

# POPULAR **Computing** WEEKLY

Only 50p.

4-10 December 1986

Vol 5 No 49

## Spectrum Plus 2: loading problems?

Details - page 7

### FEATURES

Your last chance to  
enter the 1986  
Readers' Poll

Atari Christmas Show  
- full report

Role playing on the ST  
with Phantasie - p31



## GAUNTLET

From the arcades to your  
micro - the long-awaited  
Gauntlet, from US Gold,  
is now available



Read our full review on page 30

# With monitor, data card £100 of software you can (Until mummy catches you)



With the Amstrad 464 home computer the fun starts as soon as you get it home.

Because unlike many other home computers the 464 comes complete with its own green screen or full colour monitor.

It also comes with a convenient built-in datacard.

And you get £100 worth of software with games like *Harrier Attack* and *Submarine Max*. Not to mention *Ch Manary*.

64K of RAM



means you have plenty of memory to play with. And there are over 200 Amstrad games you can play, many exclusive to Amstrad.

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The kids can learn spelling and arithmetic with software like *Wordburg* and *Happy Numbers*.

While adults will love the way that it helps around the house with budgeting and accounts.



order and  
you can't lose.  
(Itches you.)



To help you make the most of your 464, you can join the Amstrad User Club.

And there are lots of books and magazines devoted to it as well.

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But perhaps the most pleasurable thing about the 464 is the price.

The complete home computer costs just £199 with green screen or £299 with colour monitor.

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Please send me more information.

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AMSTRAD

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formidable foe.



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night is control!



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has a mission  
show you how to  
control the world to  
lead without  
control.



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monsters and legions of enemy beings but they are  
not your only foe in the quest for food, treasure and magic  
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Spectrum

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## DISK

CBM 64128, Amstrad,  
Atari **£14.99**

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**£24.99**



# GAUNTLET™



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# 4-10 December Contents

## HARDWARE ▶

### 15 Citizen LSP-10

The Citizen LSP-10 is a compact dot

matrix printer costing £275. Peter Worlock puts it to the test.



## ◀ SOFTWARE

### 16 Public Domain games

Rounding off our series on public domain software for PC compatibles, Marcus Rowland looks at some more games.

### 19 GameMaker extra

Activision has added two new discs for use with its established GameMaker package. Now you can design your own sports simulations and space scenarios.

### 21 Mini Office II

New on Rom, Database's Mini Office series has a reputation for its sophistication at a very low cost. Duncan Evans checks out the Rom version.

## GAMES ▶

### 22 Arcade Action

Includes this week's Top Twenty.

### 24 Adventure Corner

### 25 Adventure Help

### 27 Reviews

Superior's latest, *Revenant*.

Ocean's old favourite *Donkey Kong* and *Destroyer from Elysia* all included in this week's selection.

### 31 Gauntlet

The arcade sensation has made it on to the micro. John Cook assesses the conversion. And also in colour, *Pleasure* from Strategic Simulations, turns your ST into a role playing machine.



## ◀ PROGRAMMING

### 32 BBC

Create pictures on your telecast screen.

### 32 QL

Using joystick in your own programs.

### 34 Spectrum

A tape head adjustment program from Stuart Mitchell.

### 36 Amstrad CPCs

Ssembler, an assembler/disassembler from Robert Osborne.

### 37 Commodore 64

UPD reaches its climax this week.

### 40 Bytes and Pieces

### 41 Peek and Poke

## REGULARS ▶

### 6 News Desk

### 12 Letters, Puzzle

### 28 Readers' Poll

A second chance to join in the

Popular Readers' Poll and vote for your favourite – and least favourite – products of 1988. We've also got 50 joysticks on offer to entrants.

### 43 Communications

### 45 Soundcheck

### 53 New Releases

### 54 Ziggurat, Hackers

Editor: Christine Ingram News editor: John Latta Features editor: John Cook Technical editor: Duncan Evans Production editor: Michelle Stanbury Subscriptions editor: Christopher Johns Supplements designer: Barbara Hawk Advertisement and Promotions manager: Simon Lupton Reader's Digest advertisement manager: David Owen Advertisement copywriters: Jon Bates, Robert Woodley Classified executive: Susanah King Editorial secretary: Deborah St Denis Advertisement Controller: Gordon Gray Managing editor: Peter Worlock Publishing Director: John Ireland. Published by Spectrum Publications Ltd, 12-13 Little Newport Street, London WC2E 8PP. Tel 01-437 4343 Telex 286275 Fax 01-438 0841 Typeset by Magazine Typesetters, 8 Parcell Court, East Fortune, Addlebury, Henley-on-Thames. Printed by McCorquodale Magazines, Andover, Hampshire. Distributed by J M Distribution, London E9W. Tel 01-274 8911, Telex 281842.  
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ABC

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# 'Poor management' at Commodore claimed

BROCKBATS were flying last week between Commodore UK and its advertising agency Madell Winick Partridge, which accused the computer company of poor management.

The row started after MWP resigned the Commodore account just two months after competing with four other agencies to take Commodore on. In an article in the advertising industry magazine, Campaign, MWP's planning director John Madell said that dealings with Commodore had been marred by late payment and "a singular lack of strategic direction and a idiosyncratic style of management that created a climate of uncertainty".

Commodore's general manager Chris Keady was at



Keady: Bow grapes

first reluctant to reply to the accusations, saying that he didn't think it was "fairful to discuss it at all".

Later last week however, Keady made a statement, "I regret to say that the comments made by John Madell appear to reflect nothing but

sour grapes. I understand it has been reported that only a small proportion of their creative work has been used and that the company's promotional emphasis has shifted in favour of below-the-line work."

"Without wishing to comment openly concerning their input to our projected Amiga business advertising campaign, I would say that we were forced to move this part of our promotion elsewhere."

Commodore's public relations company, Harward Marketing, also said in respect of the allegations of bad management: "Our total dealings with Commodore management reflects the position of a company with a range of outstanding business and consumer products backed by

positive direction."

Meanwhile, on slightly less controversial topics, Keady announced that since Commodore began its promotional offers on the Amiga, the machine has been selling "like a hot out of hell - we've probably sold more in the last month than in the previous six put together".

He also confirmed that Sinclair, the IBM emulator for the Amiga, would be released in the UK: "And I am highly optimistic that it will be here by the end of the year."

Commodore has now cut the price of the Amiga to £1,170 for a 256K machine. This is roughly in line with the price offered to existing Commodore users in the "special offer".

## Intel slammed over marketing masterplan

GRIFF has come the way of Intel, manufacturer of the chips that launched the IBM PC and untold numbers of compatibles. Marketing High Technology, an insider's view, by William Davidson, one-time vice president (marketing) at Intel, may not be altogether bad news, but the review in the Economist is.

In the 80285 processor IBM "poked not just the wrong family of microproces-

sors... but the wrong Intel one... Crushing the competition is the name of the game - especially if all you have to offer is an inferior device... Intel took its misuses in performance and turned them into marketing ploys. It's impossible now to realize that, no matter how inadequate the device was, the physical component represented only a fraction of the actual product.... Oh dear....

## Lee's comeback

FRANCIS Lee, the man who didn't quite bring us Star Trek during his tenure as Beyond's publisher, has resurfaced as managing director of Starlight Software, a new company spawning out of Aristocraft's London offices.

Lee has set up Starlight to produce "top quality software on both 8- and 16-bit machines," and has signed an exclusive European distribution licence with Aristo.

Although Lee only left Beyond in September Starlight's first two titles are currently in preparation.

## Storm breaks over Elite's budget label

The budget label 256 Classic, administered by the team which runs Elite Systems, is being discontinued, and allegations of contract breaking by third party licensors.

The label was set up by Foundry Business Systems, from the same premises as Elite, to release back catalogue product from a number of independent companies at £1.99.

Microsphere's *Sharders*, Duffell's *Scotch Ope* and Helcom's *Fuf Fuffe* all achieved chart success for a second time as part of the 256 Classic label.

Elite boss Steve Wilson is reported to have claimed that managerial staff were not available to cope with the extra work involved in the 256 Classic range.

However, two of the companies which licensed games to 256 Classics have stated that they have taken legal

action against the company.

"We made three of our titles available to 256 Classics in the understanding that they would be released within six months," said Luke Andrews of Verdes. "One, *Parade* (see June), was released, but the other two were not. We have issued a summons and it is now in the hands of our solicitors.

Additionally, I was not aware that we had been dealing with Foundry Business Systems - I had thought the label was part of Elite."

CP Software's Chris Whittington, whose share title, among others, was taken up by 256 Classics, said, "We have taken out a writ against Foundry Business Systems for alleged non-payment of royalties."

Steve Wilson of Elite and Foundry Business Systems was not available for comment as *Popular* went to press.



Lee: Seen the Starlight

## Spectrum Plus 2 loading problems?

The 'performance defect' found in the Spectrum Plus 2 by *Games* quality control department (see last week's issue) may not have been as widespread as was first thought. *News* and *Amstrad* remain tight-lipped on the subject, with *Amstrad* still denying all knowledge of the problem, but several W H Smith stores (with) experienced particularly high return rates on the machine.

*Books*' first models had trouble with poorly-aligned reading heads, but although this has been fixed the machine still lacks volume

control and an external tape port, so a prog problem can't be cured by adjustment.

Various other problems have been reported. The machine's non-standard joystick ports have been reported with many of the games currently on the market, which use Kempston protocols. *Books* is dealing with this by loading a Kempston interface with the machine.

Other problems reported include a drifting TV signal and incompatibility with peripherals, but it's not yet clear whether or not these are widespread.

## Uridium 'clone' puzzle

HEWSON Software is considering action over the marked resemblance between Audio-Genic's *Pygastria* and Hewson's *Uridium*. Andrew Hewson says he's aware that the two look similar, but won't comment on the matter.

It's not, however, clear if Hewson has any case, as the two products are differently coded. Any action would, therefore, have to be based on style line and/or screen design, and as yet there's no legal precedent for this in the software industry.

"Andrew Hewson did con-

tact us," says Audio-Genic managing director Martin Maynard, "and suggested that he was going to come up and visit us. We wrote to him and asked him to define what there was within the program that he thought was copyright infringement and he's been unable to come up with anything."

Maynard feels that *Pygastria* is simply the latest in a long line of shoot 'em up games, with scrolling backgrounds, and that *Uridium* is as much based on preceding titles as it is.

## Software Hotlines

Since the advent of home computers and games machines, the coin-op makers have had a lot of trouble on their hands keeping ahead of the competition. One way to keep the punters flooding in was to use expensive 'art-in' cabinets such as *Star Wars* or *Disc of Duat* to heighten the tension... and these have gradually evolved into games such as *Hang-On* (which has you actually leaning a bike over to control your on-screen image) and *Space Invader* (hydraulically operated seat that responds to the movement of your joystick). You can now add *Konami's* *WPC* (or *Mega 24*) to that list, sensation-seekers, a sit-down coin-op that is said to leave all the others standing - literally. A single-screen motor racing simulator, this will fling you from side to side, bump you up and down as you escape the kerb, the works.

It's already set the arcade trade alight, so expect it to make an appearance in your arcades soon. But what's going to be silly enough to try and do a Spectrum version, I wonder?

Certainly not *The Edge*! (see - for top parable a bunch of human beings. They are just about to release *Palmer*, a game written for them by Charles Goodwin, heavily involved with such Virgin hits as *Streptococ*.



Palmer

*Palmer* may look rather like any other 3-D perspective view-the-world job, but has a novel aspect in that much of the game involves around your Servo Class C27 robot programming various Intra-Class Mark 3 robots scattered around the place, using a 'mini logic'.

Sounds like it has enough originality to warrant a look. Out soon on Amstrad, £8.95 (paper) £14.95 (disc).

An last - an Amstrad clone for home micros. This brilliant *Breakout* variant hit the arcades about six months back. Like *Breakout*, you have a paddle and must rebound a ball against a wall, knocking out bricks as you do so (the original was designed by Apple founder Steve Wozniak, you know). *Arctania* carries this format on, but the walls have many different shapes, 'falls' can be collected that give you extra powers and monsters appear from time to time and generally get in the way.

Now *CRL* is producing a game which looks like it contains many of the same elements. Called *Ball Breaker*, it should be out in the New Year on Amstrad, Commodore 64 and Spectrum, priced £7.95 (paper) and £14.95 (disc). *Knockout*.

John Cook

## Acorn pulls off masterstroke



Compact: Beat off rivals

ACORN has won an order worth nearly £1 million to supply Master Compact and Master 128 machines to Poland.

The 1500 Master Compact and 300 Master 128s, plus disc drives and monitors are going to PZG, a miners' co-operative organisation in the industrial area of Katowice. Acorn is also selling software for the machines to PZG - these will include games, education and utility programs for the machines.

According to Acorn, Maynard and Commodore also competed for the contract.



Mega 24



Clough plans cup run

# Elite makes a comeback on BBCs

AFTER two years of relative neglect Acornsoft redirected its attention to Elite, the one under the auspices of Superior Software.

Superior teamed up with Acornsoft prior to the launch of the Master Compact to develop software for the machine, but Elite is now to be offered on the Master, Electron, 8600 second processor, Master Turbo and the BBC B. The Mutation program is an improvement on the version Acornsoft released

for Christmas 1984. Elite has been one of



New look Electron Elite

Acorn's more spectacular missed opportunities. The company launched the program in autumn 1984, but showed no sign of wanting to release it on any machines other than the BBC B and the Electron.

Frontier filled the gap, buying up the rights for the Spectrum and Amstrad among others (an Apple II version is sold in the US) and although this cost a substantial sum Elite remains Frontier's most successful title.

## CDS is over the moon with Brian Clough's Football Fortunes

EDG's latest release represents a departure for the company — a computer-assisted board game entitled Brian Clough's Football Fortunes.

The game is something of a cross between Monopoly and Football Manager.

Your playing pieces move around the non-computerised board, where you can buy and sell players, accept sponsorships, look out the wages, and so on, while the computer works out the match results and league tables.

Computer-assisted board games haven't traditionally been successful, but Fortunes is well designed, and could well break the mould.

Although Clough, the manager of Nottingham Forest for the past twelve years, has lent his name to the program he took no part in its design, which was done entirely within EDG.

Brian Clough's Football Fortunes goes on sale in the middle of January, and will be available for the Commodore 64, Atari 8-bits, Amstrad CPC and PCW and BBC/Electron at £14.95 cassette and £17.95 disc, and £24.95 on PC compatibles, Apple II and Atari ST.

## Free Microfair tickets

There are 24 Microfair will be something of a double celebration — not only is it the Christmas show, but also the 21st Microfair.

It will take place at the Horticultural Hall, in London SW1, near Victoria Station.

Normal entry price is £2, but Popular Computing Monthly has 200 tickets to give away to readers.

If you would like free Microfair tickets, simply send off to Microfair about 1000, Popular Computing Monthly, 12-13 Little Newport Street, London WC2H 7PP, enclosing your name and address on a blank

envelope. You do not need to put a stamp on the envelope addressed to yourself.

No more than two tickets per person please, and they will be sent out on a first

come, first served basis.

Time is short, so please make sure your application reaches us by Tuesday, December 9, to ensure we can get them to you in time.



You too could be there . . .

## Footnotes

Y2K can always tell when a company has fallen into the clutches of a certain kind of PR company. Various gossips you've made heard of year leaping out, calling for inquiries, swivelling on about what they had for breakfast and so on.

Step forward Steven Bell, newly installed managing director of Manpower's UK arm. In one short week he's said how happy he is to have set up the company HQ next door to his was it 20 miles away from Charles and DL, and he's leaped out at the "stoddy profusion" of the soft-

ware industry is leaving today.

The problem is that there are too many software houses around who are apparently working on the assumption that end users have IDs less than orange-outings. "What does he mean? Do you know anybody who has an orange-outing? Who are these software houses who think more owners have orange-outings? Whatever, Bell doesn't seem to realise there is an orange-outing market out there.

Smaller user clearly has an idea what the public wants, although if it's model tanks one wonders why they're reading computer magazines.

The mag's recent "Win & Task" competition asks you to name the two American tanks named after generals. They question this, but we reckon the answer is Patton and Grant, and the other two are named after Sir Alfred Sherman, the well-known monetary realist, and Francis Lee, the well-known amicable departure.

Tony UK meanwhile has an eye for the odd creative mispelling. Jet Set Willie is said to die out soon for the European magazine Harvey Smith Shovelhammer. The latter is no doubt related to the reference to the "Gallop" chassis in the same announcement.



## Atari comes out shooting

PERHAPS it isn't surprising that computer shows take on the character of computer owners.

The range is enormous - from the cheap and cheerful ZX Spectrum, through the very middle of the road Amstrad shows, to the solid and worthy respectability of Acorn users.

Atari shows, however, are for hardbangers, and last week's event in London was no exception. Immediately inside the door you were bombarded by images of living aliens, scorching lasers, roaring Formula 1 engines, and swooping Ninja warriors, all to appropriate screaming sound effects.

To cap it all, the show organisers saw fit to broadcast the residents of Christmas cards while a robot clad in red suit and white whiskers went AWOL from Santa's Grotto and banged up and down the aisle, moving

down innocent bystanders.

The impression may be unfortunate, given Atari's efforts to leave this image behind. Perhaps it's only because the company decided to emphasise "entertainment" in its pre-Christmas show.

Or it may signify a shift in policy, due to the recent arrival of some of the men who took a business computing company like Commodore and turned it into the world's leading manufacturer of entertainment computers.

On the Atari stand itself there were STs running a communications demo, a playing MUZZ, there were old 2866 games cassette running old 2866 games like *Demolition*, *Star Masters* and *Pole Position*.

There were brand new 7800 games consoles running old 2800 games. The only obviously new software was *Archie* - but darned

good it was. Software that takes advantage of the 7800's facilities may take a while to arrive but it should be worth waiting for.

On the Microsoft stand the Harry Hat himself demonstrated his role as headbanger par excellence, showing off *Colossus* to excellent effect while the tunes of Jean Michel Jarre (attempted) to bring the stand down around his ears.

But it wasn't all like this. Hidden away among the horde of joystick thrashers and keyboard bashers were a few gems.

On the Atari stand itself could be seen the outstanding ST version of SubLogic's *Flight Simulator II*. In addition to the incredible graphics, and a number of advanced features like autopilot modes, the ST implementation allows you to hook two STs together and enjoy a two-player dogfight.

Microsoft demoed something called *Jeopardy* into the Lark. You take the ST soft-

ware, officially licensed version of the movie. It's just another kick-'em-around game, but the graphics and animation are worth seeing.

Perhaps the single most impressive item at the show was Steve Ward's ST software bar which puts just



once and for all, to the idea that the STs are short of software.



ware, the laser disc version of *Dragon's Lair* took everything up to a laser disc player, and away you go.

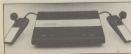
In any location you select an action (*OPEN DOOR*, *RIGHT DRAGON*), and the ST displays the appropriate sequence of animation from the laser disc. The end result is an adventure game with the animated graphics of the arcade game.

For the £99 price tag, you get the ST software and a copy of the *Dragon's Lair* laser disc. Of course, you need to shell out £500-plus on the disc player as well.

Also on the Microsoft stand was *Keith Kid II* - the

On the down side of the show a couple of items caught the eye. First, ST owners should watch software pricing. Some companies appear to be selling US imports at prices anything up to £16 over the odds. One company was asking more than £40 for an infotainment game that *Silve Shop* is selling for £29.

Second, the much-talked-about, long-awaited MacEmulation was on sale at the Petrus stand. However, the company was unable to show it working and could not supply one for review. Until you've read a full review, you may want to hold on to your money. **Peter Worlock**



## DIARY DATES DECEMBER

13 December

### 21st ZX Microfair

Special Microfair hall, London D1  
**Details:** Premier show for the ZX community. Add-ons, software, first a free stall.  
**Price:** £2  
**Organiser:** Mike Johnston, 81-881 9472

## JANUARY

5-11 January

### 9th Official Amstrad Computer Show

Novello, Manchester, London W6  
**Details:** The year ticks off with the first of an ever increasing series of Amstrad shows. Hardware, software, it works for CPUs and PCs, will each appear for the PC to be repeated.  
**Price:** £1 adult, £1 children, £1 discount for advance booking  
**Organiser:** Database Exhibitors, 261-458 8835

## FEBRUARY

17-23 February

### Which Computer? Show

MCC, Birmingham  
**Details:** Mainly business exhibitors, includes Commodore, and low cost PC clones  
**Price:** £5  
**Organiser:** Careers Exhibitors, 81-881 5811

26-28 February

### The Atari Computer Show

Southern, London W6  
**Details:** First chance for Atari to show off the exciting new strategy it's already working on.  
**Price:** £1 adult, £1 children, £1 discount for advance booking  
**Organiser:** Database Exhibitors, 261-458 8835

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organisers before attending. Popular Computing Weekly cannot accept responsibility for any alterations to show arrangements made by the organisers.



## Budget suite from Psion . . .

PSION is joining the low-cost PC software producers with PC-Four, a suite of business programs based on its Xchange package, but priced at £55.

The four programs included are PC-Goal (word processor), PC-Analyze (database), PC-Access (finance planning) and PC-Base (business graphics).

While these are the same titles as the programs included in Xchange (and developments from Psion's suite of programs supplied free with the DLE), Psion has removed facilities such as networking and multiple task handling to keep the price down.

Details from Psion at Psion House, Harcourt Street, London W1M 1DT.

## Ceefax-based programming

BBC owners will be able to create their own programs using information from Ceefax, with a new series of programs from BBC Teletextware. Starting in February next year, these programs are free to anyone with a BBC and relevant adapter.

The aim is to provide the techniques of using Ceefax information as data within Basic programs.

Details from Jeremy Bradshaw, Teletextware Organizer, BBC Enterprises, Room A3060, Woodlands, Wood Lane, London W12 0TT. Tel: 01-878 0883.

## ST business graphics pack

ELUMA has enhanced its K-Graph business graphics package for the Atari ST with the release of K-Graph 2, a new version of the company's successful business graphics program.

The new package allows users to produce charts and graphs making use of Gem's windows and pull-down menus. It allows up to four graphs, each showing different data to be displayed simultaneously. The package's main new features are matrix and trig functions, a save graph function, print resume datasets, statistics and graphs and variable x and y ranges.

Both this and the original version featured advanced printing options, selective screen dumps, enlargement and reduction and automatic scaling of graphs and charts.

The new package costs £48.95, and owners of the old version can upgrade for £10.

Details from Kuma, 11 Horsehoe Park, Pangbourne, Berks RG8 7JW. Tel: 0781 4325.

## . . . and more from Compsort

COMPSORT'S budget range for the Amstrad PC1512 is now available through First Software. The range comprises versions of Compsort's full price professional packages, with most of the features intact.

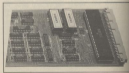
These include Budget Data 4 database at £99.95, and Delagraph, a company graphics program at £55.95.

Details from First Software at Unit 7, Wade Road, Dagenham, Essex R62H 0N6.

## Domark launches trial by trivia

AFTER an apparon PCW software search Domark has filled the Deatch with a conversion of its new hit, *Trivial Pursuit*.

The game is a faithful reproduction of the original featuring high resolution display and adding music questions to the original, although the PCW's basic sound facilities make this make that you might expect. It costs £79.95.



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**Midi Interface**



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A full size 3 octave polyphonic keyboard containing a sophisticated and very unusual control panel suitable for a wide range of uses  
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# Peripheral Power

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Simple joystick adaptor for connecting 2 joystick +2 computers for play  
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**56 Way Extension Connector**



Cheats' 56 way extension cable enables Spectrum computers to be obtained for from your computer  
**£7.95**

**Aerial Splitter**



Cheats' 56 way aerial and coil cable with self adhesive pad allows you to hang your T.V. and computer aerial leads plugged without disturbing the picture.  
**£2.25**

**Spectrum 128 / +2 to Midi Lead**



Midi control lead for Spectrum 128K +2 computer  
**£9.75**

**Split Extension Connector**



enables 1 Spectrum or Amstrad peripheral to be connected to the computer bus  
**SPECTRUM AMSTRAD**  
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## The interface question

The Interface One with microdrives and the Plus 2 Spectrum really go together? Overcome by the vision of a home main with Sinclair logo over a handsome keyboard, I bought a Plus 2 and this was my first concern. The reviews about one it and the question perplexing the elephant in love with the mouse - how? - is not attempted.

The manual is cut (three lines on page 201), saying, "The Interface One and microdrives are connected to the expansion I/O socket at the rear of the Plus 2." Unlike of course "You have to connect them and have you do it is your problem. No reference is made to the radically altered physique of the Plus 2 as against its forerunners.

The wedge-shaped Interface One was pulled back on to and under the old Spectrum while two protruding captive screws reached up and through to the PCB mountings, holding the interface firm against edge connector boards.

If you choose to connect the Plus 2 in the same way, you will need to remove these screws to allow a snug fit as there is no provision for removing these or any screws through the base of the Plus 2. This is casual done by supporting top and bottom housings of the interface. The front left rubber feet of the

Plus 2 must be removed for the same reason. This is a push-in gimmick and can be pulled out intact. The I/O port connection is made simply enough by pushing the I/O on to the edge connector without clearance problems. For instance:

You may, however, have the large Plus 2 joined connectors over the smaller interface secured only by the edge connector itself. This is an invitation to the wobbles fit to be set to music by Weber. In the event, sticking strips of Blu-Tack around the edges of the interface abutting against the Plus 2 and building up a vertical boss at the Datacorder end of the computer give a perfectly stable assembly. Unfortunately, microdrives one now obstruct the Joystick ports at the left edge of the micro.

The obvious alternative is a full-size extension cable from the rear port to Interface One. This means another edge connection and the threat of spaghetti spread. However, I have settled for this in the meantime with a Datacorder cable for £10 from High Voltage.

And the wobble? The Plus 2 does indeed work fully with the microdrives in both 48 and 128K modes, and the speed is a true relief in comparison with the built in tape recorder.

But... there is an irritating delay needed for warming up. An switch on from cold there is no response to micro-

drive commands. The drive whirrs around in dumb sleep. Leave the computer switched on and try again in ten less than half an hour and response has become normal. In contrast, direct entry and tape operations work instantly on start up.

I have not been able to confirm if the fault is general or unique to my Plus 2.

Interface and drives will work perfectly with my old Spectrum. The condition, if incurable, is a great pity because this is otherwise a very good machine, perhaps the best value in new machines for this kind of money and a refusal to work with microdrives I would be grateful for any suggestions readers may have to bring my microdrives in from the cold.

George Wizzard  
Coventry

## Reset routines

After reading Peck and Pike in *Popular* a couple of weeks back I noticed you gave someone instructions on how to fit a reset button on a Commodore 64. I have used one of these buttons for a very long time, and have found the following routine very useful for getting a Basic program back after a New or a Reset.

Clear the screen, enter the code below exactly, making sure it starts from the top left hand corner, and then type SYS1024 (Return).

```
PRINT CHR$(15);CHR$(15);CHR$(15);CHR$(15)
```

You should now find you have your Basic program back, all intact and working.

To keep the routine in memory, repeat the first two steps above, then

```
FOR I=10200 TO 10200:POKE I,15:NEXT I (Return)
```

Then SYS10200 will run the routine.

Simon Hall  
Dartford

## Readers respond

With reference to the letter from HPM Keegan, published in *Popular*, November 30, regarding printing with a QL and Serial 8055 printer, enter the following commands directly:

```
Open 1000  
Open 01,ser 1  
ser 01
```

This will enable a program to be printed on to the printer. After modifying the program, or listing again, just enter the Ctrl command. To list specific lines of a program, enter List #0, 20, 100, 120 (whatever lines you need).

To print variables from within a program you would need the Read statement, and an Open # line number between three and 15, though to this being set initially by the QL, but they can

# Puzzle

## Puzzle No. 236

When Professor One Two purchased a ticket for the Sixties, he was quite optimistic that he had the winning ticket.

"The serial number on the ticket is 921217," he observed, "and this number is equal to the sum of the fifth powers of each of its digits. He passed down the calculator and checked that this was indeed the case.

$$9^5 + 2^5 + 1^5 + 2^5 + 1^5 + 7^5 = 921217$$

The professor's keen mathematical mind had noticed not the peculiarity, and he was convinced that this was a good omen. Admittedly this was the case, can you find any other five-digit numbers that also follow the rule?

## Solution to Puzzle No. 231

Answers After Christmas Day 1986, all four

names will not meet until 15th March 1990.

In the program, the number of days in each month is held in the array M(12), Line 40 gives the starting values of the variables. GTE is the day of the month, GLE is the day of the week (Sunday = 1 to Saturday = 7), and C is the eight-day cycle which governs Dr Clark's visits.

The conditions governing each member's attendance are checked in lines 50 to 80. When all conditions are favourable the date is printed out.

Finally, lines 100 to 180 increment each of the 'cycles' independently.

## Winner of Puzzle No. 230

The winner this week is Peter Thorneycroft of Bexleyheath. Kent who will be receiving £10.

## Rules

The closing date for Puzzle 236 is December 22nd. Answers on a postcard please.

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be used).

To print, **Alt+F2**, **Alt**, **Alt**, for example would print whatever value was held by **Alt** and **Alt**.

With regard to the other problem of not being able to print with three of the Pascal programs, I presume Mr/Ms Keegan ran the program **3-act1**, **act** to set up the printer for the QL, the same needs to be done for the **Abacus** and **Alphavice** cartridges, as follows:

**COPY** **act1**, **printer**, **act** to **act2**, **printer**, **act**

with the Quill cartridge in the left drive and **Alphavice** or **Abacus** in the right drive. If it says that the file already exists, enter **Enter** **act2**, **printer**, **act** (without removing any cartridges) and do the Copy again. Most unfortunately requires graphics being printed which can't be done. The QL manual suggests photographing the screen!

**R S Simpson**  
**Ashtbury**

Thanks to Kenneth Ross, M H Mottram, George Watson, John Turner and Neal Card, who also wrote in to rescue MFM Keegan - all your letters have been forwarded to him/her.



## BBC not forgotten

In your Games reviews, 11 November 13, you clearly stated that "BBC owners - at least as far as games playing goes - are almost a forgotten breed these days." This is not true.

There are loads of great games around for the BBC, now: **Wrest**, **Parrot**, **Robot**, **Green Beret**, **Gladius** and **Golden Axe**, **Sea Master**, **Airwolf**, **Millie**, **Scorcher** and many others (too numerous to mention).

Any game that is good always gets converted to BBC.

**James Oliver**  
**Sunderland**

## Parrotting about piracy

Further to Robert Baker's letter in *Popular*, October 30, may I just add that if Amstrad feels so strongly about tape piracy, then what on earth is it doing selling audio equipment with two cassette decks, obviously meant for copying tapes?

**Al Fike**  
**North Yorks**

## Small consolation

In your October 23 issue you carried an article on the Sega Master system, claiming that it could spell the end for the humble 8-bit home computer. How can you possibly make this consolation? The system offers no facilities not available on existing home micros, and is no cheaper.

Your main point of interest seemed to be the system's video chip, which you described as "An outstanding asset" - only the Commodore 64 comes anywhere near this standard!

Well, truly the graphics in your screen shots didn't look at all impressive anyway, and secondly, on reading your description I was surprised to find that you were reeling off the exact specifications of the old MSX video one-chip chip, with the exception of the 32 colour palette.

Think I'm over? Well I might surprise you to know that Degeto make MSX computers, although they're not sold here, and of course with 256 sprites, 32 on screen at once in four different sizes, the MSX computers do indeed beat the Commodore.

Also you mentioned the choice of cartridges or disks, which again normal MSX computers have, including cartridges with 128K Ram.

So in short, far from being a superior games machine, the Sega appears to be a fairly average machine with none of the advantages of a normal home computer. Unless the other game consoles being released can do considerably better, it's hard to see any "threat to the home micro industry as we know it".

**Stephen Sheehan**  
**Woking**

The games consoles will be priced at around £90, which is considerably cheaper than any home computer currently being manufactured. At that price and with cartridge costs coming down, they could well appeal to the games players now using 8-bit micros.

## Oric bytes back

It seems there has been a large quantity of people writing in to *Popular Computing Weekly* in recent issues, singing the praises of the Oric 4 micro, and lamenting the lack of a good distributor or support for their systems.

I would be grateful if you would bring to the attention of your readership the fact the Byte Drive 500 class systems for the Oric (48K models only) are now back on the market at £159.50 (around half the original price), including disc interface, 3 inch disc drive and power supply, together with the very latest version of Byte Drive DOS which brings the standard of the Oric's Basic almost to a par with the BBC Micro in terms of flexibility and facilities, including ten programmable function keys, random access disc files, **Hitler** loops, text windows, command abbreviation facilities and much more, whilst taking up less space than the original Byte Drive DOS. Up to four disc drives of any type described as BBC-compatible (including 3 inch and 5 1/4 inch types) are supported.

If any users are interested for if there are any Byte Drive 500 users who have not yet been in contact, please would they write to BDUJ at the address below - the users group has been running well over a year now and provides enthusiastic and well-organised support for the system.

**Jeremy Robbins**  
**Byte Drive Users Group**  
**Arley House**  
**Ormsley Road**  
**Sunningdale**  
**Berkshire SL5 8BA**

## Fair warning

A warning to Commodore 64/65/67 printer owners. There is a new-style printer ribbon currently on sale. This is easily distinguished by the lack of an inkler set into the bottom of the cassette.

The new ribbon cartridge is based on the typewriter and is strammed with pre-linked ribbon which is great when the typewriter print head disengages with some force, but is useless in a dot matrix printer, the resulting print being grey, almost unreadable text. I have tried out several of the new-style ribbons, all with the same result.

The original 64/65/67 cassette contains a short loop of ribbon which is heavily used with each revolution.

**J Holmes**  
**Glasgow**

## Confused by QL cables

The QL supplement in September contained an advertisement by WD Software for an extension cable to connect ZX Microdrives to the QL.

The QL User Guide states that ZX Microdrives are incompatible. Can you comment, please?

**R Clive**  
**Leamington**

According to WD Software, nine out of ten ZX Microdrives will work OK on the QL with its cable. WD says it will refund customers' money if they buy the cable and then discover that it doesn't work.



# An honourable Citizen

Peter Worlock finds the Citizen LSP 10 to be a reliable new printer

**N**ot so long ago, the main problem facing anyone who wanted a printer was how to raise the money to buy one. Especially for home computer users, since most printers cost more than the computer itself.

Now, however, the problem is how to choose one make and model from the many available. Prices have fallen as quickly as print quality has risen.

Although few printer manufacturers are household names, Citizen is probably among the lesser known names after the likes of Epson, Star and Brother. But the company has built a reputation for quality and value in the past year or so.

Among its current line of printers is the LSP 10, a medium-priced model with features that put it well up among the higher-priced competition.

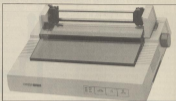
## Features

Construction is to a very high standard in splash-soft white, and the dimensions have been kept small – 15in wide, 10in deep, and a mere 3 1/2in high.

The print-head is a non-pin model, giving characters of 9 x 11 dots in normal mode, and 17 x 17 dots in NLQ (Near Letter Quality) mode.

Print speeds are reasonable – 120 cps in normal mode, 35 cps in NLQ. Noise levels are also acceptable, although in graphics mode, the printer seems to cough a little. Most dot-matrix printers suffer the same fault, however.

As far as the major base of printer users is concerned – dip switch settings – Citizen has taken the middle line,



A powerful and solid unit

putting the switches into a small niche under the print-head cover bar. This is

**Printing in bold gives a nice effect, underlining is neat, and when combined with italics it produces this sort of correspondence.**

more convenient than the old Epson method which involved dismantling the entire printer to change a switch, but not as handy as having the switches on the outside of the printer casing.

The LSP 10 can operate in two modes – selected by dip switch – emulating either an Epson or an IBM Pro Printer.

All other standard features are supported, including emphasised, double strike, italic, expanded and condensed print modes, multiple-density graphics, and downloadable character sets.

An optional tractor feed is included in the package, as are paper guides for single-sheet feed.

The printer comes fitted with a Centronics-style parallel interface. Optional facilities – at extra cost, naturally – include an RS232 interface at £54, and a multiple sheet feeder at £56.

Finally, the documentation is well-written and comprehensive, with lots of examples and a handy, tear-out reference guide to control codes.

## Conclusion

The LSP 10 is a well-made machine with features that push it firmly into the mid-range of current printers. However, at the price it represents good value for money in the very comprehensive area.

It's probably not as expensive – and less powerful – for the job of clearing out your program listings, but is ideal for heavy-duty word processing and graphics use.

The standard of construction holds out the promise of good reliability, and something to note in this respect – Citizen offers a two-year warranty on its printers, which should do a lot for your peace of mind.

Peter Worlock



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# Of worms and bouncing babies

Marcus Rowland completes his three-part series on public domain software

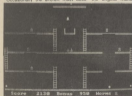
Two weeks ago we looked at public domain software games. Here are the rest of them. *Willy the Worm* probably needs about 128K, plus a graphics display. Registration is \$10, no benefits are specified (PCBBUK Vol 241).

*Bouncing Babies* by Dave Baskin is an irresistibly sick idea that has often appeared as a stocking-filler electronic game. A building is on fire, and two attendants have to manoeuvre a trampoline to bounce an endless stream of babies into an ambulance. As the game progresses the number of babies in the air increases. The left and right cursor keys, or keys 1-3, are the only controls, shifting the trampoline to three points between the building and the ambulance. The colour graphics are excellent, and the game is extremely fast.

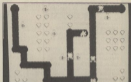
*Bouncing Babies* needs 128K and colour. Registration is \$5, no benefits are specified (PCBBUK Vol 44).

*Flightmaster* (by Peter Adams) is an interesting rog game. The scenario is roughly similar to *Afterburn*: one of the last enclaves of civilization, and aircraft factory, is under attack by hordes of marauding barbarians. The player controls a fighter plane, first in a strategic mode (using the cursor keys to fly to meet the most threatening enemy), then in a difficult tactical mode. This presents two views of the aircraft, one from above and one from the side. Flying from view to fast across the screen, the normal control keys move the aircraft up and down and backwards and forwards, the left-hand alphabet keys move the aircraft North or South (left or right from the pilot's point of view). To attack, the plane must be directly behind the enemy; the ground undulates, making it hard to hit and easy to crash. Collisions with other aircraft or the ground wreck the plane.

Occasionally the aircraft must dock



Willy the Worm squirming on platforms



"Zaxxon"

with a blimp to take on fuel and ammunition. Attackers include bikers, aircraft and trucks, plus a heat seeking missile that can't be stacked, although it's possible to stick it into flying into the ground.

The program makes fairly effective use of colour graphics for an IBM or composite monitor. The concept and execution of this game are good, but there are a few flaws, notably in the author's spelling (in titles and scores messages), the poor graphics of the strategic screen, and in the fact that it doesn't seem to be possible to leave the tactical screen and reappear with the blimp if you run out of ammunition.

This is also the only game to crash (in every sense) if *Softdisk* was activated while it was running.

*Flightmaster* needs 128K and colour (composite or RGB). The author asks for donations of \$5-\$50, no benefits are specified (PCBBUK Vol 160).

*Zaxxon* (by Segal) is a genuine public domain version of the arcade game, by the original manufacturer. It seems

to have all the features of other (single) titles in the collection, including 3D graphics, but doesn't have scores. It accepts joystick or keyboard control, and joystick use is strongly advised. Play proceeds in the usual waves of ascending difficulty, and is reasonably fast (though 8-bit versions I've seen have been fast-

er). *Zaxxon* needs colour, but there are no indications of minimum memory or other limitations. (PCBBUK Volume 126.)

*Spacewar* (by Ed Sella) is a one or two player version of the program that originally introduced computers to spaceship games, and directly inspired *Asteroid*. Two ships orbit around an *Asteroid*-style screen, attacking each other with lasers and photon torpedoes. Their equipment includes force fields, invisibility screens, and a random-jump function.

*Options* let you put a planet at the centre of the screen, turn gravity on or off, and have either ship controlled by the computer. The main charm of this game is its use of Newtonian physics; torpedoes go into orbit when fired, and if you don't take care to change your path they'll whip round the planet and hit you several seconds later.

The game is supplied in two forms: one using a normal IBM colour-graphics card, the other a high-resolution Hercules graphics card. Controls use the left-hand alphabet keys and the right-hand cursor pad; no keyboard problems are likely. This program 'looks out' *Softdisk*, but doesn't harm any files that are in memory.

*Spacewar* needs 128K and a colour board or Hercules-compatible mono graphics card. Registration costs £20 (around £15) and includes the latest revision of the game; for £30 (around £22) the source code is also supplied (PC-80 Volume 282).

All the programs described are available from International Software Distributors Limited, PO Box 872, Sutton Coldfield, West Midlands B75 6LP 021-378 2228, which reports directly from PC-Sig in California. Note that this is a different address from the given previously; this address is correct.



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# The return of the (almost) paperless office

*Duncan Evans plays with the toy not for executives, but for the average computer user at home*

Previously available on disc or cassette, *Mini Office 2* is a Ram-based version that plugs into any BBC master. In fact, if you're going to provide an integrated package, using the instant access that Rams provide is the most sensible and efficient method.

Previously, *Mini Office 2* consists of a circuit board containing four 27256 chips, and a short length of lead plus connector that plugs into a spare Ram socket (you still have one spare, don't you?).

The programs offered are a word processor, database, spreadsheet, business graphics, communications and less, and something of a throwaway item, a label printer.

If you've ever used *Wordwise* then you'll feel at home straight away with the *Mini Office* word processor. It's virtually identical in fact, the only change being cosmetic. Most useful of these is the capability to process in 20, 40 or 80 columns. The disadvantage with the 80 column mode is that you get only 140 lines memory for your text, three pages of 44 to be precise. The 40 column mode is the most efficient as it uses the telebit mode 2, providing over 20K of free memory.

The facilities it offers are pretty standard for a text only word processor and include justification, search and replace, block move and delete, preview option, merge text, automatic wordwrap and the ability to have embedded control commands that can be sent to the printer. All standard fare but essential never the less.

The database has an odd look to it, resembling a cut-down spreadsheet more than

anything else. At the same it boasts 1000 records (enough for most small concerns), up to 20 fields per record, the essential sorting facility and a type of field identifier. The instructions for the database are not quite as clear as they could be and indeed the database itself is not simply laid out. In its defence it is comprehensive and offers calculation facilities as well.

The spreadsheet, like everything else in *Mini Office*, is fairly standard and does everything you'd expect a spreadsheet to do. It provides up to 52 columns by 39 rows with each column being up to 18 characters in size.

Also, the spreadsheet can lock and unlock rows, columns and cells to avoid values and formulas from being overwritten or changed, and allow various mathematical operations beyond "+", "-" and ".". The data from the spreadsheet can be saved and incorporated into the graphics program for displaying in a more attractive manner.

The graphics package is the only part of *Mini Office* which is something of a disappointment. It offers bar charts, line graphs and pie charts.

*"Overall, Mini Office 2 provides a useful suite of functions... it's worth chipping out"*

When displaying the pie chart, although the program allows up to 20 items of data, the ones with the smallest values are cobbled together and displayed under the anonymous banner of 'Others'. The pie chart itself is drawn slowly, as is the movement of the text labelling. When displaying the bar chart the names of items of data are abbreviated to one letter, regardless of however many there are of them and the text labels can only be run horizontally, not vertically which would be of far more use.

For clubs and newsletters the facilities offered by *Graphics* are probably good enough but sensitive types should look elsewhere.

And as to Communications which mainly offers the facility to communicate with Minitel/Telemex. Good. For

enough from Database's point of view but justification on the grounds that it's the most common protocol is plain hogwash. There is an option to customise the protocol used which could be useful for bulletin boards, but not for something like *Protext* (Morrow 800).

Label printing can be regarded as something of a freebie tacked onto the end of the entire package. Having said that, if label printing is where you're at then this is certainly one for you.

Overall *Mini Office 2* provides a useful, if not spectacular, suite of functions. If you really only need one of the programs then it would be better to spend your money on a dedicated Ram, otherwise it's worth checking out the all-round capabilities of *Mini Office*.

**Duncan Evans**

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## Designer games creation

Most computer owners go through a stage of wanting to write marvellous arcade games, finding that Basic is too slow and limiting, and feeling their heads against the wall trying and failing to learn machine code (I know I did). The popular solution is to buy one of the many games design programs on the market, the best of which for the Commodore 64 is Activision's GameMaker.

Written by Gerry Hebel Kitchin, this disc-based package has now been enhanced by the release of two Designer's Library discs - Sports and Space.

The GameMaker program - which of course you will need to use the Designer's Library discs - is a sophisticated menu-driven package which allows you to define sprite shapes, backgrounds, sound effects, and various game parameters such as collision rules, scoring and so on. It's quite possible to build up respectable-looking games which run at machine-code speed, but the process is pretty time-consuming.

The Designer's Library discs



See all that you can do

make things even easier by giving you lots of files of sprites, backgrounds, sound effects and so on, which saves you having to define your own. Each disc contains a number of files which can be loaded into the appropriate section of the GameMaker program, manipulated and improved, then saved as fully functioning games.

The Sports disc, for instance, contains sections of background which can be cut

and pasted together to create baseball diamonds, football (American) fields, basketball courts, billiard tables and so on. The sprite section contains relevant figures such as basketball players (from a variety of angles), golf balls, hockey balls, pool balls - quite a lot of balls in fact.

Also included are stirring theme tunes and plunky sound effects.

The Space disc is altogether more imaginative, with var-

ious spaceships (including a marvellous giant rotating Death Star), backgrounds showing alien planet life and strange machinery, crazy sound effects and so forth.

All the files can be edited using the facilities of GameMaker, which will be fairly familiar if you have seen any similar package; a grid-type sprite designer, a synthesizer-panel sound effects generator, lots of menus to define gameplay and comprehensive save/load facilities.

Most interesting though are the possibilities of combining files from the two existing libraries (more to come, no doubt) to create weird hybrids like footballing aliens or inter-galactic billiards.

Certainly better than struggling to count backwards in hexadecimal, and probably the closest most of us will ever get to writing decent arcade games.

Chris Jenkins

**Programs** GameMaker Designer's Library Sports Commodore 64 Price £14.99 disc only Suppliser Activision, 23 Pond Street, London NW3.

## Basic compiler

Whatever your level of programming expertise, there's a lot to be said for compilers. They often give you the ease of a high-level language combined with a speed close to that of machine code.

Of course, the fastest compiled languages have been designed for compilation - such as Pascal and C.

However, unless you're writing arcade games, or other applications in which speed is crucial, Basic can be adequate and a good compiler can reduce editing pauses to a minimum.

The latest Spectrum compiler has just been released by Hebel and it is impressive.

Many Basic compilers have a number of faults, including the fact that they log on to the end of your program a large chunk of code containing routines required to execute the

program, and they often require you to choose between integer math (fast but limited) or floating point (slow).

Hebel's Basic does only the routines your program needs to run, not a catch-all block of code. And it handles integer or floating point math as appropriate, giving you the best of both worlds.

The compiler itself takes up only about 11K of memory, so on a 64K Spectrum you can compile a 32K program, write on a Spectrum 128 or Plus-2 you can handle a program up to 60K in length.

Using the program is simple. All commands to the compiler are contained in PEM statements in your Basic program. For example, `PEM: OPEN` tells the compiler to begin compilation from that line.

Typing `%C` begins actual compilation.

Compilation times are adequately fast, the size of your compiled code will not be substantially larger than the simple Basic, and speed improvements may range from about three times to hundreds of times as fast.

Most compilers are also restricted in that they cannot handle all Basic commands and syntax. Hebel's Basic is no exception, but its limitations are not major.

It will not support arrays of more than two dimensions, it won't support system commands such as `SAVE`, `LOAD`, etc. and the default structure for graphics commands are not incorporated.

There is a difference, too, in the way it handles computed `GOBUILDS` and `GOTOS`. The target line number must exist, unlike Basic in which the branch will hit the first line number following the target line.

Personally I don't consider this a limitation as computed branches are poor program-

ming practice, but Spectrum programmers may have to change some old programs to accommodate the loss.

There are a few other differences from other compilers. They merely require the addition of an extra compiler instruction. For example, `REM: LEN` allows you to specify the maximum length of a string.

The Hebel's Basic tape comes with two versions of the compiler. A version specifically for the 128 and Plus-2 has some extra features, notably a menu-driven command system.

If you're a committed Basic programmer, but could use some extra speed in your programs Hebel's Basic is an excellent buy.

Peter Workbook

**Programs** Hebel's Basic Hebel's Spectrum 48K, 128K and Plus-2 Price £15.95 Suppliser Hebel, The Old School, Greenfield, Bedford MK45 5DE.







## The weekly adventurer's fix

New ways to write adventures and new places to read about them, from Tony Bridge

A couple of weeks ago, I spoke about a program called *2001: A2* from Microtech and some of you may like to know their address. It's Microtech, The Bedrooms, 88 Whitey Spring, Chesham, Bucks, West Yorkshire WF5 0HG (0834 378234).

In the same corner, I also mentioned *Road*, by David Oya - it may not be immediately obvious that the adventure is initially available for the Amstrad machines.

Both of these adventures were written with *The Gull* and the removal of a powerful extension to that utility is one fact with the release of the Professional Adventure Writer for FM99 and *The Press*, which will allow for text compression. I haven't seen these add-ons yet, but will report as soon as possible.

However, I have seen the latest version of *The Fix* from Kalsoft; it's another add-on for *The Gull*, and briefly, consists of several sub-programs which allow for more complex flag-handling and better synonym recognition.

Possibly *The Fix*'s most interesting feature, however, is that it allows for a further two words to be recognised and acted upon in a single input. *The Fix* has had some success already, but Kalsoft tells me that it has now produced *Minotaur* at just £3, which is as its name suggests a cut-down version and contains just the section which handles the expanded parser. Both versions work with *The Rack* and *Illustrator*.

With both programs comes a demonstration database which displays the kind of effects which can be obtained. Although Kalsoft's *RAM* and *Press* will doubtless prove to be indispensable to serious adventure-writers, I'm sure that they will also set you back quite a hefty sum, so if you want to master your *Gull* adventures look a little different, have a look at *The Fix* from Kalsoft at 28 Casses Street, Stamford, Lincolnshire PE9 1DS.

I'm glad to see that a program I looked at in the November 13 issue, *Adventure*

*Software's* uniquely-named *Adventure*, will now be available to a wider public. It will be renamed as *A. Don's Tale*, a *Handing of the Degree Adventure* and will be released in time for Christmas for just £1.99 on the Players Software label.

In the meantime, Nigel Brooks and his former anonymous colleague Sid Hassan, have re-formed as Smart Egg Software and have been commissioned by Mastertronic to write *Rip's Revenge* using the same system that was respon-

sible for *Hollington Way*, Wigan W93 6LS.

I've just received the latest copy of its sister magazine, *Adventure Probe*, which is also £1 a copy. Co-editor Sandra Stanley reminds me that a 12-month subscription will lower this figure to 70p. These two magazines contain a lot of feedback from readers in the form of articles and a lively Letters page, which is always a good sign.

I quite often mention companies such as this and make no excuse - I feel that it is concerted efforts such as these that keep us adventurers rolling at those difficult games.

And as for solutions, not only are there plenty in the magazine itself, but *Stardoc* also has full solutions for a wide variety of adventures for the primarily sane of title.

Oh dear, I seem to be back on the subject of *Adventure* magazines - while I am, I should also mention *The Adventurers Club* once more. Henry Mueller is gradually getting this one back on the road to relevance once more.

I've just received the new issue, which continues much as it left off with the presence of Honorary President Peter Austin of Level 5 this month listing his personal list of adventures - see what he thinks of the competitors and as much help and advice as always. Of interest to me was the seventh part of the full solution to *Merlin's Quest*. From this, I've found out that the name of the magazine I've acquired in the library clone will be required later to answer the sales robot's question. Apart from this, there is also the third part of the solution to *Land of the Rings*, and the complete solution for *Adventurer*.

Incidentally, Henry tells me (and it has been confirmed elsewhere) that *Rob Walkland's* *Chesham*, probably my favourite 'machine', will soon, alas, be no more. If you are a subscriber to this particular bundle of (almost) regular magazine and correspondence, then drop a line to Mark offering your services and let's see if we can persuade him to change his mind.



able for their previous effort. As you'll know, I was fairly impressed with their debut story, and look forward to the next one. Incidentally, it's a good idea to see that same company at least enquiring from back into the icy waters of tomorrow's adventures, let's hope others follow suit.

While I'm in a 'follow-up' mood, G T Kellard of the aforementioned Kalsoft tells me that he is a member of *Adventure Career* the monthly publication for adventure-writers as much as players and that the cost of each issue has just risen to £1. Still not bad, I think, though this is one of the few such magazines that are actually worth spending this sort of money on: there's a lot of inside information on the GAC and *Gull* fees, from both the editor and from benevolent readers willing to share their hard won knowledge with others.

If you're struggling with one of the adventure-writing utilities, you'll find the *Context* invaluable and required reading. The address, as I've said before, is: 13

**Bolt the Viking.** How do you get past the invisible wall? M Baxter, 180 Newton Place, Newton Aycliffe, Co Durham DL5 8SA.

**Ten Little Indians.** What do you do with the hammer and chisel and how do you open the large wall safe? Geoff Lister, 1 Deepdale Drive, Merston Park, Cantsile, Cumbria CA2 5LS.

**Morden's Quest on Spectrum.** Can't get through invisible barrier or past gladiator. How do I get air to blow to underwater basin? D Brandon, 460 Little Moreton Lane, Sheffield, S Yorkshire S9 8GG.

**Forestland on Commodore 64.** I have found the safety reach - but where is the bow to strike it in? Les Austin, 25 Royal Avenue West, Crickton, Isle of Man.

**The Price of Magic on Spectrum.** How do you command the various monsters in the game? Jason Ross, 2a Balloch View, Scaife, Cumberland, Glasgow G67 1HE.

**Supercorn (Adventis) on Spectrum.** What is the code for Amalgamation? Carl Bowman, 4 Lyndale Grove, Letchford Hall, Preston, Lancs PR5 5XX.

**The Hobbit on Spectrum.** Once you have the ring, where do you go? How do you get past the spiders? Is it important to get past the spiders? Once you of the goblin's cave, where do you go? How do you get out of the dungeon if you have the red key. PS. Does anyone have any information on Jewels of Babylon, especially how to get out of the forest? Shain Allen, Tugubar, Crave Lane, Gt Bourton, Near Banbury, Oxon OX17 1RL.

**Warlord and Morden's Quest on Amstrad CPC464.** In Warlord, what do you do with the Romanian tribal Huns got 87%. What do you do with the slay pot, are, obstacle, raise and the body trapped by the timbers? Is Morden's Quest, need

most words to bribe guards to get out of catacombs. Can't find aqueduct. Can offer help on Red Moon, Message Room Amstrad, Morden of Mars, Jewels of Babylon, Forest of World's End and Sea-Down Castle. Christopher Eng, 14 Annar Road, London SW11 6JA.

**Heroes of Mars on Amstrad.** How do I get past bear, get thorny, get out of dungeon, and what does Morden del Graham Porter, 10 Westfield Drive, Yeovil, Near Leeds, Yorkshire LS20 7AP.

**The Pawn on Atari 520ST.** How do you open the safe and where do I find the key for the door in the ice tower? Sandra King, 10 Hole Farm Way, Haverley, Birmingham B9 9WV.

## Adventure Helpline

Got a problem? 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,

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Problem	_____
Name	_____
Address	_____

and it is us, and a fellow adventure player may be able to help.

Remember - the system only works if those adventures' info have added the puzzle get in touch. Every week in Save An Adventure Today (S.A.A.T.) week!

# Get writing - get Popular

**P**opular Computing Weekly always welcomes contributions from its readers for articles, features, and program listings. Whether you want to write articles, see your programming masterpieces in print, pass on some words of wisdom, or simply let off steam, there's space in the magazine for you.

Ideas for feature articles, or computer articles, should be sent to Christina Eiskins. All aspects of home computing are considered, but we cannot usually accept anything longer than 2,000 words, so brief is best. It's worth checking by phone or letter first that your article will be suitable. Payment is normally £25 per published page.

Technical editor Duncan Evans looks after the program listings, and articles on programming. We rely on you for our programming section, so earn yourself a place in the Popular Hall of Fame (and £25 for each page we print) by having your program published. Even if it's not 100% of B of pure machine code, but a short snappy routine, these may well be a place for it in Bytes and Pieces (C10 a week).

Articles on any aspect of programming are also welcome - with short listings included if relevant.

Got something you feel needs saying loud and clear? Your opinions on any aspect of the computer industry are welcomed, so why not write in to the Ziggurat section? At most 600 words, please. If published, we'll pay you £15.

So maybe it's not the money you're after, but you'd just like to have some say in the magazine.

For shorter comments, general observations or queries, there is of course the Letters page, with the tempting offer of a year's supply of Popular binders for the Star Letter each week.

For more specific points, our team of columnists are always willing to answer questions, and keen to hear the latest information. Drop your lines to Tony Bridge (adventure hints always gratefully received), Tony Kettle (who wants as many Amstrad jokes, masts, solutions, etc, as possible), David Wallis (communications), Kevin Garroch (programming problems), Mark Jenkins (music games and sample tapes) and Martin Bryant (computer chess comments).

All letters should be addressed to Popular Computing Weekly, 12-13 Little Newington Street, London WC2H 7PP. If you mark your letters with the department you want, things get processed much more quickly.



Left: the adventures Tony Bridge. Right: the active Tony Kettle.



# A worthy arcade adventure in Ravenskull

**H**and on the heels of the superb *Apesin 3*, BBC computers have another treat in store from Superior Software - *Ravenskull*.

This new release is more in the way of traditional arcade adventures, although it is graphically similar to *Apesin*.

You play the hero - adventurer, wizard, warrior or elf - who has volunteered to retrieve a mystical cross from the hazardous Castle Ravenskull.

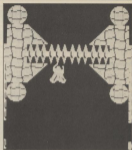
There are many puzzles to be solved - how to manipulate keys and pickaxes to gain entry to different parts of the maze - and many areas where you'll require arcade

dexterity in avoiding the fast-moving guardians of Ravenskull, the dreaded Ravenshoes.

You're also up against a time limit, in that you need to find food and drink to keep your strength up. But beware - some of it is poisoned.

To top off the adventure feel, there are magical potions and scrolls which may help or hinder your quest.

The graphics are clear and colourful, the animation is very smooth, and the sound effects are adequate. There's also a nicely performed back-ground tune which will drive you nuts after one minute. Fortunately, you can turn this off.



I didn't enjoy *Ravenskull* as much as *Apesin 3*, but it's still worthy of a place in your collection.

**Popular Appeal** +++  
**Peter Worlock**

**Program** *Ravenskull* BBC  
**Price** £11.95  
**Disc Supplier** Superior Software, Regent House, Skinner Lane, Leeds LS2 1AR.

# Trooper provides a strange mix

**H**ere's one for the record book - a game specifically written for the 128/Plus 2. But for those doubting at the thought of some logging the right away to the soundtrack, they are going to be disappointed and anything that begins 'Congratulations' from time to time does not inspire confidence to being exactly state-of-the-art.

In fact, *Way Call Me Trooper* is a strange mix of martial art combat and arcade adventure - the two elements being played on separate screens.

It seems that during the high-level talks for Galactic Peace, the Therap have done the dirty on all other sentient beings and put them through a brain-drain machine - turning them into 'deadly exterminators' who are out to get you. The only surviving resident.

The only thing is to find parts of a space ship that are

scattered around the planet and escape.

The first thing you must do is find yourself a rope and grappling hook, essential for those long drops and climbs - not too difficult as there's one on the screen immediately to the right of your starting position, but before you get that far, a green man will try and put the boot in, and off you go to the martial arts bit.

This screen looks excellent with large, single colour sprites - very impressive - in fact, this part can be played as a two-part player game apart from the main scenario.

This would be a first class game were it not for some fundamental faults. Firstly, the terse instructions on the inlay read like they have been badly translated from the Japanese, and so are completely adequate. More importantly, with the Kompass option on, you cannot manipulate/see objects from the keyboard.

With a little more effort, *Trooper* could have been a first class effort. Instead, I suggest you file it under 'zero'.

**Popular Appeal** ++  
**John Cook**

**Program** *Way Call Me Trooper* BBC Spectrum  
**128/Plus 2 Price** £8.95  
**Supplier** CRL, 8 Kings Yard, Copernicus Road, London E7 2HD.

# Donkeying Around

**H**indering those of you who like *Donkey Kong*? Now, put your hands down if you don't appear to play it over again? Put your hands down if you already have a version for your Commodore 64. Now put your hands down if you're not ready to pay a couple of quid for a decent budget version.

Right, those of you with your hands still up are in business. Because Ocean has just released the official conversion of the Konami arcade classic.

Yes, it is very late (about two years too late), and yes,

there are tons of cheaper, not-quite-identical versions.

But this is the real thing. The graphics are almost as good as the arcade original, the sound track is perhaps a bit better. And it plays extremely well.

You don't care? Oh well.  
**Popular Appeal** +++  
**Peter Worlock**

**Program** *Donkey Kong* BBC  
**Price** £8.95  
**Supplier** Ocean, Ocean House, 6 Central Street, Manchester M2 5NS.

# The Three Musketeers

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# Computer Novels

Computer Novels, P.O. Box 10090, S-200 43 Malms, Sweden, Tel (+46) 40 483 25 80, 016 32135 Comput 3

# A joystick for your thoughts

If you committed the cardinal sin of missing last week's issue, here is a second chance to make your opinions known in the third Annual Readers' Poll.

This is your opportunity to name games and vote for your personal best and worst of 1990 — games, utilities, programmers, hardware.

This year we've got an added incentive to get you to fill out

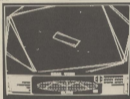
the form. We've got 50 Konix Speed King joysticks to give away to 50 lucky entrants picked at random on the closing date.

As this is an annual poll, we're looking for 1990 products only. However, anything launched in November or December 1989 should be OK, since most of their sales will have been this year.

## Program of the Year (overall)

Last year's winner: *Life* (Firebird)

This is the highest accolade you can give a computer program, the game that had you hooked to the screen for weeks on end, or the utility which transformed your computing power, or the application which infinitely expanded your horizons.



Last year's winning program, *Life*

Please write answers in the boxes below

## Arcade Games of the Year

Last year's winner: *Life* (Firebird)

Shoot 'em ups, arcade adventures, basically anything that you'd get the joystick out for. But which one really brought out the sweat on your brow and gave you sleepless nights?

## Simulation of the Year

New category

A wide variety here — flying, martial arts, athletics, motor racing, space travel. Get your nose for the most addictive and realistic simulation of all.

## Adventure Game of the Year

Last year's winner: *Lord of the Rings* (Malbourne House)

Tingling with atmosphere, fraught with heretofore puzzles, an absorbing plot... we're looking for the best adventure of them all.

## Business Program of the Year

Last year's winner: *Mail Office* (DataStar)

More people are using their micros for some form of business use, whether domestic accounts, club memberships, or full-blown spreadsheets and databases. We want to hear about the one that transformed your business.



## Utility Program of the Year

Last year's winner: **The Art Studio (Rainbird)**

Programming languages, machine code monitors, graphics aids, mouse companions, communications software, the list is ever increasing. Is there a gem of a program which deserves this award? Which is it?

## Peripheral of the Year

Last year's winner: **AMX mouse**

Your chance to vote for the add-on which made you wonder how you ever survived without it.



AMX Mouse

## Best Software House

Last year's winner: **Melbourne House**

Consistency and excellence is what we're after here. The company without programs you look out for, because you know they're going to be great.

## Best Programmer

Last year's winner: **Ray Carter and Greg Fells (Gargyle Games)**

It could be their graphics, their sound, their plotlines, or the overall style. Who is the programmer, or programming team you most admire?

## Most Exciting New Computer

Last year: **Amstrad CPC 6128**

Plenty of launches this year to choose from - the Amiga, the 1280, the EAC from Commodore, Acorn's Master series and Master computer, the Amstrad PC and Spectrum Plus 2, a new Zenith, and the games consoles are on their way back.

## Most Overrated Software House

Last year: **Ultimate**

The advertising is brilliant. The managing director appears on tights. Your friends have literary posters of the in-house programmers on their bedroom walls. The product packaging makes you gasp. The releases are always a disappointment. Stand up and be counted here.

## Computer program you Most Regretted Buying in 1986

Last year: **4 Flow to a BR (Bemtek)**

Somebody told you it was the best thing since sliced bread. You loaded it up, trembling with anticipation... and what a let-down. Name names in this section.

Please send in your completed poll form if you don't feel qualified to vote in one or two of the sections, don't worry, just leave it blank to Readers' Poll, Popular Computing Weekly, 12-13 Little Newport Street, London WC2E 9PP, to reach us by Wednesday, December 10. The results will be published in the issue dated December 18.

Name .....

Address .....



# e Gauntlet

maps get complicated and you have to start knocking down walls to get stryfers.

Time is important. You start off with 2000 strength points but the stress of being surrounded by all these points mean it's counting down all the time (just like real life, moments) and when you get hit by the opposition it goes down even faster.

Strength can be regained by collecting food found around the place, so playing around the two player game you get to know who your friends are pretty quickly as you both make a grab for the goodies.

And no fantasy trip would be complete without treasure, would it? Gauntlet is no exception, and collecting it will increase your score - as



dots laying into the nation.

Gauntlet the computer game passes the conversion test easily. At least as good as it could be on a home mine. Best played with two of you, shows of 'Cover me, Boole!', all the more and it's not a bad temp as you give thousands of Evil Things exactly what's coming to them.

Gauntlet was never about intellect - just hit that few bunnies and take them apart. And there is the possibility that without the puzzle elements of some games of a similar genre (say, *Quest* or the flashy effects of the stand-alone, there won't be much to hold you for a long period of time.

But make no mistake, if you want to play Gauntlet, no hills, on your home computer this Christmas (and although we'll only see the CPC version, there's no reason why the others shouldn't be of a similar standard) - US Gold has delivered the goods.

**Popular Appeal** ★★★★★

John Cook



**Program Gauntlet Micro**  
 Amstrad CPC £28.95, Atari 2600, MSX, Spectrum, ST, Amiga and PC versions to follow. Price £29.99 (incl. £14.99 incl.)  
**Supplier** US Gold, Unit 213, Infield Way, Infield, Birmingham B5 7AR

## Phantastic Phantasia

It's a hard life adventuring in Geinor. Trudging back from a long day down the local dungeons, eagerly anticipating a good time at the local town's guild, and what jumps out, surely being? An orange dragon of all things! *Geinor*.

*Phantasia* is the name of this game and defeating the evil sorcerer is the aim.

If you hadn't realised by now, *Phantasia* (or *Strategic Simulation*) is a role playing game where you create and set a party of up to six characters from a variety of races (dwarves, all, gnomes and classes (priest, warrior, ranger, wizard - you know the sort of thing) and set off into the countryside with the aim of searching out Mikadimus and paying him his dues.

Of course it isn't that straightforward. After a few plays it appears that you only have to kill things, gain experience, pay for training to in-

crease your hit points and skills, and find Mikadimus in order to accomplish your aim. After many more hours at the keyboard the truth of the matter dawned. There is far more depth to *Phantasia* than is initially apparent. Take the matter of the rings for example. You have to have all nine in order to get a suit at the sorcerer, but where are they? Well, scattered about the land are various shrines which reveal many important (and some not so) facts.

In one shrine you have to discover the secret phrase to see to a cook when he asks you about Miknor the dwarf. The cook tells you to say something else to Miknor when you meet him, and when you do and quote the right words he tells you the secret number to get into the inner sanctum of the Temple of Geinor (without being vapourised). Doing this opens a secret passage way into a

nearby fountain wherein lies the elusive scroll 15.

The graphics of the maps are not great, but the close ups of the party and monsters in a combat situation are very nicely done with some of the larger monsters being very impressive. Sound effects are minimal but that's to be expected in this sort of game.

If you can survive the initial battles, and put up with reading through low level instructions when you're on the trail

of a vital clue, then you'll discover for yourself what an addictive and wonderful game *Phantasia* is. Now then, where did I put that Miknor? **Popular Appeal** ★★★★★

Stuncan Evans

**Program Phantasia Micro**  
 Amstrad 2600 Price £29.95 (incl. only) Supplier: Silver Shop, Ltd. The Mews, Harborne Road, Solihull, East DA14 4DX









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## Semblem

Robert Osborne

**W**ith the cold winter nights now upon us, what could be nicer than warming your hands over a hot computer. Semblem, will give you that opportunity with its combination of assembler and disassembler.

On running the program a prompt will be displayed. The three letter commands that are used are given below.

- Aa** - puts you into assembler mode.
- Dd** - puts you into the disassembler mode.
- Ll** - waits for a string to be input. It then outputs the Ascii value of each character in hex and decimal.
- Cc** - asks for number then calls the routine at that address.
- Hh** - converts a decimal number to hex.

**Dec** - converts a hex number to decimal.

Whilst the assembler routine is in use the start address can range from 0000 to 40153 (\$C000). Whilst entering data or instructions make sure that there is a space between the instructions and the numbers (which can be entered in decimal or hex). Press enter at the end of every line and to finish assembling press enter again.

The second and final part of the listing will be published next week.

```

01 OR "HEX",HEX(100),7961250:FOR D=0
  TO 40:FOR P=0:FOR I=0:PRINT I
02 FOR D=0 TO 255:FOR I=0:PRINT
03 HEX(1),4,5,25:FOR I,1,10
04 <CR>:FOR I=0 TO 127:FOR P
05 FOR J=0 TO 240
06 HEX(I)*16+"(HEX(I))",HEX(I)
07 PRINT J:FOR I=255:GOTO 2
08 HEX(1111)=""*VAL""
09 FOR J=(240 TO 192:FOR I=0
10 FOR P=0:FOR D=0 TO 7
11 HEX(I)+<CR>:HEX(P)
12 NEXT J,I
13 FOR D=0:TO 255:FOR P=0:FOR I=0:PRINT I
14 FOR J=0 TO 240
15 HEX(HEX(HEX(D)),1),HEX(HEX(I))-I
16 IF D="00" OR D="08" OR D="16" OR
  D="24" THEN PRINT I
17 HEX(HEX(HEX(D)),1),2:IF D="00" OR D="
  08" OR D="16" THEN PRINT I:GOTO 2
18 PRINT I
19 FOR D=0:FOR P=0:FOR I=0:PRINT I:FOR J=0:
  FOR K=0:FOR L=0:FOR M=0:FOR N=0:FOR O=0:
  FOR P=0:FOR Q=0:FOR R=0:FOR S=0:FOR T=0:
  FOR U=0:FOR V=0:FOR W=0:FOR X=0:FOR Y=0:
  FOR Z=0:FOR AA=0:FOR AB=0:FOR AC=0:FOR
  AD=0:FOR AE=0:FOR AF=0:FOR AG=0:FOR AH=0:
  FOR AI=0:FOR AJ=0:FOR AK=0:FOR AL=0:FOR
  AM=0:FOR AN=0:FOR AO=0:FOR AP=0:FOR AQ=0:
  FOR AR=0:FOR AS=0:FOR AT=0:FOR AU=0:FOR
  AV=0:FOR AW=0:FOR AX=0:FOR AY=0:FOR AZ=0:
  FOR BA=0:FOR BB=0:FOR BC=0:FOR BD=0:FOR
  BE=0:FOR BF=0:FOR BG=0:FOR BH=0:FOR BI=0:
  FOR BJ=0:FOR BK=0:FOR BL=0:FOR BM=0:FOR
  BN=0:FOR BO=0:FOR BP=0:FOR BQ=0:FOR BR=0:
  FOR BS=0:FOR BT=0:FOR BU=0:FOR BV=0:FOR
  BW=0:FOR BX=0:FOR BY=0:FOR BZ=0:FOR CA=0:
  FOR CB=0:FOR CC=0:FOR CD=0:FOR CE=0:FOR
  CF=0:FOR CG=0:FOR CH=0:FOR CI=0:FOR CJ=0:
  FOR CK=0:FOR CL=0:FOR CM=0:FOR CN=0:FOR
  CO=0:FOR CP=0:FOR CQ=0:FOR CR=0:FOR CS=0:
  FOR CT=0:FOR CU=0:FOR CV=0:FOR CW=0:FOR
  CX=0:FOR CY=0:FOR CZ=0:FOR DA=0:FOR DB=0:
  FOR DC=0:FOR DD=0:FOR DE=0:FOR DF=0:FOR
  DG=0:FOR DH=0:FOR DI=0:FOR DJ=0:FOR DK=0:
  FOR DL=0:FOR DM=0:FOR DN=0:FOR DO=0:FOR
  DP=0:FOR DQ=0:FOR DR=0:FOR DS=0:FOR DT=0:
  FOR DU=0:FOR DV=0:FOR DW=0:FOR DX=0:FOR
  DY=0:FOR DZ=0:FOR EA=0:FOR EB=0:FOR EC=0:
  FOR ED=0:FOR EE=0:FOR EF=0:FOR EG=0:FOR
  EH=0:FOR EI=0:FOR EJ=0:FOR EK=0:FOR EL=0:
  FOR EM=0:FOR EN=0:FOR EO=0:FOR EP=0:FOR
  EQ=0:FOR ER=0:FOR ES=0:FOR ET=0:FOR EU=0:
  FOR EV=0:FOR EW=0:FOR EX=0:FOR EY=0:FOR
  EZ=0:FOR FA=0:FOR FB=0:FOR FC=0:FOR FD=0:
  FOR FE=0:FOR FF=0:FOR FG=0:FOR FH=0:FOR
  FI=0:FOR FJ=0:FOR FK=0:FOR FL=0:FOR FM=0:
  FOR FN=0:FOR FO=0:FOR FP=0:FOR FQ=0:FOR
  FR=0:FOR FS=0:FOR FT=0:FOR FU=0:FOR FV=0:
  FOR FW=0:FOR FX=0:FOR FY=0:FOR FZ=0:FOR
  GA=0:FOR GB=0:FOR GC=0:FOR GD=0:FOR GE=0:
  FOR GF=0:FOR GH=0:FOR GI=0:FOR GJ=0:FOR
  GK=0:FOR GL=0:FOR GM=0:FOR GN=0:FOR GO=0:
  FOR GP=0:FOR GQ=0:FOR GR=0:FOR GS=0:FOR
  GT=0:FOR GU=0:FOR GV=0:FOR GW=0:FOR GX=0:
  FOR GY=0:FOR GZ=0:FOR HA=0:FOR HB=0:FOR
  HC=0:FOR HD=0:FOR HE=0:FOR HF=0:FOR HG=0:
  FOR HH=0:FOR HI=0:FOR HJ=0:FOR HK=0:FOR
  HL=0:FOR HM=0:FOR HN=0:FOR HO=0:FOR HP=0:
  FOR HQ=0:FOR HR=0:FOR HS=0:FOR HT=0:FOR
  HU=0:FOR HV=0:FOR HW=0:FOR HX=0:FOR HY=0:
  FOR HZ=0:FOR IA=0:FOR IB=0:FOR IC=0:FOR
  ID=0:FOR IE=0:FOR IF=0:FOR IG=0:FOR IH=0:
  FOR II=0:FOR IJ=0:FOR IK=0:FOR IL=0:FOR
  FOR IM=0:FOR IN=0:FOR IO=0:FOR IP=0:FOR
  FOR IQ=0:FOR IR=0:FOR IS=0:FOR IT=0:FOR
  FOR IU=0:FOR IV=0:FOR IW=0:FOR IX=0:FOR
  FOR IY=0:FOR IZ=0:FOR JA=0:FOR JB=0:FOR
  FOR JC=0:FOR JD=0:FOR JE=0:FOR JF=0:FOR
  FOR JG=0:FOR JH=0:FOR JI=0:FOR JJ=0:FOR
  FOR JK=0:FOR JL=0:FOR JM=0:FOR JN=0:FOR
  FOR JO=0:FOR JP=0:FOR JQ=0:FOR JR=0:FOR
  FOR JS=0:FOR JT=0:FOR JU=0:FOR JV=0:FOR
  FOR JW=0:FOR JX=0:FOR JY=0:FOR JZ=0:FOR
  FOR KA=0:FOR KB=0:FOR KC=0:FOR KD=0:FOR
  FOR KE=0:FOR KF=0:FOR KG=0:FOR KH=0:FOR
  FOR KI=0:FOR KJ=0:FOR KK=0:FOR KL=0:FOR
  FOR KM=0:FOR KN=0:FOR KO=0:FOR KP=0:FOR
  FOR KQ=0:FOR KR=0:FOR KS=0:FOR KT=0:FOR
  FOR KU=0:FOR KV=0:FOR KW=0:FOR KX=0:FOR
  FOR KY=0:FOR KZ=0:FOR LA=0:FOR LB=0:FOR
  FOR LC=0:FOR LD=0:FOR LE=0:FOR LF=0:FOR
  FOR LG=0:FOR LH=0:FOR LI=0:FOR LJ=0:FOR
  FOR LK=0:FOR LL=0:FOR LM=0:FOR LN=0:FOR
  FOR LO=0:FOR LP=0:FOR LQ=0:FOR LR=0:FOR
  FOR LS=0:FOR LT=0:FOR LU=0:FOR LV=0:FOR
  FOR LW=0:FOR LX=0:FOR LY=0:FOR LZ=0:FOR
  FOR MA=0:FOR MB=0:FOR MC=0:FOR MD=0:FOR
  FOR ME=0:FOR MF=0:FOR MG=0:FOR MH=0:FOR
  FOR MI=0:FOR MJ=0:FOR MK=0:FOR ML=0:FOR
  FOR MM=0:FOR MN=0:FOR MO=0:FOR MP=0:FOR
  FOR MQ=0:FOR MR=0:FOR MS=0:FOR MT=0:FOR
  FOR MU=0:FOR MV=0:FOR MW=0:FOR MX=0:FOR
  FOR MY=0:FOR MZ=0:FOR NA=0:FOR NB=0:FOR
  FOR NC=0:FOR ND=0:FOR NE=0:FOR NF=0:FOR
  FOR NG=0:FOR NH=0:FOR NI=0:FOR NJ=0:FOR
  FOR NK=0:FOR NL=0:FOR NM=0:FOR NN=0:FOR
  FOR NO=0:FOR NP=0:FOR NQ=0:FOR NR=0:FOR
  FOR NS=0:FOR NT=0:FOR NU=0:FOR NV=0:FOR
  FOR NW=0:FOR NX=0:FOR NY=0:FOR NZ=0:FOR
  FOR OA=0:FOR OB=0:FOR OC=0:FOR OD=0:FOR
  FOR OE=0:FOR OF=0:FOR OG=0:FOR OH=0:FOR
  FOR OI=0:FOR OJ=0:FOR OK=0:FOR OL=0:FOR
  FOR OM=0:FOR ON=0:FOR OO=0:FOR OP=0:FOR
  FOR OQ=0:FOR OR=0:FOR OS=0:FOR OT=0:FOR
  FOR OU=0:FOR OV=0:FOR OW=0:FOR OX=0:FOR
  FOR OY=0:FOR OZ=0:FOR PA=0:FOR PB=0:FOR
  FOR PC=0:FOR PD=0:FOR PE=0:FOR PF=0:FOR
  FOR PG=0:FOR PH=0:FOR PI=0:FOR PJ=0:FOR
  FOR PK=0:FOR PL=0:FOR PM=0:FOR PN=0:FOR
  FOR PO=0:FOR PP=0:FOR PQ=0:FOR PR=0:FOR
  FOR PS=0:FOR PT=0:FOR PU=0:FOR PV=0:FOR
  FOR PW=0:FOR PX=0:FOR PY=0:FOR PZ=0:FOR
  FOR QA=0:FOR QB=0:FOR QC=0:FOR QD=0:FOR
  FOR QE=0:FOR QF=0:FOR QG=0:FOR QH=0:FOR
  FOR QI=0:FOR QJ=0:FOR QK=0:FOR QL=0:FOR
  FOR QM=0:FOR QN=0:FOR QO=0:FOR QP=0:FOR
  FOR QQ=0:FOR QR=0:FOR QS=0:FOR QT=0:FOR
  FOR QU=0:FOR QV=0:FOR QW=0:FOR QX=0:FOR
  FOR QY=0:FOR QZ=0:FOR RA=0:FOR RB=0:FOR
  FOR RC=0:FOR RD=0:FOR RE=0:FOR RF=0:FOR
  FOR RG=0:FOR RH=0:FOR RI=0:FOR RJ=0:FOR
  FOR RK=0:FOR RL=0:FOR RM=0:FOR RN=0:FOR
  FOR RO=0:FOR RP=0:FOR RQ=0:FOR RR=0:FOR
  FOR RS=0:FOR RT=0:FOR RU=0:FOR RV=0:FOR
  FOR RW=0:FOR RX=0:FOR RY=0:FOR RZ=0:FOR
  FOR SA=0:FOR SB=0:FOR SC=0:FOR SD=0:FOR
  FOR SE=0:FOR SF=0:FOR SG=0:FOR SH=0:FOR
  FOR SI=0:FOR SJ=0:FOR SK=0:FOR SL=0:FOR
  FOR SM=0:FOR SN=0:FOR SO=0:FOR SP=0:FOR
  FOR SQ=0:FOR SR=0:FOR SS=0:FOR ST=0:FOR
  FOR SU=0:FOR SV=0:FOR SW=0:FOR SX=0:FOR
  FOR SY=0:FOR SZ=0:FOR TA=0:FOR TB=0:FOR
  FOR TC=0:FOR TD=0:FOR TE=0:FOR TF=0:FOR
  FOR TG=0:FOR TH=0:FOR TI=0:FOR TJ=0:FOR
  FOR TK=0:FOR TL=0:FOR TM=0:FOR TN=0:FOR
  FOR TO=0:FOR TP=0:FOR TQ=0:FOR TR=0:FOR
  FOR TS=0:FOR TT=0:FOR TU=0:FOR TV=0:FOR
  FOR TW=0:FOR TX=0:FOR TY=0:FOR TZ=0:FOR
  FOR UA=0:FOR UB=0:FOR UC=0:FOR UD=0:FOR
  FOR UE=0:FOR UF=0:FOR UG=0:FOR UH=0:FOR
  FOR UI=0:FOR UJ=0:FOR UK=0:FOR UL=0:FOR
  FOR UM=0:FOR UN=0:FOR UO=0:FOR UP=0:FOR
  FOR UQ=0:FOR UR=0:FOR US=0:FOR UT=0:FOR
  FOR UY=0:FOR UZ=0:FOR VA=0:FOR VB=0:FOR
  FOR VC=0:FOR VD=0:FOR VE=0:FOR VF=0:FOR
  FOR VG=0:FOR VH=0:FOR VI=0:FOR VJ=0:FOR
  FOR VK=0:FOR VL=0:FOR VM=0:FOR VN=0:FOR
  FOR VO=0:FOR VP=0:FOR VQ=0:FOR VR=0:FOR
  FOR VS=0:FOR VT=0:FOR VU=0:FOR VV=0:FOR
  FOR VW=0:FOR VX=0:FOR VY=0:FOR VZ=0:FOR
  FOR WA=0:FOR WB=0:FOR WC=0:FOR WD=0:FOR
  FOR WE=0:FOR WF=0:FOR WG=0:FOR WH=0:FOR
  FOR WI=0:FOR WJ=0:FOR WK=0:FOR WL=0:FOR
  FOR WM=0:FOR WN=0:FOR WO=0:FOR WP=0:FOR
  FOR WQ=0:FOR WR=0:FOR WS=0:FOR WT=0:FOR
  FOR WY=0:FOR WZ=0:FOR XA=0:FOR XB=0:FOR
  FOR XC=0:FOR XD=0:FOR XE=0:FOR XF=0:FOR
  FOR XG=0:FOR XH=0:FOR XI=0:FOR XJ=0:FOR
  FOR XK=0:FOR XL=0:FOR XM=0:FOR XN=0:FOR
  FOR XO=0:FOR XP=0:FOR XQ=0:FOR XR=0:FOR
  FOR XS=0:FOR XT=0:FOR XU=0:FOR XV=0:FOR
  FOR XW=0:FOR XX=0:FOR XY=0:FOR XZ=0:FOR
  FOR YA=0:FOR YB=0:FOR YC=0:FOR YD=0:FOR
  FOR YE=0:FOR YF=0:FOR YG=0:FOR YH=0:FOR
  FOR YI=0:FOR YJ=0:FOR YK=0:FOR YL=0:FOR
  FOR YM=0:FOR YN=0:FOR YO=0:FOR YP=0:FOR
  FOR YQ=0:FOR YR=0:FOR YS=0:FOR YT=0:FOR
  FOR YU=0:FOR YV=0:FOR YW=0:FOR YX=0:FOR
  FOR YZ=0:FOR ZA=0:FOR ZB=0:FOR ZC=0:FOR
  FOR ZD=0:FOR ZE=0:FOR ZF=0:FOR ZG=0:FOR
  FOR ZH=0:FOR ZI=0:FOR ZJ=0:FOR ZK=0:FOR
  FOR ZL=0:FOR ZM=0:FOR ZN=0:FOR ZO=0:FOR
  FOR ZP=0:FOR ZQ=0:FOR ZR=0:FOR ZS=0:FOR
  FOR ZT=0:FOR ZU=0:FOR ZV=0:FOR ZW=0:FOR
  FOR ZX=0:FOR ZY=0:FOR ZZ=0:FOR
  
```













**With Ken Garrock**

## Random queries

Allan Hyde, of *NUMCON*, Leicester, writes:

**Q** I am currently writing a computer game that requires random movements and I would like to know how to generate random numbers.

**A** Computers, being what they are, cannot generally generate truly random numbers. The closest they can get is so-called pseudo random sequences. These are sets of numbers that are only random for a certain period, after which they repeat. A simple way of creating these is as follows:

- 1) take a 6-bit number
- 2) look at bits 2 and 7 and exclusive or their values
- 3) rotate the 6-bit value left times two and with the result of the XOR in as the new first bit.

Take 01001001 bits 2 and 7 are 0 and 1. The exclusive OR of these is 1 so the original times two is 10010010 and with the new first bit is 1 so the result is 10010011. Continually doing this will give a pseudo binary random sequence. A simple machine code program to do this in 6502 is shown below. RALM is the starting number or seed, watch out for values such as 0 or 128 which won't work. If you need a longer sequence, use two or more bytes in and take the 16th or greater bit.

```

RNUM BIT# 6:6
RAND LDA #0
      BIT RNUM
      BNE R200:1
      LDA #64
      BIT RNUM
  
```

```

RNE BIT#7
CLC
ROR RNUM
RTS
R200:1 LDA #64
      BIT RNUM
      BNE R270:1
      SBC
      ROL RNUM
      RTS
R270:1 RTS
      SBC
      ROL RNUM
      RTS
R270:2 CLC
      ROL RNUM
      RTS
  
```

## The disc drive dilemma

T Johnson, of *Wellingborough*, Northamptonshire, writes:

**Q** I have had my BBC Micro for some time now and have finally decided that it is worth upgrading to a disc system. What I would like to know is if there are any advantages in going for a 3 1/2 inch drive rather than the more normal 5 1/4 inch system.

**A** As far as storage capacity goes, there is little difference between the two standards. The 3 1/2 inch diskette has the advantage that they are a lot more durable than their 5 1/4 inch counterparts. You can throw these around the room if you feel the urge without damaging them and they are small enough to fit into a top pocket.

5 1/4 inch discs are not as tough but they are a lot more wanted for the BBC. Almost all of the commercial software available for the machine comes on 5 1/4 inch discs and they cost about half the price of blanks. So unless you are not going to purchase software, you are far better off going for a 5 1/4 inch disc drive than the more modern and compact 3 1/2 inch.

## Fractal graphics for the CPC

J Johnson, of *York*, Yorkshire, writes:

**Q** I am a relative newcomer to computers having used one at work, and recently bought an Amstrad CPC 6128. I have seen the word Fractal mentioned in the computer press quite frequently. My question is, what is one of these and what are they used for?

**A** A Fractal is the mathematical concept of an object having fractional dimensions. For instance, a line connecting two points has one dimension, a set of lines side by side in a plane have two dimensions, three dimensions is obtained by stacking a set of planes on top of each other to form a solid.

Alternatively, rotate the line around its corner and it describes a plane, rotating the plane at right angles to its other two dimensions describes a solid.

Normal mathematical geometry treats dimensions as being continuous so a length is measured as being a specific size and it describes the thing as a whole.

Fractal geometry treats things in a different way by describing the dimension or shape in terms of how closely it is examined. For example, take a map of an island, and examine the coast. As you get closer and closer, the coast becomes more detailed. If you then take a larger scale map of the same area, the detail increases.

Taking this to its extreme, you could go to the place itself and look at the detail which is still as complex and

can be said to have a fractional dimension since it is never absolutely defined.

The same idea can be applied via some mathematical formulas such as the famous Mandelbrot set; no matter how closely you look, or in the case of a formula, evaluate it, there is always more detail to be revealed. An example is the square root of 2 or the value of  $e$ . If you extract the square root of 2, no matter how many times you work it out, you will be able to add more decimal places, effectively describing the value in more and more detail.

The same method can be applied to a formula that describes the shape of an object, the more you evaluate certain portions, the more detail will be revealed. Just like drawing a map in more and more detail but without ever running into problems with the resolution of the paper.

As for uses, fractals can be used to produce pretty patterns, or they could be used in a computer game to allow 'zoom in' effects. This cuts down the amount of data that needs to be stored about an object, all that is needed is the formula which needs to be evaluated a specific number of times to get the required detail.

Other than that, fractals are, to a certain extent, nothing more than a mathematical curiosity arising from the fact that computers can perform the many calculations necessary to produce them.

Because of this last aspect, they are frequently used to demonstrate the speed of a computer. To produce a section of the Mandelbrot set can take a day or so with a normal home main, but on something like a transputer, the same thing can be done in seconds.

For additional, and more in-depth information on this subject, the following will provide it:

*Mathcal Fractals*, *Byte*, June 1986.

*Personal Computer Month*, December 1985.

*The Fractional Geometry of Nature* by B. B. Mandelbrot, W. H. Freeman.

*Advanced Graphics with the Commodore Plus*, Macmillan.

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem, send it to Ken Garrock and every week he will Poke back as many answers as he can. The address is Peek & Poke, PCMC, 12-13 Little Newport Street, London WC2R 3LD



# Trading on adventure

David Wallin takes a techno-fresh view on the game of life

**O**n the Bulletin boards scene, I've been asked to mention one, which although not new is worth a look at.

Techno Fresh Systems is about a year old and based in Wales. It has all the usual features of telesoftware, messaging, Sigs, etc. and has just recently started two on-line games. One is a simple higher/lower gambling game (no real money involved) - apart from your phone bill!; the other is called *Mercurator* - Game of Life: a trading game.

Techno Fresh is planning to implement an on-line adventure, once it has made some extensive software modifications to the board. The adventure will be called *Seaquest* or *Seaquest Adventure*, and is being written by co-sysop Keith Anderson.

BBC owners will receive all the Techno Fresh news in mode 7 colour - this is our standard but IBM protocol, AD colours, scrolling colour graphics and text. The character set is roughly the same as standard's.

Users may write and upload articles and reviews for publication on the board and sysop Lew Dickinson says that he is

*"Techno Fresh is planning to implement an on-line adventure by co-sysop Keith Anderson"*

willing to help prospective sysops and give advice if needed.

Techno Fresh is on 0570 423082, 24 hours on 300/300 baud. If you want 1200/75, ring 0570 823501 to ask for it verbally.

Mercurator, run by Marcus Anselmi, is also known as FBBS HC, as it was Marcus who wrote FBBS for the BBC. Following a Popular Communications reform an FBBS, William Holmes then attempted to set up D-Board using FBBS with Le Modem and disaster followed closely. My faith in FBBS dropped rapidly, but I now hear that having got hold of a Demon modem, William is online (as Maximal Plus: 0843 590000) and there are far fewer problems. So if you want to set up a board using FBBS, we'll be soon



recommending the Demon modem.

A Novus version of the main machine code of FBBS is now available as well as a file version. For more details contact Marcus Anselmi at Maximal on 01-348 7180, 1200/75 and 300/300 24 hours.

Paul Birkett has written to me to ask which modem to use for linking his Commodore Amiga to Prestel and other boards. He has been advised to get either a V82000 or a Nightingale. My personal choice would be the V82000, but Next, if you can afford an Amiga, you can probably also afford a Series 4 modem from Pace Micro Technology (ranging from £180-£200), or a V82000/V84000 from Miracle Technology. Anyone who has the means to buy a modem at over £150 would be well advised to get an intelligent modem. Hayes compatible if possible (the V82000 and 4000), and the Series 4 are all Hayes modems).

Pace can be reached at Allerton Road, Bedford BK75 7AG 03274 4882111 and Miracle Technology on 0473 2161.

## Varying shades of MUD

**Y**ou may remember that in *Popular*, August 21, we looked at *Gold* and *Shades*, two independent multi-user on-line adventures. *Shades* has now been taken over by Micronet 900, and has been up and running on Micronet for the last couple of weeks.

*Shades* is very similar to *MUD* in plot. You adopt a chosen persona, and starting as a novice, travel through a series of caves to reach the enchanted land of *Shades*.

There you'll be called upon to negotiate fortified castles, a ruined city complete with explorable sewers below among many locations. Your objective, as in *MUD* is to find and collect as much treasure as

possible and deposit it to the mad king's room.

All along the way you can interact with the other players, amicably or otherwise. As in *MUD*, the wizards have powers beyond those of ordinary players, and can make life difficult for you if they so wish. You'll also need to look out for computer-generated nasties: rats, robots, and so on. Encounters with these can prove fatal.

*Shades* can be found on Micronet 900, page 18118a. It costs 97 pence per hour to play, and is open 24 hours a day. Up to 64 people can play simultaneously, so you should be able to log on OK. The game is reset every hour, so that

the treasure doesn't all end up in the mad king's room too quickly.

Details of how to subscribe to Micronet can be obtained on 01-278 3143.

You are about to enter .....

# Shades

MULTI-USER  
ADVENTURE

..... proceed with caution !

1985





# Cheetah's cheaper

*Mark Jenkins with a new Midi keyboard and products for the Spectrum and BBC*

**C**heetah Marketing continue to amaze the combined worlds of micros and music with the latest in a long line of products following on from their successful SpecDrums and AirDrums.

Now Cheetah has launched the MRS, a controller keyboard intended for use with any Midi product. The MRS is equally suited to playing a micro-based sampler, controlling a synth, or programming notes into a micro-controlled Midi sequencer system.

The keyboard has five octaves of full-sized keys and has a firm, pleasant action combined with tough all-metal construction. The hardware is manufactured in Italy and is completed by a three-figure LED display, swivel-mounted spring pitch bend wheel, play/program button and four small LEDs.

Connections are very simple - a Midi Out socket and an input for the external 9V power supply which is included in the package. The keyboard isn't velocity sensitive and lacks a modulation wheel, facts which will lose you a few facilities on even the cheapest synthesizers, but a fully-featured velocity sensitive control keyboard with the same full sized keys would cost at least three times more than the Cheetah.

Several additional control functions are carried out by the Cheetah's top octave of keys when you switch over into Program mode. Pushing the program/play button lights up the Program LED, and you then have a choice of increasing or decreasing the Midi transmission channel (1-16), the octave of the whole keyboard (1, 0, -7), or the program number transmitted (1-128) with different pairs of keys. If you want to actually carry out a patch change on any connected synthesiser, you then have to hit the key marked Program and go back to Play mode before carrying on.

Incidentally, any keys held when you go into Program mode will continue to sound, so this button acts as a sort of Hold function, although it would be better to have this function also available on a footswitch (it should be pretty easy to connect a footswitch across the play/program button, but it'll void your 12 month guarantee).

The handbook suggests several possible uses for the MRS - playing Midi

synths or modules, programming Midi sequencers or computers via a Midi interface (or directly in the case of the Midi-equipped Atari 520). The alternative application is in playing the sound chip of an Amstrad or Spectrum 1208 or Plus 2 via the optional midi-interface (£29.95) and software package. The interface box has a Midi in lead from the keyboard, an edge connector for the computer, and software which can be transferred to microdrive if you wish.

The Midi interface software lets you edit and play sounds on the AY-3-8910 sound chip using the MRS, and a sophisticated system of windows and menu controls of the functions. 64 sound patches can be stored in the Spectrum's memory simultaneously, three voices can be played at once, and an optional split point can be set two octaves from the bottom of the keyboard. The software allows you to define a seven-stage volume envelope, a pitch envelope, repeat delay/rate, noise mix, tremolo speed/dDepth/delay, and pitch bend wheel on/off. Sound settings can be saved to tape or microdrive.

If you have a Spectrum, starting with the Midi interface and software is a good idea, and will give you a reasonable idea of what could be done with a more advanced synthesiser. When you do want to move up, the Korg DX8000 Separator is a useful, keyboardless, stereo polyphonic synth module with a simple built-in sequencer, while the Casio CZ-101 will offer eight-note chords or four different monophonic sounds simultaneously under the control of a hardware or software sequencer package.



What you're lacking on the Cheetah - velocity sensitivity, modulation and fast program changes - is more than made up for by the cheapness of the keyboard and the fact that it gives five octaves (expandable to seven with the octave switching) of Midi control over synths which may have four octaves of miniature keys, or no keys at all.

On to the BBC Micro: existing owners will be pleased to learn that there's a new version of the best BBC Midi interface, the UM-38 from Soft Rock Systems. It's called the UM-39, and is a cut-down version of the 28 with one Midi in and two Midi Out sockets, Clock or Sync In and Out, Sync 24 Out for Roland-type drum machines, Start/Stop socket and built-in software.

The new software, which is updatable, includes on-screen help pages, and the 28 is priced at £105 (plus Vat). There's also a new software revision for the existing UM-28, with over 30 addresses filling two Flops. More information from the addresses given below.

V/Main Cat. 17, Portfield, London SW15 6NN

Cheetah Marketing, 1 Millbrook Science Park, Crickheath Road, St Helens, Cardiff Tel. 0332 777337

If you have any queries or tips for this column, please write to Mark Jenkins at Popular Computing Weekly, 12-13 Little Newport Street, London WC2H 7PP. Mark would also welcome examples of your own music on audio or program tape, or disc.



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## Amstrad CPC

**Program Rebelor Type Strategy Price £1.99 Supplier Finford Software, 64-76 New Oxford Street, London WC1A 1PS**

**B**udget strategy as the rebels storm the barricades. Ideologically sound strategy game that's well worth the investment.

**Program Sport of Kings Type Arcade Price £2.99 Supplier Mastertronic, 8-10 Paul Street, London EC2C**

**Program Bangster Type Arcade Price £14.95 (tape) £19.95 (disc) Supplier Rainbow Software, 74 New Oxford Street, London WC1A 1PS**

**A**mstrad version of the ST classic, and contains programmatic features not about pull it off. Obviously not as colourful or as fast as the original, but still retains much of the excitement.

**Program Taron Type Arcade Adventure Price £9.95 (tape) £14.95 (disc) Supplier Martech, Martech House, Bay Terrace, Penvensey Bay, East Sussex BN24 9EE**

**Program Ace Type Arcade Simulation Price £8.95 (tape) £14.95 (disc) Supplier Cascade Games, Hemgrove, North Yorkshire**

**Program Bobby Beaving Type Arcade Strategy Price £9.95 (tape), £14.95 (disc) Supplier The Edge, 38/38 Southamption Street, London WC2E 2RH**

**E**xcellent conversion of the Spectrum game that will either have you hooked with its puzzles and puzzles - or leave you stone dead.

**Program Rogue Treacher Type Arcade Price £9.95 Supplier Phoenix, 4 Little Essex Street, London WC2R 3LF**

**Program Battlefield Germany Type Strategy Price £12.95**

(tape) £12.95 (disc) **Supplier** PPS, 463 Stanley Station Street, Coventry CV5 5GG

**Program Murder Off Mean Type Adventure Price £7.95 Supplier CRL, 8 Kings Yard, Carpenters Road, London E15 2HD**

**Program Devil Pursuit - Young Player's Edition Type Quiz Price £14.95 (complete), £7.95 (questions only) Supplier Domark, 24 Weyple Road, London SW20 8PH**

**N**ew questions for stonper players - available as a new data set if you already have the original game. Baby Boomer and Genus 8 editions already in the planning stage.

## Atari XL/XE

**Program Covers of Ziban Type Arcade Price £1.99 Supplier Finford Software, 64-76 New Oxford Street, London WC1A 1PS**

**N**ot the most original of concepts as mashing around in covers has been for long been an arcade cliché, but well enough done.

**Program Masterbot Type Strategy Price £1.99 Supplier Mastertronic, 8-10 Paul Street, London EC2C**

**Program Back to Reality Type Arcade Price £1.99 Supplier Mastertronic, 8-10 Paul Street, London EC2C**

**Program Silver Dreams Type Adventure Completion Price £14.95 (tape or disc) Supplier Rainbow Software, 74 New Oxford Street, London WC1A 1PS**

**L**ead it's Snowball trilogy re-packaged and re-released. Good value introduction to quality adventures.

**Program Ninja/Pistol Type Quiz Game Price £14.95 (tape), £19.95 (disc) Supplier Domark, 24 Weyple Road, London SW20 8PH**

## PCW Pursuit

**Program Ninja/Pistol Type Board game Price £18.95 PCW6206/89512 Supplier Domark, 24 Weyple Road, London SW20 8PH**

**H**aving surprised almost everyone by the quality of Ninja Pursuit's conversion to home video, Oxford Digital Enterprises and Domark have squared up to the next challenge - translating it to black and green only.

As with so many PCW implementations, the screen resolution makes for wonderfully detailed pictures, needed here to distinguish between the six different question subjects. In some ways it hasn't quite come off - you'll need to know the game very well before you can automatically distinguish which pattern refers to which subject.

None of the enjoyable elements of the game have been left out on the PCW - TF will throw the dart, says his best and puts in a word or two of encouragement. It also has the dreaded music questions, sending the victim into a huddle at the back of the monitor, straining to catch the gist of what sounds like a long beguine with a hole in it.



## Atari ST

**Program The Wanderer Type Graphic adventure Price £24.95 Supplier Pyramide via Rex Promotions, 28 Waverley Grove, London N3 3PX**

**S**T version of well-received graphic adventure. Said to be going down well in the States, so file it under illegal arms sales, Swiss bank accounts and impeachment rumors.

that the game gained the highest market penetration ever achieved on a home PC - well over 50% of end users actually forked out the bananas and bought the thing... the rest bit milk, crackers and a blank disc by the kitchen door on the night of a full moon and in the morning, to and behold, the poles had done their work.

More interesting facts. The game made Britain and fell so much money that they decided to stop programming and concentrate on spending it. Hence *Elite* if it is not likely to be winging its way to us until the barometer runs out. Too bad.

Back to *Elite* itself, the new BBC disc has three versions

## BBC/Electron

**Program Elite Type Arcade/Strategy Price £12.95 (tape), £14.95 (disc) Supplier Superior Software, Regent House, Skinner Lane, Leeds LS2 1AE**

**M**ost are made of this. *Elite*, the first game I fell in love with (after *Defender*) has now been re-released at a slightly cheaper price, also appearing for the first time on 3½-inch format for the Master Compact.

Collectors of computer discs will be interested to learn





on it — the standard game, a BBC2 Personal Processor version from Nasir plus more colour, 31 remember controls and a Master 128/Turbo version. Possibly worth getting if you have the appropriate kit, but the question is, if all the BBC games players have a copy of *Zax* — and believe me, they have — who the hell is going to buy it now!

## Commodore 64

**Program Sally Harlot Type Arcade Price £1.99 Supplier** Firebird Software, 64-78 New Oxford Street, London WC1A 1PS.

**Program Magician's Curse Type Arcade Adventure price £8.95 Supplier** Genesis Graphics, Alpha House, 10 Carver Street, Sheffield S1 4PS.



The 48 full-colour screens of this quest for the seven talismans is fun enough, but emphasis that the C16 only comes into it's own when running a fast, basic, shoot-'em-up.

**Program Fighting Heroic Type Arcade Price £5.95 Supplier** Melbourne House, 80 High Street, Hampton Wick, Kingston Upon Thames, Surrey.

## IBM PC

**Program Family year Killing Type Arcade Price £1.99**

**Supplier** Firebird, 64-78 New Oxford Street, London WC1A 1PS.

Men-at-arms characters racing each other over a variety of landscapes for the affection of a Ms. Woman. The game is as fast as the plot line.

**Program '47 - Our Year After Type Arcade Price £9.95 (tape), £14.95 (disc) Supplier** American Action AG, PO Box 10080, 200-43 Malmo, Sweden.

Comedian for the most wide-splitting arcade clone this year, '47 - Our Year After One year after... you got it - 1942, although by the standard of design and programming, you might be forgiven for thinking it's 1942.

**Program Conquest Type Arcade Price £2.99 Supplier** Mazertronix, 8-10 Paul Street, London EC2.

**Program Avenger - Way of the Tiger Type Arcade Adventure Price £9.95 (tape), £14.94 (disc) Supplier** Genesis graphics, Alpha house, 10 Carver Street, Sheffield S1 4PS.



Slightly misleading in that it doesn't look anything like the original game — the plot continues on from *Tiger* if as you attempt to avenge the death of your father-lord Najash. Try saying that after twelve parts of *Legs*.

**Program Lightyear Type Arcade Price £8.95 Supplier** Firebird Then Light, Solihull Road East, Tighe, West Midlands DY4 7JJ.

Makes less of an impact on the 64, mainly because the standard of shoot-'em-ups is higher on the thing, but it's still high class auto-fire action from FTI.

**Program Ocean Type Arcade Adventure Price £9.95 (tape), £12.95 (disc) Supplier** Martech, Martech House, Box Ternco, Penvenny Bay, East Sussex BN24 9EE.

**Program Arctic Fox Type Arcade/Strategy Price £14.94 (disc), £9.95 (tape) - available from 15th Dec!** Supplier Arcticsoft, 56 Long Acre, Cozen Garden, London WC2E 8JA.

Commodore 64 version of *Battlezone* plus strategy game, originally custom programmed for the Amiga. It's you and your tank vs the aliens — odds on it's not going to be a draw either.

**Program Tracker Type Arcade/Strategy Price £14.95 (tape), £17.95 (disc) Supplier** Rainbow, 74 New Oxford Street, London WC1A 1PS.

Rainbow's fast wargame has a nice plot (computer taking over entertainment complex), reasonable implementation and possibly one of the worst novellas ever to accompany a computer program. Full review next week.

**Program Smasher Type Arcade Price £9.95 (tape), £14.95 (disc) Supplier** US Gold, Unit 2/3 Holland Way, Holland Industrial Estate, Birmingham B6 7AX.

Shipping games. Measure your equipment for over various terrains — see everything that gets in your way. Various extras for would-be traffic offenders.

**Program Bobby Bearing Type Arcade/Strategy Price £8.95 (tape), £12.95 (disc) Supplier** The Edge,

36/38 Southampton Street, London WC2E 7PH.

**Program Xena Type Arcade Price £7.95 Supplier** AMP, Angus Press Software, Victory House, Leicester Road, London WC2H 7NS.

Penry Football on a computer, I tell thee — but it doesn't stop the being fast, furious fun. Surely one of the best AMP releases in ages.

**Program Judge Dredd Type Arcade Price £9.95 (tape), £14.95 (disc) Supplier** Melbourne House, 80 High Street, Hampton Wick, Kingston Upon Thames, Surrey, KY1 40B.

**Program Warrior Type Arcade Price £9.95 (tape), £12.95 (disc) Supplier** Nexus Productions, 55B House, 30 High Street, Beckenham, Kent BR3 3KW.

The most ironic end and purpose of a follow-up to *Fx Warrior* — that beyond odds, *Midas* done by the team of Paul Veysey and Tony Downs.

**Program Master of Miami Type Adventure Price £7.95 Supplier** ORL, 9 King Yard, Capetown Road, London E16 3AD.

**Program Defiant Type Arcade Price £8.95 Supplier** Galathia, Angus Press Software, Victory House, Leicester Place, London WC2H 7NS.

**Program Total Pursuit - Young Players Version Type Quiz Price £14.95 (or £7.95 as date set) Supplier** Comark, 24 Worpole Road, London SW20 8PN.

## PC Compatibles

**Program Jewels of Darkness Type Graphic Adventure Price £19.95 Supplier** Rainbow Software, 74 New Oxford Street, London WC2.

**Program Road Master Type Quiz Price £19.95 Supplier** Comark, 24 Worpole Road, London SW20 8PN.

# Basically, it's the best

It is now nearly five years since I was swept into the world of computing, with what seemed at the time a complex... mysterious machine, namely a ZX81. On this little 1K wonder I learnt the fundamentals of programming. That it was just a crude Basic I was programming it was irrelevant, the thing that counted was the fact that I was actually programming the machine. Since that time, things have come a long way.

I now own a CL, which I bought for a little under three times the price of the ZX81. That included a monochrome monitor, beam microdrives, the five software, and not forgetting the 128K memory, eight colours, Hi-res, etc. Of course, CL SuperBasic is just that, a super version of the old workhorse.

Unlike languages like Pascal, Fortran and Cobol which are defined under a set standard, Basic can be modified to the manufacturer's wishes, as long as the basic bones structure is kept. One could design a Basic which looked so much like, say, Pascal, that to use it as a normal Basic would be a vast under-use. This would be like using BBC or CL Basic without teaching procedures or functions.

The reason I'm going on about Basic so much is that there is so much more that could be done to improve it. With each radical new micro launched, a new dialect will be introduced which will, in

*"One could design a Basic which looked so much like, say, Pascal, that to use it as a normal Basic would be a vast under-use"*

most cases, supersede the version that went before.

However, the more complex the Basic, the slower it will run. The answer to faster Basic is to run it on a machine with a faster processor, or to compile it. Combining these two should provide a very fast, flexible and relatively easy to use language.

As it is, most machines come with a built-in interpreted Basic, and because it is so, it is slower than its compiled counterpart. It would be nice if manufacturers provided machines with a good screen editor and a built-in compiler on ROM. With huge memories now becoming the norm, programs could be written, compiled into memory and run from memory without using any backup medium and a programming session was complete.

Fortran programmers may be used to accessing huge libraries of routines from

within a program to perform special operations. A compiled Basic could, for example, make calls to procedures not resident in memory, but on hard, floppy or Ram-disk. Thus a user could incorporate the same routines in different programs, without having to copy them into the source file.

A sufficiently powerful Basic would not be looked down on as a language where one-gamers' bad habits in fact, even the most basic Basic allows for some modulus of structure, with judicious use of Goto and Gosub.

I have reached a level where, using a Pascal screen editor, I am able to dispense with line numbers completely. This has the advantage of being able to rearrange the order of the procedures and functions, search for variable names etc. Of course, I can't run the program until I load it into the computer (perhaps automatically prefixes line numbers), but a well organized program shouldn't need too much editing.

It seems strange after using a ZX81 to see something as expensive and powerful as, say, an Amiga and find it still using a Basic which is essentially the same as old ZX Basic.

At least I can be sure that the language people love to hate will be around for some time to come.

Steven Gray

## NEXT WEEK

### Hardware

Not content with attacking the top end of the micro market with the STs, Atari is one of the companies predicting the resurgence of the cheap games consoles.

We take a long hard look at Atari's update to its range, the 7800 machine.

### Karate Kid II

Marvel at the detailed, life-like graphics in our full colour review of Nintendo's latest.

### Arcade Action

Anyone stuck in Phoenix's Sandlot Strike Force Codes? Extricate yourself with the help of Tony Kendall's hints and tips.

### Chess Board

Colossus author Martin Bryant brings you all the latest from the world of computer chess.

### CPC Assembler

Don't miss the second part of Robert Osborne's assembler/disassembler for the Amstrad CPCs.

## Hackers



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