

POPULAR

4024 Only 50p.

Computing

with Home Computing Weekly

9-15 January 1986

It's the best selling weekly

Vol 5 No 2

Acorn launches new generation of BBCs

ACORN is launching a new range of BBC micros this week - five machines in total, all based around a 'foundation' model which will replace the BBC B Plus.

The foundation machine is a 128K, 8-bit model based on

the CMOS low power version of the 6502 chip, the 65C12. "This is the base for a new generation of BBC micros," said Bob Coates, Acorn's product manager for the BBC series. "It looks broadly similar to the existing BBC B Plus, and will be compatible with the majority of current BBC software. You can never get 100% compatibility - but this will be about 80% compatible."

"It has a number of key additional features - for example the cartridge sockets are on top of the machine for sideways Roms, so there is no need to open up the micro. The 65C12, running at 2 Megahertz, is also faster than the existing machines."

The new 128K BBC micro - Acorn would not disclose its name - will be priced at

around £500. The package also contains £160 worth of firmware, including View, Viewsheet, the advanced disc filing system, and the VT100 terminal emulator.

The second machine in the new range is a 16-bit micro running MS-DOS, with 512k of memory. It will be available as an upgrade to the foundation machine, achieved by unscrewing the circuit board and placing the co-processor board which runs on the Intel 80186 chip. This will also cost about £500.

The third is a 32-bit machine, with 1 Megabyte of Ram, using the 32016 chip. This upgrade is intended primarily for the scientific research market, and will cost around £1,000.

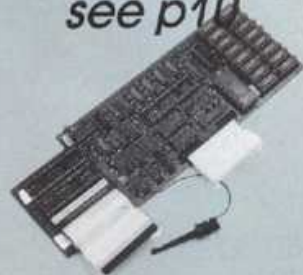
The fourth in the series strips the 'foundation' BBC

down to an Econet terminal, and the fifth is a co-processor

continued on page 4▶

*Want to
expand
your
Amstrad?*

*Vortex goes
on trial
see p10*



THIS WEEK'S NEWS

- Soft Aid successor launched
- Commodore closes Corby plant
- US Gold takes on Ultimate



QUICKSILVA is currently working on a game based on the TV film portraying Max Headroom, the allegedly computer-generated TV host.

The game is largely based around a chase sequence in the film, where Max Headroom, in his previous incarnation of Elliott Carter, is being pursued through the TV station Channel 23's building by two would-be assassins.

Max Headroom is due to be launched at the end of February, on the Spectrum, Amstrad and Commodore machines. It will cost £8.99.

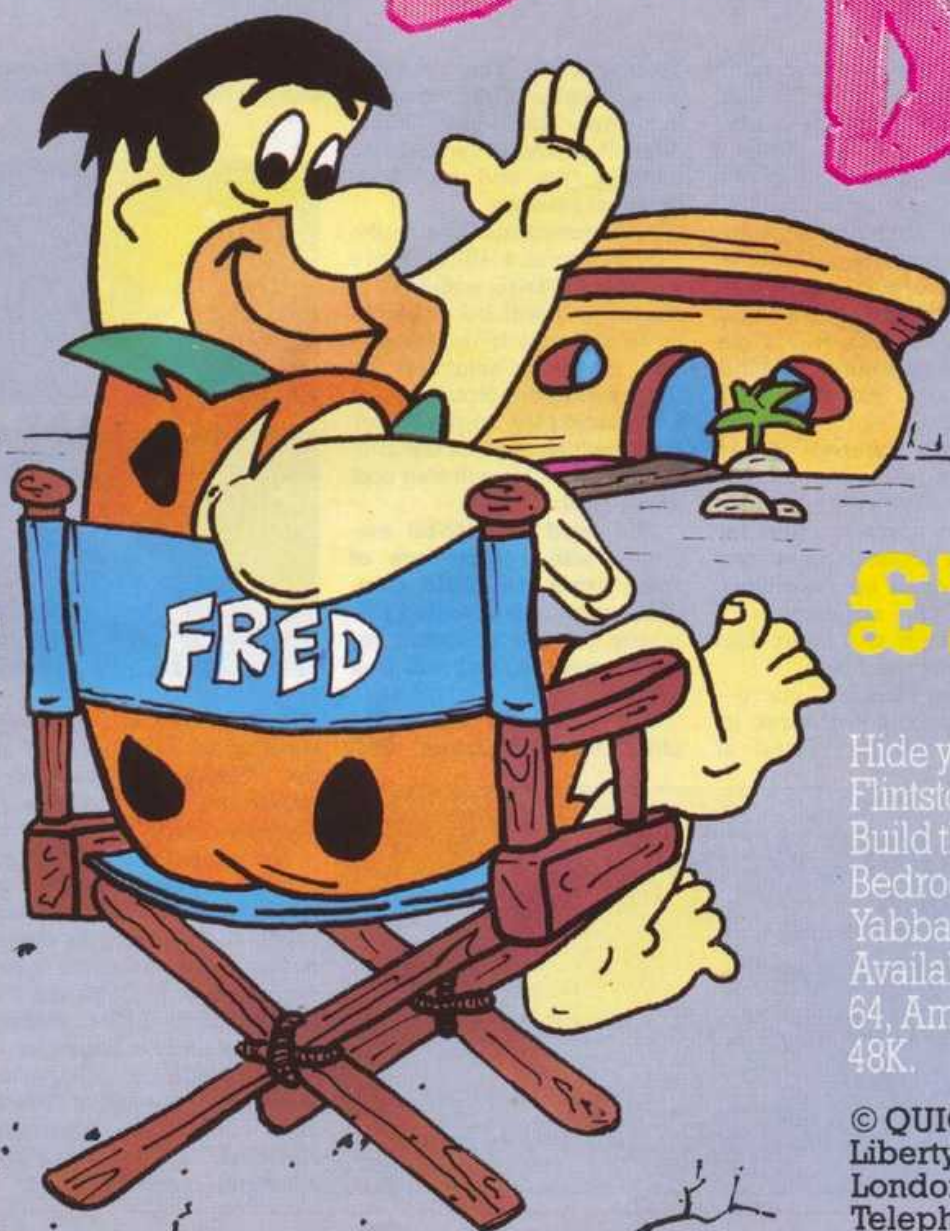
INSIDE ▶ START COLLECTING THE COUPONS NOW! SEE P12 ▶

QUICKSILVA

The most powerful games in the Universe

**'NOW AVAILABLE FOR
THE SPECTRUM AND
THE AMSTRAD'**

YABBA DABBA DOO!



£7.99

Hide your pterodactyl - Fred
Flintstone is about to create!
Build the beginnings of
Bedrock in
Yabba-Dabba-Doo!
Available for the Commodore
64, Amstrad and Spectrum
48K.

© QUICKSILVA LIMITED
Liberty House, 222 Regent Street,
London W1R 7DB.
Telephone 01-439 0666

4 NEWS

New charity tape launched

10 HARDWARE

A look at the Vortex expansion board for the Amstrad

14 SOFTWARE

QL Flight Simulator and Micro-Prolog on the Commodore 64

17 SPECTRUM

Define a new Basic command

18 COMMODORE

Airfox - a game for the Vic-20

20 AMSTRAD

A game for children to learn to tell the time

22 THE QL PAGE

A potted guide to the QL's keyboard

24 BBC

A no frills implementation of a find facility



Max Headroom - see page one

9 Letters

12 Codewords

25 Bytes and Pieces

27 Arcade Avenue

28 Adventure Corner

35 Charts

36 New Releases

36 This Week

38 Puzzle, Ziggurat Hackers

EDITORIAL

Commodore's decision to stop manufacturing in Britain is bad news, both for the company and the Corby community.

The Corby plant was Commodore's centre for assembly of home micros for the European market.

Its closure implies a move away from the low end market for Commodore.

With the Commodore 64 now looking somewhat long in the tooth and its successor already available, and the struggle of the C16 and Plus/4 to attract attention, the company is pinning all its hopes firmly on Amiga's mast.

The closure almost certainly means the end of the C16 and Plus/4, which were assembled exclusively at Corby.

The C16's low specification and the inadequacies of the Plus/4 failed to attract volume sales and have accounted for a good part of Commodore's disappointing financial results during the last nine months.

Now the company is to concentrate on the highly automated plants in West Germany and the Far East, and the Amiga technology, which Commodore hopes, will help it regain its position as a world leader.

Commodore's Vic 20 was a pioneer of computing power at very low cost for the home user.

It will not be looking again for launches at that end of the market for a very long time to come.

Editor Christina Erskine Features editor Graham Taylor Software editor John Cook Production editor Lynne Constable Editorial secretary Lucinda Lee Advertisement manager Jeff Raggett Advertisement Executive Diane Holyoak Advertisement executive David Osen Administration Geraldine Smyth Managing editor Peter Worlock Publishing director Jenny Ireland. Published by Sunshine Publications Ltd, 12-13 Little Newport Street, London WC2H 7PP. Tel 01-437 4343 Telex 296275 Typeset by Publishers Reprographics Services Ltd, 4 Roger Street, London WC1. Printed by Greenaway Harrison, Sutton Road, Southend-on-sea, Essex. Distributed by SM Distribution, London SW9. Tel 01-274 8811, Telex 261643 © Sunshine Publications Ltd 1985.

ABC

86,052 copies sold every week
(Jan-June 1984 ABC).

Popular Computing Weekly. Tel: 01-437 4343.

How to submit articles Articles which are submitted for publication should not be more than 2000 words long. The articles, and any accompanying programs, should be original. It is breaking the law of copyright to copy programs out of other magazines and submit them here - so please do not be tempted. **Accuracy** Popular Computing Weekly cannot accept any responsibility for any errors in programs we publish, although we will always try our best to make sure programs work.

Computer Trade Association Magazine of the Year



ADVERTISEMENT

'With the power and flexibility of its graphics and sound, the Enterprise deserves to be a runaway success' - Ahern



New BBCs from Acorn

◀ continued from page 1

board containing the 68C102 chip. Under the name of Turbo, and costing £125, it simply provides a faster version of the base micro.

Bob Coates stressed that the new machines will not immediately herald the end of the BBC B Plus in its 64k and 128K versions, the BBC B 32K having already been discontinued. "The B Plus will remain available as long as is economic," he said. "Some people will prefer to have the traditional BBC, though we do expect them to move fairly swiftly over to the new models - they are better value for money. We will phase it out when appropriate, but not just yet."

US Gold takes on Ultimate

US GOLD has announced it has taken on all marketing, publishing and manufacture for Ultimate Play the Game's titles, under a contract initially running for one year.

This move follows some confusion when reports saying that British Telecom were to fulfil this role were published (see *Popular Computing Weekly*, December 26).

Under the terms of the US Gold/Ultimate agreement, Ultimate will write at least six Spectrum games during 1986 (titles for other machines are not fixed by the contract), which US Gold will publish and market, as well as organising conversions to other machines. Conversions

to the Commodore 64, Amstrad and possibly the BBC are planned. Ultimate apparently wants to concentrate on writing for the Spectrum - including the Spectrum 128 - in the coming year.

"It's a very similar deal to the licensing contracts we have with American companies," said US Gold's general manager Tim Chaney. "We will be licensing six or more games and doing conversions, and we also have taken control of Ultimate's existing inventory. The people at Ultimate will now have no contact with marketing, and will continue just as a programming team. We will be paying them on a royalty basis."

The first Ultimate titles to be released by US Gold will be *Dragon Skulle* for the Commodore 64, which is due out this month, followed by *Pentagram* and *Cyberrun* for the Spectrum in February. All titles will cost £9.95.

Supersoft improves the image

IMAGE-CONSCIOUS owners of Commodore 64s and 128s should be interested in a new peripheral from Supersoft. The Print-Technik video digitiser allows your micro to capture a video image from a video camera, recorder or other source and display it on-screen.

Pictures are displayed in four colours - the default is black, white and two grey shades, but any of the 64's 16 colours can be used. Resolution is 256 x 256 pixels, although only 160 x 200 can be shown on screen at once.

Corby plant shut by Commodore

COMMODORE is to close its factory in Corby with the loss of 250 jobs. The decision means that the company no longer has any British manufacturing facility.

The decision, according to Commodore International's president, Thomas Rattigan, is because "Commodore is going to increasingly depend on fewer and higher technology plants. Corby, being essentially an assembly plant, does not easily fit into this strategy."

Two hundred jobs are being lost at the assembly plant itself, which Commodore opened only 18 months ago with the intention of creating 1,000 jobs. A further 50 people will be made redundant at

the administrative headquarters in Corby, where there have been some managerial changes.

The closure leaves the future of the C16 and Plus/4 machines very unclear. They were assembled solely at Corby, and although one Commodore executive said last September that their manufacture would probably cease at the beginning of 1986, Chris Kaday, now sales and marketing director, thinks otherwise.

"The C16 and Plus/4 have recently been very successful, although rather late in their lifetime. We will be assessing the demand for these products and I do not see why we cannot continue produc-

tion if the demand is there."

Commodore 64s and 128s, also assembled at Corby, will probably now be entirely made at Commodore's German plant in Braunschweig. The closure will not, however, affect production of Commodore's PC 10 and PC 20, nor the Amiga. None of these were intended for assembly at Corby.

Commodore's UK's general manager, Nick Bessey, expressed regret at the redundancies: "Naturally we greatly regret the impact of this decision on workers who will lose their jobs, but we have been forced to recognise that difficult decisions must be taken in the aggressively competitive marketplace that exists."

However, despite the pull-out in Britain, Chris Kaday asserted that Commodore still expected to show a profit in the current quarter, which will take in the Christmas period.

Commodore may well have to pay back government grants as a result of the closure - Corby is an enterprise zone and financial incentives are often given to companies setting up there.



Once captured, images can be stored on disc or cassette, or printed out on a range of dot-matrix printers including Epson and Commodore models.

The disc-based version costs £149.95, with the cassette version to follow soon. Supersoft can be contacted on 01-861 1166.

Game designer from Activision

ACTIVISION has announced a game creation package for the Commodore 64.

Gamemaker will provide you with a set of tools - including sprite and screen designers, sound generator and music editor - which allow you to create your own arcade games.

The program will be avail-



able in March, priced at £9.99 on cassette and £14.99 on disc.

More games for the Mac

THE SELECTION of games software for the Apple Macintosh is growing, the latest is Sir-Tech's *Wizardry*.

Wizardry is a dungeons and dragons adventure with animated graphics. The package is distributed by Softset at a retail price of £51.55.

Soft Aid follow-up launched over dinner

FOLLOWING the success of *Soft Aid*, which has now raised over £350,000, a second charity tape was launched at the Guild of Software Houses/International Society of Software Artists dinner last month. The tape is again to be organised and set up by Rod Cousens, managing director of Electric Dreams Software, who masterminded *Soft Aid*.

A new compilation tape is to be released, entitled *Off the Hook*. Proceeds from its sale will go to the Princes Trust for Drug Abuse Rehabilitation.

Although the tape has not yet been released, already £16,500 has been raised. A bottle of champagne was auctioned at the dinner, and 14 software houses placed a corporate bid of £14,000 to buy it. One thousand pounds was raised in a cash collection at the dinner, and profits of £1,500 from the evening make

up the total amount raised so far. Commodore has also donated an Amiga system to be sold by auction.

As yet, the programs to be included on *Off the Hook* have not been finalised. "Nine companies have pledged to donate at least one



of their titles," said Rod Cousens. "These are Activision, US Gold, Ocean, Gremlin Graphics, Ultimate, Firebird, Melbourne House, Elite and Beyond.

"However, I am planning to release *Off the Hook* on the Spectrum, Commodore,

Amstrad and BBC machines, so I am hoping that companies which have a strong catalogue on the BBC will also participate."

Off the Hook will cost £6.99 on all formats, and Rod Cousens hopes that all implementations will be released in March. Of the £6.99, about £4.00 will go directly to the Princes Trust.

"I would hope that we can raise around £100,000 with

Firebird, Newsfield, Melbourne House, Computer Trade Weekly, Centresoft, Gremlin Graphics, Electric Dreams, Epyx, Ocean, Activision, US Gold and Beyond bosses raised £14,000 for one bottle of champagne.

Off the Hook," Rod continued. The money raised through sales of *Off the Hook* will be held by Lightning Distribution in a separate bank account, which has already been set up. A committee will make monthly payments to the Princes Trust.

Over 100 new products at Amstrad show

THE SECOND Amstrad Computer Show takes place this weekend at the Novotel in Hammersmith, London W6.

Organiser Database Publications is expecting over 100 new products to be launched at the show. These include Screen Micros' MS-DOS board for the Amstrad CPC 6128, which will give Amstrad owners IBM compatibility.

DK'Tronics will be showing its Amstrad peripheral range. The Electric Show will show a prototype of a digital tracer and Northern Computers will introduce its hard disc network system.

New software will be launched by Amsoft (a graphic adventure range), Hi-Soft (Catalog, which will keep track of disc files) and Cambrian (a database for the PCW 8256 at £39) among others.

The show will open on Saturday and Sunday, January 11 and 12, at 10 am.

NEW FUTURE SOFTWARE BUY DIRECT AND SAVE £££££ ON THESE BACK CATALOGUE BARGAINS

SPECTRUM

	RRP	OUR PRICE
SON OF BLAGGER	7.95	2.50
GYRON	9.95	4.95
AIRLINER	6.95	1.99
MANIC MINER	6.95	1.99
ZENJI	9.95	3.95
SKOOL DAZES	6.95	2.95
SPACE SHUTTLE	9.95	3.25
AZTEC	9.95	4.25
JASPER	6.95	2.50
BRIAN BLINDAKE	7.95	3.59
BMX JUNGLE BIKE	3.95	2.95
MATCHPOINT	7.95	3.25
AMERICAN FOOTBALL	9.95	3.95
BEACH HEAD	7.95	2.95
GHOSTBUSTERS	9.95	3.99

BBC

TARZAN	7.95	2.99
SPIDERMAN	9.95	1.99
HULK	9.95	1.99
SON OF BLAGGER	8.95	2.50
SYSTEM 1500	14.95	2.99
GRAPHICS PACK	9.95	2.99
ELITE	14.95	7.95
SABRE WOLF	9.95	3.95
ROBOMAN	7.95	2.99

ELECTRON

BANDIT AT 3 O'CLOCK	7.95	2.95
JET POWER JACK	7.95	2.95
GHOLLS	7.95	2.95
SHUFFLE	2.99	1.99
SPACE SHUTTLE	9.95	3.25
737 FLIGHT SIM	9.95	3.25

ATARI 400/800

ARENA 3000	6.95	2.99
CUTHBERT/WALKABOUT	6.95	2.99
DANGER RANGER	6.95	2.99
MR DIG	6.95	2.99
PENGON	6.95	2.99
SPACE SHUTTLE	8.95	3.50

COMMODORE 64

	RRP	OUR PRICE
HYPERCIRCUIT	8.95	2.99
CAD CAM WARRIOR	8.95	2.50
LOCO	7.95	2.50
ROCKET ROGER	7.95	2.99
WATERSKI 3D	7.95	2.99
PC PUZZ	8.95	2.50
MUTANT MONTY	7.95	2.50
WORLD CUP FOOTBALL	7.95	2.50
POSTER PASTER (disk)	9.95	4.25
GUROPOD (disk)	9.95	4.25
BOZO'S NIGHT OUT (disk)	3.95	2.95
TALES OF THE CAT	3.95	2.95
AMERICAN FOOTBALL	9.95	3.95
TORNADO LOWLEVEL	7.95	3.25
ASTROCHASE	9.95	3.25
SNOKIE	9.95	2.99
GUARDIAN	8.95	2.99

COMMODORE C16

ARENA 3000	6.95	2.99
CUTHBERT IN SPACE	7.95	2.99
RAIDERS	3.95	2.99
CUTHBERT IN TOMBS	6.95	2.99
CASTLE DRACULA	6.95	2.99
CUTHBERT IN COOLER	6.95	2.99
WILLIAMSBERG ADV/3	5.95	2.50

VIC 20

TURBOGRID	5.95	1.99
COSMADS	6.95	1.99
ASTERIODS	5.95	1.99
JUMPIN JACK	7.95	2.95
HELLGATE	7.95	1.99
SNACKMAN	6.95	2.25
CHOPPER	7.95	1.99

AMSTRAD

HUNTER KILLER	8.99	2.99
LINKWORD GERMAN	14.99	3.99
LINKWORD FRENCH	14.99	3.99
CASTLE OF THE SKULL LORD	7.95	1.99

ACCESSORIES

QUICKSHOT 2	6.95	ZIP STICK C16	10.95
QUICKSHOT 1	3.95	ZIP STICK ELECTRON	22.95
C16 JOYSTICK ADAPTORS	2.99	SURE SHOT STD JOYSTICK	13.95
SPECTRUM SWITCH/INTERFACE	9.95	BBC JOYSTICK INTERFACE	3.50

10% discount for orders £30 or over. This is just a small selection of games on offer. Send now for our seven page catalogue S.A.E. please. BFPO & Overseas orders deduct 13%.

ALL PRICES INC VAT & P&P.
CHEQUES POSTAL ORDERS TO:
NEW FUTURE SOFTWARE
and send to:
30 Wilson Street, Carlisle, Cumbria

PLEASE STATE 2ND CHOICE TO AVOID DISAPPOINTMENT

PD630A

LORD TOFF



His Knee Drops can really put a guy's nose out of joint.

ROCK'N WRESTLE



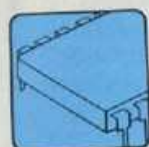
The COMPLETE

PART 1

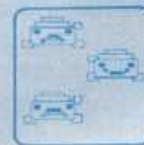
SPECTRUM

All you want to know about the world's best-selling computer

A Database
Publication

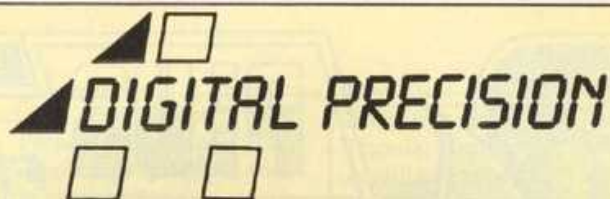


**AT LAST! The partwork more than 2 million
Spectrum owners have been waiting for!**
PART 1 NOW ON SALE AT YOUR NEWSAGENTS



In six monthly parts

£1.50



THE BEST SOFTWARE FOR THE QL!

ALL DIGITAL PRECISION SOFTWARE IS AVAILABLE NOW. ALL DIGITAL PRECISION SOFTWARE IS COMPATIBLE WITH ALL VERSIONS OF THE QL AND WITH ALL MEMORY EXPANSION AND DISK INTERFACE SYSTEMS.

SUPERCHARGE, THE FULL SUPERBASIC COMPILER..... £59.95

INSTANT MACHINE CODE ON YOUR QL!!

SUPERCHARGE CONVERTS BASIC PROGRAMS (EVEN HUGE ONES) INTO COMPACT MACHINE CODE, **COMPLETELY AUTOMATICALLY** - YOU NEED NO SPECIALISED KNOWLEDGE AT ALL. BREATHTAKING EXECUTION SPEED IMPROVEMENTS OF UP TO **100 TIMES** (STANDARD BENCHMARKS). LOADING TIMES FROM MICROCARTRIDGE IMPROVED FROM 3-4 MINUTES TO UNDER 10 SECONDS. UNIQUE OPTIMISING FEATURES. SUPPORTS THE **ENTIRE SYNTAX** OF SUPERBASIC. PRODUCES STAND-ALONE TASKS (IE, COMPILER NEED NOT BE PRESENT AT RUN TIME) THAT ARE FULL **MULTITASKING**. SUPPORTS VIRTUALLY ALL EXTENSIONS AND ADD ON UTILITIES. CORRECTS MOST INTERPRETER BUGS. DETAILED DIAGNOSTIC ERROR MESSAGES FOR BOTH COMPILE TIME RUN TIME, GIVING EXACT (POSITION WITHIN STATEMENT!) LOCATION. FULLY DOCUMENTED IN 105 A4 PAGE USER MANUAL. "EXCELLENT" IS WHAT COLIN OPIE (THE MCGRAW HILL TECHNICAL AUTHOR) SAID ABOUT SUPERCHARGE. EIDERSOFT SAID "!!" . . . A CULT HAS BEGUN.

SUPERFORTH + REVERSI, A COMPLETE FORTH - 83 SYSTEM £29.95

PRODUCES STAND ALONE MACHINE CODE AUTOMATICALLY!

FULLY MULTIASKING, ULTRAFAST (**50 TIMES FASTER THAN BASIC**). FULL FORTH SYSTEM WITH A 100 A4 PAGE USER GUIDE. NO PRIOR KNOWLEDGE OF FORTH NEEDED. LOTS OF ADDITIONAL FEATURES. COMES WITH FULL SCREEN EDITOR AND INTERACTIVE DEBUGGER/ERROR HANDLER. FULLY INTEGRATED WITH QDOS. UNLIKE ITS COMPETITORS, SUPERFORTH SUPPORTS WINDOWS, SOUND, PERIPHERALS, DEVICE INDEPENDENCE, GRAPHICS ETC. SUPPLIED WITH SUPERFORTH IS A FULL FEATURE REVERSI WITH 9 LEVELS, 3 MODES, EXCHANGE, SET UP, RETRACT, ALPHA-BETA EVALUATION, INTERRUPT, HINT, DISPLAY THINKING ETC, ETC, WRITTEN IN SUPERFORTH AND READY TO PLAY (WE GIVE YOU THE COMMENTED SOURCE CODE AS AN ULTIMATE EXAMPLE OF A COMPLEX FORTH PROGRAM). SEARCHES THROUGH MILLIONS OF POSSIBLE LINES AT ITS HIGHER LEVELS. GUARANTEED TO BEAT "THE OTHER" REVERSI PROGRAM **EVERY TIME!! REVERSI IS ALSO AVAILABLE ON ITS OWN FOR £12.95.**

SUPER ASTROLOGER..... £24.95

VERSION 1.5 IS A FULL PERSONALITY, CHARACTER, HOROSCOPE AND PREDICTION SYSTEM, RUNNING IN HYPERSPEED (SUPERCHARGED) MACHINE CODE FROM TWO CARTRIDGES AND DRAWING ON 210K OF PROGRAM/DATA! NO KNOWLEDGE OF ASTROLOGY REQUIRED - FULL MANUAL SUPPLIED. SEVERAL DOZEN EXAMPLES PROVIDED. ALL CALCULATIONS (INCLUDING THE PRODUCTION OF 4 x A4 SINGLE SPACED SHEETS OF CHARACTER DELINEATION!) ARE FULLY AUTOMATIC. HAS **ALL** THE FEATURES: NATAL CHART, PROGRESSIONS, ASPECTS, CROSS-ASPECTS, COMPARISONS, SELF-MODIFICATION OF PERSONALITY FILES (FOR EXPERIENCED USERS) AND HOSTS OF ASTRONOMICAL FEATURES. DEFAULTS TO PLACIDUS SYSTEM. THIS PACKAGE REALLY WORKS. IT COMES COMPLETE WITH ALL YOU NEED.

SUPER SPRITE GENERATOR. VERSION 3.5, THE FULL QL GAMES DESIGNER £24.95

NOW COMPLETELY IN MACHINE CODE, WITH FULL INSTRUCTIONS ON CARTRIDGE, SSG 3.5 IS ALL YOU NEED TO PRODUCE EXCELLENT ARCADE GAMES (LOTS OF THOSE PRODUCED BY OTHER SOFTWARE HOUSES HAVE BEEN WRITTEN USING IT!) NOW **COMPLETELY FREE FLICKER FREE**, ULTRASMMOOTH ACTION, FULLY AUTOMATIC. NO KNOWLEDGE OF MACHINE CODE NEEDED (THROUGH SSG CAN BE USED FROM MACHINE CODE AS WELL AS FROM BASIC) VERY SIMPLE TO USE. (**FULLY COMPATIBLE WITH SUPERCHARGE**) SSG IS NOW BETTER THAN IT EVER WAS BEFORE. IT HAS EVERY CONCEIVABLE FEATURE!

SUPER MONITOR/DISASSEMBLER. VERSION 3.0 £18.95

THE ONE WITH ALL THE FEATURES YOU COULD POSSIBLY WANT. DETAILED INSTRUCTIONS ON CARTRIDGE. AMAZINGLY COMPACT (8K)!!

SUPER BACKGAMMON VERSION 3.0 £12.95

NOW IN HYPERSPEED MACHINE CODE (SUPERCHARGED) WITH INCREDIBLE RESPONSE TIMES AND LOAD SPEEDS. PLAYING STRENGTH GREATLY IMPROVED. FULL EVALUATION DISPLAY. 6 LEVELS, 3 MODES, EVALUATION DISPLAY, CLOCKS, DICE THROWER OVERRIDE. FOLLOWS **ALL THE RULES OF BACKGAMMON (INCLUDING DOUBLING)**. ENJOYABLE AND ENTERTAINING.

SUPER ARCADIA £15.95

TWO HYPERSPEED MACHINE CODE ARCADE GAMES (BMX BURNER A LA JETPAC; GRID RACER A CHASER GAME) TO KEEP YOUR NERVES TINGLING FOR MANY AN HOUR!

SPECIAL OFFERS!!

- * £5 OFF SUPERFORTH AND SPRITE GENERATOR AND £2 OFF MONITOR/DISASSEMBLER IF ORDERS WITH SUPERCHARGE.
- * IF YOU HAVE AN EARLY VERSION OF ANY OF OUR PROGRAMS, SEND £5 AND THE ORIGINAL CARTRIDGE (NOT PACKAGING) FOR A QUIBBLE FREE UPGRADE. USERS OF SUPERCHARGE VERSIONS 1.11 AND EARLIER, SEND £10 PLUS CARTRIDGE FOR THE LATEST VERSION.
- * £1 OFF IF YOU BUY 2 PROGRAMS, £2 OFF IF YOU BUY 3, £3 OFF IF YOU BUY 4, ETC.
- * UK DELIVERIES POST FREE. FOR DELIVERIES ABROAD: EUROPE ADD £1 (£2.50 FOR SUPERCHARGE) PER PROGRAM; ELSEWHERE £1.50 (£4). FOREIGN CHEQUES SHOULD BE EITHER EUROCHEQUES OR DRAWN ON A UK BANK.
- * PHONE ORDERS ARE ACCEPTED ON 01-527 5493. ACCESS/VISA ORDERS ARE EXCEPTED.

CUT HERE

TO: **DIGITAL PRECISION, 222 THE AVENUE, LONDON E4 9SE.**

PLEASE RUSH ME: SUPERCHARGE/SUPERFORTH + REVERSI/SUPER ASTROLOGER/SUPER SPRITE GENERATOR/SUPER MONITOR + DISASSEMBLER/SUPER BACKGAMMON/SUPER ARCADIA/REVERSI.

I ENCLOSE £.....

OR DEBIT MY ACCESS/VISA.

ACCOUNT NO:

EXPIRY DATE.....

WITH AMOUNT OF £.....

SIGNATURE.....

NAME:

ADDRESS:

cascade CASSETTE

50

**50 COMPUTER
GAMES ON
ONE CASSETTE**

**YOURS
FOR £9.95**

including FREE Watch and Postage

AMSTRAD CPC 464

Avoid the rockets and anti-aircraft guns and DYNAMITE the dam, only the most skilful pilots succeed. NEMESIS is a sophisticated version of Othello with many colourful options and levels of play. Amstrad Cassette 50 includes arcade type games, war games, adventure games, logical, tactical, and educational games, a flight simulator, and a business strategy game.

- | | | | |
|-------------------------|---------------------------|--------------------|-----------------------|
| 1. Maze Eater | 13. The King's Orb | 25. Trucking | 38. Hopping Herbert |
| 2. Cyclone | 14. Play Your Cards Right | 26. Rally 2000 | 39. Dynamite |
| 3. Handicap Golf | 15. Crazy Crawler | 27. Sitting Target | 40. Timebomb |
| 4. Run Your Attack | 16. Mangano | 28. Monkeys | 41. Day at the Races |
| 5. Royal Rescue | 17. Pontoon Bet | 29. Space Ship | 42. Lunar Landing |
| 6. Star Trek | 18. Fuzman Rescue | 30. Jet Flight | 43. Space Mission |
| 7. Whirl | 19. 20 Moves | 31. Dragons Maze | 44. Rats |
| 8. Kicker | 20. Colour 8 | 32. Intruder | 45. Motorway |
| 9. Fighter Command | 21. Backgammon | 33. Inferno | 46. Dungeon Adventure |
| 10. Draughts | 22. Solis | 34. Ghosts | 47. Space Pod Rescue |
| 11. Evasive Action | 23. Tennis | 35. Fantasy Land | 48. High Rise |
| 12. Naughts and Crosses | 24. Three Carding | 36. Space Base | 49. Craps |
| | | 37. Planets | 50. Exchange |

(Supplied on cassette, compatible with 664 and 6128 when used with cassette player and suitable leads.)

ZX 81

Even a small computer gets more from Cassette 50! You can run 39 games on just the basic 1K ZX81, while 11 more will play with the addition of a 16K expansion pack. Where else could you watch your radar instruments and judge your final approach in games like RADAR LANDING - a realistic flight simulator, or enjoy the thrills of PSION ATTACK. Logical, tactical, maze, arcade - all kinds of games on just one tape!

BBC A/B

An advanced computer like the BBC demands a sophisticated games cassette. That's why Cassette-50 gives you full use of screen modes with high resolution colour graphics, user defined graphics, excellent sound and music, joystick compatibility and many high speed games. HIGH RISE gives you the chance to beat a realistic roulette wheel, with all the extras, and you'll need the fastest reactions of all to beat EVASIVE ACTION as you trail across the screen in a frantic search for oxygen. With multi-levels and superb graphics this game is totally addictive.

ATARI

Munch, Munch... it's the MAZE EATER! Can you eat the ghosts before they eat you? Or would you rather chance it on the MOTORWAY? Your Cassette 50 is compatible with the 400/800 and 600XL/800XL series ATARI computers. Advanced features include high resolution graphics, sound, music and mixed mode screens. Many games are joystick compatible.

PLUS

**SPECIAL
FREE WATCH
OFFER...**



THE NATIONAL NEWSPAPER
MOPS
MAIL ORDER PROTECTION SCHEME

FREE 20 KEY, MULTIFUNCTION CALCULATOR WATCH

with every order
for a Cassette 50

- Normal 12 and 24 hour time mode
 - Calendar mode
 - Calculator mode
 - Alarm mode
- WORTH OVER £10**



SPECTRUM 16k/48k or +

'Incredibly frustrating!' - that's the verdict on Cassette 50's FROGGER. Satisfied users tell us it's one of the most challenging you'll find - it's almost as good as the arcade version! CARGO has you trying desperately to complete your helicopter mission under attack. Plus 48 other tactical, logical and adventure games featuring multi-coloured and user-defined graphics, scrolling and full use of the Spectrum sound capabilities.

- | | | | |
|-------------------|----------------|------------------|-----------------------|
| 1. Muncher | 13. Microtrap | 25. Laser | 39. Nim |
| 2. Ski Jump | 14. Motorway | 26. Alien | 40. Voyager |
| 3. Basketball | 15. Labyrinth | 27. Cargo | 41. Sketch Pad |
| 4. Frogger | 16. Skittles | 28. The Race | 42. Blitz |
| 5. Breakout | 17. Race Track | 29. The Skull | 43. Fishing Mission |
| 6. Crocker | 18. Ski Run | 30. Orbit | 44. Mystical Diamonds |
| 7. Startrek | 19. Tanks | 31. March | 45. Galaxy Defence |
| 8. Martian | 20. Solar Ship | 32. Bowls | 46. Cypher |
| 9. Knockout | 21. Ten Pins | 33. Raiders | 47. Jetmobile |
| 10. Boggles | 22. Cars | 34. Field | 48. Barrel Jump |
| 11. Alien Attack | 23. Stampers | 35. Draggold | 49. Attacker |
| 12. Lunar Landing | 24. Pinball | 36. Space Search | 50. Space Mission |
| | 25. Cavern | 37. Inferno | |

COMMODORE 64

Only you can save Europe from destruction! It's ROCKET LAUNCH, the thrilling war game that reproduces a European map. More ambitious? Try rescuing your crew under an ultrafast GALACTIC ATTACK and escaping back to your spaceship! Just two of the great games on your Cassette 50, featuring high resolution and user defined graphics, sprites, sound and music.

- | | | | |
|-----------------------|-----------------------|----------------------|------------------|
| 1. Maze Eater | 13. Boggles | 26. Overtake | 38. Black Hole |
| 2. Galactic Attack | 14. Pontoon | 27. Sitting Target | 39. Dynamite |
| 3. Space Mission | 15. Ski Jump | 28. Smash the Window | 40. Do You Smell |
| 4. Lunar Landing | 16. Hengmen | 29. Space Ship | 41. Derby Dash |
| 5. Plasma Bolt | 17. Old Bones | 30. Jet Flight | 42. Space Search |
| 6. Startrek | 18. Thin Ice | 31. Phase | 43. Universe |
| 7. Radar Landing | 19. Orbiter | 32. Introder | 44. Rats |
| 8. Attacker | 20. Motorway | 33. Inferno | 45. Tanker |
| 9. Galactic Dog Fight | 21. Force Field | 34. Ghosts | 46. Parachute |
| 10. Psion Attack | 22. Nim | 35. Submarines | 47. Jet Mobile |
| 11. Evasive Action | 23. Tunnel Escape | 36. Rocket Launch | 48. High Rise |
| 12. Naughts & Crosses | 24. Barrel Jump | 37. Planets | 49. The Force |
| | 25. Cannonball Battle | 50. Exchange | |

ELECTRON

Can your FORCE FIELD protect the city from Alien Attack - or maybe you have the skill to DYNAMITE the dam and flood enemy headquarters! Fifty different games with high speed, high resolution colour graphics, user defined graphics and excellent sound and music. Not to mention full use of screen modes. Fifty fast paced, fascinating games.

ORIC ATMOS

Have a go at GALACTIC ATTACK - you'll need fast reactions to beat the invaders in this all-time favourite - or if you prefer you can travel through space at warp factor 9 in SPACE MISSION, a realistic 3-D version of space warfare as seen from the cockpit of a spacecraft. Everyone has a favourite game on Cassette 50. With fifty classic and original games featuring user-defined graphics, sound effects and increasing levels of play.

VIC-20

Will it be BALLOON DODGERS, or the prize-winning DUSTMAN DAN? Play these and 40 other fabulous games - including many automatic double loaders - on your unexpanded 3.5K VIC-20. And with an 8K* or 16K** expansion cartridge you can choose from 8 additional games like STARTREK or SKULL CASTLE. Special effects user-defined graphics, super sound and music.

ORIC 1

Cassette 50 includes PLASMA BOLTS, a superb high speed version of the classic Centipede game. Watch out it's really tough!

DRAGON 32

If you like the light cycles of TRON, you'll love JETMOBILE - a thrilling 2-player game featuring high speed graphics.

APPLE

Cassette 50 gives you 50 great games to choose from including a classic STARTREK and BLAZING INFERNO.

FREE calculator watch
with every
Cassette 50
EXPRESS DELIVERY-ORDER NOW!
ONLY £9.95



Name _____
Address _____
Post Code _____
Country _____

Postage FREE in U.K. Add £1.00 for overseas orders.
Free watch and tape will be despatched within 14 days.
I enclose a cheque/ made payable to
postal order for £ _____ Cascade Games Ltd.
or through any Post Office by **TRANSCASH** (Giro No. 655 6655)
For even faster ordering when charging to Access, Barclaycard and
Trustcard Visa use our 24 hour service. (0423) 504663.

☐ VISA No. _____
COMMODORE 64 ☐ ATARI ☐ ORIC 1 ☐ BBC A/B ☐
SPECTRUM ☐ VIC 20 ☐ ZX 81 ☐ APPLE ☐
AMSTRAD ☐ ATMOS ☐ DRAGON ☐ ELECTRON ☐

Cascade Games Ltd., 1-3 Haywa Crescent,
Harrogate, North Yorkshire, HG1 5BG, England.
Telephone: (0423) 504663. Registered Number 1755554

Where are they?

As an Amstrad user, I am interested to see all the Mastertronic tapes in your charts for £1.99 each.

But can you tell me where these can be purchased? None of our local shops stock them and they are not mentioned in the lists of any of your Mail Order services.

Can you give me the name of a dealer, or the address of Mastertronic so that I can write to them direct (they never seem to advertise).

Peter Smith
19 Westover Rd
Bournemouth

Mastertronic's address is 8-10 Paul Street, London EC2. Its games can usually be found in places such as newsagents, garages, video shops, supermarkets, and motorway service stations, if you have had no luck in the computer stores.

An evil plot

I've just read *Ziggurat* (Vol 4 No. 51) and I can't let Rod Dawson's fatuous drivel go unchallenged. It really is time that the myth of jargon being designed to keep out the uninitiated was laid to rest.

A few years ago, there was no such thing as computing. As it developed, new objects, concepts and activities were brought into existence, and new words had to be invented to describe them. You might as well argue that the words tram, internal combustion engine and bus stop were jargon invented to conceal the concept of mass travel from the uninitiated.

It isn't jargon to say Rom, Ram, ULA and ASCII - those are their names! Rom is computer memory which cannot (normally) be altered, but which retains its data without power. Ram is memory which can be altered, but forgets everything when switched off. A ULA is a computer component which reduces development time and costs by being as general-purpose as possible: its final functions are determined only at the last stage of manufacture. Computers can only work with numbers internally, so we use certain numbers to represent letters and the

standard conversion from one to other is called ASCII. Four pieces of 'jargon', four simple explanations.

As for not knowing the values of mega- or giga-, the metric system is the most widespread counting and measuring system we have on this planet: if anyone doesn't know it then something is seriously wrong. Incidentally, our previous system of measurement used such non-jargon as rods, perches, miles, chains, yards and furlongs. I assume Mr Dawson can sort these into size order without looking it up.

Mr Dawson's real argument seems to be the depressingly prevalent modern one that, if something involves any effort at all, then don't bother to work at it.

You're right, Mr Dawson: we must "recognise the dynamism of the language, and not expect it to fossilise". Isn't it self-contradictory to tell people not to learn the new words, and "speak English"? Whose English - Dickens', Chaucer's, Shakespeare's or Boadicea's? Exactly when did adding words to the language become an evil plot to baffle the people?

Peter Green
London E4

Roller price

I read with interest a letter written by Mr David Cummings published in *Popular Computing Weekly* dated 19-25 December 1985, concerning Ibico Printer Ink Rollers.

I apologize for any confusion concerning the price of the replacement ink roller. I



"But officer... I only drank a thousand pounds worth of champagne!"

From Monday, January 13, *Popular Computing Weekly* will not accept any more requests for replacement Micro Magic cards. However, you may still claim prizes for cassette labels, or Amstrad CPC 6128, on your winning cards.

would like to now clearly state that the retail price for this item is £4.95, and is available only from Saga Systems.

As a point of interest, it is not necessary to obtain replacement rollers as they can easily be refilled. To do this remove the ink roller from the printer and submerge in a cup with normal stamp pad ink and a drop of washing up liquid to break the surface tension. Leave overnight, remove from cup and wipe the plastic dry.

D C White
Saga Systems
2 Eve Road
Woking
Surrey

Restrictive

I am amazed by the high rating given to Incentives' *Adventure Creator* by Tony Bridges (19 December). I had the misfortune to buy one, and found it was useless for anything except the simplest games. There are just too many restrictions on the type of game you can produce. It is no good having something easy to use if it is not flexible. Plasticine is easy to use, but you wouldn't use it to build the Forth bridge! I think the review was misleading and condescending. We can handle a diet of more than just baby-food, you know!

Fortunately I have access to a copy of *Genesis* from CRL/Camel, which is infinitely more useful. Unlike *Adventure Creator* you do not need to do all that pre-planning on paper as it is truly interactive. I'm afraid Incentive's program will not be out of its box very much.

Kevin Marks
5 Rampart Rd
Glasgow

Tony Bridge replies: To write an adventure, I want a simple, easy-to-understand utility, and Incentive's fits

the bill perfectly. There is obviously a need to have a closer look at the way in which both programs work and which would be more suitable for the job: I intend to devote a future week's corner to that look.

There's no denying that *Genesis* is very good value, particularly when one compares the prices of the two packages, but 'simple' computer programs are not necessarily 'inflexible'; on the contrary, I believe that *GAC* is more flexible than *Genesis* and there are no restrictions that I have found so far.

Spectrum defence

Taking your magazine for the first time this week, I was very pleased to read R J Peters' letter in defence of the Spectrum. I too like the single keyword entry.

February of this year was the first time I had ever touched a computer, and since then I have become very attached to my Spectrum Plus. Although tempted by the new Amstrad package, I remain faithful to the Spectrum and look forward to the 128K version.

I wonder if any of your readers have found a way to modify *Tasword* to produce 80 characters per line?

The only problem I have found with the Spectrum is that I cannot LIST programs on the Brother 1009 because of Spectrum's use of CHR\$ (128) to (255) for graphics and commands.

Programs using LPRINT require some modification for the Brother, but this is not too much trouble and the presentation is well worth the effort.

A B Wright
Thatcham
Newbury

Apologies

In our recent survey of bulletin boards (*Popular Computing Weekly*, December 12) we printed an incorrect phone number for the SWAFAX board. The correct number is 0622 850440. We apologise to everyone concerned. We have also been asked to point out that SWAFAX operates two other boards: on 0622 858304, and on 0440 820002.

Amstrad Expansion

Hardware Vortex Expansion Board
Micro Amstrad 464 Price 64K -
£99.95 (512K - £159) Supplier Screen
Micro, 6 Main Avenue, Moor Park,
Northwood, Middlesex.

If you wish your Amstrad 464 could run 6128 software or true CP/M software but the Christmas over-draft means you can't afford a new machine, then perhaps the Ram expansion from Vortex is for you. They are selling at a rate of 2,000 a month in West Germany, so they must be worth considering.

For £100 you can have a 64K Ram expansion system which will emulate a 6128, plus the software to re-configure your Amstrad CP/M to give you 62K of program area with an optional 32K printer buffer. This means you can run any standard CP/M 2.2 package on your expanded 464.

Any extra memory (a 512K board costs £159) can be configured as a Ram-disc, which on a fully expanded system is 444K formatted.

Also included is a good machine code monitor/assembler/disassembler in Rom, which can be called from Basic even in the middle of running a program and will return to the same point you called it from.

If you program in Basic the system includes a small operating system of RSX's - called by entering *bae-BOS*. Until you do, your machine is unchanged other than losing a few bytes for the RSX to boot the Bank Operating System. When called you have the following options for your extra memory:

- To store screens and recall them at up to three per second.
- To store programs and data (up to 288K and 256K respectively with a full 512K expansion).
- To set up a 32K printer spooler which operates whenever you List to the printer.

There are also commands which improve graphics control from Basic and others like *bae-GOSUB, <bank number>, <variable>* and *bae-COMMON, <list of variables>* which allow a more structured programming style than otherwise possible in standard Amstrad Basic.

So what are the disadvantages? First, it does not run CP/M+. The manufacturer considers there is plenty of CP/M 2.2 software and the demand for CP/M+ has yet to be shown, although they would do the necessary if demand rises. Secondly; you have to open up your computer to install the board, which would void the 12 month guarantee, but as a large number of 464's are over 12 months old this is not such a drawback.

Although DK'Tronics' rival memory expansion is claimed to run CP/M+ you cannot buy CP/M+ for it, and it slots on the back of the computer. Personally, I

prefer not to have my computer festooned like a Christmas tree with additions. Moreover, the DK'Tronics expansion cannot be used under CP/M 2.2 and does not give the sophistication of the Vortex extra Basic commands. The Vortex board can be easily expanded from 64K through 128K, 256K 320K up to 512K and you can get the extra memory chips yourself and plug them in (there's even a Vortex program to check if your Ram is OK).

With the Vortex board you do get a full 62K CP/M system with a 32K printer buffer and the Ramdisc option. If you want to use full size CP/M programs, like *Wordstar*, then this will be perfect. The same board will allow you to connect to

either 3.5 or 5.25 inch disc drives - even a hard disc - and these will run happily side by side with the Amstrad disc drive. If you have not yet bought a disc drive you can get a twin 5.25 drive (1.5 megabyte formatted) CP/M 2.2 system including this board for £399, with VDOS on Rom which is Amsdos compatible and an Amsdos compatible graphics package.

The Vortex expansion comes with instructions on how to install both it and the new CP/M configuration. There is also a brief guide to the software and the machine-code monitor, all contained in a slim booklet.

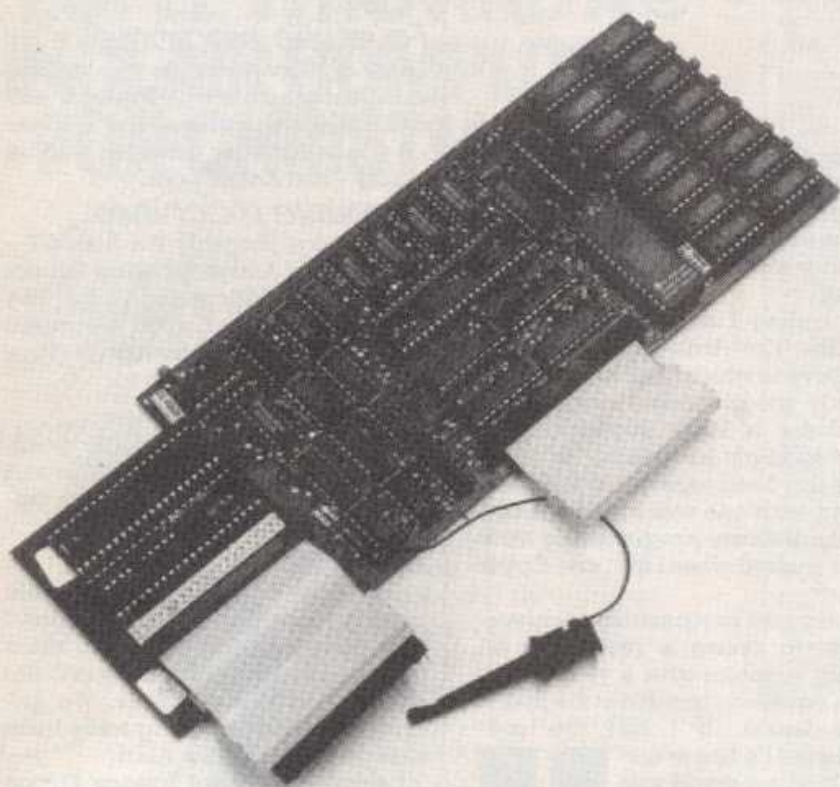
You can tell from the style and humour that it has been translated from German

(All of these are RSXs so must be typed with a bar before them)

Expanded Basic Command Set Effect

BANK, <integer>	Changes active bank.
BASIC	Returns to Amsdos, removes BOS
CALL, <integer>, <address> [parameters]	Calls machine code routine in one bank
COMMON [(, <string variable address>), <list of integers>]	Declares variables by first letter that will be common to given banks
DEV, <integer>	Determines channel for output of LIST
EMULATE	Configures Ram to emulate a 6128
FAST	Speeds up printing to screen in Mode 2
FRAME	Delays program until next frame flyback
GCHAR,x,y, <integer variable address>	Returns ASCII value of character at x,y,
GOSUB[, <integer>], <line no>	As for Amsdos except may be any bank, and line number may be a variable
GOTO[, <integer>], <line no>	As for GOSUB
GPAPER, <integer>	Changes graphics background colour
GPEN, <integer>	Changes graphics foreground colour
ID	Display status of extra memory allocation
LIST[<list of integers>]	Lists programs in all or selected banks
LOAD, <string variable address>	Loads a program into the bank(s) it was saved from
MASK, <value>	Sets mask for graphics
MON	Calls monitor/assembler/disassembler (available under BOS or just Amsdos)
NEW[<list of integers>]	As for Amsdos except you can select banks
PEEK, <integer>, <addr>, <str var addr>	As for Amsdos but you choose bank to Peek
POKE, <integer>, <addr>, <value>	As for Amsdos but you choose bank to Poke
RAMCLOSE	Closes the relative data file if open
RAMFIELD, <list of integers>	Sets field lengths for each record in the relative data file
RAMOPEN, <integer>	Opens relative data file and sets record length to be used
RAMREAD, <integer>, <list of var addr>	Reads into selected variables the record given by the integer
RAMWRITE	As for Ramread but writes to the record
RECORDS	Returns in system variable REC the number of records available in the data file
SAVE, <str var addr> [, <list of int>]	Saves programs in all or selected banks
SCREEN.IN, <integer>	Loads a 16K screen from video Ram
SCREEN.OUT, <integer>	Saves screen to video Ram
SCREENS	Returns in SCR the number of screens that can be held in video Ram
SLOW	Reverse the effect of Fast
SPOOL.ON	Allocates 32K of Ram to a printer spooler
SPOOL.OFF	Frees 32K of Ram if spooler allocated
UNMASK	Turns off graphics mask
VIDEO.ON	Formats extra memory to hold 16K screens
VIDEO.OFF	Reformats memory as when BOS entered

Hardware Reviews



but it is clearly written and I had the board installed within an hour.

You have to remove the Z80 and Amstrad Rom chips from their slots, insert them in the expansion board and then connect it. This calls for some care – put the cat out and shut the door before starting – but no great skill. I was doubtful at first of carrying out this sort of surgery on my own machine but it was really very simple.

Without doubt this memory expansion is good value if you already have a 464 and you find you need full-sized CP/M. Even if you do not own an Amstrad it's worth thinking about. A 464 has a built-in cassette and runs all the 464 software.

With the cheapest Vortex expansion you would be paying the same as for a comparable 6128 system and yet have a full sized CP/M 2.2 and 32K printer spooler.

The product is being distributed by Screen who will be demonstrating this expansion and a similar board for the 6128 at the Amstrad Computer Show at London's Novotel on January 11/12. The German development team will be represented to answer questions about it and the exciting MSDOS board expansion for the Amstrad 464 still under development. Watch this space.

John Mawhood

Kaga Taxan KP810 NLQ Dot Matrix Printer

FOR UNDER
£220



Features

* Near letter quality print *
160 c.p.s. draft print * 27 c.p.s.
NLQ print * Centronics parallel input *
Tractor and friction feed * Downloadable character set * 2K
buffer * Short form tear off *
Other NLQ fonts available

£219.95 + VAT

IBM version available for

£239.95 + VAT

Other Printer Bargains

Seikosha GP500A Dot Matrix **£89.90 + VAT**
Smith Corona Fastext 80 **£110.90 + VAT**
Commodore MPS801 Dot Matrix **£60.83 + VAT**
Commodore DPS1101 Daisy Wheel **£165.13 + VAT**
Uchida DWX305 Daisy Wheel **£199.00 + VAT**

All Prices Exclude VAT. Personal Callers or mail Order
Mail Order + Export + Trade Hot Line Phone 01-686 6362
Delivery by Securicor (3 day) please add £5.00 + VAT per order.
Delivery by T.N.T. (Overnight) please add £9.50 + VAT per order

HI-VOLTAGE

53-59 High Street,
Croydon, Surrey CR0 1QD.
Tel: 01-686 6362

BAD BARNEY TROUBLE



Barney's Clothes Line will really
choke you up.

**ROCK'N
WRESTLE**



Name: Bo Jangeborg Author of Fairlight

I started learning Basic on a Swedish computer called the ABC – it was a Z80 based thing with 8K, that was in about 1978. That led on to the Spectrum and as I began to realise how slow Spectrum Basic was I started to learn machine code.

Most of my knowledge of machine code came from the Spectrum manual and a book called *Spectrum Machine Code for Absolute Beginners*, neither of which was very good. Later on I got hold of a small reference manual put out by Zilog which had lists of commands with the time they take and how the registers are affected – that was more useful.

Most of my coding experience grew out of necessity. I think what I need to do and then find a way. My program, *The Artist*, began as a drawing program in Basic and gradually was turned into machine code to get the speed.

My advice to any would-be machine code programmers is to begin with one very simple objective, even something like putting a dot on the screen. If you

see results quickly it encourages you to try something a little more complicated next time. I wouldn't necessarily get the Zaks reference manual – it's very academic and would probably put most people off.

When coding I mostly use my own utilities like *The Artist* but I also have Hisoft's *Devpac* which I find very good.

The only programmer I can think of that I admire is Mike Singleton. With *Lords of Midnight* he created so many elements that fitted together in a perfect whole and each one was original. I also admire the Ultimate programming team and I was amazed when I first saw *Knight Lore*.

I think my own programming achievement was to create a really fast fill routine for graphics over a year ago. It has been equalled since but at the time it was the fastest. If I had the perfect hardware I'd like to create a 3D high res world with full perspective – it'd be like an intelligent 'world' inside the computer.

Name: Bo Jangeborg

Age: 23

Favourite programs:

Lords of Midnight for the way it mixes excellent graphics with strategic elements (I like wargames), *Fall of Rome* – it was an old Basic game but was fun to play – and *Knight Lore*.

Favourite machines:

Hard to say; probably the Atari ST – although the Amiga is better, I'm not sure how well it's going to do. The Amstrad is a very good all round machine but the Spectrum is very much cheaper.

Softography:

The Artist, *Fairlight* – I'm also working on an upgrade for *The Artist* and may bring out my own graphics language called *Grax* at some point.

Hobbies:

I play a lot of wargames and role playing games; at home in Sweden I have hundreds of them. I also run a computer company and shop in Gothenburg with some friends. We sell computers and are doing some business programs for the Atari.

I also read a lot of Science Fiction particularly Steven Donaldson, Asimov and Ursula Le Guin.

Special Offer

The Christmas season may be over but here at *Popular Computing Weekly* we're still feeling generous and we've got a bagful of free gifts for our loyal readers.

First of all, we have hundreds of copies of eight Firebird games running on the best-selling machines. Spectrum owners can choose between *Sub-Sunk* and *Don't Panic*; Commodore 64 owners can select *GoGo the Ghost* or *The Helm*; on the Amstrad there's *The Wild Bunch*

or *Short's Fuse*; and *Bird Strike* and *The Hacker* running on the BBC B.

If you prefer, you can choose Tony Kendle's *Arcade Champion's Guide* – our arcade ace's handbook to playing some of the best games on a host of machines.

Apart from hints and tips on strategy and features, there are several complete game maps.

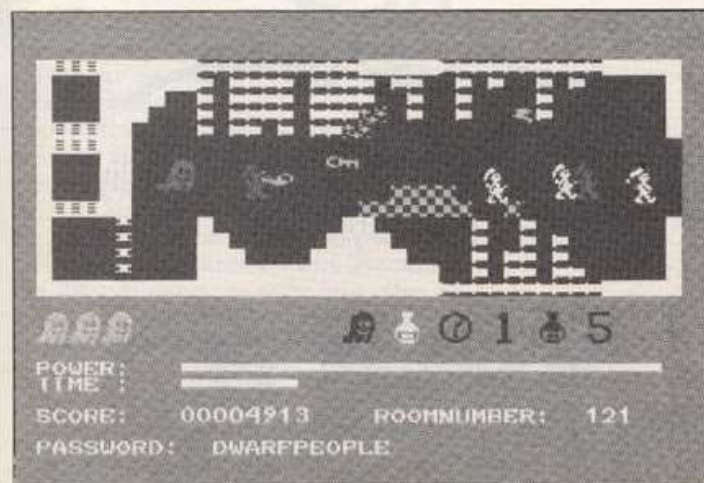
To claim your free gift, simply collect five coupons from this and future issues

of *Popular Computing Weekly* and attach them to the card on the front of the magazine.

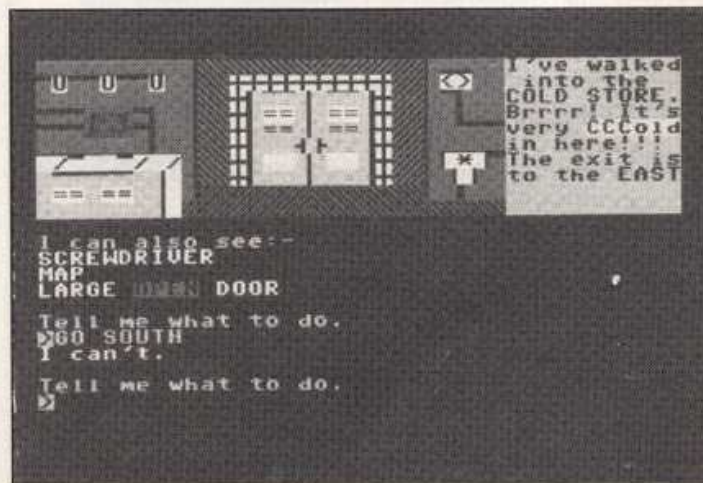
Please note that if demand for the Firebird games exceeds supply we will substitute either the alternative game for your machine, or a copy of the *Arcade Champion's Guide*.

So, don't forget to start saving the coupons now!

COUPON
1



GoGo the Ghost



Sub-Sunk

A SPECIAL MESSAGE TO ALL THOSE PEOPLE WHO HAD A SINCLAIR COMPUTER FOR CHRISTMAS

THE NEW YEAR
MICROFAIR IS ON
FEBRUARY 1ST 1986
AT THE
HORTICULTURAL HALLS
LONDON SW1.

(and those who have had
one for years)

Looking for great gizmos for
your new Spectrum or QL?
There's one place you will
find everything:
THE MICROFAIR.
If it's new it will be on
show. If it's original
you'll find it on sale. If
you need advice you only
have to ask the exhibitors. If
you want to meet thousands of
enthusiasts, just come along
and enjoy yourself.

There's everything for
Sinclair Computers. Hardware,
Software, Books, User Clubs,
Programming Aids, Games,
many at special 'show' prices —
there's even a bring and buy sale.

For a fun day out and a chance to
see and buy everything new and
exciting... you won't beat the
MICROFAIR.

THE NEW YEAR MICROFAIR

1st FEBRUARY 1986
AT THE HORTICULTURAL HALL
GREYCOAT STREET/ELVERTON STREET
LONDON SW1. 10am-6pm.
ADMISSION: £1.75 (ADULTS)
£1.25 (KIDS UNDER 14 YRS)

SEND NOW FOR REDUCED PRICE ADVANCE TICKETS

Send to Mike Johnston (Organiser), Dept
ZX MICROFAIRS, 71 Park Lane, London N17 0HG.

Please send me advance tickets ^{P.W.}
(Adult @ £1.25)

Please send me advance tickets
(Child under 14 @ £1.00)

Name: _____

Address: _____



Please include a stamped, self-addressed envelope and make
cheques/POs payable to ZX Microfair

PPC

**** SPECTRUM ****

GAME	RRP	OUR PRICE
WHAM MUSIC BOX	9.95	7.00
THEY SOLD A MILLION	9.95	6.75
THE GOONIES	7.95	5.45
TRANSFORMERS	7.95	5.45
I OF THE MASK	9.95	7.00
DEATHWAKE	7.95	5.45
IMPOSSIBLE MISSION	7.95	5.45
BOUNTY BOB	7.95	5.45
RAMBO	7.95	5.25
ROBIN OF THE WOOD	9.95	6.75
HALL OF FAME	9.95	6.75
RUNESTONE	7.95	5.45
BACK TO SCHOOL	6.95	4.50
WATERLOO	9.95	7.00
BEACHHEAD	7.95	5.25
FAIRLIGHT	9.95	7.00
RASPUTIN	7.95	5.45
SABOTEUR	8.95	6.25
RED MOON	8.95	4.75
KNIGHT RIDER	7.95	5.45
SIR FRED	9.95	6.25
MARSPOIT	9.95	7.00
GYROSCOPE	7.95	5.45
ELITE	14.95	9.75
ART STUDIO	14.95	11.00
ROBIN OF SHERLOCK	7.95	4.75
TAUCETI	9.95	6.75
THREE WEEKS IN PARADISE	9.95	7.00
NEVERENDING STORY	9.95	7.00
ROTHMANS FOOTBALL QUIZ	8.95	4.75
SEAS OF BLOOD	9.95	6.00
SWORDS OF SORCERY	9.95	6.75
KDEL	7.95	4.95
TOMAHAWK	9.95	6.50
ROBOT MESSIAH	7.95	5.45
ZOIDS	7.95	5.25
WINTER SPORTS	9.95	6.50
SWEEVO'S WORLD	7.95	5.45
YIE AR KUNG FU	7.95	4.50
ARENA	9.95	7.00
ROLLER COASTER	6.95	4.75
COMMANDO	7.95	4.50
2112 AD	7.95	5.45
AUSTERLITZ (Sequel to Waterloo)	9.95	7.00
LORD OF THE RINGS	15.95	11.75
MIND SHADOW	7.95	5.45
FRIDAY 13th	8.95	6.25
FORBIDDEN PLANET	7.95	5.45
BARRY MCGUIGAN	7.95	5.45
WINTERGAMES	7.95	5.45
SPIRITFIRE 40	9.95	7.00
DESERT RATS	9.95	7.00

**** COMMODORE ****

THEY SOLD A MILLION	9.95	6.75
HALL OF FAME	9.95	6.75
ARMWELN	9.95	7.00
BATTLE FOR BRITAIN	9.95	5.95
FRIDAY 13th	8.95	6.25
FLINSTONES	7.95	5.25
WORM IN PARADISE	9.95	7.00
TRANSFORMERS	8.95	6.25
COMMANDO	9.95	6.75
SCHOOLDAZE	6.95	4.50

GAME	RRP	OUR PRICE
SUPERMAN	9.95	6.00
ADRIAN MOLE	9.95	7.00
QUAKE-1	9.95	6.75
ROBIN OF THE WOOD	9.95	6.75
SUMMER GAMES II	9.95	7.00
DEATHWAKE	7.95	5.45
ELITE	14.95	9.75
BLADERUNNER	9.95	6.75
BALL BLAZER	9.95	7.00
FIGHT NIGHT	9.95	5.95
RAMBO	8.95	6.25
SCALECTRIX	9.95	7.00
NEVERENDING STORY	9.95	7.00
ELECTRASOUND	14.95	10.00
ZORRO	9.95	6.75
THE YOUNG ONES	7.95	5.45
MERCENARY	9.95	7.00
LITTLE COMP. PEOPLE	9.95	6.75
BATTLE OF THE BULGE	9.95	7.00
GOONIES	8.95	6.75
GYROSCOPE	9.95	7.00
REVS	14.95	11.95
ZOIDS	8.95	6.25
GEOFF CAPES	8.95	6.25
WINTER GAMES	9.95	6.75
SPACE PILOT II	7.95	5.45
LITTLE COMP. PEOPLE (disk)	14.95	10.95
OUTLAW	9.95	6.75
INGMA FORCE	9.95	6.75
MIND SHADOW	9.95	6.75

**** AMSTRAD ****

3D BOXING	9.95	7.00
BORED OF THE RINGS	6.95	4.75
BRUCE LEE	9.95	7.00
IMPOSSIBLE MISSION	9.95	7.00
GYROSCOPE	8.95	6.25
GRAPHIC AD. CREATOR	22.95	17.00
WORM IN PARADISE	9.95	7.00
GRAND PRIX 3D	9.95	7.00
HYPERSPORTS	8.95	6.25
ENDURANCE	7.95	5.45
YIE AR KUNG FU	8.95	6.25
BRUCE LEE (disk)	14.95	10.50
THEY SOLD A MILLION	9.95	7.00
SOLD A MILLION (disk)	14.95	10.00
GOONIES	9.95	7.00
CAULDRON	8.95	6.25
BOUNTY BOB	9.95	6.50
DEATHWAKE	7.95	5.45
BARRY MCGUIGAN	9.95	7.00
SPIRITFIRE 40	9.95	7.00

ALL AMSTRAD DISKS & UTILITIES ARE IN STOCK

BOX OF TEN DISKS 40.00

ALL PRICES INCLUDE P&P
OVERSEAS ORDERS ADD £1.00 P&P

ANY TITLES NOT SHOWN CAN BE SUPPLIED
AT 25% OFF RRP. PLEASE MAKE CHEQUES/
POs PAYABLE TO: PPC AND SEND TO:

PPC MAIL ORDER
9 BENNECK HOUSE, 100 TOLPITS LANE
WATFORD, HERTS WD1 8PZ
(0923 41555)

PPC Guarantee that all products will be
delivered within 7 days of receiving order or
cheques will not be cashed until products are
despatched PD614C

L.A. BRUCE



Bruce's Armlocks can really spin
you out.

ROCK'N WRESTLE



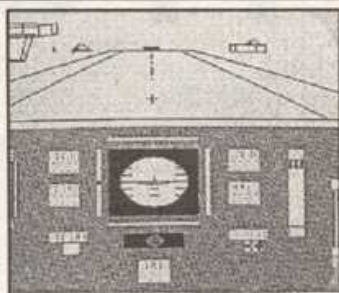
Take off

Program *QL Flight Simulator*
Micro QL **Price** £19.95 **Supplier** Microdeal, 41 Truro Road, St Austell, Cornwall.

Up up and away with your QL is the promise from Microdeal. One of the essential programs on a home micro is the flight simulator and there have been the good and the appalling.

Microdeal's falls somewhere in between - the manual spends much of its time apologising for the graphics (it doesn't need to, they're fine) and asking the reader what he/she expects from a mere £200 computer. But the program doesn't warrant such excuses, it can stand on its own three wheels.

The wire graphics I mentioned are good enough to



lend quite a realistic air to the view from the cockpit window of your single-engined machine - I particularly liked the floating compass points through which you can fly! On the dashboard your instruments are adequate: there are no navigational aids apart from a heading indicator, but you also have an altimeter, rev counter, gear up/down indicator and artificial horizon, together with rudder/aileron/levator indicators.

Your flight takes place over eight "worlds", each of which

has its own runway and potential hazards in the shape of mountains, radar dishes, bridges and so on: and the weather in each world may be changed to the user's preference. Flying about the air space is as realistic as the taxiing sequence, during which you can refuel at the dump alongside each runway.

Sound is used well, with a lovely start-up burble, but fun isn't really what the program is about. Although there is a bridge and power-line to fly under, this simulator is really for the serious student of flying. While the manual and program are a touch stuffy, there is enough for the merely interested home user - and at a reasonable price - to make this the flight simulator for the QL.

Tony Bridge



Marley's ghost

Program *Exodus Micro*
Commodore 64 **Price** £2.50 **Supplier** Firebird Software, Wellington House, Upper St Martin's Lane, London WC2H 9DL

This pocket-money priced game has you trying to destroy numerous strange objects that

are attempting to escape from 'The Pit'.

This pit turns out to be an octagonal black shape at the centre of the screen and the objects which fly out include galleons, abominable snowmen, hover mowers, mutant llamas (sounds familiar!) and other horrors. By moving your ship either clockwise or anticlockwise you can cut off their escape but you mustn't touch any object once it has escaped. Even

worse, if a llama gets away you lose one of your three lives.

Despite its quirky humour - like extra points for shooting a television tuned to Channel 4 because it's so rare - I found the game quickly lost my attention. The graphics are effective but rather simple and the game itself is actually too easy.

Lionel Carter



Fast lane

Program *Scalextric Micro*
Commodore 64 **Price** £9.95 **Supplier** Leisure Genius, 3 Montagu Row, London W1U 1AB.

I was always really proud of my Scalextric set, I even had a record of racing car noises to go with it. The thing about it wasn't just the racing, but the peripherals that went with it, the grandstands, pit crews, TV cameras and bridges to name but a few.

So how does the computer version compare? The only real comparison to the original is in the track construction. You can design any shape of circuit complete with

chicanes, cross-overs and banked curves, subject only to the space available in the screen section. Once designed and saved on to tape you then proceed to the race. From here on in the similarity ends and we are looking at a *Pit Stop II* clone, but with only two cars.

The screen is the usual design split and the position of each car on the track is shown on individual maps.

There are a few disappointments. A banked curve is not graphically shown while racing (you only know it by the lessening of centrifugal force), nor are there any cross-over sections which really makes using them in the design a waste of time.

There are 17 Formula 1 circuits already constructed and are available using the pro-

gram prompt along with lap numbers from one to 99. During the race the track whizzes along quite smoothly and the



cars are graphically pretty, but where are the slots?

Given the choice, I'll buy *Pit Stop II* any day as apart from building the tracks it is really a racing game and not a Scalextric simulation.

Andy Moss



On form

Program *Back to Skool Micro*
Spectrum **Price** £6.95 **Supplier** Microsphere Computer Services, 72 Roseberry Road, London N10 2LA

School Report - Pupil: Eric

Form Master: Eric's behaviour has not improved. At the end of last year we caught him trying to steal his report from the headmaster's safe. Obviously he succeeded because he began this term trying to replace it. We hoped that the redesigned school would confuse him. However, Eric was not averse to creeping out to the neighbouring girls' school.

Biology: There has been the disappearance of a frog from the biology lab, plus the unexpected appearance of several mice elsewhere. When questioned, Eric said that he was trying to redress the balance of nature.

Chemistry: Eric blamed me for the smell outside the headmaster's study when it was caused by his stink bombs. Apparently he used them to get the head to open the window, so he (Eric) could fire his catapult, dislodge a conker and knock out the caretaker!

PE: A fine year for Eric. He learnt to ride a bike and then to leap on the saddle and perform stunts. Unfortunately, this was only in order to put a frog in a cup in the girls' school kitchen.

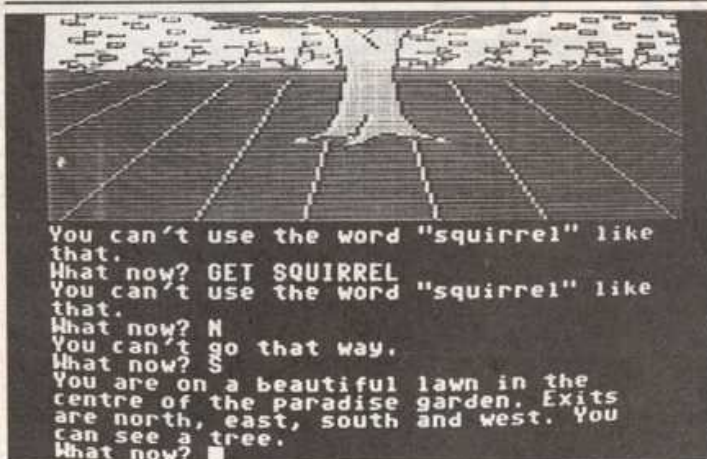
Geography: If anything matches Eric's ignorance of his own school. I know that the place, with its tribes of swots, bullies and tearaways, is confusing at first but I really suspect him of dodging lessons.

History: I caught Eric looking in a desk. He claimed he was searching for his roots, but had only found a water pistol.

Headmaster's Report: What can I say? He's back and making the lives of my colleagues even worse. However, there's much more for him to do and life would be awfully quiet without him. Welcome back, you little monster... here's 5,000 lines.

John Minson





Part three

Program *The Worm in Paradise* **Micro** CBM64/Spectrum 48K/Amstrad/BBC/Atari/MSX **Price** £9.95 **Supplier** Level 9, 229 Hughenden Rd, High Wycombe, Bucks.

Level 9's latest release completes the science fiction trilogy which started with *Snowball*. *The Worm in Paradise* is also their first adventure to incorporate a new adventure writing system. Taking over a year to perfect, the new system has a 1000 word vocabulary and the most advanced parser ever seen in a cassette based

game.

Multi-tasking is also a new feature which will enable you to input commands while the graphics are actually drawn; in other words, no more twiddling your thumbs while waiting for the pictures to appear.

The game contains over 200 instantly drawn graphics; unfortunately, or fortunately, depending on taste, because of memory limitations the BBC is text only. From a personal point of view, the graphics added nothing to the overall playability of the game.

The Worm in Paradise understands a range of commands such as, "Get the Bench and Go East then Drop Bench". Also, "Examine all but the Tree, Gun and Worm

then Go Down", far more advanced than the usual verb-noun input.

So what about the Adventure? Well, it takes place about a 100 years after the time of *Snowball* and *Eden*. Set in the futuristic world of Enoch, the planet is run by a right-wing political organisation. Your aim is to work your way into the 'party' by performing various actions. Hopefully by completing the various tasks in their correct order, you will become a party member, from there it's a uphill struggle all the way to the Seat of Power.

Pete Austin's fertile imagination has really been working overtime with some of the problems you are faced with. I never realised finding my way home was so difficult, until I encountered the genuinely frustrating Enoch Transport system.

I don't think a novice adventurer will get very far in this game. Even the more experienced player, who has a certain amount of knowledge about Level 9 games, will find it quite taxing but definitely rewarding. Congratulations, Level 9 on another imaginative hit.

Roger Garrett



Word's worth

Program *The Last Word* **Micro** Spectrum **Price** £15.50 **Supplier** Myrmidon Software, PO Box 2, Tadworth, Surrey KT20 7LU.

Suddenly there's a rush of word processors for the Spectrum, and if you have a good quality keyboard plus reliable method of storage it may provide an alternative to the Amstrad 8256, especially if you want it for other applications.

The Last Word is very traditional package, with not an icon in sight. Instead the information is called by single key strokes, with a variety of shift keys, often after accessing the Command mode, and it is displayed in a header. In practice this shouldn't interrupt your typing too much once you've learnt your way around the program because

the most needed functions, such as cursor control, are most easily available.

Screen options for *Last Word* are very good, allowing for up to 80 columns and justifiable line lengths to a total of 132 characters, any words exceeding the line length appear on a line continuation below. This feature is also useful if you don't have an RGB interface, because at 80 columns the characters are very small and unfortunately, though you can change border and header colour, the only options for text are black on white and vice versa.

Myrmidon has not skimped on features such as word count, tabs, etc and there's a novel alarm that screeches out every 30 minutes (though it can be reset) to remind you to save your file. Efforts have also been made to include mail merge though this means accessing Basic and setting up strings before returning to the program - not

the most elegant solution.

The 30 pages of instructions are written (seven files) with the package, but are not immediately clear, and even with hands on experience will take some getting used to. Familiarity will not breed contempt but at the start you'll find yourself stuck every so often.

Details of printer control codes are quite good but *Last Word's* main failing comes in being designed for use with Microdrives.

If you were starting from scratch I don't think I'd recommend this - it's certainly not the Last Word in processors. However if you're already committed to the Spectrum and want a traditional package, which can handle files from other systems, albeit with a little work, this is worth a look.

John Minson



Logic rules!

Software *LPA Micro-Prolog* **Micro** Commodore 64, (also BBC, Apple II, and others) **Price** £79.93 disc only **Supplier** Logic Programming Associates Ltd, Studio 4, The Royal Victoria Patriotic Building, London SW18 3SX.

Prolog (PROgramming in LOGic) is getting itself into the news at the moment because it is one of those languages designed to make computers work in a way which is more like a brain than a calculator.

Traditional computer languages, such as Basic or Fortran, are fine for solving technical problems but become very difficult to work with in many everyday situations.

Prolog is aimed at providing a computer language which more closely reflects the way that our brains handle logical problems. When presented with an everyday problem our brain seems to rely on our past experience of similar problems to give a first attempt at solving the new problem.

Past experiences can be expressed as a series of rules; red-hot coals give you pains in the fingers when touched, £10 notes are quite rare, and so on.

Micro-Prolog is, as the name so aptly implies, a version of Prolog designed for use on microcomputers. Micro-Prolog is a non-compiling version of the language, like Basic, and comes with a number of extensions to make the language easier for beginners to understand. Be warned though, Prolog is not the sort of thing which can be learned overnight. Logic Programming Associates has taken the unusual step of not only providing a full 190-page reference manual but also giving you a 100-page book as well, as a general introduction to Prolog.

Micro-prolog can give you a working insight into one of the most interesting languages around although you must accept that speed and storage capacity are limited.

John R Cochrane



Evesham Micros

COMMODORE OFFERS

CBM 64 COMPENDIUM PACK includes CBM 64, Data Recorder, Music Maker, ONLY £189.95
Designer's Pencil and Adrian Mole book and game
CBM 64 + 1541 DISC DRIVE With Super Zaxxon and Ultima III on disc free of ONLY £279.95
charge.

CBM PERIPHERALS PACK includes 1541 Disk Drive
and MPS 801 Printer

CBM 1541 DISK DRIVE
CBM MPS801 PRINTER Superb value.
CBM 128 in stock now!
CBM 1570 DISC DRIVE in stock now
CBM Compatible DATA RECORDER

ONLY £199.95
ONLY £149.95
ONLY £119.95
ONLY £259.00
ONLY £189.95
ONLY £ 29.95

STAR SG10C

A superb new 120 cps Commodore ready printer that offers many features
including friction and tractor feed, CBM graphics, near letter quality mode
etc. Packaged ready to use at the special introductory price of

ONLY £249.00

AMSTRAD OFFERS

DMP2000 PRINTER IN STOCK NOW ONLY £159.00
(our price includes lead)

CPC 6128 Computer Green Monitor
Colour Monitor
Amstrad RS232 Interface Module
3in Disks suitable for all Amstrad models
OR buy a box of ten disks and get "EXCAT" free
DD1 Disk Drive

ONLY £289.00
ONLY £389.00
ONLY £47.95
ONLY £4.25 each
ONLY £40.00
£159.00

BBC OFFERS

CUMANA DISK DRIVES

CSX 100 (100K single)
CSX 400 (400K single, 40/80 switchable)
CDX 800S (double 400K, 40/80 switchable)

ONLY £99.95
ONLY £114.95
ONLY £209.95

— Other models available ring for prices —
TATUNG TMO1 RGB Colour Monitor with green screen option c/w
lead ONLY £189.00
ACORN DFS KIT ONLY £89.95

SPECTRUM OFFERS

SPECTRUM + 48K complete with data recorder,
joystick and interface, four US gold games and a
holiday voucher **£139.95**

SPECTRUM EXPANSION SYSTEM **ONLY £89.95**

PROTEK 3 position switchable j/stick interface with
QUICKSHOT II JOYSTICK **ONLY £19.95**

3M FLOPPY DISKS

BOXES OF TEN DISCS
SSI/DD £16.00
DSI/DD £20.00

NEW SPECIAL PACKS WITH
PLASTIC CASE

SSI/DD £17.00 including Case
DSI/DD £21.00 including Case



EVESHAM MICROS
BRIDGE STREET, EVESHAM,
WORCS., WR11 4RY.
Tel: 0386 49641

All offers subject to availability.
All prices include P&P and VAT. Send cheque, Postal Order or Credit Card No.
Credit Card order accepted by phone. Callers welcome. Wide range of goods
stocked. Trade enquiries welcome. European orders send price as advertised.
Outside Europe £2.00 for airmail. Mail order to Evesham Shop please.

MICRO CENTRE
1756 PERSHORE ROAD,
COTTERIDGE, BIRMINGHAM.
Tel: 021-458 4564

PRINTER OFFERS

Look at these deals on centronics printers we believe that these prices
offer the best value in the country. All prices include receipted delivery,
despatch is within 48hrs of receipt of order provided goods are in stock. A
printer lead is supplied to suit your micro free of charge, (please specify
Amstrad, BBC, Oric, Dragon, Einstein, CBM64 or Memotech) for Spectrum
or QL owners we will supply with an appropriate interface for an additional
£20.00.

SMITH CORONA FASTEXT 80

Bulk purchase allows us to offer this high quality, 80 column dot
matrix printer for an unheard of price. Buy a proper printer for the
price of a thermal. Friction feed is standard and an optional
tractor unit is available.

ONLY £129.95

Price includes lead to suit your micro.
Or to suit Spectrum with Kempston centronics "E" interface
£149.95

SHINWA/MICRO P. CPA 80 +

NOW WITH NEAR LETTER QUALITY MODE

Improved specification makes this, the latest version of this popular model, the outstanding printer buy in its
class. As well as it's normal superb print quality at 100cps (better than the NLQ on many rival models) it now
has an NLQ mode which offers even better print quality. This can be switched in either from a front panel NLQ
switch or from software. Other features are friction and tractor feed, external dipswitches, graphics mode,
square needle print head (gives less dotly look to print) and Epson compatibility. Take a look at these
unretouched actual size print samples.

New NLQ PICA print style
Standard PICA text (100cps)
True descenders on jpg etc.

ELITE mode gives 96 columns

CONDENSED mode gives 142 columns

ENLARGED mode
SUBSCRIPTS and SUPERSSCRIPTS
underlines nicely

Good italic character set

We are convinced that this printer offers the best performance and value in
its class and at our unheard of price is a BARGAIN.

ONLY £189.95

Price includes Centronics lead to suit your micro.
Or to suit Spectrum with Kempston "E" interface £209.95.

MICRO P MP165

This printer is a very high specification at an unbelievable price. It boasts
165 cps in draft mode and 70 cps in near letter quality mode, which is
switch or software selectable. It is friction and tractor feed as standard has
a 2K buffer and is EPSON compatible (it even uses an EPSON ribbon). It
can print in standard PICA 80 column mode or a variety of others from
enlarged 40 column mode to condensed at 132 column. Italics are
available in all modes. Normally this printer would be expected to sell at
£300 plus we are offering it at our ultra keen price inclusive of printer lead
to suit BBC, Amstrad, CBM 64, Oric, Dragon, Einstein or Memotech.

ONLY £249.00

Price includes Centronics lead to suit your micro.
Or to suit Spectrum with Kempston "E" interface £289.00

C & F ASSOCIATES

BBC	RRP	Our	C. ARCADE GAMES	5.95	4.95	W. MONTY MOLE	8.95	5.25
ENTHAR 7 (40/80 TR)	18.95	14.95	GHOULS	7.95	3.15	KNIGHT LORE	9.95	7.25
BLUE RIBBON GAMES								
DISK 1 (40 TRACK)	9.95	7.50	SPECTRUM			AMSTRAD		
DISK 2 (40 TRACK)	9.95	7.50	SWEET'S WORLD	7.95	5.95	KNIGHT LORE	9.95	7.25
NIGHTSHADE	9.95	7.25	ALIEN-8	9.95	7.25	WIZARDS LAIR	8.95	6.25
COMBAT LYNX	8.95	6.75	ABU SIMBEL	7.95	5.95	COMBAT LYNX	8.95	5.95
BOFFIN	9.95	7.25	NODES OF YESOD	9.95	6.25	RED ARROWS (DISK)	12.95	7.50
CASTLE QUEST	12.95	8.95	A VIEW TO A KILL	10.99	7.50	RED ARROWS	8.95	5.95
MOONRAIDER	7.95	2.95	DUN DARACH	9.95	7.25	ROCCO	8.95	5.95
RED MOON	6.95	5.50	WIZARD'S LAIR	6.99	5.50	ALIEN 8	9.95	7.25
BANJAX	9.95	8.25	ROCCO	7.95	5.95	RED MOON	6.95	5.50
ATC ATAC	7.95	5.95	GYRON	9.95	6.90	DUN DARACH	9.95	7.25
TEMPEST	9.95	7.25	COMBAT LYNX	8.95	6.75	BRIAN BLDOODAXE	8.95	5.95
KILLER GORILLA	7.95	2.50	MONTY ON THE RUN	7.95	5.95	PROJECT FUTURE	8.95	5.95
ALIEN-8	9.95	7.25	SHADOWFIRE	9.95	6.90	TASWORD 464 (CASS)	19.95	16.95
RUBBLE TROUBLE	7.95	2.50				TASWORD 464-D	24.95	19.95
WORM IN PARADISE	9.95	7.25				TASWORD 6126 (D)	24.95	19.95
BUMBLE BEE	7.95	2.50	SPECTRUM					
KNIGHT LORE	9.95	7.25	PRICE			COMMODORE 64		
SABRE WOLF	9.95	7.25	MARSPOUT	9.95	6.90	NODES OF YESOD	9.95	6.25
GHOULS	7.95	2.50	FAIRLIGHT	9.95	7.25	WIZARDRY	9.95	7.25
C. ARCADE GAMES	5.95	4.95	RED ARROWS	8.95	5.75	IMHOTEP	9.95	6.25
			THE ARTIST	12.95	9.95	RED ARROWS	8.95	5.75
			BEACH HEAD	7.95	5.50	BLACKWYCHE	9.95	6.25
			STARQUAKE	7.95	2.95	WIZARDS LAIR	8.95	6.25
			MONTY IS INNOCENT	8.95	5.25	W. MONTY MOLE	7.95	5.25
			THAT'S THE SPIRIT	7.95	5.20	HARRIER ATTACK	8.95	4.50
			RED MOON	6.95	5.50	ENTOMBED	9.95	6.25
			ATC ATAC	5.50	4.50	THING ON A SPRING	7.95	5.95
			NIGHTSHADE	9.95	7.25	COMBAT LYNX	8.95	6.75
			UNDERWORLD	9.95	7.25	SHADOWFIRE	9.95	6.90
						RED MOON	6.95	5.50

ALL PRICES INCLUDE VAT AND POSTAGE & PACKING
(Overseas Orders add £1.00 per item) CHEQUES/PO PAYABLE TO: C & F ASSOCIATES AND SEND TO
C & F ASSOCIATES (PCW), PO BOX 2, BIDEFORD EX39 3RE

P0712B

commodore

HORIZONS

Subscribe to **Commodore Horizons** for one year and receive
your choice of Sunshine Book listed below, free of charge.
Write with your name, address and choice of book enclosing
your subscription fee of £10.00 (£16.00 overseas), to:

CH subs. 12-13 Little Newport Street, London WC2H 7PP

- Beginning Machine Code on the C64
- Commodore Disc Companion
- The Working Commodore C16

P0355



ERROR TRAP

by Nigel Mossman

As many Interface One owners will know, it is possible to define new Basic commands for the Spectrum.

The machine code given below defines a new command which will take the form of *Step Line n*. *Step* and *Line* can be found on the D and 3 keys respectively. This new command will carry out the following operation:

When the *Step Line* command is found the program stores the value *n*. In this case *n* should equal a valid Basic line number. If at a latter stage an error occurs or the Break key is pressed the program will not stop, but will jump to the line specified by *n*. Errors generated by Interface One operations cannot be trapped. This is because of the way in which the Interface generates and prints errors.

As it is likely that users may already have machine code operations attached to Basic programs I have designed the Basic Loader to place the Trap Code at a point specified in Ram. As the Spectrum shifts chunks of memory around during its various operations, it is vital that machine code is placed above Ram Top. The loader uses the clear command to

set Ram Top one address below that specified. Any existing variables created by the user prior to the loader being run will, therefore, be destroyed.

As with all Extended Basic, the system variable Vector needs to be poked to the starting address of the Extended Basic. The Basic Loader will also take care of this. If you do not have any other machine code to work around, you can set the program to run at 65293. This will have the effect of preserving the UDC area.

The actual machine code comes in two main sections. The first part is the Extended Basic. This will in the first instance check the syntax of the line/command. The routine entitled *Stend* is a break off point hidden in Shadow Rom. If the computer is running a program then the program resumes at this point. If the syntax is being checked then no return is made. The computer will go on to check the next line or statement for syntax. Those who have studied the Spectrum in some detail will know that the bottom of the machine stack holds an address in Rom. This address is in fact the routine for the handling of errors. The action part of the Extended Basic (the part after

the *Call Stend*) simply replaces the Rom address with that of the trap routine.

If at a latter stage there is some error or interruption of the Basic, the computer will enter the trap routine. This will cause the computer to resume running the program at the line specified by *Step Line*. In the process the machine stack is rebuilt.

As all Spectrum programmers know, each error report is accompanied by a number, or letter. These range from 0 (the OK report) to R for tape load error. The letter report codes are sorted as values from 10 for A (Invalid Argument) to 26 for report code R. However, for some odd reason, error codes stored at 23610 are always one less than their actual value, so report code 0 is in fact stored as 255 and report code R is stored as 25 and 9 is stored as 8 and so on.

If you create a peeking routine, it is possible to determine the type of error that has occurred. This will be useful if you need to determine the difference between a tape load error and the Break key being pressed. This means that you get your Basic programs to take a particular course of action if a certain error takes place (see sample program).

Basic Loader

```
10 INPUT "location address";a
20 IF a<27000 OR a>65400 THEN GO TO 10
30 GO SUB 99: POKE 23735,c: POKE 23736,b: CLEAR a-1: LET a=PEEK 23735+PEEK 237
36*256
40 FOR d=a TO a+71: READ b: POKE d,b: NEXT d: LET a=a+62: GO SUB 99: LET a=a-6
2: POKE a+32,c: POKE a+33,b: POKE a+44,c: POKE a+45,b
45 LET a=a+39: GO SUB 99: LET a=a-39: POKE a+63,c: POKE a+64,b: STOP
99 LET b=INT (a/256): LET c=(a-b*256): RETURN
100 DATA 215,24,0,254,205,194,240,1,215,32,0,254,202,32,22,2,5,32,0,215,130,28,
205,183,5,215,153,30,237,67,176,92,205,75,255,195,193,5,231,0,237,123,61,92,205,
75,255,237,75,176,92,237,67,66,92,62,0,50,68,92,195,125,27,1,52,255,42,61,92,113
,35,112,201
```

Sample Program

```
1000>LET X=1000:STEP LINE 9000:PRINT xx
1010 RETURN
1020 BORDER 89
1030 CAT 2
9000 LET error=PEEK 23610: LET x=x+10
9010 IF error=1 THEN PRINT "I AM SORRY BUT I CAN'T FIND XX"
9020 IF ERROR=6 THEN PRINT "NO SUBROUTINE"
9030 IF ERROR=19 THEN PRINT "YOU CAN'T HAVE A BORDER COLOUR 89"
9040 GO TO X
```


AIRFOX

by Alan Brack

In this game for the unexpanded Vic-20, enemy helicopters attack – and you must destroy them before they destroy you!

You have three helicopters at your disposal – the enemy, as many as you can shoot down... but be careful, as your guns will self-destruct if you fire more than two bursts at a time.

Use keys as follows, Z-up, X-down, M-fire, or joystick.

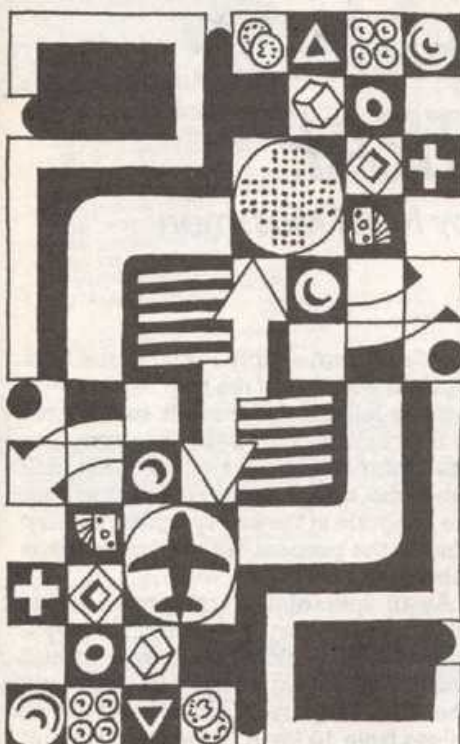
The program loads in two parts, the

first part holds the introduction page and instructions, the second part, the main code.

Program Notes

Line No

20-38	Sets UDG's
40-59	Sets up main screen
60-95	Main program loop
300-355	Fire routines
400-515	Blow-up routines
700-750	End routine



```
5 REM**BY ALAN BRACK
11
8 PRINT"CLRLJ":POKE3
6879,153
10 PRINT"EREDJ ****
**AIRFOX*****":PRI
NT
12 PRINT"AN ENEMY HE
LICOPTR ISATTACKING
...AND YOU MUST ZA
P IT BEFORE IT ZAPS
YOU."
14 PRINT"YOUR GUNS W
ILL SELF DESTROY
IF YOU FIRE MORE TH
AN TWO BURSTS AT A
TIME."
16 PRINT"WATCH YOU D
ON'T CRASH INTO THE
SEA."
18 PRINT"YOU HAVE TH
REE LIVES."PRINT
20 PRINT"CRVS/ONJKEY
S Z=UP,X=DOWN,M=FI
RE
OR USE JOYSTICK"
21 PRINT"PRINT" CRVS
/ONJHI SHIFT & RUN/
STOP"
22 NEW
```

```
20 POKE52,28:POKE56,
28
21 FORI=7424T07431:P
OKEI,0:NEXTI
22 FORI=7168T07303:R
EADA:POKEI,A:NEXTI
23 POKE36869,255
25 DATA0,0,31,0,0,12
8,241,127,15,7,1,0,8
,7,0,0
26 DATA0,0,255,64,64
,240,136,134,131,254
,248,144,145,254,0,0
27 DATA0,0,255,2,2,1
5,17,97,193,127,31,9
,137,127,0,0
28 DATA0,0,248,0,0,1
,143,254,240,224,128
,0,16,224,0,0
29 DATA0,24,102,129,
0,24,102,129
30 DATA254,255,255,2
55,255,255,255,254
31 DATA68,36,16,129,
36,19,9,1,18,36,8,12
9,36,72,144,128
32 DATA0,7,31,63,63,
127,127,255,255,255,
255,255,255,255,255,
255
```

```
33 DATA0,224,248,252
,252,254,254,255,255
,127,127,63,63,31,7,
0
34 DATA255,254,254,2
52,252,248,224,0
38 SC=0:SD=0:SE=0:Q=
11
40 PRINT"CLRLJ":POKE
36879,236:M=7954:U=0
:M2=7985:V=36878:S=3
6877:S1=36875:J=0
41 C=38720:M1=7932:M
3=7931:M4=7953:M5=79
86:M6=7963:M7=7964:S
2=36874:SF=0
45 FORN=8120T08185:P
OKEH+C,6:POKEH,8:NEX
TW
47 FORN1=8098T08103:
POKEH1,9:POKEH1+C,3:
NEXTN1:POKE8010,9:P0
KE8010+C,3
48 FORN3=8076T08082:
POKEH3,9:POKEH3+C,3:
NEXTN3:POKE8032,9:P0
KE8032+C,3
49 POKE8104+C,3:POKE
8083+C,3:POKE8104,23
3:POKE8083,233:POKE8
054,9:POKE8054+C,3
51 IFSD=2THEN57
52 IFSD=1THEN54
53 POKE8059,1:POKE80
60,3:POKE8037,0:POKE
8038,2
54 POKE8056,1:POKE80
57,3:POKE8034,0:POKE
8035,2
57 POKE7738,14:POKE7
753,14:POKE7706,12:P
OKE7707,14
58 POKE7727,12:POKE7
728,13:POKE7750,13:P
OKE7749,13:POKE7748,
12:POKE7729,13:POKE7
751,13
59 POKE7752,13:POKE7
771,15:POKE7772,13:P
OKE7773,13:POKE7774,
16:POKE7794,15:POKE7
795,16
60 X=INT(RND(1)*0)+1
61 IFX=10RX=5THENPOK
EM2+U,32:POKEH5+U,32
:POKEH6+U,32:POKEH7+
U,32:U=U+44
62 IFX=20RX=4THENPOK
EM2+U,32:POKEH5+U,32
:POKEH6+U,32:POKEH7+
U,32:U=U+44
```

```
63 IFX=30RX=6THEN350
65 IFU=>132THENU=132
66 IFU=<-264THENU=-2
64
67 POKEH2+C+U,0:POKE
H5+C+U,0:POKEH6+C+U,
0:POKEH7+C+U,0
68 POKEH2+U,5:POKEH5
+U,7:POKEH6+U,4:POKE
H7+U,6
69 PRINT"CHOME RVS/O
N BLKJ"SC=SC+5:H4
=PEEK(197)
70 POKE37137,0:POKE3
7154,127:J1=PEEK(371
37):J2=PEEK(37152):P
OKEV,15:POKE52,145
71 IF(J1AND32)=0ORH4
=36THEN300
72 SF=0
73 IF(J1AND4)=0ORH4=
33THENPOKEH+J,32:POK
EM1+J,32:POKEH3+J,32
:POKEH4+J,32:J=J-22
74 IF(J1AND8)=0ORH4=
26THENPOKEH+J,32:POK
EM1+J,32:POKEH3+J,32
:POKEH4+J,32:J=J+22
80 IFJ=<-242THENJ=-2
42
82 IFPEEK(M+J)=8THEN
500
88 POKEH+C+J,1:POKEH
1+C+J,1:POKEH3+C+J,1
:POKEH4+C+J,1:POKE51
,0
90 POKEH+J,3:POKEH1+
J,2:POKEH4+J,1:POKEH
3+J,0:POKE51,165
91 IFSC=>3000THEN0=9
92 IFSC=>4000THEN0=5
93 IFSC=>6000THEN0=3
95 GOTO60
300 POKE51,238:POKE5
,220:FORA=M+J+1TOM+J
+9
301 IFPEEK(A)=5THEN4
00
303 POKEA+C,2:POKEA,
248:NEXTA
305 FORA1=M+J+1TOM++
J+9:POKEA1,32:NEXTA1
:POKE5,0:POKEH6+U,4:
POKEH6+C+U,0:SF=SF+1
310 IFSF=3THEN500
315 GOTO73:END
350 POKE5,210:FORA2=
M2+U-1TOM2+U-9STEP-1
351 IFPEEK(A2)=3ORPE
EK(A2)=2THEN500
352 POKEA2+C,7:POKEA
```

```
2,248:NEXTA2
355 FORA3=M2+U-1TOM2
+U-9STEP-1:POKEA3,32
:NEXTA3:POKE5,0:GOTO
65
400 POKE51,0:POKE52,
0:POKE36879,46:POKEH
6+U,10:POKEH7+U,11:S
C=SC+1000:SE=SE+1
401 POKE5,163:FORL=1
5T00STEP-2:POKEV,L
402 FORK=1T0100
403 NEXTK:NEXTL
404 POKE5,0:POKE51,0
:GOTO40:END
500 POKEH3+J,10:POKE
H1+J,11
501 POKE51,0:POKE52,
0:POKE36879,46:POKE5
,163:FORL=15T00STEP-
1
505 POKEV,L:FORK=1T0
80:NEXTK:NEXTL:POKE5
,0
508 SD=SD+1
510 IFSD=>3THEN700
515 GOTO40
700 PRINT"CLRLJ":POK
E36879,29:POKE36869,
240
702 PRINT:PRINT:PRIN
T:PRINT"BLKJ YOU DE
STROYED..."SE
705 PRINT:PRINT:PRIN
T:PRINT:PRINT"BLKJ
SCORE=EREDJ"SC
707 PRINT:PRINT:PRIN
T:PRINT"ERNJ ANOTHE
R GO?...Y/N"
709 POKE198,0
710 GETA$:IFA$="Y"TH
ENRUR
720 IFA$="N"THENSYS6
4802
750 GOTO710
```

NOTE....
[CLRLJ]...PRESS SHIFT
& CLR HOME
[EREDJ]...PRESS CTRL &
RED
[CRVS/ONJ]...PRESS CTRL
& RVS ON
[CHOME]...PRESS CLR H
OME
[BLKJ]...PRESS CTRL &
BLK
[J]...THESE ARE FOR
INFORMATION ONLY AND
SHOULD NOT BE TYPED

HOME MICROS — REPAIRED —

ACORN; BBC model B, model B plus, Electron; ADAM (keyboard only), AMSTRAD CPU (keyboard only), ATARI; 400, 800, 400XL, 800XL, 130XE, 420, 260, AQUARIUS, COLECOVISION, COMMODORE; VIC20, C16, C64, C128, plus 4, SX64 CPU (keyboard only) DRAGON; 32, 64, EINSTEIN, ENTERPRISE; 64, 128, LYNX; 64, 128 MEMOTECH, ORIC; atmos PSION organiser SINCLAIR Spectrum, Spectrum +, SPECTRAVIDEO, TANDY TRS 80 model 1. All MSX computers.

£30

DISK DRIVES — REPAIRED —

All 3in., 3½in., 5¼in. disk drives including Amstrad on-board disk drives (this price does not include drive heads which are subject to quotation)

£36

HERE At last!



PRINTERS — REPAIRED —

All dot matrix printers of under 300 cps (this price does not include print heads which are subject to quotation)

£32

TELEVISIONS & MONITORS — REPAIRED —

All televisions and monitors up to 16in. (this price does not include tubes which are subject to quotation)

£45

All repairs include VAT, labour, parts, 6 month warranty, collection and delivery.

*** Full 6 month guarantee on repairs**

*** No extra charge for parts**

*** Full soak test before despatch**

*** FREE collection and delivery in mainland UK**

Phone TODAY — 01-398 8055

We COLLECT!

ALBANY COMPUTERS

Albany Works, Queens Road, Thames Ditton, Surrey.

ED40 MEGASAVE SOFTWARE

46 THE MALTINGS, STANSTEAD ABBOTS, WARE, HERTS

SPECTRUM 48K			OUR		OUR		OUR	
	RRP	PRICE		RRP	PRICE		PPR PRICE	
Lord of the Rings	15.95	12.95	B. McGuigan's Boxing	7.99	5.90	Quake Minus One	9.95	7.30
Tomahawk	9.95	7.39	Zoids	7.95	5.90	Mercenary	9.95	7.20
Roller Coaster	6.95	5.10	Rambo	7.95	5.90	Skool Daze	6.95	5.20
Skyfox	7.95	5.75	Knight Rider	7.95	5.90	Beach Head 2	9.95	7.25
Tau Ceti	9.95	7.35	Winter Games	7.95	5.95	Lit. Comp People(D)	14.95	12.50
Commando	9.95	6.99	Transformers	7.95	5.90	Superman	9.95	7.40
Gyre Scope	7.95	5.95	Arc of Yeosod	8.95	5.95	Scalextric	9.95	7.50
Sworder's Shadow	9.95	7.50	Their Finest Hour	9.95	7.30	Sold A Million	9.95	7.35
Winter Sports	7.95	5.50	Gladators	8.95	6.50	Arcade Hall of Fame	9.95	7.30
Enigma Force	9.95	7.35	Cosmic War Toad	7.95	5.95	The Last VS	2.99	2.50
Back to Skool	6.95	5.20	Mikie	6.95	5.20	Commando	9.95	6.99
Forbidden Planet	7.95	5.95	Now Games II	8.95	6.75	The Young Ones	7.95	5.95
Robin/Wood + £1 vchr	9.95	7.25	William Wobbler	7.95	5.90	Fight Night	9.95	7.35
Zoids	8.95	6.75	Sneevos World	7.95	5.90	Rambo	8.95	6.60
Battle of the Planets	9.95	7.30	COMMODORE 64/128	15.95	12.95	Revs	14.95	11.95
2112 AD	7.95	5.95	Lord of the Rings	15.95	12.95	Yaba Daba Doo	7.95	5.90
Saboteur	8.95	6.70	Rock 'n' Wrestle	9.95	7.30	Transformers	8.95	6.70
Yie Ar Kungfu	7.95	5.95	Goonies	9.95	6.99	Ball Blazer	9.95	7.50
Spitfire 40	9.95	7.35	Summer Games 2	9.95	7.20	Zorro	9.95	7.30
Elite	14.95	10.95	Enigma Force	9.95	7.30	The Evil Crown	9.95	7.30
Beach Head II	7.95	5.95	Yie Ar Kung Fu	7.95	5.95	Lit. Comp People	9.95	7.30
The Young Ones	7.95	5.50	Gyroscope	7.95	5.90	Outlaws (Ultimate)	9.95	7.30
Sold a Million	9.95	7.35	Blade Runner	8.95	6.75	Arc of Yeosod	8.95	7.30
Arcade Hall of Fame	9.95	7.30	Winter Games	9.95	6.95	Wild West	9.95	7.50

All prices include free test delivery & same day despatch, when available. Personal callers welcome. 10% discount on all orders for seven or more tapes or to a value over £45. Cheques/PDs/ECs payable to ED40. For up to date news on available & Access orders ring (0920) 870588. Free Game included for orders over £10. P0626A

CUT PRICE SOFTWARE

Spectrum	RRP	OUR PRICE	Battle of the Planets	7.95	5.90	Matchday	9.95	7.25
Shadow of the Unicorn	14.95	11.95	Raspurin	7.95	5.40	Transact	29.95	5.99
Monty on the Run	7.95	6.25	Cyberun	9.95	6.95	Bruce Lee	9.95	7.25
Elite	14.95	10.90	Commodore			Invostal	29.95	5.99
Mikie	7.95	5.90	Elite	14.95	10.90	Cyrus II Chess (disk)	13.95	10.95
Exploding Flat	8.95	6.95	Mercenary	9.95	7.25	Sorcery II (Disk only)	14.95	10.95
Starquake	7.95	5.50	Rambo	8.95	5.50	Nightshade	9.95	7.25
Commando	7.95	6.00	Superman	9.95	5.90	Elite (Jan 86)	14.95	11.00
Impossible Mission	7.95	6.25	Revs	14.95	11.00	Bounty Bob	9.95	7.25
Rambo	7.95	5.50	Winter Games	9.95	7.00	Hypersports	8.95	6.50
Sold A Million	9.95	7.00	Sold A Million	9.95	6.95	Syrus II Chess	9.95	7.25
Robin of the Wood	9.95	7.00	Zorro	9.95	6.95	Sold A Million	9.95	7.00
Tau Ceti	9.95	6.75	Now Games II	8.95	6.25	Spy Vs Spy	9.95	6.95
Yie Ar Kung Fu	7.95	4.95	Lord of the Rings	15.95	11.00	Cauldron	7.99	6.00
Beach Head II	7.95	5.40	Enigma Force	9.95	6.50	Fighting Warrior	8.95	6.90
Now Games II	8.95	6.25	Ball Blazer	9.95	7.00	Lord of the Rings	15.95	11.00
Lord of the Rings	15.95	11.95	Fight Night	9.95	6.50	Death Wake	7.95	5.50
Enigma Force	8.95	5.50	Quake I	9.95	6.95	Spitfire 40	9.95	7.25
Sounds & Sorcery	9.95	7.00	Rock & Wrestle	9.95	7.00	Barry McQ. Boxing	9.95	7.00
Winter Games	7.95	5.50	Hard Ball	9.95	7.25	Cyrus II Chess	9.95	7.25
Gun Fright	9.95	6.80	Superbow	9.95	6.95	Daleys Superstest	8.95	6.25
Zoids	7.95	5.40	Amstrad			Zorro	9.95	7.00
Winter Sports	8.95	6.99	W/Serial Baseball	8.95	6.80	Sold A Million (Disk)	14.95	10.00

Large selection of AMSTRAD disk s/w available at discount prices. AMSTRAD blank disks, £35 per box of 10. Large range of CBM64 disk available. This is just a small selection from our stocks. Please ring for more details P&P included. Overseas orders add 75p per tape. For Mail Order please send Cheques/PO payable to CPS Visal Access Card orders by phone welcome, to:

CUT PRICE SOFTWARE, 4 Slacksbury Hatch,

MOLOTOV MICK



Mick's Headbutts will really grab you.
No butts about it!

ROCK'N WRESTLE





CLOCK

by Paul Leathley

When the program is run you will see a large clock, a mouse, a piece of cheese, a window for questions and answers and a fruit machine-type object with a lever: this the right/wrong machine.

Next, you see in the window the question "What is the Time?". You will have noticed that the clock has acquired a pair of hands and using these as a guide you must answer the question. Numbers should be entered as figures rather than words; *Quarter, Half, Past* and *To* must be typed fully; *O'Clock* must be typed fully with an apostrophe (Shift 7) after the 'O'; and there must be a space between each word or number. After an answer is entered, the lever on the right/wrong machine is pulled.

If the answer is right the face at the end

of the lever smiles and mouse moves one pace towards the cheese, otherwise the exact opposite happens. When the cheese is reached, a score and assessment is given.

Program notes

80-130	Define characters.
170-200	Draw clock as 2 concentric circles.
220-230	Print numbers.
250-260	Print mouse and cheese.
290	Define Windows.
310-320	Draw right/wrong machine.
340-390	Select random time, draw hands.
410-480	Work out correct string for answer.
470-480	Asks time.
520-540	Activate machine.
560-620	Checks whether answer is correct.
640-660	Tune.
680-740	Prints score and assessment.
750-760	Error detected.

```

10 REM
20 REM
30 REM
40 REM
50 ON ERROR GOTO 750
60 CLS:LOCATE 1,12:PRINT "IF YOU'VE JUST LOADED,REMEMBER TO PRESS *,,,*STOP*:FOR D=1 TO 1000:NEXT D
70 REM DEFINE CHARACTERS 203-206
80 SYMBOL AFTER 200
90 SYMBOL 203,126,255,153,255,255,129,255,126
100 SYMBOL 204,51,51,204,204,51,51,204,204
110 SYMBOL 205,120,64,240,216,252,192,128,192
120 SYMBOL 206,0,126,94,118,110,122,94,126
130 SYMBOL 207,96,145,128,95,63,63,63,96
140 MODE 1:CLS:PRINT "QUARTER HALF PAST O'CLOCK TO"
150 BORDER 0:PAPER 0:PEN 1:INK 0,11:INK 2,26
160 REM DRAW 2 CONCENTRIC CIRCLES
170 DEG
180 FOR I=420 TO 60 STEP -2
190 PLOT 176,200,1
200 PLOT 150+COS(I),150+SIN(I):PLOT 176,200:PLOT 170+COS(I),170+SIN(I):NEXT I
210 REM PRINT NUMBERS ON CLOCK
220 RESTORE 230:FOR I=1 TO 15:READ X,Y,C:LOCATE X,Y:PRINT CHR$(C):NEXT I
230 DATA 16,6,49,19,9,50,20,13,51,19,17,52,16,20,53,12,22,54,7,21,55,4,17,56,3,13,57,4,9,49,5,9,48,7,6,49,8,6,49,11,4,49,12,4,50
240 N=0:DIS=0:REM NO. OF TRIES & DISTANCE FROM CHEESE
250 LOCATE 26,16:PRINT SPACE$(11):CHR$(206)
260 LOCATE 23,16:PRINT SPACE$(13):PEN 2:LOCATE 26+DIS,16:PRINT CHR$(207):CHR$(205):PEN 1
270 LOCATE 12,13:PRINT CHR$(133)
280 REM WINDOWS
290 WINDOW #1,23,39,4,13:PAPER #1,14:PEN #1,3:CLS #1
300 REM DRAW RIGHT/WRONG MACHINE
310 LOCATE 28,22:PRINT CHR$(135):STRING$(7,CHR$(131)):CHR$(139):LOCATE 28,23:PRINT CHR$(133):SPACE$(7):CHR$(138):LOCATE 28,24:PRINT
CHR$(141):STRING$(7,CHR$(140)):CHR$(142)
320 PLOT 578,40,1:DRAW 610,72:LOCATE 39,21:PRINT CHR$(203)
330 REM PICK A RANDOM TIME
340 RANDOMIZE TIME
350 HR=INT(RND*12)+1
360 MN=INT(RND*12)+5
370 H=450-(HR*30)-(MN/2):PLOT 176,200:DRAW 75+COS(H),75+SIN(H)
380 REM DRAW HANDS
390 M=450-(MN/5)*30:PLOT 176,200:DRAW 100+COS(M),100+SIN(M)
400 REM COMPUTER WORKS OUT STRING FOR ANSWER
410 IF MN=0 THEN A$=STR$(HR)+" O'CLOCK":GOTO 470
420 IF MN>30 THEN B$=" TO":MN=60-MN:HR=HR+1 ELSE B$=" PAST"
430 IF HR=13 THEN HR=1
440 IF MN=15 THEN Z$=" QUARTER"ELSE IF MN=30 THEN Z$=" HALF"ELSE Z$=STR$(MN)

```



```

450 A$=Z$+B$+STR$(HR):REM A$ CONTAINS THE CORRECT ANSWER
460 REM ASKS THE TIME-TRY$ HOLDS YOUR ANSWER
470 CLS #1:PRINT #1,"WHAT IS THE TIME?";
480 INPUT #1,TRY$:TRY$=" "+UPPER$(TRY$):IF LEN(TRY$)<6 THEN 480
490 IF INSTR(TRY$,"O'CLOCK")+INSTR(TRY$,"TO")+INSTR(TRY$,"PAST")+INSTR(TRY$,"QUARTER")+INSTR(TRY$,"HALF") THEN 510
500 PRINT #1,"TRY AGAIN":GOTO 480
510 REM PULL DOWN LEVER TO ACTIVATE RIGHT/WRONG MACHINE
520 PLOT 578,40,0:DRAW 610,72,0:LOCATE 39,21:PRINT " ":PLOT 578,40,1:DRAW 610,8:LOCATE 39,25:PRINT CHR$(203)
530 REM MACHINE IN ACTION
540 RESTORE 650:FOR I=1 TO 28:GOSUB 640:LOCATE 29,23:PRINT STRING$(7,206):CALL &BD19:LOCATE 29,23:PRINT STRING$(7,CHR$(204)):NEXT I
550 REM CHECK YOUR ANSWER AGAINST CORRECT ONE-RW$ HOLDS 'RIGHT' OR 'WRONG'
560 IF TRY$=A$ THEN RW$="RIGHT !":CH=224:DIS=DIS+1 ELSE RW$="WRONG !":CH=225:DIS=DIS-1
570 LOCATE 29,23:PRINT RW$:LOCATE 39,25:PRINT CHR$(CH)
580 IF TRY$<>A$ THEN PRINT #1,"THE ANSWER WAS...";A$
590 FOR DELAY=1 TO 5000:NEXT DELAY
600 REM ERASE HANDS & MACHINE LEVER
610 PLOT 176,200,0:DRAW 100+COS(M),100+SIN(M):PLOT 176,200:DRAW 75+COS(H),75+SIN(H):PLOT 578,40,0:DRAW 610,8:LOCATE 39,25:PRINT "

620 N=N+1:IF DIS=10 THEN 680 ELSE IF DIS=-4 THEN DIS=-3:GOTO 260 ELSE 260
630 REM HICKORY DICKORY DOCK-NO=NOTE,DU=DURATION
640 READ NO,DU:SOUND 1,NO,DU:RETURN
650 DATA 568,20,568,20,478,20,478,20,426,20,379,20,358,80,568,30,568,30,478,30,426,40,379,30,358,80,478,30,358,30,358,50,379,30,379,
50,426,50,426,30,478,40
660 DATA 478,30,426,30,478,30,536,30,568,30,638,30,716,130
670 REM MOUSE REACHES CHEESE
680 CLS:LOCATE 15,5:PRINT "WELL DONE !":LOCATE 6,10:PRINT "YOU GOT TO THE CHEESE IN";N;"GOES"
690 MESG=5+(N<25)+(N<20)+(N<15)+(N<10):RESTORE 740:FOR I=1 TO MESG:READ MESG$:NEXT I
700 LOCATE 10,15:PRINT "THAT ";MESG$
710 LOCATE 4,20:PRINT "DO YOU WANT TO START AGAIN (Y/N)?"
720 K$=UPPER$(INKEY$):IF K$="Y" THEN 140 ELSE IF K$<>"N" THEN 720
730 END
740 DATA IS VERY GOOD,IS GOOD,IS AVERAGE,COULD BE A LOT BETTER,MEANS YOU NEED PRACTICE !
750 PRINT "Error no. ";ERR;"detected in line";ERL
760 PRINT:PRINT "See APPENDIX VIII to see details of it.":END

```

SOFTINSIGHT

DISCOUNT SOFTWARE

	RRP	OUR	AMSTRAD				
SPECTRUM			WORLD SERIES BASEBALL	8.95	6.71	EXPLODING FIST	9.95 7.46
ANY LEVEL 9 GAMES	9.99	7.46	LORD OF THE RINGS	15.95	5.40	GYROSCOPE	9.95 6.46
GYROSCOPE	7.95	5.96	SCRAMBLE	9.95	7.46	YA KUNG FU	8.95 6.71
I OF THE MASK	9.95	7.46	ANY AMSTRAD GAMES	8.95	6.71	CITADEL	9.95 7.46
NOW GAMES II	8.95	6.20	ANY LEVEL 9 GAMES	9.99	7.80	ATARI	
TAU CETI	9.95	7.46	WORM IN PARADISE	6.95	5.20	MERCENARY	9.95 7.46
COMMANDO	7.95	5.40	3D GRAND PRIX	9.95	7.46	ELECTRA GLIDE	9.95 6.71
YIE AR KUNG FU	7.95	5.40	BRUCE LEE	9.95	7.46	FRACALUS	9.95 7.46
SWEEDYS WORLD	7.95	5.40	MARSPOUT	9.95	7.46	SMASH HITS (IV)	9.95 7.46
SABOTEUR	8.95	6.77	NIGHT SHADE	9.95	6.95	SPY HUNTER	9.95 7.46
TOMAHAWK	9.95	6.95	YIE AR KUNG FU	8.95	6.71	TRAPPER	9.95 7.46
WHAM MUSIC BOX	9.95	7.46	RASPUTIN	7.95	5.40	ZORRO	9.95 7.46
ELITE	14.95	11.21	NEVER ENDING STORY	9.95	7.46	KING OF THE RING	9.95 7.46
2112 AD	7.95	5.40	RAID	9.95	7.46	UP & DOWN	9.95 7.46
MIND SHADOW	9.95	7.46	MATCHDAY	9.95	7.46	THEATRE EUROPE	9.95 7.46
FORBIDDEN PLANET	7.95	5.40	MIND SHADOW	9.95	7.46	TRAPPER	
STARQUAKE	7.95	5.96	HIGHWAY ENCOUNTER	8.95	7.00		
IMPOSSIBLE MISSION	7.95	5.96	THEY SOLD A MILLION	9.95	7.46		
SPITFIRE 40	9.95	6.90	SPY V SPY	9.95	7.46	C864	
WINTERSPORTS	9.95	7.46	ADRIAN MOLE	9.95	7.46	ANY OF US GOLD	9.95 7.46
DEVILS CROWN	9.95	6.90	DYNAMITE DAN	9.95	6.71	ANY ACTIVISION	9.95 7.46
BACK TO SKOOL	6.95	5.20	TEPHROMOLINOS	9.95	6.71	ANY LEVEL 9	9.95 7.46
ARENA	9.95	6.90	FIGHTING WARRIOR	9.95	6.71	MERCENARY	9.95 7.46
ELITE TUNER		1.99	CASLORD	8.99	6.75	RAMBO	9.95 7.46
BEACHHEAD II	7.95	5.96	BOUNTY BOB STRIKES BACK	9.95	7.46	STARION	9.95 7.46
RASPUTIN	7.95	5.40	KNIGHT LORE	9.95	6.90	COMMANDO	9.95 7.46
TRANSFORMERS	7.95	5.40	ALIENATE	9.95	6.90	LITTLE COMPUTER PEOPLE	9.95 6.90
ART STUDIO	14.95	11.00	EXPLODING FIST	9.95	6.90	SUPERMAN	9.95 6.90
RAMBO	7.95	5.40	GREMLINS	9.95	6.90	WORM IN PARADISE	9.95 6.90
MIKE	7.95	5.40	RAID	9.95	6.90	SCALXTRICS	9.95 7.46
COSMIC WAR TAO	7.95	5.40	GYROSCOPE	9.95	6.20	FALKLANDS 62	9.95 6.90
NOMAD	7.95	5.40	COMMANDO	9.95	6.90	UNDERWORLD	9.95 7.46
MATCHDAY	7.95	5.40	BORED OF THE RINGS	9.95	5.20	GOONIES	9.95 6.90
WORLD SERIES BASKETBALL	7.95	5.40	IMPOSSIBLE MISSION	9.95	6.90	BLADERUNNER	9.95 6.90
ROUNDSTONE	7.95	5.40	DUN DARACH	9.95	6.90	GYROSCOPE	9.95 6.90
BOUNTY BOB	7.95	5.40	GEORGE CAPES	8.95	6.20	NOW GAMES	8.95 5.40
FLINTSTONES	7.95	5.40	AIRWOLF	8.95	6.20	REVS	14.95 11.00
PANZER ZONE	7.95	5.40	SOUTHERN BELLE	8.95	6.20	MUSIC SYSTEM	14.95 11.00
LORD OF THE RINGS	15.95	12.00	ENFORCER	7.95	5.40	TRANSFORMERS	8.95 6.20
PINIST HOUR	9.95	6.90	HIGHWAY ENCOUNTER	8.95	6.20	ADVANCE MUSIC SYSTEM	39.95 32.95
WINTER GAMES	9.95	6.90	GRAPHIC ADV CREATOR	22.95	18.95	NEXUS	9.95 6.90
ARK OF YESOD	9.95	6.90				ENIGMA FORCE	9.95 6.90
3 WEEKS IN PARADISE	9.95	6.90	BBC			QUAKE MINUS ONE	9.95 6.90
WINTER SPORTS	9.95	6.90	MONOPOLY	9.95	7.46	FIGHT NIGHT	9.95 6.90
ZORDS	8.95	6.20	PHANTOM	9.95	7.46	ZORRO	9.95 6.90
EXPLODING FIST	8.95	6.20	CITADEL	9.95	7.46	ZORDS	9.95 6.20
NOW GAMES	8.95	6.20	MATCHDAY	9.95	7.46	OUTLAW	9.95 6.90
ENIGMA FORCE	9.95	6.90	ALIEN B	9.95	7.46	THEY SOLD A MILLION	9.95 6.90
NOMAD	7.95	5.40	STRIKE FORCE HARRIER	9.95	7.46	ARCADE HALL OF FAME	9.95 6.90
			NIGHTSHADE	9.95	7.46	BATTLE OF BRITAIN	9.95 6.90
						EXPLORING FIST	9.95 6.90

ALL PRICES INCLUDE FREE FAST DELIVERY

PLEASE MAKE CHEQUES PAYABLE TO:
SOFT INSIGHT, 17 Burgos Grove, Greenwich, London SE10.

Access orders/enquiries 01-305 0790

P07146

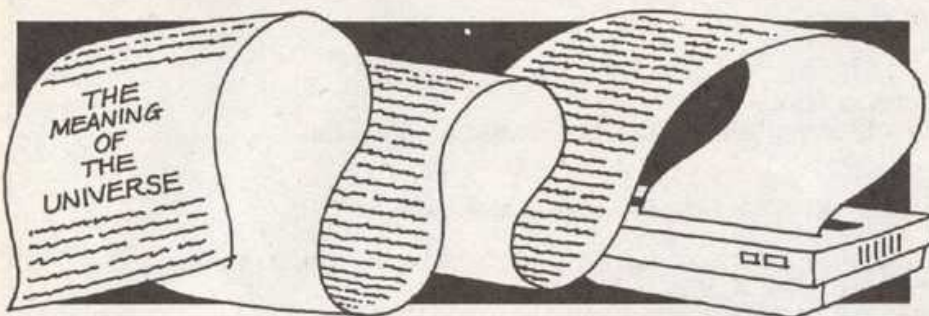
REDNECK McCOY



You'll know he's the real McCoy once
you've sampled an Atomic Drop.

ROCK'N WRESTLE





KEYWORDS

by Mike Lloyd

SuperBasic contains around 150 keywords, each with its own particular syntax. This is a phenomenal amount for newcomers to the Sinclair QL to learn and even experienced users can be excused for forgetting the precise parameter requirements for, say, the **BEEP** command. This listing displays on the screen a potted User Guide to some of the QL's more difficult commands and concepts and should be far more convenient than delving into the pages of the manual.

To use the facility, type **'help'** and

press **ENTER** and the computer will prompt you to enter a keyword which will then be displayed along with its syntax and other useful information in the listing window. Optional parameters are indicated by asterisks. If the keyword is not recognised, an error message is displayed in the command window, and a list of the keywords recognised by the routine can be obtained by entering **'all'**.

As well as giving information about SuperBasic commands the routine can also display keyboard values. Enter ei-

ther **'KEYROW'** or **'ASCII'** and the appropriate values of any keys subsequently pressed will be displayed. These sub-routines can be left by pressing the **ESC** key.

Listing 1 to 4 should be renumbered (after they have been entered) as follows: **RENUM 1 TO 500;24900,1**. This allows the routines to be merged with programs being developed so that the help facility is always available. The **DATA** statements should not be altered as their line numbers are crucial for the correct information to be displayed.

```

100 DEFine PROCedure help
105 LOCAL k%,k%,x,loop,a%,max,keyword%
110 RESTORE 25000:READ keyword%
115 INPUT#0,"Enter keyword >":k%
120 n = % INSTR keyword%
125 SELECT ON n
130 = 0
135 PRINT#0,k%:"is not recognised"
140 = 1 TO 72
145 CLS#2:PRINT#2:keyword$(n TO n+LEN(k%)):RESTORE 25000+n:READ max
150 FOR x = 1 TO max:READ a%:PRINT#2,a%
155 = 80:asci
160 = 80:keytest
165 = 91:list_all
170 END SELECT
175 END DEFine help

200 DEFine PROCedure asci
210 CLS#2:PRINT#2:"CHAR CODE""Press ESC to quit"
220 REPEAT loop
230 k = CODE(INKEY$(1))
240 AT#2,1,3:PRINT#2,CHR$(k):" ";CLS#2,4

250 IF k = 27:PAUSE 50:RETURN
260 END REPEAT loop
270 END DEFine asci

300 DEFine PROCedure keytest
310 CLS#2:PRINT#2,"KEYROW"" RDW COL""Press ESC to quit"
320 REPEAT loop
330 FOR x = 0 TO 7
340 k = KEYROW(x)
350 IF k>0:AT#2,2,3:PRINT#2,k:CLS#2,4
360 IF x = 1 AND k = 8:RETURN
370 NEXT x
380 END REPEAT loop
390 END DEFine keytest

400 DEFine PROCedure list_all
410 RESTORE 26000:tot = 1
420 CLS#2:PRINT#2,"HELP available for:"
430 FOR x = 1 TO 18:READ n:PRINT#2:keyword$(tot TO tot+n-1):tot = tot+n
440 END DEFine list_all

25000 DATA "BEEP,BLOCK,BORDER,CIRCLE,CLS,SIZE,SIZEBY,SPAN,PRINT,SS,TESS,ROLLWIN,
DOWN,PEN,DATE,operator,asci,keyrow,all"
25001 DATA 8,"Length: -32768 to 32768: 0 = forever", "Pitch#1: 0 (high)
to 255 (low)", "Pitch#2: 0 to 32768", "Grad X: 0 to 32768", "Grad Y: 0 to 32768", "Wraps:
0 to 15", "Fuzzy: 0 to 15", "Random: 0 to 15"
25005 DATA 6,"#channel", "width (pixels)", "height", "x co-ord (pixels)",
"y co-ord", "colour"
25010 DATA 3,"#channel", "width", "colour"
25016 DATA 6,"#channel", "x co-ord (graphics)", "y co-ord", "radius", "
eccentricity", "angle"
25022 DATA 7,"#channel", "screen area (0 to 4):", "0 whole screen
(default)", "1 above cursor line", "2 below cursor line", "3 all cu
rsor line", "4 right end of cursor line"
25025 DATA 6,"#channel", "width (pixels)", "height (pixels)", "0 (6)
(10)", "1 (6) (20)", "2 (12)", "3 (16)"
25030 DATA 2,"file name", "start address"
25036 DATA 6,"#channel", "distance (+ right, - left)", "screen area
(0,3,4):", "0 whole screen (default)", "3 all cursor line", "4 righ
t end of cursor line"
25039 DATA 6,"#channel", "intelligent space", "tab (8 co
lumn per tab)", "new line", "no line feed", "TO x: tab x
spaces"
25044 DATA 3,"file name", "start address", "code length"
25050 DATA 6,"#channel", "distance (+ down, - up)", "screen area (0,
1,2):", "0 whole screen (default)", "1 above cursor line", "2 below
cursor line"
25056 DATA 5,"#channel", "width (pixels)", "height", "x co-ord", "y co-o
rd"
25062 DATA 9,"#channel", "device (scr_con_ser_net_adv_flp):", "SCR_
(ac)X(dn)A(x)X(y)", "CON(ac)X(dn)A(x)X(y)_buffer", "MDV(drv)_(file
name)", "See User Guide for NET SER FLP"
25065 DATA "", "OPEN_IN:open mdv file - read only", "OPEN_NEW:open new
adv file"
25066 DATA 2,"yyyy,mm,dd,hh,mm,ss", "eg 1985,12,25,12,30,58"
25071 DATA 20,"= equals (case specific)", "= equals (case indep
endent)", "+ add", "- subtract", "*" multiply, "/" divide"
25072 DATA "< less than", "> greater than", "<= less than or
equal to", ">= greater than or equal to", "<> not equal to", "&
concatenate strings", "MOD integer modulus", "DIV integer divide",
"INSTR compare string content", "^^ raise to power"
25073 DATA "", "Logical Bitwise", "AND &&", "OR ||", "XOR
^^", "NOT"
25080 DATA 4,5,6,6,3,5,6,3,5,6,6,4,5,9,5,6,3

```


The Secret Diary of Robin of Sherlock aged 34 $\frac{3}{4}$

December 1985

25 Wednesday

Christmas Day

Well, there was no escaping it, Christmas Day had schnuck up on us. Despite my cranking the cat into song at 6am, Mom and Dad didn't look like getting up before lunch, so I decided to go check out my presents. When I got downstairs, I got one big shock. The whole joint was a wreck, with wrapping paper and discarded mince pie remnants everywhere. Our pad had been done over good, the curtains blowing round the open window showed the burglar's way out. I was devastated.

I thought maybe I'd better take a look-see before I called the fuzz, who knows, perhaps there were some clues lying around. After checking through all the wrapping paper, I was just about to throw in the towel when I noticed something sticking out from under the guard dog. Being careful not to wake him, I kicked him out of the way to discover one unopened present on the floor.

I quickly ripped off the paper and a deerstalker and magnifying glass fell to the floor. . .

26 Thursday

St Stephen Boxing Day

Watson and me were sitting in my armchair, surveying the scene of the crime. We had been using my new magnifying glass to search for fingerprints but so far we had only identified the milkman's and some smudges. The guard dog, who was wearing the deerstalker, looked up but didn't say anything. We had to come up with something, and fast. We headed out into the garden and scouted round the house 'till we located the open window. I looked around in the rose beds, but there was nothing except some stupid, foot-shaped impressions in the ground. Still, it's a good job we went outside, because just as we were giving up, Watson spotted a scrap of red cloth, hanging pitifully from a rose bush. But, before he could get to it, a shot rang out. He sank, sickeningly to the floor, mumbled something unimportant, and expired. He had obviously been shot. After I had taken his watch for safe-keeping, I went indoors to watch TV.

PD612

C16/PLUS 4 CENTRE

HUGE SELECTION OF SOFTWARE
NEW TITLES ADDED EVERY DAY
DUST COVERS/
EXPANSION PACKS/BOOKS
IN FACT EVERYTHING TO DO
WITH C16/PLUS 4

SEND S.A.E. FOR OUR DESCRIPTIVE LIST
PAYMENTS BY VISA ACCESS P.O. CHEQUE
POST AND PACKAGING FREE U.K. MAINLAND/OVERSEAS £1

ANCO MARKETING
85 TILE KILN LANE
BEXLEY, KENT
Tel: (0322) 522580

ANCIENT & MODERN

Unit 111 (Rear), Washington Road, West Wilts Trading Estate,
Westbury, Wilts

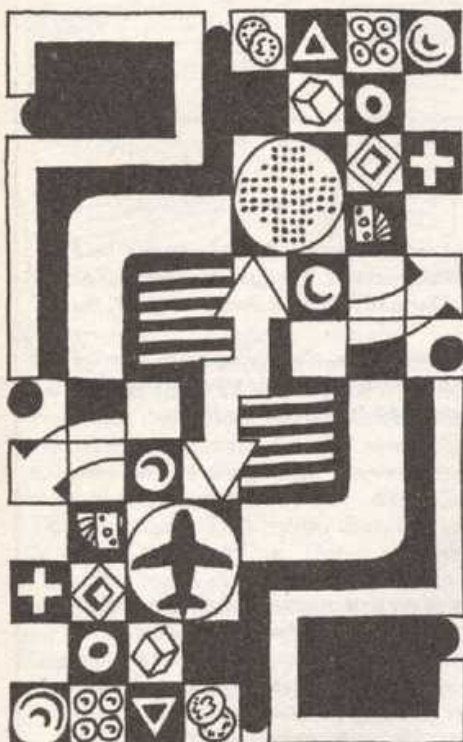
JANUARY SALE BARGAINS!!!

SPECTRUM	RSP	A & M Price	COMMODORE 64	RSP	A & M Price
MINDER	9.95	5.50	STAFF OF KARNATH	9.95	4.99
DYNAMITE DAN	6.95	4.50	HUNCHBACK II	7.90	3.99
SUPER GRAN	9.95	3.99	KONG STRIKES BACK	7.90	3.99
JONAH BARRINGTON SQUASH	7.95	4.99	CRAZY COMETS	7.95	4.99
BABA-LIBA	9.95	3.99	REVS	14.95	9.99
ATLANTIS (Anilog)	6.95	3.99	FRIDAY THE 13TH	8.95	5.99
STARQUAKE	7.99	5.25	TRANSFORMERS	8.95	5.99
BC QUEST FOR TIRES	7.95	4.95	RAMBO	8.95	5.99
SECRET OF ST. BRIDES	6.95	4.50	GOONIES	9.95	6.70
ELITE	14.95	9.49	WINTER GAMES	9.95	6.70
MONTY ON THE RUN	7.95	5.25	COMMANDO	9.95	6.70
TAU CETI	9.95	6.49	BATALYX	9.95	6.99
COMMANDO	7.95	4.99	RAID ON BUNGELING BAY	9.95	4.99
RAMBO	7.95	4.99	SOLD A MILLION	9.95	6.99
WINTER GAMES	7.95	4.99	SCALEXTRIX	9.95	6.99
FORBIDDEN PLANET	7.95	4.99	HALL OF FAME	9.95	6.99
2112 A.D.	7.95	4.99	COMMODORE 16		
AUSTERLITZ	9.95	6.45	W. S. BASKETBALL	7.95	5.95
BOUNTY BOB	7.95	4.99	S. DAVIES SNOOKER	7.95	5.95
EVIL CROWN	9.95	6.70	BERKS	6.95	4.95
REGARDS TO BROAD STREET	7.99	4.75	THE BOSS	6.95	5.25
ROBOT MESSIAH	7.95	4.99	OLYMPIC SKIER	5.99	4.99
YIE AR KUNG FU	7.95	4.99	POTTIT	6.99	3.99
SURF CHAMP	11.95	8.99	THAI BOXING	5.95	4.95
			FIRE ANT	5.99	2.99
			MAYHEM	5.99	2.99
			BEACH-HEAD	7.95	5.95
			AIRWOLF	6.95	4.99
			DALEY'S STAR EVENTS	6.95	4.99
			ELECTRON		
			YIE AR KUNG FU	8.95	6.75
			STEVE DAVIS SNOOKER	7.95	5.95
			REPTON 2	9.95	6.99
			FOOTBALL MANAGER	8.95	6.75
			ATARI		
			FIGHTER PILOT	9.95	6.99
			THE HACKER	8.99	7.99
			MERCENARY	9.95	6.99
			SPY HUNTER (disc)	14.95	11.50
			SMASH HITS 4	9.95	7.99

All prices inc. P & P. Overseas add 75p per tape. Thousands of titles stocked.

Please send SaE for full lists stating machine. Lists also for Dragon, BBC, Vic 20. Cheques/POs payable to Ancient & Modern, Unit 111 (Rear), Washington Road, West Wilts Trading Estate, Westbury, Wilts.

PD730A



FIND FACILITY

by David Viner

A useful feature found on some computers is a *Find* facility. It searches through a Basic program for a specific string of characters, usually a variable, and then displays all the line numbers where the string was found.

This program is a no frills implementation of such a facility for the BBC micro. To make the routine quicker, part of it has been written in assembler.

The routine prints out the line number onto either the screen or, if *VDU2* is put before the *Rem* in Line 32020, to both the screen and printer.

The easiest way to use the routine is to **Spool* it to disc and then to merge it with the **Exec* command onto the program you want to scan.

Type *Goto32000* and enter your search string (eg, enter 'pass' which will then match with and list out Lines 32200, 32220 and 32600). Note that Basic commands or keywords will not be found as these are not held in memory as normal ASCII codes but are converted to one byte tokens (see page 483 of the user manual for the token values).

The listing has *Rems* to explain how the routine works.

It may be wise to change Line 32200 (Listing One) to *For pass=0 to 3 Step 3* and put *Stop* at Line 32610 on the first *Run* as this will report any errors in the assembler routine due to typing mistakes etc.

Once you are sure the assembly section is running correctly change the two lines back to their original formats - otherwise it won't work.

All the routines have high line numbers so that they should not clash with your own programs.

```

32000 DIM FIND 70,string 40      : REM reserve m/c and data area
32010 INPUTsearch$               : REM get search string
32020 REM add VDU2 to send output to printer
32030 PRINTsearch$
32040 $string=search$             : REM put search string into data area
32050 length=$80
32060 ?length=LEN(search$)       : REM keep a record of the data length
32070 pointerlo=$81
32080 ?pointerlo=PAGE MOD 256    : REM set up start point of search
32090 pointerhi=$82
32100 ?pointerhi=PAGE DIV 256
32110 linehi=$83                 : REM reserve area for copy of line numbers
32120 linelo=$84
32130 bytes=$85                  : REM and number of bytes in line
32140 stringlo=$86               : REM set up a pointer to the data
32150 ?stringlo=string MOD 256
32160 stringhi=$87
32170 ?stringhi=string DIV 256
32180 count=$88                  : REM reserve two work area bytes
32190 flag=$89
32200 FOR pass=0 TO 2 STEP 2     : REM for two passes through the assembler
32210   P$=FIND                  : REM set the m/c program counter
32220   [OPT pass
32230   LDY #1
32240   CLC
32250   .loop LDA (pointerlo),Y    \ loop to copy line number and
32260   STA pointerhi,Y           \ number of bytes into work area
32270   INY
32280   CPY #4
32290   BNE loop
32300   CLC
32310   TYA                      \ add four to pointer to
32320   ADC pointerlo             \ increment it to the start
32330   STA pointerlo            \ of the actual BASIC
32340   BCC reset
32350   INC pointerhi
32360   .reset LDY #0
32370   STY count                \ reset count of bytes to zero
32380   .zero LDY #0
32390   .again LDA (stringlo),Y  \ get a byte from data string
32400   CMP #&D                 \ check if end of data reached
32410   BEQ found                \ and branch if so
32420   CMP (pointerlo),Y       \ else compare it with BASIC line
32430   BNE next                \ branch if no match
32440   INY
32450   BNE again               \ else check next byte
32460   .next INC count
32470   LDA count                \ increment count and
32480   CMP bytes                \ check if at end of line
32490   BEQ notfound            \ branch if end encountered
32500   INC pointerlo            \ else increment BASIC line pointer
32510   BNE zero
32520   INC pointerhi
32530   BNE zero                \ and do check again
32540   .notfound LDX #0        \ set flag for no match found
32550   BEQ exit                \ always branch
32560   .found LDX #255         \ set flag for match found
32570   .exit STX flag          \ store match value
32580   RTS                    \ exit back to BASIC
32590   ]
32600 NEXT pass
32610
32620 REPEAT                     : REM loop until end of program found
32630   pointer=?pointerlo + 256 * ?pointerhi
32640   CALL FIND
32650   IF ?flag>0 THEN PRINT ?linelo + 256 * ?linehi,;
32660   REM above line prints line number if match was found
32670   nextline=pointer + ?bytes : REM set up for next BASIC line
32680   ?pointerlo=nextline MOD 256
32690   ?pointerhi=nextline DIV 256
32700   UNTIL nextline>LOMEM-3
32710 PRINT
32720 PRINT
32730 VDU3                       : REM turn off printer

```


Bytes and Pieces

Screen Dump on Spectrum by M C Ogier

This is a program for a ZX Spectrum, using the RS 232C connection of Interface 1 for a screen dump to an Epson LX 80 printer.

I have consistently been unable to make the published machine code programs work with my LX 80, so I wrote this short routine in Basic to do the job. It takes 1 minute 45 seconds to dump the whole screen, but it does work!

```

10 REM CHARLIE OGIER
BASIC SCREEN DUMP (EPSON LX-80)
20 LET a=4096: LET c=-2048
30 LET e=224: LET h=-32
40 LET i=1792: LET j=-256
50 OPEN #3,"b"
60 LPRINT CHR$ 27;CHR$ 51;CHR$
24;
70 FOR s=20480 TO 20511
80 LPRINT CHR$ 13;CHR$ 10;
90 LPRINT CHR$ 27;CHR$ 75;CHR$
192;CHR$ 0;
100 FOR d=s TO s-a STEP c
110 FOR b=d+e TO d STEP h
120 FOR g=b+i TO b STEP j
130 LPRINT CHR$ (PEEK g);
140 NEXT g: NEXT b
145 NEXT d: NEXT s
150 LPRINT CHR$ 27;CHR$ 64
160 CLOSE #3
    
```

Disc Directory on Amstrad by J Dunnett

This is a short offering for owners of Amstrad 6128s and 664s - note that it will not run on a 464.

On running, it permits the Disc Directory command CAT to be output to a printer, without resorting to machine code.

```

1 MODE 2:WHILE INP(&F500) AND 64:LOCATE 25,13:PRINT CHR$(24);" THE PRI
NTER IS OFF-LINE ":CHR$(24):WEND:WIDTH 80:DISC:FOR Y=0 TO 4:PRINT#8:N
EXT
2 LOCATE 34,2:PRINT"DISCPRT":LOCATE 2,5:PRINT"Disc Title/Number/Date
1":PRINT:INPUT " ",DN$:PRINT#8,"DIRECTORY: ";DN$:PRINT#8:CLS:CAT:X=1:Y=
4
3 WHILE A$<>"f":LOCATE X,Y:A$=COPYCHR$(#0):PRINT#8,A$:IF X=80 THEN X=
1:PRINT#8:Y=Y+1:GOTO 3 ELSE X=X+1
4 WEND:PRINT#8,"ree":FOR Y=0 TO 4:PRINT#8:NEXT:PRINT:PRINT:PRINT CHR$(
24);" TAB-NEXT DISC. SPACE-EXIT ":CHR$(24)
5 G$=INKEY$:IF G$=""THEN 5 ELSE IF G$=CHR$(9) THEN CLS:GOTO 2 ELSE IF
G$=CHR$(32) THEN MODE 1:END ELSE 5
    
```

Word Wrap on QL by A Pritchard

This is a very simple procedure for the QL which ensures that words are not truncated at the end of a window. . .that is, it provides a word wrap.

It does this without needing to specify the window size or character size because it uses the "!" print delimiter.

```

8088 REMARK FITWORD. A.Pritchard 1985
8010 REMARK Procedure to word wrap
8020 REMARK any length of text to any
8030 REMARK window width in any mode.
8040 REMARK Parameters : channel,text
8050 :
8060 DEFINE PROCEDURE fitword(c,a%)
8070 LOCAL i,11,z,b%
8080 11=LEN(a%)
8090 IF 11=0 THEN RETURN
8100 i=1
8110 REPEAT fword
8120 z=" INSTR a$(i TO 11)
8130 IF z=0 THEN
8140 b%=a$(i TO 11)
8150 z=11-i
8160 ELSE
8170 b%=a$(i TO i+z-2)
8180 END IF
8190 i=i+z
8200 PRINT#c,!"b%
8210 IF i>=11 THEN
8220 EXIT fword
8230 END IF
8240 END REPEAT fword
8250 END DEFINE
    
```



There's a Dealer near you . . .

BIRMINGHAM

D.G. MICROTEK ELECTRONICS
190B DUDLEY ROAD
WINSON GREEN
BIRMINGHAM
Tel: (021) 454 4697

PL544

HEREFORDSHIRE

HONEYSETT COMPUTERS
17 UNION STREET
HEREFORD HR1 2BT
Tel: (0432) 279404

PL524

LEEDS

MICROPOWER

NORTHWOOD HOUSE
NORTH STREET
LEEDS LS7 2AA
Tel: (0532) 458800

PL583

OXFORDSHIRE

CLUB COMPUTERS
6 EVANS YARD
BICESTER
OXFORDSHIRE
Tel: (0869) 248600

PL595

ESSEX

MINNIE MICRO COMPUTER STORE
12 EASTERN ESPLANADE
SOUTHEND, ESSEX
Tel: (0702) 615809

PL583

HERTFORDSHIRE

BROADWAY COMPUTER CENTRE
75 QUEENS ROAD
WATFORD, HERTS
Tel: (0923) 43301

PL535

LEICESTERSHIRE

DIMENSION COMPUTERS LTD
27-29 HIGH STREET
LEICESTER
Tel: (0533) 57479

PL540

S. WALES

MAPPLE MICRO ASSOCIATES
FREEPOST
PO BOX 17
CWMBRAN
GWENT NP44 3YT

PL545

WARWICKSHIRE

FAST FORWARD COMPUTER STORE
29 SMITH STREET
WARWICK
Tel: (0926) 492004

PL545

HUMBERSIDE

THE COMPUTER CENTRE
(HUMBERSIDE)
26 ANLABY ROAD
HULL
NORTH HUMBERSIDE
0482 26297

PL483

LIVERPOOL

BLUE CHIP
77 ALLERTON ROAD
LIVERPOOL L18 2DA
Tel: (051) 722 3037

PL517

YORKSHIRE

THE COMPUTER STORE
18 CLEVELAND STREET
DONCASTER
Tel: (0302) 25260

PL515A

KENT

ANIROG COMPUTERS
29 West Hill
Dartford
Kent
Tel: (0322) 91649

PL494

LONDON

VIC ODDENS
6 LONDON BRIDGE WALK
LONDON SE1
Tel: 01-403 1988

PL486

COMMUNICATION PLUS
5 HONYWOOD ROAD
(off Cranes Farm Rd)
BASILDON
Tel: (0268) 21818

PL501

COMMUNICATION PLUS
c/o KEDDIES
HIGH STREET
SOUTHEND
Tel: (0702) 62426

PL502

dgh software centre

10 NORTH STREET,
ASHFORD, KENT
Tel: (0233) 32597

PL506

GAMES WORLD
129 KING STREET
HAMMERSMITH
LONDON W6
Tel: 01-741 4467

PL518

THE COMPUTER STORE
26 TEALL STREET
WAKEFIELD
Tel: (0924) 384983

PL517

THE COMPUTER STORE
8 BRIDGE STREET
YORK
Tel: (0904) 646934

PL518

THE COMPUTER STORE
40 TRINITY STREET ARCADE
LEEDS
Tel: (0532) 429284
(open now)

PL519

YORK COMPUTER CENTRE
7 STONEGATE ARCADE
YORK
Tel: (0904) 641862

PL516

COMMUNICATIN PLUS
14 ONGAR ROAD
BRENTWOOD
Tel: (0277) 229379

PL503

MICROWAY COMPUTERS
39 HIGH STREET
RAINHAM, KENT
Tel: (0634) 376702

PL502

SOFTWARE STORE LTD
35 LONDON ROAD
LONDON SW17
Tel: 01-685 1476

PL589

GLASGOW

THE COMPUTER DEPOT
205 BUCHANAN STREET
GLASGOW G1 2JZ
Tel: (041) 332 3944

PL785

LANCASHIRE

SOUND AND VISION
11 SILK STREET
LEIGH, LANCs WN7 1AW
Tel: (0942) 673689

PL502

LOGIC SALES
19 THE BROADWAY
THE BOURNE, SOUTHGATE
LONDON N14
Tel: 01-882 4942

PL586

Arcade Avenue



A new year

To start the year off as we mean to go on here are a fistful of pokes and tips for top games starting with a collection from regular tipster Paul Miller. *Commando* from Elite is an excellent implementation of the popular arcade game, with some of the smoothest movement and slickest animation seen on the Spectrum. However it's not easy, so you may welcome the routine printed below for infinite lives and grenades.

Paul has also given us a cheat mode for the Spectrum version of *Elite*. Like the program we published for the Commodore a few weeks ago this works by doctoring the saved game files so you have to start by loading *Elite* and saving your commander straight away.

Now type in and run the following program

```
10 FOR ÷ = 23296 TO 23329: READ Y:
POKE X, Y: NEXT X
20 DATA 68, 285, 68, 221, 33, 0, 128,
17, 102, 0, 205, 86, 5, 201, 205, 191, 2,
254, 49, 32, 249, 62, 255, 221, 33, 0, 128,
17, 102, 0, 205, 194, 4, 201
```

Now rewind your saved *Elite* commander and enter *Randomise Usr 23296* to load the data in. Press play on the tape.

You can then enter your pokes as follows:

Poke 32791, X - x tonnes of food
Poke 32792, X - x tonnes of textiles
Poke 32793, X - x tonnes of radio-actives
Poke 32794, X - x tonnes of slaves
Poke 32795, X - x tonnes of liquor
Poke 32796, X - x tonnes of luxuries
Poke 32797, X - x tonnes of narcotics
Poke 32798, X - x tonnes of computers
Poke 32799, X - x tonnes of machinery
Poke 32800, X - x tonnes of alloys
Poke 32801, X - x tonnes of firearms
Poke 32802, X - x tonnes of furs

Poke 32803, X - x tonnes of minerals

Poke 32804, X - x kilos of gold

Poke 32805, X - x kilos platinum

Poke 32806, X - x kilos gemstones

Poke 32807, X - x tonnes of alien items

Poke 32820, 255 - fuel scoops

Poke 32821, 255 - escape pod

Poke 32822, 255 - energy bomb

Poke 32823, 255 - energy unit

Poke 32824, 255 - docking comp.

Poke 32825, 255 - galactic hyperdrive

Poke 32816, 255 - large cargo bay

Poke 32817, 255 - ECM system

Poke 32809, 3: *Poke 32810*, 3:

Poke 32811, 3: *Poke 32812*, 3

Give Front, Rear, Left and Right Military Lasers.

To resave your commander enter *Randomise Usr 23310*.

More old friends of the column are that pair known as the Langley Hackers, writing this time with a routine to get infinite lives in *Bubble Bus's Starquake*.

Run this line of program:

```
10 FOR A = 23300 TO 23313: READ B:
POKE A, B: NEXT A: 55, 62, 255, 221,
33, 0, 64, 17, 0, 192, 205, 86, 5, 201
```

Next enter and run this:

10 CLEAR 24100: RANDOMISE USR 23300

Now bypass the first loader on your *Starquake* tape and press play. The game will load and then stop with a nonsense in *Basic* message. You can then enter your pokes.

Poke 50274, 0: infinite lives

Poke 52427, N: Number of joysticks

Poke 50279, 255: full pads after you die (?)

Finally type *Randomise Usr 24100* and the game will start.

Finally Andrew Postlewhite of Rotherham has sent in a badly needed cheat routine for Melbourne House's *Gyroscope*. Run the following and play the tape from the beginning:

CLEAR 24083

LOAD "code" CODE

POKE 53922,0 (infinite lives)

POKE 54270, 201 (no aliens)

POKE 52138, 201 (infinite time)

RANDOMISE USR 52930 TO START

Andrew also offers these quick tips for *Fairlight* which he has finished: "Use the small potion bottles for strengths or for removing the monks (in the tower with the cross on the lower level floor) by pushing it along the floor until it hits them."

Tony Kendle

```
1 REM      COMMANDO POKES
2 REM
3 REM      By Paul Miller 81985
4 REM
10 CLEAR 40000
20 LET TOT=0
30 FOR A=40000 TO 40027
40 READ B: POKE A,B
50 LET TOT=TOT+B
60 NEXT A
70 IF TOT<>3790 THEN CLS : PR
INT AT 8,0: FLASH 1:" ERROR IN D
ATA LINES 1000-1040 ": STOP
80 FOR A=65030 TO 65090
90 READ B
100 IF B=999 THEN GO TO 130
110 POKE A,B
120 NEXT A
130 RANDOMIZE USR 40000:
REM RUN CODE
140 STOP
1000 DATA 221,33,67,254,17,188,1
1010 DATA 62,255,55,205,86,5,48
1020 DATA 241,62,172,50,203,255
1030 DATA 62,84,50,204,255,195
1040 DATA 205,255
1050 REM
```

INFINITE LIVES

```
1060 DATA 175,50,7,108
1070 DATA 50,8,108,50,9,108
1075 DATA 50,6,108,50,5,108
1076 DATA 50,4,108
1080 REM
```

INFINITE BOMBS

```
1090 DATA 175,50,254,236
2000 DATA 195,30,100,999
```

TO GIVE YOURSELF A BIT MORE OF A CHALLENGE, YOU COULD ERASE LINES 1050-1090, AND INSERT THIS :

```
1050 REM
BOMBS = No. of Bombs
1060 DATA 62,BOMBS,50,238,107
1050 REM
LIVES = No. of Lives
1060 DATA 62,LIVES,50,131,121
```


Tony Bridge's Adventure Corner



Growth industry

One of the big growth industries for adventurers in 1985 was the adventure club. We needn't go into the reasons for this again, since we've discussed them often enough in the Corner; but I'm glad to see that most of them are doing well.

The two largest, Henry Mueller's Adventure Club Ltd (ACL) and Roger Garrett's Adventureline are broadly similar, but have rather different aims. Both run excellent mail order services, that of the ACL being rather more comprehensive, although both offer discounts and lots of special offers. Both also feature a Helpline (in fact, this is the reason for most adventure clubs starting up), though here the Adventureline offers rather more, with five different numbers, each with a very knowledgeable club member in attendance. ACL runs just one number but the help received from this is equally worthwhile and authoritative.

Both outfits run a magazine for members, and it is here that they differ rather sharply. ACL sends out a small-format book of, typically, 20 pages. The Keeper of the Scroll writes, it would appear, the bulk of the content and there's a wealth of information for the adventurer, from how to solve *Zork* (this

one has been running for seven months now!), *Sherlock Mordon's Quest* and others, to how to write your own adventure and how to win lots of cash.

There is quite a lot of help crammed into the magazine, of the numbered code variety as featured in Scott Adams's Hint Books and, once upon a time in (ahem) this very Corner. (As an aside, several adventurers have taken me to task for not supplying so much help nowadays: but why should I when clubs exist for this very purpose? That is not to say, of course, that we'll never feature it again.) The reviews in ACL's magazine are short but to the point and there is also a (rather somnambulant) letters page.

Adventureline's monthly (modestly called *The Guiding Light*) on the other hand, is larger though the number of pages is similar. The emphasis here is on in-depth reviews and lively discussion on the current state of adventuring by those who play them. Roger Garrett is the editor, but it is very much of a joint effort, with club members taking a very active role in the magazine's format.

Important part

If there is a successor to the late, lamented *Micro-Adventurer*, this will be it, even though it is at the moment, typewritten and monochrome. Help, though an important part of Adventureline's activities, doesn't play a major role in *The Guiding Light's* format. The readers write some very thought-provoking letters, though the level of the letters page occasionally sinks to the level of an Elf-bashing free-for-all, one correspondent recently, for example, wanting

to know why the page had become the contact page for foreign pen-friends and had appeared to drop the hints and tips.

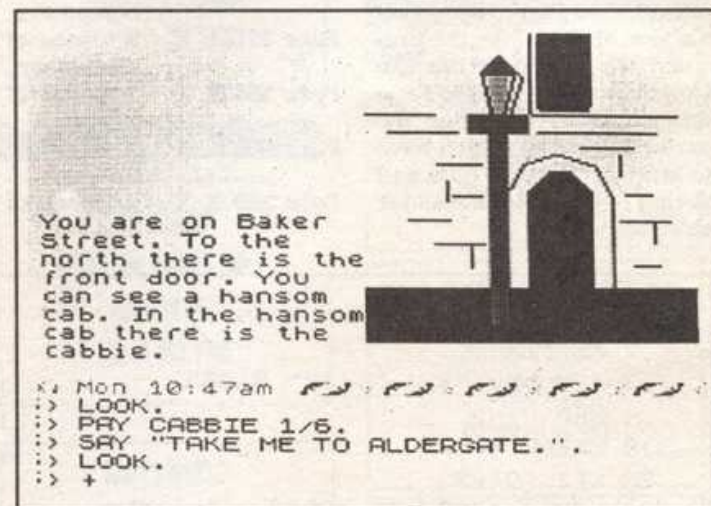
The obvious conclusion to be drawn from the popularity among adventurers of magazines such as these two would seem to be the answer to the first part of that question, and as for the second, well, a lot of *Popular* readers seem to be happy to correspond with any adventurer, no matter where they might happen to live, and exchange views, adventuring experiences and so on. Roger Garrett, incidentally, asks me to point out that he no longer has any connection with *The Adventurer's Guild*.

Ken Matthew's *Adventurer's Guild*, which in a way spawned many of the clubs now in existence, has been quiet for some time now, which is a shame; get well

picious of any club/magazine with a circulation of less than 25,000, which *Interface* is some way from achieving! Apparently, games producers have been known to receive 100 requests a week from everyone and the next-door neighbour's goldfish, asking for free "review" copies of the latest software (there are lots of 12-year-old Derek Brewsters and Tony Bridges out there!), so it's a half-dozen cheers to Ocean and others for sending tapes to *Interface*.

A broad base

The reason I like these magazines is that they are run by enthusiasts and much of the discussion and information will never be seen in the larger-circulation publications, and it is for this reason that they should be supported. Adventure clubs got off to a



Sherlock from Melbourne House soon, O Bulbous One.

A magazine which is generally computerish and not particularly adventurish, though it does contain reviews of adventures is *Interface*: I mention it here largely because the editor, Lucian Randall, was good enough to say hello to the Grand Elf at the recent ZX Microfair, but also because it is astounding value at just 20p. The reviews reflect what computer users really think of the games; the review of *Fairlight* in the latest issue pointed out that it was "the closest thing yet to Dungeons and Dragons", which is certainly the first time that I've seen that said. Although you can't blame them, software houses tend to be a little sus-

bad start, but those I've mentioned, though not the only ones, are building a broad base of subscribers which should see them through to their first anniversary.

THE GUIDING LIGHT,
 £12.00 PER YEAR (12 ISSUES)
 52 MICAWBER WAY
 NEWLANDS SPRING
 CHELMSFORD
 ESSEX CM1 4UG1

THE ADVENTURERS CLUB LTD
 £1.50 PER MONTHLY ISSUE
 64C MENELIK ROAD
 LONDON NW2 3RH

INTERFACE
 20p PER ISSUE
 83 LYNTHURST GARDENS
 LONDON N3 1TE

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair - help is at hand.

Fill in the coupon, explaining your problem, send it to us, and a fellow adventurer may be able to help.

Remember - the system only works if those adventurers who have solved the puzzles get in touch. Every week is Save An Adventurer Today (SAAT) week!

Adventure.....on (Micro).....
 Problem.....
 Name.....
 Address.....

FAST COMPUTER REPAIRS

VIDEO VAULT INTERNATIONAL 10★ REPAIR SERVICE



ACCESS
WELCOME

THE NO. 1
REPAIR CENTRE
IN THE U.K.
OTHERS
FOLLOW

WHILE YOU
WAIT SERVICE
CALL FOR APPOINTMENT

24 HOUR
TURNAROUND



KEYBOARD
FAULTS
SPECTRUM
ONLY £8.95

HOW TO SEND YOUR COMPUTER

Just parcel your computer in suitable wrapping enclosing £19.95 for Spectrum repairs, please do not send power supplies. Commodore computers, just send £1.75 (U.K. Eire, I.O.M. C.I.) or £6.50 (Europe/Scandinavia) with your address or phone number and we will contact you same day by phone or letter with quote. If you prefer, please call us and we will give you a quote over the phone, we aim to please. That's what made us the most reliable and No. 1 Service Centre in the U.K.

(SPARES AVAILABLE THROUGH OUR D.I.Y. SECTION.)

N.B.
WE DO NOT
CHARGE AN
AVERAGE
PRICE

TRADE
REPAIRS
most
welcome

BEST SERVICE —

BEST PRICES!

COMMODORES * NOW REPAIRED *

Commodore 64, C16's, Vic 20,
1541 Disk Drives. Same Day Service.
Call us for details or purchase
the I.C's from our D.I.Y. section

SPECIAL OFFER!

YOU CAN'T REFUSE

16K to 48K Upgrade
Upgrade your 16K Spectrum to 48K Spectrum
for only £19.95 fitted including V.A.T. and P.P.
(Issue 2 - 3 only)

(Retained by Public demand.)
To order the Upgrade Kit,
(only £17.95.)



STOP PRESS

MANCHESTER BRANCH
opening FEBRUARY in the
City Centre. Sorry for
delay to all our Manchester
customers.

7 OPEN
DAYS
A WEEK

SERVICE
ENGINEERS
REQUIRED
ONLY 1st CLASS
ENGINEERS
NEED APPLY
FOR OUR
MANCHESTER
BRANCH
OPENING SHORTLY

NEW
VIDEOVAULTS 80K UPGRADE KIT,
WATCH THIS SPACE FOR DETAILS
AVAILABLE JANUARY 1986

THE
LOGICAL
CHOICE

THERE'S
NOBODY QUICKER
IN THE BUSINESS AT PRICES
THAT CANNOT BE
BEATEN

VideoVault D.I.Y. CORNER

We regret we cannot
show all the components
available. Just give us a
call and we can quote you
over the phone, delivery
by 1st class post.

Spectrum Parts

2808 CPU	3.50
4116 Rams	1.00
ZTX 650	0.60
Transistor ZTX 213	0.60
Transistor ZTX 313	0.50
Power Supply Units	8.95
Feet (Each)	0.25
16K to 48K Upgrade Kit	17.95
Sockets 16-40 Pin	14.50p
Cassette Leads	3.50
T.V. Lead	3.50
Keyboard Membranes	4.00

Commodore 64 Chips

6526	23.00
6510	23.00
6581	23.00
901227-03	23.00
901226-01	23.00
901225-01	23.00
6569	23.00
4164 Rams	3.00
Power Supply Units	29.00

All prices + P.P. £1.50
But include V.A.T.

TRADE
ORDERS
WELCOME

VIDEOVAULT HEALTH WARNING!!!

Sending your computer to any other Repair Centre can seriously Damage its Health

VideoVault Ltd

Telephone: Glossop (STD 04574) 66555/67761
140 High St. West, Glossop, Derbyshire, England

© Copyright Videovault Ltd. No. 151085

FREE GAME WORTH
£5.95 WITH
EACH SPECTRUM
REPAIR.

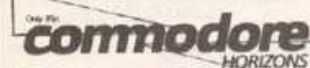
MAGAZINES



DRAGON USER

To make the most of your Dragon you need **Dragon User** — the independent magazine for Dragon owners. To make sure that you receive a copy of Dragon User regularly subscribe direct to us. A year's subscription costs £14 for 12 issues (overseas rates available on application). Send a cheque or postal order made payable to Dragon User, and accompanied by your name and address, to Dragon User, Subscription Department, Oakfield House, Perrymount Road, Haywards Heath, Sussex RH16 3DH.

PL32



COMMODORE HORIZONS

Special offer! For a limited period only!

Take out a year's subscription to Commodore Horizons now and receive one of three Sunshine books — absolutely free! Simply send us £10, together with your name and address and your choice of book. 10 Commodore Horizons, Special Sub Offer 12-13 Little Newport Street London WC2H 7PP

Don't delay — post now!
Books
1 Machine code graphics & sound on C64
2 Artificial intelligence on C64
3 Building with Logo on C64

PL186

FOR HIRE

MIDLAND COMPUTER LIBRARY

A SUBSIDIARY OF PLATINUM GOLD

- OVER 4,000 different titles available for hire for the COMMODORE, SPECTRUM, BBC, AMSTRAD, ATARI and MSX computers.
- ARCADE, ADVENTURE, EDUCATIONAL and BUSINESS software too.
- HIRE PRICES from only 75p INC P & P.
- 20% DISCOUNT off all purchase software.
- FREE CATALOGUES.
- FREE HINTS and TIPS.
- FAST RETURN OF POST SERVICE (if reserves are given).
- ALL GAMES manufactured ORIGINALS with full documentation.
- OVER 6,000 satisfied members.
- EUROPEAN members welcome.
- LIMITED PERIOD ONLY FREE MEMBERSHIP.
- Fully computerised system keeps track of your order. We pride ourselves in being the most professional Hire Library in the United Kingdom, with staff of 14 who know what the word service means. Backed by our own software company and programmers.

PL715

MIDLAND COMPUTER LIBRARY:
28 COLLEGE STREET, WORCESTER, WR1 2LS.
TEL: 0905 611072.

Please rush me my free catalogue stating machine.

Name:

Address:



MSA

DUPLICATION

FAST reliable service of DATA-DUPLICATION for most computers. Comprehensive facilities include: ensure/re-recording, blank discs/cassettes, blank or printed labels/tapes. COMPETITIVE PRICE-FAST SERVICE



PL395

WANTED

READERS' GAMES required for publishing. Excellent rates for the right games. Write to Megasoft, P.O. Box 20, Barrow, Cumbria.

FOR SALE

COMMODORE 64 plus cassette recorder, disc drive, "MPS802" printer, green monitor. All excellent condition. Also Simons Basic, Eastscript, Petspeed compiler, assembler, monitor, and tutor. Several 8502 programming books. £385 the lot on. Tel: 0258 857422.
BBC B O/S 1.2 DFS, disc drive (SS/Sd), disc doctor Rom, 10 discs, dust covers, tape recorder (Sanyo DR101), 40 programs on cassette. Thelot: £430. Jaime. Tel: 0934 812746.

UTILITIES

TAPE and DRIVE SPECTRUM and AMSTRAD UTILITIES

All our programs carry:

- A FULL MONEY BACK GUARANTEE
- FULL MANUALS
- AN UPDATE SERVICE

***** SPECTRUM *****

TC7 — ALL SPECTRUM OWNERS NEED this specialist tape utility. Send SAE for FULL DETAILS of this AMAZING program.

- Integral Header reader. Baud rate measurer.
- Handles high speed or jerky parts — converts to normal for study/drive transfer.
- Handles Headerless parts etc, etc, etc. Available with MT6 — a special m/drive program.

TC7 on tape £6.50 (or £7.50 with MT6). On cartridge £9.99 (inc MT6).

TAPE to DRIVE transfer for SPECTRUM OWNERS

You need our MD1b (for m/drive) or WD1b (for Wafa/disc drive). They have the tools to convert programs to make them + other utilities. For latest programs you will also need TC7. MD1b or WD1b on tape £6.99.

LERM information sheets — £1 each — up to to number 5 available. Each sheet tells you how to transfer 8 specific POPULAR programs to your drive using our software. MUST send SAE.

TRANSFER PACK — everything you need — TC7 + MD1b + MT6 on cartridge + information sheets 1-3 all for £15.50. (Other drive owners get a similar pack with the programs on tape + sheets for same price.)

***** AMSTRAD *****

TAPESPEED ONE (TS1) — ESSENTIAL FOR ALL 464 + 6128 OWNERS. Convert your slow loading software from 1000 to a max of 3600 baud. Stop and study programs.

- Fully automatic. Handles continuously up to 44k.
- Save at range of 9 speeds. Header reader + Status.
- Handles HEADERLESS files, Spectrum loaders etc, etc.

PRICE ONLY £6.50 — state 464 or 6128

DISC MANAGER ONE — for CP 464 or 6128 (state which). Essential to help you manage your AMSTRAD drive.

- Does a CAT to TV or printer. Easy REPEAT ERASURES.
- 2 Discs editors. Recover ERASED files. Menu driven.
- Simple and fast whole disc or sector BACKUP copier.

PRICE ONLY £5.99 — amazing!

THE PRICES QUOTED ARE ALL INCLUSIVE EXCEPT overseas: add £1 within Europe, £1.50 others. SAE for more information.

LERM, DEPT PCW, 10 BRUNSWICK GONS, CORBY, NORTHANTS NN18 9ER

PL05

ACCESSORIES

SUPER fantastic cas/disc stand complete with index cards, pen and discount voucher. Introductory offer £5.95 inc P&P or send sae for full specification. Devron Services 13 Colleton Hill Exeter EX2 4AS.

BLANK CASSETTES

	WITH LIBRARY CASES		
	C10	C15	C20
10	3.60	4.00	4.15
20	7.00	7.20	7.35
50	15.00	15.20	15.35
100	27.00	28.00	29.00

Fully Inclusive (COD 65p extra)
Superior Tapes. Don't Settle for Less!

5 1/4" DS/DD DISKS

10 for £12.00 inc plastic case
RING US NOW! (0793) 695034
UK HOME COMPUTERS, 82 CHURCHWARD AVE, SWINDON, WILTS SN2 1NH



PL613

COMPUTER AIDED ENGINEERING (CAE) Pipe sizing/pressure drop calculations for Spectrum. Microdrive cartridge £6.45, cassette £4.95. Send SAE for details. Willowbank Computing, 42 Lawson Close, Warrington WA1 4EG.

C15 BLANK CASSETTES

WITH LIBRARY CASES
£20 per 100 full inclusive

UK HOME COMPUTERS (DEPT PCW)
82 Churchward Ave, Swindon, Wilts G793 695034.

PL791

CBM64 + 1541 disc drive + tape deck + hundreds of games and utilities mainly on disc + a few books. The lot £300. Andrew. Tel: 01-848 4147.

BBC-B disc drive colour monitor, Pascal + other Roms. Remote keyboard, programmable joystick, disc games, books, magazines, £399. Phyllis. Tel: 08832 5609 or 633 7011.

QL DEPROTECTION AND SUPER FAST BACK-UP CARTRIDGE

*Do you find it difficult to back-up microdrive?
The "SUPER-CLONE U3.0" is entirely written in Machine Code language. It can read a program byte by byte and removes any protection. (Password, invisible file name, random number, on formatting and every other system of protection).

*Moreover the "SUPER-CLONE U3.0" can be used on a very quick copy software. 15 times quicker than the Super Basic Copy command.

*Protects QL secrets. The program is written in English and is achieved with an English manual.

*Payment method. Send a cheque in the amount of £22 through international coupons (for quick despatching). Do not send English cheques for add £2.00 for bank expenses). To:

PERISOFT SOFTWARE by PIERRE ALFONSO, 100 AV. DE LA REINE, B-1030 BRUXELLES, BELGIUM. PL904

THE HACKER'S mag — including numbers, passwords, tracing numbers, PSS, £7.50 to Mr. S. Denvers 34 Oxford Road, Dewsbury, West Yorkshire WF13 4LL.

SPECTRUM/SPECTRUM +

OSCILLOSCOPE add on with software. Samples up to 100kHz. Wide input range. Variable timebase. Self contained.

£38.95 inc. P & P
S. Huckstepp,
6 Ashling Road
Croydon
Surrey

PL5

WATCH and wipe video tape. Sections of over 60 computer games in real live action, £7.50 in P&P Devron Services 13 Colleton Hill Exeter EX2 4AS.

ADVENTURE HELPLINE

Dun Darach on Spectrum. How do I get into inner jail of the castle? Skar may be the black pearl - what do I do with/her? Dave Simpson, Fire section, RAF Wildenrath, BFPO 42.

Zork II on Apple. How do I get into the room behind the menhir? Where do I find the candy? What is the rose for? Lawrence Coleman, 28 First Street, East Fairwood, Johannesburg 2192, Transvaal, South Africa.

Eureka (Nazi Germany) on C64. How do I use the dynamite and where do I use the ID card? Marcus Liversedge, 357 Radcliffe Road, Darcy Lever, Bolton, Gtr Manchester.

Zork II on Apple. What is the answer to the riddle in the riddle room? Lawrence Coleman, 28 First Street, East Fairwood, Johannesburg 2192, Transvaal, South Africa.

Kentilla on Spectrum. I can't get through the glowing ward nor can I find the key to a chest. Sara Greenhough, 27 Clough Road, Birkby, Huddersfield.

Hampstead on Spectrum. Have bought suit with credit card - what next? Can help on The Hobbit. Paul Rollinson, 15 Church Street, Ockbrook, Derbyshire.

Eureka on Spectrum. I need help on all the adventures. How do I get into the house in the Caribbean section? Dorothy Rose, 11 Rede Way, Great Cornard, Sudbury, Suffolk (0787 76891).

Fantasia Diamond on Amstrad. How do you cross the river or open the window in the caves? Andrew Renouf, 113 Le Squez, St. Clement, Jersey, CI.

Catacombs on C64. How do you get past the coffin lid, the mega rat and the pilgrims' pathway? Christopher Waite, 16 Sussex Close, Boreham, Chelmsford, Essex.

Twin Kingdom Valley on C64. Where is the giant, the silver dagger and the staff? Christopher Waite, 16 Sussex Close, Boreham, Chelmsford, Essex.

The Hobbit on BBC. How do I get out of the goblin's dungeon? J. P. Temprell, 3 Tiggington Avenue, Church Warson, Mansfield, Notts.

Crystal of Chantle on Spectrum. How do I get the magic staff out of the rock? Steve Richmond, 6 Pulborough Way, Flansham, Middleton on Sea, Bognor Regis, Sussex.

Classic Adventure on C16. Cannot find way to get past temple. P W C Weaver, 476 Mutton Lane, Potters Bar, Herts.

Bored of the Rings on Spectrum. Where is the pepper? Val Douglas, 105 Gladstone Road, South Willesborough, Ashford, Kent.

Exodus Ultima III on C64. How do you increase magic points for spells G and above? Where are the exotic arms? I have found the city of dawn and 7 dungeons. S G Rimmer, 4 Bartlett Close, Preston, Hull.

Bored of the Rings part III on Spectrum. Have got map. How do I get out of the maze? Do I have to open desk in office, and if so, how? Peter Harwood, 8 Haggie Avenue, Holy Cross, WallSEND, Tyne and Wear.

Twin Kingdom Valley on BBC. How do I kill the witch and dragon in the castle? J P Temprell, 3 Tiggington Avenue, Ols Church Warsop, Mansfield, Notts.

Woodbury End on Electron. How do I get out of the darkened room? Ingrid Legat, 8b Yarborough Close, Godshill, Isle of Wight.

FOR SALE COBRA MARK 4

OWNER RETIRING HAVING MADE HIS FORTUNE
PLUNDERING THE GALAXIES
ONE CAREFUL OWNER FROM NEW
ALL USUAL COBRA MARK 3 EXTRAS

Custom extras include:
Rating select plus percentage readout per level
Credit select to 250000 credits
Full hardware select
Cargo select from 35-255 tons
Around Combo lasers - twice the power of military lasers.
25 light years long distance fuel tank

ONLY £1.99 inc P&P

FIRST TO SEE WILL BUY

Send cheque/PO to:
ACS Software
Spectrum Elite Tuner
PO Box 608, Blackheath
London SE3 7ER.

Access orders/enquiries
Tel: 01-305 0790

PO1/25A



WET ZONE BBC(B)

classical arcade action
— fast, addictive, skilful

only on **micronet. 800**
or by mail order

Send £4.95 cheque,
cash or postal order to

EVERISS SOFTWARE
37 Linkway, Denham Green,
Uxbridge, Middlesex UB9 5NL

* * SPECIAL OFFER * *

from SUNSHINE BOOKS and PICTURESQUE

The CODE MACHINE consists of an Assembler and a separate Monitor (both relocatable) and provides all the requirements for rapid assembly language development, including many features not found elsewhere.

A 72 page manual, with plenty of examples, and a flexible command structure make it ideal for beginners, yet it offers all the sophistication and fine detail required by professionals.

Single Stepping your machine code is an essential aid to both learning and debugging and the CODE MACHINE's excellent Front Panel display gives you the most complete picture of what's happening at every step. You can really see what's going on.

Everything about the CODE MACHINE is designed for speed, simplicity, and information. It's received much praise from the industry and is the No. 1 choice of many leading games authors. Supplied on cassette with a back-up option to disk, it is fully compatible with disks and with the 464/664/6128 machines.

Sunshine Books and Picturesque are offering you the chance to buy two of the best machine code products at a massive saving of £4 off the normal combined price.

This offer will not last for ever so ORDER NOW.



Amstrad Machine Code THE EASY WAY

* SAVE £4 *

"Master Machine Code on your Amstrad" shows you how to make better use of your Amstrad by programming in machine code. This makes programs run much faster and opens the door to a host of new applications.

The book gives an overview of the hardware, and explains how the Firmware (ROM) routines are arranged, and how to access them. Details are given of the most useful of these and how you can use them in your own programs.

Many machine code listings are given, starting with a simple sorting routine which is developed to a full database program.

There are graphics routines to extend Basic with Circle and Fill commands, and a section explaining how easily you can write your own extensions to Basic using the 'BAR' commands.

Written with the beginner in mind, this book is the best introduction to machine code on the 464/664/6128 machines.

How to order

The normal combined retail price of these two products is £26.90. You can save £4 (mail order ONLY) by sending your cheque/P.O. for £22.90, made payable to SUNSHINE BOOKS to: Theresa Lacy, Sunshine Books, 12-13 Little Newport Street, London, WC2H 7PP.



01-437 4343

Discover the Atari ST



Jeremy Vine's **Atari ST Companion** will tell you all you need to know if you're wondering whether to invest in the most talked-about new micro of 1985 — the Atari 520ST. Jack Tramiel's new wonder-machine offers you the "power without the price" — a 68000-based window, icon, mouse micro with the GEM graphics environment from Digital Research, all for £750.

The **Atari ST Companion** has been written with the benefit of full hands-on experience of the machine. Jeremy Vine begins with an overall look at the ST, followed by a detailed introduction to the GEM (Graphics Environment Manager) system. This offers facilities comparable with the much more expensive Apple Macintosh, including windows, pull-down menus and the facility to use a mouse to point to icons to replace typed commands.

Also covered is the Atari Intelligent Keyboard Controller, the very sophisticated sound system of the ST (which includes the industry-standard MIDI interface), the TDS operating system and the graphics LINE "A" interface.

So, whether you are already the proud owner of a new ST, or just thinking of learning more about this revolutionary new micro, send off today for this great new Sunshine book.

Please send me _____ copies of **The Atari ST Companion** @ £9.95 each.
☐ I enclose a cheque/postal order for £_____ payable to Scot Books
☐ Please debit my Visa/Access card no. _____
valid from _____ expires end: _____
Signed: _____
Name: _____
Address: _____
Send to: Sunshine Books, 12-13 Little Newport Street, London WC2H 7PP.

WE NEED A PAIR OF ACES TO COMPLETE A FULL HOUSE.

We'd like to hear from two first class people who enjoy managing people — a pair of real pack leaders.

A good grounding in software development is essential and an appreciation of the functions and relationships of all members of a project is also important.

But most of all our project managers will need to provide empathy, encouragement and constant enthusiasm.

THE FIRST ACE will be responsible for the acquisition and development of original product, so an artistic appreciation would be necessary.

THE SECOND ACE, with a more technical background, will be responsible for specialised engineering projects such as converting the latest American software to UK specifications.

If you feel you've got what it takes and would like to be a part of the best home computer software outfit in the business contact Byron Turner, Activision, 15 Harley House, Marylebone Road, London NW1 5HE. Tel: 01-935 1428.

ACTIVISION
HOME COMPUTER SOFTWARE

TM

Charts

Amstrad

1	(1)	They Sold A Million	(Hit Squad)	£9.95
2	(2)	Yie Ar Kung Fu	(Imagine)	£7.95
3	(4)	Grand Prix 3D	(Software Invasion)	£9.95
4	(3)	Computer Hits (10)	(Beau Jolly)	£9.95
5	(9)	Scrabble	(Leisure Genius)	£9.95
6	(5)	Soul Of A Robot	(Mastertronic)	£1.99
7	(7)	Finders Keepers	(Mastertronic)	£1.99
8	(6)	Formula One Simulator	(Mastertronic)	£1.99
9	(10)	Caves Of Doom	(Mastertronic)	£1.99
10	(-)	Nonteraqueous	(Mastertronic)	£1.99

Atari

1	(1)	Mercenary	(Novagen)	£9.95
2	(2)	Action Biker	(Mastertronic)	£1.99
3	(4)	Goonies	(Datasoft/US Gold)	£9.95
4	(5)	Spy Hunter	(US Gold)	£9.95
5	(10)	King Of The Ring	(Gremlin Graphics)	£9.95
6	(-)	Super Zaxxon	(US Gold)	£9.95
7	(6)	Electra Glide	(Activision)	£8.95
8	(7)	Smash Hits 4	(English)	£9.95
9	(8)	Fighter Pilot	(Digital Integration)	£9.95
10	(-)	Pole Position	(Datasoft/US Gold)	£9.95

BBC

1	(1)	Yie Ar Kung Fu	(Imagine)	£9.95
2	(2)	Way Of The Exploding Fist	(Melbourne House)	£9.95
3	(6)	Repton 2	(Superior Software)	£9.95
4	(-)	Computer Hits (10)	(Beau Jolly)	£9.95
5	(4)	Revs	(Acornsoft)	£14.95
6	(3)	Strike Force Harrier	(Mizorsoft)	£9.95
7	(8)	Cyroscope	(Melbourne House)	£8.95
8	(-)	Match Day	(Ocean)	£9.95
9	(10)	Elite	(Acornsoft)	£14.95
10	(-)	Dr Who and the Mines of Terror	(Micropower)	£17.95

Commodore 64

1	(1)	Commando	(Elite)	£9.95
2	(2)	Rambo	(Ocean)	£8.95
3	(3)	Winter Games	(Epyx/US Gold)	£9.95
4	(4)	Little Computer People	(Activision)	£9.95
5	(5)	Mercenary	(Novagen)	£9.95
6	(-)	Goonies	(Datasoft/US Gold)	£9.95
7	(6)	They Sold A Million	(Hit Squad)	£9.95
8	(8)	Last V8	(Mastertronic)	£1.99
9	(10)	Fight Night	(Datasoft/US Gold)	£9.95
10	(-)	Elite	(Firebird)	£14.95

Spectrum

1	(2)	Rambo	(Ocean)	£7.95
2	(1)	Commando	(Elite)	£7.95
3	(3)	Yie Ar Kung Fu	(Imagine)	£7.95
4	(4)	Elite	(Firebird)	£14.95
5	(7)	Saboteur	(Durell)	£8.95
6	(6)	Tomahawk	(Digital Integration)	£9.95
7	(5)	Back To Skool	(Microsphere)	£8.95
8	(-)	Lord of the Rings	(Melbourne House)	£15.95
9	(-)	Winter Games	(US Gold)	£7.95
10	(2)	Spellbound	(Mastertronic)	£2.99

All figures compiled by Gallup/Microscope

Top Twenty

1	(1)	Commando (Spectrum/C64)	Elite
2	(2)	Rambo (Spectrum/C64)	Ocean
3	(3)	Yie Ar Kung Fu (Spectrum/Amstrad/BBC/MSX)	Imagine
4	(14)	Winter Games (C64)	Epyx/US Gold
5	(4)	They Sold A Million (Spectrum/C64/Amstrad)	Hit Squad
6	(7)	Way Of The Exploding Fist (Various)	Melbourne House
7	(6)	Elite (Spectrum/C64/Atari)	Firebird/Acornsoft
8	(5)	Computer Hits 10 (Spectrum)	Beau Jolly
9	(10)	Transformers (C64)	Ocean
10	(9)	Formula One Simulator (Various)	Mastertronic
11	(15)	Gyroscope (Spectrum/C64/Amstrad)	Melbourne House
12	(12)	Mercenary (C64/Atari)	Novagen
13	(21)	Saboteur (Spectrum)	Durell
14	(20)	Tomahawk (Spectrum)	Digital Integration
15	(-)	Beach Head (Spectrum, C64, Amstrad)	Access/US Gold
16	(18)	Little Computer People (Various)	Activision
17	(24)	Robin of the Wood (C64/Spectrum/BBC)	Odin
18	(25)	Lords Of The Rings (Spectrum)	Melbourne House
19	(19)	Back To Skool (Spectrum)	Microsphere
20	(-)	Spellbound (Spectrum)	Mastertronic

Figures compiled by Gallup/Microscope

Readers' Chart No 56/7

There were no charts in our last issue - Gallup took its Christmas break, and the Readers Chart did likewise. So this, the first Readers' Chart of 1986, is based on two weeks' voting.

1	(2)	Elite (Spectrum/C64/BBC)	Firebird/Acornsoft
2	(1)	Commando (Spectrum/C64)	Elite
3	(3)	Winter Games (C64)	Epyx/US Gold
4	(7)	Monty on the Run (Spectrum/C64)	Gremlin Graphics
5	(4)	Way of the Exploding Fist (Spectrum/C64/Amstrad/BBC/MSX)	Melbourne House
6	(-)	Yie Ar Kung Fu (Spectrum/C64/Amstrad/BBC/MSX)	Imagine
7	(-)	Lord of the Rings (Spectrum)	Melbourne House
8	(9)	Bored of the Rings (Spectrum/Amstrad)	Delta 4/Silversoft
9	(5)	Fairlight (Spectrum)	The Edge
10	(-)	They Sold a Million (C64)	US Gold

Winning Phrase No 56/7: "No petty mention! I want the dough!" from Philip Arkley of Accrington, Lancs, who wins £25. An honourable mention goes to Neil Talbot of Bromsgrove, Worcs, for: "The meaning of life is hype."

Now voting on week 58 - £25 to win

Each week *Popular* is compiling its own special software top ten chart - compiled by YOU.

And each week we will send £25 to the person who sends in, with their chart votes, the most original (witty, neat or clever - but never rude) phrase or sentence made up from the letters (you don't have to use them all) in the titles of the top three programs in this week's Readers' Chart, published above.

You can still vote in the chart without making up a slogan - but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to: Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Voting for Week 58 closes at 2pm on Wednesday January 15, 1986. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

Name	My top 3: Voting Week 58
Address	1
.....	2
.....	3
My phrase is:	

New Releases

FUTURISTIC

Nomad is another new game from Ocean which should have much appeal for lovers of the classic arcade formats ie, dodging things and killing things a lot. In your lone *Nomad* 471 battle wagon you move across the futuristic capital city, heading towards the secret inner sanctum of the evil Gross.

Getting your *Nomad* across the city involves much swerving and dodging a series of homing missiles, where suicidal robots and heat-seeking weapons lay into you. Combined with magnetic walls to slow you up and a fiendish series of locked gateways, this all makes for much feverish arcade excitement.

Nothing too original, of course, but nicely presented with smooth, largish graphics and a sense of pace to keep things interesting.

Program *Nomad*
Price £7.95



Micro Supplier Spectrum Ocean Software
6 Central Street
Manchester
M2 5NS

INTO BATTLE

The War Game is just that, a war game for the Spectrum. Now war games come in two sorts; purist where everything is represented by little squares, and arcade where you get hi-res battle sequences and little animated people.

The War Game is certainly in the former class, all squares and simple backgrounds. This is not automatically a bad thing, indeed ardent wargamers tend to frown on the glossy stuff, but it does mean that the average arcade gamer is unlikely to be impressed.

The battle is set in Europe in the days of horses and muskets. Success is all about the tactics adopted in moving your various divisions to positions that use their strengths and avoid their weaknesses, taking note of such natural problems as rivers and forests.

The other player or computer controls the enemy, each side is given field reports at various points which indicate morale and the result of battles. I must say that I found the game tedious in the extreme, with moves that consist merely of moving a large number of different blocks to different squares on the board. I also found it very easy to break into the program, which proves to be

Pick of the week

FIENDISHLY SLICK

Cosmic Wartoad from Ocean software is a) the latest game created by Denton Designs and b) one of the few games I can think of to feature a toad as hero. It has, by way of extras, some of the nicest and biggest cartoon graphics I've seen in a while and is beautifully presented.

In fact, *Cosmic Wartoad* is a series of games played individually as moves across a grid. The idea is that as hero you must pass across the King's lair, a matrix of zones wherein some death defying achievement unlocks the route to one of the adjoining zones.

You play, therefore, a number of games, some of which merely let you pass onward, while others give you useful objects like guns and, on certain squares, a car that will transport you across a number of squares at once. Whilst it is the usual three attempts format, using up your three lives doesn't completely reset the game, you retain whatever useful objects you have found.

It's played to a time limit represented by a chain saw slowly moving towards a helpless woman tied between two pillars (tasteless). The games, though simple, are very addictive and, to begin with, seemingly impossible. On the square I managed to complete, one game was a 'shoot - the -



dropping - objects - but - don't - let them - fall - on - you' affair, another was 'shoot - the - stream - of - bees - buzzing - towards - you', and another, my favourite, involves getting hits on a central slug which is protected by smaller slugs which move towards you.

Simple ideas, but presented so well they retain some interest even after the 12th attempt.

Extremely entertaining, original in its way, graphically slick and fiendish. Need I say more?

Program *Cosmic Wartoad*
Price £7.95
Micro Supplier Spectrum Ocean Software
6 Central Street
Manchester
M2 5NS

This Week

Program	Type	Micro	Price	Supplier	Program	Type	Micro	Price	Supplier
Bratallas	Arc	Amiga	£34.95	Psygnosis	Beach-Head	Arc	C16/+4	£7.95	US Gold
Mindshadow	Ad	Amstrad	£9.99	Activision	Music Teacher	Ed	C16/+4	£7.95	Childsplay
The Pay off	Ad	Amstrad	£5.95	Bignose	The Pay Off	Ad	Commodore 64	£5.95	Bignose
Who Dares Wins II	Arc	Amstrad	£8.95	Alligate	Z	Arc	Commodore 64	£7.95	Rino
Music Teacher	Ed	Amstrad	£12.00	Childsplay	Kaiser	S	Commodore 64	£9.95	Ariolasoft
The Worm in Paradise	Ad	Atari	£9.95	Level 9	Flowcharter	Ut	Commodore 64	£12.95	Supersoft
King of the Ring	Arc	Atari	£9.95	Gremlin Graphics	Video's Revenge	S	Electron	£2.99	Budgie
Zone X	Arc	Atari	£12.95	Gremlin Graphics	Super Bowl	S	MSX	£2.99	Budgie
Bratallas	Arc	Atari ST	£34.95	Psygnosis	Bratallas	Arc	Macintosh	£34.95	Psygnosis
The Pay Off	Ad	BBC	£5.95	Bignose	The Knife	Ut	PCW8256	£12.95	Hisoft
Tapper	Arc	BBC	£9.95	US Gold	Knight Fight	Arc	QL	£14.95	Realtime
Music Teacher	Ed	BBC	£16.00	Childsplay	Avalon/Dragonorc	Ad	Spectrum	£7.95	Hewson
					Mindshadow	Ad	Spectrum	£7.99	Activision
					The Pay Off	Ad	Spectrum	£5.95	Bignose
					Benny Hill Madcap	Arc	Spectrum	£6.95	DK Tronics
					Cosmic Wartoad	Arc	Spectrum	£7.95	Ocean

largely in Basic.

However, true wargamers might argue that the fact that it's 'only' a matter of moving squares is the whole point since it's the thought and tactics which count. Probably worth a look for wargamers.

Program *The War Game*
Price £7.95
Micro Spectrum
Supplier Relax
24B Cowbridge
Road
Pontyclun
Mid Glamorgan

ELECTRONIC

Although Lucasfilm Games are probably best known for the (I thought) overrated *Raid on Fractalus*, to my mind it's *Ballblazer* that is that company's greatest achievement. It may be an astounding piece of programming, but what makes *Ballblazer* is that it is an original yet simple idea executed with imaginative flair.

For want of a comparison, it's a little like a stylised, electronic version of American Football played on a giant grid. You control a sort of hovermachine in which you chase after a large ball, capture it and try to blast it between moveable goal posts.

The screen is divided into two sections, your view and your opponent, thus you never actually see your own hovermachine only that of your opponent. You may, by deft handling, steal the ball belonging to your opponent by blasting it way from his grip. That's about all there is to the plot.

The game is beautifully presented and scrolls smoothly as you move across the vast grid-like playing field. Imaginative and incredibly addictive, particularly played against another, human, player.

Program *Ballblazer*
Price £9.95
Micro Commodore 64
Supplier Activision
15 Harley House
Marylebone Road
Regents Park
London
NW1 5HE

MEDIEVAL

Knight Flight is probably the best arcade game I've seen on the QL, and whilst it doesn't really show evidence of working on a 68000, at least it compares with Spectrum games.

Knight Flight is *Joust* in thin disguise. It depicts a bizarre form of medieval combat where two brave warriors try

to unseat each other not from haughty white stallions, but from ostriches, a lesser beast in some respects.

The game involves controlling the bird - left right and flap for height - and winning involves bumping the other bird at a greater height than it bumps you. Bumped birds lose their rider and lay an egg, catch the egg in mid-air for extra points.

You can play the game either as a two player game or against the computer; though fun, I'd have my doubts about two people simultaneously trying to stab away at the QL keyboard.

Unlike most QL games I've seen this, at least, has quite smooth and non-flickery graphics so it looks professional. It's fast and smooth with sprites wizzing about all over the place. That the game is ancient and was covered on every other machine years ago is perhaps something that's a bit churlish to mention.

If you are actively seeking arcade games for your QL this is a must, however. . .

Program *Knight Flight*
Price £14.95
Micro QL
Supplier Realtime Software
Prospect House
32 Sovereign
Street
Leeds
LS1 4BT

ESSENTIAL

Mercenary was a superb 3D line perspective game for the Atari and now it is almost

equally superb in a version for the Commodore 64.

Mercenary is special in lots of ways; not only does it feature very fast smooth 3D routines, but it uses those routines in a game of complete flexibility. You decide what happens at every point; indeed the first thing to discover is exactly what the point of it all is, anyway.

The end objective of the game is to escape from an alien planet. A battle rages between two empires, you must ally yourself with one of them, but there are no clues as to which.

You can undertake missions on behalf of either side, but always remember that in the end you're fighting for yourself.

There are both ground based and airborne elements to *Mercenary*, places to explore, things to find and vast spaceships to fly. The game features everything, from strategy to zooming through the sky and blasting things to bits.

High in the sky orbits a mothership, that obviously has something of a vital role to play in the game but what exactly. . . ?

The graphics are superb, out eliting *Elite* in places and the mix of ground and space/air setting adds much to the appeal of the game. An essential purchase.

Program *Mercenary*
Price £9.95
Micro Commodore 64
Supplier Novagen
142 Alcester Road
Birmingham
B13 8HS



Flyer Fox	Arc	Spectrum	£2.95	Bug Byte
Nomad	Arc	Spectrum	£7.95	Ocean
Robots	Arc	Spectrum	£2.95	Bug Byte
Winter Games	Arc	Spectrum	£9.95	US Gold
Zoids	Arc	Spectrum	£7.95	Martech
Wordsearch	S	Spectrum	£67.95	Softfirm
Key: Ad - adventure S - strategy-simulation				
Arc - arcade Ut - Utility Ed - education				

Activision, 15 Harley House, Marylebone Road, London NW1, 01-486 7588. Alligata, Orange Street, Sheffield S1 4DW, 0742 755796. Ariolosoft, 105/106 Asphalte Close, Palace Street, London SW1E SU5. Bignose, 320 The Knares, Basildon, Essex SS16 5SW. Budgie, 1 Orange Street, Sheffield, 4DW, 0742 755798. Bug Byte, Liberty House, 222 Regent Street, London W1R 7DB, 01-439 0666.

Childsplay, 2 Southview Drive, Uckfield, Sussex TN22 1TA, 0825 4202. DK Tronics, Unit 2, Shire Hill Industrial Estate, Saffron Walden, Essex, 0799 26350. Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield, S1 4FS, 0742 753423. Hewson, 7 Grahame Close, Blewbury, Oxon OX11 9QE, 0235 832939. Hisoft, 180 High Street North, Dunstable, Beds, LU6 1AT, 0582 696421. Level 9, 229 Hughenden Road, High Wycombe, Bucks HP13 5PG, 0494 26871. Martech, Martech House, Bay Terrace, Pevensey Bay, East Sussex BN24 6EE, 0323 768456. Ocean, 6 Central Street, Manchester, M2 5NS, 061 832 6633. Psygnosis, 1st Floor, Port of Liverpool Building, Pier Head, Liverpool L3 1BY, 051 236 8818. Rino, 1 Orange Street, Sheffield 4DW, 0742 755796. Softfirm, 21 Ashbourne Way, Thatcham, Berks, RG13 4SJ. Supersoft, Winchester House, Canning Road, Wealdstone, Harrow, Middlesex HA3 7SJ, 01 861 1166.

This Week

Premature death

On my desk is a computer magazine which is 18 months old. The articles and advertisements inside it belong to a much more primitive age. Machines there heralded as the latest in technological excellence are now regarded as obsolete. The software is positively out of the Stone Age. Looking for stability in this industry is like looking for last year's snow.

All technology products follow a similar pattern. They are introduced, they develop and become accepted, they then become superseded and then they die. Understanding of the market for micro-computers needs to be compared with the life cycle of such products more generally. The intention of those who find utility in the product should be to sustain the introduction and developmental elements for as long a period of time as possible. They must not do anything to curtail or divert it.

In the case of micros however, there is a very real danger that, unless manufacturers 'get their act together' immediately, then the whole product and its market will undergo a premature death. We are witnessing a flight from educational usage and the giving of micros as a seasonal present to the young has passed its peak.

Technological developments seldom keep in step with consumer demand. They are way ahead of it. We already have a surfeit of mind-boggling things which engineering has devised. Most of them mercifully remain in prototype. Coming up with the ideas is not the problem. Shifting the goods to where and when required is. Technology is too abundant and too soon for customer assimilation. By the time any new 'breakthrough' gets to the shops it is probably way out of date. Commodore's Amiga may reach the UK shops later this year, but already Commodore has developed its success.

There is a great deal of self-congratulation among technicians when new heights of speed, design or method are achieved. Whilst these are laudable, these ego-stroking innovations are seldom translated soon enough into customer benefits.

We have not learned historical lessons implicit in other complex products. One such

is the motor car. The product had a slow and faltering start, with a proliferation of shapes and motive power until the 4-stroke engine and the saloon design eventually caught on. After the innovatory stage there were many developments in power, performance, comfort and ease of operation. In the maturity phase the product somehow lost its way. Genuine improvements were few but spurious ones abounded.

The motor car is ripe for sweeping change into something more radical - probably initially in its power unit, then later in its conceptual design of an isolated moving box.

What parallels do we see in the micro-computer? The start was most auspicious. Development was brisk and proceeded exponentially. We are now in the stage of false product changes, in cosmetic alterations in design and in the attempt to push technical features as if they were customer benefits. Take, for example, the superficial changes to many 64K micros - the Amstrad CPC 664 became the CPC 6128, the Commodore 64 has spawned the C128, and a 128K version of the Spectrum is expected this year. None of these are significant technological breakthroughs.

For the industry appears to be at war with itself. We see little evidence of the spirit of compatibility. At the retail level it is almost impossible to get repair or maintenance service for no networks of customer assistance have been systematically developed. How reliable was the last advice you received on the workings and operations of your computer? And the machines are still too expensive for mistakes in purchase to be easily rectified.

The main arena of computer makers and suppliers is still seen as entertainment. This is a notoriously fickle market and subject to fashion and whim. Moreover, the UK's market leader, the Spectrum, contains shortcomings in its graphics and sound capabilities which are more a hindrance to the entertainment software developers. It would be salutary if manufacturers really gave themselves true answers to the twin questions 'What business are we in' and 'What business ought we to be in' - for the answers might be very surprising.

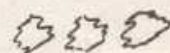
For if we do not take avoiding action now, the whole industry will go the way of the hula-hoop and the skateboard.

Rod Dawson

A whole number

Puzzle No 190

At Greyfriars School, Parkin minor was considering his homework on whole number divisors. For example, he knew that the smallest number with exactly ten whole number divisors was 48. The divisors were 1, 2, 3, 4, 6, 8, 12, 16, 24, and 48. The task that he had was to find the smallest number with one hundred divisors, and this was proving a little bit more tricky! He knew that the number itself and one were to be included in the total but the answer escaped him.

45 

The answer had been chalked on one of the blackboards, but three of the five digits had been erased. Can you fill in the blanks?

Solution to Puzzle No 185

I bought 19 stamps at 13 pence each, 35 stamps at 17 pence, and 46 at 23 pence each.

First, it is necessary to find all permutations of stamps which total 100 stamps in all and whose values come to an exact number of pounds. This reveals quite a number of possibilities, but the question also stated that the total number of pounds spent was the same as the number of red stamps bought.

```
10 CLS
20 FOR A=1 TO 99
30 FOR B=1 TO 99-A
40 FOR C=100-(A+B)
50 LET SUM=A*13+B*17+C*23
60 IF SUM/100=INT(SUM/100) AND A=SUM/100
   THEN PRINT A,B,C,SUM
70 NEXT B
80 NEXT A
```

In the program (A) is the number of 13 pence stamps, (B) is the number of 17 pence stamps, and the balance of the hundred stamps is (C), the 23 pence stamps. Line 50 evaluates the total bill, and line 60 tests this value to see if it is an exact number of pounds. However, line 60 also carries out a second check. The value in pounds must also equal the number of one of the values of stamps.

Winner of Puzzle 185

The winner is S Smith of Grimsby, South Humberside, who will be receiving £10.

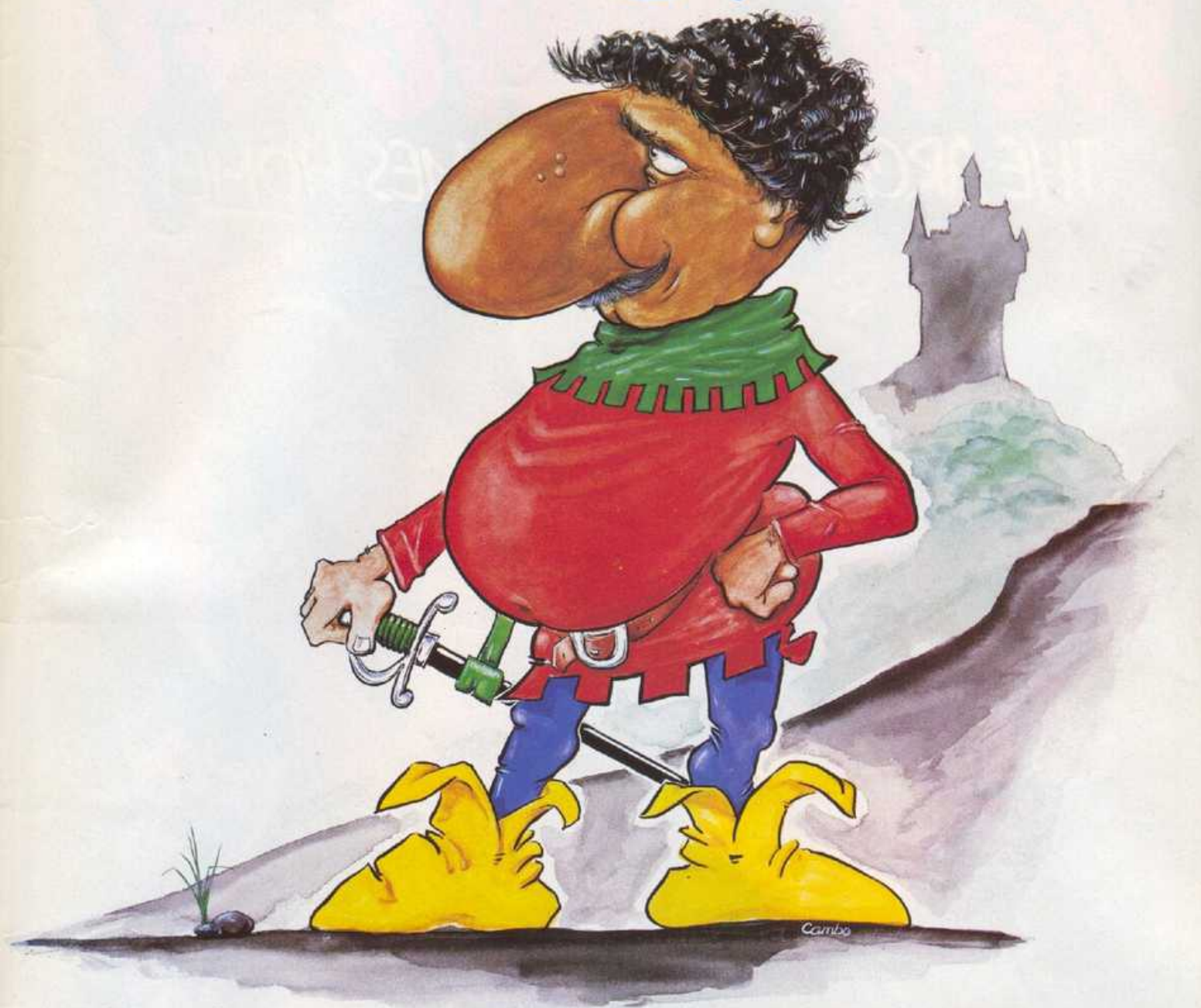
Rules

The closing date of Puzzle 190 is Feb 5.

The Hackers



Sir Fred



A severe attack of Chivalry
on a Moonlit Knight

The Olde 48th Spectrume £9.95

MIKRO-GEN

Unit 15, The Western Centre, Bracknell, Berks. 0344 427317

AMSTRAD £8.95
ZX SPECTRUM £7.95
COMMODORE 64 £8.95

Yie Ar KUNG~FU

THE ARCADE SMASH COMES HOME!



...the name
of the game

Konami

Imagine Software is available from: WHSMITH, John Menzies, WOOLWORTH, LASKYS, Rumbelows, Greens, Spectrum Shops and all good dealers.

Imagine Software (1984) Limited • 6 Central Street • Manchester M2 5NS • Tel: 061 834 3939 • Telex: 669977