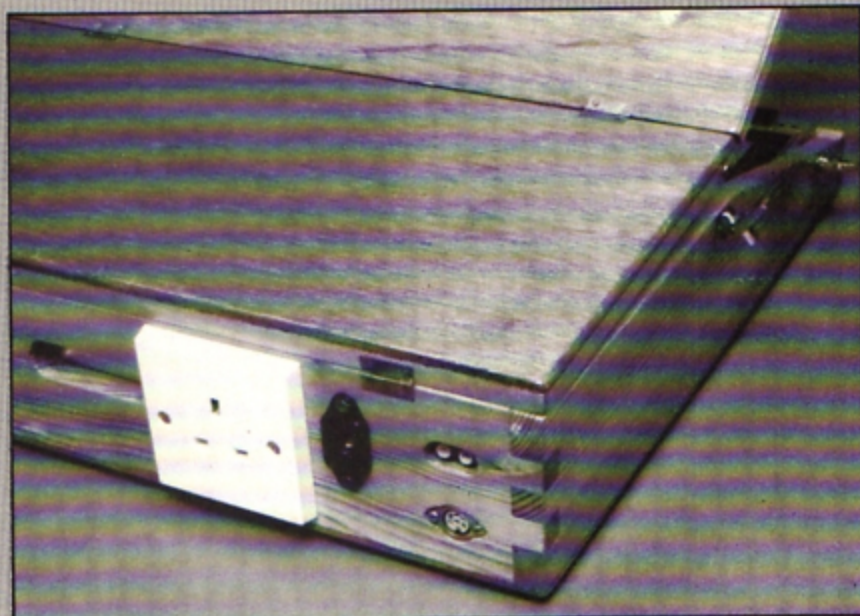
It is very important that the electrical connections inside the case are insulated and properly isolated with a cover, so that there are no exposed wires. A cover can be made from 6mm plywood, as shown in the photographs. The screws securing it to the back rail should pass through wooden posts to insulate them from mains wiring.

If you wish, you can also cut an aperture in the back for the printer cable to pass through. When not needed it can be closed off with a hinged aluminium plate.

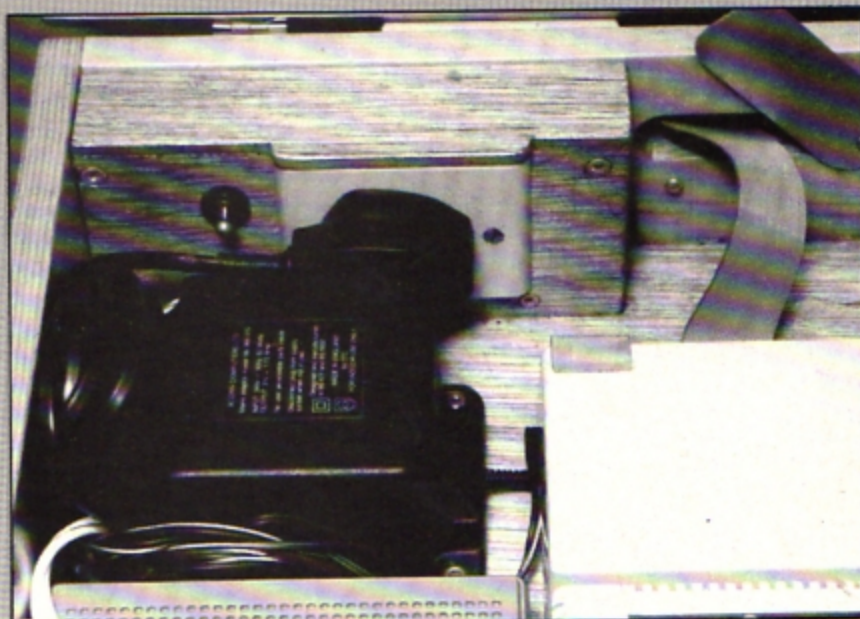
Finally, make up the mains lead from 13 amp 3 core cable fitted with a 13 amp 3 pin plug at one end and a IEC/CEE socket at the other. This lead like any others you have, can be stored inside the case when not in use.

When all the electrical connections have been completed arrange your Electron and other items inside the case and fasten them down with the aluminium brackets and bolts. Replace the lid and your carrying case is complete.

And now you have a truly portable computer and there's no excuse for it languishing in a cupboard ever again!



Back view of the case showing the electrical components, hinges and toggle catches



Internal cover in place over the electrical wiring



Internal wiring layout with the cover removed

THE rain is once again cascading through the straw roof, flooding the keep, and Archimedes is beginning to gain his winter plumage – sure signs that the fall is with us. Once more we dust off our Electrons to while away long autumn evenings as we tax our cerebral reserves and battle to become ever better adventurers.

I am often asked which games are the most difficult to solve and whether the most complex are necessarily the best. This is a tricky question to answer, because the difficulty – or frustration factor – of an adventure can be due to many things and not all of them, necessarily good.

Clever plot and tricky riddles certainly increase the difficulty, but so, too, do unmappable mazes, illogical puzzles and crazy random factors – such as the dwarf in Sphinx Adventure or the sea in Savage Island I.

Anyway here are the most taxing adventures I have come across on the Electron, and by each I suggest the reason for the difficulty:

The Ferryman Awaits: A massive jaunt with excruciating puzzles which only become

Autumn

obvious after finishing it. By far the most difficult game I have played.

Savage Island I: Uncontrollable random factors operate and make this game infuriating.

Village of Lost Souls (the original Magus version): The whole adventure can be explored from the outset and no order of puzzle solving is apparent. However, the atmosphere and plot are stunning.

Sphinx Adventure: No Save Game feature and that blasted dwarf make progress staccato.

Acheton: Its sheer size of more than 350 locations – and quirky humour make it a devil to solve.

On another tack, it seems that the trend this past year has been for Electron adventurers to turn their hand to writing their own games. This has no doubt been partly due to a dearth of releases from the top

adventure houses since last Christmas, but also there is a certain logic and good sense in turning adventuring experience to productive purpose.

Of a couple of dozen games which have come my way this year, four particularly stand out head and shoulders above the rest. I must begin by thanking Jonathan Gates of

Problems Solved

This month I am featuring an assortment of tips to help you manipulate some of the objects in that most difficult of adventures, The Ferryman Awaits. These tips supplement those given in the March 1987 edition. Next month I will treat you to some more inside information on this taxing adventure.

Acolytes: Push the priest's body into the snake pit, then follow the weird disciples.

Lamp: In the storeroom. It is not used as the skull provides your light source.

Ledge: In the cell. EXAMINE LEDGE reveals the flint.

Flint: A weapon to kill the guard. Exchange at the pool for the magic sword.

Cell: To escape from the cell first get the sharp flint. Shout to attract the guard who opens the door, then kill him.

Guard: Leave his body in the cell and exit. Close the door then go and collect the skull. On return you will find fungus growing on his body.

Skull: Shake the pole in the courtyard to reveal the skull. Take it to the cell and put the skull on the ledge. A green light shines from its eye sockets and provides a light source in the stone tree area.

Floppy hat: One of the two magic transport devices. It works only in certain locations such as the underworld wind-swept plain. Get the hat in the temple waiting room. To operate it WEAR HAT, NORTH, GET HAT, LOOK.

Statue: If you are in the temple, PUSH STATUE opens up a gap giving access to the tower roof, and a section where the parrot and magic compass/box are. To get inside and

collect the robe the gap must be closed.

Iceball: Release by going east to the walkway, then south on to a sloping roof. Escape from the ball by immediately going north back to the walkway, then west. The iceball falls into the mud lake and generates a mist.

Compass: The ivory box or model of compass, is found in the small chamber, which is south and down from the balcony. It gives a course on the underworld plain.

Bottle of blood: Ascend the altar and drop the guard's corpse. The bottle rolls into the snake pit. Collect it and go on to the river. The bottle activates the pentagram in the final show-down.

Robe: Return to the temple, pull the statue to close the gap. Go to the bottom of the slope, climb the rope and approach the statue from the rear. The priest's robe is inside. Wear the robe and carry the scythe to scare the demons guarding Agrogorggan.

Guards on the bridge: Cross the tower bridge and the guards spear you. But, if you are one of the living dead, this has no effect and the guards flee, dropping the wooden spear.

Boots: Soft leather sea boots found at the marble-lined pool. Wear them to enter the cave and to stop the roof collapsing when you collect the cube.

Death's scythe: In the chamber under the tree. SAY DEATH, who, shocked by the ravages of time, drops his scythe – the only weapon effective against Agrogorggan.

Time: After getting the scythe, SAY TIME. Old Man Time appears, this undoes the effects of the time lapse. Now climb the stone tree.

Open
Gamb
Map
No. 9
Suds
electr

almanac

Nottingham for his swashbuckling pirate adventure, **Sea Queen**, which he has produced in 32k and 64k form.

I also particularly liked a machine code epic called **Rawksley Manor** by Andrew Stewart of Penrith. This game encapsulated a certain air of Larsoft style in its room descriptions and was a jolly good jaunt to

boot. Another excellent submission is **Prisoner of War** from Mark Richardson of Essex. This World War II escapade is cleverly written and with some careful tidying up of spelling could be a best seller.

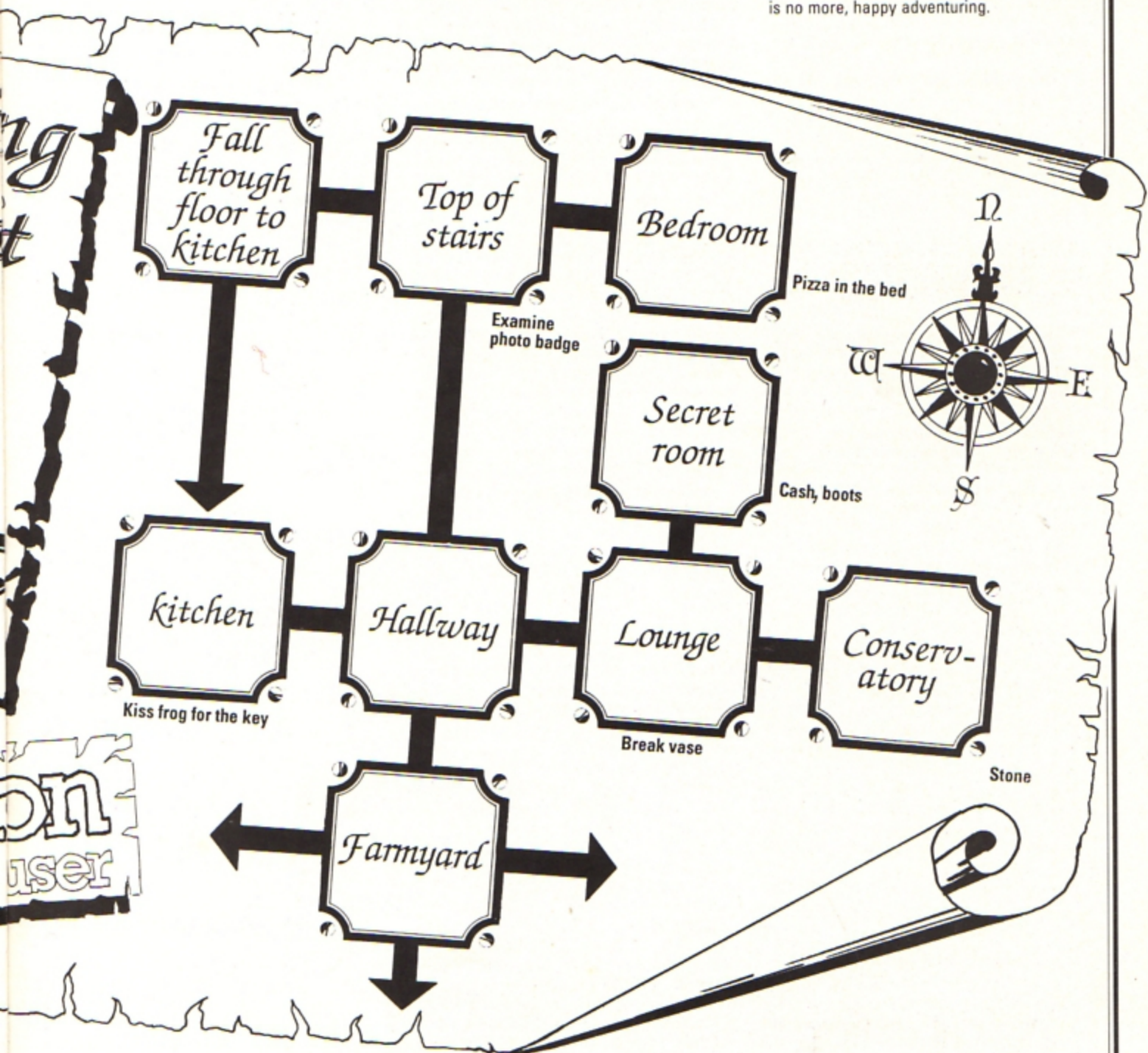
However, perhaps marginally the best of the batch is a game called **Funworld** written by David Wilson and his two sons Jon and Paul - who have called themselves Esprit Software. This excellent jaunt is set in a

theme park and your task is to rescue grandad while solving a selection of interesting puzzles.

I can thoroughly recommend all four adventures. So if any software company would like to market one or all of these pure text games, could they contact me directly and I will put them in touch with the respective authors.

Finally, this month's featured map is of the opening scenario to Riverdale's excellent spoof adventure Suds. I hope this helps any wayfarers stuck at the outset of this real rib tickler.

Next month I continue this series with a guide to the opening to Epic's early classic, Castle Frankenstein. So until forever autumn is no more, happy adventuring.



Overture and Beginners

Many times during the past three years I have mentioned the strength or limitations of the parser to various adventures. It is a subject I have discussed with you and one to which I gave much space for the best part of 18 months to a glossary of adventuring terms. It is therefore probably appropriate that we draw to a close this series of help for beginners by discussing in more detail the part a parser plays in an adventure.

First off, just what does "a parser" mean? It comes from the word parse which means to describe. So an adventure parser is the way the game's artificial intelligence has been manipulated to make your command interaction understood by both computer and human. In simple terms it is the extent to which you are allowed to make yourself understood.

In the early days of Electron text adventuring - Sphinx Adventure is a golden example - a game parser was likely to accept only two words of command at a time. Usually this was in the form of a verb followed by a noun, such as GET APPLE or OPEN DOOR. This style still restricts games written by adventure creation utilities like The Quill.

But that wasn't the only constraint. Limitations of computer memory and underdeveloped programming ability also meant the adventure's vocabulary had to be drastically curtailed.

For example if you knew the correct action to a particular situation was to slide a piece of newspaper under a door, you may have struggled in vain to find the right combination of words to accomplish the action.

This was not because you didn't know what to do, but because the program required absolute precision in wording. SLIDE NEWSPAPER, SLIDE PAPER, ENTER NEWSPAPER, SHOVE PAPER and many other combinations would perhaps come to no

Common adventuring commands			
Break	<i>smash, hit, cut, destroy</i>	Inventory	<i>inv, i</i>
Close	<i>shut</i>	Kiss	
Dig		Light	<i>turn on, on</i>
Drink	<i>sip, taste</i>	Make	<i>build</i>
Drop	<i>remove, leave, put, release, lower, empty</i>	Open	<i>unlock</i>
Eat		Push	<i>pull, slide, move, lift, raise</i>
Examine	<i>search, look, inspect, read</i>	Score	
Fill		Sit	
Get	<i>take</i>	Stand	
Give		Talk	<i>ask, tell, question</i>
Go	<i>move, run, walk, climb, follow, swim, enter, leave, exit, ride</i>	Turn	<i>operate, start, press, switch</i>
Help		Undo	<i>oops, og</i>
		Wait	
		Wear	

avail. When all the time the simple but elusive PUSH PAPER would do the trick.

Such programs still find their way on to the market even now, although thankfully they have become increasingly rare.

As time passed adventure programmers became more adept at machine code routines and text compression and sophisticated parsers made adventures seem a whole lot more realistic and logical to play. The Robico games are excellent examples of adventures with advanced parsers.

The possibilities were pushed still further by extensions in the Electron's ram memory by Mode 7 adaptors or the Slogger Master Ram Board. Now the wealth of Level 9 classics were open to Electron adventurers.

These developments also meant extended vocabularies which allow you to use a range of alternative words to achieve an action and still meet success. For instance the acceptable adventure synonyms for DROP may now include: REMOVE, LEAVE, PUT

DOWN, FREE, RELEASE, LOWER, TAKE OFF, EMPTY, THROW DOWN, PLACE and so on.

Modern day parsers - especially in the Robico, Level 9, Topologika and Heyley adventures - allow quite complex actions such as: TAKE ALL BUT THE GREEN PEN, OPEN THE RED BOOK AND WRITE IN IT WITH THE BLUE PEN, THEN GET EVERYTHING AND GO NORTH.

The use of ALL, IT and EVERYTHING certainly saves wear and tear on tired adventurers' fingers, but ironically enough the occasions you need to use such powerful and complex commands turn out to be far more infrequent than you might have thought. In fact most adventurers still fall back on the old-fashioned verb-noun input for reasons of pace and simplicity. Old habits die hard.

Despite this, some words and actions still remain common in almost all adventures, so I have made up a quick reference guide to popular adventuring commands - with common synonyms where required.



THE prices of Electron software and hardware add-ons are falling so fast it seems that they'll soon be given away free with packets of cornflakes. Software Bargains has bought huge stocks of Acornsoft's View and Viewsheet, and although this superb duo sells quite well on its own, Software Bargains has made them even more attractive by bundling them with a plug-in hardware add-on board like a Plus 1 without the cream plastic case. And at a rock bottom price too.

There are three packages: PCB (the hardware add-on) with one cartridge port plus View and Viewsheet for £29.95; PCB with one cartridge and printer port plus View and Viewsheet for £36.95; and PCB with two cartridge ports and printer port plus View and Viewsheet priced at £39.95.

Upgrades are available to take you from the bottom of the range model PCB to the top.

In addition you can also buy the Electron Advanced User Guide for only 99p – a bargain, and a must for programmers or anyone who likes to tinker with the micro's operating system.

View and Viewsheet should need no introduction, but for those who haven't yet met them, they are rom cartridge-based software. View is a word processor for writing letters, memos and documents, while its relative, Viewsheet, is a spreadsheet designed for manipulating figures, handling financial accounts and so on.

Both represent the most powerful software of their type available for the Electron and together make up a flexible home business system.

The hardware add-on is a bare printed circuit board (PCB) which plugs into the back of the Electron. Apart from the squarer shape and lack of analogue joystick port, it is basically the same as the PCB inside a Plus 1.

The two cartridge ports can be used for

An offer you can't refuse

A new add-on board complete with a spreadsheet and word processor is tested by Roland Waddilove

View, Viewsheet or any other cartridges you have. A Pres AP4 disc interface and Cumana drive set up also functioned without a hitch when plugged into the cartridge ports. The printer port operates as expected too.

There are two disadvantages with the hardware. First, there isn't a case, so the bare PCB hangs from the back of the Electron. It's easy to knock and damage, by no means as robust as a cased unit like the Plus 1. Then again, it hasn't a joystick port. However, I didn't miss that as there aren't many games that have a joystick option – and anyway, I prefer to use the keyboard.

This kit isn't a lot of use if you already upgraded your basic Electron with a Plus 1 and you would be better off scouring the adverts for cut-price View and Viewsheet cartridges.

If you haven't yet upgraded and either your

money won't stretch to a Plus 1 and View plus Viewsheet, or you're not bothered about the lack of matching Acorn cream plastic casing, this package represents good value for money. Recommended.

Product: PCB (cartridge port) plus View and Viewsheet

Price: £29.95

Product: PCB (cartridge port, printer port) plus View and Viewsheet

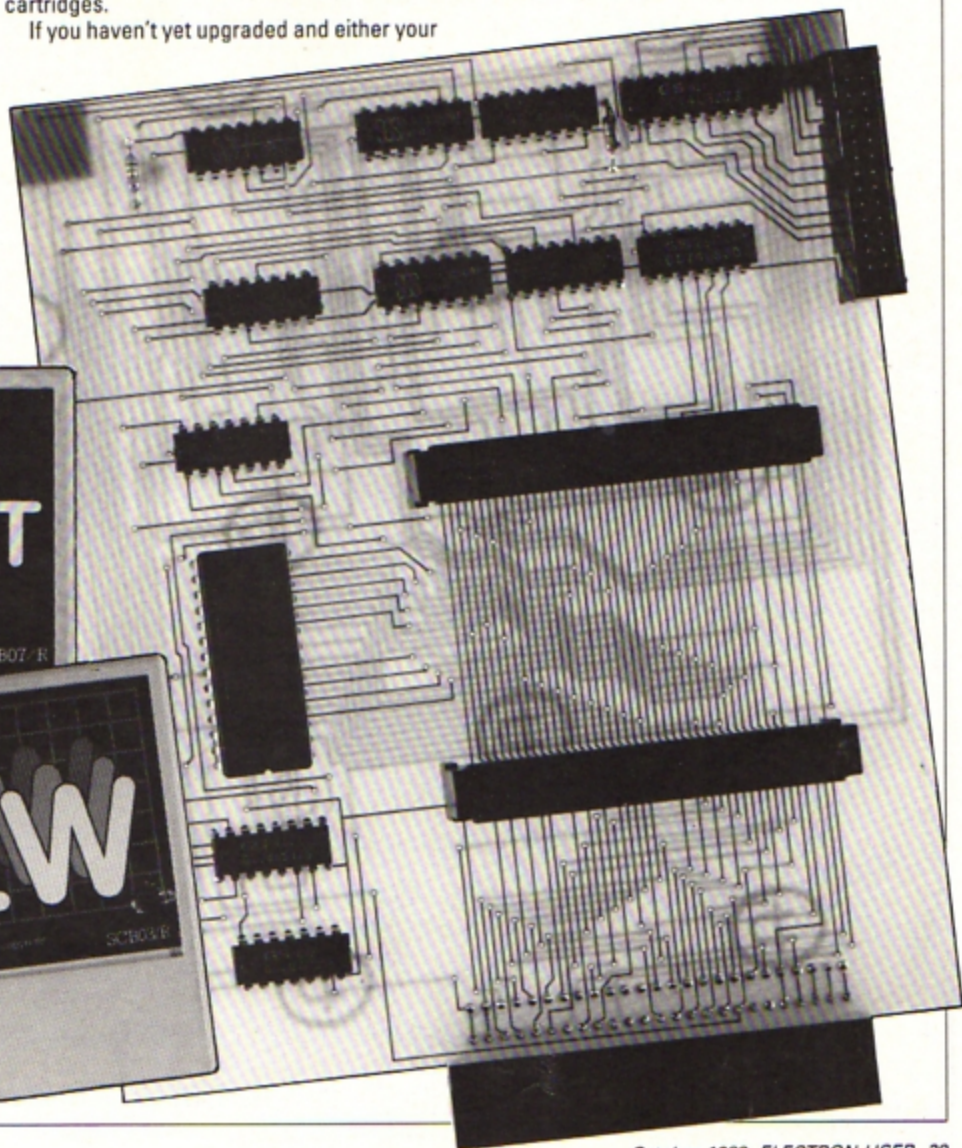
Price: £36.95

Product: PCB (two cartridge ports, printer port) plus View and Viewsheet

Price: £39.95

Supplier: Software Bargains, Northwood House, North Street, Leeds LS7 2AA.

Tel: 0532 436300



LIMITED STOCKS • LIMITED STOCKS • LIMITED STOCKS • LIMITED STOCKS • LIMITED STOCKS • LIMITED STOCKS

Here's a **LAST CHANCE OFFER** you can't refuse!

EXPANSION BOARD + VIEW AND VIEWSHEET FOR LESS THAN A STANDARD PLUS 1*



Here's your last chance to discover the tremendous benefits of Wordprocessing and Spreadsheets — at an affordable price.

Send off now for Software Bargains' Business/Education exclusive offer comprising Acornsoft's VIEW wordprocessor (original price £49.95), Acornsoft's VIEWSHEET spreadsheet (original price £49.95) and Software Bargains' ROM Cartridge & Printer Interface Board from as little as £29.95.

Give your letters, reports and school assignments a truly professional touch and learn how the business world operates. **BUT HURRY!** Only limited stocks available!

BASIC
Complete PCB,
1 Cartridge Port,
(No Printer Port
installed),
VIEW & VIEWSHEET

£29.95

EXTENDED
Complete PCB,
1 Cartridge Port,
1 Printer Port,
VIEW & VIEWSHEET

£36.95

FULL
2 Cartridge Ports
(enables user to add
disc drive),
1 Printer Port,
VIEW & VIEWSHEET

£39.95

PLUS YOU CAN BUY THE ADVANCED USER GUIDE (original price £12.95) WITH THESE PACKS FOR ONLY 99p!

UPGRADES will be available for up to 12 months after date of purchase
BASIC to EXTENDED **£15** BASIC to FULL **£20** EXTENDED to FULL **£12**

Buy now and we'll send you a voucher for £25.00 off a Schneider 180 cps printer — (eg £149.95 with £25.00 off our current offer price of £174.95). The offer is valid until 24th December, 1989. So treat yourself to a printer for Christmas!

BUY NOW AND GET A £25 CHRISTMAS PRINTER VOUCHER FREE!

EXCLUSIVE! LAST CHANCE BUSINESS/EDUCATION OFFER

* PLUS 1 is a Trade Mark of Acorn Computers Ltd

We supply a catalogue of our entire stock range per machine type with every order. MAIL ORDER ONLY

SOFTWARE
Bargains

Dept. EU501
c/o Northwood House,
North Street, Leeds
LS7 2AA
Tel: 0532 436300

- Please add £1.50 P&P (Overseas £4.50)
- All prices include VAT
- We aim to despatch goods within 48hrs (subject to availability)
- Out of hours answerphone 0532 436300

Order now — or ring for details

Prices quoted, including those connected with the Schneider printer offer, are given in good faith but are subject to change without notice.

LIMITED STOCKS • LIMITED STOCKS • LIMITED STOCKS • LIMITED STOCKS • LIMITED STOCKS • LIMITED STOCKS

electron user

MAIL ORDER OFFERS

electron user

MAIL ORDER OFFERS

SAVE £3

TANK ATTACK



Tank Attack
The unique computerised board game

Tank Attack is a computerised board game for two, three or four players, where each one takes the role of a General commanding a country's Tank Corps of one or more armoured divisions.

Your objective is to capture the enemy headquarters, which will require the planned strategic deployment of your forces and regular fire duels between your own and enemy units.

Weather, morale, skill, judgement, planning foresight, careful management of rebuild and repair facilities and luck all play a part in deciding the result of each game.

Tank attack is one of those games you keep coming back to, and at the special offer price of only £9.99 is guaranteed to give you and your friends hours of action-packed excitement.

- Control a full division of tanks and armoured cars
- See all the fighting 'live' on your computer
- Superb board and fully detailed playing pieces
- Real time graphics
- Play as allies or enemies
- Suitable for all ages

RRP £12.99
OUR PRICE
£9.99

TO ORDER PLEASE USE THE FORM ON PAGE 45

WHEELIES!

JET BIKE is a fast paced arcade game set in the future. After World War Three destroyed most of the towns and villages long, straight highways were built to connect the rebuilt cities.

Unfortunately, due to the poor post nuclear economic climate, parts have crumbled away over the years leaving large gaps, exposing power cables lying beneath the surface.

All this makes your job of motorcycle messenger very difficult. As you speed along the highways on your jet bike taking messages from city to city you must use considerable acrobatic skills to negotiate the crumbling road.

The screen scrolls rapidly from right to left and your aim is to keep the jet bike on the highways. Jump the gaps and power cables, for they drain your bike's power. When that's all gone the bike will explode. A replacement can be supplied, but write off too many and the messenger company will sack you.

Use Z to brake, X to accelerate and Return to jump. You can also use Z and X while in the air, a technique which may be needed to negotiate certain sections. If you keep getting killed early on hit both Shift keys hard. This has no effect on the game, but it might make you feel better.

Jump astride your jet bike and roar down the highway in Lyn Davies' hazardous scrolling arcade game



```

1REM Jet Bike
2REM By Lyn Davies
3REM (c) Electron User
10MODE5:DIM code 3500:VDU19,3,
6,0;:ENVELOPE2,1,4,-4,4,10,20,10,
126,0,0,-126,126,126:ENVELOPE1,12
9,15,8,3,10,10,10,126,0,0,-126,12
6,126
20?&70=&E0: ?&71=&E6: ?&900=20: ?
&901=0: ?&902=0: ?&903=0: ?&904=0: ?&
907=247: ?&908=0: ?&78=&10: ?&79=&71
: ?&7A=&10: ?&7B=&76: ?&90A=0: ?&90D=
0
30VDU23,224,255,254,128,128,12
8,128,128,128,23,225,128,128,128,
128,128,128,128,0,23,226,0,1,1,1,
1,1,1,23,227,1,1,1,1,1,127,25
5
40PROCdraw:PROCmach:CALLno:CA
LLbar:CALLrac:CALLf:END
50DEFPROCdraw:VDU19,1,0,0;:VDU
19,2,0,0;:VDU19,3,0,0;:COLOUR129:
CLS:VDU5:FORF=90T01024STEP92:FORF
=16T01264STEP92:MOVEE,F:GC0L3,3:V
DU224,10,8,225:GC0L3,1:VDU8,11,22
6,8,10,227:NEXTE:NEXTF
60GC0L0,1:MOVE108,736:DRAW1184
,736:PLOT85,1184,832:MOVE108,736:
DRAW108,832:PLOT85,1184,832:GC0L0
,0:MOVE108,748:DRAW1184,748:DRAW1
184,824:GC0L0,2:MOVE108,748:DRAW1
08,824:DRAW1184,824
70GC0L0,0:MOVE96,96:DRAW1178,9
6:PLOT85,1178,664:MOVE96,96:DRAW9
6,664:PLOT85,1178,664:GC0L0,2:MOV

```

```

E92,96:DRAW92,664:DRAW1178,664:VD
U19,1,1,0;:VDU19,2,3,0;:VDU19,3,6
,0;:FORF=&6780T0&67AF:READA: ?E=A:
NEXT:ENDPROC
80DATA224,64,0,4,0,68,204,0,22
4,128,0,12,0,136,238,0,224,64,0,4
,0,68,68,0,224,128,0,8,0,136,238,
0,224,160,0,14,0,170,170,0,224,16
0,0,14,0,204,170,0
90DEFPROCmach:FORpass=0T02STEP
2:PX=code
100EOPtpass
110.car:EQUD&00F0000F:EQUD&0103

```

```

060D:EQUD&C4E67760:EQUD&036777E6:
EQUD&11D1111D:EQUD&0B070E1D:EQUD&
458B060D:EQUD&080C8ECE:EQUD&FFF0F
8FF:EQUD&0F00FFFF:EQUD&0F0F000F:E
QUD&0011100D:EQUD&E2E6CC88:EQUD&0
FOEEEE:EQUD&0F0F000F:EQUD&0CCE02
00:RTS
120.r0ad:EQUD&FF0F0F0F:EQUD&FF0

```

Turn to Page 32 ▶

◀ From Page 31

```

FFFDF:oadr:EQUD&F0F0F0F0:EQUD&OF
5A55A:..fred:EQUD&FF00F0F0:EQUD&C
CC4C84:..adro:EQUD&FF00F0F0:EQUD&
0F0000F0:..paz:EQUD&000FFF0F:EQUD&
00000000:..daor:EQUD&C1000F0F0:EQUD
&F0003860:RTS
130.one:EQUS"33333333333333333333
3333333333333333333300000000222222
2211112222222222220000000022221111
1111111333333333330000000000011111
11122222222200000000222222222222
22200000000333333333300001111111133
33333322222223333333311111111111
11111"
140EQUS"00003333333311110000222
2222222222222222220000033333000
0000333311113333222200000022223333
1111000022222222222220000000033
33333333330000000000222222222222
22222200000000111111110000000033
33333333333333333333333333333333
3333333"
150EQUS"333333333333333333333333
33333333333333333333333333333333
"
160.two:EQUS"33333333333333333333
333333333333333333330000000022222222
22244444222222222222000000001113
33333333333333333333333333333333
11110000222222222222220000111111
155555551111111111111144444444
4444444222222222224444"
170EQUS"444455550000222222222222
20000000111111111115555555111111
11111111111100003333555555555555
55555555555555551111000000002222
22200005555111111100002222222222
20000555555511111133333333333333
33333333333333333333333333333333
33333"
180EQUS"333333333333333333333333
33333333333333333333333333333333
33333333333333333333333333333333
"
190.taw:EQUS"33333333333333333333
33333333333333333333000000000111111
111111111111111111000000001111111
1115555555000000044444444222222
2222222200000000666611111111111
111100004444444444444422222222
2233333334444222222"
200EQUS"222222244444444433333333
333331111111111111666611111122224
444222444444442222222222222222
20000111333333333333330000333366
66666666666666666666660000000000
0222222444444444222222000000000
33333333333333333333333333333333
33333333"
210EQUS"333333333333333333333333
33333333333333333333333333333333
"
220.fier:EQUS"33333333333333333333
33333333333333333333333300000001
1111116666333333336666111111100
000004444444444442222222222222
222200006666666611111111111111
11111666644444444444444443333555
5555111000033333333333366666666
6666666"
230EQUS"22222220000000033333333
3333300000005555555511111111111
0000222222200000001111111666660
000000000022222224444444422222
2222200000000000033331111111111
111111166662222222222200000000
33333333333333333333333333333333
33333333"
240.space:EQUD&0E00A0E0:EQUD&00
888800:EQUD&0E00A0E0:EQUD&00AACC
0:EQUD&0C0080E0:EQUD&00E8800:EQUD
&0E0080E0:EQUD&00E2200:EQUD&0E0
080E0:EQUD&00E2200:EQUD&00000000
:EQUD&00000000
250EQUD&0E0080E0:EQUD&00E2200:
EQUD&0E00A0E0:EQUD&00888800:EQUD&
0E00A0E0:EQUD&00AAA000:EQUD&08008
0E0:EQUD&00E8800:EQUD&0C0080E0:E
QUD&00E8800:RTS
260.exp:EQUD&070E0800:EQUD&0712
1234:EQUD&17120303:EQUD&000A0F16:
EQUD&2D0E0202:EQUD&F0F2F0E9:EQUD&
F0FDF478:EQUD&0B032D69:EQUD&1E0B0

```

```

100:EQUD&F07A7879:EQUD&F0CBF0F0:E
QUD&020769F2:EQUD&860E0B08:EQUD&B
7878484:EQUD&840C0C86:EQUD&030F0E
86:RTS
270.rac:JSRsync:LDA&70:STA&72:L
DA&71:STA&73:LDX#0:LDY#0:.pw:LDAc
ar,X:EOR(&72),Y:STA(&72),Y:JSRtst
:INX:INX:CPY#&10:BNEpw:LDY#0:LDA&
70:CLC:ADC#8:STA&72:LDA&71:ADC#0:
STA&73:.wp:LDAcar,X:EOR(&72),Y:ST
A(&72),Y:JSRtst:INX:INX:CPY#&10:B
NEpw
280LDY#0:LDA&70:CLC:ADC#&10:STA
&72:LDA&71:ADC#0:STA&73:.c:LDAcar
,X:EOR(&72),Y:STA(&72),Y:JSRtst:I
NX:INX:CPY#&10:BNEc:LDY#0:LDA&70:
CLC:ADC#&18:STA&72:LDA&71:ADC#0:S
TA&73:.t:LDAcar,X:EOR(&72),Y:STA(
&72),Y:JSRtst:INX:INX:CPY#&10:BNE
t:RTS
290.pxe:JSRsync:JSRsync:JSRsync
:LDA&70:STA&72:LDA&71:STA&73:LDX#
0:LDY#0:.fs:LDAexp,X:EOR(&72),Y:S
TA(&72),Y:JSRtst:INX:INX:CPY#&10:
BNEfs
300LDY#0:LDA&70:CLC:ADC#8:STA&7
2:LDA&71:ADC#0:STA&73:.sf:LDAexp,
X:EOR(&72),Y:STA(&72),Y:JSRtst:IN
X:INX:CPY#&10:BNEsf:LDY#0:LDA&70:
CLC:ADC#&10:STA&72:LDA&71:ADC#0:S
TA&73:.dv:LDAexp,X:EOR(&72),Y:STA
(&72),Y:JSRtst:INX:INX:CPY#&10:BN
Edv
310LDY#0:LDA&70:CLC:ADC#&18:STA
&72:LDA&71:ADC#0:STA&73:.vd:LDAex
p,X:EOR(&72),Y:STA(&72),Y:JSRtst:
INX:INX:CPY#&10:BNEvd:JSRsync:JSR
sync:JSRsync:JSRsync:RTS
320.tst:STY&74:LDA&72:CLC:ADC&7
4:STA&75:LDA&75:AND#7:CMF#7:BEqob
t:RTS:.bot:LDA&72:CLC:ADC#&8:STA
&72:LDA&73:ADC#1:STA&73:RTS:.x:LD
A#&0F:LDX#1:LDY#0:JSR&FFEE:LDA#&8
1:LDX#&BD:LDY#&FF:JSR&FFF4:BCSef
t:RTS
330.eft:LDA&900:CMF#41:BNEleft:
RTS:.left:INC&900:LDA&70:CLC:ADC#
8:STA&70:LDA&71:ADC#&00:STA&71:RT
S:.z:LDA#&8F:LDX#1:LDY#0:JSR&FFEE
:LDA#&81:LDX#&9E:LDY#&FF:JSR&FFF4
:BCS1te:RTS
340.ite:LDA&900:CMF#11:BNErite:
RTS:.rite:DEC&900:LDA&70:SEC:SBC#
8:STA&70:LDA&71:SBC#&00:STA&71:RT
S:.trn:LDA&902:BNErtn:RTS:.rtn:LDA
A#&0F:LDX#1:LDY#0:JSR&FFEE:LDA#&8
1:LDX#&B6:LDY#&FF:JSR&FFF4:BCSpmj
:RTS
350.pmj:INC&901:LDA&901:CMF#8:B
NEjmp:BEqorz:RTS:.orz:LDA#0:STA&9
01:STA&902:RTS:.jmp:JSRjp:LDA&70:
SEC:SBC#&40:STA&70:LDA&71:SBC#&01
:STA&71:RTS
360.dwn:LDA#0:STA&902:LDA&70:CL
C:ADC#&40:STA&70:LDA&71:ADC#&01:S
TA&71:RTS
370.fall:LDA&70:CLC:ADC#&88:STA
&76:LDA&71:ADC#&02:STA&77:LDY#0:L
DA(&76),Y:BEqdw:BNEwd:RTS:.nwd:
LDA#1:STA&902:LDA(&76),Y:CMF#&0F:
BEQtot:CMF#&FF:BEQoto:RTS:.oto:J
SRpow:RTS:.tot:JSRloop:RTS
380.vd:LDA&901:BEQfall:BNEpmj:R
TS:.loop:JSRrac:JSRtrn:JSRr:JSRz:
JSRvd:JSRracc:JSRtwy:JMPloop:RTS:.
ffo:JSRmess:JSRtwy:.xt:LDA#&0F:Lb
X#1:LDY#0:JSR&FFEE:LDA#&81:LDX#&9
D:LDY#&FF:JSR&FFF4:BCSpool:BCExt:
RTS:.pool:JSRmess:JSRloop:RTS
390.sync:LDA#&13:JSR&FFF4:RTS
400.twy:ym:JSRprnt:INC&903:LDA
&903:CMF#34:BNEym:JSRnorm:JSRscr:
RTS
410.qin:LDY#0:.ld:LDArred,Y:STA
(&78),Y:LDA(&7E),Y:STA(&7A),Y:INY
:CPY#8:BNEld:RTS
420.xes:LDY#0:.kq:LDApaz,Y:STA(
&78),Y:LDA(&7E),Y:STA(&7A),Y:INY:
CPY#8:BNEkq:RTS
430.prnt:JSRmove:LDY&903:LDA(&
7C),Y:CMF#48:BEqzro:CMF#49:BEquno
:CMF#50:BEqduo:CMF#51:BEqtrep:CMF#
52:BEqqat:CMF#53:BEqqin:CMF#54:BE
Qxes:RTS

```

```

440.zro:LDY#0:.wh:LDA#0:STA(&7B
),Y:STA(&7A),Y:INY:CPY#8:BNEwh:RT
S
450.uno:LDY#0:.hw:LDA(&7E),Y:ST
A(&78),Y:LDA#0:STA(&7A),Y:INY:CPY
#8:BNEhw:RTS
460.duo:LDY#0:.xu:LDA#0:STA(&7B
),Y:LDA(&7E),Y:STA(&7A),Y:INY:CPY
#8:BNExu:RTS
470.tre:LDY#0:.ux:LDA(&7E),Y:ST
A(&78),Y:STA(&7A),Y:INY:CPY#8:BNE
ux:RTS
480.qat:LDY#0:.dl:LDA#0:STA(&7B
),Y:LDArred,Y:STA(&7A),Y:INY:CPY#
8:BNEdl:RTS
490.move:LDA&78:CLC:ADC#8:STA&7
8:LDA&79:ADC#0:STA&79:LDA&7A:CLC:
ADC#8:STA&7A:LDA&7B:ADC#0:STA&7B:
RTS
500.norm:LDA#0:STA&903:LDA#&10:
STA&7A:STA&78:LDA#&76:STA&7B:LDA#
&71:STA&79:RTS
510.eno:LDA#1:STA&90D:LDA#one M
0D256:STA&7C:LDA#one DIV256:STA&7
D:LDA#&C0:STA&905:LDA#2:STA&906:L
DA#road MOD256:STA&7E:LDA#road DI
V256:STA&7F:RTS
520.out:LDA#two MOD256:STA&7C:L
DA#two DIV256:STA&7D:LDA#&C0:STA&
905:LDA#2:STA&906:LDA#oadr MOD256
:STA&7E:LDA#oadr DIV256:STA&7F:RT
S
530.ert:LDA#taw MOD256:STA&7C:L
DA#taw DIV256:STA&7D:LDA#&C0:STA&
905:LDA#2:STA&906:LDA#adro MOD256
:STA&7E:LDA#adro DIV256:STA&7F:RT
S
540.set:LDA&90D:CMF#1:BEqeno:CM
P#2:BEqout:CMF#3:BEqert:CMF#4:BEQ
reif:CMF#5:BEQjds:RTS
550.jds:JSRq:LDA#1:STA&90D:JSRs
et:RTS
560.reif:LDA#fier MOD256:STA&7C
:LDA#fier DIV256:STA&7D:LDA#&C0:S
TA&905:LDA#2:STA&906:LDA#daor MOD
256:STA&7E:LDA#daor DIV256:STA&7F
:RTS
570.scr:LDA&7C:CLC:ADC#01:STA&7
C:LDA&7D:ADC#0:STA&7D:JSRtes:RTS
580.tes:DEC&905:LDA&905:BEQest:
RTS:.est:DEC&906:LDA&906:BEQtse:R
TS:.tse:INC&908:LDA&908:CMF#4:BNE
set:BEQned:RTS
590.ned:JSRe:JSRbar:LDA#0:STA&9
08:INC&90D:JSRset:RTS
600.ei:LDA#7:LDX#h MOD256:LDY#h
DIV256:JSR&FFF1:RTS:.h:EQUD&00020
001:EQUD&00140064
610.tab:EQUD&00010001:EQUD&0001
0064:RTS:.jp:LDA#7:LDX#tab MOD256
:LDY#tab DIV256:JSR&FFF1:RTS
620.bat:EQUD&00020001:EQUD&0001
0044:RTS:.poo:LDA#7:LDX#bat MOD25
6:LDY#bat DIV256:JSR&FFF1:RTS
630.abt:EQUD&FFF10000:EQUD&0004
0004:RTS:.opo:LDA#7:LDX#abt MOD25
6:LDY#abt DIV256:JSR&FFF1:RTS
640.bar:LDA#&F7:STA&907:LDA#0:.
ke:LDA#&E1:STA&60E8,X:INX:CPX#&F8
:BNEke:RTS
650.end:LDA#0:STA&909:JSRmess:.
tx:LDA#&0F:LDX#1:LDY#0:JSR&FFEE:L
DA#&81:LDX#&9D:LDY#&FF:JSR&FFF4:B
CSog:BCctx:RTS
660.og:JSRe:JSRmess:LDA#0:STA&9
08:LDA#&E0:STA&70:LDA#&14:STA&900
:LDA#&E6:STA&71:JSReno:JSRbar:RTS
670.oop:LDA#0:.si:LDY&907:LDA#&
0F:STA&60E8,Y:DEY:STY&907:INX:CPX
#8:BNEsi:JSRpoo:LDA&907:CMF#&FF:B
Eqpow:RTS
680.pow:JSRpxe:JSRopo:JSRsync:J
SRpxe:JSRopo:JSRsync:JSRpxe:JSRop
o:JSRsync:JSRpxe:JSRpxe:JSRsync:J
SRpxe:JSRi:JSRend:RTS
690.mess:LDY#0:.fp:LDAspace,Y:E
OR&78F0,Y:STA&78F0,Y:INY:CPY#&58:
BNEfp:RTS:.q:LDX#0:.v:LDA#&FF:STA
&7B20,X:INX:CPX#&FF:BNEv:RTS:.i:L
DX#0:.v:LDA#&00:STA&7B20,X:INX:CP
X#&FF:BNEv:RTS
700
710NEXTpass
720ENDPROC

```


NEW! TEN of the BEST! EDUCATIONAL GAMES

Packed full of some of the best educational games from the pages of *Electron User*, the new Ten of the Best Educational Games is the ideal way for your children to learn about maths, spelling, anagrams, telling the time, general knowledge, and even the rudiments of running a business!

Specially compiled by the *Electron User* team to give a good grounding in all aspects of learning, and at the very special price of only £5.95 on tape, or £6.95 on 3.5in disc, this collection is a treat you and your children cannot afford to miss!

Give your children hours of fun, and help them to learn the easy way by ordering your copy today.

THE PROGRAMS

Company Count – Work your way up through the company starting off as a messenger, and ending up as president!

Hungry Harry – Find out what it's like to be an assistant in a busy shop. Can you work out the correct change to give the customers?

Lemonade Stall – Try your hand at running a lemonade stall at a popular seaside resort.

Dozer Disorder – Fill in the

missing letters after they are bulldozed into a pit.

Crocodile – Unscramble the letters of a word before the crocodile gets you.

Snail Trail – See how good you are at general knowledge in this trivia quiz.

Hiss – Improve your spelling by guiding a snake round the garden eating up words in the right letter order.

Maths Fun – Test your powers of mental arithmetic.

Odd One Out – Pick the object that doesn't fit from the list of five.

Yule Spell – Guess the hidden word or you'll lose your Christmas presents!

ONLY £5.95

Order your copy today, using the form on Page 45

Write your own arcade smashes using the

ARCADE GAME Creator

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

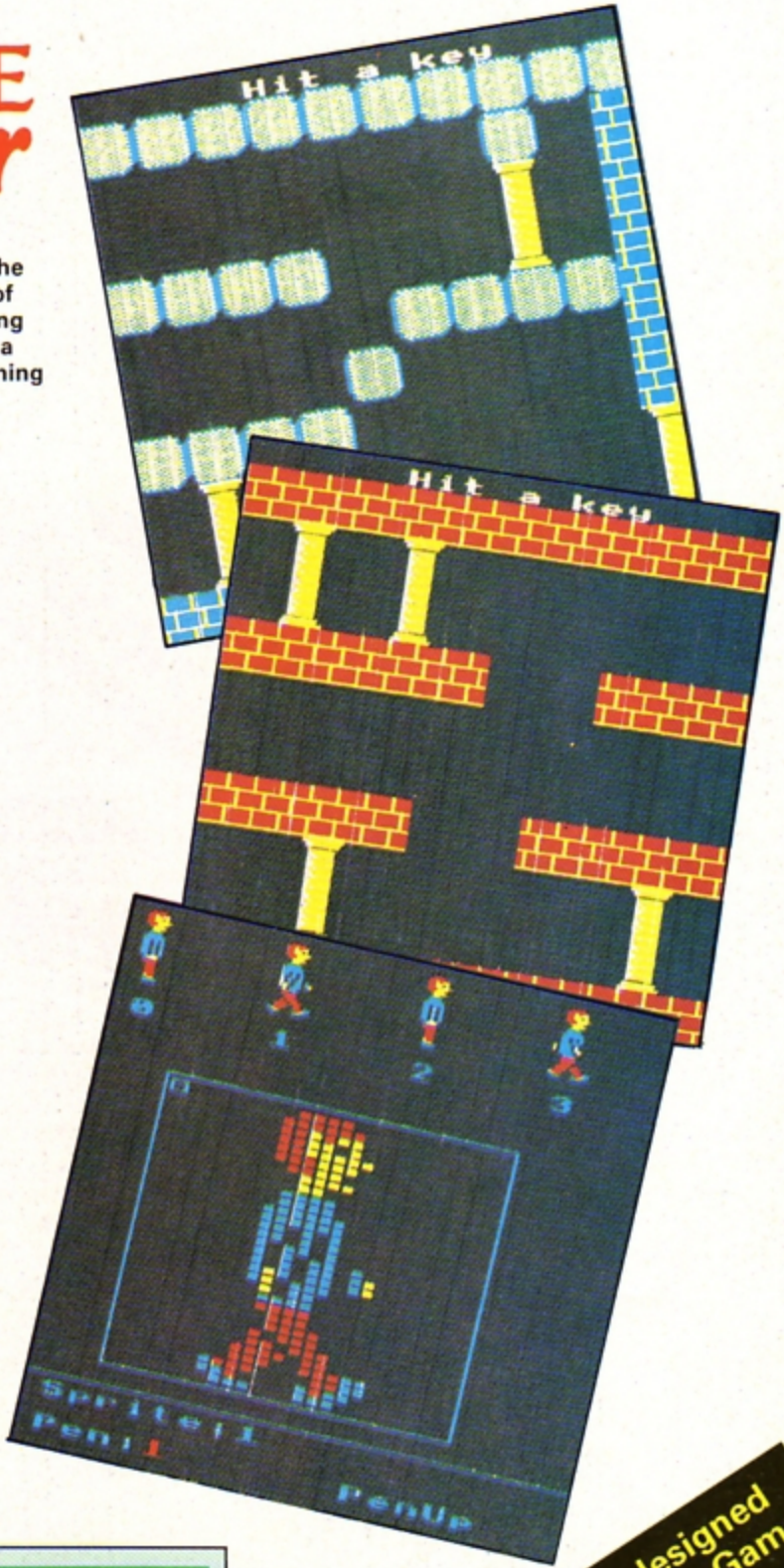
Among the programs are:

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

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

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

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



Arcade Game Creator	
Tape + manual	£9.95

Screens designed using Arcade Game Creator

TO ORDER PLEASE USE THE FORM ON PAGE 45

THE year is 2057 and robot technology is now well established. There are robot shop assistants, housemaids, factory workers, roadsweepers... you name 'em. People live a life of leisure now that most jobs have been robotised.

However, a disgruntled scientist at the robot manufacturing plant has been tampering with the three laws of robotics implanted into every robot's positronic brain. These state that:

- A robot must not harm a human being or through inaction, allow harm to come to one.
- A robot must always obey a command from a human being, provided this doesn't contravene the first law.
- A robot must not allow any harm to come to itself, provided this doesn't contravene the first two laws.

These prime directives have been deleted from the robots' brains and they're on the rampage causing havoc and destruction everywhere. They won't obey commands and have little regard for human life.

An elite squad of highly trained men, you among them, are assigned the task of destroying the renegades. Armed with a machine gun, you have to destroy as many

RENEGADE ROBOTS

robots as possible. You can fire only in the direction you are facing, so if you are being chased you have to spin round quickly and fire.

Extra firepower can be picked up by running over the POW cannisters which enable you spray bullets all around by firing in eight directions at once. However, they last for only 20 shots so play it cool. Save it until there is only one robot left on the screen, then collect it and shoot the robot.

At the start of the next screen you'll then

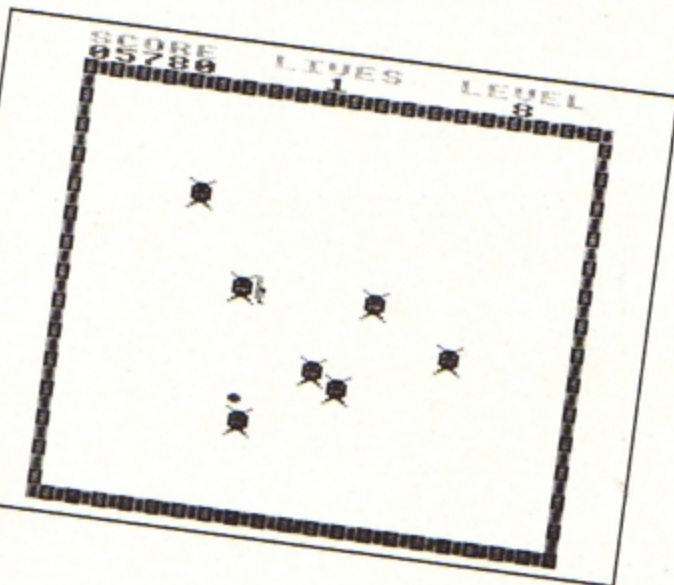
Anthony Houghton whisks you into the future to battle with a robot army

have 19 shots left which can be used to wipe out most of the mechanical monsters. Good hunting.



CONTROLS

Z	Left
X	Right
:	Up
/	Down
Space	Fire
Escape	Quit



```

10 REM Robokill
20 REM by A.Houghton
30 REM (c) Electron User
40 ENVELOPE1,1,20,10,-5,3,10,2
0,126,0,0,-126,126,126:ENVELOPE2,
1,20,-5,5,2,2,30,126,0,0,-126,126
,126:ENVELOPE3,1,1,2,-7,1,1,20,12
6,0,0,-126,126,126
50 *FX229,1
60 PROCassem:REPEAT:MODE5:VDU2
3,1,0;0;0;0;19,3,4;0:COLOUR1:PRI
NTTAB(6,2)"ROBOKILL":COLOUR2:PRIN
TTAB(2,5)"by Tony Houghton"
70 COLOUR1:PRINTTAB(0,20)"Pres
s SPACE to play":*FX21
80 REPEATUNTILGET=32:?robots=4
:!score=0:?lives=3:level=1:?speed
=248:?diff=250:?robh=0:?powf=0
90 REPEAT:PROCscreen:CALLmain:
IF?dead=0PROCbonus:UNTILFALSE ELS
EIF?dead=27 UNTILTRUE:UNTILFALSE
100 IF?dead=0PROCbonus:UNTILFAL
SE ELSEIF?dead=27 UNTILTRUE:UNTIL
FALSE
110 FORNX=250TO200STEP-7:SOUND1
,1,NX,3:NEXT:?lives=?lives-1:IF?l

```

Turn to Page 36 ▶

◀ From Page 35

```
ives<&FF CALLplvs
120 PROCd(130):?powf=0:UNTIL?l1
ves=&FF:VDU28,4,18,15,16,12,17,1,
26:PRINTTAB(5,17)"GAME OVER":PRO
Cd(300):UNTILFALSE
130 VDU28,4,18,15,16,12,17,1,26
:PRINTTAB(5,17)"GAME OVER":PROCd
(300)
140 DEFPROCbonus:FORN%10T0100S
TEP10:SOUND1,2,N%,2:NEXT
150 VDU28,4,18,15,16,12,17,1,26
:PRINTTAB(5,17)"BONUS":;COLOUR2:
bonus=level*200:IFbonus>1200 bonu
s=1200
160 PRINTRIGHT$("000"+STR$bonus
,4);:PROCd(40)
170 REPEAT:bonus=bonus-10:PRINT
TAB(11,17)RIGHTS("000"+STR$bonus,
4);:SOUND&10,0,0,0:CALLinsc:CALLp
sc
180 SOUND&10,-15,6,1:UNTILbonus
=0:level=level+1:?diff=251-level
DIV3:IF?diff<246 ?diff=246
190 ?robh=0:?robots=3+level DIV
2:IF?robots>24 ?robots=24
200 IF?powf<255 ?powf=0
210 IF?speed<252 ANDlevel/2=lev
el DIV2 THEN?speed=?speed+1
220 PROCd(50):ENDPROC
230 DEFPROCscreen:CLS:XX=1:YY=1
6:FORAX=&5A80T0&5B80STEP16:!ns=&A
48000+AX:CALLprint:NEXT
240 FORAX=&7EC8T0&7FE8STEP16:!n
s=&A48000+AX:CALLprint:NEXT
250 XX=2:YY=8:FORAX=&5A80T0&7EC
0STEP&280:!ns=&A48000+AX:CALLpri
nt:NEXT
260 FORAX=&5CF8T0&7FF8STEP&280:
!ns=&A48000+AX:CALLprint:NEXT
270 ?manx=18:?many=13:FORN%0T0
23:N%?rob=0:NEXT:FORN%0T0?robot
s-1-?robh:N%?rob=8FF
280 REPEAT:XX=RND(37)-1:YY=RND(
27)-1:UNTILXX<16ORXX>20ORY%<110RY
%>15
290 N%?robh=XX:N%?rob=YY:N%?ro
bdx=N%MOD2:N%?robby=(N%MOD2)EOR1:
?tr=N%:CALLrobdir
300 CALLcalc:!ns=!cad:?d=0:d?1=
&A:XX=2:YY=16:CALLprint:NEXT
310 COLOUR1:PRINTTAB(0,0)"SCORE
"SPC(2)"LIVES"SPC(2)"LEVEL":COLOU
R2:CALLpsc:PRINTTAB(16,1);level:C
ALLplvs
320 ?mandat=&C0:?mdx=0:?mdy=1:F
ORN%1T010:!os=&6C98:XX=2:YY=16:P
ROCd(5):*FX19
330 CALLdelete:!ns=&9C0&6C98:XX=
2:YY=16:PROCd(5):*FX19
340 CALLprint:NEXT
350 FORN%0T039:N%?bulf=0:NEXT:
IF?powf=0 ?powt=70
360 ENDPROC
370 DEFPROCd(T%):TIME=0:REPEATU
NTILTIME>T%:ENDPROC
380 DEFPROCassem:RESTORE1340:F0
RN%=&900T0&A5FSTEP4:READAS:!N%&EV
AL("&"+AS):NEXT
390 DIMQX2000,xtabl 40,xtabh 40
,ytabl 30,ytabh 30,bulx 40,buly 4
0,budx 40,budy 40,bulf 40
400 FORXX=0T036:AX=X%*8:xtabl?X
X=AXMOD256:xtabh?X%&XDIV256:NEXT
:FORYY=0T027:AY=Y%*8+ytabh?Y%&Y
MOD256:xtabh?Y%&YDIV256:
NEXT
410 DIMrobx 24,roby 24,robdx 24
,robdy 24,robz 24
420 manx=&60:many=&61:mandat=&6
2:mdx=&63:mdy=&64:fx=&65:fy=&66:f
dx=&67:fdy=&68:ff=&69
430 ns=&70:d=&72:os=&74:cad=&76
:diff=&78
440 y=&7E:dead=&7F:tx=&80:ty=&8
1:speed=&82:tb=&83:tr=&84:seed=&8
5:robots=&86:robh=&87
450 IFINKEY-256=1THENTimer=&29F
ELSETimer=&2A0
460 FORP=0T02STEP2:P%&Q%COPTP
```

```
470 .sprite STXtx:STYty:JSRdele
te:LDXtx:LDYty:JMPprint
480 .print STYy.prl1 LDYy.prl
2 DEY:LDA(d),Y:STA(ns),Y:CPY#0:BN
Eprl2
490 LDA:CLC:ADCY:STAD:LDAAns:CL
C:ADC&40:STAns:LDAAns+1:ADC#1:STA
ns+1:DEX:BNEprl1:RTS
500 .delete STYy.del1 LDYy:LDA
#0:.del2 DEY:STA(os),Y:CPY#0:BNEd
el2
510 LDAos:CLC:ADC&40:STAos:LDA
os+1:ADC#1:STAos+1:DEX:BNEdel1:RT
S
520 .calc LDAxtabl,X:CLC:ADCyta
bl,Y:STACad:LDAxtabh,X:ADCytabh,Y
:STAcad+1:RTS
530 .manmv LDXmanx:LDYmany:JSRc
alc:LDAcad:STAos:LDAcad+1:STAos+1
:LDA#0:STAtx:Staty
540 LDA#81:LDX#89E:LDY#8FF:JSR
&FFF4:TYA:BEqnl:LDAmanx:BEqnl:DEC
tx
550 .nl LDA#81:LDX#8BD:LDY#8FF
```



```
:JSR&FFF4:TYA:BEqnr:LDAmanx:CMP#3
6:BEqnr:INCTx
560 .nr LDA#81:LDX#8B7:LDY#8FF
:JSR&FFF4:TYA:BEqnu:LDAmany:BEqnu
:DECTy
570 .nu LDA#81:LDX#897:LDY#8FF
:JSR&FFF4:TYA:BEqnd:LDAmany:CMP#2
6:BEqnd:INCTy
580 .nd LDAtx:ORATY:BNEmvman:JM
Ppman:mvman LDAtx:CMP#8FF:BNEmf
l:LDAmandat:AND#83F:STAmandat:JMP
somb
590 .nmfl CMP#1:BNEmfml:LDAmand
at:AND#83F:ORA#840:STAmandat:JMPs
omb
600 .nmfr LDAty:CMP#8FF:BNEmfu
:LDAmandat:AND#83F:ORA#880:STAman
dat:JMPsomb
610 .nmfu LDAmandat:AND#83F:ORA
#8C0:STAmandat
620 .somb LDAtx:STAmx:CLC:ADCm
anx:STAmans:LDAtx:STAmx:CLC:ADCm
any:STAmans:LDAmandat:EOR#820:STA
mandat
630 .pman LDXmanx:LDYmany:JSRc
alc:LDAcad:STAns:LDAcad+1:STAns+1
640 LDAmandat:STAD:LDA#9:STAD+1
:LDX#2:LDY#16:JMPsprite
650 .fire LDAfx:CLC:ADCfdx:STAF
x:LDAfdx:CMP#1:BNEfncfy:INCFy:.nfr
LDAfy:CLC:ADCfdy:STAFy:LDAfdy:CMP
#1:BNEfncfy:INCFy
660 .nfd LDAfx:CMP#37:BCCokfx:.
nokf RTS:.okfx LDAfy:CMP#27:BCSno
kf
670 LDY#0:.sebl LDAbulf,Y:BEqfe
b:INY:CPY#39:BCSsebl:RTS:.feb LDA
```

```
fx:STAbulx,Y:LDAfy:STAbuly,Y:LDAf
dx:STAbudx,Y:LDAfdy:STAbudy,Y:LDA
ff:STAbulf,Y
680 LDAff:CMP#8FF:BEqrobif:LDA#
&40:JMPmanif:robif LDA#7:LDX#las
e MOD256:LDY#lase DIV256:JSR&FFF1
:LDA#858:.manif STAD
690 LDXfx:LDYfy:JSRcalc:LDAcad:
STAns:LDAcad+1:STAns+1:LDA#&A:STA
d+1:LDX#1:LDY#8:JMPprint
700 .powf BRK:.powf BRK:.powf B
RK:.powf BRK
710 .shoot LDA#81:LDX#89D:LDY#
&FF:JSR&FFF4:TYA:BNEmst:RTS:.msh
t BITpowf:BMIPowst:LDA#80:STAFF
:LDAmanx:STAFx:LDAmany:STAFy:LDAm
dx:STAFdx:LDAmdy:STAFdy:JMPfire
720 .powst LDA#880:STAFF:LDA#&
FF:STAFdy:.psl1 LDA#8FF:STAFdx:.p
sl2 LDAmanx:STAFx:LDAmany:STAFy:L
DAfdx:ORAfy:BEqnpd
730 JSRfire:npad INCFdx:LDAfdx
:CMP#2:BNEpsl2:INCFdy:LDAfdy:CMP#
2:BNEpsl1
740 DECpowt:BNEspf:LDA#0:STApow
f:LDA#30:STApowt:.spf RTS
750 .lase EQUW2:EQUW3:EQUW80:EQ
UW2
760 .bullets LDY#0:STYtb:.bulp
LDAbulf,Y:BEqnxbul:LDAbulx,Y:TAX
:LDAbuly,Y:TAY:JSRcalc:LDAcad:STA
os:LDAcad+1:STAos+1
770 LDYtb:LDAbulx,Y:CLC:ADCbudx
,Y:STAbulx,Y:CMP#37:BCSdebl:LDAbu
ly,Y:CLC:ADCbudy,Y:STAbuly,Y:CMP#
27:BCSdebl
780 .debl LDA#0:STAbulf,Y:LDX#1
:LDY#8:JSRdelete:JMPnxbul
790 .ndebl JSRhit:LDAbulf,Y:BEQ
nxbul:LDAbulf,Y:CMP#8FF:BEqrob:LD
A#&40:JMPmanb:.robb LDA#858:.man
b STAD
800 LDAbulx,Y:TAX:LDAbuly,Y:TAY
:JSRcalc:LDAcad:STAns:LDAcad+1:ST
Ans+1:LDA#&A:STAD+1:LDX#1:LDY#8:J
SRsprite
810 .nxbul INCTb:LDYtb:CPY#40:B
CCbullp2:RTS:.bullp2 JMPbullp
820 .hit LDAbulf,Y:CMP#8FF:BEq
robbul:LDX#0:.hitl1 LDArobf,X:BEqnr
ht1:LDAbulx,Y:SEC:SBCrobx,X:CMP#2
:BCSnt1:LDAbuly,Y:SEC:SBCrobby,X:
CMP#2:BCSnt1
830 STXtr:LDA#0:STAbulf,Y:STAr
obf,X:LDX#1:LDY#8:JSRdelete:LDXtr:
LDAroby,X:TAY:LDArobx,X:TAX:JSRca
lc:LDAcad:STAos:LDAcad+1:STAos+1:
LDX#2:LDY#16:JSRdelete
840 LDA#7:LDX#zap MOD256:LDY#za
p DIV256:JSR&FFF1:JSRinsc:INCrobh
:JSRpsc:LDXtr:LDYtb:.nht1 INX:CPX
robots:BCChitl1:RTS
850 .robbul LDAbulx,Y:SEC:SBCma
nx:CMP#2:BCSnt2:LDAbuly,Y:SEC:SB
Cmany:CMP#2:BCSnt2:LDA#0:STAbulf
,Y:LDA#8FF:STAddead:.nht2 RTS
860 .zap EQUW17:EQUW1:EQUW220:E
QUW5
870 .mvrobs LDY#0:STAtx:.robml
LDArobf,Y:BEqnxrob:JSRrandom:AND#
3:BNEdcrd:JSRrobdir:.dcrd JSRrobm
v
880 .nxrob INCTr:LDYtr:CPY#robot
s:BCSrobl:RTS
890 .random LDAseed:ROLA:ROLA:R
OLA:SEC:ADCseed:EORTimer:STAsced:
RTS
900 .robmv LDYtr:LDArobx,Y:TAX:
LDAroby,Y:TAY:JSRcalc:LDAcad:STAO
s:LDAcad+1:STAos+1
910 LDA#0:STAD:LDA#&A:STAD+1:LD
Ytr:JSRrobc:BCSprobb:JSRrobdir
920 .prob LDArobx,Y:CLC:ADCrobb
x,Y:STArobx,Y:TAX:LDAroby,Y:CLC:A
DCrobb,Y:STAroby,Y:TAY
930 JSRcalc:LDAcad:STAns:LDAcad
+1:STAns+1:LDX#2:LDY#16:JSRsprite
940 JSRrandom:CMPdiff:BCSrobsht
:RTS:.robsh LDYtr:LDA#8FF:STAFF:
LDArobx,Y:STAFx:LDAroby,Y:STAFy
```

MICRO MESSAGES

I MAY be able to offer a glimmer of hope to Kenneth MacLeod who wrote in August's issue for help with a corrupted disc containing valuable files. I have a disc recovery program which enables me to search through a disc track by track, sector by sector and resave any programs or parts of programs I can find to a new disc.

During operation it keeps pausing and waits for a key to be pressed after each section of data has been displayed on screen.

If Mr MacLeod has a program like this, but is unable to get it running because the first sector of the disc has been so badly corrupted that the format cannot be read, he should replace the corrupted disc with a good one and start the recovery program running.

It will read the format and he should continue scanning through the disc until the first sector has been read. Now, while the computer is waiting for a key to be pressed, he should replace the good disc with the corrupted one and press a key.

The computer will be fooled and carry on scanning the disc from sector two onwards. Of course if his disc is severely corrupted and error messages keep appearing it would not be wise for him to continue. — **Joan Barnard, Buckhurst Hill, Essex.**

● Thanks for the tip Joan. Our technique is to use a disc formatter. Run it and hit the Break key immediately after the first track has been formatted. Now you can use a disc editor to recover the contents. The only drawback here is that if the program you lost is stored on the first track it will be permanently destroyed, so your technique is much better as it leaves the original disc intact.

Several good disc toolkit programs are available. One of the best is Advanced Disc Toolkit from Pres.

Escape route from lock-ups

I HAVE been using an Electron for two years, primarily as a word processor. I have a Plus 1, AP4, View cartridge, single Cumana 5.25in disc drive and a Silver Reed EX34 typewriter operating as a printer.

I use it for normal correspondence, writing magazine articles and, more recently, have produced the text of two small books.

Soon after I upgraded the system I ran into an occasional fault when entering text. It would no longer be accepted, the cursor

Winkle out those lost files

would stop flashing and the => symbol would appear.

Escaping to the command page and then back to the text page would enable me to input again, but about half the last line of text would have disappeared.

I now find that sometimes I cannot Escape as I did before, and have got around this problem by using the Break key. This has to be frequently pressed before anything happens. I get to a command page which reads Acorn Electron DFS and I then press Break to get back to the normal command page.

Usually I don't lose the text, but the last time I tried it I did. I now save more often. What can I do? — **Michael Ingham, Lincoln.**

● It is possible that you are experiencing trouble with the ULA chip. Keith Watts remedied his, he reported in our November 1988 issue, by opening his Electron, removing the ULA, sliding it back and forth in the carrier, then replacing it. However, never do this while the micro is plugged into the mains.

Advice needed on upgrades

I AM another computer-ignorant mum who could do with some advice. My two sons have an Electron which they have tired of as it is. We would like to buy a disc drive, but have no idea where we could get one, and more importantly, the cost.

Another problem is what we can do with our games tapes. If we get a disc drive can we transfer them from tape to disc?

We would also like to extend the computer's memory, which I'm told we can do with add-ons. However, again we need advice on what to buy, where to obtain it and the cost. Please can you help? — **Christine van Oorschot, Mold, Clwyd.**

● You will need to buy a Plus 1 and a disc interface in order to use a disc drive. All of these can be obtained from Pres who advertises every month in *Electron User*.

The cost of the equipment would vary, depending on which models you bought, but you could expect to pay somewhere in the region of £200. You have a choice of a 5.25in

Looking for Lisp lore

I HAVE been an *Electron User* reader for many years and I recently bought a copy of the Lisp programming language on rom. I have tried without success to obtain a copy of the book *Lisp Programming on the BBC Micro*. Could you or any reader help me? — **A. Ghafoori, London.**

● We can't find anyone advertising the book. However, Watford Electronics (0923 37774) advertise one called Lisp, the Language of Artificial Intelligence, which costs £13.95. This may help.

You'll find a Lisp programming tutorial in the June, July and August 1987 issues of *Electron User*.

DFS or 3.5in ADFS system.

If you are primarily interested in games then go for the 5.25in system as besides being more available on this format you also have an opportunity to try out some BBC Micro software too. Not all of it will run of course, but some does.

Unfortunately, as most commercial games are copy protected you won't be able to transfer very many of them to disc. However, Pres is currently converting around 50 Superior Software titles to disc. Expect to see these in the run up to Christmas.

To extend the memory of your Electron to 64k we recommend the Master Ram Board which is available from Slogger for £49.95. Alternatively, a ram cartridge will add sideways ram, which is useful for rom software.

The Master Ram Board has the added advantage of speeding up the Electron to almost that of the BBC Micro.

Misleading instructions

A WHILE ago I was playing *Space Harrier* on a friend's Atari ST when I noticed that instructions were also given for a BBC/

Turn to Page 38 ▶

◀ From Page 38

Electron version.

I wrote to Elite asking whether it was still available, as I didn't even know that it existed for the Electron. However, I didn't receive a reply and I can find no trace of it in the shops or mail order adverts. Do you know where I could obtain a copy? – **Christian Weber, Chester.**

● Space Harrier isn't available for the Electron. We don't know why there would be instructions for it – perhaps it had been planned and then the project was shelved before completion. Perhaps if enough Electron users write to Elite it will continue with its production.

Programs you can copy

I HAVE subscribed to Electron User for several years, and am very grateful for the free monthly tape. I have begun saving some of the recent games on our school's BBC Micro network but my teacher has doubts since there is a copyright symbol in each program.

Please could you tell me whether or not I am allowed to save them on the Econet? If not, I will wipe them, much to the disappointment of many friends who find them great fun – and a relief from word processing. – **Simon Dedley, Kettering, Northants.**

● We don't mind you using the programs at school as long as the copyright message stays on them and you are not making a profit by selling them.

Bear in mind that some of the programs published need instructions that can only be found in the magazine – so order a few extra copies for your school mates!

Giant step for an Electron

I HAVE been the owner of an Electron for nearly five years. It was originally bought to get the children interested in computing, but ended up being used only for games.

Lately I have been using an Apple Macintosh and an IBM PC for my work, mainly for producing spreadsheets and graphs using an excellent program called Exel Windows. I find this very helpful to collate and display data.

Is there a program of similar nature designed for the Electron? If so what hardware would I need to run it? What would I need to print it? Is it possible to use a mouse?

At present I only have the basic computer with an Acorn data recorder and a television with an RGB lead. Does Mini Office compare at all with Exel Windows? Finally, what will it all cost? – **V.J. Moore, Peterborough.**

● A humble Acorn Electron can't be com-

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 pages.

pared to an Apple Mac system or even a PC. These two computers have a computing power several orders of magnitude greater than our micro. The software is correspondingly more powerful.

The most powerful Electron spreadsheet is Viewsheet, and at around £10-15 is very cheap indeed. Although far less powerful, Mini Office spreadsheet is still very useful for simple home accounts. The package consists of four programs – word processor, database, spreadsheet and graphics.

You won't need any further hardware to run Mini Office, although an Epson-compatible printer would be required to print any work. It is not possible to use a mouse with Viewsheet or Mini Office.

After having used Excell windows on a Mac you'll probably find Electron software too primitive to be of any practical use.

Listings were not guilty

I AM writing to complain about the majority of programs you put into the magazine. They do not work.

My father and I spend many an evening typing into the computer, and when we run them we get syntax errors or no such variable messages. The latest such program is Niel Cunningham's On to a Winner, from July's issue.

After checking through the program twice we come to the conclusion that there is an error in the listing. Why do so many of these programs not work? – **Stewart McWilliam, Wigan.**

EACH month I look forward to Electron User. I have retired and it gives me great pleasure to use my computer.

I find the magazine a great help because I have not been taught anything about the computer. It gives me great pleasure to use some of the information and programs pub-

lished.

I would appreciate it if someone could assist me concerning your Bingo game from the August issue. I have a Panasonic printer KX-P1081 and find it difficult to get the printer to print the cards.

I think that some of the printer instructions must be changed. As I am not an expert I would like someone to advise me what to do in relation to this particular machine. – **F.J. Campbell, Gateshead, Tyne & Wear.**

● We receive a number of similar letters each month. However, we can assure you that there isn't anything wrong with either of the listings published. In fact we have letters from other readers who have enjoyed using the programs.

Usually, we find that the program has been typed incorrectly. Check that you haven't misread a character for a similar looking one, such as a 0 for an O or an I instead of a 1.

On the odd occasions that there is an error you will find corrections printed in Micro Messages. The Bingo cards program was tested on the same Epson compatible printer that Mr Campbell uses.

Sister, but not a twin

DO you know what has happened to US Gold? I'm sure it would stand to gain enormous profit if it released Beach Head and Impossible Mission as budget games. And why doesn't it release Gauntlet for the Electron? (I'm with you Andy Duncan, May 1989).

Could you tell me what the main differences are between the BBC Micro and the Electron when it comes to software? Both have 32k memory but some games, such as Return of the Jedi and Moon Cresta, aren't available for the Electron.

Many thanks to Superior Software for releasing Commodore and Spectrum games such as Predator and Barbarian II. The biggest thanks go to you for bringing a very informative and varied magazine to my letterbox. My gratitude for the Supercharger program in the February issue.

Lastly, why not do some short reviews on old games? You would be able to regrade them and it may make Electron users think twice before buying an old game which has Electron User Golden Game written on it. – **B. Morris, Doncaster, South Yorkshire.**

● US Gold hasn't published software for the Electron for some time now. It is concentrating more on the 16 bit Atari ST, Commodore Amiga and Achimedes markets.

There are massive hardware differences between the Electron and BBC Micro. The innards are totally different, so any program directly accessing certain chips or ports may fail. The BBC Micro is faster and more flexible than the Electron which means that some games can't be converted.

Learning has never
been such fun!

fun school

Fun School 2 for Over-8s contains:

- **Build a Bridge:** Shape-fitting challenge
- **Passage of Guardians:** Enjoy anagrams
- **Unicorn:** First steps in problem solving
- **Logic Doors:** Mapping made easy
- **Souvenirs:** An introduction to travel
- **Code Boxes:** Discover binary arithmetic
- **Mystery machine:** Have fun breaking codes
- **Escape:** A final check on progress

Fun School 2 for 6 to 8 year olds contains:

- **Number train:** Calculations made enjoyable
- **Shopping:** Which shops for which products?
- **Maths Maze:** Fun improving arithmetical skills
- **Treasure Hunt:** Introduction to coordinates
- **Bounce:** Get to grips with angles
- **Packing:** Discover tessellating shapes
- **Caterpillar:** Word building challenge
- **Number jump:** Have fun practising tables

Fun School 2 for Under-6s contains:

- **Shape Snap:** Colourful shape recognition
- **Find the Mole:** Experiment with number sizes
- **Teddy Count:** Ideal introduction to numbers
- **Write a Letter:** Creative fun at the keyboard
- **Colour Train:** Play at spotting colours
- **Pick a Letter:** Word building made easy
- **Spell a Word:** Enjoy naming the pictures
- **Teddy Bears Picnic:** Move around a maze

Now children can really have fun while learning. Fun School 2, designed by a team of educationalists, is available for three age groups: Under-6s, 6-8 year olds and Over-8s. Each pack comes with eight colourful and exciting programs, a colourful button badge and detailed instructions giving educational help.

The computer itself monitors the child's progress. The skill level - initially set by parents - is automatically adjusted to suit the child's ability.

Now children can enjoy using their parents' computer while they learn at their own pace.

Available for:

Spectrum, Commodore 64,
Amstrad CPC, BBC Micro/Electron
£9.95 (tape) £12.95 (disc).

Also: Atari ST, Amiga, PC £19.95

**DATABASE
EDUCATIONAL
SOFTWARE**

Format	Under-6s		6-8 years		Over-8s	
	Tape	Disc	Tape	Disc	Tape	Disc
Spectrum	9094	9095	9096	9097	9098	9099
Commodore 64	9064	9065	9066	9067	9068	9069
Amstrad CPC	6179	6180	6181	6182	6183	6184
BBC Micro/Electron	2239		2242		2245	
BBC B+/Master 40T		2240		2243		2249
BBC B+/Master 80T		2241		2244		2250
Atari ST		9192		9193		9194
Amiga		9842		9843		9844
PC 5.25"		5764		5765		5766
PC 3.5"		5767		5768		5769

Please circle the code number of the format you require

Send to: Database Direct, FREEPOST,
Ellesmere Port, South Wirral L65 3EB.
Access/Visa orders: Tel: 051-357 2961

Please supply Fun School 2 for the code number(s) circled

Cheque payable to Database Software

Please debit my Access/Visa card no.

Expiry date ____/____/____

Signed _____

Add £2 per program Europe & Eire/£5 Overseas

Name _____

Address _____

Postcode _____



TEL: 0276 72046
FAX: 0276 51427

Now available through PRES **Advanced Computer Products** range of software products

ADVANCED CONTROL PANEL

(20) /M/B/E/C £30 ex VAT £34.50 inc VAT

ACP is a front end control panel language providing a sophisticated yet friendly interface between user and computer for access to Languages, MOS functions and the users own file utility etc. Main features include pull down windows, simple to change MOS configure, floating point calculator, file manager, SW ROM's facilities (16K EPROM & FULL MANUAL)

"Its very easy to create an entire customised front end for your own use." - *Acorn User, August 1987.*

"ACP is much better than any of the other front end systems I've seen." - *Acorn User, August 1987*

"I can recommend it to anyone who wants easy access to the Electron's functions." - *Electron User, August 1987.*

ACP's main features are:-

- * Pull down windows operate throughout
- * Floating point calculator
- * Users can create their own windows
- * File manager
- * Simple to change MOS-s configure options
- * Floating point calculator
- * Easy entry to other languages

ADVANCED ELECTRON DFS E88

(14) /E+ASR/ £17.38 ex VAT £19.99 inc VAT

An alternative to the DFS on rom for Plus 3 and ABR users. This optional alternative DFS is designed for use in Side-ways RAM (ABR) and allows the user to operate a disc filing system & E88 when using the Plus 3 (in ADFS page would normally be &1D88). The DFS is simply loaded using the software supplied with the ABR from disc. (3.5" ADFS disc + manual)

ADVANCED ELECTRON DFS

(05) /E/ £21.00 ex VAT £24.15 inc VAT

Electron & Plus 3 users. . . gain BBC compatibility by adding the Advanced Electron DFS (1770 DFS) this is the same disc filing system supplied with the BBC B+. Now you can produce and access (compatible) BBC disc based software. We can also supply 5.25" disc drives to add to your Plus 3 (inc. 2nd. drive adapter). 'ACP has produced another superb ROM for the Electron'. . . Electron User Feb '86 (supplied on 16K EPROM + DFS MANUAL)

ADVANCED 1770 DFS

3 versions ADM/C(11) - ADB(12) ADE(13)
£30.00 ex VAT £34.50 inc VAT

ACP have totally re-written the Acorn 1770 DFS, enhancing existing features & adding new ones. The result is a very fast and powerful disc filing system with the ability to operate in double density occupying both sides of a disc (640K). Automatic file relocation, improved file handling, 62 file catalogue and Sways RAM can be used as a fast RAM DISC. (16K EPROM + comprehensive manual)

DATABASE PUBLICATIONS

Now exclusively on 3.5" Disc

Electron User Jan.-Aug. 8 monthly disc ...	£4.75
Fun School under 5's	£5.95
Fun School 5-8's	£5.95
Fun School 8-12's	£5.95
Magic Sword	£6.95
10 Best Educational Vol. II	£6.95
Classic Arcade Games	£6.95
Arcade Games Creator	£5.95
Nursery Rhymes	£6.95
10 of Best Vol. 1	£6.95
10 of Best Vol. 2	£6.95
10 of Best Vol. 3	£6.95
10 of Best Vol. 4	£6.95
Classic Card & Board Games Vol. I	£7.95
Classic Card & Board Games Vol. II	£7.95
E.U. August 87 Disc containing Printer Driver	£4.75
5.25" Discs	
Fun School II	£11.95
Arcade Game Creator	£5.95
Knitwear Designer	£9.95

ADVANCED DISC TOOLKIT

(01) /M/B/E/C £30 ex VAT £34.50 inc VAT

Any Acorn user including Master, BBC B+, Electron, DFS, 1770 DFS, ADFS, 2nd & co-processors A.C.P.'s BEST SELLING product containing over 30 commands inc. - powerful memory & disc editor, search memory/disc/basic, catalogue/unplug ROMS, load/run programs below page, automatic menu, file transfer (inc. locked cassette files), ADFS utils etc, etc ("it's superb", . . . Database Pubs. - 'A top-class toolkit - I have no hesitation in recommending it. . . Acorn User Nov. 86) (16K EPROM & FULL MANUAL)

ADVANCED DISC INVESTIGATOR

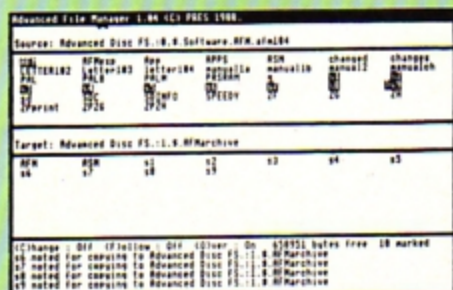
(06) /M/B/E/C £25 ex VAT £28.75 inc VAT

A very powerful Disc utility for standard & non-standard discs. Backup most protected discs, edit any type of non-standard disc, check & repair faulty tracks, create new disc formats, copy 40 track discs to 80 track discs, verify two non-standard discs. ('ADI features an extremely comprehensive sector editor, and one of the finest I've seen'. . . Tubelink on Prestel) (supplied on 16K EPROM + manual)

PRES-ADVANCED FILE MANAGER

The ultimate 'front-end' for ADFS and DFS includes:

- Menu** - infinitely expandable
- Delete** - deletes any number of files
- Rename** - rename multiple files using wildcards
- Copy** - extremely comprehensive file copier



Screen picture shows AFM in Copy mode on Master Turbo

AFM follows the PRES 'Master Plan' of upwards compatibility - it runs on Electron, BBC B+, B+, B+128, Master 128 and Compact, with Second/Co-processors and Acorn-compatible versions of DFS & ADFS. £25 ex VAT £28.75 inc VAT

AFM has four distinct modes:

MENU - allows browsing through the files and directories on a disc. Files are started from a menu of up to 7 options chosen for a selected ROM. Loaders are provided for Basic, The Basic Editor, View, ViewSheet, ViewStore, ViewSpell, Edit, Wordwise (+) and InterWord. This list can be expanded infinitely using an Acorn-approved OSWORD call. . . full details and example in the manual.

DELETE - allows files to be marked and then deleted with one keystroke.

RENAME - allows one or more files to be marked and then renamed using a wildcarded name, ie one which varies with each file renamed. Thus you could rename s1, s2 and s3 to be s1_old, s2_old, and s3_old in one operation. . . and that's only the beginning! As well as using the whole of the original name you can also pick out individual characters to form part of the new name.

COPY - the strongest feature of AFM. It is a two stage copy routine. With both source and target directories shown on screen the files to be copied are marked. Once all the files have been marked copying is started and the computer can be left to get on with it!

Large files can be split across several disks, and recombined. As much as possible of the computer's memory is used for copying files, including unused parts of shadow screen memory, sideways ram banks (inc. AP7), ram cartridges (inc. ABR (32K) and AOR (256K)), tube memory (up to 61K), B+ paged ram (12K) and unused parts of the Slogger Master Ramboard (Electron).

Comprehensive error trapping and recovery is provided, so a copying run will rarely have to be aborted unfinished! And there's much, much more. . .



ONLY AVAILABLE THROUGH PRES
LOW INTRODUCTORY PRICES ON DISCS

5.25" versions £6.95
3.5" versions £7.95

	5.25" DFS	3.5" ADFS
Life of Repton	✓	✓
Spellbinder	✓	✓
Bonecruncher	✓	✓
Elixir	✓	✓
Play It Again Sam	✓	✓
(Contains Citadel, Thrust, Strikers Run, Ravenskull)		
Palace of Majic	✓	✓
Superior Col. Vol. 3	✓	✓
(Contains Synchron, Repton, Repton II, Karate Combat, Deathstar, Smash & Grab & Overdrive)		
Codename Droid	✓	✓
Crazy Rider	✓	✓

PRES

PRES POLICY

1. To provide the best possible service & assistance to users.
2. Supply Acorn based or Acorn compatible products & to enable upward compatibility wherever possible.
3. Provide tested products with special attention to quality of design, components & production.
4. **Only to cash cheques & credit card receipts when we know we can supply the goods ordered.**

THE ADVANCED PLUS 3 MK II

The only fully compatible disc upgrade running Acorn's own filing system.

COMPLETE PACKAGE ONLY
£129 excl VAT; £148.35 inc VAT

ADVANCED PLUS 5

A unique interface for those wanting the maximum expansion from just one slot in the PLUS 1.
£58.00 Ex VAT; £68.24 inc VAT

ADVANCED PLUS 1... The plus 1 is the main expansion for the Electron as designed and originally produced by Acorn.
£50.00 excl VAT; £57.50 inc VAT

ADVANCED PLUS 6... a fully buffered 6 ROM expansion module for the Electron user.
£33.00 excl VAT; £37.95 inc VAT

UPGRADE SERVICE for the original Acorn Plus 1 to Advanced Plus 1 and AP6.
£40.00 excl VAT; £46.00 inc VAT

ADVANCED ROM ADAPTER 2

An Acorn approved cartridge containing a card with special 'zero' profile sockets.
£13.00 excl VAT; £14.95 inc VAT

ADVANCED BATTERY-BACKED RAM

A standard Acorn approved cartridge but containing 32k (2 x 16k) of sideways RAM, inc. Software Protect Facility.
£39.00 excl VAT; £44.85 incl VAT

DISC INTERFACES

(Plus One required)

AP3 INTERFACE: As supplied with AP3 package.
Price £52.00 ex VAT £59.80 inc VAT

AP4 INTERFACE: A fully Acorn compatible disc interface.
Price £60.83 ex VAT £69.95 inc VAT

AP34 INTERFACE: Get the best of both filing systems.
Price £69.55 ex VAT £79.98 inc VAT

ADVANCED PLUS 2 ROM

We feel this is one of the best, low cost, additions we have produced for the Electron & +1 user, especially for Plus 3, AP3 & ABR users.
£11.00 ex VAT; £12.65 inc VAT

ADVANCED PLUS 7

An internal battery-backed RAM upgrade for the Advanced Plus 6.
£39.50 ex VAT; £45.42 inc VAT

** USER PORT **

A low cost unit for those who just require a user port interface.
£19.99 ex VAT; £22.95 inc VAT

ELECTRON ADVANCED USER GUIDE

further reading and information for the Electron user. £3.95

ADFS VERSION 1.1

Suitable for existing Plus 3 or A.P.4 users.
£14.95 ex VAT; £17.19 inc VAT

ADFS E00

For Electron users with either Plus 3 or A.P.4 and 32k of S/W RAM i.e. ABR.
£14.95 ex VAT; £17.19 inc VAT

5.25" ADFS (manual avail. sep.) £14.00 ex VAT;
£16..10 inc VAT

5.25" DFS (2 discs+ADFS manual) £19.00 ex
VAT; £21.85 inc VAT

AP4 MOD

This converts an AP3 to an AP34 (ie. DFSE00) supplied as a two chip set, full documentation and fitting instructions.
£21.74 ex VAT. £25.00 inc. VAT

ADVANCED GAMES COMPENDIUMS—ON DISC

Vol. I		
Invasers	Stock Car	Croaker
Jet Power Jack	Bandits @ 3	Felix in the
Killer Gorilla	Bumble Bee	Factory
Vol. II		
Felix and the Fruit	Rubble Trouble	Moonraider
Monsters	Swag	Frenzy
The Mine	Cybertron Mission	Escape Moonbase Alpha
Vol. III		
Danger UXB	Adventure	Chess
Ghouls	Positron	Galactic
Felix and the Evil Weevils	Swoop	Command
3.5" £9.99 ex VAT each volume; £11.49 inc VAT		
5.25" £8.99 ex VAT each volume; £10.34 inc VAT		

A.D.F.S Guide Manual
£5.00

ELECTRON VERSION OF A.L.P.S.
(Adventure Language Programming System)
£25.17 ex VAT £28.95 inc VAT

DISC DRIVES

	Ex VAT	+VAT
Cumana 5.25" dbl/sided 40/80 track, switchable, inc. psu.	£113.00	£129.95
Cumana 5.25" single/sided 40 track, inc. psu.	£112.17	£129.00
PRES Special 3.5" double sided 80 track, inc. psu.	£78.00	£89.70

DISCS

3.5" 10 in plastic library box — ideal for Plus 3 users	£19.95
5.25" 10 dbie/sided dbie/dens.	£12.99
5.25" 10 sing/sided sing/dens.	£8.99
5.25" Twin Gift Pack	£1.49

VIEW CARTRIDGE

the Acornsoft word processor for the Electron and Plus 1. Inc. full documentation. £14.95

VIEWSHEET CARTRIDGE

the Acornsoft spreadsheet for the Electron and Plus 1. Inc. full documentation. £14.95

VIEW & VIEWSHEET

both products as above "special price". £19.95

SPECIAL PACKAGE PRICES

	Ex VAT	inc VAT
AP1 + AP3	£165.00	£189.75
AP1 + AP6	£77.00	£88.55
ABR + 3.5" ADFS E00	£48.65	£55.95
ABR + 5.25" ADFS E00	£46.95	£53.99
ABR + 5.25" DFS (ADFS E00)	£51.00	£58.65
AP5 + Music 5000	£152.17	£175.00
AP7 + 3.5" ADFS E00	£49.52	£56.95
AP7 + 5.25" ADFS E00	£48.65	£55.95
AP7 + 5.25" DFS (ADFS E00)	£52.13	£59.95
AP4 + CS400	£147.78	£169.95
AP1 + AP4 + CS400	£189.00	£217.35

ACCESSORIES

ELECTRON POWER SWITCH
£3.96 ex VAT; £4.55 inc VAT

AP3 2nd DRIVE LEAD
£5.96 ex VAT; £6.85 inc VAT

PLUS 3 2nd DRIVE ADAPTOR
£6.91 ex VAT; £7.95 inc VAT

Panasonic KX-P1081 Printer Ribbon
£5.50 ex VAT; £6.32 inc VAT

ADVENTURE GAMES ON DISC
3.25" ADFS £6.95 ex VAT per Disc; £7.99 inc VAT per Disc

COLOUR MONITOR

Philips Med. Res.
£213 ex VAT; £244.95 inc VAT

PRINTER

Panasonic Matrix with NLQ
£155.65 ex VAT £179.00 inc VAT

NEW PRODUCT
ADVANCED BASIC EDITOR+
PLEASE CALL FOR DETAILS

MUSIC 5000

£99.00 (EX. VAT)
£113.85 (INC. VAT)

NEW PRODUCT
A new 1Mhz Bus low cost cartridge coming soon

Please send order to: **P.R.E.S. LTD., PO. Box 319, LightWater, Surrey, GU18 5PW. Tel: 0276 72046 (24 hr). Fax: 0276 51427**

(Mail order only)
All our prices include
UK delivery & VAT
Subject to availability



(in event of any query—
please include your tel. no.)

Name	Product	Qty	@	Total
Address				
Postcode				
Tel:	I enclose payment for £			
Credit Card No.:	Exp date			
				(Ref E10)

Don't miss out on the mass of material that's appeared in *Electron User* over the past few months. Bring yourself up to date with this back issue bundle, packed with games, utilities, features and programming tutorials.

Here's what you'll find in the
April 1989 – September 1989 bundle:

April 1989 issue:

Games: Diamonds – a mind bending puzzle. **Utilities:** Pattern fill routine, automatic program saver, Home Finance Manager. **Features:** Input routines explained, disc drives revealed, palindromic numbers explored. **Reviews:** Sam 6, Exile, Orbital.

May 1989 issue:

Games: Eliminator. **Utilities:** EZ Type, DFS disc formatter. **Features:** Tournament sorts, Party Cocktail Creator, Landscape Designer, Fractal Generator. **Reviews:** Barbarian II, Circus Games, Superman, Mode 7 Simulator Rom.

June 1989 issue:

Games: Tic Tac Rhymes, Duel. **Features:** ADFS osword calls explained, creating customised tapes, maps to Woodbury End and Palace of Magic. **Utilities:** Disc-based database, new CIRCLE graphics command, Morse Code Tutor. **Reviews:** Holed Out, Tank Attack, Sam 7.

July 1989 issue:

Games: Jet Bike arcade adventure, educational fun with Ladder Adder, Time bomb arcade fun. **Utilities:** Speedy Reader. **Reviews:** Predator, Stormcycle, Sam 8. **Features:** Jafa Systems interview, Disc error codes documented, 10 Liners, Philosophers Quest and Palace of Magic mapped.

August 1989 issue:

Games: Rollerball, Bingo. **Reviews:** Alps, Turtle Worlds, White Magic, Play it Again Sam 9. **Features:** Map of Kayleth, Repton Infinity tips. **Utilities:** Disc Housekeeper, Mode 2 screen compacter, Titration, Chemical Equations.

September 1989 issue:

Game: Snakes. **Reviews:** Keyword, Basic Editor Plus, Ballistix, Sam 10. **Features:** Arcade Corner, Electron history. **Utilities:** Attribute editor, magazine database.

electron

user

BACK ISSUE BUNDLE

**Everything you
ever wanted to
know about your
Electron but were
afraid to ask is in
these back
issues of
Electron
User**

Only £1.50
each or
£7.99
for all six



TO ORDER PLEASE USE THE FORM ON PAGE 45

10

LINERS

Catalogue of errors

HOW many times have you typed `*>` by accident when trying to catalogue a disc? If the answer to that is "Quite often" this handy utility from Stephen Wade of Stockport, Cheshire is just for you.

The program assembles a very short piece of 6502 machine code which, when stored in the correct place on the disc, can be used to repair the error as it occurs.

Rather than intercepting the main `oscli` routine in the computer, which would take up much valuable memory space, the utility is called up from disc

```
10 REM Repair for *> error
20 REM by S.P.Wade
30 FOR pass=0 TO 3 STEP 3
40 PX=&900:COPT pass
50 LDX #cat MOD 256
60 LDY #cat DIV 256
70 JMP &FFF7
80 .cat EQU$"CAT"+CHR$13
90 J:NEXT
100 OSCLI"SAVE > 900 "+STR$PX
```

whenever the `*>` error occurs.

Because the flaw in the command is the `>` character the object code should be saved with the filename `>` in the li-

brary directory, so that the computer can locate it no matter which directory you happen to be in. (You can make the program automatically save the code in your library directory by simply altering line 100.)

Whenever you type `*>` the object code will be loaded into memory, starting at location `&900`, where it is then executed. Its function is to perform a `*CAT` by way of an `oscli` command and following that the code returns you to whatever you were doing before.

So there you have it - a simple problem simply rectified! Happy cataloguing.

Thanks for the memory...

```
10 REM Display free memory
20 REM by S.P.Wade
30 FOR pass=0 TO 3 STEP 3
40 PX=&900:COPT pass
50 LDY #0:.loop1 LDA str1,Y:CM
P #&FF:BEQ next1:JSR &FFEE:INY:JM
P loop1:.next1 LDA &06:SEC:SBC &0
2:TAX:LDA &07
60 SBC &03:JSR hex1:TXA:JSR he
x1:LDY #0:.loop2 LDA str2,Y:CM
P #&FF:BEQ next2:JSR &FFEE:INY:JMP l
oop2:.next2 RTS
70 .str1 EQUW &0A0D:EQU$"Memor
y free = &":EQUB &FF:.str2 EQU$
"bytes":EQUW &0A0D0A0D:EQUB &FF
80 .hex1 PHA:AND #240:LSR A:RO
R A:ROR A:ROR A:JSR hex2:PLA:AND
#15
90 .hex2 CLC:ADC #48:CM
P #58:BC
C hex3:CLC:ADC #7:.hex3 JMP &FFE
3:J:NEXT
100 OSCLI"SAVE MFree 900 "+STR$
PX
```

OUR second utility this month also comes from Stephen Wade. This time he provides a program which reports how much free memory is left in the micro.

Anyone with a disc drive will no doubt have used the `*FREE` command from time to time to find out how much space is left on their disc. Well this program, called by typing `*MFree`, tells us the number of free bytes of memory we have in hexadecimal format.

The program works by taking a look at the zero page locations for `HIMEM` and `VARTOP`, and from them works how much space there is in between.

You may wonder why the program

is so bulky, and the answer is that the two routines that print the text are quite long. Nevertheless the program is still only 10 lines long.

You will find, of course, that the amount of free space will vary quite considerably in different modes - that is, you will have more free space in Mode 6 than in Mode 1 due to the different amounts of screen memory used.

In order to be able to use the program at any time from the disc, it is suggested that - like the `cat` repair utility - you store the object code in your library directory. You can again set the program to save the code automatically in the correct directory by altering line 100 as required.

Another great electron subscription offer

A subscription to *Electron User* is already excellent value for money. Through your letterbox each month you get a program and feature packed magazine, plus a tape containing all the programs from that issue – with the occasional extra.

And now you get even more for your money because we're giving away a FREE copy of *Barbarian* with every subscription.

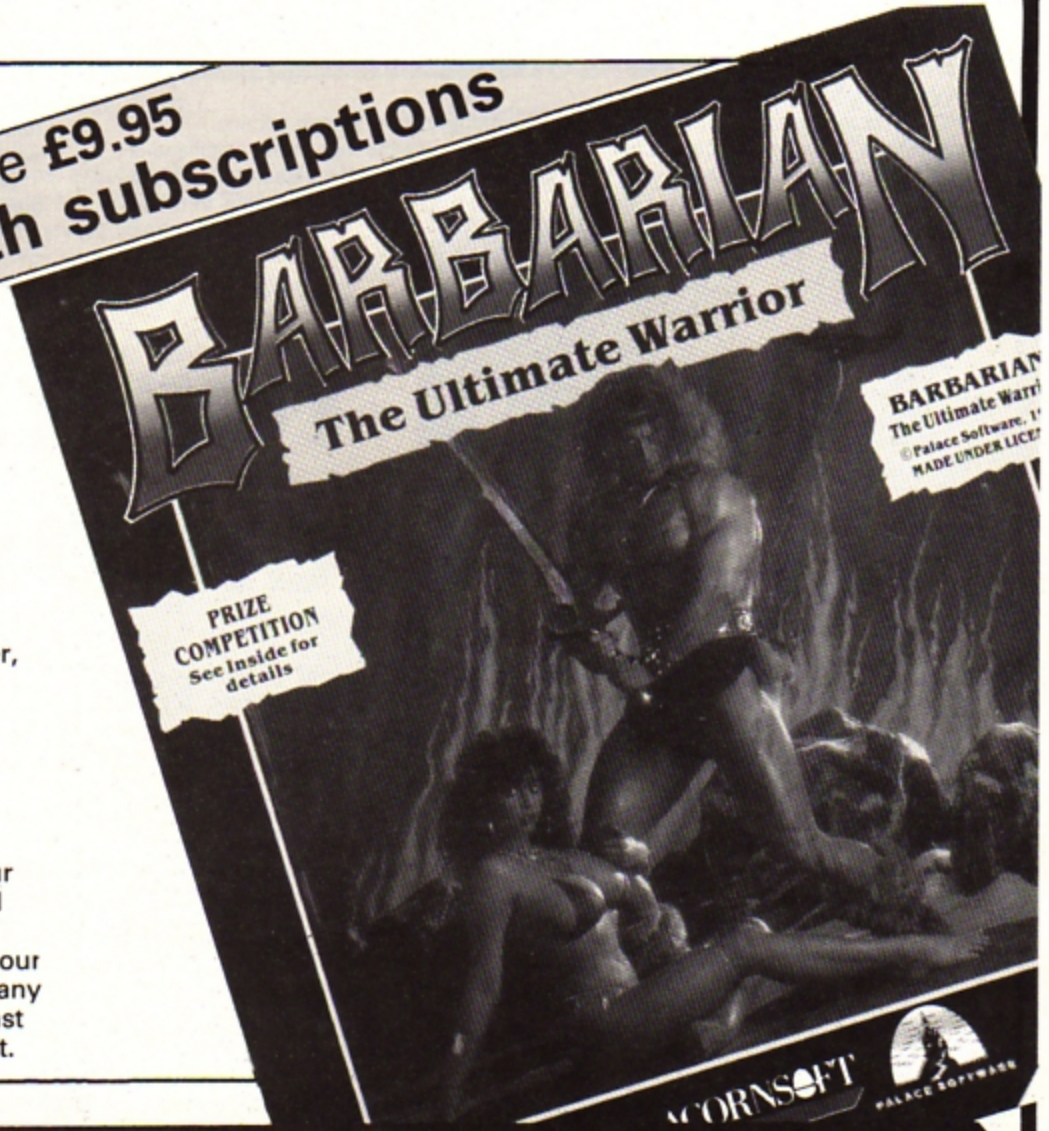
So what are you waiting for? Fill out the order form opposite, send it to us and as soon as the order's processed we'll despatch your copy of *Barbarian*, and you'll start receiving *Electron User* from the next available issue – reaching you well before it's in the shops.

Normal price £9.95
FREE with subscriptions

Barbarian is a fierce game of combat which will tax your skill and reflexes to the limit.

When you start you can choose either a male or female character, then you have to hack and slay your way through dozens of punishing screens on your way to the Dungeon of Drax.

When you get there your mission is to kill the evil Drax himself – but be careful, you'll need all your wits about you to have any chance of success against your dastardly opponent.



Send for your subscription using the form opposite

ORDER FORM

All prices include postage, packing and VAT
Valid to October 31, 1989
Please enter number required in box

All software on this form is available only on tape.
Some of the products mentioned are also available on disc from P.R.E.S. through their advertisement in this issue.

Annual subscription (see opposite page)
Includes monthly tape and Barbarian (UK only) £p

	NEW	RENEWAL
UK £19	3008 <input type="checkbox"/>	3009 <input type="checkbox"/>
Europe (incl. Eire) £23	3003 <input type="checkbox"/>	3476 <input type="checkbox"/>
Overseas £38	3004 <input type="checkbox"/>	3477 <input type="checkbox"/>

Orders received by October 11 will commence with November issue

Back issues

(see page 42)

March 1989 to August 1989 bundle	£7.99	3157	<input type="checkbox"/>
Add £3 Europe & Eire / £12 Overseas			
March 1989	£1.50	3236	<input type="checkbox"/>
April 1989	£1.50	3237	<input type="checkbox"/>
May 1989	£1.50	3238	<input type="checkbox"/>
June 1989	£1.50	3239	<input type="checkbox"/>
July 1989	£1.50	3240	<input type="checkbox"/>
August 1989	£1.50	3241	<input type="checkbox"/>
September 1989	£1.50	3242	<input type="checkbox"/>

Add 50p per issue Europe & Eire / £2 Overseas

Fun School 2

(see page 39)

Under 6 years	£9.95	3087	<input type="checkbox"/>
6 to 8 years	£9.95	3088	<input type="checkbox"/>
Over 8 years	£9.95	3089	<input type="checkbox"/>

Add £2 per program for Europe & Eire/£5 for Overseas

Zenon

£4.95 3143

Add £2 per program for Europe & Eire/£5 for Overseas

Clogger

£4.95 3144

Add £2 per program for Europe & Eire/£5 for Overseas

Orbital

£4.95 3145

Add £2 per program for Europe & Eire/£5 for Overseas

DTP Yearbook

£9.95 0505

Add £2 for Europe & Eire/£5 Overseas

Arcade Game Creator

includes full documentation (see page 34)
£9.95 3096

Add £1 for Europe/Overseas

Cheat it again Joe £p

Volume 1	£2.99	3094	<input type="checkbox"/>
Volume 2	£2.99	3095	<input type="checkbox"/>
Volume 3	£2.99	3142	<input type="checkbox"/>

Add £2 per program for Europe & Eire/£5 for Overseas

Educational Bundle

ALL THREE Fun School 1 PLUS Nursery Rhymes (see page 16)
£9.95 3084

Add £3 for Europe & Eire / £7 Overseas

Simply Superior

(see page 2)

	NEW
Repton Infinity	£9.95 3153 <input type="checkbox"/>
Elite	£9.95 3154 <input type="checkbox"/>
The Last Ninja	£7.95 3155 <input type="checkbox"/>
Barbarian	£7.95 3156 <input type="checkbox"/>

Add £2 per program Europe & Eire/£5 Overseas

10 of the Best Education programs

(see page 33)
£5.95 3063

Add £1 for Europe/Overseas

Magazine binder

£3.95 3059

Add £3 for Europe & Eire/£7 for Overseas

Books

(see page 20)
All three books £7.95 3061

Add £3 for Europe/Overseas

Transparent Calculator

(see page 12)



Tick here if you are ordering the calculator £7.95 3020
Tick here if you are spending £25 or more on reader offers (excluding subscriptions) and wish to claim your FREE calculator 3021
Add £1 Europe & Eire/£2 for Overseas

Readers in Europe (inc Eire) add £2. Overseas add £5 per item unless otherwise indicated

TOTAL



Send to:

**Database Direct, FREEPOST,
Ellesmere Port, South Wirral L65 3EB**

(No stamp needed if posted in UK) Please allow 28 days for delivery

Order at any time of the day or night

Telephone: 051-357 2961

Orders by Fax:
051-357 2813

Orders by Prestel:
Key *89, then 614568383

Orders by MicroLink:
MAG001

Don't forget to give your name, address and credit card number

Payment: please indicate method (✓)

Access/Mastercard/Eurocard/Barclaycard/Visa

Expiry Date

No.

Cheque/Eurocheque made payable to Database Publications Ltd.

Name Signed

Address

Post Code

Tel EU10

◀ From Page 36

```

950 LDArobx,Y:SEC:SBCmanx:BEQhr
osh:BCCroshr:LDA#&FF:JMPshrosh:.ro
shr LDA#1:.hrosh STAfdx
960 LDAroby,Y:SEC:SBCmany:BEQvr
osh:BCCroshd:LDA#&FF:JMPvrosh:.ro
shd LDA#1:.vrosh STAfdy:JMPfire
970 .robdir LDYtr:LDArobdx,Y:BN
Evert
980 JSRfolhor:BCCrts:JSRfolver:
BCCrts:JSRawahor:BCCrts:JMPawaver
990 .vert JSRfolver:BCCrts:JSRf
olhor:BCCrts:JSRawaver:BCCrts:JMP
awahor:.rts RTS
1000 .folhor LDYtr:LDA#0:STARobd
y,Y:LDArobx,Y:CMpmanx:BCSrlft:BC
Crright
1010 .awahor LDYtr:LDA#0:STARobd
y,Y:LDArobx,Y:CMpmanx:BCSrright
1020 .rlft LDA#&FF:STARobdx,Y:J
MProbc
1030 .rright LDA#1:STARobdx,Y:JM
Probc
1040 .folver LDYtr:LDA#0:STARobd
x,Y:LDAroby,Y:CMpmany:BCSrup:BCCr
down
1050 .awaver LDYtr:LDA#0:STARobd
x,Y:LDAroby,Y:CMpmany:BCSrdwn
1060 .rup LDA#&FF:STARobdy,Y:JMP
robc
1070 .rdwn LDA#1:STARobdy,Y
1080 .robc LDArobx,Y:CLC:ADCrobd
x,Y:CMp#37:BCSeorc:LDAroby,Y:CLC:
ADCrobdy,Y:CMp#27:.eorc RTS
1090 .mhr LDY#0:.mhrL LDArobf,Y:
BEQnxmhr:LDArobx,Y:SEC:SBCmanx:CL
C:ADC#1:CMp#3:BCSnxmhr
1100 LDAroby,Y:SEC:SBCmany:CLC:A
DC#1:CMp#3:BCSnxmhr:LDA#&FF:STAd
ad:.nxmhr INY:CPYrobots:BCCmhrL:R
TS

```

```

1110 .score EQU00:.lives BRK
1120 .insc SED:LDAscore:CLC:ADC#
1:STAscore:LDAscore+1:ADC#0:STAsc
ore+1:CLD
1130 LDAscore:BNEnilv:LDAscore+1
:AND#1:BNEnilv:LDAives:CMp#9:BEQ
nilv:INClives:JSRplvs:.nilv RTS
1140 .psc LDA#30:JSR&FFEE:LDA#10
:JSR&FFEE
1150 LDAscore+1:JSRbyte:LDAscore
:JSRbyte:LDA#48:JMP&FFEE:.byte TA
X:LSRA:LSRA:LSRA:LSRA:JSRnib:TXA:
AND#&F:.nib CLC:ADC#48:JMP&FFEE
1160 .plvs LDA#31:JSR&FFEE:LDA#9
:JSR&FFEE:LDA#1:JSR&FFEE:LDAives
:JMPnib
1170 .pow LDApowf:BNepow2:DECpow
t:BEQpow1:RTS
1180 .pow1 JSRrandom:AND#31:CLC:
ADC#2:STApowx:JSRrandom:AND#15:CL
C:ADC#5:STApowx:LDA#50:STApowt:LD
A#1:STApowf
1190 LDA#7:LDX#pows1 MOD256:LDY#
pows1 DIV256:JSR&FFF1:JMPpow3
1200 .pow2 BITpowf:BPLpow3:RTS
1210 .pow3 LDXpowx:LDYpowy:JSRca
lc:LDAmanx:SEC:SBCpowx:CLC:ADC#1:
CMp#3:BCSpow3a:LDAmany:SEC:SBCpow
y:CLC:ADC#1:CMp#3:BCCpow3b
1220 .pow3a DECpowt:BEQpow3c
1230 LDAcad:STAns:LDAcad+1:STAns
+1:LDA#&20:STAd:LDA#&A:STAd+1:LDX
#2:LDY#16:JMPprint
1240 .pow3b LDA#7:LDX#pows2 MOD2
56:LDY#pows2 DIV256:JSR&FFF1:LDA#
&FF:STApowf:LDA#20:STApowt:JSRins
c:JSRinsc:JSRpsc:JMPpow3d
1250 .pow3c LDA#0:STApowf:LDA#70
:STApowt
1260 .pow3d LDAcad:STAns:LDAcad+
1:STAns+1:LDX#2:LDY#16:JMPdelete
1270 .pows1 EQUW3:EQUW2:EQUW0:EQ
UW5:.pows2 EQUW3:EQUW2:EQUW30:EU

```

```

W5
1280 .main LDA#0:STAddead:LDAspee
d:STATimer
1290 .mainloop LDA#&81:LDX#&8F:L
DY#&FF:JSR&FFF4:TYA:BEQnasc:LDA#2
7:STAddead:RTS:.nasc
1300 JSRmanmv:JSRbullets:JSRmhr:
JSRshoot
1310 JSRwait
1320 JSRbullets:JSRmrvrobs:JSRmhr
:JSRpow:JSRwait:LDArobh:CMpProbs
:BCSdone:LDAdead:BEQmainloop:.don
e RTS:.wait BITtimer:BMiwait:LDAs
peed:STATimer:RTS
1330 JNEXT:ENDPROC
1340 DATA12703103,7070310,84840C
08,E0E0C80,70717FF,30100003,E0E0E
8E,8080800C,12703103,7070310,8484
0C08,E0E0C80,70717FF,60202003,E0E
DE8E,C040400C
1350 DATA12120301,7070310,84E0C8
0C,E0E0C80,7070717,10101003,E0E8E
FF,C080000C,12120301,7070310,84E0
C80C,E0E0C80,7070717,30202003,E0E
8EFF,6040400C
1360 DATA21030303,7070310,480C0C
0C,6E0E0C80,7074767,60202003,E0E0
E2E,60400C,21030303,67070310,480C
0C0C,E0E0C80,7070747,602003,E0E2E
6E,6040400C
1370 DATA30121303,47470310,C0848
C0C,2E0E0C80,70747AF,602003,E2E5F
2E,6040400C,30121303,47070310,C08
48C0C,2E2E0C80,747AF47,60202003,E
0E2E5F,60400C
1380 DATA33314080,77755777,CCC82
010,EEEEAE,33775747,80406031,CC
EE6E2E,102060C8,25163030,F2B68596
,E2E2C0C0,F8F8F0F0,F0F0F1F2,30307
474,1E1E5AF8,C0C0E00E
1390 DATAF060000,60F0F0,DBBDBBFF,
F8DBBDBB,6B6B6B0F,F6B6B6D,F0F0600
0,60F0

```

ELECTRON SPARES

- Acorn Data Recorders£24.99
- Electron Mains Power Unit£9.95
- Internal Powerboard£7.50
- Cassette Leads (7 Din - 3 Jacks) ..£3.99
- Printer Leads (Parallel)£4.99
- Complete Keyboard Assembly
(inc keytops)£12.99
- Keyboard Key Switches
(Pack of 5)£1.99
- Keytops (complete set)£4.99
- Cases (Top & Bottom Complete) ..£7.50

GRACAR

Unit 6 Acacia Close
Leighton Buzzard
Tel: 0525 383074

TURBOCON

THE TURBO TAPE SYSTEM
FOR THE
ACORN ELECTRON

Turbocharge your tape software with Turbocon and drastically reduce loading times by up to 44%. For example a program which normally takes four minutes to load, can be made to load in under two and a half minutes.

Turbocon is compatible with 99% of software and is very easy to use. Full instructions are included.

TURBOCON is available on CASSETTE for £4.95
(UK price all inclusive - Overseas add 70p)

Please make Cheques/P.O.'s payable to J M GOODRIDGE and send with name & address to:-
TWYNTREE

20 HAZELWOOD AVENUE, GARFORTH, LEEDS, YORKSHIRE, LS25 2AW

A1 COMPUTER SERVICES

For your Computer Repairs
and Supplies

We are Authorised Amstrad Dealers and also an authorised Microvitec Service Centre.

Used Equipment bought and sold.

We also supply ribbons and discs at discount prices

9 PADDOCK MOUNT, DAWLEY,
TELFORD, SHROPSHIRE. TF4 3PR
Tel: 0952-502737



SUPERIOR SOCCER



Taking a Corner



A Shot at Goal



Loading Screen



Team Selection

SUPERIOR SOCCER Arcade Soccer & Football Management

Superior Soccer, the most brilliant soccer game ever for the BBC Micro and Acorn Electron computers, combines the best game-play features of arcade soccer games with the best strategic features of football management games. You can choose to play either the action-packed arcade game or the challenging football management game, or, for the ultimate in football excitement and realism, you can play the combined arcade and management game. So you can choose to be a player, a manager or a player-manager!

ARCADE SOCCER FEATURES

- Heading, passing, dribbling, sliding tackles, corners, throw-ins, goal kicks
- One and two-player options - play against a friend or the computer
- Full pitch scanner shows the positions of all players and the ball
- Control of playing time, game-skill and team colours
- Full on-screen time and score information and game comments

FOOTBALL MANAGEMENT FEATURES

- Four divisions with promotion and relegation
- Full season of games - home and away matches and FA Cup
- Transfers - sell players, and buy if you have the cash
- Choose your team according to strengths and skills
- Build up your finances and success by skill and clever strategy

BBC Micro Cassette £9.95

Acorn Electron Cassette £9.95

BBC Micro 5 1/4" Disc £11.95

BBC Master Compact 3 1/2" Disc £14.95

(Compatible with the BBC B, B+ and Master Series computers)

Please make cheques payable to "Superior Software".

(The screen pictures show the BBC Micro version of the game.)

SUPERIOR SOFTWARE
Limited

ACORNSOFT

(Acornsoft is a registered trademark of Acorn Computers Ltd. Superior Software Ltd is a registered user.)
Dept. SSC1, Regent House, Skinner Lane, Leeds LS7 1AX. Telephone: (0532) 459453

Available from

WHSMITH
and all major dealers



24 HOUR TELEPHONE
ANSWERING SERVICE FOR ORDERS

OUR GUARANTEE

- All mail orders are despatched within 24 hours by first-class post.
- Postage and packing is free.
- Faulty cassettes and discs will be replaced immediately. (This does not affect your statutory rights)