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# POPULAR Computing WEEKLY

1-7 January 1987

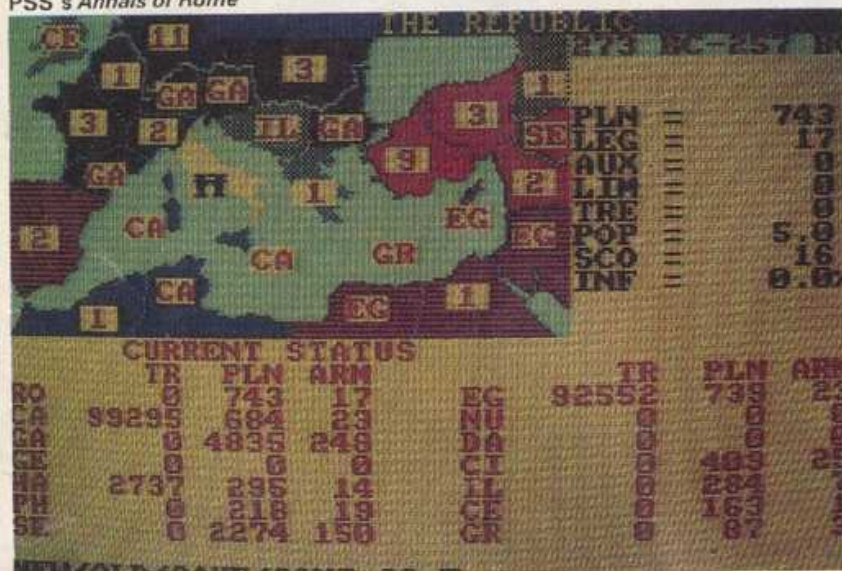
Vol 6 No 1

## STRATEGY GAMES

Run the Roman empire, pit  
your wits against Napoleon  
... that thinking feeling

A survey of the best of the  
genre on page 13

PSS's Annals of Rome

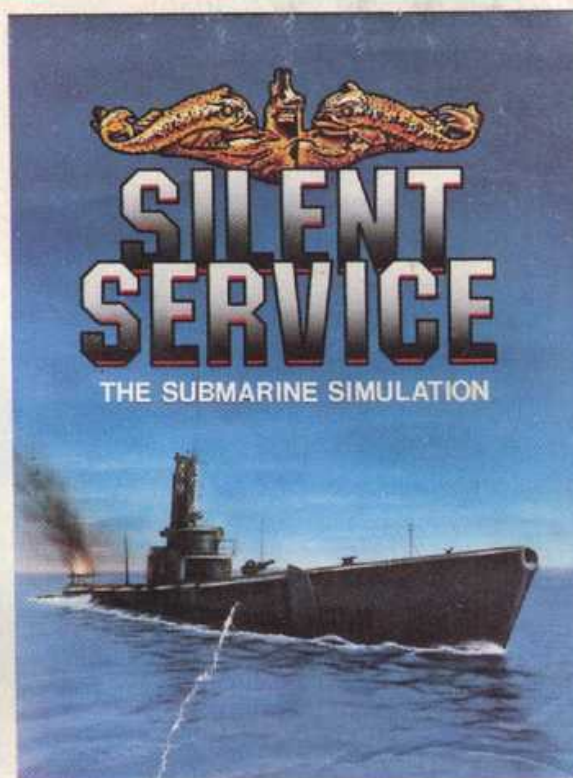


## THIS WEEK'S REVIEWS

Konami's Jail Break

They Stole a Million – the big  
heist from Ariolasoft

Plus Shades, Micronet's  
new multi-player game



## NEWS DESK

Atari – new  
machines for the  
New Year

From games consoles to  
Unix systems

How will Amstrad  
fare in 1987? – see  
page 9

Mastertronic expands  
with Best of British  
label



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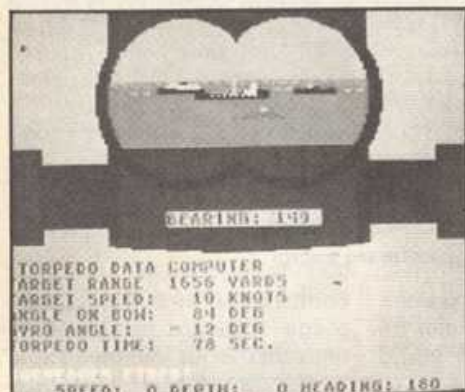
Computer Novels, P.O. Box 10090, S-200 43 Malmö, Sweden. Tel (+46) 40 23 25 20. Tlx 32135 Comput S



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Desk top utilities for the Atari ST on cartridge. Save on user memory with Back Pack from Computer Concepts.

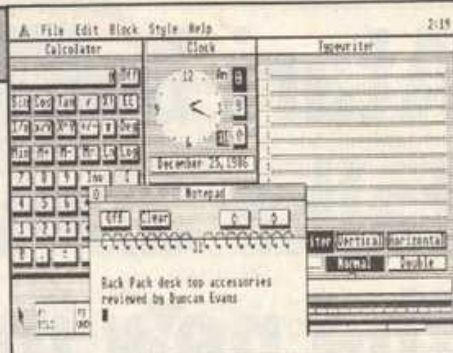


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John Lettice discusses the addictive qualities of strategy games, and why they attract such a dedicated following.

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All the features of *Dbase II* for much less cost. Tony Kendle investigates.



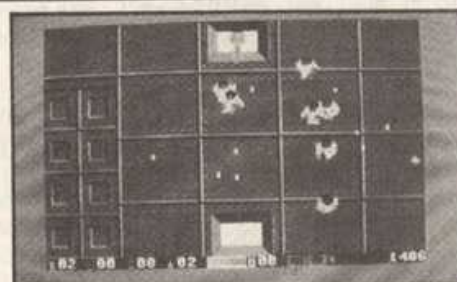
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**ABC**

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



# Atari boss talks about the new micros

ATARI is planning new machines across the board in 1987, according to UK managing director Bob Gleadow. The company will go into the new year with price reductions on its ST range, led by the 520STFM (see last week's issue) but will be bolstered by the announcement of new business machines at the Hanover fair and the launch of the 7800 games console in May.

Gleadow concedes that there will be a price cut on the ST early in the year. Although he scotches suggestions that this will bring the FM down to £199. He won't announce the prices yet, but says that "Amstrad has created a price perception at £399," so it seems clear that the ST is to be pegged against Amstrad.

The next major development will be the arrival of the 2Mb and 4Mb machines in March/April. These will now only be available with separate keyboard and system unit, and not in conventional ST format as originally planned.

Functionally they'll be STs with larger memory, but they will be more open machines, with more expansion capabilities on the bus, and they'll have at least two more expansion routes. These are currently mysterious holes on the back of the case that Atari won't talk about, but they could be intended for dedicated peripherals of some sort.

Hanover will see the launch of Atari's 32-bit workstation, a more business oriented 68020-based machine, alongside a Unix system.

This latter will effectively be an add-on to the ST, allowing it to run as a cheap Unix terminal.

Above these Atari may well announce a completely new machine. Gleadow won't talk about this at all, but over the next few years sees a new generation of Atari machines competing directly with a new range of IBM machines. He feels it's too late in the day for an ST-PC conflict to be a serious issue.

The final appearance of the



ST: To remain Atari's mainstream micro

much-touted 7800 games console in May could just be more interesting than you'd expect. Gleadow is aware of the difficulties involved in producing software for games consoles, as cartridges need high volume production and longer lead times, and is currently looking at two options. The simplest is to put a tape port on the machine, allowing software houses to develop a

combination of tape and cartridge software for it, while the other is for the machines to use an Eprom cartridge system.

Both these are subject to the veto of Atari chairman Jack Tramiel, so it may be they'll never happen, but if they do they could mean that 7800 software will be cheaper and more plentiful than its rivals.

## Microdeal's persistence prangs a pirate

MICRODEAL has successfully gained a judgement against a software pirate. Dr T Mohamed of Blackburn had been soiling a £30 compilation of Microdeal programs, and in 1984 Microdeal obtained an order allowing Mohamed's premises to be searched, and

for any copyright material to be seized.

More than two years on, after what it describes as "a long and lengthy trek through the courts," Microdeal has obtained a judgement of £9262.98 against the good doctor.

## Choice PC package launched by First

FIRST Software is now selling PFS:First Choice. Software Publishing's £149 integrated package for the PC. First Choice is designed to be easy to learn, but is claimed to be both versatile and powerful.

It combines word processor, file manager, spreadsheet and communications programs, and allows you to switch from one project to the next without changing discs. The applications also share a common command structure, and feature on screen prompts, help keys and a quick tour starter guide.

The word processor has a 75,000 word dictionary and Mailmerge facility, and can handle 132 column documents up to 30 pages long. Spreadsheet format is 1,024 rows by 512 columns, and the program can support up to 1,000 fields per record and 21,000 characters per field.

The communications program supports auto-dialling and handles speeds of 300, 1200 and 2400 baud.

Details from First Software, Intec 1, Wade Road, Basingstoke, Hants RG24 0NE (0256 463344).

## Gold comments on break with Microprose

US GOLD has spoken out following Microprose's announcement that it would no longer continue as its licensor for products in the UK.

"We weren't exactly 'abandoned' by Microprose," said US Gold's Tim Chaney. "We asked Microprose for a two year formal contract with us, as opposed to the informal product by product arrangement we'd had before."

Microprose was not willing - it had already set up a UK office - so we agreed not to continue with them as from January 1."

## Accounts upgrade

CORNIX Software has launched an upgrade to its Simple Accounts package for the PCW for £17.25. The new facilities included are payment report, payment advice, a facility to print your company name on reports, an increase to 300 entries per portfolio and a modification of the entries available routine.

The full package costs £34.95, and Cornix also offers a £12.50 evaluation pack whose cost can later be credited against the price of the full product.

Details from Cornix Software, Spirella Building, Bridge Road, Letchworth, Herts SG6 4ET (0462 682989).



# Grand Mud wrestling contest

A MUD spectacular will take place on January 1, according to Simon Dally of MUSE, which runs Mud on BT's network.

Two players, Revvit the Necromancer, alias Paul McCracken, and Micromud, aka Jon Stuart will be challenging any Mud subscriber to have a go at killing them on a specially developed version of the game, between 6pm and 10pm.

Any challenger who suc-

ceeds will win an Amstrad CPC464. If the pair are still alive after four hours of on-slaughter, they keep the machine. Entrants who die at the hands of Revvit and Micromud will lose their Mud personae.

The challenge is available on the usual Mud number, 01-998 8899. Non-subscribers can log on using the guest password 'Prospect', to watch the action, but cannot take part.

## Locoscript training

USING *Locoscript* is a training video designed to help people get to grips with Amstrad's PCW word processing program. The tape deals with the kinds of disc drives fitted, creating documents, disc management and type styles.

It lasts for an hour, and costs £19.95. Details from Master Class Video Cassettes, 172 Finney Lane, Heald Green, Cheadle, Cheshire SK8 3PU (061 437 0598/9).

## Bright idea from Adapt

ADAPT Electronics, best known for its series of RGB interfaces for the Spectrum, has now launched a Bright module for the Spectrum 128 and Plus 2. The unit allows the computer to use Bright on any monitor, whereas normally this facility is only available on higher cost monitors with a separate intensity input.

The unit gives RGB output and can be used with Microvitec Cub monitors. It costs £29.95 plus £1 postage and packing.

Details from Adapt Electronics, 20 Starling Close, Duckhurst Hill, Essex IG9 5TN (01-504 2840).

## Amcom price cuts

AMCOM Software has cut prices on its ADFS compatible Winchester units and its

E-Net BBC network. The 20Mb Winchester comes down to £765.

Details from Amcom Software, 35 Carters Lane, Kiln Farm, Milton Keynes MK11 3HL (0908 569212).

## Correction

CHRISTMAS spirit unfortunately set in a little early round at Popular Towers, resulting in a few glitches in the bumper Christmas issue. The picture of Starglider on page 15 bears a chilling resemblance to Advanced Art Studio, matched only by the likeness the picture of Advanced Art Studio (page 45) bears to Starglider. Draw your own conclusions.

Most profuse apologies however are due to Andrew Hewson, who unaccountably appeared in the magazine as "Andrea". If we publish another picture of you will you let us off, Andrew?



Hewson: Totally normal

## Software Hotlines

It's a sad fact, but independent specialist computer stores are a dying breed.

You just have to look around any high street and you'll see that many of the small guys, the enthusiasts, have long gone.

"Oh dear, what a pity, how sad," I hear you cry, but the fact is, gentle reader, it is you that is missing out.

The multiple chains — Boots, WH Smith and Menzies for example — are professional retailers who carry many product types, of which computer software is only one.

The people at the top of this type of company are pros; they are into maximum profit per foot of shelf space at the minimum risk — and who can blame them? However, this strict rationale makes them very conservative about which games they wish to stock.

This can get really silly — Boots, in particular, now make their buying decisions via video only. How much money a company is going to spend advertising a game is also taken into consideration. All of this affects what you, the consumer, sees on the shelves both directly and indirectly.

Today the present crop of titles has already been culled by someone more likely to be an accountant than an enthusiast.

As for the future, there must be pressure on software houses to make the game

look and sound good on video (possibly to the detriment of playability) and to allocate a bigger slice of the budget to advertising, rather than spend it on development. Unless you out there with the money start voting with your pockets. Got that?

Konami's excellent *Jail Break*, on the CPC, failed to pass one of the big boys' tests.

Astounding, since it's one of the best shoot 'em ups on the Amstrad this year (see reviews this issue).

Thrill-seekers can be assured that other conversions are well into the tidying up stage and should be released within the first two weeks of January.

The program sourcing is being carried out by Nemesis Management (nee Global Software) in sunny Clapham, with the next Konami title being that arcade mega-hit *Nemesis*. The Amstrad version looks glorious (programming by Steve Lockley of Cyclone, graphics by Nemesis in-house designer Stu Ruecroft) and the Commodore 64 end is being handled by Simon Pick (of Firebird's *Microhythm* and *Mad Nurse* infamy).

Tarted-up *Scramble* it may be, but the indications are that it's going to be just as infuriatingly addictive as *Jail Break*. With a release date of early February and Konami classics *Iron Horse*, *Super Basketball*, *Salamander* and *Jackal* to follow, Konami is going to be worth watching in '87.

For more ramblings from Old Crudley's Almanac, tune in next week.

John Cook



Nemesis



# Mastertronic games get pedigree chums

MASTERTRONIC is to launch a new label to fill what it perceives as a gap in the market between its "action" and "thinking" games. The Bulldog (Best of British) label will, according to Mastertronic's Ron Harris, "require a little more thinking than the usual run of games."

He gives David Jones' *Spellbound* as an example of what Mastertronic is looking for, although he says Bulldog games are likely to be a little more action-orientated than *Spellbound*. The games will all be £1.99, with the first release, *Feud* on 64, CPC, Spectrum and MSX at the end of this month.

By March or April he sees the range putting out "a cou-

ple of titles a month across several formats." Speaking of the new range Mastertronic chairman Frank Herman commented "Bulldog by name will be Bulldog by nature."

## Low-price Prolog launched for PC

LOGIC Programming Associates has launched a £150 package designed to provide an introduction to the Prolog expert system development language. The package is a combination of LPA's Prolog Professional Entry Level Interpreter and an entry-level version of the expert system shell Apes, and runs on the IBM PC.

## QL gains multi-feature disc interface

MICRO Control Systems has produced a QL disc interface which incorporates a utilities Eprom that features an additional 70 commands. The Memodisk interface allows up to four 3½ inch or 5¼ inch drives to be controlled in any combination, and includes routines which allow the speed of the drives used to be checked, obviating the need for jumper settings.

The Eprom's features include a Ram disc, file management commands, non-destructive windows, icons, print spooling, job control, function key control, creation of additional screen fonts and fully-controllable screen dumps. It also provides true multi-tasking.

It's available without Ram and with 256K and 512K, costing £99, £199 and £249 respectively.

Details from Micro Control Systems, Electron House, Bridge Street, Sandiacre, Nottingham NG10 5BA (0602 391204).

## DIARY DATES JANUARY

9-11 January

### 6th Official Amstrad Computer Show

Novotel, Hammersmith, London W6  
**Details:** The year kicks off with the first of an ever increasing wave of Amstrad shows. Hardware, software, the works for CPCs and PCWs, with early support for the PC to be expected  
**Price:** £3 adult, £2 children, £1 discount for advance booking  
**Organiser:** Database Exhibitions, 061-456 8835

## FEBRUARY

17-20 February

### Which Computer? Show

NEC, Birmingham  
**Details:** Mainly business exhibitors  
**Price:** £5  
**Organiser:** Cahners Exhibitions, 01-891 5051

26-28 February

### The Atari Computer Show

Novotel, London W6  
**Details:** First chance for Atari to show off exciting new strategy  
**Price:** £3 adult, £2 children, £1 discount for advance booking  
**Organiser:** Database Exhibitions, 061-456 8835

## APRIL

10-12 April

### The Commodore Computer Show

Novotel, London W6  
**Details:** Software, hardware and peripherals for Commodore range of machines  
**Price:** £3 adult, £2 children, £1 discount for advance booking  
**Organiser:** Database Exhibitions, 061-456 8835

## MAY

9-10 May

### The Electron & BBC Micro User Show

New Horticultural Hall, London  
**Details:** Software, hardware and peripherals for Acorn's micros  
**Price:** £3 adult, £2 children, £1 discount for advance booking  
**Organiser:** Database Exhibitions, 061-456 8835

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

## Footnotes

MICROPROSE (sorry people, but you will keep sending them out) is understandably pleased that *Decision in the Desert* is being released a month ahead of schedule, and with spanking new Microprose-specific wrapping. Spanking is, however, what's likely to happen to the author

of the wrapping. Would you believe "You are in command - North Africa 1940-42!!" followed by "Dusk, October 24, 1944..."?

Under the circumstances we'd propose text to follow on the lines of "Two years ago Montgomery drove the Germans out of North Africa, and now El Alamein - no tanks, no nasty bangs - is an excellent place to avoid getting shot and get a suntan..."

You probably remember the story in the news about the bloke who had a brain-storm and stuck a fibreglass shark through his roof. "Daftworks," you no doubt thought. "He's obviously wasting his money." Or was he? The aforementioned useless artefact is now featuring in Virgin Games' bid for most absurd press release of the year, and you'll recall Virgin is run by Richard Branson, who also collects rubbish.

A shameless Nick Alexander of Virgin Games claims the shark as Virgin's mascot, and further alleges that he was at university with the



"I'm sure Rommel said Thursday." beast. Fishy story...

Last but not least, our old friends at Database Publications return with news of a new teleshopping service on Microlink. "While other services restrict themselves to a limited range of products... there will be no such constraints on Shop Window. Although its initial catalogue of companies is mainly concerned with computer products..."



Porpoise-less exercise.



# PROGRAMMERS GAMES DESIGNERS REQUIRED

*We are currently working on a number of new games and now plan to add further projects to our release schedule.*

*At present we are specifically looking for the following people:-*

## **A Full-time Senior Programmer**

*We need an experienced games programmer to team up with one of our artists to form a new in-house design/programming team.*

*The job involves working together to see games from the initial conception of an original idea through design and programming. Initially working on the Amiga and ST, as a Senior Programmer you will also be overseeing programming of C64, Amstrad and Spectrum versions.*

*You will need to be fully experienced in machine code and already have programmed at least one arcade/action style game for the Spectrum, C64 or Amstrad. A good eye for games design is essential as well as a friendly personality and sense of humour!*

*The job is based at our Central London offices. Salary will be based on previous experience. In addition a royalty is paid on sales of games. Applicants should be at least 19 years of age.*

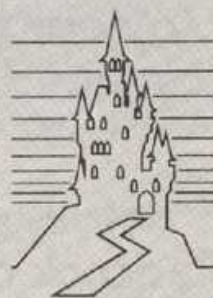
## **Freelance programmers/designers**

*We are very interested in publishing games written and programmed by freelance design and programming teams.*

*You will probably be working within the business with involvement in games already published by other companies and now want to further establish your name and reputation. You will need to have the experience to see projects through from initial idea to finished programme.*

*If you feel you are a talented and experienced programmer/designer – working as an individual or a team – with exciting and original ideas, we would like to talk to you.*

*In either case phone Pete Stone at Palace Software on 01-278 0751 and tell him all about yourself.*



**PALACE  
software**



# PROGRAMMERS required



Can you match the software shown above? If so, we would like to hear from you. Z80,6502 and 68000 programmers required for in-house and freelance projects.

For further details please contact Mr. Rod Cobain or Mrs. Linda Peacock on Bracknell (0344) 427317.

Unit 15, The Western Centre, Western Road, Bracknell, Berkshire RG12 1RW  
Telephone No: (0344) 427317      Telex No: 848940 MIKGEN G



# Amstrad's prospects for 1987

ALAN Sugar is unlikely to be a completely happy man while Amstrad's share price remains in the doldrums, and while suggestions that his PC overheats refuse to die, but for all that he can't be totally displeased with his company's performance.

His CPC machines have remained a strong, profitable base for the company, while the PCW's spectacular success over the past year promises to be repeated by the PC1512.

Besides this Amstrad now has the Spectrum Plus 2 under its belt, while its main rival, the Commodore 64, now costs substantially more.

Amstrad therefore has the games and small business markets sewn up, and with the aid of the PC should be able to make substantial inroads into the company market over the next year.

But Amstrad's very success must now be causing the company a certain amount of heart-searching. So far Sugar has followed a simple pattern with his micro products.

First an established market is identified, then the technical department is told to produce a specification that will meet the needs of that market cheaply and reliably, and finally Amstrad makes lots of money selling the end product.

Amstrad's problem now is that there are few obvious areas left where it could do this. The follow-up to the PC is the most plausible. This would be a machine higher up the scale, featuring a faster CPU (the Intel 80286) and an IBM-style Enhanced Graphics Adaptor, and the existence of such a machine would help sales into the company market, as buyers would have a logical upgrade path.



Sugar: A simple masterplan.

The other obvious area where Amstrad could expand its range is at the opposite end of the scale, in the games market. When Alan Sugar bought out Sinclair Research he expressed an interest in games consoles, and clearly viewed this as part and parcel of his plans for Sinclair. Development of a Sinclair badged console is, however, fraught with problems.

There are currently three major consoles ready for launch – the Nintendo, Sega and Atari 7800. It's possible that Amstrad could try to badge one of these, but the three companies' expectations of their machines are currently so high that, even if they were for sale, the price would be more than Alan Sugar would be prepared to pay.

Amstrad is therefore left with the choice of developing its own machine, or having no console. The company could base a console on the Spectrum, but to maintain compatibility while at the same time rivalling arcade machines in terms of speed and quality of graphics Amstrad would have to add a series of dedicated chips to the existing Spectrum, effectively producing two machines in one box.

The major problem is, however, software. Games consoles will sell only if they have a reasonable body of arcade quality software available for them, and software develop-

ment has been Amstrad's one major failing over the past couple of years. The products of Amstrad's in-house development work on the CPC failed to set the world on fire, and left the machines largely dependent on conversions.

The PCWs were specifically designed – perhaps with the lesson of the CPC taken on board – to take advantage of a ready-made body of software, and the PC follows the same course.

Amstrad would therefore have to make quite radical changes in the way it operates in order to produce a successful games console.

The machines Amstrad has at the games end of the market are also by no means securely placed. The Spectrum should logically take over from the CPCs, but the current generation of software is making its limitations more and more apparent, and by next Christmas Amstrad will have to have found a replacement in order to maintain its position.

The current Spectrum Plus 2 is simply a recased Spectrum 128, which is a Spectrum Plus with extra memory bolted on, which is a recased Spectrum 48, which is an enhanced ZX81, which is a modified ZX80. The standard will now need serious revision if it's to fight the Atari ST.

The latter machine is likely to become a serious problem for Amstrad. The micro world

is currently split between those who favour the 68000 chip and those who put their faith in the PC standard, and while the 68000-based ST hasn't broken any sales records yet it's likely to build its user base over the next year. When that base is big enough, Amstrad may produce its own version, but this isn't quite as tall an order as it might seem. AmigaDos, or a related product, can be licensed, so Amstrad could conceivably buy in some of the necessary technology. Any Amstrad 68000 machine would, however, almost certainly be forced to rely on ST conversions in the same way as the CPCs rely on Spectrum conversions.

All these problems may seem diverse, but there is one common thread that unites them. This time last year Amstrad was market leader only in terms of profits, and these profits were based on a company philosophy of doing what the market leader was doing, but doing it better.

Amstrad's difficulty now is that the strategy has succeeded so well that it is the market leader in practically every area it trades in, that there's no-one to chase, and that it must now innovate rather than emulate.

So 1987 could either be the year Amstrad starts investing heavily in R&D, or it could be the year the company starts making fridges...

John Lettice



The PCW: A repeat performance from the PC?



## Thank you, Maros Computers

I unfortunately fell victim to the mail order company Johnson Enterprises (see News Desk, December 11). However, I then contacted Maros Computers, also mentioned in the same issue, and I would just like to say thank you to this company, which went out of its way to help me.

Mr Everall, the financial director, even phoned me in the evening to help me with my problem and within 48 hours of our conversation I had received my programs, which I had spent three months trying to find.

N Ball  
Feltham  
Middx

## Spectrum Plus 2 - no problem

Reference your report in *Popular*, December 11 in which you outline a 'problem' with the Plus 2 Screen Editor, stating that it becomes unacceptably slow when typing in long programs.

I do not see this as a real problem at all. The simple answer is to type in long listings in blocks of say, 100 lines, saving each on to tape in turn, thus freeing the memory for the next block.

When the listing is com-

plete, the blocks are simply merged together into the complete program.

It does, in any case, make a great deal of sense to input long listings in this way as a safeguard against accidental erasure or crashing at the end of a long typing session - why risk losing 1000 lines when you need only risk a few dozen or so? I thought this was standard practice.

Don Mason  
Nottingham

## Sega sprites

I would like to point out that there was an error in Chris Jenkins' article on the Sega master system (Vol 5, No 47).

It stated that the Sega has 32 hardware sprites - there are in fact 256.

Amanda Barry  
Ariolasoft UK

## Don't switch off the kernal Rom

Kenn Garroch's reply to S Dunn's question on interrupts, was as always faultless. I think however, it should be pointed out that, switching out the kernal Rom altogether will cause the novice machine code programmer problems in itself.

All of the kernal's routines including, reading the keyboard, updating the system

clock, and I/O routines will be lost.

Reading between the lines of the original question suggests that S Dunn simply doesn't know how to use the indirect vectors properly. Providing the new routine is bug free, and the interrupts are inhibited (SEI) while the vectors are changed, there should be no problems. Also the new routine should end with a jump to the original interrupt routine, to service keyboard etc.

These comments are in no way intended as a slur on Kenn Garroch, whose page I read, enjoy and learn from on a regular basis.

John Ferrari  
Dagenham

## Up the creek without a paddle

After reading several reports, I decided that I must buy the Firebird *Revs* package. Only then did I splash out on the computer itself, and I doubt if I'll use it for any other purpose!

I borrowed a pair of Atari paddles from my brother's kids, so that I could use the paddles/joystick option. So far, so good. But then a problem arose. No way can I manage to get hold of my own, so that I can return the borrowed pair. Please, where can I get some from?

Apart from some oscilla-

tion on left lock only, causing the car to jerk off the track occasionally, this control combination suits me best and I just can't understand why paddles are so hard to come by.

I may try an analogue joystick soon, but I wonder if I'll be able to do one minute twenty five with it as I have come to expect with the paddles.

John Stewart  
Leyburn  
N Yorks

**We're a bit stuck on this one too. Can anyone help Mr Stewart out?**

## Extolling the virtues of Comal

I wish to refer to the Ziggurat article in the December 4 issue by Steven Gray, regarding his comments on the desirability of an advanced Basic type language that would run much faster than current versions, and include many advanced programming operations.

For the past 12 months, I have been programming my C64 in Comal, using the Comal cartridge obtained from the Independent Commodore Products User group (ICPUG).

Comal is a language developed in Denmark by Dr B Christiansen and it combines the best features of Basic, Pascal and Logo.

As in Pascal, the programs

# Puzzle

## Puzzle No 239

This year, after decorating the Christmas tree, I had a spare set of lights left over so I decided to string them horizontally along the picture rail.

Before they were taken down on twelfth night a number of the bulbs had fused, so only some of them were lit. There were twenty bulbs in all, and as I sat looking at them I realised that the lit and unlit bulbs could represent a twenty bit binary number - the lit bulbs representing 'ones' and the unlit ones 'zeros'. Out of curiosity I calculated the number (in denary) that was indicated by the lights and was surprised to find that the denary value was palindromic (that is, the number read the same forwards and backwards).

I was even more surprised because the arrangement of the lit and unlit lights themselves were also palindromic.

If both of the end lights were lit, what is the arrangement of the lights and its denary equivalent?

## Solution to Puzzle No 234

**Answer:** The lowest number in the Fibonacci series which is exactly divisible by one hundred is the number that is the 150th in the series. The first number that is exactly divisible by 1000 is at position 750.

**Solution:** The program generates each successive number in the Fibonacci series - or at least the right-hand six digits of the series.

The series itself rapidly becomes too large to calculate, but in order to determine if the whole number is divisible by either 100 or 1000 it is only necessary to determine if the last two or three digits are zeros in each case.

The series is generated in lines 10 to 30, but when the total exceeds six digits, the number is truncated. This has no effect on the sequence of these minor digits and these still represent the exact digits which occur at the right-hand end of the number itself. The actual number at position 750 in the Fibonacci series is actually 360 digits long!

```
10 A=1:B=1:ST=2
20 PRINT A:PRINT B
30 C=A+B:ST=ST+1:PRINT C:ST=A:B=C
40 IF C/1000=INT(C/1000) THEN STOP
50 IF A>99999 THEN A=STR$(A):A=VAL(RIGHT$(A,6))
60 IF B>99999 THEN B=STR$(B):B=VAL(RIGHT$(B,6))
70 GOTO 30
```

## Winner of Puzzle No 234

The winner this week is Angela Armstrong of Abingdon, Oxon who will be receiving £10.

## Rules

The closing date for Puzzle 239 is January 24th. Printouts or written listings of programs used to solve the puzzle should be included with your entry.



are completely procedure based and the language contains a full range of structured commands, including *If-Then-Else-Elif*, *Loop-Exit When-End-loop*, *While-Do-Endwhile*, *Repeat-Until* and the Pascal type commands *For-Do-Endfor* and *Case of-When-Otherwise-Endcase*.

Comal makes full use of procedures and functions with full parameter passing into and out of them. All procedures and functions are called by name only and are normally open. In this way, they behave rather like sub-routines and are far easier to use than the normally closed procs/functs of some languages. The ability to call them from disc, suggested by Steven Gray, exists in Comal.

It is possible to obtain Comal for the Amstrad CPC464, and IBM PC compatibles, and I believe there is also a version which runs under CP/M. For more information on these, I would recommend writing to ICPUg, which has a resident Comal expert.

My advice to Steven Gray is to get a machine that runs Comal, as I believe this is the language he has been seeking.

Steve Harrison  
Birmingham

## Solutions please

I would like to get in touch with any software authors who contributed programs, or had programs published, by Mr Steven Lambert and his company Central Solutions.

Please write to me at the address below.

Edward Beck  
6 Weardale Walk  
Shildon  
Co Durham

## Struggling it out

I would like to draw you and your readers' attention to SLUG, the ST London Users Group. We are, we believe, the only independent user group solely for the ST range of computers.

The first issue of our quarterly newsletter will be sent out in mid-January and will be free. Anyone who would like to receive a copy can contact me at the following address: M Mills (SLUG), 7a Ambleside

Drive, Southend-On-Sea, Essex SS1 2UT.

Alternatively, contact the ST London BBS on 01-443 1432. Baud rates supported are 300/300 and 1200/75 and the protocol is 8 data bits, no parity and 1 stop bit. Times are midnight to 11am.

The newsletter will be packed with news, reviews, articles, tricks and tips, programs to type in in all major languages, tutorials and general information about the ST



"OK, yah, it can be upgraded to Melinda or Henrietta"

range. Although based in London, anybody is welcome to contribute to the newsletter.

I would also like to make a few comments on the ST Ramdisc article you recently published (November 27) because I feel that some of the things your reviewer said could be misleading to beginners or someone who has no experience of Ramdiscs. Firstly Howard advised caution in assigning the letter C to a Ramdisc for fear of confusing the OS that a hard disc was present.

As far as I know the only danger in using that particular letter is that you *must* specify upper-case C as the device ID because lower-case c is the ID for a cartridge inserted in the cartridge slot. I believe that the hard disc (should there be one) can be configured to any available letter(s) for its ID and is not limited to C in any way.

I have certainly used a C Ramdisc with no problems. This also means that a user does *not* need to copy accessory files to the Ramdisc after initialisation as stated. *M-Disk*

from Microdeal does this automatically but no-one seems to know why. A quick patch with a disc editor can knock out this superfluous feature and instructions for doing so will appear in issue one of the SLUG newsletter.

Secondly, in order to prevent the machine from 'losing' your Ramdisc when you change screen resolution simply choose *Save Desktop* from options menu on the desktop after you have initialised your Ramdisc and this will save a suitable configuration file on the floppy disc which will be read after every resolution change, keeping all user-initialised drives on the desktop.

Marvey Mills  
ST London Users Group

## Is anybody there?

Could any reader tell me if the Enterprise User Group is still in existence as I cannot get a reply.

Also, any reader interested in swapping hints and tips on the Enterprise can write to me at the address below.

S Perrin  
41 Hodgson Close  
Leicester

## Monkey puzzle

When is a puzzle not a puzzle? Apparently when it appears, in the pages of *Popular*.

I should explain - I am a regular subscriber to your weekly mag, which has that priceless Puzzle section which enables the real computer user to get cracking on inventing algorithms to solve quite complicated problems - problems which could be solved with pencil and paper but take 3.7896543 millenia to do so. It is one of the *great features* of the magazine.

But to be a genuine puzzle there should be only one *unique* answer to the problem. I have written to you before on wrong solutions and on the system of "first correct out of the hat" when it should be "the first correct, shortest, quickest running time" test. But this is a real complaint. Puzzle Number 232 had three correct solutions, viz: 2716 and 6172; 4718 and 8174 (the one you gave); 5719 and 9175.

My entry was the first one

of the three. Worse still the program you printed did not give even your own answer!

Finally, to rub salt into the wound, this week's puzzle number 237 has no fewer than 15 correct solutions.

J Frank Hughes  
Chwyd

**Your comments have been noted, J Frank. We are currently taking steps to tighten up the rules and conditions surrounding the Puzzle section.**

## 128 worries

I have noticed recently the general neglect being received by Commodore. I realise that this may be due to the company's financial losses last year and the damaging effect that it had on Commodore's image, but I would just like to point out that there are still many dedicated Commodore owners, that are, at present as worried as I am.

About six months ago our family purchased a Commodore 128D computer and it has proved to be very good for many applications and general home entertainment. Do you have any predictions on the future of this machine, its software? Also could you tell me if you know of any 128 users club, anywhere in the country?

J A Hannigan  
Birmingham

**It is certainly true that there has not been much software written specifically for the Commodore 128 and 128D, and that the machines have had to rely, to some extent on their compatibility with the Commodore 64.**

**That having been said, there is no reason why the standard of Commodore 64 software (and therefore, indirectly, 128 software) should suddenly drop.**

**As for the machine itself, while Commodore has been promoting the Amiga and Commodore 64C more heavily in recent months, the company states it will continue to sell the 128s.**

**Anyone who knows of, or is involved in a 128 User Group, do let us know.**



## Strategic defence

John Lettice throws away the joystick to dwell on the addictive qualities of strategy games

At times it seems as if 'strategy' has become a catch-all term for any kind of computer game that's difficult to define. The heading covers everything from *Football Manager* through to highly complex battle simulations, with points outside this including chess, draughts and even bridge, all of which arguably have 'strategy' elements.

Some of the earliest games released for the current generation of micros were strategy games, and it's no coincidence that both the indestructible *Football Manager* and the gone but not forgotten *Great Britain Ltd* were both written in Basic. Strategy games don't need fast arcade sequences, so they can be written in Basic without becoming unacceptably slow, and this allows people who have good ideas but are short on programming skills an entry to the software market.

There are few companies currently in the strategy games sector, and while most software houses will occasionally launch a simulation of some sort the specialists tend more to produce computerised wargames. The first of these were often computerised versions of boardgames, and suffered on two counts. First, although you'd expect a computer to simplify gameplay, moving the 'counters' around was fiddly, often taking longer than doing so on a conventional boardgame did, and second many of the games didn't have a 'play against the computer' option.

Red Shift (or if you take its current trading status into account, Dead Shift) was one of the first companies to get round the second problem, implementing a form of computer intelligence in its *Rebelstar Raiders*. Although Red Shift is no longer with us the game was re-released by Firebird earlier this year, and there's some talk of *Apocalypse*, the highly regarded blow-the-world-up game, finding a new home too, at Infogrames.

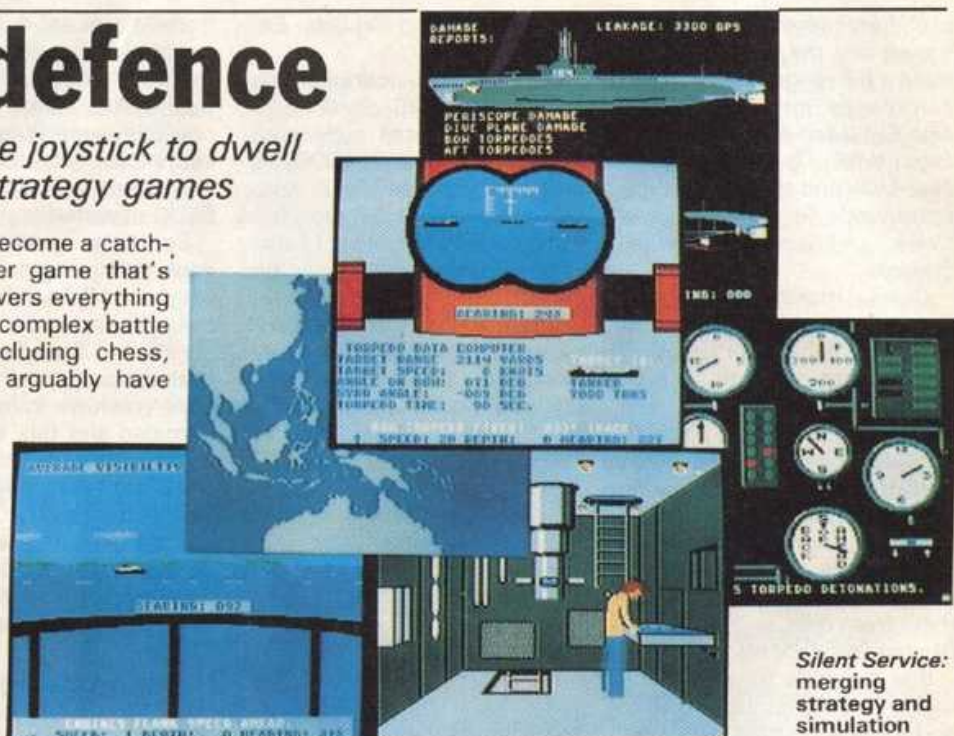
Some other British strategy software houses have, however, been more suc-

cessful at the game of continued existence. PSS has done well with conventional battle simulations on the lines of *Tobruk*, *Battle of Midway* and *Theatre Europe* (not about Ibsen and Strindberg), and is now branching out with *Annals of Rome*, an area-based game that allows you to scheme your way from 270 BC to around 1400 AD, and is also planning *Bismark* and *Battlefield Germany*, to be released in January.

*Bismark* could well be interesting, as sea warfare should be ideally suited to computer gaming, if properly implemented. Lothlorien has, however, beaten PSS to the punch with the curiously named *Legions of Death*. This is actually a simulation of sea warfare in the ancient world (similar to the old boardgame *Trireme*), and although it has fudges in the interests of playability it merges strategy and tactics nicely.

This and *Johnny Reb 2* are light-years away from Lothlorien's earlier efforts, which had very little in the way of strategy to them. Another company that has improved the quality of its output is CCS, which has taken a different route to playability with *Napoleon at War*.

With *Legions of Death* you need to move units individually, and plan their route block by block, but *Napoleon at War* allows you to issue broader instructions. You order groups of units to targets, and they'll head there if they possibly can. So if your battle plan is good enough you can just sit back and watch things develop, while if your commanders bump into anything unexpected they'll report back and ask for advice.



*Silent Service:* merging strategy and simulation

The most successful software house producing strategy games was, until last year, Beyond, but it looks like what was a fairly radical experiment is now over. Mike Singleton's *Lords of Midnight* programs do have maps, but they're on paper, and you "see" perspective(ish) views through the eyes of your commanders. The games can be treated as adventures, but can also be handled as wargames of sorts.

Besides the home-grown stuff, quite a lot of US-originated strategy software has been brought into the country through the good offices of US Gold. SSI is one of the major players here, with a range of titles from *Knights of the Desert* and *Tigers in the Snow* through to *War in Russia* and *Wargame Construction Set* (they call a spade a spade over there).

US Gold was also responsible for bringing the first Microprose software over here. Microprose, which has now opened up shop here on its own, likes to claim that its games are accurate simulations, but they're actually a lot more playable than that (!). *Decision in the Desert* is one of the classic straight wargames from the company, while the likes of *Silent Service* provides a good merger between simulation and strategy.

The launch of the Amstrad PC should also go some way to increasing the range of strategy simulations on offer, as rightly or wrongly many software houses believe these machines will appear to a more thoughtful kind of user, who'd like to outsmart Rommel in between bites of quiche. We'll be seeing more US imports initially, but in about six months the home grown product should be coming on stream. Given that strategy games can take hours, even days, to play, that could be bad news for connoisseurs everywhere.

### *Annals of Rome* from PSS





# Don't hesitate on this one

**W**ithout question the most famous database program available for CP/M and MSDOS programs is a package called *DBase*. *DBase* is a programming language rather than a simple program – you create your data files, add information to them, retrieve, print or display the information by giving the program direct commands rather than via menus, etc.

These commands can be linked together in a large file, together with many extra support features that let you print messages on screen, ac-

cept inputs from the user and so on. This file of commands can be executed in the same way that a Basic program is.

*VP Info* is a program that is almost completely compatible with *DBase II* and *DBase III*. It uses 95% of the same commands (to the extent that you could buy a *Dbase* tutor and use it on *VP Info* almost without modification), it can read and write the same files, and certainly has a lot more commands and options than *DBase II*. It's just a fraction of the price of both of them.

Some of these support

commands are very sophisticated, letting you create pop up windows and instantly switch screen displays. You also have many structured programming commands such as procedures and *Repeat Until* loops which will be familiar to anyone used to a decent Basic or Pascal.

Any reasonably competent Basic programmer can therefore quickly write customised database programs that do exactly what they want them to do. What is more these 'programs' can be compiled to run faster, and you can buy a licence to a 'run time

module' or *VP Info* that lets you produce copies of your program for sale. In the process you learn a skill.

There's nothing more to say: *VP Info* does everything *DBase* does, as well as some unique things of its own, is faster and provides much better value. Buy it.

**Tony Kendle**

**Program** *VP Info Micro*  
IBM PC Compatible **Price**  
£99.95 **Supplier** New-  
Star, 200 North Service  
Road, Brentwood, Essex  
CM14 4EF.

# Back Pack to the future

**T**he choice of general purpose desk top accessories is becoming ever larger so any newcomer to the field has to have some sort of edge in order to be competitive. Computer Concepts' *Back Pack* has such an advantage. In fact, to be precise, it has two. Firstly it offers utilities not seen before on a desk top accessory and secondly the program is cartridge based, thus saving on user memory.

Initially on power up the only thing present is an extra icon, labelled cartridge. After double clicking on this and loading up *Back Pack* as an application the 'Install Bootstrap' option must be taken in order to install the program as a desk accessory. That done, once the system is rebooted *Back Pack* appears under the normal drop down menu for accessories.

What *Back Pack* offers then is a calculator, alarm clock, diary, notepad, typewriter, printer buffer, address book and ram disc.

The calculator in standard mode offers the usual facilities including the following functions: sine, cosine, tangent, square root, factorial, exponent, reciprocal, yth root of x, x to the power y, degrees/radians mode, various memory options, natural log and log to base 10. The calculator also has a programmer's mode in which boolean algebra can be applied to thirty

two bit or sixteen bit numbers.

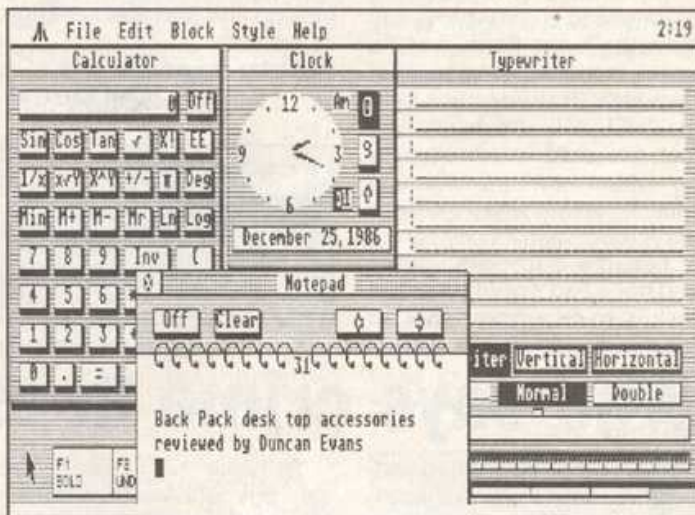
The clock features a dual time facility as well as four alarm settings and a date setting. Standard fare but there is also the option of displaying a mini clock containing just a digital display of the time.

The diary lets you enter notes and comments at various times for every day of the year. However, whether an electronic diary is of more use than its paper equivalent is debatable to say the least.

The notepad is equally self-explanatory and for once the display actually does look like a notepad. So, while in the middle of a spreadsheet or word processor you can open up the notepad and make appropriate comments for later use. A point to note here though is that while *Back Pack* uses no user memory in itself, storing pages of the diary or notepad does use up space on the disc.

Occasionally there comes a time when you have to write a short note, handwritten is not acceptable and using a word processor is just too much effort. Instead of wishing for the good old days when you only had a typewriter on your desk you can use this utility, called typewriter obviously enough, which simulates the real thing. You type and send text straight to the printer, even have it printed enlarged.

Printer buffers are useful



**Back Pack** from Computer Concepts: offering a wider range of desk top accessories

items at the best of times so it's nice to see one included here, especially since you can define the amount of memory to set aside as the buffer.

The address book is a database type facility which allows data to be searched and marked if found. As well as the standard option of allowing records to be printed you can specify that only the names and addresses be printed, enabling label printing to be carried out.

Finally, a Ramdisc is available which can be initialised with as little as 128K, for a 520ST, or as much as 3072K on a 4160ST. An additional feature is that of having an Auto folder which copies files into the Ramdisc on power up

automatically. One point that I didn't like about the Ramdisc set up was that the trashcan icon is removed from the desktop.

*Back Pack* offers all the usual facilities of this type of desk top accessory, and substantially more. Combining that with the instant access of the cartridge and its zero memory overhead gives you the best program in its category.

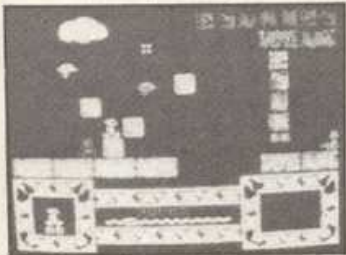
**Duncan Evans**

**Program** *Back Pack Micro* Atari ST **Price**  
£49.00 **Supplier** Computer Concepts, Gaddesden Place, Hemel Hempstead, Herts HP2 6EX.



# Attack of the killer goldfish

It's kind of difficult to think of the funny little feller with the head like a fruit fly as Brok the Brave, but there we are. Brok is currently imprisoned on the planet Hawkland spending his time



having his brain destroyed by mind bending drugs.

Fortunately he's being sprung, and commissioned to liberate Planet Earth and its space stations from a team of vampires (Reaganomics lives in 2987 AD). As he moves into the earth's atmosphere he notes with satisfaction that the task is one he's been supremely well-trained for.

Yes, it's a platform game, and not a bad one at that. The task is to hop from block to

block, avoiding spiders, skulls and assorted airborne killer goldfish type creatures. Each screen you get to has a token of some sort for you to collect.

You've got to get three keys to open doors, a list of objects to allow you to get through the various screens and finally a stake, a hammer and a cross. These will allow you to get Dracula.

Actually doing all this ain't easy, as you seem to have a nasty habit of getting killed, at which point it's back to the silly music at the start again.

Zero out of ten for originality, but *Vampire* is a pleasant-looking and playable variation of a theme.

**Popular Appeal** ♦ ♦ ♦  
**John Lettice**

**Program Vampire Micro**  
**Spectrum Price £1.99**  
**Supplier Code Masters, 1**  
Beaumont Business Centre,  
Beaumont Close, Banbury, Oxon.

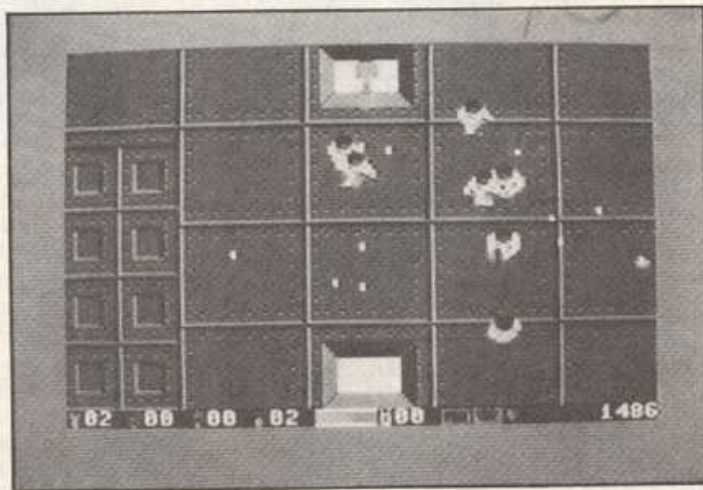
# Starship

A combination of *Commando*, *Gauntlet* and a military strategy game has to have lots going for it. Written by Kyle Hodgetts, who has come on in leaps and bounds since the budget blaster *Ollo*, *Star Soldier* is enormous fun and has lots to offer any headbanging gamer.

You start off by equipping your ruthless mercenary from the armoury. Everything is icon-controlled (although the

inadequate instructions could do with being more explicit on which icons are which). Grenades, smart bombs, energy capsules, warp units and explosives are available, but everything has its price and reduces your credit.

Having equipped yourself, search the sky for a likely looking planet. Select the View icon to examine it, and an information screen appears. Ah, a tasty little insurrection, and a weak army...



# Who says crime doesn't pay?

You've conquered ancient Europe, commanded every fighting unit from Sparta to Vietnam, you've been a South American dictator, run for president, even built a successful airline empire.

But how good a criminal are you?

You get a chance to find out in the latest release from Ariolasoft, *They Stole a Million*.

You start as a petty criminal with big ambitions and enough money to get you started. Your first purchase has to be a set of plans for the first heist.

The game itself is split into two parts. First, the organisation.

Having bought the details of your first job, you need to recruit the necessary specialists - safecrackers, alarms specialists, thugs, drivers, lookouts, and so on.

To make things easier you can buy additional information such as the location of the most valuable items, a wiring diagram of the alarm system, and similar useful stuff.

With a limited amount of money, you need to be careful how you spend it. For example, you need a driver on every job, but you can find drivers with extra skills such as explosives. This allows you to hire one person instead of two.

The last bit of organisation is to arrange a fence for the stolen goods.

You then move on to the execution part, the real fun. The planning is very similar to editing a video.

Each character is moved around the target area, timed by a stopwatch. Different tasks take different lengths of time, depending on the skill of the crook in question. For

example, an ace locksmith may take a couple of minutes to crack a safe, while a less skilled hireling may take nearer ten, or may not succeed at all.

You must have all members of the team working together with precise timing. If your safecracker goes to work before you have silenced the alarm, you're in trouble.

You can edit the "action track" of any or all members of the crew, deleting some steps, or adding others.

Finally, you put all the planning into action. At this stage you play the part of the boss, monitoring the progress of your team by radio and watching them on screen. If anyone gets into trouble you can jump in and help them.

You also have to watch for patrolling police cars in which case you can tell everyone to freeze, or abandon the job for another attempt.

More often than not, your people will botch the first few attempts, getting in each other's way and doing things at the wrong time. But they're only obeying your orders. So it's back to the editor for another go.

Assuming you succeed, you should net enough money to finance the next job.

*They Stole a Million* is a highly original game with neat graphics and a generally excellent presentation.

It is, however, very difficult since you must not overspend - or miss any of the loot - or you won't be able to afford to carry on.

**Popular Appeal** ♦ ♦ ♦  
**Peter Worlock**

**Program They Stole a Million Micro** Commodore 64  
**Price** £9.95 cassette, £14.95 disc  
**Supplier** Ariolasoft, 68 Long Acre, London WC2.



# troopers

sounds just right. (The opposition ranges from "weak" to "suicidal" – not to be recommended for the faint-hearted).

Select Go and you appear on the planet's surface; deserts, metallic cities and lots of enemy soldiers to destroy! Energy spots recharge your batteries (if you can stand on them long enough without getting shot), while some obstacles can only be overcome by planting explosives or using smart bombs. After my first successful attack – quelling a revolution – I found that my take-home pay after deductions was so little that I

ended up making a loss. Too generous with the smart bombs.

Not as fast as *Commando*, but the arcade section requires more strategy in the use of weapons, while the planning stage involves a good deal of forward thinking. Enormous fun for potential starship troopers.

**Popular Appeal** ♦ ♦ ♦ ♦  
**Chris Jenkins**

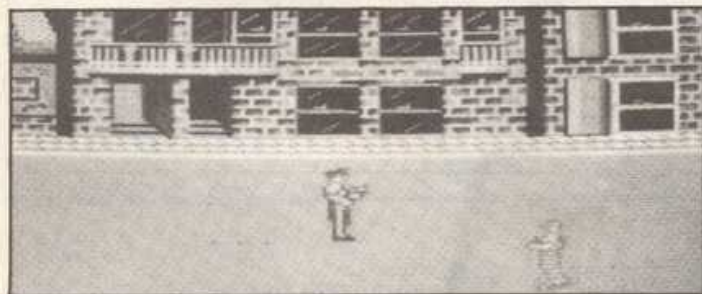
**Program** *Star Soldier*  
**Micro** C64 **Price** £8.95  
**Supplier** Quicksilver, Victory House, Leicester Place, London WC2H 7NB.

## Superior zapping

**K**onami is the first of the Japanese arcade coin-op companies to chance its arm at the home computer conversion game (Atari has been doing it for years, of course) and this is

left to right, dodging the bullets, madly avoiding the gas canisters and shooting the hell out of the opposition.

From time to time, hostages will appear, who must be rescued for extra points,



the first of many titles to come – *Jail Break*.

Load it up and you hear a cry: "The Governor's been taken hostage – free him no matter what the cost."

The cost, more often or not, is hours of frustration, several broken joysticks (keyboard control is far superior, but you don't find that out for ages) and the acquisition of a glassy-eyed state (accompanied by sinister grin) that would be at home on the set of any 1930's horror movie.

Catalyst Coders can be congratulated for producing a very competent piece of software and music.

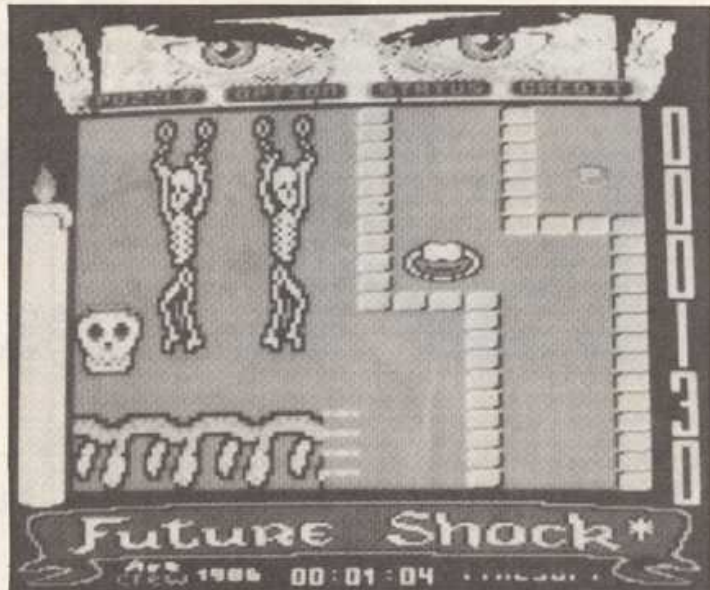
Quite simply, the game has you controlling your patrolman on the streets of a city full of armed and dangerous escaped prisoners. You move

with the added bonus that you get an extra weapon for doing the good deed. The two extras, a flame thrower and a grenade launcher, will be needed further on in the proceedings.

The graphics and so forth are professionally done, rather than stunning, but the real achievement here is in the gameplay. *Jail Break* is difficult – yet it's the kind of difficult you instinctively know isn't impossible. Highly superior zapping.

**Popular Appeal** ♦ ♦ ♦ ♦  
**John Cook**

**Program** *Jail Break* **Micro** Amstrad CPC **Price** £8.95 (tape) £14.95 (disc)  
**Supplier** Konami, via Nemesis Management, PO Box 67, London SW11.



## Mind-boggling

**J**ustifications for churning out endless platforms 'n' ladders or arcade adventure games are becoming more and more imaginative, even if the games themselves are not.

This latest effort from Tynesoft involves the supreme being, 42 billion years of evolution, a sliding block puzzle, a few pints of Tharg's special brew, and, no doubt hidden in there somewhere, a nice hot cup of tea.

In this Hitchhikerian scenario you play Glob, hapless amoeboid minion of old J Hovah himself, appointed to retrieve the sixteen pieces of the evolutionary scroll which are scattered through the human memory map.

According to Tynesoft the human mind is full of astron-

auts, snakes, flying eyeballs, anti-gravity elevators, hamsters, dragons and terminals – I suppose it depends what medication you're on.

Almighty stares down over the proceedings, eyes flashing when you take a knock – but he's like that. Although the graphics are large, colourful and well-designed, your control over Glob is limited to left/right.

Good value for fans of large, eccentric arcade adventures, but not outstanding.

**Popular Appeal** ♦ ♦ ♦ ♦  
**Chris Jenkins**

**Program** *Future Shock*  
**Micro** BBC B/Electron **Price** £7.95 **Supplier** Tynesoft, Unit 3, Addison Industrial Estate, Blaydon, Tyne & Wear NE21 4TE.

## Bargains at the double

**T** rue bargains are few and far between, so two fine C16 games at just £6.95 are too good to ignore.

One, *Bounder*, has already been a big hit on the CBM 64 and Spectrum. Here you control a tennis ball, viewed from above, bouncing through a mysterious landscape. Landing on squares marked with question marks adds extra lives or affects your bounce total; alternatively you can find yourself unexpectedly burst.

While losing some of the

detail of the 64 and Spectrum versions, *Bounder* is excellent by the standards of other C16 games.

The B-side is a fast-moving Defender look-alike, *Planetsearch*. Good fun in itself, and as a freebie with *Bounder* an excellent combination.

**Popular Appeal** ♦ ♦ ♦ ♦  
**Chris Jenkins**

**Program** *Bounder/Planetsearch* **Micro** Commodore C16 **Price** £6.95 **Supplier** Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.





## How to beat the Killer Gorilla

Tony Kendle and the Happy Hackers bring you more maps and pokes

This week we have a fine collection of pokes for two machines that haven't been covered much recently. To start with here as promised is A. F. Ferguson's *Killer Gorilla*, cheat routine for the BBC B.

"The listing should be entered and run and saved as a piece of machine code as per the Rem statement. To use it load the file of the game called 'KILLER' and then take out the original tape. Insert the new tape and load the new machine code. Now put back the original tape and this new machine code will automatically carry on loading the game, will modify it and then start it playing. You will be able to play without losing any lives, yet still get the extra life at level three."

For the Amstrad CPC machines there is a marvellous collection of cheat routines from Martin and Matthew of Brighton who call themselves The Happy Hackers. What a suitably festive note to end on! Merry Christmas to you. Don't forget, now you've opened your Christmas Presents and found, no doubt, lots of lovely games - Get Hacking!

```

1 *****
2 * THE HAPPY HACKERS PRESENT *
3 * GYROSCOPE CHEAT *
4 * YOU MUST LEAVE THE SCREEN AT *
5 * LEGAL POSITION OR IT WILL CRASH *
6 *****
7
8
9
10 x=&700
11 READ a:GOSUB 90:IF a<>-1 THEN POKE x,a:x=x+1:GOTO 20
12 DATA &3E,&C9,&32,&08,&53,-10,-20,-30,&C9,-1
13 x=&8000
14 READ a:IF a<>-1 THEN POKE x,a:x=x+1:GOTO 50
15 DATA &21,&06,&80,&C3,&13,&bd,&06,&00,&11,&00,&c0,&cd,&77,&bc,&eb,&cd,&83,&bc
16 &22,&2e,&80,&21,&19,&80,&c9,&e5,&2a,&2e,&80,&e3,&e5,
17 &21,&00,&07,&22,&38,&bd,&f5,&3e,&c3,&32,&37,&bd,&f1,&e1,&c9
18 DATA -1
19 CALL &8000
20 IF a=-10 THEN a=PEEK(&8D37):RETURN
21 IF a=-20 THEN a=PEEK(&8D38):RETURN
22 IF a=-30 THEN a=PEEK(&8D39):RETURN
23 RETURN
    
```

THIS IS FOR THE LAST V8

```

28 *****
29 * THE HAPPY HACKERS PRESENT *
30 * INDISTRICTIBILITY ON THE LAST V8 *
31 *****
32
33
34
35 MODE 0
36 OPENOUT"du":MEMORY 1799:CLOSEOUT
37 LOAD"la"
38 LOAD"lb",49152
39 LOAD"lc",12800
40 LOAD"ld",1800
41 FOR n=0 TO 15:INK n,0:NEXT n
42 LOAD"le",49152
43 POKE 1908,0:POKE 1909,0:POKE 1909,0:POKE 1910,0:POKE 1911,0:POKE 1912,0
44 CALL 1800
    
```

>L.

```

10FORPASS=0 TO 3 STEP3
20P%=&900
30[OPT PASS
40LDX#MESS MOD256:LDY#MESS DIV256
50JSR&FFF7
60LDA#&A9:STA&1E88
70JMP&3807
80.MESS
110]
120NEXT
130M=MESS
140$M="LO.GORILLA D00"
150?(M+15)=&0D
160REM *SAVE GORILLA 900+1E
    
```

## Charts

### Top Twenty

- |    |                              |                   |
|----|------------------------------|-------------------|
| 1  | (4) Gauntlet                 | US Gold           |
| 2  | (1) Paperboy                 | Elite             |
| 3  | (2) Computer Hits Vol 3      | Beau Jolly        |
| 4  | (3) Trivial Pursuit          | Domark            |
| 5  | (-) Footballer of the Year   | Gremlin Graphics  |
| 6  | (14) Konami's Coin-op Hits   | Imagine           |
| 7  | (-) Space Harrier            | Elite             |
| 8  | (8) Five Star Games          | Beau Jolly        |
| 9  | (7) 180                      | Mastertronic      |
| 10 | (12) Cobra                   | Ocean             |
| 11 | (-) Hit Pack                 | Elite             |
| 12 | (-) Super Soccer             | Imagine           |
| 13 | (5) Scooby Doo               | Elite             |
| 14 | (-) Breakthrough             | Data-East/US Gold |
| 15 | (6) Ollie and Lisa           | Firebird          |
| 16 | (-) BMX Simulator            | Code Masters      |
| 17 | (17) They Sold a Million (3) | Hit Squad         |
| 18 | (9) The Great Escape         | Ocean             |
| 19 | (-) Flash Gordon             | Mastertronic      |
| 20 | (19) Thrust                  | Firebird          |

All figures compiled by Gallup/Microscope

The chart we printed last week was an incomplete one inadvertently supplied to us by Gallup, for which we apologise. That is why some of the figures indicating last week's positions do not tally with the titles printed in the last issue.



It's been an unfortunately long time since we covered a BBC game in this column. I was therefore pleased to receive yet more evidence of *Popular's* international appeal with this letter from Edwin Hautus of Holland.

Edwin writes "I am a 16 year old BBC owner and I enjoy your column every week. The pokes for the Firebird game *Thrust* were very helpful.

"Here are some hints for the game *3D Tennis* from Bug Byte which many of the reviewers criticised for being too difficult.

"When you have the service do the following: serve the ball and run quickly towards the net. When the ball comes back be sure to hit it (you can always keep the fire button pressed). Now stay at the net.

"Hit the ball again when it comes back for the second time. The only problem is to keep it within the side lines. The computer now will not be able to hit the ball back any more. This tip only works with service games.

"I would like to see more game maps for the BBC and so I have enclosed one for the game *Bug Eyes II*.

"I am also interested in finding penpals who have a BBC and disc drive. Write to me at this address: Edwin Hautus, Tiros 5, 5591 PH Heeze, Holland."

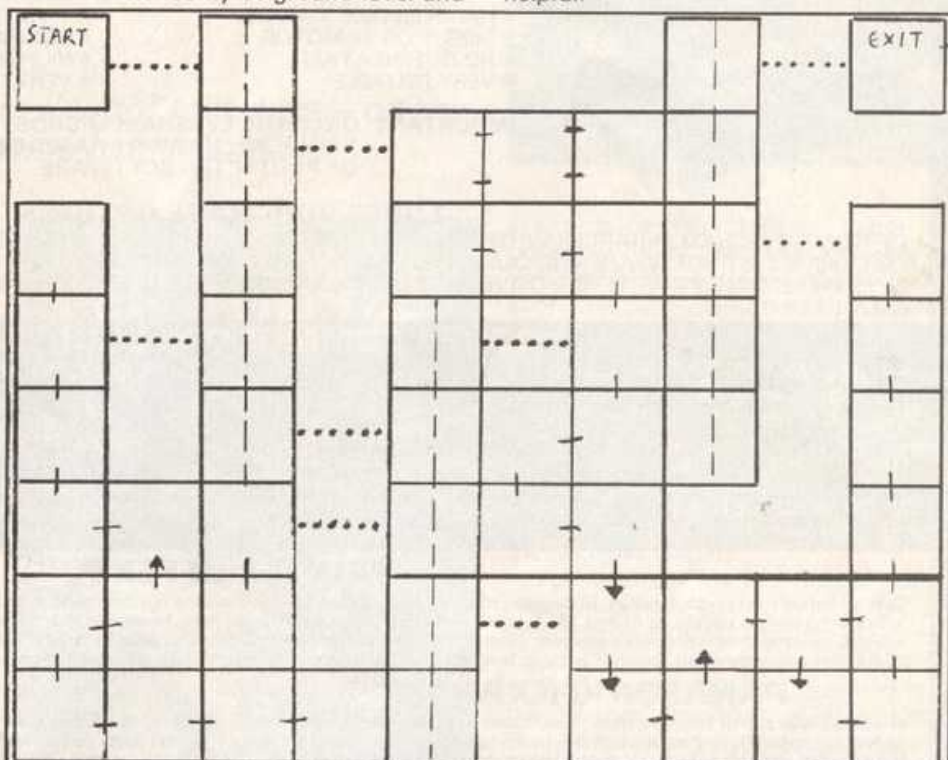
More BBC tips here from A D Nelson of Snydale in Yorkshire for the game *Stryker's Run* from Superior Software.

"If you run out of energy quickly and decide you want to finish the game you can commit suicide by going behind the nearest allied soldier (the ones in green) and start shooting with your laser. Your energy will gradually extinguish.

"When using helicopters to avoid the missile batteries fly at ground level and

they will not fire any missiles. Fly the helicopter in the middle of the screen and you will get more enemy helicopters attacking.

"Finally you will find that it is a lot quicker to jump rather than walk across the screen. I hope these tips will be helpful."



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# From the depths of Transylvania

Tony Bridge treads in some well-worn footsteps – on the trail of Count Dracula, with some help from CRL



**A**lthough this has been a very mild winter so far (by the way, did you have a good Christmas?), it may be that by the time you are reading this the snow will be falling and the wind will be whipping around the house. A romantic scene possibly – but put yourself in the shoes of the poor traveller in Transylvania looking for a safe, warm bed for the night. No chance!

The story of *Dracula* has been translated to the film screen many times, and once or twice to the monitor screen, too. But Rod Pike's version of the Bram Stoker novel, released now through CRL, is one of the first Quill'd attempts (though not the first – I know of at least one earlier example). Rod is the author of *Pilgrim*, also available on the CRL label, and I was struck then by the well-written text. And the present adventure is no disappointment in this regard.

The story starts outside the Golden Krone Hotel. You are a young solicitor, Jonathan Harker, who has travelled all the way to Transylvania in order to meet with your client, on whose behalf you have purchased property in England, and you also have to arrange for the importation of a small piece of Transylvanian soil. Anyway, here you are, and the surroundings are a bit weird as they usually are in Transylvania; although this first part is merely an introductory scene-setter, the atmosphere is electric. There are just a handful of locations, but each one is described in loving details and the screw of suspense is turned slowly but inexorably.

The story isn't illustrated in the usual way of picture and text in split screen, but rather graphics are used as and when required. So the first one you'll meet (if you're lucky and tackle the plot in the right sequence) is a simple block graphic of the menu in the restaurant. Here you'll be offered Lamb Stew, Beef a la Krone or Bacon Cutlet, with wine or water to drink. Incidentally, I haven't yet decided if the choice you make at this point is crucial to what happens later in the night – suffice to say that you're going to have a pretty eventful evening! You will probably make some wrong decisions and end up slightly dead, but at least you'll get to see some stunning digitised pictures. Although they are pretty small, they are incredibly life-like and add tremendously



to the general atmosphere.

I've seen reviews of this adventure which pour scorn on the small number of locations in this first part, but there is so much to do (and beginners will find it very easy to find their way around) that this doesn't really matter; for example, you can go into to eat dinner at once if you like (after signing the register and getting your room key), but then you'll find a limited number of moves left to you before you fall asleep. Go up to your room *before* eating, however, and you can explore your room as you wish.

The adventure is in three parts (surely the best way for cassette-based programs to go), and each part may be played separately, although of course,

like a book the story is better approached from the start and worked through in the correct order – in any event, no carry-over of data is required. The stifling, faintly erotic atmosphere of the book is faithfully re-created, and is the best translation of a book to the computer screen that I've seen. The puzzles, at least in the first part (which, after all, is only introductory) are there mostly to keep the atmosphere alive, although I'm sure that in the latter parts they will get harder.

You won't often find arcade games mentioned here, but *Nosferatu* from Piranha carries on in the tradition of *Dracula*. Again, you are cast at least initially in the role of Jonathan Harker (depicted in all the glory of the smug, scarf-bedecked Englishman), and again you are seeking Count Dracula to complete the sale of his new property in England. In many ways, the atmosphere of the original book is well-created – bats flutter around the dark corridors of Castle Dracula, and creepy spiders crawl around your legs as you explore the many rooms of the castle. It's all done in the familiar *Fairlight/Batman* isometric perspective, and the gameplay is very familiar – pick up this object to get past that obstruction.

This sort of thing usually leaves me cold after just a couple of screens, but *Nosferatu* is very easy to play and atmospheric too. Once out of the castle (no mean feat in itself), you may also take control of Lucy Harker and Van Helsing among the tombstones of the village. The men must keep the local vermin (both natural and supernatural) in order and protect Lucy from the weirdos. The arcade game makes an amusing and interesting addition to the adventure.

## Adventure Helpline

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lem, send it to us, and a fellow adventurer may be able to help.

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Adventure Problem ..... on (Micro) .....  
Name .....  
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## Toolkit

Rudy Lermineau

This week features part two of the extension to Commodore Basic program. There follows more of the new instructions. The final instalment is next week.

*Srch* will display program filenames and start and end address from a tape. Once a tape has played through press *Run/Stop* to see the details.

*Mrg* "filename" merges programs on tape with the one in memory. Note that



the program in memory must have lower line numbers than the one on tape. This command will not work on fast saved routines.

*Keon* turns the function key definitions

on. To define a key use *!key number = text*. The string can consist of up to 60 characters and to have it execute immediately finish the definition with shifted *R*, then press return.

```

128 DATA 234,169,206,133,252,169,0,133,251,169,147,32,1895
129 DATA 210,255,169,164,160,204,32,30,171,32,215,170,1812
130 DATA 32,215,170,162,1,134,2,166,2,169,0,32,1085
131 DATA 205,189,169,41,32,210,255,169,32,32,210,255,1799
132 DATA 160,0,177,251,201,0,240,12,201,13,240,32,1527
133 DATA 32,210,255,200,192,63,200,230,24,165,251,105,1943
134 DATA 64,133,251,165,252,105,0,133,252,230,2,165,1752
135 DATA 2,201,9,200,13,76,116,164,169,3,160,192,1313
136 DATA 32,30,171,76,84,197,32,215,170,32,215,170,1424
137 DATA 76,47,197,169,147,32,210,255,169,248,169,204,1914
138 DATA 32,30,171,32,215,170,32,215,170,165,45,133,1410
139 DATA 249,165,46,133,250,165,47,133,251,165,48,133,1765
140 DATA 252,169,0,133,253,133,254,133,2,165,250,197,1941
141 DATA 252,200,22,165,249,197,251,200,16,32,215,170,1965
142 DATA 169,234,160,204,32,30,171,32,215,170,32,116,1565
143 DATA 164,160,0,177,249,201,120,176,12,32,190,198,1687
144 DATA 177,249,201,120,176,16,76,238,197,169,120,133,1880
145 DATA 253,133,254,169,37,133,2,76,241,197,169,120,1792
146 DATA 133,253,169,36,133,2,32,204,198,56,177,249,1642
147 DATA 229,254,133,69,32,210,255,32,190,198,177,249,2020
148 DATA 201,0,240,11,56,229,253,133,70,32,210,255,1690
149 DATA 76,17,198,133,70,165,2,201,0,240,3,32,1137
150 DATA 210,255,169,61,32,210,255,32,190,198,165,2,1779
151 DATA 201,36,200,5,32,190,198,144,12,201,37,200,1432
152 DATA 5,32,120,198,144,3,32,80,198,24,165,249,1250
153 DATA 105,0,133,249,165,250,105,0,133,250,169,252,1811
154 DATA 160,205,32,30,171,76,161,197,165,249,133,71,1650
155 DATA 133,100,165,250,133,72,133,101,169,0,133,13,1402
156 DATA 133,14,32,47,175,32,221,189,162,0,189,0,1194
157 DATA 1,201,0,240,0,32,210,255,232,224,11,200,1622
158 DATA 241,169,5,141,61,198,24,96,177,249,133,2,1496
159 DATA 32,190,198,177,249,170,165,2,32,205,189,169,1778
160 DATA 4,141,61,198,24,96,177,249,133,2,32,190,1307
161 DATA 198,177,249,141,173,198,32,190,198,177,249,141,2123
162 DATA 174,198,162,0,189,0,0,32,210,255,232,228,1680
163 DATA 2,200,245,169,3,141,61,198,24,96,24,165,1336
164 DATA 249,105,1,133,249,165,250,105,0,133,250,96,1735
165 DATA 56,165,249,233,1,133,249,165,250,233,0,133,1867
166 DATA 250,96,169,244,141,6,3,169,198,141,7,3,1427
167 DATA 76,116,164,169,25,141,6,3,169,167,141,7,1185
168 DATA 3,76,116,164,72,138,72,152,72,173,141,2,1181
169 DATA 201,1,240,4,201,4,240,7,173,141,2,200,1422
170 DATA 251,240,12,174,254,2,172,254,2,136,200,253,1950
171 DATA 202,200,247,104,168,104,170,104,76,26,167,72,1646
172 DATA 165,186,201,7,240,4,104,76,237,245,165,185,1815
173 DATA 141,175,200,160,14,169,32,153,160,200,136,16,1556
174 DATA 250,164,183,192,16,144,2,160,15,136,40,0,1313
175 DATA 177,187,153,160,200,76,65,199,160,71,185,88,1721
176 DATA 200,153,180,2,136,16,247,159,1,170,168,32,1462
177 DATA 186,255,169,158,162,160,160,200,32,189,255,169,2095
178 DATA 0,133,157,169,2,133,252,169,188,133,251,169,1756
179 DATA 251,162,4,160,3,32,216,255,169,131,141,2,1526
180 DATA 3,169,164,141,3,3,159,1,130,157,160,0,1103
181 DATA 162,0,32,223,199,165,43,72,32,14,200,165,1397
182 DATA 44,72,32,14,200,165,45,32,14,200,165,46,1029
183 DATA 32,14,200,132,251,164,43,169,0,133,43,177,1358
184 DATA 43,32,14,200,200,200,2,230,44,195,45,165,1379
185 DATA 44,229,46,144,230,165,251,32,14,200,32,34,1429
186 DATA 200,169,27,141,17,200,169,55,133,1,80,104,1312
187 DATA 133,44,104,133,43,32,132,255,76,116,164,169,1401
188 DATA 6,133,1,169,11,141,17,200,202,200,253,136,1485
189 DATA 200,250,120,169,160,141,4,221,169,0,141,5,1500
190 DATA 221,169,25,141,14,221,160,64,169,64,32,14,1294
191 DATA 200,136,200,240,169,90,32,14,200,96,133,109,1715
192 DATA 60,251,133,251,169,8,133,163,80,189,32,34,1470
193 DATA 200,198,163,200,247,96,162,64,144,2,162,144,1790
194 DATA 142,4,221,169,0,141,5,221,169,1,44,13,1130
195 DATA 221,240,251,165,1,73,8,133,1,238,32,200,1571
196 DATA 169,25,141,14,221,169,1,44,13,221,240,251,1509
197 DATA 165,1,73,8,133,1,169,25,141,14,221,96,1047
198 DATA 173,32,200,133,254,169,164,141,3,3,169,131,1500
199 DATA 141,2,3,32,81,3,165,254,141,32,200,169,1231
200 DATA 55,133,1,80,169,27,141,17,200,32,132,255,1250
201 DATA 165,252,197,251,200,21,32,99,166,173,80,3,1647
202 DATA 240,10,32,142,166,169,0,133,157,76,174,167,1466
203 DATA 198,2,3,162,29,76,55,164,133,227,188,2,1155

```



## Programming: Commodore 64

```

200 DATA 32,32,32,32,32,32,32,32,32,32,32,384
205 DATA 32,32,32,32,32,135,3,32,186,3,168,169,856
206 DATA 0,133,193,32,186,3,133,194,32,186,3,133,1228
207 DATA 45,32,186,3,133,46,32,186,3,145,139,69,1073
208 DATA 252,133,252,200,208,2,239,134,196,45,165,194,2871
209 DATA 229,46,144,234,32,186,3,133,251,96,169,7,1930
210 DATA 133,1,169,11,141,17,289,202,208,253,136,208,1687
211 DATA 258,120,132,252,140,5,221,169,248,141,4,221,1393
212 DATA 162,0,32,200,3,39,189,165,189,201,64,208,1451
213 DATA 245,32,186,3,208,64,240,249,201,90,208,234,1953
214 DATA 96,169,1,133,189,32,200,3,38,189,144,249,1443
215 DATA 165,189,96,169,16,44,13,220,240,251,173,13,1589
216 DATA 221,72,169,25,141,14,221,164,238,32,208,74,1519
217 DATA 96,169,0,133,10,32,212,225,169,0,133,185,1364
218 DATA 165,45,56,233,2,170,165,46,233,0,168,165,1448
219 DATA 10,32,213,255,32,51,165,165,45,164,46,56,1234
220 DATA 233,2,133,87,152,233,0,133,88,160,0,177,1398
221 DATA 87,288,27,280,177,87,208,122,165,87,24,105,1397
222 DATA 2,133,45,133,47,133,49,165,88,105,0,133,1033
223 DATA 46,133,48,133,50,96,160,0,177,87,133,89,1152
224 DATA 288,177,87,133,88,165,89,133,87,76,105,201,1541
225 DATA 32,253,174,32,107,169,165,28,141,24,202,165,1484
226 DATA 21,141,25,282,32,203,174,32,107,169,165,28,141
227 DATA 141,26,282,165,21,141,27,282,32,142,166,32,1297
228 DATA 288,281,76,118,202,32,142,166,32,212,201,76,1664
229 DATA 42,282,169,219,160,201,208,4,169,207,168,201,1972
230 DATA 76,30,171,32,42,82,89,78,85,77,66,858
231 DATA 69,82,73,78,71,42,42,32,0,13,42,82,626
232 DATA 85,68,89,39,83,32,84,79,79,76,75,73,862
233 DATA 84,42,32,0,13,65,76,68,69,70,73,78,692
234 DATA 69,68,0,32,73,78,32,79,76,68,32,76,683
235 DATA 73,78,69,0,0,0,0,0,0,0,0,0,220
236 DATA 0,0,0,0,0,137,130,141,167,1,32,197,723
237 DATA 282,169,0,177,122,141,28,202,208,177,122,141,1672
238 DATA 29,282,173,24,282,209,145,122,173,25,282,208,1697
239 DATA 145,122,24,173,24,202,109,26,282,141,24,282,1294
240 DATA 173,25,282,189,27,282,141,25,282,173,29,282,1510
241 DATA 240,10,133,123,173,28,282,133,122,76,45,282,1487
242 DATA 76,116,164,230,122,288,2,238,123,169,0,177,1608
243 DATA 122,96,32,187,282,32,187,282,208,3,76,197,1384
244 DATA 281,165,122,141,30,282,165,123,141,31,282,32,1555
245 DATA 187,282,32,187,282,32,187,282,201,0,248,222,1654
246 DATA 281,238,240,41,201,34,240,26,170,16,238,162,1887
247 DATA 4,221,36,202,240,34,282,208,248,201,203,208,2007
248 DATA 224,32,115,0,281,164,208,228,240,18,32,187,1561
249 DATA 282,240,183,201,34,240,206,208,245,32,187,282,2100
250 DATA 201,1,208,197,169,46,32,218,255,32,115,0,1466
251 DATA 144,3,76,163,203,165,122,141,28,282,165,123,1535
252 DATA 141,29,282,160,0,177,122,200,201,48,144,4,1428
253 DATA 281,58,144,245,136,136,140,34,282,165,122,288,1791
254 DATA 2,198,123,198,122,32,115,0,32,187,169,32,1138
255 DATA 173,283,173,30,282,193,122,173,31,282,133,123,1698
256 DATA 32,187,282,133,20,32,187,282,133,21,162,0,1151
257 DATA 32,187,282,72,165,122,285,28,282,288,7,165,1515
258 DATA 128,285,29,282,240,7,184,157,0,2,232,280,1589
259 DATA 231,184,168,0,185,0,1,240,7,157,0,2,1887

```

## Programming: Amstrad CPC

## Khandal

**P**art two of the arcade adventure saga. This week it's plot time.

Khandal is in a bit of a dilemma, you see, by some strange misfortune he has woken up in an unexpected environment. Unfortunately it happens to be a dark, stone dungeon. With a flash of inspiration he realises that he must find the label of eternal life, which he thinks is

in the form of a scroll, in order to return to downtown Milton Keynes. Then again . . .

Tune in next week for the lowdown on how to use the game icons.

If you can't wait to start playing then send £3 to Ian Grainger, 33 Wellfield Road, Wingate, Co Durham, Cleveland.

*Ian Grainger*

```

1210 b%=MID$(a$,n,2):c=c+VAL("%"+b%)
1220 POKE add,VAL("%"+b%):ADD=ADD+1
1230 NEXT:READ a$
1240 IF C<VAL("%"+a%) THEN PRINT"DATA E
RROR in line";li:PRINT CHR$(7):END
1250 li=li+10:NEXT
1260 RETURN
1270 REM Set up Graphics
1280 RESTORE 3060
1290 FOR ch=180 TO 245
1300 READ a,b,c,d,e,f,g,h
1310 SYMBOL ch,a,b,c,d,e,f,g,h
1320 NEXT
1330 DIM ob%(3,12),c(1,3),co(2,6),ro%(24
),rm(24),pl(3,6)
1340 RESTORE 3230
1350 FOR f=1 TO 12:READ ob%(1,f):NEXT
1360 RESTORE 3250
1370 FOR f=1 TO 12:READ ob%(2,f):NEXT
1380 RESTORE 3380
1390 FOR f=1 TO 12:READ ob%(3,f):NEXT

```

```

1400 RESTORE 3460
1410 FOR f=1 TO 3:READ c(1,f):NEXT
1420 RETURN
1430 REM Place all icons
1440 i=3:xo=4:yo=9:chs=180:GOSUB 1520
1450 i=3:xo=4:yo=15:chs=196:GOSUB 1520
1460 i=3:xo=8:yo=4:chs=184:GOSUB 1520
1470 i=3:xo=19:yo=4:chs=192:GOSUB 1520
1480 i=3:xo=31:yo=4:chs=188:GOSUB 1520
1490 i=3:xo=35:yo=12:chs=242:GOSUB 1520
1500 ii=3:FOR i=1 TO 6:icon=1:GOSUB 1030
NEXT i:GOTO 1430
1510 RETURN
1520 REM Print Object or Icon
1530 PEN i:LOCATE xo,yo:PRINT CHR$(chs1)
CHR$(chs+1):LOCATE xo,yo+1:PRINT CHR$(chs
+2):CHR$(chs+3)
1540 RETURN
1550 REM Get object
1560 IF r(room)=0 THEN CLS#2:PRINT#2:PR
INTW2,"There isn't anything to get!":GOT

```

```

0 1650
1570 GOSUB 860:GOSUB 610
1580 IF rm(room)>0 AND obj=0 THEN i=3:xa
=24:yo=16:chs=242:GOSUB 1520:GOTO 1610
1590 IF obj<6 THEN chs=200 ELSE chs=(obj
-6)*4+204
1600 i=3:xa=24:yo=16:GOSUB 1520
1610 IF rm(room)<6 THEN chs=200 ELSE chs
=(rm(room)-6)*4+204
1620 i=3:xa=35:yo=12:GOSUB 1520
1630 obl=obj:obj=rm(room):rm(room)=obl:G
OSUB 550
1640 CLS#2:PRINT#2,"You pick up the-":P
RINT#2:PRINT#2,ob$1,obj)
1650 RETURN
1660 REM Give Object
1670 CLS#2:GOSUB 860
1680 IF obj=0 THEN PRINT#2:PRINT#2,"Ther
e is nothing to give.":GOTO 1750
1690 IF c(1,1)=room AND obj<9 THEN PRIN
T#2,"Lustania don't want the-":PRINT#2

```

```

obj$(1,obj)
1700 IF c(1,2)=room THEN PRINT#2,"Karn d
osn't want ther-":PRINT#2,obj$(1,obj)
1710 IF c(1,3)=room AND obj<6 THEN PRIN
T#2,"The Flymat dosn't want ther-":PRIN
T#2,obj$(1,obj)
1720 IF c(1,1)=room AND obj=9 THEN PRINT
#2,"Lustania says she loves you and give
s you a key.":obj=3:i=3:xo=35:yo=12:chs
=200:GOSUB 1520
1730 IF c(1,3)=room AND obj=6 THEN PRINT
#2,"The Flymat thanks you for being so k
ind and gives you a key.":obj=5:i=3:xo=35
:yo=12:chs=200:GOSUB 1520
1740 IF c(1,1)=room AND c(1,2)=room AND
c(1,3)=room THEN PRINT#2:PRINT#2,"The
re's nobody here to give to."
1750 RETURN
1760 REM Examine Object
1770 CLS#2:GOSUB 860
1780 IF obj=0 THEN PRINT#2:PRINT#2,"But

```



# Programming: Amstrad CPC

```

there is nothing to examine!":GOTO 1820
1790 PRINT#2,"You examine the ";obj$(1,obj
j):type=2
1800 IF obj=8 OR obj=12 THEN dead=1
1810 FOR f=1 TO LEN(obj$(type,obj)):STEP
38:PRINT#2,MID$(obj$(type,obj),f,38):FOR
n=1 TO 10:GOSUB 860:NEXT:NEXT
1820 RETURN
1830 REM Help
1840 CLS#2:PRINT#2,"Help" What on earth
for. I only included this icon be
cause I thought it was quite good!"
1850 RETURN
1860 REM Fight Character
1870 CLS#2:GOSUB 860
1880 IF c(1,1)<room AND c(1,2)<room AN
D c(1,3)<room THEN PRINT#2:PRINT#2,"The
re's nobody here to fight!"
1890 IF c(1,1)=room AND str$(chr(1)) THEN
PRINT#2,"With one swift blow you crush L
ustanias skull.":c(1,1)=0
1900 IF c(1,1)=room AND str$(chr(1)) THEN
PRINT#2,"Lustania hugs you, squeezing ev
ery ounce of energy from you. You di
e enjoyably!":dead=1
1910 IF c(1,2)=room AND str$(chr(2)) THEN
PRINT#2,"You take Karn from behind, stra
ngling him with ease.":c(1,2)=0:rm(22)=
4:rm(13)=9:i=3:xo=24:tyo=16:chs=216:GOSUB
610:GOSUB 1520:GOSUB 550
1920 IF c(1,2)=room AND str$(chr(2)) THEN
PRINT#2,"Karn pulls a laser phaser on yo
u and zaps you into oblivion. You are
dead!":dead=1
1930 IF c(1,3)=room THEN PRINT#2,"Bad de
cision if I may say so. The Flymat
picks you up in one hand and throws y
ou away. You die from head injuries.
":dead=1
1940 RETURN
1950 REM Initialise
1960 MODE 1:PAPER 0:BORDER 0:PEN 1
1970 INK 0,0:INK 1,26:INK 2,16:INK 3,6
1980 room=16:str=100:beat=0:obj=0:icon=1
:scr=40446:da=6000:face=-1
1990 RESTORE 3480:FOR f=1 TO 6:READ co(
f),co(2,f):NEXT
2000 chr(1)=85:chr(2)=95
2010 RESTORE 2910:FOR f=1 TO 24:READ a:r
o$(f)=BIN$(a,4):NEXT
2020 RESTORE 3500:FOR f=1 TO 24:READ r:(
f):NEXT
2030 RESTORE 3520:FOR f=1 TO 6:READ p(1
,f),p(1,2,f),p(1,3,f):NEXT
2040 WHILE INKEY#<"":GOTO 2050
2050 RETURN
2060 REM Stars
2070 FOR f=1 TO 500
2080 x=RND*(620):y=RND*(400)
2090 PLOT x,y,1
2100 NEXT
2110 RETURN
2120 REM Start up Screen
2130 PRINT TAB(4)*Khandal Written by Ian
Grainger"
2140 PRINT:PRINT TAB(13)*Copyright 1986"
2150 LOCATE 9,10:PRINT"Press 'SPACE' to
Play"
2160 SOUND 135,0,0,0
2170 beat=1:note=1:WHILE INKEY(47)=-1
2180 GOSUB 860
2190 WEND
2200 beat=0:CLS
2210 RETURN
2220 REM Initialise Graphics Windows
2230 WINDOW#1,10,30,8,17:CLS#1
2240 PLOT 142,110:DRAW# 338,0:DRAW# 0,17
8:DRAW# -338,0:DRAW# 0,-178
2250 LOCATE 10,18:PEN 1:FOR f=1 TO 7:PRI
NT CHR$(240):CHR$(241):CHR$(240):NEXT
2260 WINDOW#2,1,39,21,24:PAPER#2,3:PEN#2
,1:CLS#2
2270 PRINT#2," Welcome to Khandal by Ia
n Grainger.":PRINT#2," I hope you
enjoy your game."
2280 RETURN
2290 REM Doors!
2300 IF door=1 THEN CLS#2:PRINT#2:PRINT#
2,"Ouch...!":PRINT#2,"You walked into a
locked door!":GOTO 2340
2310 exit=1:r=room
2320 room=room+12:scr=scr
2330 IF room>24 THEN room=room-24
2340 RETURN
2350 REM Use Object
2355 GOSUB 860
2360 IF obj=0 THEN CLS#2:PRINT#2,"You've
got nothing to use!":GOTO 2470
2370 IF obj<6 AND room=VAL(RIGHT$(obj$(2,
obj),2)) THEN GOTO 2480
2380 IF obj<6 AND door=0 THEN CLS#2:PRIN
T#2,"Where's the door? Clever!"
2390 IF obj<6 AND door=1 THEN CLS#2:PRIN
T#2,"The key doesn't fit this door."
2400 IF obj<6 AND door=10 THEN CLS#2:PRI
NT#2,"Why? The doors already open!"
2410 IF obj=11 THEN GOTO 2470
2420 CLS#2:GOSUB 860
2430 PRINT#2,"You use the ";obj$(1,obj)
2440 type=3:GOSUB 1810
2450 IF obj=11 THEN dead=1
2460 IF obj=10 THEN WHILE INKEY(47)=-1:G
OSUB 860:WEND:CLS#2:PRINT#2,"Hope you ha
d a nice rest!"
2470 RETURN

```

# Programming: BBC

## Hurles

Mark Ward

**T**his week features the second and final part of Hurles. The rest of the game controls are as follows.

S alters the spin which varies between zero and ten with 0-4 putting backspin on the ball, 5 is no spin, and 6-10 is topspin.

E alters elevation where each point on the scale represents seven degrees.

F represents force with zero being minimal and ten being maximum force.

H hurles the ball.

Q turns the sound on/off.

Escape returns you to the menu.

```

1370MOVE800,0:PLOT5,800,1023:PLOT85,127
9,0:PLOT85,1279,1023:GCOL0,0:MOVE800,0:P
LOT5,800,1023:MOVE300,50:PLOT5,300,852:P
LOT85,500,50:PLOT85,500,852
1380VDU5:GCOL0,0:MOVE55,985:PRINT"H U R
L E S":MOVE0,905:DRAW798,905:GCOL0,14:M
OVE50,980:PRINT"H U R L E S":MOVE0,900:D
RAW798,900
1390GCOL0,7:MOVE300,850:DRAW500,850:MOV
E530,850:PRINT"10ft":FORNZ=0TO2:CZ=765-(
85*NZ):MOVE300,CZ:DRAW500,CZ:MOVE530,CZ:
PRINT" ";9-NZ;"ft":NEXT:MOVE300,130:PLOT
29,500,130
1400MOVE825,980:GCOL0,2:IFround%<10PRIN
T"ROUND ";round%ELSEPRINT"ROUND";round%
1410GCOL0,0:FORNZ=0TO2:MOVE979+(100*NZ)
,825:DRAW979+(100*NZ),825-(100*nplyr%):N
EXT
1420FORNZ=0TO2:nplyr%:MOVE800,825-(NZ*100
):DRAW1279,825-(NZ*100):NEXT
1430MOVE850,875:PRINT"POINTS":MOVE920,3
75:PRINT"TOTAL"
1440FORNZ=0TO2:nplyr%:1:GCOL0,8+NZ:MOVE81
0,780-(NZ*100):PRINT"P";NZ+1:MOVE810,300
-(76*NZ):PRINT"P";NZ+1:NEXT
1450GCOL0,4:FORNZ=0TO2:nplyr%-1:MOVE1030,
270-(76*NZ):DRAW1030,304-(76*NZ):DRAW116
6,304-(76*NZ):DRAW1166,270-(76*NZ):DRAW1
030,270-(76*NZ):NEXT
1460GCOL0,1:GCOL0,135
1470FORNZ=0TO2:nplyr%-1:MOVE1164,302-(76*
NZ):VDU127,127:PRINT"00":NEXT
1480PROCscale(70,50,100):PROCind(FZ,50,
100)
1490PROCscale(69,50,550):PROCind(EZ,50,
550)
1500PROCscale(83,175,100):MOVE200,100:V
DU228:MOVE200,400:VDU227:PROCind(5Z,175,
100)
1510PROCscale(77,175,550):PROCind(MZ,17
5,550)
1520GCOL0,7:MOVE600,430:PLOT5,600,50:PL
OT85,700,430:PLOT85,700,50
1530GCOL0,0:MOVE600,450:DRAW600,50:DRAW
700,50:DRAW700,450:MOVE700,450:VDU229,8,
10,230,8,10,231,8,10,232,8,10,229,8,10,2
27
1540MOVE325,40:GCOL0,4:VDU234,236,238,8
,8,8,11,239,243,247,8,8,8,11,249,251,254
,18,0,3,10,10,8,8,8,235,237,8,8,11,240,2
44,18,0,5,8,8,241,245,8,8,11,250:PLOT0,-
40,-20:VDU242:PLOT0,40,20:VDU253
1550VDU18,0,15,10,8,8,8,242:PLOT0,-32,0
:VDU242,8,18,0,13:PLOT0,-24,0:VDU242:PLD
TO,-32,0:VDU242
1560ENDPROC
1570DEFFPROCscale(vZ,aZ,bZ)
1580MOVEaZ,bZ:GCOL0,0:VDU10,10,vZ,11,8,
226,8,11
1590FORNZ=1TO10:VDU224,8,11:NEXT:VDU95
1600ENDPROC
1610DEFFPROCind(tZ,uZ,vZ)
1620MOVEuZ,vZ
1630FORNZ=1TO10
1640IFNZ=tZ%GCOL0,7:ELSEGCOL0,1
1650IFNZ=tZ+1VDU225,8:GCOL0,0:VDU95,8,1
1:GOTO1670
1660VDU225,8,11
1670NEXT
1680ENDPROC
1690DEFFPROCmenu
1700PROCpage("MENU")
1710PRINTTAB(5,7)"Press number to choos
e option"
1720PRINTTAB(5,12)CHR$(132)"1....";CHR$

```



```
(135) "View the controls"
1730PRINTTAB(5,14)CHR$(132)"2....";CHR$
(135) "Select number of players"
1740PRINTTAB(5,16)CHR$(132)"3....";CHR$
(135) "Choose ball type"
1750PRINTTAB(5,18)CHR$(132)"4....";CHR$
(135) "Play game"
1760PRINTTAB(19,22)"?":menu%=GET-48
1770IF menu%>4OR menu%<16GOTO1760
1780ENDPROC
1790DEFPROCcontrols
1800PROCpage("CONTROLS")
1810PRINTTAB(10,6)"Your controls are:-"
1820PRINTTAB(11,10);CHR$(132)"S";CHR$(1
35);".... Spin"
1830PRINTTAB(11,12);CHR$(132)"E";CHR$(1
35);".... Elevation"
1840PRINTTAB(11,14);CHR$(132)"F";CHR$(1
35);".... Force"
1850PRINTTAB(11,16);CHR$(132)"H";CHR$(1
35);".... Hurle Ball"
1860PRINTTAB(11,18);CHR$(132)"Q";CHR$(1
35);".... Sound On/Off"
1870PRINTTAB(7,22)"PRESS SPACE-BAR TO C
ONTINUE"
1880REPEAT:6%=GET$:UNTIL6%=" "
1890ENDPROC
1900DEFPROCplayers
1910PROCpage("THE PLAYERS")
1920PRINTTAB(3,7)"How many players do y
```

```
ou want(1-4)?:nplyr%=GET-48
1930IF nplyr%<1OR nplyr%>4GOTO1920
1940PRINTTAB(1,7)"      Enter your
names:-      "
1950FOR n%=1TO nplyr%
1960PRINTTAB(4,7+(N%*3))"Player ";N%:"
":INPUTTAB(14,7+(N%*3));player$(N%)
1970player$(N%)=LEFT$(player$(N%),10)
1980NEXTN%
1990
2000IF nplyr%=1nplyr%=2:player$(2)="The
Champ":PRINTTAB(4,13)"Skill Level (1=eas
y to 3=hard)?:skill%=4-(GET-48):IF skill
%<1OR skill%>3nplyr%=1:GOTO1990
2010ENDPROC
2020DEFPROCball
2030PROCpage("THE BALL")
2040PRINTTAB(3,7)"Choose the ball type
by pressing      a number between
1 and 3"
2050PRINTTAB(2,12)"1."CHR$(132);"Flat."
CHR$(135);" This ball has very little";
TAB(13,13)"bounce."
2060PRINTTAB(2,15)"2."CHR$(132);"Normal
."CHR$(135);"This ball has normal";TAB(1
3,16)"bounce."
2070PRINTTAB(2,18)"3."CHR$(132);"Bouncy
."CHR$(135);"This ball is very bouncy."
2080PRINTTAB(13,23)"Your choice?:B%=GE
T-48
```

```
2090IF B%<1OR B%>3GOTO2080
2100ball=((3*B%)+1)/10
2110ENDPROC
2120DEFPROCpage(J%)
2130K%=INT(0.5*(39-LEN(J%)))
2140PRINTTAB(0);CHR$(131);CHR$(157);CHR
$(141);CHR$(132)TAB(K%);J%
2150PRINTTAB(0);CHR$(131);CHR$(157);CHR
$(141);CHR$(132)TAB(K%);J%
2160PRINTTAB(0);CHR$(129);CHR$(157);CHR
$(131);TAB(16);"HURLES"
2170ENDPROC
2180DATA-10,61,7.5,-10,69,2.5,-10,61,2.
5,-10,53,2.5,-10,49,5,-10,33,3,0,0,3,-10
,33,7.5,-10,41,5,-10,13,3,0,0,3,-10,13,7
.5,-10,49,5,-10,33,3,0,0,3,-10,33,7.5,-1
0,61,7.5,-10,69,2.5,-10,61,2.5,-10,53,2.
5
2190DATA-10,49,5,-10,33,3,0,0,3,-10,33,
7.5,-10,41,5,-10,13,3,0,0,3,-10,13,7.5,-
10,33,10,0,0,10,-10,41,5,-10,13,3,0,0,3,
-10,13,7.5,-10,49,5,-10,33,3,0,0,3,-10,3
3,7.5,-10,41,5,-10,13,3,0,0,3,-10,13,7.5
2200DATA-10,49,5,-10,33,3,0,0,3,-10,33,
7.5,-10,61,7.5,-10,69,2.5,-10,61,2.5,-10
,53,2.5,-10,49,5,-10,33,3,0,0,3,-10,33,7
.5,-10,41,5,-10,13,3,0,0,3,-10,13,7.5,-1
0,33,10,0,0,20
2210DATA25,51,65,21,58,71,28,47,83
```

## 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 completed articles, should be sent to Christina Erskine. All aspects of home computing are considered, but we cannot feasibly 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 £35 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 100s of K of pure machine code, but a short snappy routine, there may well be a place for it in **Bytes and Pieces** (£10 a shot).

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? No more than 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 Kendle** (who wants as many Arcade pokes, maps, solutions, etc. as possible); **David Wallin** (communications); **Kenn Garroch** (programming problems); **Mark Jenkins** (music queries and sample tapes) and **Martin Bryant** (computer chess comments).

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



Left: the adventurous Tony Bridge.  
Right: the active Tony Kendle.





## Thick text

Jonathan Temple

**P**rofessional looking characters can easily be produced thanks to this short machine code routine, which can be incorporated into your own program as a Basic *Procedure*.

Once *PROCassemble* has been called the new thickened text can be displayed by entering *\*Line (text)*.

The routine will not work in *Mode 7* and, also, it redefines character 255.

```
232 DEFPROCassemble
1010 base=&A00
1020 FOR NX=base TO base+&3D STEP 4
1030 READ A$;!NX=EVAL("&" + A$):NEXT
1040 ?&200=base MOD256
1050 ?&201=base DIV256
1060 ENDPROC
1070 :
1080 DATA F28638F0,A0F384,F78DF2B1
1090 DATA F00DC90C,A2489826,A90CA0F7
1100 DATA FFF1200A,7A2A868,A0CF8BD
1110 DATA 290CF81D,CF89DFE,A9F110CA
1120 DATA FFEE20FF,4CD110C8,104CFFE7
1130 DATA E3
```

## Character Copy

Darryn Lavery

**C**haracter copy is a routine for the Commodore 64 that copies the two hardware character sets into *Ram* at address 12288 to 16383 decimal, ready for the user to alter them at will.

To copy the character sets enter Sys 49152.

```
5 REM CHARACTER COPY BY D.LAVERY
10 FORT=0T068
20 READD
30 POKE 49152+T,D
40 SUM=SUM+D
50 NEXT
60 IF SUM<>9503 THENPRINT"CHECKSUM ERROR":END
100 DATA 173,14,220,41,254,141,14,220
110 DATA 165,1,41,251,133,1,160,48
120 DATA 132,252,160,208,132,254,160,0
130 DATA 132,251,132,253,162,16,177,253
140 DATA 145,251,200,208,249,230,252,230
150 DATA 254,202,208,242,165,1,9,4
160 DATA 133,1,173,14,220,9,1,141
170 DATA 14,220,173,24,208,41,240,9
180 DATA 12,141,24,208,96
```

## Block Fill

Peter Finan

**T**he following program for the Commodore C16 enables you to fill any rectangular square with a character of your choice. The syntax of the command is as follows.

Sys 14360,x1,y1,x2,y2,c

Where *x1* and *y1* are the starting coordinates of the block and *x2*, *y2* are those of the opposite corner, and *c* is the value of the fill character as given by the *Poke* values listed in the back of the manual (for example 1 = A).

```
READY.
5 GOTO 60000
10 S=14360:C(1)=160:C(2)=32
15 FOR G=1 TO 2
20 A=10:B=10:X=29:Y=14:C=C(G)
25 FOR F=1 TO 11
30 SYS S,A,B,X,Y,C
35 A=A-1:B=B-1:X=X+1:Y=Y+1
40 NEXT F
45 NEXT G
59995 END
60000 S=DEC("3800")
60005 RESTORE
60010 READ A:IF A=255 THEN 60025
60015 POKE S,A:S=S+1
60020 GOTO 60010
60025 POKE 55,255:POKE 56,55:CLR
60030 GOTO 10
60035 REM *****
60040 REM ** SYS 14360,X1,Y1,X2,Y2,C **
60045 REM ** X1,Y1 = TOP LEFT **
60050 REM ** X2,Y2 = BOTTOM RIGHT **
60055 REM ** C = CHAR TO FILL (POKE) **
60060 REM *****
60065 DATA 76,28,153,32,129,157,134,7
60070 DATA 32,129,157,138,168,166,7,224
60075 DATA 40,176,237,192,25,176,233,96
60080 DATA 32,3,56,134,5,132,6,32
60085 DATA 3,56,134,3,132,4,56,165
60090 DATA 3,229,5,48,211,141,181,2
60095 DATA 56,165,4,229,6,40,201,141
60100 DATA 182,2,165,5,133,3,169,12
60105 DATA 133,4,164,6,240,16,24,165
60110 DATA 3,105,40,133,3,165,4,105
60115 DATA 0,133,4,136,208,240,32,129
60120 DATA 157,134,5,174,182,2,172,181
60125 DATA 2,165,5,145,3,136,16,251
60130 DATA 24,165,3,105,40,133,3,165
60135 DATA 4,105,0,133,4,202,16,230
60140 DATA 96,255
READY.
```





## With Kenn Garroch Give your 64 some stick

*S Manners of Hinckley, Leicestershire, writes:*

**Q** I am currently writing a program for my Commodore 64 which requires the use of a joystick.

I know the locations to read are 56321 and 56320 but I don't know how to separate the different directions from the numbers. Can you help?

**A** The joystick attaches to a number of pins in the port — four for direction and one for fire. Diagonals are set by activating two pins at once. When these pins are activated they set or clear one bit in the joystick port register.

For joystick port 1 (register 56321) the high bit is always set, giving a number equal to 255 minus the value of the pin being activated.

For joystick port 2 (register 56320) the high bit is always clear, giving a number equal to 128 minus the value of the pin being activated.

Using the joystick ports is simple. For port 2, you simply deduct 255 from the number *Peeked*. For port 1, you deduct 128. This gives negative values, so you use the ABS function to give an absolute value, regardless of whether it is positive or negative.

To read joystick port 1, use the following line

```
A = ABS(PEEK(56321)-255)
```

and to read joystick port 2 use

```
A = ABS(PEEK(56320)-128)
```

These will give the following values:

1 = Up

2 = Down

4 = Left  
8 = Right  
10 = Fire

Diagonals are combined numbers, so up-left = 5, and so on. Numbers greater than 16 are directions and fire together.

## Alphabetti spaghetti

*Chris Brooks, of Widegates, near Looe in Cornwall, writes:*

**Q** I am trying to re-define the character set on my BBC (OS 1.2), specifically the alphabet and numbers 0-9. I have no problems when defining the alphabet and numbers in separate programs but, when I try to define them all at once, the alphabet becomes a right mess.

I understand that there being more than 32 characters defined, the *Page* value will have to be raised and the *\*FX20* command used. I have tried this, without success. Where am I going wrong? Here is the start of the basic program:

```
10 MODE 1
20 *FX20,1
30 PAGE=PAGE+&1000
40 VDU 23, etc ...
```

**A** First of all, changing the value of *Page* within a program is not a good idea since it alters all of the pointers and will give a *Bad Program* error. Alter this before typing in the program with *Page=Page+&600* as a direct command.

After saving the program and before reloading, or after pressing *Break*, the page should be changed in the same way. If you have a disc system, you can use the following line at the beginning of the program (called prog):

```
10 IF PAGE<>(6400+&600) THEN
PAGE=PAGE+&600:CHAIN"prog"
```

The next thing that is wrong with your program is that you need to issue a *\*FX20,6* call. This sets aside the extra memory needed for the redefinition of the character codes 32 to 255, ie, the full printable character set. If you only need sections of this then the following *FX20* values should be used:

FX call	Char codes	Memory set aside
*FX20,0	&80-&BF	&C00-&CFF (imploded state)

```
*FX20,1 &A0-&BF PAGE=PAGE+&FF
*FX20,2 &C0-&DF PAGE+&100-PAGE+&1FF (+above)
*FX20,3 &E0-&FF PAGE+&200-PAGE+&2FF (+above)
*FX20,4 &20-&3F PAGE+&300-PAGE+&3FF (+above)
*FX20,5 &40-&5F PAGE+&400-PAGE+&4FF (+above)
*FX20,6 &60-&7F PAGE+&500-PAGE+&5FF (+above)
```

Once this has been done, the whole character set can be redefined at the cost of &600 bytes.

## No chunky letters

*A Tobias, of Braintree, Essex, writes:*

**Q** I am using multi-colour hi-res mode on my C64 but would like to be able to print characters on to the screen without all the hassle of redefining a 'chunky' character set and wasting lots of memory in storing it. Is there a way of using the existing set in Rom and if so, how?

**A** It is fairly straightforward to use the Rom definitions. They simply need to be expanded horizontally to fit the multi-colour resolution of 160 pixels. All you need to do is switch in the Rom, read the appropriate definition, expand it, and place it onto the screen.

The following Basic program does the trick and should you want to do it in machine code, exactly the same method can be used.

```
10 DOSUB 2000 :REM SET UP HI RES MULTICOLOUR
20 DIM EX(15),D(7)
30 DATA 0,3,12,15,48,51,60,63,192,195,204,207,240,243,252,255
40 N=2 :REM CHAR NO FOR B
50 FOR T=0 TO 15:READ EX(T):NEXT :REM SET UP EXAN ARRAY
60 POKE 56333,127 :IRO OFF
70 POKE 1,51 :REM ROM IN
80 FOR T=0 TO 7
90 D(T)=PEEK((N*8)+7+53248):REM READ DEF
100 NEXT
110 POKE 1,55 :ROM OUT
120 POKE 56333,129 :REM IRO ON
130 POKE 55296,1:POKE 55297,1 :REM COLOUR WHITE
140 FOR T=0 TO 7
150 C=D(T):DOSUB 1000:REM EXPAND A LINE
160 POKE 24576+T,CL:POKE 24576+8+T,CA
170 NEXT
180 END
999 REM EXPAND A LINE SUBROUTINE
1000 A=C AND 15
1010 C=EX(A)
1020 A=C AND 140//16
1030 CL=EX(A)
1040 RETURN
```

```
1999 REM SET UP HIRES MULTIC AT 24576
2000 POKE 53265,PEEK(53265) OR 32
2010 POKE 56576,150
2020 POKE 53272,121
2030 POKE 53270,PEEK(53270) OR 16
2040 RETURN
```

## Pixel definitions

*M Dunn, of Taunton, Somerset, writes:*

**Q** I am new to computing but would like to know a little more about graphics. So far I have been able to produce some pictures with my Amstrad but I feel I need to know a little more about the terminology involved. So, could you explain the terms pixel, graphics mode, palette, hi-res and lo-res?

**A** Sure, a pixel is a shorthand term for picture element and is the smallest component of an image. A computer image is made up from a square array of dots which can be either on or off exactly the same as the pictures you see in a newspaper.

Most modern home computers can also set their pixels to be one of a number of colours, usually at the cost of using more memory.

This is where graphics modes come in. Since the memory within a computer is usually limited, there has to be a trade-off between resolution (the more possible dots on the screen, the higher the resolution) and colour.

The more colours there are, the lower the resolution of the image will be. Different screen modes allow you to select between various resolutions and the number of colours. In the higher resolution modes the number of colours the computer can produce becomes severely limited, but the colours to be used to display the image can be selected from all the colours the computer is capable of and placed into a palette, which will then be used for that particular picture.

Lo-res or low resolution, is usually a term applied to block graphics where each pixel of the image is the size of a character. High resolution is where there are a lot of pixels, say 320 by 256 (horizontally by vertically), and each one is controllable.



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# Build your own rhythm section

*Mark Jenkins with musical Spectrum, Amstrad, Commodore and Atari packages*



**P**rograms this week for the Spectrum, Amstrad and Commodore 64 micros, courtesy of Cheetah and Music Sales, the latter via their German representatives. Both programs are for drum machine applications, each using a digital-to-analog convertor unit.

Cheetah's latest product is a new African Kit to add to the selection of sounds for the AmDrum and SpecDrum systems. These units reproduce sampled drum sounds from software which also includes comprehensive arrangement routines.

The new kit, which comes with a Kit Editor allowing you to choose any of the available sounds and combine them with earlier sounds, consists of eight new effects — Trunk, Buash, Hi Conga, Lo Conga, Clave, Coconut, Guiro and Whistle. Some of these are similar to sounds in the Latin set, but there's been nothing quite like the Trunk, Coconut and Buash before.

Trunk is a sort of double bass drum hit, not very "wood-like" but quite powerful, while Buash is a high, pingy, snare drum. The congas are quite lifelike (the Latin kit has Timbales instead); the Clave again lacks a certain woody timbre but is useful for punctuation (perhaps as the African equivalent of a closed hi-hat). Coconut is a short pop sound and Guiro is a shortish but effective wood scraper, while one of the most impressive sounds is the Whistle, a short blast which bends slightly downwards.

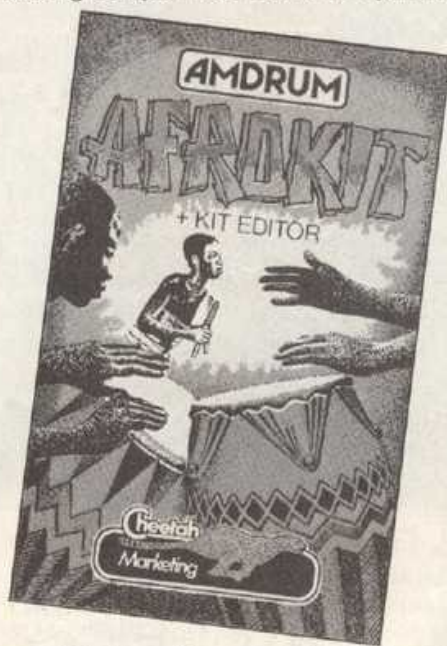
The Kit Editor on the B-side of the tape allows you to reverse sounds, which is more useful in some cases than in others, and there's now a total of four kits available — Rock (which comes free with the SpecDrum/AmDrum), Latin, Electro and African.

Cheetah claims that its system now has 30,000 uses ranging from professional rock bands and studios to young amateur musicians, and we've certainly heard some very impressive demos using the system. The main limitation, of course, is the fact that you only have one output so you can't treat the sounds individually — but Cheetah does have a sheet of information on how to synchronise the system if you want to use it with other equipment and possibly record one drum sound at a time.

On the Amstrad version, sounds can

be loaded from tape and saved to disc or vice versa, and the new kit costs just £4.99 from Boots and major high street stores and computer shops.

On to the Commodore 64 and Polydrums, the polyphonic drum playback system for the Commodore Sound Sampler. Unfortunately, Polydrums only uses the sampler in playback mode, and existing sampler files aren't compatible



with Polydrum files, so you're stuck with the sound sets provided.

These, however, are pretty good — one Natural kit, one Latin kit and one Electronic kit. There's a single main operations page which allows you to select the desired kit, and twenty-six demo patterns can be called up by tapping the letter keys. There are also four song memories, with one demo song for each kit and one spare.

Going on to the Edit page allows you to program in patterns of up to 32 beats in real time or step time using the 1-8 keys for the sounds. The system is polyphonic as its name suggests, so up to four sounds can be programmed on the same beat (most other systems only offer two or three note polyphonic playing). All operations are carried out on the function keys, and the program's very simple to use, although you'll come up against a dead end if you switch on the Midi output options as Music Sales,

the UK agents for the Commodore music systems, still haven't come up with a suitable Midi interface for the system.

Tempo is set from 2-32, not as professional as having a full display in beats per minute, and you can name patterns and songs. The song composition display is simply a long list of letters from A-Z, and again it's programmed using the function keys to a total of 245 patterns.

The Polydrums package will no doubt be welcomed by existing Sampler owners, as it's streets ahead of the simple 16-beat monophonic program supplied with the hardware. But it still has some limitations which didn't really have to be there — the limited choice of tempo settings, incompatibility with Sampler files and so on.

The bottom line, though, is that the sounds are pretty good (the Latin cowbell is poor and the congas hissy, but the Electronic set is excellent with a good ride cymbal and Simmons-like basses, snares and toms), and so you probably wouldn't be disappointed at the price. More ambitious Commodore owners would probably go for the more expensive Tron Digidrum III, though.

Some news of product reviews to come. Hybrid Arts software and hardware is just starting to filter into the country via Syndromic Music, and the first products available are DX-Droid and Easy Track for the Atari 520ST/1040ST. DX-Droid creates banks of random sounds for the Yamaha DX7 synth and allows you to store and modify them in various ways, while Easy Track is a very basic, simply laid out 20-track Midi composer.

**Cheetah Marketing Ltd**, 1 Willowbrook Science Park, Crickhowell Road, St Mellons, Cardiff. Tel: 0222 777337.

**Music Sales**, 78 Newman Street, London W1P 3LA. Tel: 01-636 9033.

**Syndromic Music**, 24/25 Avenue Mews, London N10 3NP. Tel: 01-444 9126.

*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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# Having fun, being mugged

Steve Gold brings you up to date on Micronet's new MUG *Shades*

**M**ulti User Games (MUGs), whilst being excellent fun to play, as well as giving you the opportunity to make new friends online, are potentially bad for your wealth.

In the bad old days (circa 1984 and before) it was not uncommon to hear of modem owners racking up quarterly telephone bills of £500 or more, simply by playing online adventures which, even at off-peak telephone rates, can mount up.

A step in the right direction was achieved when several online games services, notably *Mud II*, the Multi User Games environment operated by Muse, through British Telecom, allowed access to their service via PSS (the Packet Switch Stream).

However, even with local access to PSS, most MUG players found themselves having to pay two pence a minute over and above local 'phone rates, as well as MUG connect time fees. Such a state of affairs did not go unnoticed by Micronet 800, the microcomputing arm of Prestel, the UK's public viewdata network.

Micronet's technical director, Mike Brown, after years of development on viewdata and in particular Micronet since its inception back in 1983, came up with a brilliant idea – an adventure gateway on Micronet. Instead of using PSS to access online adventures, why not use Prestel as the value-added carrier?

The problem with Mike's idea was, of course, the incompatibility between the viewdata format as used on Prestel, and the scrolling Ascii format found on most, if not all, online adventures.

Mike, whose motto – 'anything can be done in software' – had been put to the test before, set about establishing a viewdata gateway onto such Ascii services. After several months of development, he came up with a workable implementation which allowed Micronet users to establish a datalink into outside scrolling services.

The first the online public knew of Mike's machinations was the announcement earlier this year of *Shades* – the multi-user game accessible through the Prestel service.



to one of the other seven games available at that time and immediately wonder where all the other players have gone to!

As well as the Prestel/Micronet access charges (see end box), *Shades* players are charged a further 1.62 pence per minute (97p an hour) for the use of the gateway. Compared to even short-haul-trunk dialling rates or PSS, this can amount to a fair saving at the end of the quarter when bills – be they telephone or Micronet – are raised.

## Online Assistance

Online assistance is available via copious pages on Micronet called 'The Documents of Damocles'. Thankfully, the *Shades* sysops have given their permission for the help frames to reside within the Micronet database itself, and not through the

gateway.

This means that online help does not attract the gateway charges of 97p a minute. In fact, if Micronet is accessed outside office hours and Saturday morning, only local 'phone rates are charged.

Like most other online adventures, the *Shades* MUG is computer generated. Using a viewdata-compatible terminal, players can 'see', 'hear', 'talk' and 'walk' across the Shadelands.

Again in common with other MUGs, players can select personae of either sex and progress through the game, collecting treasure as they strive to reach the elusive title of Wizard.

## Mapping the Land

The parser in *Shades* is relatively easy to master, understanding simple pseudo-english sentences, such as *Get Matches* or *Where Bomb*. To move around in the game, the eight points of the compass are used, as well as the usual *In*, *Out*, *Up* and *Down*.



Micronet, as most modem owners will know, is a value-added information provider on Prestel. To access Micronet, subscribers must pay a subscription fee to Prestel, plus a further amount to Micronet for their service. Whilst on the face of it, Micronet seems expensive, averaged out at a little over £1 a week plus local 'phone calls from wherever you are in the country, the charges work out quite favourably.

*Shades* is entered by calling up a particular frame on Prestel – the *Shades* Gateway Frame (current \*81188) – and gatewaying into the *Shades* MUG situated in East Grinstead, Surrey.

Up to 64 Micronet members can access *Shades* at any given time, gameplay being divided into eight distinct games (dreams) of eight players each.

Players in one dream will be blissfully unaware of their co-players in the other seven games, but this can cause confusion if a player logs out temporarily to attend the mundane requirements of this mortal world (eg, eating, drinking, etc). When they log back in again, chances are that they will be randomly allocated

continued on page 30 ►



◀ continued from page 29

Mapping the game as you go is an important aspect of the gameplay itself as, with its many locations, *Shades* is as complex a game as that oldie but goodie *Mud One* (as seen on Essex University's mainframe).

## Micronet Special Offer

As part of a general special offer, *Popular*

readers signing up to Micronet, which allows access to the 30,000-plus frames on Micronet, for a period of not less than one year, will get – totally free of charge – a suitable modem and communications software for the computer of their choice.

Quarterly charges for Micronet currently stand at £26.50 a quarter, plus six pence per minute for access to the network from 8am to 6pm Monday to

Friday and 8am to 1pm on Saturday. Outside these hours, Micronet is free, other than the cost of a local telephone call to Prestel – currently around 50 pence an hour.

*Shades* costs a further 97 pence per hour (and pro rata) at all times.

For further details of Micronet and *Shades*, contact: Micronet 800 at 8 Herbal Hill, London EC1R, or telephone 01-278 3143.

## Player Levels

Many of the player levels are borrowed from the mists of time and the expected names are here:

Male	Female	Points
Novice	Novice	0
Innocent	Pure	125
Questor	Searcher	250
Adventurer	Adventuress	500
Explorer	Seeker	1,000
Gallant	Dauntless	2,000
Valiant	Amazon	4,000
Seer	Mystical	8,000
Soothsayer	Spellbinder	15,000
Enchanter	Enchantress	30,000

MICRONET (c) 8004011a op

**SLASHER**

Micronet's Bitchy Boa crushes the juice from another week

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Warlock	Bewitcher	125,000
Wizard	Witch	200,000

Without giving too much away, the following general areas are found within the lands:

Castle	West of start
River	South of castle
Forest	North and south of river
City	South of river
Sewer	In the city
Mansion	South of city
Power Station	East of city

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SPECTRUM 128K, data recorder, joystick, interface, only 3 months old, still guaranteed for 9 months, as new, with £90+ of software, worth £250+, yours for £130. Phone Chris on Downland 55243.

ORIGINAL disk based C64/128 software, unwanted gift. Consists of Commodore Easy file, Commodore Future Planner, Commodore Easy Script, £20 only. B. F. Hallmann, 38 Buxton Road, Luton, Beds LU1 1RC. As new.



Pick of  
the week

## New Releases

John Cook looks through this week's new arrivals

### Amstrad CPC

**Program** *Legions of Death*  
**Type** Strategy **Micro** Amstrad CPC **Price** £9.95 **Supplier** Lothlorien, Argus Press Software, Victory House, Leicester Place, London WC2.

**Program** *Explorer* **Type** Strategy **Micro** Amstrad CPC **Price** £8.95 **Supplier** Electric Dreams, 31 Carlton Crescent, Southampton SO1 2EW.

**P**rogrammed by Ram Jam, this gets the award for the best inlay card this week, it also gets the award for the most original game this week... and while we're at it, let's try 'most enigmatic' as well. All this doesn't necessarily make it any good.

Electric Dreams are claiming a total of forty BILLION mappable locations, in nine of which lie bits that will fix the spacecraft that you acquired from Alpha Centuri's equivalent of Arthur Daley.

Thinks... is this another technical wonder, zero playability - like *I, of the Mask?* I'll keep you posted.

**Program** *Hardball* **Type** Arcade **Micro** Amstrad CPC **Price** £9.95 (tape) £13.95 (disc) **Supplier** Amstrad, Brentwood House, 169 Kings Road, Brentwood, Essex.

**T**he Americans take their Rounders seriously - now's your chance to see why.

**Program** *Plan It* **Type** Application **Micro** Amstrad CPC **Price** £14.95 (tape) £19.95 (disc) **Supplier** Database, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

**T**hey call it the complete personal organiser - so how come it couldn't tell me where I'd left my keys this afternoon? Still, if you wanted to get your finances arranged, *Plan It* could certainly help.

It's a suite of three programs: personal accounts, financial diary and a card index. Remember, almost all these functions will only be

worth it if you have a disc drive and printer.

Looks good value though... watch out for a full review next week.

### Amstrad PCW

**Program** *Boulder* **Type** Arcade **Micro** Amstrad PCW 8256/8512 **Price** £14.95 **Supplier** Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.

**Y**'know (lies back in armchair) there are one or two things in this funny old world (fills pipe with tobacco, then lights up) that you really just can't explain (gesticulates meaninglessly with pipe stem, blows large amounts of smoke into atmosphere).

*Boulder* on Spectrum, Commodore 64, Amstrad CPC even MSX and C16, was a great little game. Neat design, nice programming. But put it onto the PCW and what happens? It stinks.

Makes you feel - kinda humble, doesn't it? (Nods to himself philosophically and toasts another crumpet by fire).

**Program** *Plan It* **Type** Application **Micro** Amstrad PCW 8265/8512 **Price** £24.95 **Supplier** Database, Europa House, 69 Chester Road, Hazel Grove, Stockport SK7 5NY.

**Program** *Annals of Rome* **Type** Strategy **Micro** Amstrad PCW **Price** £24.95 **Supplier** PSS, 452 Stoney Stanton Road, Coventry CV6 5DG.

### Atari XL/XE

**Program** *Dispatch Rider* **Type** Arcade **Micro** Atari XL/XE **Price** £1.99 **Supplier** Mastertronic, 8-10 Paul Street, London EC2.

**I** suppose you realise that if you play this, your life expectancy goes down by about 20 years, don't you?

**Program** *Master Chess* **Type** Strategy **Micro** Atari XL/XE **Price** £1.99 **Supplier** Mas-

## Arrivederci Roma

**Program** *Legions of Death*  
**Type** Strategy **Micro** Commodore 64 **Price** £9.95 **Supplier** Lothlorien, Argus Press Software, Victory House, Leicester Place, London WC2H 7NB.

**F**irst *Annals of Rome*, now *Legions of Death* - all in one week. My guess is that this is a great piece of marketing from PSS and Argus respectively... Christmas really is the time of year to launch anything connected with the Classical World. Why? *Ben Hur*, *Spartacus*, *Antony & Cleopatra*? After watching those on telly, you're going to be rushing off to your local software shop with fistfuls of the blue crinkly stuff, aren't you?

Well, just before you put the coat on, why not read what it's all about? Naval strategy and tactics in the Punic Wars m'lad, with much of the tactical game system based on an old board war-game called *Treeme* - but very professionally done.

The main playing area is graphically depicted (most of the Western Med) on half of the screen with a magnified portion in another window. Via this window you give orders to your fleets (after you've built them) and on



which the battles take place.

All the orders are given by a system of icons, which seem fiddly to start with, but you soon get used to.

Who knows what it is - maybe the crack of the whips, the pounding of the drums, the whiff of boiling oil (just like the office on a Friday, really); *Legions* certainly has a lot of appeal. Either one or two player, expect to take quite a bit of time over each campaign - three or four hours at least, depending how you set the victory conditions, but with a save/load option, that's not too much of a problem. Highly recommended for slave drivers and strategists alike.

tertronic, 8-10 Paul Street, London EC2.

### Commodore 64

**Program** *Soldier* **Type** Arcade **Micro** Commodore 64 **Price** £8.95 **Supplier** Quick-silver, Victory House, Leicester Place, London WC2H 7NB.

**C**ommando style games - play with strategic elements bolted on - pretty good stuff.

**Program** *Highway Encounter* **Type** Arcade/Strategy **Micro** Commodore 64 **Price** £9.95 (tape) £14.95 (disc) **Supplier** Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.

**A**t last - a Commodore version of this Vortex clas-

sic. Any game that makes you waste good drinking time in order to finish it has got to be worth the bananas.

### Spectrum

**Program** *Legions of Death* **Type** Strategy **Micro** Spectrum **Price** £9.95 **Supplier** Lothlorien, Argus Press Software, Victory House, Leicester Place, London WC2.

**Program** *Terra Cresta* **Type** Arcade **Micro** Spectrum **Price** £7.95 **Supplier** Imagine, 6 Central Street, Manchester M2 5NS.

**T**he Commodore version had colourful graphics and a neat soundtrack going for it - not so on the humble Speccy. Glorious mono rules, and although it plays OK, it's games like this make you remember why everyone went loopy over *Lightforce*.



## Suffering hypertension

The computer industry in the US has had a lot of influence on its British counterpart. Now, Americans are not given to understatement (either about the virtues of their own products or when mentioning the shortcomings of those of competitors) and a lot of hype has crossed the Atlantic behind them. Which is a pity, because the computer is a logic engine at core. Unfortunately, the habit seems to be taking root here, especially in software promotion.

The word "hype" probably derives from the press photographers of the 30's when the relatively slow and coarse-grained films of the day were "souped-up" in a superfine-grain predeveloper, or "hyped" in a hypersensitising solution to make them faster. The latter practice persists, but the term has sunk into "motivational persuasion" where potential customers (you and I) are preconditioned into wanting a product emotionally rather than critically.

The apparent overpackaging complained of in Ziggurat (September 25) is not mere hype: it is sometimes cheaper to use a pack that has been mass-produced for another product rather than to design a new one.

Regrettably it is always necessary to make the packs large enough to discourage shoplifting, because "hype" afflicts the impoverished and the well-to-do indiscriminately.

My gripe is more with literary than merchandising hype. There is a dialect of reasonably intelligible subset of literate English (RISSOLE), quite adequate to prime us. Hyperbole, like curry powder, can be over-used.

I can only speak from experience of utilities for the Sinclair cavalcade, but I am sure that others, less fastidious, will know what I mean. Possibly at greater cost.

One recent example is the promotion for a program to manage Ram disc allocation. It is supplemented by a toolkit. There is an Eprom version combining the two; just what we all want! Only the Rom

*"Hyperbole, like  
curry powder,  
can be over-used"*

turns out not to contain all of the two programs; and the major program really needs someone else's toolkit as well. On Rom, of course. Guess where it is now.

Another advertisement assured me that if I bought E\*\*\*\*, I should never wish to touch Q\*\*\*\* again. "Chuck Q\*\*\*\* out", the cover of the manual urged. Fortunately the garbage collector was late, for on almost the last page the manual admits that Q\*\*\*\* is still needed for "short letters, for and final text-presentation formatting". To say nothing of word-count.

Then there are programs

for computer-assisted design that produced true circles on the screen, but dump "elliptical billiard balls" to the printer. Reviewers don't have the time to spot these niceties and warn us.

And, of course, the "form" program, with laborious database, that produces forecasts statistically better than chance: but only if you have a stats. program capable of distinguishing nicely between pure chance and shop-soiled ditto.

The lettering designers that offer proportional spacing, but load them with fonts that seem calculated to conceal the art. (I except *Inkwell*, which can be manipulated to give a passable copy of that paragon of spacing, the Trajan columnist.) With elaborate fonts, too, that no self-respecting calligrapher would want to see.

The database programs that are less efficient than those in *The Working Spectrum*; the investment portfolio manager that swallows more detail than a tax return; the other disappointments could be detailed, but the recollections hurt. Don't the hypesters realise that personal expenditure on turkeys rankles? Business mistakes can be buried by accountants, but one's own money...

If it be true that good wine needs no bush, which seems to be proved by *Tasword* and *BetaBasic*, then my (oblique) corollary must surely follow: "Hype means tripe!"

## NEXT WEEK

### Atari 520STFM

At last, it really is here, and available - Atari's 520ST with a built-in 3½ inch drive and TV modulator. John Lettice peers into the depths of the machine.

### CPC tracker ball

Take one Marconi tracker ball device, one CPC interface and Metrotech's graphics software, and soup up your Amstrad CPC no end. Chris Jenkins has the details.

### PCW graphics

Continuing with graphics, we'll have a full review of Mirrorsoft's graphics operating system for the Amstrad PCW machines.

### Spectrum disassembler

Apologies for not including the promised Spectrum disassembler listing this week, but it really will appear next week.

## Hackers





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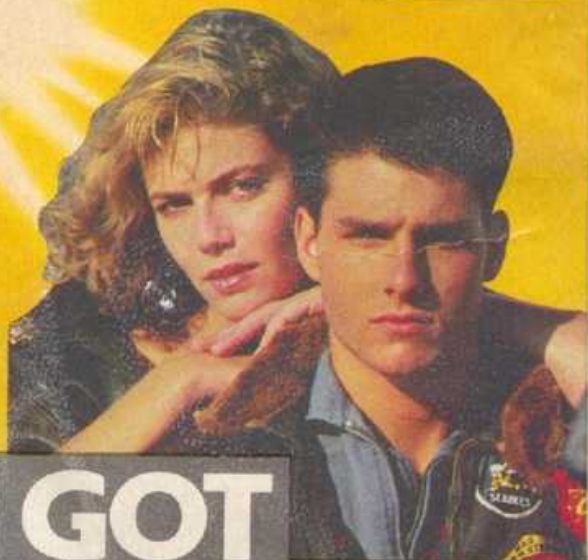
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