

POPULAR

Only 50p.

# Computing

with Home Computing Weekly

WEEKLY

13-19 March 1986

*It's the best selling weekly*

40 Rock C

Vol 5 No 11

## Atari plans CP/M and IBM emulators

ATARI has announced that CP/M and IBM PC emulation packages are to be introduced for its ST range, which now includes the 520STM and 1040STF (see *Popular Computing Weekly*, March 6). It also declared future plans for a word processor machine

continued on page 4 ▶



In this issue  
**COMMODORE'S  
128D**  
Read our full review  
Starts page 10



PSS has licensed two more Amstrad games from French software house Ere, following the success of *Macadam Bumper*.

The two arcade adventure programs will be called *Get Dexter* and *Doomsday Blues* in this country.

*Get Dexter*, in particular, features very detailed, stylised 3D graphics and interactive gameplay in the style of *Alien 8* and *Knight Lore* (for a full review see this week's *New Releases* on page 36).

*Doomsday Blues* also features highly

detailed graphics with a fully animated central figure. Both games are due for release at the end of this month when English language packaging has been prepared. They will retail for £9.95 (tape) or £14.95 (disc).

PSS has indicated that there is to be a sequel to *Get Dexter* planned for release in about six months.



**INSIDE** ▶ AMSTRAD PCW 8512 LAUNCH DATE CONFIRMED - P4



AVAILABLE NOW  
ON SPECTRUM 48K

SHE'S COMING

# TWISTER



**A**vailable for

Spectrum 48k, CBM 64/128, All Amstrads, All  
48k Ataris, Atari ST, BBC B, MSX

**ALL TAPES AT 7.50**

Amstrad, CBM 64/128, All 48k Ataris

**ALL GAMES ON DISK 10.99**

Atari ST (Disk only) **21.50**



## 4 NEWS

PCW 8512 launch confirmed

## 10 HARDWARE

We take a close look at Commodore's C128D

## 14 REVIEWS

Digital Research's Pascal for Amstrads and Borrowed Time for the Commodore amongst this week's programs

## 16 BBC

A print utility for Epson compatible printers

## 18 COMMODORE 64

Extend your Basic - we show you how

## 20 AMSTRAD

Machine code magic - a routine for fancy screenwork

## 22 QL

A SuperBasic extension for instant screen recall

## 24 SPECTRUM

Two-player wild west action with Shootout



The new 1040 STF from Atari

6 Letters

9 Communications

12 Codewords

26 Arcade Avenue

28 Adventure Corner

35 Charts

36 New Releases

36 This Week

38 Puzzle, Ziggurat Hackers

## EDITORIAL

**T**he very fact that Amstrad has felt the need to introduce the PCW 8512 says a lot about the way the company is moving.

It indicates, for one thing, that Amstrad has been selling some 8256s into the serious business arena, rather than supplying to individuals who would like low-cost word processing.

For the latter, the 8256 is more than adequate. For the former, the extra memory and, more particularly, the second disc drive, is much more important.

The PCW 8256 was designed to create a market. It appears that it has created two, since Amstrad has asserted that the 8512 will not replace the first PCW machine, but complement it.

And, of course, the 8512 is planned to consolidate Amstrad's foot in the door of the business market. The twin disc drive, extra memory, and the fact that a software base on the PCW's 3½ inch discs is now available and growing, makes it a serious contender rather than a low-cost option.

That 'foot in the door' will be all-important come the autumn, when Amstrad's much touted IBM PC Compatible is due to make its appearance.

When Amstrad entered the computer market (a mere 21 months ago) its one-box policy set its competitors thinking. Commodore has made efforts to 'go the Amstrad route' with its CP/M modes on the 128 machines, and the monitor and disc drive packaged with the 128D. Sir Clive Sinclair, however, has decided that Sinclair and Amstrad are selling to different markets.

The only company to acknowledge Amstrad's success wholeheartedly is Atari. Sam Tramiel, Atari's president, has announced that Atari is planning a 'PCW basher' in the shape of a competitive one-box package for the late summer.

But Atari may well be too late. By the time its 'basher' appears, Amstrad will have moved on. Once the follower into the market, Amstrad is now leading its competitors into its own markets.

Editor Christina Erskine Features editor Graham Taylor Software editor John Cook Production editor Lynne Constable Advertisement manager Diane Holyoak Advertisement executive David Osen Classified executive Jon Beales 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 S M Distribution, London SW9, Tel 01-274 8611, Telex 261643 © Sunshine Publications Ltd 1986.

**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. We cannot guarantee to return your programs - so please do not send your only copy. 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

ABC



# PCW8512 in shops by end of March

AMSTRAD'S upgraded PCW machine, the PCW 8512, will be in the shops by the end of this month (see *Popular Computing Weekly*, February 6). Amstrad has now formally announced the introduction of the machine.

The PCW 8512 is essentially similar to the existing model, apart from the bigger memory, and the inclusion of a second disc drive, housed vertically in the monitor unit as standard, rather than an optional extra, as on the 8256.



The second disc drive is a 1M unformatted, 720K formatted, double density device. It

can be used for writing and editing work, can speed up spellchecking to around 25 pages per minute, and enable immediate access to multiple programs.

Amstrad's sales and marketing director, Malcolm Miller, asserts that the 8256 will not be dropped. "There has been a growing demand, both from retailers and customers, for a model with a greater capacity, and we have met this demand with the 8512 - it is an enhancement model, not a replacement," he said.

The PCW 8512 will retail for £573.85.

## War on Want tape finalised

OFF The Hook is not the only charity compilation to be launched this spring. War On Want has now finalised the titles for its own appeal tape, to be launched on April 21 (see *Popular Computing Weekly*, February 6).

As yet, War On Want has only planned for a Spectrum version, but hopes a Commodore tape will follow. The tape will cost £9.95.

The titles are: *Spectrum Chess II* (Artic), *Bug Eyes* (Audiogenic), *Pedro* (Beau Jolly, originally Imagine), *Winged Warlord* (CDS), *Mr Freeze* (Firebird), *Headbangers* (Heaven), *Wizard Warrior* (Liamasoft), *Wizard Warrior* (Mastertronic), *Hellfire* (Mel-

bourne House), *Hunchback II* (Ocean), *Horace and the Spiders* (Psion), *Xavier* (PSS), *Rupert and the Ice Palace* (previously unreleased, from Quicksilver), *Cybernauts* (Star Dreams) and *Dr Frankie and the Monster* (Virgin).

All proceeds will go to War On Want, whose primary aims are to help alleviate poverty and famine in the Third World.

## Atari CP/M

◀ continued from page 1

designed to compete directly with Amstrad's PCW range.

The CP/M emulator is a software package which Atari claims will be fully compatible with Digital Research's Z80 operating system. Rob Harding, Atari UK's marketing manager, said. "We are negotiating with manufacturers to convert their programs on to 3½ inch discs."

The IBM PC emulator will be a hardware package comprising an Intel 8088 processor, with 512K of Ram. It will accept a 5½ inch disc drive, and the whole unit, when being used in ST rather than IBM mode, will act as a separate 500K disc drive. "It is not our intention to downgrade the ST into an IBM clone," said Sam Tramiel, Atari's president. "It means that the business user will be able to complement the ST range with IBM software". Sam Tramiel put the degree of IBM compatibility achieved by the emulator

"in the high 90s per cent".

The CP/M emulator should be available from next month. Its price is expected to be around £40-£50. Atari plans to release the IBM emulator in the summer at around £300.

Sam Tramiel has also made announcements about Atari's



The 1040 STF

plans for the low-cost word processing market currently cornered by Amstrad. "In late 1986, we will introduce a word processing package with a monitor and printer, based on our 8-bit line. I'm amazed by what Amstrad has done in this field in this country."

## Minter takes on first Atari show

JEFF Minter's faithful following was out in force to see his latest creation, *Colourspace* on the Atari ST, at the first ever Atari Computer show, held last week-end at Novotel, London.

Also attracting massive attention was, of course, Atari's own stand, which featured its new STs (see separate story) and the latest video games machine, the £70 7800.

Entertainment packages for the ST were few and far between, although *Psygnosis* took a stand to show off *Brataccas*, and Level 9 showed a pre-production of *The Price of Magick* on the machine. Level 9 plans to convert all its titles to the ST eventually, with *The Price of Magick* appearing first in a couple of months.

However, there were a number of languages and utilities on display, notably Metacomco's language range, utilities from Microdeal and Kuna, and Prospero's Pascal and Fortran implementations.

Users of Atari's 8-bit had a feast of software and peripheral bargains to choose from.

Exact prices have also been announced for the new STs. The 1040 STF with a monochrome monitor will retail for £918.85 and with a colour monitor, £1148.85. The low end 520STM (to be sold without disc drives included) will cost £399. A price has not

yet been announced for the 520STFM, the STM with inbuilt disc drive, which will be launched in about a month's time. The 520STM and 1040STF should be available now.

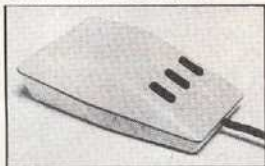
On the subject of future ST machines, Sam Tramiel declared, "We plan to enhance the STs with a graphics chip, and speed it up. There will be a blitter for the 1040. And the one megabyte is just the beginning - we'll go for two megabytes, then four megabytes."



## Megamouse for BBC machines

THE Megamouse for the BBC B is a follow-up to Wigmore House's WS2000 mouse pointer.

Software available for the Megamouse includes *Cadmouse*, a computer de-



sign package utilising icons, and including several features such as arcs to exact degrees, polygons, ellipses and dimension lines, and *The Artist*, a flexible and versatile art packages with a wide range of colour and pattern options.

Wigmore House is considering conversions for the Commodore 64. Meanwhile, on the BBC, the mouse costs £67.85, *Cadmouse* £29.90 and *The Artist* £56.35.

Further information from Wigmore House at 32 Savile Row, London W1 1AG (01-734 0173).

## Star expands printer range

STAR Micronics has now introduced the next in its N printer series, following the launch of the NB-15.

The new NL-10 is a dot matrix printer, which runs at 30 cps in NLQ mode and 120 cps in draft mode. Interface cartridges are available for the Commodore 64/128, IBM PC and Apple IIc.

The NL-10 will replace

Star's SG-1 0 and SG-10c models.

The NL-10 costs £274.85 and its interface cartridges are £44.85.



## Productivity titles from Ariolasoft

ARIOLASOFT has launched a new range of 'productivity' packages, licensed from US company Batteries Included. The first in this series is *De-gas* (see *Popular Computing Weekly*, February 6), a graphics program for the Atari ST.

Other titles in the range, which should now be available, are *Homepak*, an integrated system comprising a word processor, database and telecommunications software, *The New Consultant*, a

database management package, *New Paperclip*, a professional word processor, and *Cut and Paste*, a particularly use friendly word processor.

*Homepak* (£34.95) is available for the C64/128, Atari 800, Apple II and IBM PC (disc only). *New Consultant* for the C64/128 (£44.95) and IBM (£59.95), *Paperclip* for the C64/128 and Atari 800 (£44.95), and *Cut and Paste* on twin disc for the C64/128, Atari 800, Apple II and IBM (all £24.95).

## Elite drops Basketball

ELITE's well-advertised game *International Basketball* has been dropped by the company. This is the second time Elite has abandoned a game after development work had begun.

*Scooby Doo* for the Spectrum was similarly dropped, although work on a completely different game based on the Scooby Doo character has now restarted.

## Firebird's comet

THE latest title in Firebird's Hot range is *The Comet Game*, timed for launch at the end of the month when the space probe Giotto sends us the closest view of Halley's comet yet.

The game involves a mission to save humanity from germ bugs infecting Halley's comet and threatening earth.

It will cost £7.95 for the Spectrum, Commodore, Atari (8-bit) and Amstrad ranges.

The Only Publication  
Dedicated Exclusively  
To The Atari ST.

# ST User

ENGLAND £18  
EUROPE £23  
WORLD £36

## Subscribe Now

Subscriptions Dept.  
ST User,  
43 South Street,  
Chichester,  
West Sussex PO19 1DS.

FLIP SIDE AND MUDPIES

LEARNING LOGO

HABA WRITER.

WHY 'C' IS SO IMPORTANT TO THE ST.

BOOK PAGE

HABADEX

FILE HANDLING IN ST BASIC

GST DEVELOPMENT SOFTWARE

HOW TO PROGRAM THE 68000 PROCESSOR

ONE MEGABYTE ST's

GEM MEETS THE SPREADSHEET

THE ST SOFTWARE GUIDE.

PRINTERS

HABA HIPPO 'C'.

RYTHMIC MATHEMATICS.

ZKUL AND WEST.

STARCROSS GAMES.

SEASTALKER

K - RAM.

WISHBRINGER.

MODEMS AND COMMS.

THE FINAL WORD

GET STUCK IN MUD

ALMANAC

THE HITCH-HIKERS GUIDE TO THE GALAXY.

FLOPPY DISK OFFER.

THREE ASSEMBLERS.

'C' FOR BASIC PROGRAMMERS.

TOOLKIT.

DR 'C'

HIPPO SIMPLE

BRATACCAS

UTILITIES

BRAVE NEW WORLD



## Kempston replies

**K**empston Micro Electronics wishes to point out certain inaccuracies in the inside lead article of the March 6 issue, re joystick interfaces and the Spectrum 128, which Kempston feels are extremely misleading.

It appears that a problem arises from a small number of software titles using a certain programming technique in conjunction with Kempston compatible interfaces. The problem can be solved by software modification and a number of software houses are effecting these changes.

The Kempston joystick interface standard is not incompatible with the Spectrum 128 and will continue to be used by software houses for joystick compatible games. The problem appears to affect most Kempston compatible interfaces and we feel that the company has been implicated in a problem which affects a number of manufacturers.

*Ab Pandaal  
Managing Director  
Kempston Micro Electronics*

## Dream machine

**T**he advent of true 16-bit computers is likely to be the next important development in the home/personal computer market. The dramatic increase in speed, addressable memory and raw computing power when compared to the tired old Z80 and 6502 chips is astounding.

In computers like the Amstrad 6128 and the Commodore 128, these chips have reached their maximum potential and for the market to progress 16-bit computers must become the norm.

I am, however, worried at Commodore's lack of foresight and impressed by Atari's new-found muscle. While the 520ST represents a step forward in computing technology, it is the Amiga that is undoubtedly a leap into the future.

Anyone who has heard anything of this computer cannot fail to be impressed by its speed, the graphics, sound, multitasking, etc. What bothers me is the 'business' market Commodore is aiming the machine at. Surely the Amiga's facilities are best

suited to the home market for recreational and educational use?

Commodore seems to have produced a dream machine for the home enthusiast, but intends to sell it to an already overloaded business market where stereo sound sampling counts for little.

I, for one, wish Commodore every success because success can only mean price cuts which may bring the Amiga down to a price level that I and many others will be able to afford. In the meantime I'll carry on saving for an Atari ST.

*David Shaw  
Wokingham  
Berks*

**Many others share your opinions and fears. It should be remembered that the Amiga Corp, before Commodore's acquisition, designed its machine as the ultimate entertainment computer. In the meantime, a Commodore loss looks like Atari's gain.**

## Where is Phil?

**I** am curious to know what has happened to Phil Rogers and his Peek & Poke column which has apparently disappeared from your pages.

It seems to me that ever since the amalgamation of *Popular with Home Computing Weekly*, dear old Phil has been given the proverbial boot! I am still awaiting for a reply to a query of mine, despatched some few weeks ago, with which I enclosed a SAE.

Could you therefore resurrect the old fellow long enough for him to get his Quill scratching again?

In all seriousness, though, I do hope that Peek & Poke has not been sidetracked, for I thought that it was a good aid to duffers like me, and a very interesting and important part of your magazine.

*Les Rothera  
30 Burnsall Gardens  
Leeds*

## MSX club

**I** wish to inform your magazine of a new MSX Club. The club will cost £5 to join, and for that fee, a regular



markable value for money.

There are different machines for different needs, but for the serious personal or small business user, the QL is well supported and a good choice.

*Alan Essex  
Oxted  
Surrey*

**That's enough David Kelly Ziggurat letters. Ed.**

## A bad week?

**R**e: *Movie*. I have to disagree with the Pick of the Week status bestowed on this game.

Whilst the idea behind the game is a nice one, the execution is not really up to 1986 standards. The 'clip clop' footsteps sounds accentuate the jerky movement rather than concealing it, as I suspect it is supposed to.

Tanya is never found in the same location twice and it is apparently random whether Harlow gets shot as soon as he enters an occupied room or not. The absence of a *Save* facility or multiple-lines necessitates re-negotiating all the rooms progressed through up to the time of demise.

As an arcade adventure it is, in theory, an improvement (to an adventure game player) than the 'fast action zap 'ems', but it gets very tedious.

The graphics are so appalling that it is difficult to distinguish between portable objects and furniture. The sight of bouncing dogs, floating armour suits and girls suffering, apparently, from St Vitus dance, raises a smile which quickly turns sour.

The icon system is the clumsiest I have seen. Try turning to face an opponent, then hitting/shooting him. Even once the objects are located - what are they? Is this the state of things to come or was it just a bad week? If so, does anyone want to swap a computer for a pair of knitting needles?

*Hugh Walker  
Burphaw  
Guildford  
Surrey*

**Well, we liked the clip clops, found the graphics small but rather stylish and so on... aren't personality differences wonderful?**

magazine will be issued. It will contain competitions, reviews, hints on playing games, hi score table, top ten games, and many other articles featuring the up and coming MSX.

The magazine will be issued eight times a year. That is, one magazine every two months, and two special editions for Christmas and Easter. The special editions will contain 60 pages.

We have also written to *MSX Computing*, *What MSX*, *Computer and Video Games*, and a number of software companies which include, Konami, Activision, Ocean, Kuma, and Hal. We are awaiting their replies.

*PJ Morgan  
The MSX Club  
230 Dunvant Rd  
Dunvant  
Swansea*

## A good choice

**I** read Mr D J Parrott's letter (February 20) referring to the concern about David Kelly's Ziggurat on the QL (February 6).

To my mind the Ziggurat article was extremely shallow as regards the QL's capabilities, but also his reference to the reasons Americans buy machines.

In my experience, having worked for Americans the last 10 years, I have found that they firstly buy a machine to support their job needs and only secondly for entertainment purposes.

It is easy to dismiss the QL, especially given the clumsy way it was introduced, but the fact remains that the bundled Psion software represents re-



# SAMANTHA FOX

## Strip Poker



Will you  
be able to  
tell if Sam is bluffing?

*Will you be able to keep your cool  
when the stakes are high?*

(Featuring Video Digitised Pictures)

SPECTRUM 48K (Twin program cassette)	£8.95
SPECTRUM 128K (Enhanced version)	£8.95
AMSTRAD 464/664/6128 (Twin program cassette)	£8.95
AMSTRAD DISC	£13.95

Available from all good retail shops or order today by mail.  
Prices include VAT and p & p.

Send order to:

Software Communications Limited, Martech House,  
Bay Terrace, Pevensey Bay, Sussex BN24 6EE.

TRADE ENQUIRIES WELCOME PHONE (0323) 768456

TELEX: 87465 EXIM Brighton

**martech**

AND AS AN  
ADDED  
BONUS  
ON SIDE  
2

# 7 INTERNATIONAL CARD STUD

Probably the most powerful simulation ever written for a home microcomputer. Take on up to three opponents, each with their own playing personalities and ability. But watch out! Incredibly, your opponents are able to analyse your play – and will try to turn it to their advantage.



# BATTLE OF THE PLANETS

RETAIL  
£9.95



BATTLE OF THE PLANETS is the Space simulation  
that was selected for the  
National Computer Games Championship

MIKRO-GEN Unit 15, The Western Centre, Bracknell, Berks. Tel. 0344 427317

Steinar





## Hints and Tips

**T**his week I'll continue my hints and tips for using Bulletin Boards.

When you log on to a BB, it is best to use your real name not a pseudonym unless you are told you can. The reason for this is that some Sysops keep a list of the people who log on which they can show this to sponsors.

## Telesoftware

Many BBs have a section where users can download software in their own computers called telesoftware. Programs on telesoftware are referred to as public domain software which is free; no-one makes money from people who download public domain software. If you plan to download software then you should, but don't have to, upload some software to the board. You can upload software which you yourself have written. This isn't compulsory, but if nobody gives the board some software then

there will be none to be downloaded by others!

Some boards have a 'help' section. When you first log on you should read this carefully and if you have a printer then print a hard copy of the help section so you can refer to it when you need to. Typing a hard copy can save money.

If you stay logged on to a board for too long this will prevent others from logging on and most of you will know that it gets very boring if you are spending hours trying to get logged on to one particular board and it always seems to be engaged. To help things along, some boards give you a time limit.

## Breaking up

You should never just break the line to a board, ie, don't just press *Break* or *Stop* on the computer - always go through the proper logging off procedure. If it happens by mistake then it is likely that the host computer will assume that you are still on line.

If this does happen then the BB will be engaged for some time, since it assumes that you are still on line and it can't tell otherwise. All Sysops know that this can happen by accident at times, but only once or twice a month not every day. Also the Sysops can tell who is on the line when this happens and if the same person does this a lot then they are likely to be denied further access to the board.

Some people assume that they can save money by just breaking the line. This is true, after all, you are on-line for at least five seconds while going through the logging off procedure. But what's a couple of pounds a year if it will keep you allowed to log on to a board and keep the Sysop happy?

This week's BB top ten is another of my own concoctions:

## Top Ten

Name	Baud Rate	Number
1. Bluelips	300/300	0843-32837
2. Micro-gnome	1200/75	01-888-8894
3. CCBB	300/300	0249-817077
4. Marctel	300/300 & 1200/75	01-346-7150
5. TBBS - London	300/300	01-348-9400
6. Vulcan board	300/300 & 1200/75	0268-46691
7. Dark Crystal	300/300 & 1200/75	01-954-9847
8. Commun-ITEL	1200/75	01-968-7502
9. Metrotel	1200/75	01-941-4285
10. CBBS - SW	300/300 & 1200/75	0392-83116

An update on the Calne Computer Club board, mentioned last week: it now operates on a ring back basis. The number's 0249-817077.

The new BB this week is Teletrieve in Huddersfield, 300/300 baud but I don't know the hours (probably 24). The number is 0484-057299.

David Wallin

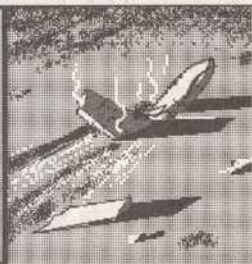
If you have any queries, tips or comments to make about any aspect of micro communications, David Wallin would love to hear from you.

Write to him at *Popular Computing Weekly* 12-13 Little Newport Street, London WC2H 7PP.

## The Rogue Program



The wreckage of the plane littered the desert landscape.



Passengers and luggage strewn along its final path.....



S.R.R. lies by the main body of the wreck seemingly helpless ? ? ?



David and Cindy, still tied to the tangled seating; lifeless



Outside the night closes in.....



# Package deal

Eric Daghaye checks out the new Commodore machine the 128D

Commodore's version of the 128 with a built-in disc drive has been promised for nearly a year now. Many people must have been wondering if it would ever appear when it quietly launched at the *Which Computer?* show last month in the shadow of the Amiga's graphics.

I would class the Commodore 128 and 128D as a clever combination of technology and marketing, as they are three computers under the same bonnet and quite immune from the 'new computer syndrome': lack of software. It claims to be able to run all the 64's software and most CP/M 3 software. This must be the first time that a computer is launched on an already existing immense software base.

With the 128D what you get for your money is a very nifty looking three box system consisting of the main unit which contains the disc drive and all the electronics, a separate keyboard connecting to the main unit via a lead, and a high resolution monochrome monitor. The whole thing looks very impressive, much more like a business computer than a home computer, with a general look reminiscent of the Amiga. The disc drive, moreover, is the double sided 1571, rather than the single sided 1570 which is available for the C128. It is still unclear whether Commodore intends to bring out the 1571 as a separate unit for the C128.

Another interesting feature is the 128D's apparent portability. Unlike the non-disc version that has to be dismantled and carried as a bunch of separate bits (realising later that you forgot the power pack), the 128D's design has taken portability into account.

Turning the main unit on its back reveals a gap into which the keyboard clips neatly, and there are a couple of 'hooks' on to which the cables, only two of them - mains and monitor - hook on the back. The nice touch is a handle that pops out from the side of the main box, making it very easy to carry around.

Taking the lid off any Commodore machine voids the warranty, which was not much of a problem on the previous models if you had a decent screwdriver. But the 128D is held together with soft-head screws, so no matter how good your tools are, you will not be able to open the case without damaging the screws and blowing your warranty.

## 64 Mode

The 128's major claim is full compatibility with all existing C64 and CP/M software. After going through a few dozen discs I have found out that 98% of my 64 software did work without problems. The 2% failure consisted of a few games,

mainly cassette based, which must use some obscure area of the memory, and disc utility programs. I suspect that these do not work because of the slight difference in the 1541 and 1571 Dos. I also noticed that some programs that apparently did not load started to run after I tried to reset the computer.

On the subject of reset, the standard 128 reset switch is on the right hand side of the main unit, and alongside it, hidden in a small hole is a very handy disc drive reset switch.

## 128 Mode

At power-up the disc drive performs a small routine to check if a program has to be autobooted (like the CP/M system disc), else it defaults to 128 mode with basic 7.0 in whatever screen size is selected.

The new Basic is quite a treat: it includes *If-Then-Else* and other 'structured' commands such as *Do-Loop-While-Until*, but does not have procedures. Also included are much awaited sound and graphic commands - including windows and split screen facility - that are both easy to use and comprehensive, a sprite editor, a machine language monitor and a whole set of disk commands such as *Director*, *Dload*, *Dsave*, *Scratch*. Also the function keys are preset to much frequently used commands such as *List*, *Dload*, *Dsave*, *Run*, *Directors*, *Monitors* and can be easily redefined to suit your needs.

Although the manuals supplied with the system break a life long Commodore tradition, in that they are genuinely useful, there are a lots of not so well documented features that make the 128 mode very interesting. For example the clock speed can

be doubled with the command *Fast* and brought back to normal with *Slow*. Although *Fast* works only in 80 columns, this can be very useful where the processing speed can be doubled for number-crunching and then brought back to normal for display. Other such freebies include alternative cursors and flashing displays.

I also have recently discovered that Pet Basic programs will load and run from disc without any major alterations, something that was not easily done on the 64.

At the moment there is not a great deal of software specific to the 128, mainly a few business programs such as word processors and databases. I use *Precision 5 Superscript 128*, and Commodore's *Script* is actually a trimmed down version of *Superscript*.

The advantage of having 80 columns to do word processing and programming are fairly obvious, one does not need to pan the screen left and right to view a whole document.

## The monochrome monitor

The monochrome monitor is actually a green screen and its resolution is very good, giving in the 80 column mode a serious look to the machine. My original





intention was to do without the monitor and buy one of these 'interfaces' with the 128 and carry on with my good old 1701. Well, no matter how tempting the interface's manufacturer promises are, the 1701 has a rather poor resolution, and any form of 80-col on it is almost impossible to read.

## CP/M mode

And then there is CP/M. What it is is a standard environment in which programs are written and run.

In theory programs written under CP/M on any machine should run on any other CP/M machine.

In practice it is true up to the point of disc formats, as each manufacturer has opted for a different format. A lot of home micros now offer CP/M but only in their own format.

This is where the 128D scores another point as it can read most CP/M format including Osbourne, Kaypro, Epson and IBM (files only, not programs) both single and double sided. I have been successfully running *Dbase II* in Osborne format, utility programs in Kaypro IV format, and many others.

The trick behind this useful feature resides in the disc drive. As a disc is read the drive can detect what format it is and let you either read the one file only or lock into that format for further use.

If the disc is changed it will automatically detect the new format.

This is also true for discs formatted in 64 or 128 mode. If you use a single sided disc, after some whirring, the drive will adjust itself to cope with it. Change to a double sided disc, and it will re-adjust again.

According to the manual, the drive is also capable of formatting discs in most major CP/M formats.

As CP/M is one of the first operating systems for micro-computers, there is a lot of software available for it. And most of it is public domain software which means that it is free! The fact that it is free does not mean that it is poor quality software; far from it. There are at a rough guess 20,000 programs falling into this category, and they include games, languages (compilers and interpreters), utilities, business programs... The software is free but there is a copying fee of £2 per disc, and a disc may contain up to 50 files.

For example a 'C' compiler comes as a set of three discs (this includes the manuals as text files on the disc), bringing the total cost to £6.00. It makes you think twice before spending £120 for the C64 version of C.

Such software can be obtained from Rod Smith at the Public Domain Software Interest Group (PD SIG). To get more information, send him a SAE at 138

Holtze Road, East Grinstead, Sussex, RH19 3A.

## Conclusion

I have not been able to fault the 128D yet. The merits of the 128 have already been laid out in other reviews, but the 128D is made more interesting with its extra features.

It is a neat self-contained serious looking system devoid of the rat's nest of wires usually associated with home computers. The fact that the keyboard is separate means a lot of flexibility over one's working position.

The double sided disc drive included has a larger capacity (320-340K), is much faster and more CP/M standardised (very few CP/M formats are single sided) and last but not least it is portable. It is slightly dearer than its counterpart, at £499 for the 128D without monitor, and £574 with the monochrome monitor.

This computer will appeal mainly to existing 64 owners who want to upgrade to a better machine whilst still being able to use all their software and small business users who want a professional looking system without having to spend a fortune on software. And C64 users, who are thinking of graduating to a 128, should take a good look at this version. It might be well worth the extra few pounds.

## SPECTRUM 128

CENTRONICS PRINTER INTERFACE

MIRACLE SYSTEMS LTD  
AVONDALE WORKSHOPS  
WOODLAND WAY  
KINGSWOOD  
BRISTOL  
BS15 1QL

£19<sup>50</sup> inc  
ACCESS/VISA  
Welcome

Tel: (0272) 603871 ext.210

PD8003

## WANTED URGENTLY

Enthusiastic, Experienced

Sales person

To fill new position at well established, small but expanding Independent Leisuresoftware Publishers, with an excellent reputation, Hampshire/Berkshire Area.

The successful applicant will have previous sales and negotiating experience, have a pleasant personality, be enthusiastic, will thrive in a fast moving, volatile market and want to succeed.

Responsibility includes: every aspect of sales and licensing within the company in the U.K., Europe and Worldwide, for both the existing and forthcoming range of products.

Salary: Negotiable

Send C.V. in strictest confidence to:

The Managing Director,  
Box No. 206,  
12-13 Little Newport Street,  
London WC2H 7PP

PD900

## ALL WAY MARKETING

### KEY LOCATOR

BLEEPS TO TELL YOU WHERE YOUR KEYS ARE  
LURKING NOW ONLY £3.95 (+ 50 pence P&P)

Do you recall that awful feeling of panic the last time you couldn't find your keys? Usually they're only a few feet away out of sight. Behind a cushion? Under the newspaper? Down the side of a chair?

With our clever KEY LOCATOR your worries are over! Next time your keys go missing, just clap your hands. Our slimline electronic KEY LOCATOR reacts to your hand clap by emitting a loud persistent series of Bleeps!!! You home in on your keys in seconds.

The moment you take out your keys, at a touch you can actuate the Locator for instant response. BEEP THAT KEY THIEF... Keys lying beside you on a cage table - The moment a thief tries to sneak them away the series of bleeps will warn you. They can also be used to protect your personal property.

Send your cheque/PO's payable to

ALL WAY MARKETING,  
41A Lorne Road, Forest Gate, London E7 0LJ

ORDERS of two or more postage free

PD901











## Out of time

**Program** *Time Tunnel Micro*  
Commodore 64 **Price** £9.95  
**Supplier** US Gold, Unit 10,  
Parkway Industrial Estate,  
Heneage St, Birmingham.

**A**t first glance you could be forgiven for thinking that *Time Tunnel* is just another arcade adventure program using the now time honoured technique of find object, use object, continue to next puzzle variety, but, it is actually a clever game with some original ideas.

OK the plot is a bit thin - you are a gnome and prime contender to the throne. To prove your worthiness to be King you have to recover the seven pages of a very important book that some nasty has scattered throughout time, and decipher the completed message to free your imprisoned fellow gnomes.

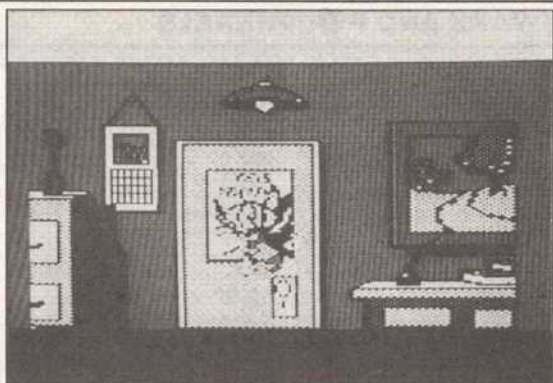
Using the time machine at your home base in Gnome Mansion, you can visit each of the seven time zones at will, explore and return whenever you wish. This is what makes the game flow so well, you're not trapped anywhere desperate to find a way out. You can, if you find yourself frustrated at one zone, merely journey to another and try your luck there. There are some lovely effects like the shadows cast on cave walls



from your flickering torch, or the vibrating time machine as you begin your visits. Another plus for this game is the variety of screens at each time zone. There are a generous number each with its own distinct graphics.

As you can gather, I enjoyed this game despite some frustrating elements like one way doors and fussy sprite handling, but it does have variety and most importantly - playability.

**Andy Moss**



## Time to kill

**Program** *Borrowed Time Micro* Commodore **Price** £14.99  
**Supplier** Activision, 15  
Harley House, London NW1.

**D**ateline 1934 - Scene, the office of Ace Private Eye Sam Harlow. There you are, feet on the desk, having just finished your last case after discovering the fact that Maltese Falcons weren't a brand of cigarettes after all, when your phone rings. A familiar voice gasps out a warning "Sam, they're after you - they want

to kill you". The tone of a dead phone assaults your ears and you realise that you're on your next case. Who wants you dead? You're such a nice guy!

So begins a new adventure from the people who produced *Mindshadow* - a tale that achieved a lot of success, notably for its great graphics and strong plot. *Borrowed Time* is even better, with one of the most exciting openings to an adventure I've seen. Right from the off, you're being chased by a couple of thugs with shooters and a lot of quick thinking is needed in order to escape. Suffice to say, I got killed quite a few

## Divided

**Program** *Citadel Micro QL*  
**Price** £10.95 **Supplier**  
Eidorssoft, The Office, Hall  
Farm, Ockendon, Upminster.

**D**o you remember *Medic*? That ill fated QL company, with four free games for disc

customers.

Eidorssoft has taken one of those original titles *Citadel*, taken all the bugs out and slapped a price of £11 on it. Now it forms part of its Budget range.

Your part in this game is to collect up as many objects as possible scattered across the area, in various guises. The area is a space station that is politically divided like mod-

ern day Berlin and you have to unite the divisions.

The controls are simple; rotate 45 degrees on one button, go forward on another and stop on the space.

If you forget that this game was once free, then you are left with a reasonable package that is a little overpriced.

**Matthew Palmer**

ern day Berlin and you have to unite the divisions. The controls are simple; rotate 45 degrees on one button, go forward on another and stop on the space. If you forget that this game was once free, then you are left with a reasonable package that is a little overpriced.

**Andy Moss**



## Choo Choo

**Program** *Orient Express Micro* Enterprise **Price** £7.95  
**Supplier** Entersoft Limited,  
37 Bedford Square, London  
WC1B 3HW.

**W**hy do I find this so addictive? It's not a simulation, like *Southern Belle*. It's not a Poirot-style adventure. It's a block shift game. You know the type - slide around parts

of a picture, using one empty space for manoeuvre.

The excitement in *Orient Express* comes from a speeding train. No, not even a speeding train but a chugging tank engine. The point is that the train advances relentlessly along the track until it reaches the block shift grid of lines more tangled than Clapham Junction.

The train can be halted for a maximum of a minute while you rearrange the blocks to form an unbroken path to the exit point, trying to pass

through bonus coal and water squares en route, and though the first stage from London isn't too difficult it becomes more of a panic as you enter the Continent.

Hardly an original game, but it's bright and clear with superb 'train' music, and if you prefer to use your Enterprise for strategy rather than wholesale slaughter it's probably a good, if rather expensive, buy.

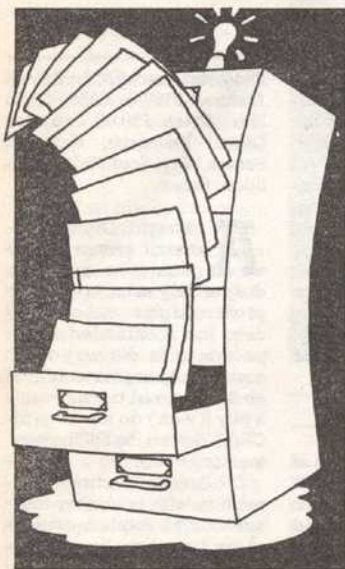
**John Minson**











## PRINT OUT

by E B Page

**T**here are a number of occasions when a simple printer set-up routine is required giving a limited but useful number of options. One such use would be for printing out records held in a database where a few extra lines added to the program would give the user a choice, say, of NLQ or condensed print. Two other options would be margin settings and single, double or triple spacing.

The following program allows you to do just this and is easily written into your own programs as a Procedure - it is

written for Epson compatibles, but can be easily converted.

### Program notes

3-20	Demonstration program
30	DEFPROCdriver
40-60	Set margins (always count from the left)
70-80	Set spacing (single, double or triple)
100-110	Set NLQ (near letter quality)
120-180	Set other print styles
200	PROCprinter
220	DEFPROCprinter
230-280	All variables passed to printer
285-300	Demonstration print
310	Turn off printer

```

3MODE7
10PROCdriver
20END
25:
30DEFPROCdriver
40CLS:INPUTTAB(2,8)"How wide for LEFT margin"SPC(4),A
50INPUTTAB(2,10)"How wide for RIGHT margin"SPC(3),B
60IFA=0 AND B=0 THEN B=70
70PRINTTAB(2,12)"Single,double,or treble"
80INPUTTAB(2,14)"spacing 1), 2) OR 3)"SPC(8),g$
90IF g$="1" THEN E=35 ELSE IF g$="2" THEN E=70 ELSE E=115
100INPUTTAB(2,16)"Do you want NLQ"SPC(13),A$
110IF A$="Y"OR A$="y"THEN C=40:D=0:PROCprinter(A,B,C,D,E):END:ELSE 120
120C=33:CLS:PRINTTAB(5,10)"Other types available are:"
130PRINTTAB(16,12)"1)Large,Double Strike"
140PRINTTAB(16,14)"2)Italics or"
150PRINTTAB(16,16)"3)Emphasised Condensed"
160REPEAT
170INPUTTAB(5,18)"Please select 1.2 or 3"SPC(70),K%
180UNTIL K%>0 AND K%<4
190IF K%=1THEN D=56ELSE IF K%=2 THEN D=0:C=52: ELSE IF K%=3 THEN D=22
200 PROCprinter(A,B,C,D,E)
210ENDPROC
215:
220DEFPROCprinter(z,x,n,m,1)
230CLS
240VDU2,1,27,1,64: REM*Printer Reset
250VDU1,27,1,51,1,1: REM*Line Spacing
260VDU1,27,1,108,1,z: REM*Left Margin
270VDU1,27,1,81,1,x: REM*Right Margin
280VDU1,27,1,n,1,m: REM*Print Modes
285REM*Replace lines 290,300 with your own print instructions*
290IF m=56 THEN P$="Enlarged,Double-strike,Emphasised,Standard":ELSEIF m=
AND n=52 THEN P$="Italics":ELSEIF m=22 THEN P$="Emphasised Condensed":ELS
IF m=0 THEN P$="NLQ"
300PRINT"This is an example of "P$" print,with the Left Margin set at ";z
and the Right Margin set at ";x", with a line spacing of ";E"/216in"
310VDU3
320ENDPROC
    
```



## D. S. Enterprises (01) 671 0209

### Disks

Size	DS DD	DS QD
5.25"		
Unbranded	£12.50	£17.00
Maxell	£18.00	£20.00
3.5"		
Fuji	£28.75	£32.50
Maxell	£27.50	£35.00

All disks are guaranteed and come packed in plastic flip & file type boxes.

### Drives

QL, Spectrum or BBC Compatible

	Single 80 Track	Dual 80 Track
3.5"	£97.50	£185.00
5.25"	£100.00	£195.00

### QL Software

Lattice C	£85.00
Pascal (Full ISO)	£87.50
Super Charger (Basic Compiler)	£48.50
Ram Disc (Ram Disk & Spooler)	£14.95
Flight Simulator	£16.95
Tasprint	£17.50
QDraw	£12.95
Toolkit II (Eprom version)	£29.95
Ice	£44.95

### Add on's

512k Memory Expander (Sandy)	£125.00
(Including Ram Disc Software)	£130.50
C.S.T. Disc Interface	£82.50
Cumana Disc Interface	£77.50
Dual 3.5" Drive + Interface	£260.00
Zero 2 (Turtle QL, Spectrum)	£115.00
Centronics GLP (NLQ Printer)	£160.00

Special discounts on complete packages or large orders. Call for details of all QL or Spectrum needs on 01-671 0209. (All prices are inc P&P and VAT). Make all cheques payable to: David Storton, 25 Trinity Rise, London SW2 2QP.

PD85



THIS IS  
THE YEAR  
OF THE  
TIGER,  
THIS IS  
THE MONTH  
OF THE  
TIGER

# PPC

\*\*\*\* SPECTRUM \*\*\*\*

GAME	RRP	OUR PRICE
VECTRON	7.95	5.25
THEY SOLD A MILLION	9.95	6.75
MOVIE	7.95	5.45
TRANSFORMERS	7.95	5.45
FA CUP	7.95	5.25
THE FORCE	9.95	6.75
MUGSEY'S REVENGE	7.95	5.25
MAX HEADROOM	9.95	6.75
IMPOSSIBLE MISSION	7.95	5.45
WEST BANK	7.95	5.25
RAMBO	7.95	5.25
HALL OF FAME	9.95	6.75
RUNESTONE	7.95	5.45
PING PONG	7.95	5.25
WATERLOG	9.95	7.00
COSTA CAPERS	7.95	5.25
BERRY THE GERM	7.95	5.25
RASPUTIN	7.95	5.45
SABOTEUR	9.95	6.25
KHANT RIDER	7.95	5.45
SR FRED	9.95	6.25
LASER BASIC	14.95	10.50
GYROSCOPE	7.95	5.45
ELITE	14.95	9.75
ART STUDIO	14.95	11.00
ROB OF SHERLOCK	7.95	4.75
THREE WEEKS IN PARADISE	9.95	6.75
NEVERENDING STORY	9.95	7.00
SKYFOX	7.95	5.25
SEAS OF BLOOD	9.95	6.00
SWORDS OF SORCERY	9.95	6.75
TURBO ESPRIT	9.95	6.75
TOMAHAWK	9.95	6.50
ROBOT MESSIAH	7.95	5.45
ZODIAC	7.95	5.45
SWEEVO'S WORLD	7.95	5.45
YIE AR KUNG FU	7.95	4.50
ARENA	9.95	7.50
ROLLER COASTER	6.95	4.75
COMMANDO	7.95	4.50
2112 AD	7.95	4.50
AUSTERLITZ (Secret to Waterloo)	9.95	7.00
LORD OF THE RINGS	15.95	11.75
MINI SHADOW	7.95	4.45
FORBIDDEN PLANET	7.95	5.45
BARRY MCGURGAN	7.95	5.45
WINTER GAMES	7.95	4.45
SPIRITRE 40	9.95	7.00
DESERT RATS	9.95	7.00

\*\*\*\* COMODORE \*\*\*\*

THEY SOLD A MILLION	9.95	6.75
HALL OF FAME	9.95	6.75
FA CUP	9.95	5.25
ELECTRABLADE	8.95	6.25
GEOFF CAPES	8.95	6.25
THE FORCE	9.95	6.75
MAX HEADROOM	9.95	6.75
BATTLE FOR BRITAIN	9.95	6.95
PING PONG	8.95	6.25
ASYLUM	8.95	6.75
BOUNDER	9.95	6.75
KUNG FU MASTER	9.95	6.75

GAME	RRP	OUR PRICE
SABOTEUR	8.95	6.25
DOOMSDARK REVENGE	14.95	11.00
CRITICAL MASS	9.95	6.25
KORONS RIFT	9.95	7.00
ROCK'N' WRESTLE	9.95	7.00
SUPERMAN	9.95	5.00
LORD OF THE RINGS	15.95	12.25
YIE AR KUNG FU	8.95	6.25
SUPERBOWL	8.95	6.75

### HARDBALL .... 9.95/5.00

URIDIUM	9.95	6.75
BACK TO THE FUTURE	9.95	6.75
DESERT FOX	14.95	9.75
ELITE	9.95	6.75
EGOLCON	9.95	7.00
BALL BLAZER	9.95	7.00
FIGHT NIGHT	9.95	6.25
RAMBO	9.95	5.95
SCALELECTRIX	9.95	7.00
ELECTRASOUND	14.95	10.50
LASER BASIC	9.95	7.00
MERCENARY	14.95	10.50
LITTLE COMP PEOPLE	9.95	7.00
BATTLE OF THE BULGE	6.95	6.25
COMIC BAKERY	6.95	6.25
ZODIAC	9.95	6.75
WINTER GAMES	14.95	10.95
LITTLE COMP PEOPLE (disk)	9.95	6.75
MIND SHADOW	9.95	6.75

\*\*\*\* AMSTRAD \*\*\*\*

RAMBO	8.95	6.25
SKYFOX	9.95	6.75
YIE AR KUNG FU	12.95	9.25
PING PONG	8.95	6.25
FA CUP	7.95	5.25
MUGSEY'S REVENGE	8.95	6.25
MAX HEADROOM	9.95	6.75
DESERT RATS	9.95	6.75
LASER BASIC	14.95	10.50
SABOTEUR	9.95	6.25
HYPERSPORTS	8.95	6.25
YIE AR KUNG FU	9.95	6.25
BRUCE LEE (disk)	14.95	10.50
THEY SOLD A MILLION	9.95	7.00
THEATRE EUROPE	9.95	6.75
BARRY MCGURGAN	9.95	6.75
SPIRITRE 40	9.95	7.00
ELITE	14.95	10.50
3D GRAND Prix (disk)	14.95	10.50
HIGHWAY ENCOUNTER (DISK)	14.95	10.50
BRUCE LEE	9.95	7.00
INDO GAMES WING II	8.95	6.25
TORNADO LOW LEVEL	8.95	6.25

ALL AMSTRAD DISKS & UTILITIES ARE IN STOCK  
BOX OF TEN DISKS ..... 38.00

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

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

PPC MAIL ORDER  
9 BENNECK HOUSE, 100 TOLPITS LANE  
WATFORD, HERTS WD1 8PZ  
(0923 43885)

PD87A

When you've cornered the germ bags...

**COMET**  
Firebird



EXTENDED  
BASIC

by Eric Deghaye

There are a lot of people who complain that the Basic on the Commodore 64 is one of the worst there is, ie, it does not have any commands built-in to control its excellent sound or graphics facilities, or has an 'unstructured Basic' (meaning really that it is not a Pascal or BBC clone).

However that simplicity can be a plus for writing extensions. Countless such extensions have already been written, but there is one snag: the software you write using these will only work with the extension present.

What I will be explaining over the next three weeks is a way of writing your own extensions that can be generated by the program that requires them. But first we must have a look at how the Basic actually works.

Let us first have a look at an excerpt from the interpreter at where it examines a Basic statement and executes it.

```
A7E1 JMP ($0308)
A7E4 JSR $0073
A&E7 JSR $A7ED
A7EA JMP $A7AE
```

The first line is very important for us. The address stored in \$0308-0309 normally is \$A7E4, but it can be easily changed to point somewhere else.

The following command gets the next character/command from the Basic text, the routine at \$A7ED executes that command (or returns an error message) and the last line points back to the interpreter loop. We can tap into the Basic quite easily by changing the address contained in \$0308-0309 to make it point to our routine.

So how do we write our own commands? We first need to get the next character from the basic text by calling the routine at \$0073. This will store its ASCII code in the accumulator (numerical values cannot be obtained that way,

more about it later). We then compare it to the syntax of our command and if the two match, we jump to our routine then return to the interpreter loop. If the command does not match, we need to return to the interpreter loop before the execution point as it may be a Basic command. Have a look at the program 'Part 1' below. After assembling it and initialising it with Sys 12\*4096, or running the Basic program, every time a '!' followed by a carriage return is entered, the border colour will change.

We can of course include the recognition of more than one command using the same sort of algorithm as in the listing 'Part 2', but things start getting complex: we will end up with a messy program, difficult to understand and change.

'Part 2' is fine as it is, but if we were to include 20 more commands, we will end up with rubbish. More about that next week.

```
100 -----
120 ! BASIC EXTENSIONS --- PART 1
140 -----
160 !
180 VECTOR = $0308 !INTERPRETER LOOP VECTOR
200 BETVAL = $0073
220 ==#C000
240 !
260 -----
280 ! RESET THE INTERPRETER LOOP VECTOR
300 -----
320 !
340 LDA #CHECK
360 STA VECTOR
380 LDA #CHECK
400 STA VECTOR+1
420 !
440 RTS
460 -----
480 !
500 !
520 CHECK JSR BETVAL !GET NEXT BASIC TEXT
540 CMP #33 ! IS IT AN EXPLANATION MARK
560 BEB BORDER ! IS IT A 'B'
580 JSR ROUTINE !GET NEXT BASIC TEXT
600 JMP $A7E7 !BACK TO LOOP, BEFORE EXEC
620 -----
640 ! IF THE PROGRAM REACHES THIS POINT, WE THEN MUST HAVE THE
660 ! CORRECT CHARACTER SO CARRY ON
680 !
700 ROUTINE INC #D020 !CHANGE BORDER COLOUR
720 JSR $0073 !IMPORTANT
740 JMP $A7AE !BACK TO LOOP, ** AFTER ** EXEC
760 !
780 !
800 !
820 -----
```

```
100 -----
120 ! BASIC EXTENSIONS --- PART 2
140 -----
160 !
180 VECTOR = $0308 !INTERPRETER LOOP VECTOR
200 BETVAL = $0073
220 ==#C000
240 !
260 -----
280 ! RESET THE INTERPRETER LOOP VECTOR
300 -----
320 !
340 LDA #CHECK
360 STA VECTOR
380 LDA #CHECK
400 STA VECTOR+1
420 !
440 RTS
460 -----
480 !
500 !
520 CHECK JSR BETVAL !GET NEXT BASIC TEXT
540 CMP #33 ! IS IT AN EXPLANATION MARK
560 BEB BORDER ! IS IT A 'B'
580 CMP #28 !GET NEXT BASIC TEXT
600 BEB SCREEN !BACK TO LOOP, AFTER EXECUTE
620 JMP $A7E7 !EXIT TO BEFORE EXECUTE
640 -----
660 !
680 !
700 BORDER INC #D020 !IMPORTANT
720 JSR BETVAL !BACK TO LOOP, AFTER EXECUTE
740 JMP $A7AE !IMPORTANT
760 !
780 !
800 !
820 SCREEN INC #D021
840 JSR BETVAL !IMPORTANT
860 JMP $A7AE
880 -----
```

```
10 REM PART 1 BASIC
20 BASE=12*4096: INC=0
30 READ A
40 IF A=-1 THEN 1000
50 POKE BASE+INC,A
60 INC=INC+1:GOTO 30
100 DATA 169,11,141,8,3,169,192,141,9,3,96,32,115,0,201,33,240,
3,76,231
110 DATA 167,239,32,208,32,115,0,76,174,167,0,0,0,-1,-1
1000 SYS 12*4096
```

```
5 REM BASIC PART 2---
6 !
7 !
10 BASE=16152: INC=0
20 READ A: IF A=-1 THEN 1000
30 POKE BASE+INC,A
40 INC=INC+1:GOTO 20
100 DATA 169,11,141,8,3,169,192,141,9,3,96,32,115,0,201,33,240,7,201,38
110 DATA 240,12,76,231,167,239,32,208,32,115,0,76,174,167,239,33,208,
32,115,0
120 DATA 76,174,167,-1,-1
1000 SYS 49152
```



# Evesham Micros

## 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 48 hrs 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 it's 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 doty 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 SUPERSCRIPTS

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 £200 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 £269.00

### TAXAN KAGA KP810

Now in stock due to popular demand, this printer which is essentially the same as the Canon PW1080A, features 140 cps draft mode and 27 cps NLQ. Friction & tractor feed, graphics capability and Epson compatible. A super printer offered at a sensational price.

**ONLY £219.95**

Price includes Centronics lead to suit your micro.  
Or to suit Spectrum with Kempston "E" Interface £239.95

## COMMODORE OFFERS

### COMMODORE 128D NOW IN STOCK, RING FOR PRICES

CBM 1541 DISK DRIVE	ONLY £149.95
CBM MPS803 PRINTER with free SEIKO wrist terminal	ONLY £189.95
CBM 128 in stock now!	ONLY £229.95
CBM 128 with 1570 Disc Drive	ONLY £399.95
CBM 1701/2 Monitor	ONLY £199.95
CBM 1901 Monitor (for 128)	ONLY £299.95
CBM 1570 DISK DRIVE in stock now	ONLY £189.95
CBM Compatible DATA RECORDER	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**

PO891

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.

**EVESHAM MICROS**  
BRIDGE STREET, EVESHAM,  
WORCS., WR11 4RY.  
Tel: 0386 41989

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



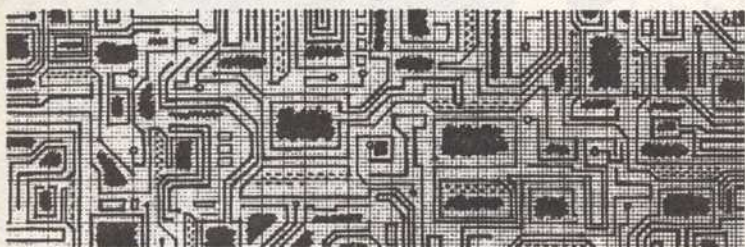
**THIS IS  
THE WEEK  
OF ....**

**"THE WAY  
OF THE TIGER"**  
from GREMLIN  
GRAPHICS  
out this week!

The question is,  
can you survive

**COMET**  
  
**firebird**





## BASIC COMMANDS

by Brian Cadge

The machine code program presented here adds two new RSX commands to Basic and is suitable for use on any of the CPCs. The two new commands allow you to 'fadeout' a screen, or 'mix' one screen into another.

Each byte of the 16K screen is randomly replaced with a byte from the stored screen which is to be displayed. The Random Number algorithm used only returns each screen address once in the cycle, so the whole process takes only about two seconds. The result is very effective and can be used in games, video titles, or any other program which needs one screen to be replaced with another.

The first new command is `FADEOUT`, which resets each byte of the screen to ink 0, in a random order, giving the effect of the screen fading out.

The `FADEOUT` command can also be followed by a delay value, for example, `FADEOUT,100` to slow down the process. If no value is given then zero is assumed.

The second new command is `MIXSCN`, this takes a screen stored in memory and 'mixes' it onto the display, that is, replacing a byte at a time in a random order, until the full 16K has been replaced. `MIXSCN` must be followed by the address of the stored screen in memory. As the machine code starts at 40000, the highest position a screen can be loaded into is 23616, so the command here would be `MIXSCN,23616`. Once again, the optional delay value can be given, as in `MIXSCN,23616,100`.

To load a screen into the lower memory, first save it from the normal display with `SAVE "SCREEN",B,49152,16384,0`,

then to load back in use, `MEMORY 23616:LOAD "SCREEN",23616`. Of course, all this would be done from within a Basic program.

To use the program type in the Basic Loader program, save and run it. The program will report if any errors are found in the data statements.

The assembly language listing is included for users with access to assemblers, and to show how the program works. For users with 128K memory, it would obviously be nice to be able to store the screens to be mixed in the second bank of Ram. It would be very easy to convert the program to access the second bank, by adding a few lines before and after Line 670, which is where a byte is loaded from the source screen. The whole listing is fully commented and so should be very easy to follow.

```

10 'FADE/MIX for all CPC's Basic Loader
20 MEMORY 33999
30 FOR i=40000 TO 40202
40 READ a$:v=VAL("&" + a$)
50 cs=cs+v:POKE i,v
60 NEXT i
70 IF cs<>21606 THEN PRINT"DATA ERROR - Check listing";CHR$(?) :STOP
80 CALL 40000
90 CLS:PRINT"IFADEOUT and IMIXSCN commands loaded, You can now NEW
this Program."
100 END
110 DATA 01,4A,9C,21,11,9D,CD,D1,BC,C9,52,9C,C3,98,9C,C3,60,9C,4D,49,
58,53
120 DATA 43,CE,46,41,44,45,4F,55,D4,00,FE,01,28,05,21,00,00,18,06,DD,
6E,00
130 DATA DD,66,01,22,0D,9D,11,00,40,CD,DA,9C,7C,E6,3F,67,01,00,C0,09,
36,00
140 DATA CD,8B,9C,18,7A,B3,20,EB,C9,E5,2A,0D,9D,7C,B5,28,03,2B,18,F9,
E1,C9
150 DATA FE,02,28,0C,FE,01,C0,21,00,00,DD,2B,DD,2B,18,06,DD,6E,00,DD,
66,01
160 DATA 22,0D,9D,DD,6E,02,DD,66,03,22,0F,9D,11,00,40,CD,DA,9C,7C,E6,
3F,67
170 DATA E5,ED,4B,0F,9D,09,7E,E1,01,00,C0,09,77,CD,8B,9C,1B,7A,B3,20,
E4,C9
180 DATA F5,C5,D5,ED,4B,0B,9D,2A,0B,9D,CB,25,CB,14,09,44,4D,CB,25,CB,
14,55
190 DATA CB,25,CB,14,CB,25,CB,14,09,44,4D,62,2E,29,B7,ED,42,22,0B,9D,
D1,C1
200 DATA F1,2A,0B,9D,C9

```



```

10 ; MIX and FRODE screens for all CPC's
20   ORG 4000
30   LD BC,CMDTRB
40   LD HL,OSBUF
50   CALL #BCD1 ;Set up RSN commands
60   RET
70 CMDTRB: DEFH CHIDNAM
80   JP MIXSCH
90   JP FRODOT
100 CHIDNAM: DEFH "MIXSC"
110 DEFH "T"+128
120 DEFH "FROEDU"
130 DEFH "T"+128
140 DEFH 0
150 FRODOT: CP 1 ;Check if delay given
160   JR Z,GETDL ;Yes, so get the value
170   LD HL,0 ;No, so set to minimum delay
180   JR GOTDL
190 GETDL: LD L,(IX+0)
200   LD L,(IX+1)
210 GOTDL: LD (DELFAC),HL ;Store delay factor
220   LD DE,#4000 ;Number of bytes on screen
230 FADLOP: CALL GETRAN ;Get a 'Random' number
240   LD R,H ;Get the high byte of this
250   AND #3F ;Mask it in range of screen
260   LD H,R ;Put back as high byte
270   LD BC,49152 ;Base address of screen memory
280   ADD HL,BC ;Add 'random' offset
290   LD (HL),0 ;Clear the byte at this position
300   CALL DELAY ;Call the delay routine
310   DEC DE ;Decrement bytes left to be done
320   LD R,D
330   OR E
340   JR NZ,FADLOP ;If more then go round again
350   RET
360 DELAY: PUSH HL ;Save HL contents
370   LD HL,(DELFAC) ;Get delay factor
380   DELLOP: DR L
390   OR L ;If its zero then done
400   JR Z,DELDON ;else decrement it
410   DEC HL ;and check again
420   JR DELLOP ;restore HL contents
430 DELDON: POP HL
440   RET
450 MIXSCH: CP 2 ;Check if delay is given
460   JR Z,GETALL ;Yes, then get all values
470   CP 1 ;Check that source adrs is given
480   RET NZ ;do nothing if not
490   LD HL,0 ;Set delay to minimum value
500   DEC IX ;adjust IX to for reading the
510   DEC IX ;source screen address later
520   JR SAVDL
530 GETALL: LD L,(IX+0) ;Get the delay value given
540   LD H,(IX+1)
550 SAVDL: LD (DELFAC),HL ;Save the delay factor
560   LD L,(IX+2) ;Get the source screen adrs
570   LD H,(IX+3)
580   LD (SRCSCH),HL ;Save source screen address
590   LD DE,#4000 ;Number of bytes on screen
600   NINLOP: CALL GETRAN ;Get a 'random' number
610   LD R,H ;Get the high byte of this
620   AND #0F ;Mask it to within range
630   LD H,R ;Restore as high byte
640   PUSH HL ;Save this offset on stack
650   LD BC,(SRCSCH) ;Get source screen address
660   ADD HL,BC ;Add the 'random' offset
670   LD R,(HL) ;Get the byte at this position
680   POP HL ;Restore the 'random' offset
690   LD BC,49152 ;Start of screen memory
700   ADD HL,BC ;Add the 'random' offset
710   LD (HL),R ;Store the byte from source here
720   CALL DELAY ;Call the delay routine
730   DEC DE ;Decrement number of bytes left
740   LD R,D
750   OR E
760   JR NZ,MIXLOP ;If more to do then go round again
770   RET
780 GETRAN: PUSH AF ;This routine is a 288 version
790   PUSH BC ;of the standard algorithm used
800   PUSH DE ;on computers to return a random
810   LD BC,(SEED) ;number sequence of 65536 numbers
820   LD HL,(SEED) ;The last random number is also
830   SLA L ;used as the next seed for the
840   LD H,H ;routine. In this way, no number
850   ADD HL,BC ;will be repeated in the 54k cycle
860   LD B,H ;this is necessary for the fade/mix
870   LD C,L ;routines to operate correctly.
880   SLA L
890   RL H
900   DEC D,L
910   SLA L
920   RL H
930   SLA L
940   RL H
950   ADD HL,BC
960   LD B,H
970   LD C,L
980   LD H,D
990   LD L,#29
1000  OR A
1010  SBC HL,BC
1020  LD (SEED),HL
1030  POP DE
1040  POP BC
1050  POP AF
1060  LD HL,(SEED)
1070  RET
1080 SEED: DEFH 0
1090 DELFAC: DEFH 0
1100 SRCSCH: DEFH 0
1110 OSBUF: DEFS 4

```

FIRST  
NORTHERN

# AMSTRAD COMPUTER SHOW

Organised by  
Database Publications

**New Century Hall,  
New Century House,  
Corporation Street,  
Manchester M60 4ES**

**Saturday, March 22 - 10am to 6pm  
Sunday, March 23 - 10am to 5pm**

Bring this advertisement and save 50p  
per person off the normal admission  
price of £3 adults and £2 children.

The first two Amstrad Computer Shows played to packed houses in London. Now the event comes to Manchester, and with even more to offer...

- New hardware and software products galore.
- Special offers from all the leading companies.
- Free helpful advice from the Amstrad experts.

If you own an Amstrad - or are just thinking about buying one - this is the show you cannot afford to miss!

Exhibitors booked so far include: AMS, Amstrad, Amstrad Computer User, Amstrad User Club, Amix, ANMUC, Amor, Beebugsoft, Bourne Educational, Cambrian Software, Caxton Software, Celcom Systems, Cirkit, Compact Software, Computer Bookshops, Computing with the Amstrad, Connect Systems, Cornix, Cube International, Dart Electronics, Datasat, Design Design, DK'Tronics, EG Computer Graphics, Electric Studio, Evesham Micro Centre, Fydler, Garwood, Grafsales, GEM Distribution, Gemini, Incentive Software, Interceptor Software, Interlock Services, John Wiley, KDS Electronics, LCL, Load & Run, Micropower, Micro Simplex, Minerva, Miniature Tool Company, Neustar, Northern Computers, Pace, Palantir, Phoenix, Preston Software, Quest, SageSoft, Saxon Computing, Screens Micro, Shekhana, Siren, Software International, Software Plus, Tasman, Vanguard Leisure, Vulcan Electronics, Zonefour.









# CANVAS

A new Software Development Company are looking for Z80, 6502, 6809 and 68000 programmers to work either on a freelance basis, or full time.

Our approach is to match the right programming talent with the right Software publisher. We will provide the successful applicants with design and artwork and also technical assistance if required.

Experienced programmers will command the highest rates, but we will consider anyone who can demonstrate a reasonable proficiency in Machine Code Programming but may not previously have felt confident enough to produce a finished professional product.

phone or write to  
**IAN WEATHERBURN**  
**CANVAS**  
7 Liverpool Road, Crosby,  
Liverpool, Merseyside L23 2SA.  
051-924 6568 (2 lines)





# SHOOT OUT

by Martin Connor

This is a two player, Wild West shoot-em-up in about 2.25K of pure machine code for the Spectrum. Full instructions, etc, are included in the program.

First, type in Listing 1 (the warm-up program) and save it to tape using: Save "Shoot-out" Line 1. Then New the computer and begin the task of typing in Listing 2. When this is completed, Run the program - you will then have to wait

about 35 seconds while the graphics and machine code are poked into memory. Now a check is run.

The number 100 will appear on the screen and following that, all the line numbers containing code, up to Line 530. If an error has been made in any of these lines, the list will stop and tell you which line the mistake is in - so double checking against the printed listing is easy.

When the program is bug-free and a message appears you must save the code to tape directly after Listing 1 with: Save "Shoot-Out 2" Code 49500,3000. Rewind the tape, type Load "", and play the game!

Of course, if the typing is all too much for you, I can make available tape cotes for £1.50. Send off to Martin Connor, 7 Holme Rd, Didsbury, Manchester, M20 8TX.

```
10 PAPER 0: BORDER 0: INK 0: CLS
20 PRINT AT 10,6: PAPER 2: INK 7: FLASH 1: "WELCOME TO SHOOT-OUT":AT 12,12:"LOA
DING":AT 21,4: FLASH 0:"MARTIN CONNOR 1985"
25 PRINT AT 0,0
30 LOAD ""CODE
40 INK 7: CLS : PRINT AT 0,13: INK 6:"CONTROLS":AT 1,12: INK 7:"-----"
50 PRINT AT 5,1: INK 4:"LEFT":AT 6,1: INK 6:"----":AT 5,23: INK 4:"RIGHT":AT
6,23: INK 6:"----"
60 PRINT AT 8,1:"FIRE -1":AT 10,1:"UP -0":AT 12,1:"DOWN -A":AT 14,1:"L
EFT -Z":AT 16,1:"RIGHT -X"
70 PRINT AT 8,23:"FIRE -0":AT 10,23:"UP -0":AT 12,23:"DOWN -K":AT 14,2
```

```
3:"LEFT -N":AT 16,23:"RIGHT -M"
80 PRINT AT 21,5: PAPER 2: FLASH 1: INK 7:"PRESS ANY KEY TO PLAY"
90 IF INKEY="" THEN GO TO 90
100 CLS : RANDOMISE USR 50000
110 PRINT AT 8,12: PAPER 2: FLASH 1:"TIME OUT":AT 8,5:"ANOTHER GAME? (Y OR N)"
115 IF INKEY="" THEN GO TO 115
120 IF INKEY="Y" OR INKEY="y" THEN GO TO 100
130 IF INKEY="N" OR INKEY="n" THEN GO TO 150
140 GO TO 115
150 STOP
```

## Listing 1

```
5 REM **POKE COMBOY DATA**
10 RESTORE 60: FOR n=0 TO 95: READ @ POKE 49500+n,@ HEX1 n
15 REM **POKE GRAVE DATA**
20 RESTORE 80: FOR n=0 TO 47: READ @ POKE 49000+n,@ NEXT n
25 REM **POKE CACTUS DATA**
30 RESTORE 90: FOR n=0 TO 31: READ @ POKE 49700+n,@ NEXT n
35 REM **POKE H/COE DATA**
37 LET x=50000
40 FOR n=100 TO 540 STEP 10: RESTORE n
42 FOR d=0 TO 49: READ @ POKE x,@: LET x=x+1: NEXT d
45 NEXT n
47 RESTORE 550: FOR n=0 TO 27: READ @ POKE x,@: LET x=x+1: NEXT n
50 GO TO 9000
55 REM **DATA FOR COMBOY**
60 DATA 6,6,7,55,63,63,16,16,48,48,240,246,254,254,12,8,16,16,16,15,4,8,9,9,14
0,120,8,240,32,16,144,144,8,8,7,6,3,1,3,1,255,30,232,96,48,152,48,152,12,12
70 DATA 15,111,127,127,48,16,96,96,224,236,252,252,8,49,30,16,15,4,8,9,9,8,8
,8,240,32,16,144,144,255,120,23,6,12,25,12,25,16,16,224,96,192,120,192,120
75 REM **DATA FOR GRAVE**
80 DATA 3,192,3,192,3,192,3,192,3,192,127,254,127,254,127,254,3,192,3,192,3,19
2,3,192,3,192,3,192,3,192,7,240,7,240,7,252,3,254,1,255,0,255,0,127,0,0
85 REM **CACTUS DATA**
90 DATA 49,115,115,115,115,127,127,63,128,192,192,204,206,206,206,3,3,3,3,3
,3,3,3,254,254,252,192,192,192,192
95 REM **THE BIG ONE-2.25K* MORPH OF PURE MACHINE CODE!! GOOD LUCK AND H
AVE FUN WITH THE GAME!!!!!!**
100 DATA 33,10,194,54,150,33,011,194,54,150,33,27,194,54,0,175,50,60,92,62,0,1
,0,0,205,89,203,82,83,215,62,67,215,62,79,215,62,82,215,62,69,215,62,32,215,62,48
,215,62,48,4653
110 DATA 215,33,16,194,54,48,35,54,48,35,54,48,35,54,48,62,0,1,23,0,205,89,203
,62,83,215,62,67,215,62,79,215,62,82,215,62,69,215,62,32,215,62,48,215,62,48,215
,62,0,1,4341
120 DATA 14,0,205,89,203,62,84,215,62,73,215,62,77,215,62,69,215,62,1,1,14,0,20
5,89,203,62,48,215,62,57,215,62,57,215,62,57,215,33,54,194,62,58,119,43,62,57,11
9,43,62,57,4767
130 DATA 119,17,86,194,33,107,72,205,229,202,17,36,194,205,235,202,17,88,194,33
,115,72,205,229,202,17,36,194,205,235,202,33,96,194,54,10,33,97,194,54,0,17,192
,193,33,126,72,205,229,202,6231
140 DATA 17,140,193,205,119,202,17,202,193,33,96,72,205,229,202,17,192,193,205,1
19,202,33,242,193,54,0,33,252,193,54,0,62,0,50,3,194,1,0,5,11,120,177,32,251,205,1
00,203,33,27,194,5675
150 DATA 126,254,10,202,253,203,33,3,194,126,254,10,202,15,196,205,86,198,205,2
14,197,33,242,193,126,254,10,204,184,200,33,252,193,126,254,10,204,214,198,33,3
,194,126,254,10,202,15,196,205,142,7496
160 DATA 2,123,254,1,200,62,223,219,254,203,79,204,215,201,62,191,219,254,203,8
```

```
7,204,32,202,62,127,219,254,203,103,204,164,197,62,127,219,254,203,95,204,116,19
7,62,239,219,254,203,71,204,150,200,8306
170 DATA 62,251,219,254,203,71,204,77,200,62,253,219,254,203,71,204,16,200,62,2
54,219,254,203,87,204,68,197,62,254,219,254,203,79,204,18,197,62,247,219,254,203
,71,204,237,199,1,1,0,11,120,7890
180 DATA 177,32,251,33,242,193,126,254,10,204,184,200,33,252,193,126,254,10,204
,214,198,1,0,16,11,120,177,32,251,33,242,193,126,254,10,204,184,200,33,252,193,1
26,254,10,204,214,198,195,60,196,7379
190 DATA 17,202,193,205,223,202,125,254,0,200,254,32,200,254,64,200,254,96,200
,254,128,200,254,160,200,254,192,200,254,224,200,44,205,201,202,45,45,17,192,193,2
05,119,202,17,202,193,205,229,202,201,8514
200 DATA 17,202,193,205,223,202,125,254,9,200,254,41,200,254,73,200,254,105,200
,254,137,200,254,169,200,254,201,200,254,233,200,205,201,202,44,17,192,193,205,11
9,202,17,202,193,205,229,202,201,17,192,8705
210 DATA 193,205,223,202,125,254,30,200,254,62,200,254,94,200,254,126,200,254,1
58,200,254,190,200,254,222,200,254,254,200,205,201,202,44,17,140,193,205,119,202
,17,192,193,205,229,202,201,17,192,193,205,9090
220 DATA 225,202,125,254,21,200,254,53,200,254,65,200,254,117,200,254,149,200,2
54,181,200,254,213,200,254,245,200,44,205,201,202,45,45,17,140,193,205,119,202,1
7,192,193,205,229,202,201,33,97,194,126,8533
230 DATA 254,10,40,57,17,86,194,205,223,202,124,254,80,32,5,125,254,211,40,35,2
05,192,202,205,159,202,17,36,194,205,235,202,17,88,194,205,229,202,33,91,194,126
,214,5,119,111,38,0,17,60,6447
240 DATA 0,205,181,3,201,33,97,194,54,10,201,17,88,194,205,223,202,124,254,64,3
2,5,125,254,19,41,205,159,202,205,192,202,205,141,202,205,141,202,17,36,194,2
05,235,202,17,88,194,205,229,6919
250 DATA 202,33,91,194,126,198,5,119,111,38,0,17,60,0,205,181,3,201,33,97,194,5
4,0,201,33,96,194,126,254,10,40,57,17,86,194,205,223,202,124,254,80,32,5,125,254
,203,40,35,205,192,5694
260 DATA 202,205,159,202,17,36,194,205,235,202,17,88,194,205,229,202,33,90,194
,126,214,5,119,111,38,0,17,60,0,205,181,3,201,33,96,194,54,10,201,17,86,194,205,2
23,202,124,254,64,32,5,6181
270 DATA 125,254,11,40,41,205,159,202,205,192,202,205,141,202,205,141,202,17,36
,194,205,235,202,17,86,194,205,229,202,33,90,194,126,198,5,119,111,38,0,17,60,0
,205,181,3,201,33,96,194,54,6512
280 DATA 0,201,17,1,194,205,223,202,36,203,70,194,223,199,44,203,70,194,223,199
,205,141,202,45,203,70,194,223,199,44,203,126,194,223,199,17,1,194,205,223,202,5
4,0,44,54,240,17,1,194,205,7023
290 DATA 229,202,125,254,31,202,223,199,254,63,202,223,199,254,95,202,223,199,2
54,127,202,223,199,254,159,202,223,199,254,191,202,223,199,254,223,223,199,2
54,255,202,223,199,17,192,193,205,225,202,17,9773
300 DATA 1,194,26,188,32,5,19,26,189,40,30,205,159,202,17,1,194,26,188,32,5,19
,26,189,40,15,205,159,202,17,1,194,26,188,192,19,26,189,40,1,201,205,223,199,205
,201,201,33,100,0,5095
310 DATA 17,100,0,205,181,3,17,192,193,205,223,202,205,24,203,17,192,193,205,22
```



3,202,205,73,203,33,194,54,10,17,202,193,205,223,202,205,201,202,44,205,201,20  
 2,33,16,194,126,60,254,58,40,4860  
 320 DATA 12,119,62,0,1,7,0,205,89,203,126,215,201,33,17,194,126,60,119,1,6,0,62  
 0,205,89,203,126,215,62,48,215,33,16,194,54,48,33,17,194,126,254,58,192,33,17,1  
 94,54,48,35,4621  
 330 DATA 54,48,1,7,0,62,0,205,89,203,62,48,215,62,48,215,201,17,1,194,205,223,2  
 02,54,0,33,252,193,54,0,201,33,252,193,126,54,10,209,17,202,193,205,223,202,205  
 ,159,202,205,159,202,6391  
 340 DATA 44,44,54,240,17,1,194,205,229,202,33,252,193,54,10,201,17,202,193,205,  
 223,202,124,254,80,32,31,125,254,160,200,254,161,200,254,162,200,254,163,200,254  
 ,164,200,254,165,200,254,166,200,254,8234  
 350 DATA 167,200,254,168,200,254,169,200,205,192,202,205,159,202,17,92,193,205,  
 119,202,17,202,193,205,229,202,17,202,193,205,223,202,124,254,64,32,51,125,2  
 54,32,200,254,33,200,254,34,200,254,35,8276  
 360 DATA 200,254,36,200,254,37,200,254,38,200,254,39,200,254,40,200,254,41,200,  
 205,159,202,205,159,202,205,192,202,205,141,202,205,141,202,205,141,202,17,92,19  
 3,205,119,202,17,202,193,205,229,202,201,8607  
 370 DATA 33,242,193,126,254,10,200,17,192,193,205,223,202,205,159,202,205,159,2  
 02,45,54,15,17,247,193,205,229,202,33,242,193,54,10,201,17,247,193,205,223,202,3  
 6,203,126,194,201,201,45,203,126,194,7778  
 380 DATA 201,201,205,141,202,36,16,203,94,194,201,201,17,247,193,205,223,202,54  
 0,45,54,15,17,247,193,205,229,202,125,254,0,202,201,201,254,32,202,201,201,254,  
 64,202,201,201,254,76,202,201,8012  
 390 DATA 254,128,202,201,201,254,160,202,201,201,254,192,202,201,201,254,224,20  
 2,201,201,17,202,193,205,223,202,44,17,247,193,26,188,32,5,19,26,189,40,30,205,1  
 59,202,17,247,193,26,188,32,5,19,7527  
 400 DATA 26,189,40,15,205,159,202,17,247,193,26,188,192,19,26,189,40,1,201,205,  
 201,201,205,223,199,33,100,0,17,100,0,205,181,3,17,202,193,205,223,202,205,24,20  
 3,17,202,193,205,223,202,205,6769  
 410 DATA 73,203,33,194,54,10,17,192,193,205,223,202,205,201,202,44,205,201,20  
 2,17,247,193,205,223,202,54,0,33,18,194,126,60,119,254,58,40,14,62,0,1,30,0,205,  
 89,203,33,18,194,126,5880  
 420 DATA 215,201,33,194,126,60,119,62,0,1,29,0,205,89,203,33,194,126,215,  
 62,48,215,33,18,194,34,46,35,126,254,58,192,1,29,0,62,0,205,89,203,62,48,215,62,  
 46,215,33,18,470  
 430 DATA 194,54,48,35,54,46,201,17,247,193,205,223,202,54,0,33,242,193,54,0,201  
 ,17,192,193,205,223,202,124,254,64,32,31,125,254,62,200,254,61,200,254,60,200,25  
 4,59,200,254,58,200,254,57,7041  
 440 DATA 200,254,56,200,254,55,200,254,54,200,254,53,200,205,159,202,205,159,20  
 2,205,192,202,205,141,202,205,141,202,205,141,202,17,140,193,205,119,202,17,192,  
 193,205,229,202,201,17,192,193,205,223,202,8756  
 450 DATA 124,254,80,32,31,125,254,190,200,254,189,200,254,188,200,254,187,200,2  
 54,186,200,254,185,200,254,184,200,254,183,200,254,182,200,254,181,200,254,180,2,  
 181,200,254,182,200,254,183,200,254,184,200,254,185,200,254,186,200,254,187,200,2

02,205,159,202,17,140,193,205,119,202,17,192,9291  
 460 DATA 193,205,229,202,201,6,8,26,119,36,19,16,250,37,37,37,37,37,37,20  
 1,205,93,202,44,205,93,202,45,201,205,110,202,205,159,202,205,110,202,205,159,20  
 2,205,110,202,205,141,202,205,6733  
 470 DATA 141,202,201,6,32,203,28,203,28,203,28,43,203,20,203,20,203,20,16,241,2  
 01,203,28,203,28,203,28,1,32,0,9,205,20,203,20,203,20,201,6,8,54,0,36,16,251,37,  
 37,37,37,37,4606  
 480 DATA 37,37,37,201,205,176,202,44,205,176,202,45,201,205,176,202,205,159,202  
 205,176,202,205,159,202,205,176,202,205,176,202,205,141,202,201,26,103,19,26,11  
 1,201,124,18,19,125,18,201,205,110,202,7454  
 490 DATA 205,159,202,205,110,202,205,141,202,201,6,8,26,119,44,26,119,19,36,  
 45,197,1,0,48,11,120,177,32,251,193,16,235,37,37,37,37,37,37,37,37,37,37,17,136,19  
 4,205,248,202,205,159,5443  
 500 DATA 202,205,248,202,205,159,202,205,248,202,201,6,8,54,0,44,54,0,45,36,197  
 1,0,48,11,120,177,32,251,193,16,237,37,37,37,37,37,37,37,37,37,37,37,37,37,37,37,37,  
 159,202,205,43,203,5774  
 510 DATA 205,159,202,205,43,203,201,197,245,62,22,215,215,194,215,193,121,215,201,3  
 3,26,194,126,254,10,40,6,33,26,194,54,10,201,33,26,194,54,0,33,34,194,126,61,119  
 ,254,48,40,11,1,17,0,5597  
 520 DATA 62,1,205,89,203,126,215,62,48,215,33,34,194,54,58,201,33,32,194,126,61,119,254,47  
 40,25,62,1,1,4840  
 530 DATA 15,0,205,89,203,126,215,62,48,215,33,34,194,54,57,35,54,58,2  
 01,62,1,1,15,0,205,89,203,62,48,215,62,48,215,62,48,215,17,192,193,205,223,202,2  
 05,201,202,44,205,5671  
 540 DATA 201,202,17,202,193,205,223,202,205,201,202,44,205,201,202,33,27,194,54  
 10,201,17,192,193,205,223,202,205,201,202,44,205,201,202,17,202,193,205,223,202  
 ,205,201,202,44,205,201,202,17,86,194,8115  
 550 DATA 205,223,202,205,192,202,205,159,202,205,192,202,17,88,194,205,223,202,  
 205,192,202,205,159,202,205,192,202,201  
 9000 FOR n=100 TO 540 STEP 10  
 9010 RESTORE n: LET x=0  
 9020 FOR d=0 TO 49: READ a: LET x=x+a: NEXT d  
 9030 READ a: IF x<>a THEN GO TO 9999  
 9035 PRINT n: POKE 23692,255  
 9040 NEXT n  
 9050 LET x=0: RESTORE 550: FOR n=10 TO 27: READ a: LET x=x+a: NEXT n  
 9060 IF x<>5288 THEN LET n=550: GO TO 9999  
 9065 PRINT 550  
 9070 PRINT "M/CODE DATA ALL CORRECT. WELL DONE, ENJOY THE GAME."  
 9080 STOP  
 9999 PRINT "M/CODE DATA ERROR IN LINE " ; n

Listing 2

## CUT PRICE SOFTWARE

Spectrum	OUR RRP PRICE	Commodore	OUR RRP PRICE	Transact	OUR RRP PRICE
Rock & Wrestle	8.95 8.00	Hypersports	8.95 8.00	Bruce Lee	9.95 7.25
Superowl	9.95 8.00	Kung Fu Master	9.95 7.25	Invictus	29.95 8.99
Sabatier	8.95 6.00	Superman	9.95 5.00	Cyrus II Chess (disk)	13.95 10.95
Elite	14.95 10.00	Bouncer	9.95 7.25	Sorcery II (Disk only)	14.95 10.95
Vectron	7.95 6.00	Eidolon	9.99 7.45	Highlander	9.95 7.25
Skyfox	9.95 6.00	Winter Games	9.95 8.95	Elite	14.95 11.00
West Bank	7.95 6.00	Zoids	8.95 6.00	Battle of Planets	9.95 7.25
Starquake	7.95 6.00	Dragonslaid	9.95 7.25	Hypersports	8.95 6.00
Commando	7.95 5.00	Laser Basic	14.95 11.00	Mini Office II	16.95 12.95
Rambo	7.95 5.00	Laser Basic (D)	19.95 14.00	Sold & Million	9.95 7.00
Sold & Million	9.95 7.00	Freeze Frame	19.95 14.00	Spy Vs Spy	9.95 7.25
Laser Basic	14.95 11.00	Lord of Rings	15.95 11.00	Who Dares Wins II	9.95 7.25
Ye Ar Kung Fu	7.95 4.95	Enigma Force	9.95 6.00	Fighting Warrior	8.95 6.00
New Games II	8.95 6.00	Backlog	9.95 6.00	Lord of the Rings	15.95 11.00
Lord of the Rings	15.95 11.00	Elektrosound	15.95 11.00	Skyfox	9.95 7.25
Enigma Force	9.95 6.00	Back to Future	9.95 7.00	Spiffle 40	9.95 7.25
Swords & Sorcery	9.95 7.00	Urduum	8.95 6.00	Mini Office II (D)	19.95 14.95
Winter Games	7.95 5.00	Rock & Wrestle	9.95 7.00	Cyrus II Chess	9.95 7.25
Gun Fight	9.95 6.00	Hard Ball	9.95 7.25	Explooding (Lightning Warrior disk)	24.95 14.95
Zoids	7.95 6.00	Superowl	9.95 8.95	Sold & Million (Disk)	14.95 10.00
MOVIE	7.95 6.00	AMSTRAD	9.95 8.95	Scrabble	9.95 7.00
Battle of the Planets	9.95 7.00	Laser Basic (D)	14.95 11.00	Scrabble (D)	14.95 10.95
Cybrun	9.95 6.00	Laser Basic (D)	19.95 14.00	Scrabble (D)	14.95 10.95

Large selection of AMSTRAD disk software available at discount prices. AMSTRAD blank disks £2.85 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 Visual Access Card orders by phone welcome, to:

CUT PRICE SOFTWARE, 4 Stacksbury Hatch, Harlow, Essex CM19 4ET  
 Tel: (0279) 24433 (24hr ansaphone) PD743

Computer Games is a volatile business. You've got to make the right decisions and work with the right people to be a success. At CRL we've been doing that longer than most Companies have been in business. If you've got a program, you'll want the worldwide distribution we take for granted and the Software Development back-up we pride ourselves in. If you're a designer, a programmer or both, get in touch.

## C & F ASSOCIATES

BBC	OUR RRP PRICE	OUR RRP PRICE	OUR RRP PRICE
Mini Office 2	14.95 12.45	SPECTRUM	9.95 7.25
Mini Office 2 (D)	16.95 14.95	Gunfight	9.95 7.25
Highlander	9.95 7.25	Swear's World	7.95 5.95
Southern Belle	9.95 7.25	Allen-8	9.95 7.25
Worm in Paradise	9.95 7.25	Dun Darach	9.95 7.25
Bottom	9.95 7.25	That's The Spirit	7.95 4.95
Moonrider	7.95 6.95	Back To School	7.95 5.95
Bullseye	8.95 6.95	Monty On The Run	7.95 5.95
Ye Ar Kung Fu	9.95 7.50	Skoolkaze	5.95 4.75
Ghoulis	7.95 6.50	Starquake	7.95 5.95
Cybertron Mission	7.95 6.95	Fairlight	9.95 7.25
Classic Arc Games	5.95 4.95	America 2	14.95 11.95
Croaker	7.95 6.95	Worm In Paradise	9.95 7.25
		Red Moon	6.95 5.95
		Wizards Lair	6.99 4.95
		Nighthade	9.95 7.25
		Wizards Lair	6.99 4.95
		Mersop	9.95 4.75
		The Artist	12.95 9.25
		Red Arrows	9.95 4.75
		Nodes Of Yew	9.95 5.95
		Underwulf	9.95 7.25
		Rocco	7.95 5.95
		Alibi	7.95 5.95
		Every One A Winner	6.95 4.75
		Monty In Innocent	6.95 5.25
		Nodes Of Yew	9.95 5.25

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 EX38 3RE PD896





## Dragontorc tips

I've had a marvellous letter from an old friend of the column, Julian Lyndon-Smith who has teamed up with Kevin "Suggsy" Johnson to hack into Amstrad games. They have started with this routine for getting infinite energy on the tape version of *Sorcery*.

Run this program and then New it.

```
10 MEMORY 12287: RESTORE
20 FOR I=12288 TO 12386: READ X:
   POKE I,X:NEXT
30 END
40 DATA 205,24,187,62,0,205,14,188,33,
   112,1,17,244
50 DATA
   1,62,22,205,161,188,62,201,50,6,
   2,17,111,1,206,250
60 DATA 1,33,101,0,14,26,205,89,4,33,
   156,0,14,3,205,89,4,33
70 DATA 172,0,14,3,205,89,4,33,182,0,14,
   5,205,89,4,62,195
80 DATA 50,182,0,62,80,50,183,0,62,4,50,
   184,0,195,100,0
90 DATA 62,0,50,219,219,26,195,220,5,
   201,54,0,35,13,194
100 DATA 89,4,201,0,0,0,0,0
```

Now type this as a direct command with a blank tape in the machine:  
FOR I=12288 TO 12384: POKE (I-11284),PEEK I:NEXT:SAVE "INFINITE ENERGY",B,1024,96,1024

To play the game type Run "INFINITE ENERGY". Play your tape, insert fully rewound *Sorcery* tape and press play and any key. Thanks to both of you, and please send more tips soon.

## Sprite collision

Sgt John Cousins in West Germany has found some tips for the CBM *Monty on the Run*. Type any of these in the high score table - SPECTRUM, MADONNA, II SHY, PEUGOT 205 GII, XR2 and MINTER for a reply. If you type *I want to cheat*, you get the reply *Yessuh Boss!* Then go to the second room and you will see an object in the water, land on this and sprite collision is switched off.

I believe this only works on early versions of the game, John, and it spoils it a bit, but is very useful for exploring.

Now let's finish with our *Dragontorc* tips - we left old Maroc in the Wyemwood surrounded by the minions of Morag.

First search the woods, pools, leaves, etc, with *Servant* for spells and gems. Find elves and give them gems to get a torch, key or missile spell. Use key to open the chest for a *Detect* spell. Use torch on goblin fire to light it.

Beware of the flying cube that waits for you - it transports you back to the circle. Decoy it. Take the goblins key, open the chest for the door key, give the bow to the elf.

## Invisible goblins

Open door with key (beware the cube - use *Unseen* or *Slow*, but kill the snake first). Enter and kill one goblin and the elves will follow. Lead them onto the goblins to preserve your missiles (elves as cannon fodder! Tolkien will be turning in his grave). Unlock doors with same key and repeat the process. Beware the magic balls.

Two rooms have invisible goblins guarding chests. Use *Detect* to make them visible and lead elves and goblins together (elves still can't see them). Take key and open chests. Take *Undo* and other spell and pentagram symbol and the key you used.

Find room with symbol on the floor - place the matching symbol on top to

Find green key. Put torch on ground with key near it, snakes will come out. Dodge them or use torch to kill them. Use *Undo* on key and open the chest. Take white key, but leave symbol for later. Unlock the door, lead goblins, etc, off to elves to deal with them out of Morag's protection.

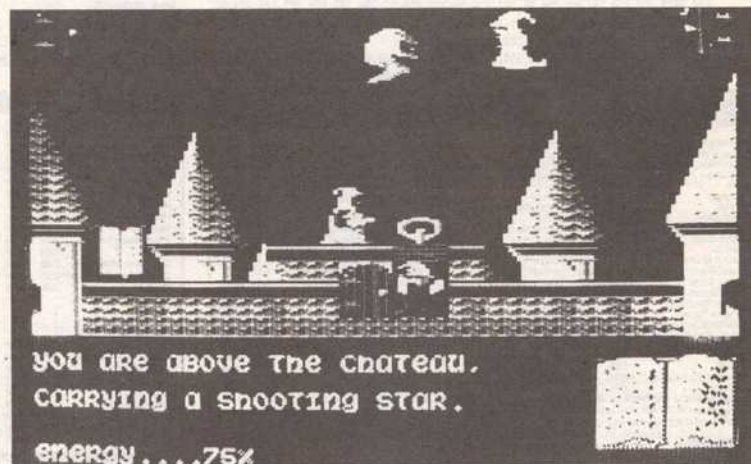
Beware the invisible spider - kill with missile or elf if you want. Use *Slow* or *Unseen* in Morag's room and place hand on crown. Take wand and go left.

Use *Bane* to kill wraiths. Place wand on magic fireball generator. This changes it to a doorway. Take it. Open door. Find chest opened by green key. Use wand to deactivate snakes and torch to kill them. Take door key.

Open door to snake room. Kill them with torch. Find chest with wand. Use green key to open it. Use wand again to turn off snakes and magic. Take *Mindkey* spell. Take wand and crown and pentagram symbol back to cube room with other pentagram symbol. Leave the symbol there.

## Pentagram symbol

Open locked door with *Mindkey*. Use the small yellow key from the invisible goblin room to the next door, but be-



*Sorcery* from Virgin Games

reveal the cube that transports you back out of the citadel. Leave the key and symbol there.

Beware the Demon who closes doors and takes away your ability to open them. Use *Mantle* and *Missile*. Demons can kill elves and sometimes vice versa.

## Magic fireball

Morag is past a room with a flashy (sic) imp in it. One touch and you are transported back out. Bring elves into the final complex. Missile skeletons and winged demons yourself as they can kill elves. Find pool to replenish energy. If you leave an elf behind go back for him.

ware the axes that fly out. Use the wand to switch off the axes and take the pentagram symbol.

Place one symbol on the cube and missiles fly out. Place another symbol and the cube reappears. Go down the cube, taking the crown to arrive in *Cairndoom*.

Open doors with *Mindkey*. Deal with the goblin, dwarf and demon guards and find the huge stone. Use *Mindkey* to find Merlyn. Give him the last crown to end the game.

I hope that last bit makes sense - I confess I haven't played that far and the tips get a bit confusing at times.

Tony Kendle





# Once Bytten

31 BOWNESS ROAD  
LONDON SE6 2DG

Phone Orders: 01-698 2911  
(Callers by Appointment Only)

## DISC-ERNIBLE DISC-OUNTS ON DISCS! BLANK DISKS - OUR OWN BRAND - LIFETIME GUARANTEE

IN TENS : IN PLASTIC LIBRARY CASES

5 1/4" SS/DD 96TPI	£9.95
5 1/4" DS/DD 96TPI	£11.95
3 1/2" SS/DD	£21.95
3 1/2" DS/DD	£29.95

<b>BULK DISCS</b>	25's	100's
5 1/4" SS/DD 96TPI	£18.95	£65.00
5 1/4" DS/DD 96TPI	£21.95	£77.50
3 1/2" SS/DD	£49.50	£198.50
3 1/2" DS/DD	£69.50	£215.00

All disc prices inclusive and post free (in U.K. only).

Export enquiries welcomed.

### DISC ACCESSORIES

(post free if ordered with discs, otherwise £1 p&p)

5 1/4" 10 disc box	£1.50p
5 1/4" Label sets (for 10 discs)	£0.35p
5 1/4" Disc envelopes (10)	£0.95p
5 1/4" 100 locking disc box/special price	£11.95p
3 1/2" disc box	£1.50p
3 1/2" labels (10)	£0.25p

### PLUS VERY SPECIAL EXTRA DISCOUNTS AVAILABLE

To purchasers of larger quantities. Trade Industrial Government & Educational enquiries welcomed.



## WANTED!!

Your Computers/Printers/Disc Drive etc.  
Wanted urgently for CASH!



We have got the "Wonder Wallet Filler" waiting to exchange for your home or business micro system. Phone **Keith McGovern** on 01-698 2911 (after 7.00pm Mon-Fri) for our TOP, TOP OFFER, or Part Exchange your gear for an even better deal. We can supply almost any computer equipment at discount prices, and give you a *Sooper* part exchange deal as well.

Cheques or Postal Orders payable to AMTEN LIMITED please. Cash should only be sent by REGISTERED MAIL. You may pay by VISA or ACCESS card by mail or phone. PD1G



GAME	RRP PRICE	OUR PRICE
ROCK & WRESTLE	9.95	7.45
ELECTRAGLIDE	9.95	7.45
SUPERBOWL	9.95	6.90

#### AMSTRAD

SUPERMAN	9.95	7.45
STRANGE LOOP	8.95	6.50
STARION	9.95	4.95
RAMBO	8.95	5.99
FA CUP	8.95	5.99
ROCKO	8.95	4.50
ROBIN OF SHERWOOD	8.95	4.95
TALES OF ARABIAN KNIGHTS	7.00	4.95
WORM IN PARADISE	6.95	4.95
GEOFF CAPES	8.95	6.50
BOUNCES	8.95	6.50
SPY v SPY	9.95	7.20
ELITE	14.95	11.00
FAIRLIGHT	8.95	7.45
BORED OF THE RINGS	6.95	5.95
ZOIDS	8.95	6.70
SABA TOUR	8.95	6.50
VIE ER KUNG FU	8.95	5.95
STRIKE FORCE HARRIER	5.95	6.75
STRIKE FORCE HARRIER (disc)	12.95	8.55
GRAPHIC ADV. CREATOR (Disc)	22.95	16.95

#### C-16

COMMANDO	7.95	5.95
TOPEDO RUN	6.95	4.95
DAVEY	6.95	5.99
KUNG FU KIDD	6.95	4.99
CLASSICS II	9.95	6.99
ACE	10.95	7.99

#### ELECTRON

YI AR KUNG FU	9.95	7.45
WAY OF EXPLODING	7.95	6.50
BLOCK BUSTERS	7.95	5.95
GOLD RUN	7.95	5.99
TERROROLINS	7.95	5.99
CITADEL	9.95	6.95
COMP. PRO. JOYSTICK	16.95	14.45
KONIC SPEEDSTICK	12.95	9.99

Overseas orders, please inc. 75p per tape  
ALL PRICES INCLUDE P&P

PLEASE NOTE IF OUR ORDER EXCEEDS £30  
YOU GET 16% FURTHER DISCOUNT

SEND CHEQUES/P.O. TO PD359E  
GOODBYE PCW10

UNIT 10-11, IMPERIAL STUDIOS,  
IMPERIAL, LONDON SW6  
(TEL: 01-731 4607)

## MEGASAVE SOFTWARE

46 THE MALTINGS, STANSTEAD ABBOTS, WARE, HERTS

SPECTRUM 48K	RRP	OUR PRICE	SPECTRUM 48K	RRP	OUR PRICE	QUAKE II	RRP	OUR PRICE
Lord of the Rings	15.95	11.95	Winter Games	7.95	6.45	Quake Minus One	8.95	6.95
Tom Hawk	9.95	6.95	Transformers	7.95	6.45	Mercenary	9.95	6.95
Roller Coaster	6.95	4.95	West Bank	7.95	6.70	School Daze	6.95	4.75
Shylock	7.95	6.75	Cosmic War Toad	7.95	6.45	Bouncer	8.95	6.95
Commando	6.95	4.45	Now Games II	8.95	6.50	Uridium	8.95	6.75
Turbo Sprint	8.95	5.45	Movie	7.95	5.75	Sold A Million	9.95	8.95
Enigma Force	6.95	6.50	FA Cup	8.95	6.75	Zoids	8.95	6.75
Back to Shoot	8.95	4.95	ID	7.95	5.75	Kung Fu Master	9.95	8.99
Zoids	8.95	6.50	Showjumping	7.95	6.75	Commando	9.95	8.99
Saboteur	8.95	6.50	Vector	7.95	6.45	The Young Ones	7.95	6.45
Yi Ar Kung Fu	7.95	6.45	Twister	7.95	6.45	Time Tunnel	7.95	6.99
Spiritfire 40	9.95	6.90	COMMOODORE 64/128			Rambo	8.95	6.50
Elite	14.95	9.50	Eldolon	9.95	6.99	Yi Ar Kung Fu	8.95	6.75
Clery the Garm	7.95	6.75	Back to the Future	9.95	9.90	Transformers	6.95	6.50
The Young Ones	7.95	6.45	Critical Mass	15.95	11.50	Max Headroom	9.95	9.90
Sold a Million	9.95	6.95	Rock 'n' Wrestle	9.95	8.95	Comic Bakery	8.95	6.75
Yak Daba Doo	8.95	6.45	Goonsies	9.95	8.95	Nightshade	9.95	8.95
Ball Blazer	7.95	6.45	Enigma Force	8.95	6.95	Dragonquest	9.95	8.99
Respin	7.95	6.45	Yi Ar Kung Fu	7.95	6.50	Doomsday's Revenge	9.95	8.99
Costa Capers	7.95	6.75	Muggy's Revenge	8.95	8.00	G. Capes Strongman	7.95	5.75
Kung Fight	9.95	6.95	Desert Fox	8.95	6.99	FA Cup	8.95	6.75
B. McGulgan's Boxing	7.95	6.45	Winter Games	9.95	6.99	ElectrAGLIDE	8.95	6.50
Rambo	7.95	6.45	Koro Shi Rite	9.95	6.95	Saboteur	8.95	6.75
Knight Rider	7.95	6.45						

All prices include free last delivery & same day despatch, when available. Personal callers welcome. 5% discount on all orders for seven or more tapes or in a value over £45. Cheques/P.O.s payable to MEGASAVE. For up to date news on available & Access orders ring (0326) 876568. Free Values included for orders over £28 or overseas orders. PD85D

## THE COMPUTER DEPOT

205 BUCHANAN ST, GLASGOW G1 2JZ

C18/Plus 4	RRP	OURS	ELECTRON	RRP	OURS
Acc Combat	5.95	4.45	Beach-Head	7.95	6.75
Beach-Head	6.95	4.95	Foxtrot Manager	6.95	7.60
Flight Simulator	4.99	4.25	The Boss	6.95	5.90
Kalidos	4.95	4.25	Yi Ar Kung Fu	6.95	6.75
3D Gopher	4.95	4.25	Harmonized	7.95	6.75
Winter Olympics	6.55	6.00	Backdoctors	7.95	6.75
Watch for the sky	6.05	5.30	So Side Soccer	2.99	
The Board	5.95	4.95	Robolon	2.99	
Grannies	9.95	3.75	5 pack wargames ONLY	4.99	
Roller King	6.95	5.90	Grannies	2.95	3.75
Demons Slair	6.95	5.90	Dynemic games (books)	4.95	2.90
PR Path 737	6.95	5.90	Expanding Fist	8.95	8.45
Aladdin	6.95	5.90	Aid Westerner Pet	7.95	3.95
Robert in Space	6.95	5.90	The Bonny	7.95	6.75
Culbert in Coster	6.95	5.90	Frankenstein	6.95	5.90
Dynemic	6.95	5.90			
Big Attack	6.95	5.90			
26c Em	6.95	5.90			
3 Address pack	23.95	9.99			
Starfire Plus I	14.95	7.95			
Starfire Pak II	14.95	11.99			
20 different	each	1.99			
Docors menu	from	2.99			
Bongo	5.95	4.99			
Commode	7.95	6.99			

PADDLES CBM/  
ATARI ..... 7.50 PER PAIR  
5 1/4" DISKS ..... 0.99  
AMSTRAD 3" ..... 3.95

Also in stock:  
Atari, MSX, Vic 20,  
C64, Spectrum,  
Amstrad etc.

ATARI PCS	RRP	OURS	COLLECTOR	RRP	OURS
Star Raiders	6.99	5.99	Roller Controllers	39.95	15.99
Solar Fox	7.95	4.99	Over 20 games	EACH	5.99
Donkey Kong	4.99				
River Rat	5.95	5.50			
ET	4.99				
Soccer/Football	6.99	6.99			
Pole position	12.99	11.50			
Manie Man	4.95	3.99			
Poe Yan	4.95	3.99			

P + P Included. Overseas add 75p airmail. ACCESS phone 041-332 3944. Immediate despatch. Free game with order over £20. Hundreds more titles in stock from £1.99. S.a.E for full list, state machine. PD824A

## Heavy on the Magick

From **GARGOYLE**  
~ the **GAME MASTERS**



# Tony Bridge's Adventure Corner



## Handbook series

Since I last looked at Adventure Clubs, another has come to my attention: actually, it is not strictly a club, but rather a series of handbooks. H & D Services have been advertising its range of monthly handbooks in the back of *Popular* for some time. Covering most popular micros, each book contains a variety of tips, pokes, maps and reviews.

I've seen the adventure book, and it is a very impressive 22-page effort packed with hints and tips, maps, complete and partial solutions, letters, reviews, competitions - in fact, quite the best collection of adventure-related items that I've seen in one place of late. Not only all this, but also editorial comment on the software scene, reviews of computing magazines, news... the list goes on. Issue 5 contains info on *Dun Durach*, *Emerald Isle*, *Fairlight* (with map), *Bored of the Rings*, *Minder*, the complete solutions to several well-known adventures including *Mindshadow* and *Heroes of Karn* (again, with maps), help requested and offered and a swap section for old adventure tapes.

As you'll see from the ads, the books are either 75p or £1.00 (subscription rates are three for £2.75, six for £5 or 12 issues for £8) so the handbooks are stunning value and any adventurer interested in finding out a bit more about the world outside as well as how to progress in the latest game, should send a cheque (mine is in the post already!) to: H & D Services, 1338 Ashton Old Road, Higher Openshaw, Manchester M11 1JG.

A more conventional adventure club appears this month from Camel Micros.

The Camel Club is aimed particularly, though not exclusively, at adventure-writers: the monthly newsletter will feature articles on how to write adventures, but there will also be reviews, a helpline and other items of general interest. All Camel adventures will be on offer for just £2.50, and there will be discounts on adventures from other sources. The annual membership of £9 includes a free adventure: not a bad deal.

Some time ago, I took a long look at Incentive's *Graphic Adventure Creator*. The other Amstrad adventure generator is *Genesis*, which comes from Camel, via CRL. I still believe, after all this time, that *GAC* is the friendlier and more useful of the two. While it is not the complete answer to adventure-writing on the Amstrad, Incentive's utility is certainly the easiest to use, with Gilsoft's *Quill* a close second. The demo supplied with *Genesis* is very attractive, with lots of detailed graphics and attractive text windows with lots of descriptive text. Unfortunately, the initial favourable response was rather dulled when the program crashed in the second location.

While there's no doubt that a good-

[Obst (Carry,OB1)#O]Msg<8,1>:Finish: Copy<1>;Obst(Carry,OB1)>:Call<39>: Finish:

Working through all this carefully, you'll probably be able to decipher a lot of it, but compare that with the command that *GAC* expects: If (Noun1 and Verb 7) Get Noun1 Okay End

Isn't that a lot easier to understand (Verb 7, of course is *Get* or *Take*)?

The writer can make full use of the Amstrad's sound facilities with *Genesis*, while *GAC* will only allow the occasional beep. The graphic department is rather harder to assess: the results from both programs can be stunning, and I find it hard to decide which I prefer. *GAC* allows for better pictures, while *Genesis* lets the writer include little sub-pictures; for example, inventory graphics as required.

But once again, Incentive makes it as easy as possible for the graphics to be created, while CRL/Camel seems to make it as hard as they can for the user.

But I'm glad to see that *Genesis* is now up to version 1.1, with high-speed graphics, expanded graphics commands and multi-

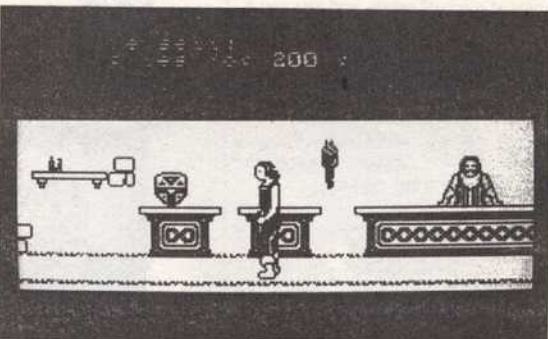
command input (I'm quoting the press release) and will also soon be available on disc. This will make it possible for huge chunks of data to be stored for disc access during the adventure: it will also feature text compression, a Random function as well as a "Level 2" language which will make it easier to use for beginners.

This seems to answer many of the problems that are to be found with adventure-creators, and I can't wait to start creating a really large disc-based game. I hope that I can bring you a full report when the utility is released.

Camel are also, it tells me, working on a utility which will generate Spectrum versions direct from your Amstrad adventure. Incentive, too, is nearly ready with a disc version of *GAC* which will make full use of the 6128's memory in disc-based games.

I'm glad to see that the market is expanding, it can only be good for us adventurers who want to try our hand at writing.

I've just been sent the first *GAC*-written program from a reader (expect the first commercial effort soon from Global): it's from Linda Wright (aka the House-Elf), and it's called *Sharpe's Deeds*. I'll look into it in more detail next week, and also at Linda's comments regarding the use of *GAC* in writing the game.



Dun Durach from Gargoyle Games

looking adventure can be created with *Genesis*, and I'm quite eager to have a go at it, nevertheless it's the sheer hard work involved that stops me. Before getting down to the real business, it's necessary to generate a stand-alone game using the 'cloner' program. This process isn't helped along by the haphazard arrangement of the various program modules on the tape, and the obscure nature of the manual. But it is not

only the manual that makes the utility hard going - look for example, at the way in which *Genesis* requires you to program the '~Get' command: Call <30>:

[Obst (Carriable,OB1) =01]Msg<17,1>:Finish: [Obst(OB1)#Ploc]Msg<8,1>:Finish:

## 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.....



THE OFFICIAL

# FA Cup

GAME



R.R.P.  
£7.95

For the first time the Football Association has fully endorsed a computer football game. It is a realistic football simulation which lets you take 10 teams through the competition from the First Round.

Tony Williams, celebrated author of "League Club Directory" and "F.A. Non-League Club Directory" has provided authentic up-to-date home and away form for a total of 124 League and Non-League teams.

You must decide which tactics your teams use throughout the various matches and you must make managerial decisions which may well effect the morale of your team and subsequently the score! You may represent a local team, and if you are lucky enough to receive the benefit of a "giant-killer" your team may even experience a dream cup run!

Above all, The Official F.A. Cup Football game comes up with realistic results that's why the Football Association have given it their full approval!

Available for Spectrum 48K, Commodore 64/128 and Amstrad CPC 464/664/6128

Name .....

Address .....

Spectrum 48K  Commodore 64/128  Amstrad CPC 464/664/6128

Tick appropriate Box

All versions of F.A. Cup Football cost £7.95. Please make cheques and postal orders to **Virgin Games Limited** and post to the address on this advertisement.

Please do not post money.

Virgin Games Ltd, 2-4 Vernon Yard, 119 Portobello Road, London W11 2DX







SERVICES

**The 1st choice**  
**EXPRESS SPECTRUM, BBC**  
**and COMMODORE REPAIRS!**

**2 GAMES (WORTH £10) WITH EVERY REPAIR\***

**WHY PAY HIGH 'FIXED' PRICES**

Spectrum repairs between £9 and £20.

BBC repairs between £14 and £45.

Commodore repairs between £14 and £35.

\*Spectrums only

(We do not charge you for our fancy premises by charging high 'fixed' prices)

Reputations take time to build, we have been repairing ZX81's, Spectrums, QL's, Apples and BBC's professionally, for 2 1/2 years - who is coming second?

In all U.K. with White-u-Wait repairs with INTERNATIONAL repair service!

To charge LOW PRICES for the smaller repairs (e.g. £9 for keyboard faults)

FOR LOW PRICES - "My computer view recently, I took it to MANCOMP, who fixed it in 8 minutes and for less than £10! They are local, 'clued up', and blindingly efficient!" 4 HEATONS DIGEST

FOR PROFESSIONALISM - "Of all the repair companies Sinclair User spoke to, MANCOMP seemed the MOST PROFESSIONAL, when it came to advice and a helpful attitude" AUG 85.

FOR HONESTY - We let you watch your computer being repaired and if there is nothing wrong with it, we will tell you!

FOR REPUTATION & HELPFULNESS - "I have come across a firm that will be more than willing to advise you as to how to remedy your problems. They are called MANCOMP and as well as repairing faulty computers, are also quite willing to discuss your problems with you and offer reasonably cheap and more importantly CORRECT CUES!" Phil Rogers POPULAR COMPUTING WEEKLY JAN 85.

FOR SPEED - "One firm at least can effect any necessary repairs over the counter in 45 minutes. Based in Manchester, MANCOMP can offer what is arguably the FASTEST turnaround in the business to personal callers" CRASH Magazine JUNE 1985.

THIS IS WHY Spectrum users from London, Cornwall, Scotland, Birmingham, Liverpool, Coventry, Leicester, Glasgow, I.D.M., etc. AUSTRALIA, AUSTRIA, BELGIUM, EGYPT, GREECE, GERMANY, HOLLAND, KENYA, NORWAY, PAKISTAN, PAPUA

NEW GUINEA, SAUDI ARABIA, SWEDEN, SWITZERLAND and ZIMBABWE - send their Spectrums to MANCOMP for repair!  
 24 HR. TURNAROUND - NO-QUIBBLE GUARANTEE - NO HIDDEN COSTS.

Because we repair hundreds of computers every week, we are able to pass on our 'component-buying discount' to YOU in lower prices... Z80A cpu £1.50, 4116 50p. Upgrade fitted £18.95 - we bring down the prices for repairs and components!

(We may refuse to revive computers suffering from attempted D.I.Y. repairs!)

Every parcel sent by Royal Mail Registered Post and insured for return journey! (For next day delivery include £1.50 extra).

(Security by prior arrangement). On-site maintenance for Apples, I.B.M.'s and most makes of printers also available.

Guaranteed air response! WHY DELAY - OUR ESTIMATES ARE FREE AND WITHOUT OBLIGATION, IF

YOU DO NOT LIKE OUR ESTIMATE WE WILL RETURN THE COMPUTER AND REFUND THE POSTAGE INCURRED

**MANCOMP LTD**  
 (Dept. PCW10)

Printworks Lane, Levenshulme, Manchester M19 3JP  
 Phone 061-224 1888.  
 OR 061-224 9888.  
 OPEN MON - SAT 9am to 7pm



What we do today... others do tomorrow!

NOTE OUR PRICES AND WATCH OTHERS FOLLOW THE LEADER

**SPECTRUM — AMSTRAD — COMMODORE**  
**NOBLES COMPUTER REPAIRS**

\* Repairs carried out by our own engineers on site.

\* All repairs carry a 4 MONTH GUARANTEE

For estimates phone or send your computer to NOBLES.

Spectrum Plus ..... £16.95 inc parts post and pack

Commodore 64/VIC 20 ..... from £9.95 plus parts

BBC ..... from £18.95 plus parts

Also repair specialists for Amstrad and MSX computers

**NO HIDDEN CHARGES**

**★ SPECIAL OFFER**

**5 FREE GAMES WORTH £25**

with each Spectrum repair Trade/School and Club discounts arranged.

\*For free, no obligation estimates phone or send your computer to NOBLES for the fastest, cheapest repairs in ESSEX.

**NOBLES**

14-17 Eastern Esplanade  
 Southend-on-Sea

Essex  
 0702 63377/8  
 63336/7/8/9

7 days a week, 24-hour Answering Service

**SPECTRUM — AMSTRAD — COMMODORE**

**BBC SPECTRUM REPAIRS**  
 \* Spectrum repairs £18.50 inc. parts insurance and p.p.  
 \* BBC B repairs £18.50 + parts, insurance and p.p.  
 Send your computer with cheque or P.O. for £18.50 and description of fault to:  
**SUREDATA (PCW)**  
 Computer Service  
 45 Wychwood Avenue, Edgeware, Middx.  
 Tel: 01-951 0124 PL53

**COMMODORE REPAIRS** by Commodore approved engineers. Vic 20 Modulators £6.50. Vic 20 from £14.50, CBM64 etc. for more details write or tel: G. C. Bunce & Son, 36 Burlington Road, Burnham, Bucks SL1 7BQ. Tel: 06286 61966.

**COMPUTER REPAIRS**  
 We are the experts, having serviced Sinclair computers since the introduction of the ZX80.  
 Don't waste money on estimates - we repair Sinclair computers at price quoted (inclusive parts, labour, postage, VAT, and description of fault. No hidden charges. Repairs guaranteed for 3 months.)

Spectrum	£18.75 inc parts
ZX81	£11.50 inc parts
16 KRam	£9.95 inc parts
Microdrive	£15.95 inc parts
Interface 1-11	£18.75 inc parts
also	
BBC	£22.00 + parts
Electron	£19.95 + parts
XX Memory Expansion Kit	£15.95

Computer Retailers please phone for Special Trade Price.  
 Call or send with cheque or P.O.  
 T.V. Services of Cambridge Ltd  
 French's Road, Cambridge, CB4 3NP  
 Tel: 0223 311371

**Computer Repair Centre**  
 Have you got problems with your computer? Then call us for:  
 Commodore, BBC, Spectrum, Dragon  
 Mail order or call in  
 Enfield Communications  
 135 High Street, Ponders End, Middx  
 Tel: 01-805 7772 PL143



**Book your Classified or Semi-display advert by Credit Card**



**Call Jon Beales on 01-437 4343**









# There's a Dealer near you . . .

## BIRMINGHAM

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

PL644

## ESSEX

CAREY ELECTRONICS  
FOR  
THE BBC MICROCOMPUTER  
SOFTWARE MACHINES,  
PERIPHERALS  
7 CHURCH ROAD  
WALTON-ON-NAZE, ESSEX  
FRINTON-ON-SEA (02556) 6993

PL644A

H REYNOLDS  
79 ORSETT ROAD  
GRAYS, ESSEX  
Tel: (0375) 375948

PL903

MIKES COMPUTER STORE  
292 LONDON ROAD  
WESTCLIFF-ON-SEA  
ESSEX  
Tel: (0702) 332554

PL905



**ESTUARY**  
PERSONAL COMPUTERS

318 CHARTWELL NORTH  
VICTORIA CIRCUS SHOPPING CENTRE  
SOUTHEND ON SEA  
Tel: (0702) 614131

PL644

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

PL801

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

PL802

COLCHESTER COMPUTER CENTRE  
3a SHORT WYRE STREET  
COLCHESTER  
Tel: (0206) 47242  
SOFTWARE FROM £1.99  
SPECIAL PRICES  
ON BBC B

PL907

NOBLES  
14-17 EASTERN ESPLANADE  
SOUTHEND-ON-SEA, ESSEX  
Tel: (0702) 63377/8

PL908

## GLASGOW

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

PL705

## HEREFORDSHIRE

HONEYSETT COMPUTERS  
17 UNION STREET  
HEREFORD HR1 2BT  
Tel: (0432) 279404  
ASK ABOUT  
CLUNKER SALE

PL824

## HUMBERSIDE

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

PL483

## KENT

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

PL484

**dgh** software centre  
10 NORTH STREET,  
ASHFORD, KENT  
Tel: (0233) 32597

PL656

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

PL812

## MIDDLESEX

INNOVATIONS  
COMPUTER & VIDEO  
9 HARMONDSWORTH ROAD  
WEST DRAYTON  
MIDDLESEX UB7 9JS  
Tel: (0895) 420457

PL910

## LEEDS

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

PL863

## LEICESTERSHIRE

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

PL640

## LONDON

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

PL656

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

PL408

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

PL518

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

PL580

## LIVERPOOL

### BLUE CHIP

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

PL486

## SUSSEX

GATWICK COMPUTERS  
62 THE BOULEVARD  
CRAWLEY, SUSSEX  
Tel: (0923) 26240/37842

PL912

## STAFFORDSHIRE

MICROTRONICS  
27a MARKET STREET  
TAMWORTH, STAFFS  
Tel: (0827) 51480

PL911

HOME SOFT COMPUTING  
1st FLOOR  
81A BOLEBRIDGE ST  
TAMWORTH  
STAFFS  
(0827) 63549

PL914



## YORKSHIRE

MICRO BYTE SOFTWARE SHOP  
36 COUNTY ARCADE  
LEEDS  
Tel: (0532) 450 529

PL93

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

PL616

MICRO BYTE SOFTWARE SHOP  
19A LOWER WARREN CENTRE  
LEEDS  
Tel: (0924) 376656  
FULL RANGE OF  
TOP QUALITY SOFTWARE  
PHONE FOR PRICES

PL934

## S. WALES

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

PL848

## WARWICKSHIRE

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

PL845

FOR POWERFUL  
DEALER ADVERTISING  
CALL JON BEALES  
on 01-437 4343

NR17A

## RECRUITMENT

# PROGRAMMERS

Superb opportunity for persons with creative thinking ability.

Several vacancies exist for proficient machine code programmers with an extensive knowledge of Z80 and 6502 assembly language.

A knowledge of 68000, C and hardware would be an advantage. Self motivation and a strong interest in home computers are essential.

# PROGRAMMER/ ENGINEER

We have an immediate requirement for a Programmer/Engineer to provide both a maintenance service for our range of Z80, 6502 and 68000 based machines as well as undertake development projects and systems software.

Applicants should be qualified to degree or equivalent level in electronics.

Write (including c.v.) or telephone:

Mrs. Mitchell  
DALALI SOFTWARE LTD  
29-33 Church Street,  
Croydon, Surrey CR0 1RH  
Telephone: 01-681 1365

**DALALI**

PD12

## FOR SALE

UNREPEATABLE COMPUTER BAR-GAINS Amstrad PCW8256 Personal computer & word processing system £429 inc Vat + Delivery Commodore 128 computer + 1570 Disk Drive £389 inc Vat Commodore 803 printer £99.99 inc Vat DPS 1101 Daisywheel printer £176 inc Vat add £5 for Securicor delivery cheques payable to Matrix Trading, Tempo House, 15 Falcon Road, London S.W. 11 Tel 01 223 7662. (Office only)

SPECTRUM 48K with tons of games, utilities, books inc assembler toolkit, The Artist, Supercode III, Forth, C, Pascal, etc £130 ono. Colchester 867391. Will sell separate. 11 Worcester Rd, CO1 2RH.

COMMODORE 64 pen pals wanted with view to exchanging software, hints, tips etc. Please write to David Barrs, 1 Beal Street, Leicester LE2 0AA. All Letters answered.

## BLANK CASSETTES

WITH LIBRARY CASES			
C10	C15	C20	C30
10	3.80	4.00	4.15
20	7.00	7.20	7.40
50	15.00	15.20	15.90
100	27.00	28.00	29.90

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

## 5 1/2" DS/DD DISKS

10 for £12.00 inc plastic case

## 3 1/2" DISKS

	"135 TPI"	
	10 SS/DD - £25.00	
	10 DS/DD - £35.00	

Guaranteed. Fully inclusive  
Postage/Packing etc.

RING US NOW! (0753) 695034  
UK HOME COMPUTERS, 82 CHURCHWARD AVE,  
SWINDON, WILTS SN1 1NH

PL613

## MAKE SPECTRUM GENIE

Simple Computer Control for Machinery and Models using your Sinclair Spectrum.  
A little black box which plugs into the expansion socket of any Spectrum and enables you to drive two small to medium stepper motors (up to 2 AMPs per phase) or up to 5 DC motors: relays, lamps or any other DC device.

Simple to program and built by an engineering firm for its own use. You can use it for CNC turning, milling or coordinate drilling.

Reliable. Prototype still running after three years use.

We provide interface, instructions, software, hints and examples.

Price: £94.50 inc carriage and VAT.  
Power supplies and Stepper Motors available. We will be pleased to quote for larger units.

P. R. PRODUCTS PARK MILL, HOBSON STREET,  
MACLESFIELD, CHESHIRE SK11 8BE. Tel: (0625) 2290

BBC 32k, sideways ram, DDFS, disc drive, MCP40 colour printer and plenty software. £350 ono. Tel: (james), 404 0612. (London) Days.

## TELEX YOUR CLASSIFIED COPY TO:

296275  
SUNRGY

HAS

SPECTRUM OWNERS: send your "own" uncopyrighted M/code/basic program(s) with £4. You receive C60 compilation of top programs received users from fast and friendly service send now for cassette and info or phone for details TRS80 48K with expansion interface, two disc drives, green monitor and printer, software including visicalc. Call Milton Keynes 663864 £150.

SPECTRUM 48K FDS keyboard ZX printer, recorder, joystick sound amp. Over £1,000 software and books £225 ono. Ph 01-673 3491 after 6pm.

## WANTED

WANTED computer software AU machines, write with details + price wanted to: M. Ratcliffe, Ivy House, Bolton Road, West Holcombe Brook, Bury, Lancs.

## YOUR PERSONAL CENTRONICS PRINTER

£99 plus vat  
plus £8 p+p



- DRAFT MATRIX PRINT
- NEAR LETTER QUALITY
- SUBSCRIPT SUPERSCRIP
- CONDENSE EMPHASIZE
- 96 CHAR + 48 EURO + 16 MATHS
- GRAPHICS
- OPTIONAL TRACTOR

128 Station Rd  
Sleaford  
Leicestershire  
LE13 8ER

**ROCK  
HALL**

TEL: (0533) 313531

## CABLES

Amstrad Printer Cable	£9.00
Amstrad Monitor Cable	
QL Serial Cable	£7.50
QL Joystick Adaptors	£4.50
QL Monitor Cables	
ZX Serial Cable	£9.00
ZX Microdrive Cable	£5.00
BBC Printer Cable	£8.50

"CABLES MADE TO ORDER"  
QL Joysticks ..... £9.50  
Quickshot II ..... £8.50

## INTERFACES

QL Centronics Printer Interface	£29.00
ZX Centronics Printer Interface	£29.00
Apple 2C Centronics Printer Interface	£29.00
512K Expander RAM for QL	£125.00

TECH LINK, 31 Sallisbury Rd, St Annes, Bristol,  
BS4 4EL, Tel (0272) 715370 24hr Service

PL26



# Charts

## Amstrad

1	(-) Rambo	(Ocean)	£8.75
2	(3) Sky Fox	(Ariolasoft)	£9.95
3	(8) Caves of Doom	(Mastertronic)	£1.99
4	(-) Formula One Simulator	(Mastertronic)	£1.99
5	(1) Yie Ar Kung Fu	(Imagine)	£8.95
6	(-) Mini Office 2	(Database)	£19.95
7	(5) Hypersports	(Imagine)	£8.95
8	(4) Finders Keepers	(Mastertronic)	£1.99
9	(-) They Sold a Million	(Hit Squad)	£8.95
10	(10) One Man and his Droid	(Mastertronic)	£1.99

## Atari

1	(1) One Man And His Droid	(Mastertronic)	£1.99
2	(2) Action Biker	(Mastertronic)	£1.99
3	(5) Fighter Pilot	(Digital Integration)	£9.95
4	(3) Chumera	(Firebird)	£3.95
5	(-) Spy Hunter	(US Gold)	£8.95
6	(7) Spy vs Spy 2	(Databyte)	£9.95
7	(-) Steve Davis Snooker	(CDS)	£9.95
8	(10) Electra Glide	(Activision)	£9.95
9	(6) Smash Hits 4	(English)	£9.95
10	(-) Mercenary	(Novagen)	£9.95

## BBC

1	(1) Yie Ar Kung Fu	(Imagine)	£9.95
2	(-) Southern Belle	(Hewson)	£7.95
3	(3) Way of the Exploding Fist	(Melbourne House)	£9.95
4	(-) Lord of the Rings	(Melbourne House)	£9.95
5	(7) Citadel	(Superior)	£9.95
6	(2) Strike Force Harrier	(Mirrorsoft)	£9.95
7	(-) Mini Office 2	(Database)	£14.95
8	(-) Nightshade	(Ultimate)	£9.95
9	(6) Phantom Combat	(Doctorsoft)	£9.95
10	(-) Computer Hits 10	(Beau Jolly)	£9.95

## Commodore 64

1	(-) Hardball	(US Gold)	£9.95
2	(1) Yie Ar Kung Fu	(Imagine)	£8.95
3	(2) Kung Fu Master	(US Gold)	£9.95
4	(-) Electra Glide	(English)	£8.95
5	(3) Eidolon	(Activision)	£9.95
6	(-) FA Cup Football	(Virgin)	£8.95
7	(6) Desert Fox	(US Gold)	£9.95
8	(4) Rock 'N' Wrestle	(Melbourne House)	£9.95
9	(7) Mercenary	(Novagen)	£9.95
10	(-) Zoids	(Martech)	£8.95

## Spectrum

1	(1) Movie	(Imagine)	£7.95
2	(-) Sky Fox	(Ariolasoft)	£8.95
3	(3) Winter Games	(Epyx/US Gold)	£7.95
4	(-) FA Cup Football	(Virgin)	£7.95
5	(7) Hypersports	(Imagine)	£7.95
6	(8) Devils Crown	(Mastertronic)	£1.99
7	(5) Yie Ar Kung Fu	(Imagine)	£7.95
8	(10) Spellbound	(Mastertronic)	£2.99
9	(2) Commando	(Elite)	£7.95
10	(4) Rambo	(Ocean)	£7.95

All figures compiled by Gallup/Microscope

## Top Twenty

1	(-) Hardball (C64)	US Gold
2	(1) Yie Ar Kung Fu (Various)	Imagine
3	(2) Formula One Simulator (Various)	Mastertronic
4	(12) Rambo (Spectrum/C64/Amstrad)	Ocean
5	(-) FA Cup Football (Spectrum/C64/Amstrad)	Virgin
6	(3) One Man and his Droid (Various)	Mastertronic
7	(-) Sky Fox (Spectrum/C64/Amstrad)	Ariolasoft
8	(5) Movie (Spectrum)	Imagine
9	(6) Hypersports (Various)	Imagine
10	(10) Winter Games (Spectrum/C64/Amstrad)	Epyx/US Gold
11	(9) Action Biker (Spectrum/C64/C16/Atari)	Mastertronic
12	(7) Finders Keepers (Various)	Mastertronic
13	(-) Mr Puniverse (C16)	Mastertronic
14	(11) Commando (Spectrum/C64)	Elite
15	(-) They Sold a Million (Spectrum/C64/Amstrad)	Hit Squad
16	(-) Way of the Exploding Fist (Various)	Melbourne House
17	(14) Elite (Spectrum/C64/Amstrad/BBC)	Firebird/Acornsoft
18	(-) Electra Glide (C64/Atari)	Activision
19	(8) BMX Racers (Spectrum/C64/C16)	Mastertronic
20	(-) Zoids (Spectrum/C64)	Martech

Figures compiled by Gallup/Microscope

## Readers' Chart No 65

1	(3) Lord of the Rings (Spectrum/C64/Amstrad)	Melbourne House
2	(1) Elite (Spectrum/C64/Amstrad/BBC)	Acornsoft/Firebird
3	(2) Commando (Spectrum/C64/C16)	Elite
4	(6) Movie (Spectrum)	Imagine
5	(4) Yie Ar Kung Fu (Spectrum/C64/Amstrad/BBC/MSX)	Imagine
6	(5) Winter Games (Spectrum/C64/Amstrad)	Epyx/US Gold
7	(9) Kung Fu Master (C64)	US Gold
8	(-) Swords and Sorcery (Spectrum/Amstrad)	PSS
9	(10) Rambo (Spectrum/C64/Amstrad)	Ocean
10	(-) Way of the Exploding Fist (Various)	Melbourne House

Winning Phrase No 65: "Marcos fled in time to old Ron", from J Brook, of Fife in Scotland, who wins £25. An honourable mention goes to Derick Smit, of Northallerton, North Yorks, for "The ring's on Frodo, mate!"

## Now voting on week 67 - £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 67 closes at 2pm on Wednesday March 19, 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 67
Address .....	1 .....
.....	2 .....
.....	3 .....
My phrase is: .....	



# New Releases

## ANIMATED

*Movie Maker* is an unusual program, nearly unique in fact, in that it is specifically designed to produce animated movies with your computer.

In a sense the program has similarities with a games designer - designing shapes, animating them, putting sound with movement and so on, but the intention is clearly not the same and the presentation of the ideas therefore different.

Making a complete 'movie' is potentially quite a complex business but the building blocks are essentially simple and consist of six kinds of file each stored independently on disc and usable in subsequent creations. The files are shape (the actual moving characters used in the film), background (the non-moving scenery) animation, (the sequences of movement the shape objects make over the background), sound (a series of sound effects, and music). Other files allow for shape magnification changes and in-



serting text on to the screen.

Each of these files has an associated series of commands which mix single key press instructions and joystick inputs. There are some fairly complicated sequences to learn before a complete movie is created but the program allows for an easy start using existing files which have already been created and merely modifying them.

An interesting program, capable, with some effort, and planning, of impressive results but it seems not to be suitable for complete novices or very young children.

**Program** *Movie Maker*  
**Price** £16.95  
**Micro** Commodore 64  
**Supplier** Ariolasoft UK  
 68 Long Acre  
 Covent Garden  
 London WC2E 9JH

## ESSENTIAL

Although it has recently had a few rivals taking pot shots at its crown, *Tasword Two* probably remains the most used and best loved word processor for the Spectrum. For those with microdrives a new edition of the program is out called, not surprisingly, *Tasword 3*.

For those already familiar with *Tasword* there is little different about the new version; essentially all the commands are the same except that there are some useful additions and the chance to store files in sections on microdrive and then print them out in one go. What this means, is that it is possible to

Pick of the week

Don't you just love it when things are simple. Try this: *Get Dexter*, a French game licensed over here by PSS, is the best game I have ever seen on an Amstrad. If you play games you will require around two nanoseconds peek at one screen shot before you start drooling.

The game is the culmination of the game style begun by Ultimate with *Knight Lore* - imagine that game in hi-res multicolour, with astoundingly imaginative graphics that mix French comic book styles with odd alien beasts derived from blue period cubists. Imagine that you can pull or push around virtually any object to your heart's content, add moving platforms, jump platforms, vicious wrought iron gates, a punk with a mohican haircut and at least one blonde nurse (maybe more) and you have something of the character of the game.

You are the hero, Dexter, and aided by a strange yellow pet (which behaves like a dog but looks like a vacuum cleaner), you are seeking the letters that make up a code word. Then find the central computer and Bob's your uncle, or

## FRENCH COMIC



the world's saved, or something (I had problems translating the plot from the French). Getting the letters is a matter of finding the correct uses for numerous bizarre objects scattered around the many rooms. Some are easy - footpads which open doors, others are weird - I mean do I need the vase of flowers or not?

It's becoming a little wearisome to keep describing games as interactive movies but I can think of no other game that mixes such spectacularly detailed, beautifully animated, and more than anything else,

create extremely long documents.

Although the program comes with an excellent man-

ual; it also retains the *Tasword Tutor* - a file loaded from microdrive which takes you through each of the com-

# This Week

Program	Type	Micro	Price	Supplier	Program	Type	Micro	Price	Supplier
Deathsville	Arc	Amstrad	£8.95	Bubble Bus	QL Qubolds	Arc	QL	£9.95	Sinclair Research
Pyradey	Ut	Amstrad	£29.95	Gremlin Graphics	Labyrinthion	Ad	Spectrum	£2.99	Rino
Pyaword	Ut	Amstrad	£29.95	Gremlin Graphics	Mugsy's Revenge	Ad	Spectrum	£8.95	Melbourne House
Slick!	Ut	BBC	£7.95	BJ Computing	Bomb Jack	Arc	Spectrum	£7.95	Elite
Space Escort	Arc	C16	£1.99	Atlantis	Revenge of the C5	Arc	Spectrum	£1.99	Atlantis
Ark Pandora	Ad	Commodore 64	£9.95	Rino	Spindizzy	Arc	Spectrum	£9.95	Activision
Rollin	Arc	Commodore 64	£1.99	Atlantis	Three Weeks in Paradise	Arc	Spectrum	£9.95	Micro-Gen
Shoot em Up	Arc	Commodore 64	£2.99	Rino	Vectron 3D	Arc	Spectrum	£7.95	Firebird
Mugsy's Revenge	Ad	Commodore 64	£8.95	Melbourne House	Who Dares Wins II	Arc	Spectrum	£7.95	Alligata
Disc Warrior	Arc	MSX	£2.99	Rino	Samanatha Fox Strip Poker	S	Spectrum	£8.95	Martech
QL Jabber	Arc	QL	£9.95	Sinclair Research	SuperCom	S	Spectrum	£1.99	Atlantis

Key: Ad - adventure

Arc - arcade

S - strategy-simulation

Ut - Utility

Ed - education



## BOOK

character-full graphics with such a wide freedom of action. Here's an example - I decided to do a little furniture rearranging in one of the hospital bedrooms (don't ask me why there are hospital bedrooms) - having happily shunted around the bed and some chairs I decided to move some charts on the wall and what should I discover but... I'll leave it to you.

I spent hours with the game and hardly scratched the surface of what's possible - for one thing I haven't yet found a reason to press the button that lets you 'call' your little vacuum cleaner dog though it seems that some of the cubist monsters don't like water. The sound effects and music are wonderful as well. No matter what else you've been saving for, buy this game, and have your Spectrum and Commodore owning friends green with envy. It's out in three weeks.

**Program** *Get Dexter*  
**Price** £9.95  
**Micro** Amstrad CPCs  
**Supplier** PSS  
 452 Stoney Stanton Road  
 Coventry

mands, one by one. Its systematic and thorough, putting similar tutorial files provided with 'real', ie, expensive

wordprocessors, to shame.

One excellent feature is a data merge facility that may be used in conjunction with a database like *Masterfile* or may be used with specially constructed files created with *Tasword* itself. Used with *Tasword*, data like names, addresses, and telephone numbers may be typed in prefixed with a special code for each type, eg, & T preceding every telephone number. This special document file can then be read by *Tasword* and a letter using, in turn, each name, address, telephone number printed out. Ideal for form letters where the same text must be sent to a number of different people.

Another excellent *Tasword* addition. For those with a microdrive and *Masterfile*, I should call it an essential purchase.

**Program** *Tasword Three*  
**Price** £16.50  
**Micro** Spectrum  
**Supplier** *Tasword Software*  
 Springfield House  
 Hyde Terrace  
 Leeds LS2 9LN

## PLAY ALONG

*Mupados* is a company producing packages for the BBC and Electron specifically designed to be practical music teaching aids. The packages are categorised according to the kind of musical instrument being learnt - Keyboards, Concert Pitch B Instruments and the Recorder. The main difference between each being the transposition between

the parts.

I looked at the keyboard package and found much that was impressive. All the instruction is based around six demo tunes - *Ghostbusters*, *War is Over*, *Chariots of Fire*, *Superman*, *Dress You Up* and *Hello* (at least they're recent) - these are supplied both on an audio cassette and as data played by the BBC (one channel only and a bit tinny).

Having chosen the song, you can listen to it played by the BBC with the music displayed at the same time. If you wish, a beat counter (a metronome except it sounds like someone trudging through snow) will keep time and a bouncing ball will point out the exact note being played.

The point of this is that you try, gradually, to copy the computer and play the tune on your own instrument, using the beat counter, replaying bars as necessary, and above all listening carefully to the tune when the comput-

er plays it, as your guide. A passable rendition achieved, you can then play along with the audio version of the tune with full (well, lots of synthesizers) backing which has had the melody line removed.

The process works better than I expected. With only one note at a time to worry about, it's obviously intended for novices, but there are some tricky things in some of the songs which might amount to some sort of learning challenge. Effectively *Micro-Maestro* is two things - a teacher prepared to play a tune over and over again at any speed you like until you've got it right and an ego boosting play-along with a real band as you and tape recorder become one.

*Micro-Maestro* won't actually teach any of the basics of music nor is it suitable for those who already have a year or so's experience, but it will help complete novices associate melodic patterns with their notated form and it will help pick out popular tunes. As such I think £14.95 is a little pricey, although the fact that the package actually features modern(ish) tunes on which copyright presumably has to be paid may justify that somewhat. I was fairly impressed.

**Program** *Micro-Maestro*  
 (Keyboards)  
**Price** £14.95  
**Micro** BBC/Electron  
**Supplier** *Mupados*  
 Llambed Industrial Estate  
 Tregaron Road  
 Lampeter  
 Dyfed SA48 8LT



## This Week

**Activision**, 15 Harley House, Marylebone Road, London NW1, 01-486 7588. **Alligata**, 1 Orange Street, Sheffield S1 4DW, 0742 755796. **Atlantis**, 19 Prebend Street, London N1 8PF, 01-226 6703. **BJ Computing**, PO Box 4, Sheffield S1 1DU, 0742 558202. **Bubble Bus**, 87 High Street, Tonbridge, Kent TN9 1RX, 0732 355962. **Elite**, 55 Bradford Street, Walsall WS1 3QD, 0922 611215. **Firebird**, Wellington House, Upper St Martin's Lane, London WC2H 9DL, 01-379 6755.

**Gremlin Graphics**, Alpha House, 10 Carver Street, Sheffield S1 4FS, 0742 753423. **Martech**, Martech House, Bay Terrace, Pevensey Bay, East Sussex BN24 6EE, 0323 768456. **Micro-Gen**, 44 The Broadway, Bracknell, Herts, 0344 427317. **Melbourne House**, 39 Milton Trading Estate, Abingdon, Oxon OX14 4TD, 0235 835001. **Rino**, 1 Orange Street, Sheffield 4DW, 0742 755796. **Sinclair Research**, Milton Hall, Milton, Cambridge CB4 4AE.



## Out of the swamp

Evolutionists argue over whether evolution is a slow gradual process or one where periods of relatively little change are interspersed with ones of rapid change. In the realms of home computing, both these phenomena can be seen to be taking place side by side.

One of the first home computers to be heralded as such was the Commodore Pet, although it was still too expensive to be bought by anyone other than a few enthusiasts.

Not until Sir Clive brought out the ZX80 and ZX81 was the price brought into the mass market range. The stupendous surge of interest in home computing that followed is well-known. Software, however, made the upwards transition fast enough to keep pace.

Look back at the time when the first sound and colour computers came out with built-in memory minus Ram pack wobble. Computers had hauled themselves out of the swamps of the Carboniferous and on to the dry land of the Cretaceous.

In the rapid expansion which followed many computers thrived and then became extinct, just as the dinosaurs before them, not through any intrinsic fault of their own but through a change in the surrounding environment. Lynx, Dragon, Aquarius, Oric - many well known names came and went.

The Commodore 64 and the 48K Spectrum, however, went from strength to strength.

It was now software's turn to go through an evolutionary phase, largely based on just these two machines. There was to be no leap here, however.

In the three or so years since these machines have been on the market, there has been a steady progression in the sophistication of the software produced as more of the machine's potential was exploited.

The success of these two machines, however, made it very difficult for any-

one else to successfully break into the market.

It was no longer enough to just produce a good machine and let the software follow as these two had done. The buying public naturally compared the new machines' software with what was already available - and it never compared very favourably.

Recent history has shown us a lot. Only Amstrad has broken into the market with any degree of success. MSX machines, whilst having a hard core of support, have flopped dismally when you consider the big name companies making the machines. Commodore's C16 and Plus 14 did likewise and the QL hasn't exactly set the world on fire.

Consider that it is now almost two years since the QL was launched and then think of how Spectrum software developed in the two years following its launch.

It illustrates how poorly served the QL has been for software.

Amstrad's success was due largely to using existing technology more effectively than anyone else whilst providing the essential investment in software development.

What does all this mean for the future? The new 16-bit machines are going to be launched on a market where there is little good 16-bit software around with which to make comparisons. This will have to go through the same sort of slow evolution that the software for 8-bit machines went through.

The software produced will still have to be at least good enough to stand comparison with existing 8-bit software since people's expectations are that much higher than before.

The market is now such that only the strongest and fittest could survive and any new machine to emerge would have to be not only a product of technological efficiency, but be able to build a rapid and sophisticated software base.

Getting the mix right is the key point on which new computers will survive or become another computing dodo.

Campbell Robertson

## Puzzle No 199

"These new soap and talc gift sets are selling well," observed Molly as another customer paid for her purchases.

"They sure are," agreed her husband Jim, "And very good value too. I've seen similar sets for sale in town for almost a tenner!"

Molly studied the till receipts for a while and then remarked, "Here's a curious thing - a customer buying either a single set or buying sets in lots of two, three, four, five, six, seven, eight, or nine sets will have a total bill that in no case includes the digit '2'".

Can you say how much the gift sets were?

## Solution to Puzzle 194

David is 6834 days old (17.88 years approx.), and Mary is 4356 days old (11.92 years approx.).

```
10 LET DAVID=9
20 LET MARY=5
30 LET DAVID=STR$(DAVID)
40 FOR N=1 TO LEN(DAVID)
50 LET MARY=MID$(DAVID,N,1)+MARY*9
60 NEXT N
70 LET MARY=VAL(MARY)
80 IF MARY=1.5*DAVID THEN PRINT DAVID
90 LET DAVID=DAVID+5
100 GOTO 20
```

The solution is found by taking David's age, converting it into a string variable, and reversing the digits to arrive at a possible age for his sister, Mary. If this age multiplied by 1.5 is equal to the original age, then we have a possible pair of answers. In the program, David's age is generated in a *For/Next* loop (Line 10). The running time can be shortened considerably if we realise that the ages must both be multiples of nine. The digital roots of both ages must be equal to the same value as they contain the same digits, and moreover, David's age is equal to Mary's age times 1.5 (digital root six). A simple rule of digital roots states that the digital root of the product of two numbers is the same as the product of the digital roots of the two numbers themselves. From this it is clear that only a DR of nine can produce this same value DR when multiplied by six (the DR of 1.5).

## Winner of Puzzle No 194

The winner is Philip Troth of Chesham, Bucks, who will be receiving £10.

## Rules

The closing date for puzzle No 199 is April 8.

## The Hackers





# War play

# WAR PLAY

Choose your weapons - choose your role. Whose air force will do the victory roll? Whose commander will surrender?

Aerial dog-fights - Tank battles - an elusive commander - The scene is set for a thrilling contest of skill and strategy. One or two player.

£7.95 Cassette  
£10.95 Disc

CBM 64

CBM 64

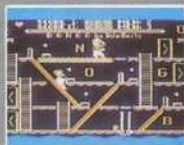
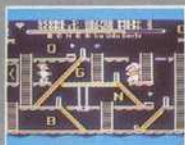
## C16/PLUS 4 COMES OF AGE!

BONGO

C16/PLUS 4

£5.95 Cassette

64 quality graphics and music - 6 high res. graphic screens - 5 skill levels - Menu driven facility to construct your own screens with save/load facility.



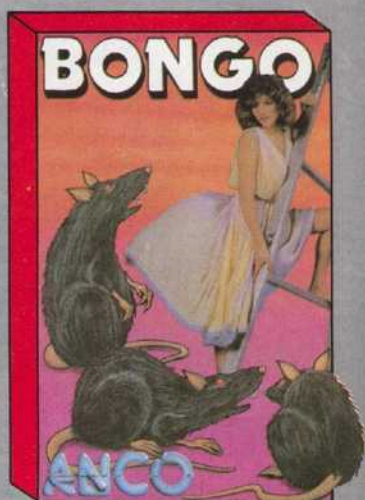
*Championship Series* Ultimate in sports simulations.



C16/PLUS 4

£6.95 Cass.

Experience the sheer exhilaration of POWER BOAT RACING - Negotiate a complex SLALOM COURSE - Rise to the challenge of a SKI JUMP. Three exciting competitive events. ENHANCED PLUS 4 FEATURES



Represent your country in six star events competition including BIATHLON and BOB SLEIGH set against a scenic backdrop.

C16/PLUS 4

£6.95 Cass.



COMING SOON IN THE *Championship Series* — TENNIS - CHESS - ICE HOCKEY

# ANCO

TRADE ENQUIRIES:

ANCO MARKETING LTD. 85, TILE KILN LANE, BEXLEY, KENT  
TEL. 0322 522631

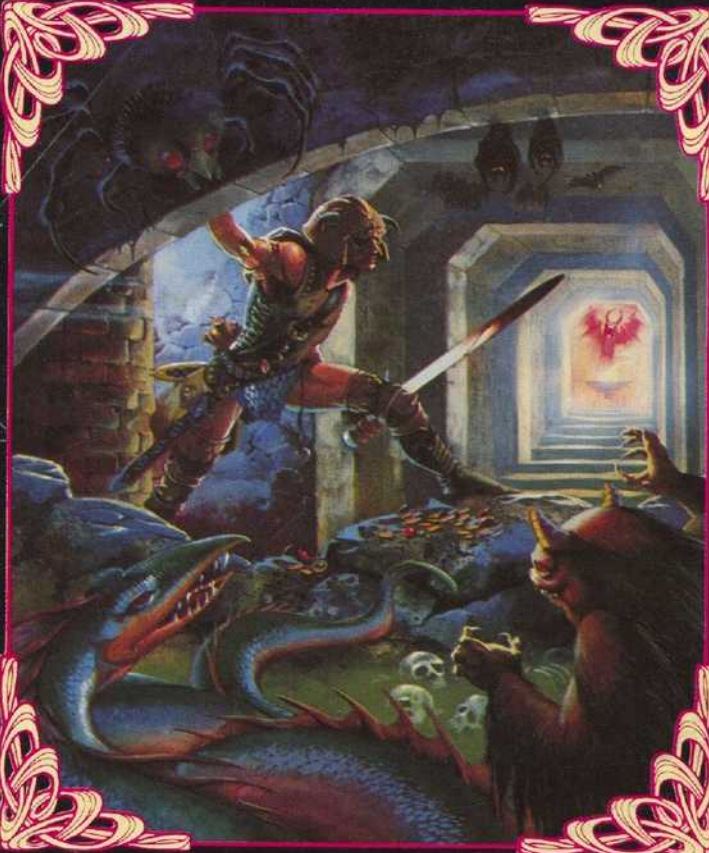
MAIL ORDER: PAYMENT BY CHEQUE, P.O., VISA OR ACCESS

24 HR CREDIT CARD SERVICE



ATARI

64



The Gates of Apschai loom before you. Many adventurers have stood here and pondered their fate. Will you plunder the grand treasures of the Apschai priests? And live to learn the secret of the Sphinx? Did the wily Innkeeper wheedle his profit from your meagre purse? Or do you go forth equipped with the finest swords and armour leaving him muttering oaths and swearing you stole the food from the mouths of his babies?

Once inside the Temple you know why the Legends of Apschai

speak of Magic. You will need more than a character of strength and intelligence and the keen nose of intuition to overcome the evil and power of the Curse of Ra. The monsters roam about — Zombies, Ghouls and the terrifying minions of Apschai the Insect God, Giant mosquitos, wasps, ants and beetles suddenly attack, biting and clawing. This my friend is adventure — classic adventure from the Dungeon Masters at Epyx. Welcome to the Temple of Apschai Trilogy...you're just in time for lunch!

# THE TEMPLE OF APSCHAI TRILOGY

- ▶ The Complete Temple of Apschai Trilogy: Temple of Apschai, The Upper Reaches of Apschai and The Curse of Ra.
- ▶ 12 Levels, 568 Rooms With 37 Terrifying Monsters!
- ▶ New Graphics, Enhanced Sounds, Faster Play! ▶ One Player.
- ▶ Classic Cast of Characters — The Innkeeper, The Dwarf, The Magic User and The Cleric and more!



8 Screens from Commodore 64 version of game

U.S. GOLD  
ATARI  
EPYX  
COMPUTER SOFTWARE