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# POPULAR Computing WEEKLY

11-17 September 1986

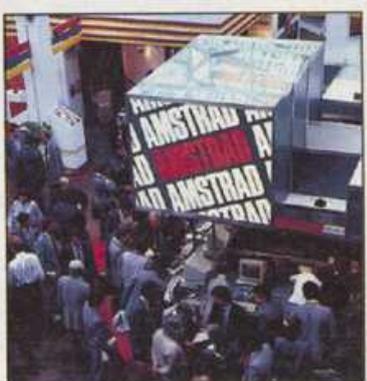
Vol 5 No 37

## PCW show heralds bumper autumn

All the show news starts on p24



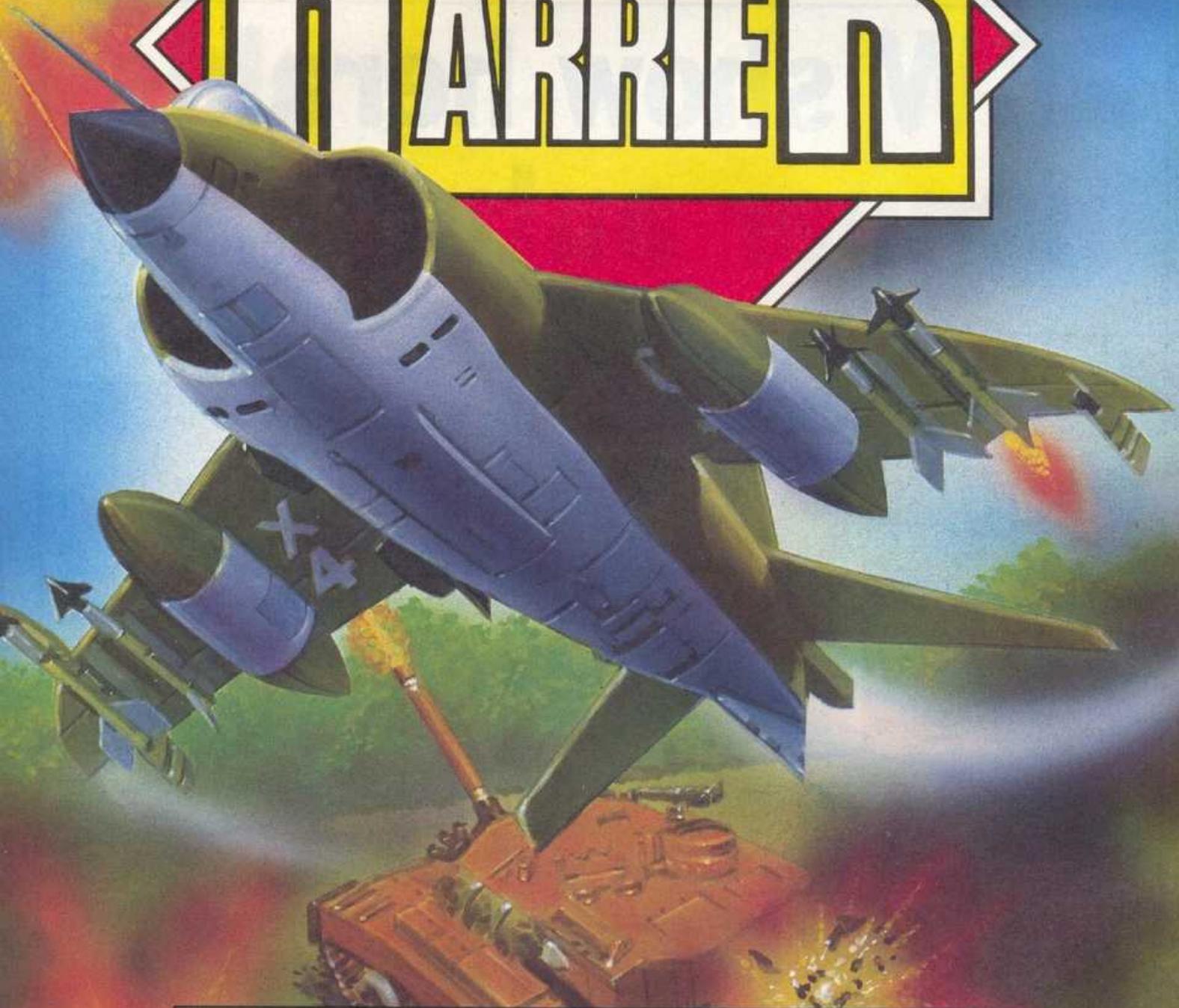
Above: Amstrad's PC1512. Top right: Rainbird's *Star Glider*. Right: Spectrum Plus 2. Bottom left: Acorn's Master Compact micro. Left: Ariolasoft's *Marble Madness*, Commodore 64 version.



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NEW Commodore 64	£9.95 tape, £12.95 disk
Amstrad CPC	£9.95 tape, £14.95 disk
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**MIRROSOFT** Purnell Book Centre, Paulton, Bristol BS18 5LQ

**HARDWARE** ▶**11 Pioneer PX-7**

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**12 DIY feature**

Expanding the Amstrad DMP-2000 printer buffer. Dave Race shows you how.

**PCW SHOW REPORT**

The latest hardware, the forthcoming software and all the games fit to print. Over nine pages on the home micro industry's showcase exhibition, starting on page 24.

◀ **SOFTWARE****14 First Base**

A database for beginners, or those with limited requirements, Minerva's *First Base* runs on the PCW 8256/8512.

**Colossus Bridge**

From CDS, a bridge simulation program for both beginners and more experienced players with plenty of practice modes and options.

**GAMES** ▶**16 Reviews**

Take your pick from Hewson's brand new *Alleykat*, Bubble Bus's latest, *Moonlight Madness*, and *Monty on the Run* for the C16.

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The Spectrum Plus 2, Star Micronix

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# Atari's new supermicros

ATARI is heading into the Christmas market with two new machines at the top of its range, but although the company is now to offer a £344 unbundled version of the 520ST as a form of flexible response to the Amstrad PCs. It won't be headed for direct competition with Alan Sugar - yet.

The two new machines are the 2080STS and the 4160STS - 2Mb and 4Mb versions of the 68000-based machine. They're due to go on the market in November, and retail prices will be £1,352 and £1,716 respectively for versions with mono monitor, and £1,587 and £1,952 for colour.

According to Atari general manager Max Bambridge the machines aren't intended for the mass market, but are intended to provide massive Ram for specialist areas such as the audio and video industries.

The price cut on the 520ST means that Atari's "£100 off" summer offer is now permanent, and that a mono ST system can be put together for around £550 retail. This doesn't rival Amstrad's entry level of £444 for a PC, but Atari is at pains to point

out that the ST is a more sophisticated machine, and company president Sam Tramiel is currently planning assaults on Amstrad in terms of power, price and design.

It's not clear what form these assaults will take, but Tramiel clearly would like to do all three at once. A mock-up of a new machine, which Tramiel sees as selling in tandem with the current range and Bambridge says will launch at the Hanover Fair next year, was being shown discreetly in Atari's back room at the PCW show. The keyboard is similar to that of the present range of STs but is minus the section holding the various processors and Ram chips. The new design houses these in a compact box, the show prototype being equipped with a single 3½ inch drive. Expansion such as hard discs and extra floppy drive are housed in a similar case.

Atari president Sam Tramiel says he hasn't decided on the amount of Ram production machines will have, but initially it will be either 2Mb or 4Mb. Versions of the machine will also house the full 68020 processor. The price also hasn't been fixed.



## More power to your ST

He describes this first as "competitive", but follows it up by making it clear the competitor will be Amstrad, and specifically the new Amstrad PC.

Tramiel envisages it selling as a PC-style bundle, and ultimately it appears that Atari will be looking at a range of 68000-based bundles starting at mono monitor, ST and single drive for around the £450 mark. A 512K version would be a credible challenger, but one, two or even 4Mb machines would be more in keeping with Atari's sledgehammer approach to marketing. The company is however likely to hang back to see how the Amstrad PCs sell, and to concentrate on getting the ST range more widely accepted.

Tramiel freely admits that Atari still has a tough task

ahead of it in establishing the ST, particularly now that the IBM standard is dominant in the US home market and poised for take-off in Europe's equivalent. The company's target is 25 percent of the market, and although he claims to be close in Europe, Atari hasn't achieved anything like that in the US or the UK.

But as far as he's concerned the PC craze in general and Amstrad in particular, can't last. "The PC is seven or eight-year-old technology. It's technically limited, and we'll be mounting campaigns to compare the ST to the clones. This year the clones will have a big market share, but as software becomes available the 16-bits will begin to take over. In five years the 68000 and 68020 will be taking over the marketplace."

# Software costs fall

NEW STAR Software is planning a price blitz on the PC software market, and predicts that it will force the cost of applications down below £100. Most of the traditional PC software suppliers have set their faces against price cuts but, says New Star spokesman Chris Laing, "They will find they will have to change their minds if they want to stay in the game."

Initially the major software houses will be unwilling to enter into cheap licensing deals, reasoning that this will destroy the full price software market, so New Star intends to supply the hardware clone market by producing soft-

ware clones. The company will initially be selling MSDOS versions of *New Word 2* (£69), a *Wordstar* compatible word processor; *VP Planner*, Paperback Software's *Lotus 1-2-3* clone (£99); *VP-Info*, a *dBase III* workalike (£99), and *Cracker 3*, a £69 memory resident spreadsheet.

These are to be followed up with *Streaker*, which for £99 allows *New Word* and *Wordstar* text files to be indexed to form databases. Further products are to follow, but it's unlikely that many of these will be licensed versions of the existing industry standards.

Laing accepts that some

users will want the real thing rather than lookalikes, but feels that the new users the Amstrad PC will bring in won't be bothered about the name of the product. This will mean the bigger companies will either have to cut prices or retreat into the higher cost corporate sector of the market.

## Chess change

IN *Popular Computing Weekly*, volume 5 issue 34 the pictures of *Psi Chess*, and *Colossus 4* were inadvertently transposed.

Profuse apologies to both software houses.

## Laskys offers support for new users

HIGH street retailer Laskys is to sell a hotline support service for new computer users for £39.99 for a three-month subscription. The package is being operated by the Interlex software group, and operates six days a week, 9am-9pm weekdays and 9am-1pm on Saturday.

The service is likely to be particularly attractive for purchasers of cheaper computers that don't come with a great deal of support.

Details from Laskys, Hardman House, The Hyde, Hendon, London NW9 6JJ. Tel: 01-200 0444.

# Queues form for the PCs

BACKLOGS were building up for Amstrad PC orders within hours of the machine's launch last week. By Friday Dixons, which had rushed display models to its stores, was quoting delivery in six to eight weeks for floppy versions of the machine, but couldn't give a date at all for the hard disc models.

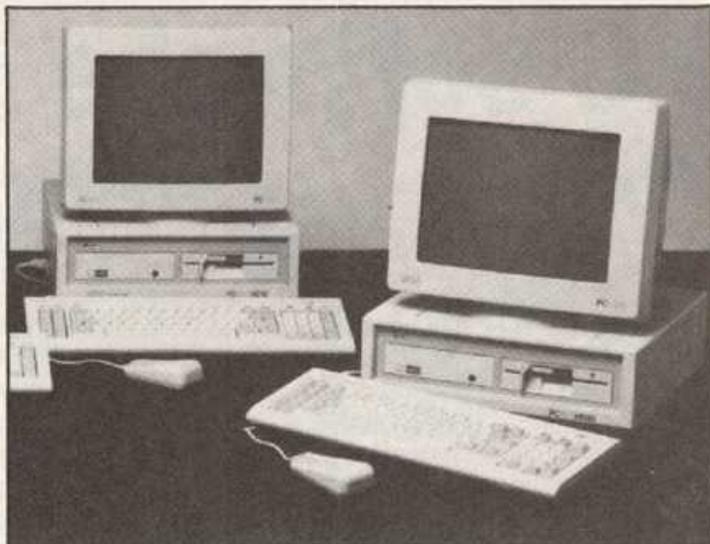
The company's Holborn branch, which houses one of Dixon's biggest computer sections, has only one PC on display. "I can't even quote a delivery date for the hard disc machine," said a spokesman. He said he was getting estimates of anything between two to eight weeks for the floppy versions, but as demand seemed to be similar to that for the PCW when it was first launched he felt six weeks was more realistic.

Amstrad intends to ramp up production of the ma-

chines to 70,000 a month by Christmas, and the growing waiting list for the floppy versions of the machines can be ascribed to demand, but the longer, as yet undetermined delay for the hard disc machines seems more supply-related.

One industry source suggested that the delay was related to the fact that the decision to launch the 10Mb and 20Mb versions of the PC was taken very late, just prior to the launch. Because the machine's construction has been standardised it's fairly easy for Amstrad to plug hard disc drives into the machines coming off the line, but if the decision was taken this late there's likely to be some delay while adequate hard disc stocks are secured.

The low price of the top end machines (£822 for



## Wait for it?

10Mb and mono monitor) is also likely to stimulate demand for hard disc versions, and Amstrad will inevitably have problems in judging proportions correctly.

An Amstrad spokesman confirmed that there has been heavy demand for the PCs already, and although he wouldn't state categorically that the floppy and hard disc machines would reach the shops at the same time he denied that the launch of the

hard disc machines had been in any way a last-minute decision.

"Amstrad products are launched when they're on the water," he said, and as all eight versions of the PC have undoubtedly now been launched freighters full of hard disc PCs must at this very moment be cruising towards us. If this is the case then deliveries to end users should be well under way by October.

## Hotlines

**Argus Press Software**, although avoiding the hustle and bustle of the main PCW show had two excellent new games on display at their "trade only" suite at the nearby Royal Kensington Hotel. First of all, *Glider Rider* on Spectrum, the latest from the Quicksilver label. Features a novel scenario - blowing up nuclear reactors on a plastic island - and well executed 3D

graphics. It has you alternately chugging around the Abraxas Corporation HQ on a motorcycle, and flying round it under a handglider.

The most impressive feature of the game is the sound - only implemented on the 128/Plus 2 versions - which can only be described as stunning. It includes some excellent samples, and must be the best yet for any Spectrum game to date. What will happen when programmers really start getting to work on the

Plus 2 is anyone's guess - keep your ears peeled.

It's priced at £8.95, out on Spectrum, Amstrad and Commodore soon.

Second up was an excellent title from **Lothlorien** which could open up computer wargames to a whole new range of computer users. Called *Legions of Death*, the game deals with the Punic Wars between Carthage and Rome. Gone are the artificial constraints of hex grids and in their place is a unique "cartographic" representation of the playing area. The whole playing area is presented on the left hand side of the screen.

You build up and move your armies and fleets under full icon control with one/two player options. A novel mix of tactical and strategic elements, it's well worth a look. Out at £9.95 on Spectrum, Amstrad and Commodore soon.

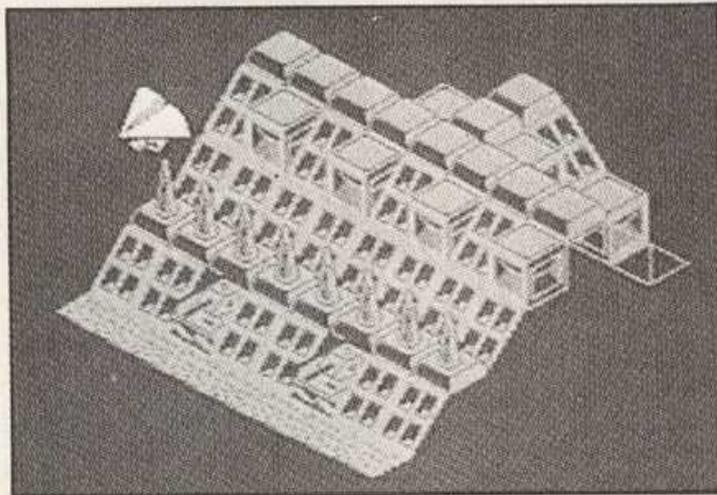
**Gremlin Graphics** has lined up its autumn collection. Launching somewhat sooner (September 22). *Footballer of the Year* is a novel idea in that instead of managing a whole

football team you adopt the role of a single player. You start at the bottom at the age of 17 with aspirations to reach the top.

Features will include transfers, career record cards, League, UEFA, FA and Milk Cup games... and who knows, probably cartilage operation and *News of the World* scandals as well. Out on all major systems, priced at £6.95 (C16/Plus 4), £7.95 (Spectrum, MSX) and £9.95 (Amstrad, CBM 64, BBC/Electron).

**Palace** has brought in comic artist Dan Malone for the design of its latest arcade adventure - *Antiraid*. It's based in a post holocaust world which has been taken over by aliens, and you play the champion of the enslaved humans and must explore the hazard filled caverns of the ancient volcano in which they have taken residence.

The ultimate aim is to assemble a complete suit of armour (actually a sophisticated combat suit) and rescue humankind from the grip of its overlords.



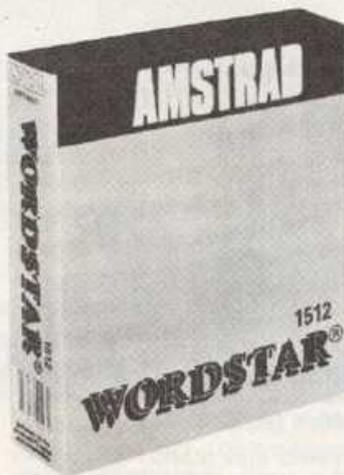
# PC software war

THE scramble to supply applications for the new Amstrad PCs is now well and truly on, with Amstrad launching the first four of an intended ten packages, DR producing a further four to bring its Gem-based range up to nine, and Microsoft bringing up the rear with reduced cost versions of its own applications, Microsoft Word and Multiplan expected soon.

The word processing market for the machines will be lucrative, and Amstrad has recognised this by tying up sole rights to MicroPro's Wordstar 1512, specially developed for the machine. The package's user interface is similar to that of Wordstar Easy, the friendlier version of Wordstar launched earlier this year, but according to MicroPro managing director Robin Oliver it's a new implementation of Wordstar.

DR's new packages are Gem Diary, Draw Business Library and Fonts and Drivers Pack at £39.95, and Font Editor at £99.95. An implementation of the Gem Programmer's Toolkit will also be available at £179.95.

The new packages join Draw, Graph, WordChart and



Write (all £99.95), and will link into the Gem packages bundled with the PCs. Amstrad's packages don't do this, and the first few months sales are likely to show whether users will want to opt for a traditional type of system or whether they'll jump for Gem.

Microsoft announced its new products at the PCW Show. They're similar to the full-sized products, but Multiplan Junior is a smaller 63 x 255 cell spreadsheet, while Word Junior lacks Word's outlining, indexing and style sheet facilities. They're both £69.95, while full-size Word is a snip at £500. The company is confident that it hasn't set a pricing time bomb for itself.

## Ariola Sega link

ARIOLASOFT has bought the rights to see the Sega video games machine in the UK this Christmas.

Sega's console, the Master System, was launched at the Chicago Consumer Electronics Show in June this year. It uses both card and cartridge software, which have a capacity of 256K and 1048K respectively. Video games machines were one of the surprise success stories of the Chicago show, with Nintendo and Atari both launch-

ing products in that field as well.

Ariolasoft's Frank Brunger said: "There will be some out here in time for Christmas, but we want to build up demand first. It'll be priced at either £79.99 or £89.99 - we're not sure yet."

As well as bringing over software already written for the machine, Ariolasoft intends to put some of its own games on to card and cartridge, including the acclaimed *Skyfox*.

## Digitiser for Spectrum

DUTCH company Data-Skip has developed a £69 video digitiser for the Spectrum. The Videoface consists of a small box that alters video signals from a video recorder or camera for display on the Spectrum's screen.

Details from Data-Skip, 1 Willemsteeg 10, 2801 WC Gouda, Netherlands. Tel: 0-1820-20581.

## Microlink to the States

MICROLINK, Database Publications' front end to the Telecom Gold electronic mail service, has established a gateway to New York-based online database Mnemetics. Using the gateway costs about half as much as a con-

ventional transatlantic phone call.

Details from Microlink, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY. Tel: 061-456 8383.

## New printer from Samleco

SAMLECO has added a 132 column printer to its range of low cost dot matrix machines. The DX-136 retails at £402.50 and prints at 120 cps. It comes with tractor feed as standard and provides draft, correspondence and near letter quality modes. As it uses interface cartridges it can be connected to most computers.

Details from Samleco, 9 Fairacres Industrial Estate, Dedworth Road, Windsor. Tel: 0753 854717.

## Diary Dates

### SEPTEMBER

12-14 September  
**8th Official Commodore Computer Show**  
UMIST, Manchester

**Details:** A wide range of Commodore hardware, software and peripherals.  
**Price:** £3 adults, £2 children, £1 discount for advance booking.  
**Organiser:** Database Exhibitions, 061-456 8835.

26-28 September  
**Electron and BBC Micro User Show**  
UMIST, Manchester  
**Details:** Software, hardware and

peripherals for BBC machines.  
**Price:** £3 adults, £2 children, £1 discount for advance booking.  
**Organiser:** Database Exhibitions, 061-456 8835.

### OCTOBER

3-5 October  
**The Amstrad Computer Show**  
Novotel, London

**Details:** Home and business software and hardware for the Amstrad range.  
**Price:** £3 adults, £2 children, £1 discount for advance booking.  
**Organiser:** Database Exhibitions, 061-456 8835.

30-31 October  
**Hampshire Computer Fair**  
Guildhall, Southampton

**Details:** Business computers.  
**Price:** Free entry by business registration.  
**Organiser:** Testwood Exhibitions, 0703 31557.

### NOVEMBER

7-9 November  
**Electron and BBC Micro User Show**  
New Horticultural Hall, Greycoat Street, London SW1

**Details:** Hardware, software and

peripherals for the Electron, BBC micro and Master series.

**Prices:** £3 adults, £2 children, £1 discount for advance booking.  
**Organiser:** Database Exhibitions, 061-456 8835.

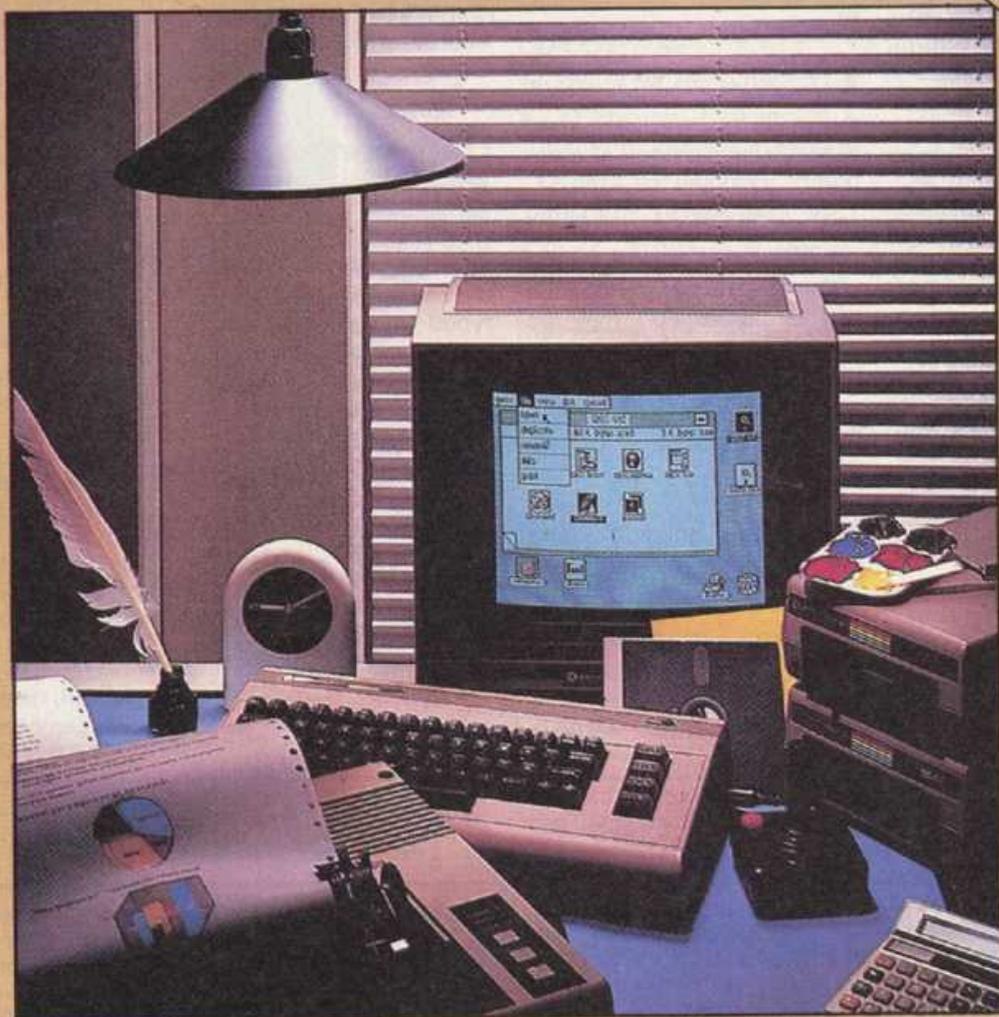
Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser.

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## Memotech's a Rolls Royce

After reading *Popular* last week, I felt compelled to write in and echo the things that Philip Arkley said regarding the Memotech (Letters, August 14), and also to enlarge a little on how good a machine the MTX 512 really is.

If you thought that the BBC B was the Rolls Royce of home computers, then take a look at the Memotech. The BBC may have a built-in assembler, but then so does the Memotech, which also has full editing capabilities, and Front Panel, a high level assembler/machine code debugger and analyser.

If you thought the graphics on the Commodore 64 were good, remember that the Memotech can do all that in Basic, using very advanced Logo type graphic commands and it does it at lightning speed.

And for those of you who are Spectrum owners, did you know that for a mere £35, you can buy a Speculator, which slots into the side of the MTX 512 and lets you use a lot of Spectrum software?

I could go on about the 32

sprites (all of which can be moving on the screen at the same time), four channel sound, the extremely versatile *Genpat* commands and the super-fast tape loading, but I think Memotech itself would be better at that than me.

Alan Hamilton  
Ayrshire

## Bedroom games

I recently read an article in your magazine about *The Pawn*, a graphic adventure available on a variety of computers, including the Atari ST.

I am particularly interested in getting a poster of the picture of the ice skull and the wizard on the rope bridge, as this larger version may be used to scale up the picture to paint on my bedroom wall.

Would it be breaking any copyright laws if I was to do this? Would I have to gain permission from the publishers? I would appreciate any information you could give me on this matter.

P Panayis  
Northampton

The publisher of *The Pawn* on the Atari ST is Rainbird Software. The address is 74 New Oxford Street, London W1 (01-631 5206).

We cannot imagine Rainbird having any objection to your project whatsoever.

## A load of rubbish

In a letter published in *Popular*, December 5, 1985, I made some comments about loops that were a load of rubbish, I apologise to readers and in particular Acorn, for my remarks.

G Wearmouth  
London

## UXB correction

Due to a printing error the graphic characters in the UXB listing were omitted. The following lines contain the characters which must be typed in with the cursor in graphics mode, as explained by Ian Grainger in the August 28th issue.

```
310 LET b(x,y)=0: PRINT AT (y-1)*2,(x-1)*2: INK 5:"AB":AT (y-1)*2+1,(x-1)*2: GOTO 2000
2000 LET sc=0: LET t1=3: LET c#="ABABAB": LET c#="CCCCCD"
2010 LET t=1: LET e#="OROROROROR": LET f#="STSTSTSTST"
3000 FOR n=0 TO 15 STEP 2: FOR f=0 TO 31 STEP 2: PAPER 1: INK 6: PRINT AT n,f:"E":AT n+1,f:"GH": NEXT f: NEXT n: PAPER 0: INK 7
5005 LET a#="OSG x 20": LET s#="20 space":
```

```
5010 PRINT AT 17,1: INK 7: PAPER 2:"TIME": INK 3:"OSG x 4": INK 5:a#( TO (bo-1)*5):s#( TO (20-(bo-1)*5))
```

```
6020 IF b(x1,y1)=1 THEN LET b(x1,y1)=2: PRINT AT (y1-1)*2,(x1-1)*2: INK 4:"IJ": AT (y1-1)*2+1,(x1-1)*2:"KL": NEXT f: GOTO 6040
```

```
6050 IF b(x1,y1)=1 THEN LET b(x1,y1)=3: PRINT AT (y1-1)*2,(x1-1)*2: INK 7:"MN": AT (y1-1)*2+1,(x1-1)*2:"OP": NEXT f: GOTO 6070
```

```
6090 LET b(x1,y1)=5: PRINT AT (y1-1)*2,(x1-1)*2: INK 6:"QR":AT (y1-1)*2+1,(x1-1)*2:"ST"
```

```
7600 PRINT AT (wy-1)*2,(wx-1)*2: PAPER 1: INK 6:"EF":AT (wy-1)*2+1,(wx-1)*2:"GH": RETURN
```

```
9030 PRINT AT f,1: INK 1:"OSG x 5":AT f+1,1: PAPER 1: INK 7: "sh#(1): " :AT f+2,1: INK 1:"OSG x 5":AT f+3,1: PAPER 6:" "
```

## GLP correction

Concerning the letter by Niel Markwick (*Popular* 28th, August) describing the facilities of the Centronics GLP printer, in NLQ mode it prints at only 12cps, not 25cps as stated. He also said that it can print in 3 different text sizes. There are in fact 4 text sizes; 5cpi (40 char/line), 8.5cpi (66 char/line), 10cpi (80 char/line) and 17cpi (132 char/line). A further 2 different text sizes are available in sub/superscript, plus bit image graphics mode.

Your £99 (+VAT) will buy a

# Puzzle

## Puzzle No. 224

My 'Encyclopaedia of Science' was standing disarranged on the shelf. As shown in the illustration the nine numbered volumes were out of order, but I noticed that the number formed by the central three volumes was equal to the product of the groups of books on either side of it.

That is  $4 \times 39 = 156 = 78 \times 2$ .

This set me wondering if there was any other arrangement possible with the nine volumes. Such an arrangement must have the same layout as the one illustrated. That is, three volumes in the centre and a double and a single volume on either side.

## Solution to Puzzle 219

Square is equal to 687241 (829 squared), and Prime is equal to 94351.

## Solution

As the value for Square contains six digits, its square root must be in the range 351 to 999. As both the value of the square and the prime

end in the same digit (as represented by the letter B) this must be either 1, 3, 7 or 9.

With this as a base, subsequent square values are generated in lines 50 to 100, where each is checked for both duplication of digits or the occurrence of any zero. The values that pass this test are then tested in lines 110 to 190 for the three digits *not* included in their value. Each digit in turn is inserted into the array D\$(3). In the 5-digit prime number, we already know the value of two of the letters are R and E, as these occur in the value of the square. The three missing digits can therefore be placed in position in a permutation of six different ways. This is done in lines 220 to 270, and after each substitution the resulting value is tested for primality in the subroutine.

This results in a number of possible sets of values being printed out. However the prob-

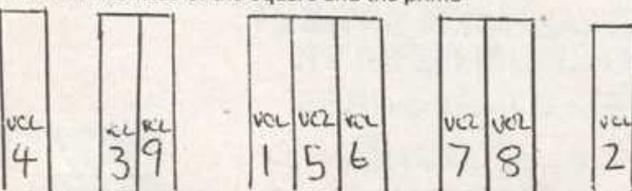
lem states that the Professor gave his class the value of the digit represented by the letter P. This must be a value of P which only occurs once, else an ambiguous answer would result. By examining the results, only if the P was represented by a 9 would this be the case, so this must have been the value that the Professor gave to his class. Every other value of P that occurs does so in more than one set of figures.

## Winner of Puzzle No. 219

The winner this week is D Spicer of Camberwell Grove, London who will be receiving £10.

## Rules

The closing date for puzzle 224 is September 30.



```
10 DIM D$(3)
20 FOR N=351 TO 999 STEP 2
30 IF M=INT(N/5) THEN M=M+2
40 S#="": S#="STR$(S)
50 FL#0
60 FOR F=1 TO 5
70 FOR S#F+1 TO 9
80 IF MID$(S,F,1)=MID$(S,D,1) OR MID$(S,F,1)="0" THEN FL=1
90 NEXT S#
100 IF FL=1 THEN 200
110 Z=1
120 FOR D=1 TO 9
130 FL#0
140 FOR ST=1 TO 6
150 IF VAL(MID$(S#,ST,1))=D THEN FL=1:ST=D
160 NEXT ST
170 IF FL=0 THEN D$(2)=STR$(D):Z=Z+1
180 IF Z=3 THEN D#="": D#="MID$(S#,6,1)
190 P#="": P#="D$(1)+R#+"D$(2)+D$(3)+E#":GOSUB 300
200 P#="D$(1)+R#+"D$(3)+D$(2)+E#":GOSUB 300
210 P#="D$(2)+R#+"D$(1)+D$(3)+E#":GOSUB 300
220 P#="D$(2)+R#+"D$(3)+D$(1)+E#":GOSUB 300
230 P#="D$(3)+R#+"D$(1)+D$(2)+E#":GOSUB 300
240 P#="D$(3)+R#+"D$(2)+D$(1)+E#":GOSUB 300
250 NEXT D
260 NEXT F
270 NEXT N
280 END
300 FL#0:P#VAL(P#)
310 FOR J=3 TO 9:PRINT P#;STEP 2
320 IF P=3/INT(P/3) THEN J=P:FL=1
330 NEXT J
340 IF FL=0 THEN PRINT P#;" "
350 RETURN
```

parallel interface version. £10 (+VAT) more will buy a parallel/serial model. For £120 (+VAT), a tractor feed option with both interfaces can be had. I have this model linked to my Sinclair QL, and am very pleased with the results. The GLP II superceded the GLP, and for £130 (+VAT) you can buy the parallel interface version from the same supplier (Rockhall of Glenfield in Leicester).

I feel that the amended information will clarify the ability of the printer. I wholeheartedly agree with Niel Markwick's sentiments: the GLP gives excellent value for money.

Paul Smith  
Bath

## Luck of the Irish

I was very interested to read the article by David Bolton regarding the Irish Software house, Choice.

For the past 3 years as Level 9's duplicator, I've been using MegaLoad, a turbo loader from Choice Software for their C64 masters.

MegaLoad employs three speeds, 9, 7 and 5 times and each uses a multi-coloured loading screen.

Since starting data duplication back in 1978, I've been offered many very varied and some, very expensive, turbos, but I've found nothing to match this product. Long may they continue to produce!

Simon Stable  
Oxon

## Electronic repair manual needed

I am a regular reader of *Popular Computing Weekly* and hope your readers might be able to help me through the courtesy of your letters page.

I am very interested in electronics and have been invalidated after an accident. My only outlook for the future lies in bench work repairing electronic equipment.

Could I please ask your readers where I can obtain any service information for repairing computers, monitors, or possibly video, TV or test equipment.

I understand your magazine includes advertisers who carry out repairs but there is

no one operating this service in Derby as far as I know.

Paul Simpson  
41 Naim Avenue  
Chaddesden  
Derby



"It's an Add-on following the conversion of arcade games to computers"

## Romanesque

In my Romans program for the QL (Programming, August 21) there is an omission. It is now necessary to delete line 290 for the program to work.

However, this alteration means that you can only use upper case when typing in the Roman numerals.

David Wragg  
Hants

## Demolition derby

Thank you for publishing Demolition on the Spectrum in *Popular*, June 19.

Unfortunately you omitted to mention how to get the game running once the code is typed in. The following program should achieve this if saved on the cassette before the machine code:

```
10 LOAD "DemolCODE" CODE
20 RANDOMIZE USR 30200
```

Jonathan Davies  
Bristol

## WACCI club

Many thanks for publishing my letter about an Amstrad CPC user club in *Popular*, August 21.

I have now been able to start the club and I thought I'd write with more details.

The club is called WACCI, and every month I distribute a

nationwide newsletter on tape/disc of members' views and contributions.

The subscription fee for this is a measly £3 per year. Anyone interested should drop a line and a stamp and I'll send further details.

Jeff Walker  
75 Greatfields Road  
Hillingdon  
Uxbridge  
UB8 3QN

## GAC!!!

Picking up my trusty copy of *Popular*, August 21, I noted with interest a feature on Incentive's *Graphic Adventure Creator* for the BBC. Being somewhat involved in the field of adventures, I was interested to see what GAC was like for the BBC, yet to my horror the article was comparing GAC with *The Quill*. Anyone who can say "Forget *The Quill*" in preference to GAC needs a strong talking to.

The GAC system is good; let me say that first. However, in terms of flexibility and game size it is nothing special, the only feature found in it and lacking in *The Quill* is a decent parser.

Even there, GAC is only a little more advanced. With such a pitiful amount of memory free and serious limitations such as 255 character max location descriptions, it could never have been used to write *The Boggit* which *The Quill* handled easily.

Statements like "For the first time... a utility which can create freestanding programs" are just ridiculous. To the reviewer, Richard Benson, I can only say that some of us are above being impressed by a few pretty graphics and a press release.

I would encourage readers to consider whether they want an old system capable of producing large, high quality adventures or what amounts to an art utility with the 'adventure' bit bolted on.

And if Mr Benson still cannot produce a decent game using *The Quill*, I have one tip for him - read the manual!

Fergus McNeill  
Delta 4 Software  
Swanmore  
Hants

Richard Benson replies: I'm aware of the limitations of GAC, and of the fact that

*The Quill* outshines it in many aspects. My argument is that GAC is quick and easy to use, and produces illustrated adventures which are more obviously 'commercial'.

*The Quill*, for all its advantages, needs *The Patch* and *The Illustrator* to produce similarly commercial results.

Whatever the merits of *The Quill*, I think an adventure written with GAC is certainly simpler for non-programmers to produce - and surely that's a strong point.

## RSX supplied for Amstrad

With reference to my RSX extension program Xen for the Amstrad (see this week's issue), I would like to add that I will supply the package on tape for £2.50, or disc for £6 if readers are interested. The address is below.

Simon Goodwin  
41 Fountains Drive  
Acklam  
Middlesbrough  
Cleveland  
TS57 7LW

## Quality and power

I am a recent and happy owner of the Memotech MTX512, which I have found to be a beast of quality, value and power. I use it primarily for programming, although I do own several games.

I have some questions regarding Memotech. Is there a Memotech user club? Has Memotech moved, since I have yet to receive a reply to a letter I wrote some weeks back? Can you tell me where I can get books and software for the MTX512?

Chris Ellis  
Paignton  
Devon

The Memotech user group is called Genpat, and is run by Keith Hook. He can be contacted on 0282 38596.

Yes, Memotech has moved. We don't have the new address, but it can now be contacted on 0993 76251.

For books and software, try Syntaxsoft, whose telephone number is the same as the one given above for Genpat.



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# Keep taking the tablets

*Peter VanDoorn examines the potential of home video creation with the Pioneer PX-7 MSX computer*

**W**hen you've seen one MSX computer, you've seen them all, right? Well, frankly, no. I must admit this was my point of view, until I saw the Pioneer PX-7 computer. So what's so different with this one? Well, for a start, it has the ability to overlay its own screen, both graphics and text, on top of an incoming video signal, and to output this to another video recorder.

The computer itself comprises two units, the keyboard being separate from the cpu. This main unit houses all the firmware and connections for both video in and out and stereo sound. Whilst rather large in micro terms, it is obviously designed to blend well with other video or hi-fi equipment.

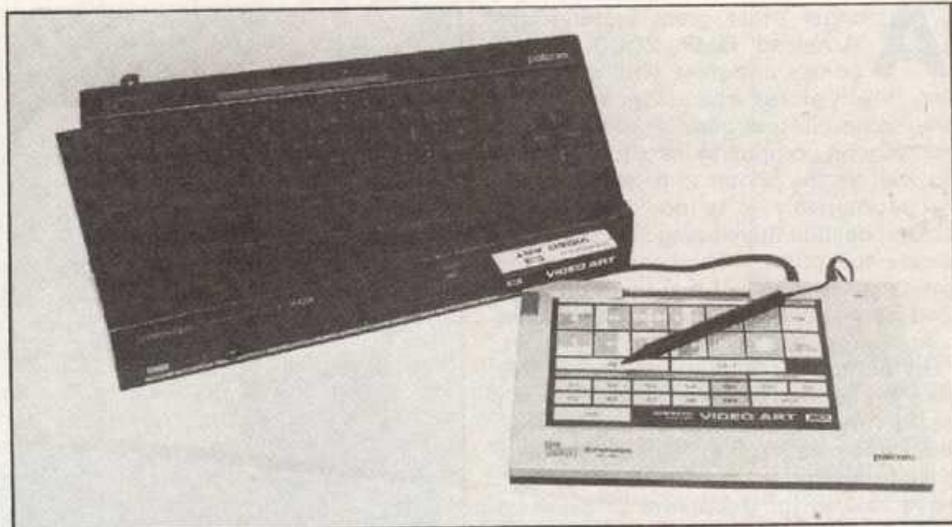
The main feature of this unit is to provide ten screen "wipes" (used to avoid sudden scene changes and fades not normally available to the home video buff). These wipe in the standard ways: single vertical or horizontal, dual vertical or horizontal (a shutter effect) as well as unique patterns like a venetian blind effect and a dot matrix "explosion".

When the screen is wiped, a stored screen is brought back onto the screen, overwriting the video picture already there. Titles and pictures, or perhaps business graphs and charts, can thus be brought onto the screen in a very smooth and effective way.

The computer's text can be superimposed on to the video source in one of fifteen colours, thus enabling easy post-production titling. As all video movie enthusiasts know, this is very hard to achieve without expensive equipment. The text, whilst only being of one character font, can be virtually any size on the screen, ranging from the normal size (8x8 pixels) to one character taking up the entire screen (256x192 pixels).

Graphics as well as text can be superimposed on top of the video, enabling the user to add diagrams to business promos, or perhaps even a map to go with a video of the family holiday. MSX has 256 sprites, so simple animation is possible to liven up presentations. As an optional extra, the PX-TB7 Video Art Tablet and accompanying Rom cartridge makes drawing on the screen much easier (being a touch-tablet with small stylus).

The Rom software is quite comprehensive, having a small pull-down type menu which provides access to all line and shape (circle, box, fill, etc) drawing.



It also provides a simple sprite designer. When the artwork is complete, a separate menu on a plastic overlay sheet for the tablet (thus keeping the screen clear) enables the previously drawn picture to be brought on and off the screen in the aforementioned wipes, making editing of video material that much easier.

Naturally, all the wipes are available from Basic, and Pioneer provide a special extension to standard MSX Basic, called P-Basic. This also provides direct remote control of Pioneer's LD-700 and

cartridge, leaving 64K for the user.

The main cpu has connections for not only video and audio in/out, but also TV, RGB monitor, a cassette recorder, two MSX cartridges, system control (for the video disc), Centronics printer, keyboard, two joysticks and stereo headphones - phew! The main unit also houses two speakers for the stereo sound.

However, it does have one glaring fault! That is, the computer's screen only takes up the middle two-thirds of the TV screen. This means that it is impossible

---

*"The PX-7 is, of course, a fully fledged MSX compatible computer, meaning that it is able to run all MSX software and peripherals"*

---

LD-1100 Laserdisc video disc players, paving the way to cheap, interactive video games.

It is also possible to control the three levels of computer/video mixing, ie, superimpose, video only and computer only, from Basic although three special keys are provided on the keyboard for manual control.

The PX-7 is, of course, a fully fledged MSX compatible computer, meaning that it is able to run all MSX software and peripherals. The machine comes with 48K bytes of Ram, 32K of which is available to the user, and 16K used as the Video Ram. This is upgradable to 80K, with the addition of a 32K Ram

to wipe or write to the whole of the available TV screen! This limits the PX7's applications somewhat, as it cannot be used as a true wipe generator. However, the screen is perfectly large enough for titling, credits and labelling (that is, if the object to be labelled is in the centre of the picture!) and some very professional effects can be produced.

**Hardware Pioneer PX-7, PX-TB7 graphics tablets Price PX-7 £299; PX-TB7 £89 Supplier Pioneer High Fidelity Limited, Field Way, Greenford, Middlesex UB6 8UZ (01-575 5757).**

## The proof is in the printing

Dave Race explains how to expand your Amstrad DMP 2000's buffer to 8K

Amongst other great features the Amstrad DMP 2000 printer comes complete with a 2K buffer, which stores characters sent from the computer and allows the computer to carry on computing instead of having to wait for the printer to finish printing.

Unfortunately it is not really a 2K buffer, despite there being a 2K Ram chip inside the printer. This is because the printer uses some of this memory itself and some is used for the line buffer, which stores the line about to be printed.

In fact the actual printer buffer is only half a kilobyte which obviously won't store very much text at all, slightly less than this paragraph in fact. This means that in reality your computer will still have to wait for the printer to catch up with it.

However, I have discovered that it is possible to expand the printer buffer some seven fold, thus allowing reasonably large chunks of text to be sent to the printer without holding up the computer.

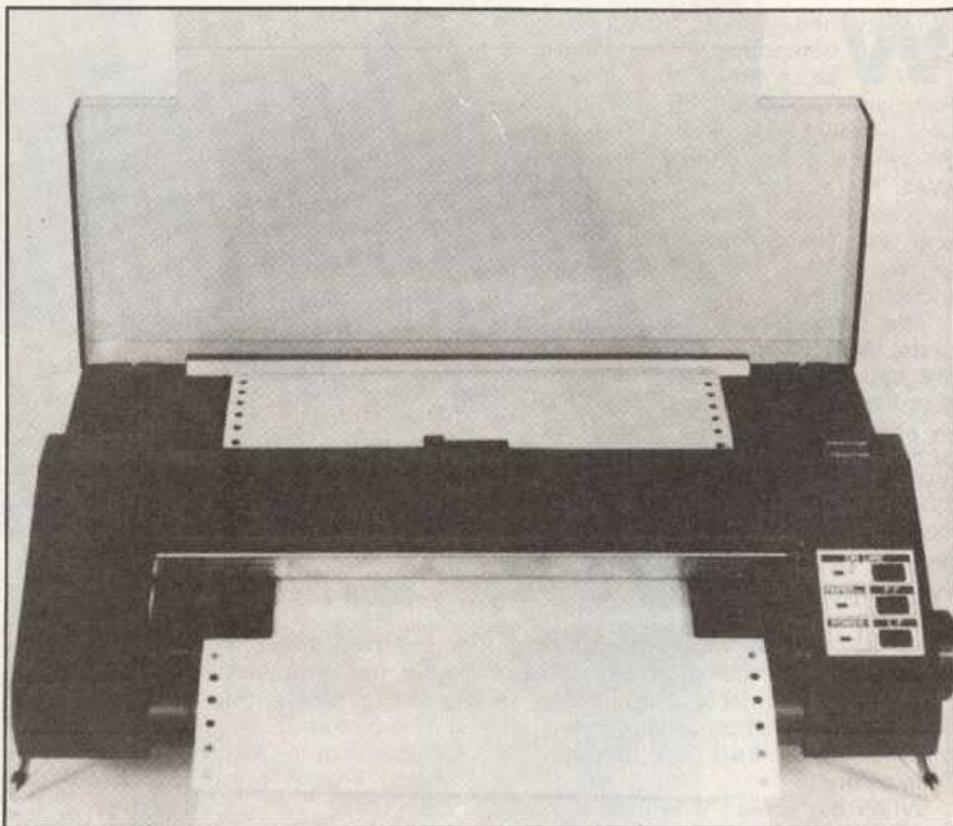
It should be noted that fitting this extra memory will almost certainly invalidate the Amstrad warranty and so should only be carried out on machines over a year old, or by owners who don't mind paying for any repairs if their printer goes wrong. That warning out of the way, on with the instructions.

The extra memory comes from fitting an 8K ram chip in the printer in place of the 2K chip already there. The chip you will need is a 6164, available from RS (ref 301-870) for about a fiver. Also you will need a small Posidrive screwdriver, a small flat bladed screwdriver, a sharp blade (a scalpel is perfect), and a soldering iron with a fairly small tip.

To begin with ensure that the mains lead is unplugged. It is not sufficient to simply switch the printer off, and you must check there is no paper or ribbon in the printer.

The table below shows just how great an increase in memory is provided

Mode	Internal Ram	Receiving buffer	Line buffer	Download characters	Dipswitch 2-3	Dipswitch 2-4
Character	2	0.5	0.9	0	off	off
	8	6.5	0.9	0		
Graphic	2	0.4	1.2	0	on	off
	8	5.7	1.8	0		
Download	2	0.2	0.9	32	off	on
	8	3.6	0.9	256		
Download Graphic	2	0.2	0.9	32	on	on
	8	2.7	1.8	256		



Now turn the printer over so you have access to the bottom (you'll probably want to put the lid to one side). You will be able to see six Posidrive screws, three at the front and three at the back, unscrew and remove these - and put them somewhere safe. Turn the printer back over and remove the top half; this is best done with the friction/tractor switch in the friction position. Lift the top half up, tilt it forward, and you will see that there is a ribbon cable going from the push button panel to a printed circuit board in the bottom half. Unplug this at the PCB end and you will be able to remove the top completely.

If you examine this PCB you will see six more leads going to it. Remove all these carefully, making note of where each goes. You also need to unscrew the two Posidrive screws that seem to be holding the Centronics connector in place. The PCB can now be removed by lifting it up from the rear and pulling it out backwards. Place the PCB on your work-surface, preferably on a piece of cardboard to give it some protection. It should not be placed on a metal surface.

Remove the 2K Ram chip (see figure two). This is best done by levering the chip up at both ends in turn with the flat bladed screwdriver until it comes free. The 8K chip goes in the socket you have just emptied. If you look closely at the

Figure one - J3 viewed from solder side of board

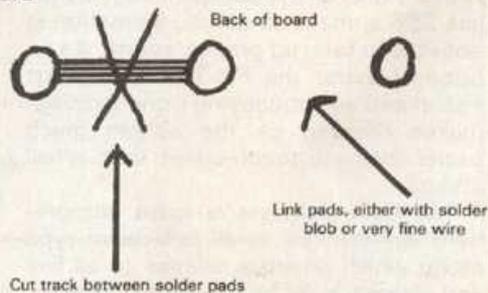
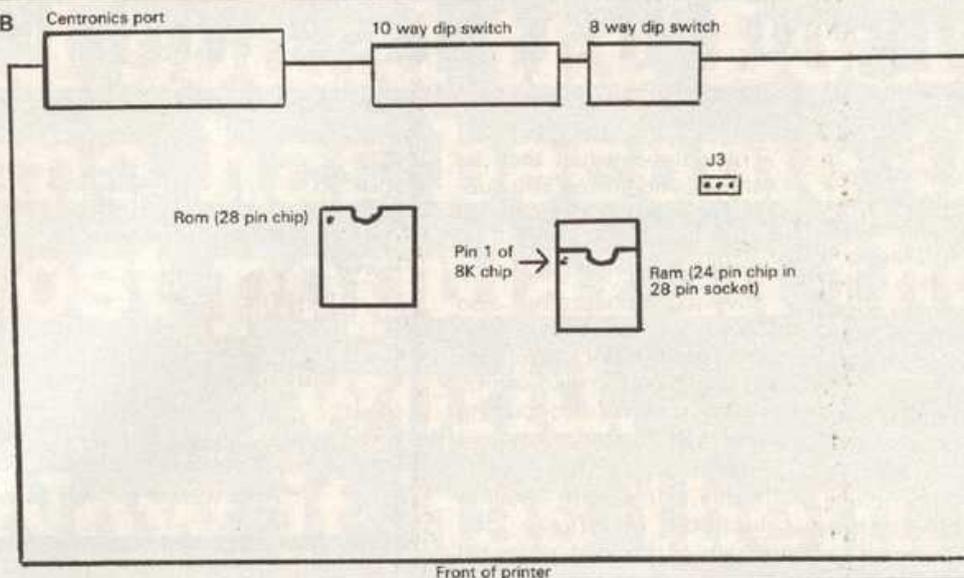


Figure two – printer PCB



chip you will see it has a small indentation at one end, which must be orientated the same way as in the diagram, ie, with the indentation towards the rear of the board. When inserting the chip it is very important to check that no legs are bent. It is also a good idea to touch something that is earthed before handling the chip as it is quite sensitive to static electricity.

Now comes the bit that the warranty won't like. Locate the three pads marked

J3 on the top of the PCB, turn the board over and find them on the back, they aren't marked on the solder side. You will see that one of the pads is tracked to the centre one (see figure one), and you must cut this track. Be very careful not to cut any other tracks, but on the other hand ensure that the two pads are no longer joined. Next join the other outer pad to centre one, this is best done by soldering a piece of mod wire between them but could be done with just a blob

of solder if you are careful. Obviously you should not join any other tracks together in the process. It is advisable to check your handiwork very carefully, with a magnifying glass if necessary.

The printer can be put back together now in the reverse order to the instructions above, being careful not to damage any of the cables going to the PCB. Once back together power the printer up and try sending a listing to it. You should be able to see quite an improvement.

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# Getting to First Base with Minerva

**M**inerva Systems is attempting to address the problems of getting to grips with databases, spreadsheets, etc, for the uninitiated with a series of 'Learner Friendly' packages.

*First Base* is one such in the range, a fast but simple database for the PCW 8256/8512, with a clear, concise manual.

However, one huge asset of *First Base* is the inclusion of a mail merge facility for use with *Locoscript* documents, and it may well be worth a look for this alone.

The size of records you create is limited only by the size of the screens; each record can have a maximum of 255 fields; each field up to 80 characters. Setting up a design for a database is easily done.

Once the database has been created, the records are automatically sorted alphabetically, according to the

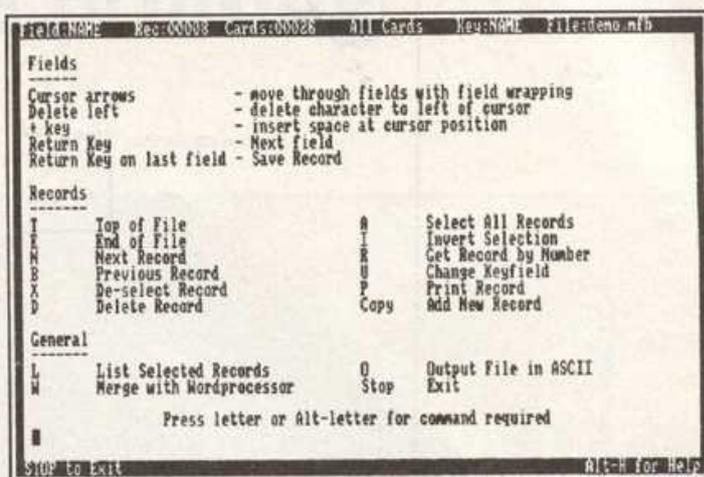
field which was designated the key field.

The database can then be searched and sorted into subsets: for example, a subset of all people living in London on a mailing list database.

'Inverted' subsets are also catered for, all those who don't live in Manchester, for example. You can also search for particular words occurring in any field on any record.

*First Base* is not relational in any way, nor is there a built-in calculator. Minerva's idea appears to be that potential database users should buy *First Base* to find out what databases involve and then move on to one that suits their needs more specifically.

However, *First Base* is not in any way a tutorial program. I would say it is useful for anyone with a small and uncomplicated database to computerise, particularly a small mailing list, with its mail



merge with *Logoscript* features.

It certainly can't be faulted because of its limitations, because Minerva makes no claims for it to be anything grandiose. I must admit, it is extremely refreshing to read in the manual itself of the limitations of *First Base*, and why the user would then

want to buy something more sophisticated!

**Christina Erskine**

**Program *First Base* Micro PCW 8256/8512 Price £29.95 Supplier Minerva Systems, 69 Sidwell Street, Exeter, Devon Tel: 0392 37756.**

# Bridging the card games gap

**W**ith *Colossus Chess* going from strength to strength in all its versions, CDS has decided to spread its wings a bit with *Colossus Bridge*.

Bearing in mind that contract bridge often evokes (not very accurate) images of golf clubs and baize tables, CDS has gone to town with the packaging.

The box includes the excellent book *Begin Bridge* by G C H Fox, which together with the sample hands demonstrated on the reverse of the tape, makes this a suitable program for beginners, an order form for Systema chess, bridge and backgammon electronic games, and a subscription offer for *International Popular Bridge Monthly*.

Of course, the program itself, which, claims the accompanying literature, plays "at good club player level", is in there too.

*Colossus* follows the format of previous bridge simulations: you play one hand, the computer the other three,

*"Its greatest strength is the sheer range of practice and cheat options... these make Colossus the best bridge practice program yet"*

through the bidding and the play.

Probably its greatest strength is the sheer range of practice and 'cheat' options: rebidding, resetting your original speed and distribution parameters, inputting your own hand, replaying a hand, asking the computer to play a card, claiming some or all of the remaining tricks, getting the computer to play the entire hand. All these make *Colossus* probably the best bridge practice program yet.

Some of the options, in fact, are almost too detailed. You can set the computer's response rate at any number between one and 28 - and I found anything below 16 too

fast!

For the bidding, the program follows the principles of Acol, using a weak opening no trump, and Stayman, Baron and Blackwood conventions. Generally it is sound, with occasional eyebrow-raising bids—nothing too dissimilar to real life in fact.

As for *Colossus's* card play, it follows the generally understood opening lead conventions and from there on plays fairly solidly and predictably. It finesses - sometimes - draws its trumps and doesn't throw away winners.

Programmed by the team which developed CP's latest *Bridge Player* for the PCW 8256/8512, *Colossus* is similar in format with a number of

improvements. There is now a full score sheet, for example, and the computer will initiate conversions such as Blackwood.

Altogether, *Colossus* measures up extremely well to most bridge simulations. It has a range of options to beat them all, and plays well enough to satisfy most people.

CDS hopes it will attract the attention of non-bridge players who want to learn. The accompanying book and sample hands will certainly help in this respect, if you are determined to go it alone. At least, when learning this way, no-one is going to shout at you, but it can still be a lonely and frustrating business.

**Christina Erskine**

**Program *Colossus 4 Bridge* Micros Amstrad CPCs (Spectrum conversion expected) Price £11.95 cassette, £14.95 disc Supplier CDS Software, CDS House, Beckett Road, Doncaster, S Yorks.**

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**DOMARK**

# Atari hits on four favourites

**A** belated leap for the compilation bandwagon comes from English Software with four GIANT Atari aces, as they like to call them on the inlay. What you get for your tenner then, are *Elektraglide*, *Mediator*, *Quasimodo* and *Chop Suey*.

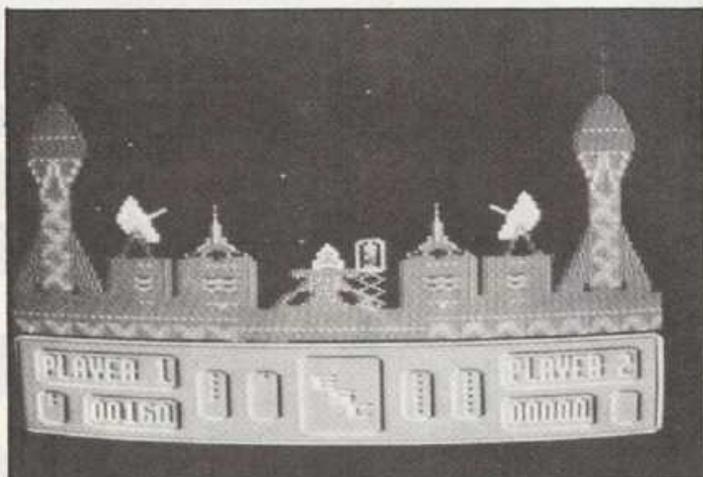
Well, it's not the most exciting of compilations but none of the games are actually bad. *Elektraglide*, the 3D driving game is probably the best of the bunch although it is starting to look a little dated now.

*Quasimodo* involves throwing boulders from the battlements then swinging from bell to bell, all to the accompaniment of a reasonable jingle. Regardless of what it

was selling at before this has all the characteristics of a current day budget title.

Hack, chop, kick, urgh. *Chop Suey* is your basic martial arts game. Graphically okay.

The last game in the package, *Mediator*, is probably the most interesting game to play, even if the instructions give you little idea of what the hell you're supposed to be doing. You take off in scene one from a large circular space station in a tiny ship. The objective is then not to dock with the other station but to head down the screen, which scrolls as you descend, towards the force field which lurks down there. After you have bombed a hole in it and passing through you must



*Mediator*: the most interesting

dock on a landing pad, whilst avoiding anti-spaceship fire.

After docking the action goes into 3D for the next couple of scenes, which include, after you've fought off some mutant trees, an *Entombed* look-a-like.

Overall the package can only really be considered value for money if you don't already own any of the games. This is hardly a GIANT compilation, it's more

of an average height collection.

**Popular Appeal** ♦♦♦  
**Duncan Evans**

**Program Atari Smash Hits Micro Atari 400/800/XL/XE Price £9.95 Supplier English Software, 1 North Parade, Parsonage Gardens, Manchester M60 1BX.**

# Alleykat racing

**P**ossibly the most eagerly-awaited follow-up of all time, *Alleykat* has a hard job to outshine Andrew Braybrook's massive hit *Uridium*.

*Alleykat* is a racing game, very much *Uridium*-turned-90 degrees. The object-littered landscape moves vertically, while you control a racing ship which can gain height, zap obstacles and change to fighter mode to eliminate particularly dangerous hazards.

Energy nodes and money bonuses can be collected by skimming over them, while a variety of novel groundcraft and the lethal katterkiller have to be shot or avoided.

There are several different landscapes to compete over, and many different kinds of race; slalom, survival, demolition and so on. Only if you complete a certain number of laps can you gain a bonus and qualify for the next round of the challenge.

The usual clever title screens, complex sound effects and polished music combine to make *Alleykat* another sure-fire hit; but it

hasn't the impact of *Uridium* and gives the impression of having been rushed out to capitalise on the success of its predecessor.

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

**Program AlleyKat Micro Commodore 64 Price £8.95 Supplier Hewson, 565 Milton Trading Estate, Milton, Abingdon, Oxon.**



# C16 game in the running

**I**f it's a hard life being a C16 owner, it must be even harder writing for it. Limited memory, no hardware sprites and a not-very-good sound chip. Despite these limitations, however, an increasing amount of C16 software is verging towards what might be called respectable on other machines – and much of it, like *Monty on the Run*, comes from Gremlin Graphics.

*Monty on the Run* was originally a straightforward 'platforms and ladders' job on the

64 – with the added advantage of a fabby soundtrack from the then almost undiscovered Rob Hubbard – which dragged the game from the category 'competent' to 'excellent'. Alas, the C16 version does not have this soundtrack, and it's got a fair few less screens than the original, too (a total of 30). But on the plus side, what you have got here is a well designed, nicely thought out little title that, while offering nothing startlingly new, will keep you occupied for a few

of the winter evenings that will soon be upon us.

Just about polished enough to justify the price, if you enjoy games of this type, you won't be disappointed.

**Popular appeal** ♦♦♦♦  
**John Cook**

**Program Monty on the Run Micro C16 Price £6.95 Supplier Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.**

# Johnny Reb II comes marching in

**W**as *Johnny Reb* the first real wargame simulation for the Spectrum? Probably, but who can remember from this point in history? But whatever the chronological order of things might be, Lothlorien's name remains in the forefront of wargame software writers. This new program drags that great old game into the modern era, while the essential details remain the same.

Gameplay takes place in the American Civil War, and follows the efforts of a strong Confederate force sweeping from left to right of the play area, attempting to break through a lighter Union force (ie, move from screen left and exit screen right with fewer

casualties than the defending force). As in the original, a river runs from north to south, and the Confederates must cross this hazard under fire from the defending Union troops.

The default set-up is pretty bare, with just a couple of hills and roads, plus some houses; but the new version allows the player (or players) to create fences, walls and buildings at will, although the landscape must remain the same. Similarly, the composition and names of both forces can be tailored to the players' requirements.

To reflect the *ad hoc* make-up of the opposing armies in the conflict (drawn from both regular soldiers and raw re-

cruits), units possess several degrees of strength, experience and morale, which change as the battle commences. Four types of units are available to both sides, namely, artillery, infantry, cavalry and supply.

Play is via joystick or cursor keys (which can be re-defined) – as the 'cursor box' is moved over a unit, the details of that unit are displayed, and a range of options available, including orders to move (firing or not), dig in, charge and so on.

Graphics are large and very well drawn, and there is a green screen option. Instructions are adequate, though no mention is made of how to save a game in progress,

though trial and error will tell you that you can break in to a menu at certain stages. Beware, however, of saving to a disc – for some reason, the disc is re-formatted (without warning) to IBM format!

Overall, not very demanding, but the re-design facility will ensure that the life of the game can be greatly extended and more and more complex situations set up.

Popular appeal ♦♦♦♦

Tony Bridge

**Program** *Johnny Reb II*  
**Micro** Amstrad CPCs  
**Price** £9.95 **Supplier**  
Lothlorien, Victory House,  
Leicester Place, London  
WC2H 7NH.

# Moonlight Madness for insomniacs

**T**he plot to *Moonlight Madness* is so flimsy I won't bother boring you with it. Suffice to say that this is a collect the sixteen keys and open the safe game with a thrilling 2D display and single colour graphics.

So, off you go, leaping from platform to platform, pressing things, avoiding other things, watching great chunks of the background disappear to avoid attribute problems. In fact the only thing that is remotely interesting about this appallingly tedious game is the tune.

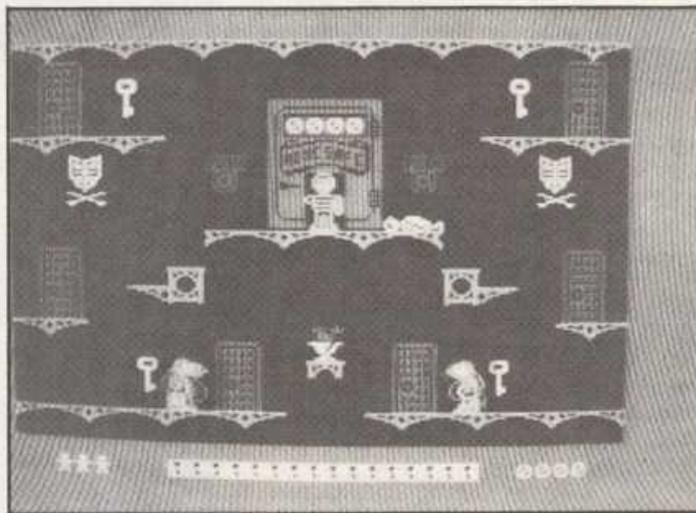
At first it sounds all right, if

a little monotonous, then it begins to grate the nerves. After a while it begins to take on all the appeal of the Chinese water torture.

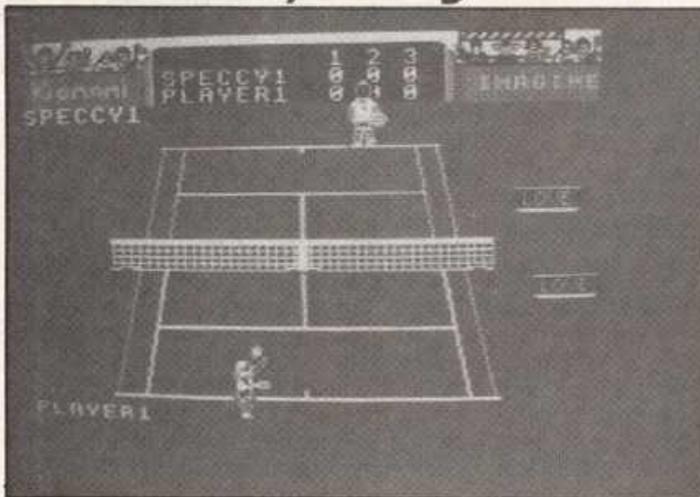
If you have trouble getting to sleep at night then this represents a surer method than counting sheep of getting some kip.

Popular Appeal ♦  
Duncan Evans

**Program** *Moonlight Madness*  
**Micro** Spectrum  
**Price** £7.95 **Supplier**  
Bubble Bus Software, 87  
High Street, Tonbridge,  
Kent TN9 1RX.



# Tennis, anyone?



**J**ust when you thought it was safe to retire to your armchair, yet another sports simulation pops up. This one is the unseasonal *Tennis*. Programmed more in a "cartoon" style than as a simulation, the one-or-two-player singles-or-doubles contest presents the court from one end, and allows full keyboard or joystick control of the players' movements. Scores are shown at the right hand side of the court, with overall results at the top, and all the rules of tennis are adhered to.

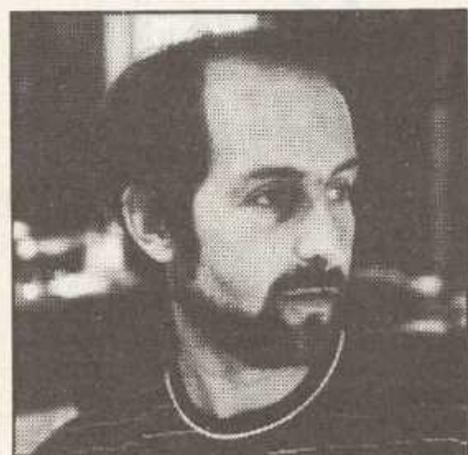
Unfortunately there's little skill involved in the game, since all you have to do is hit

the fire button twice to serve, then position yourself in vaguely the right position and thrash at the return. There's no way to control the power of your shot, choose forehand or backhand, produce spin, or whatever.

There is some element of timing involved, but it's all too easy to get involved in endless and unexciting rallies in which the ball is just tonked back and forth across the net.

Popular Appeal ♦♦♦♦  
Chris Jenkins

**Program** *Tennis* **Micro**  
**Spectrum** **Price** £9.95  
**Supplier** Imagine, 6 Central  
Street, Manchester.



## Interplanetary influences

*Tony Bridge returns to Adventure Soft's Rebel Planet – plus a sneak glimpse of Fergus McNeill's latest opus*

Some weeks ago, the Grand Elf had a look at *Rebel Planet* from Adventure Soft UK; lack of space that week meant that the look was more of a sidelong glance. Here's the rest of the piece along with a (rather more than glancing, I hope) look at a *Quill'd* game from a non-professional software house.

I had a lot of fun with *Rebel Planet*: the graphics are good to look at, with a certain animation, and the puzzles are interesting and complex without being stupidly opaque and obtuse. I would still like to see more atmospheric descriptions, but I suppose that there has to be a trade-off somewhere between graphics and text – and the wait between command input and the re-appearance of the cursor can be annoying, particularly after playing a recent Level 9 opus, in which its version of multi-tasking makes waits like this a thing of the past. But the storyline is excellent and there are plenty of things to divert the attention, like pressing buttons on the limcom strapped to your wrist (attends to certain functions as well as giving information on personal as well as mechanical status), and trying to open those damned cargo containers can be really frustrating.

The £9.95 price tag means, as it should, that *Rebel Planet* is bug-free (as far as I could see) and that the packaging is good. It is a pity that *Ram save/load* is not supported – but the extra commands and the flexibility of the language makes this story worth looking at.

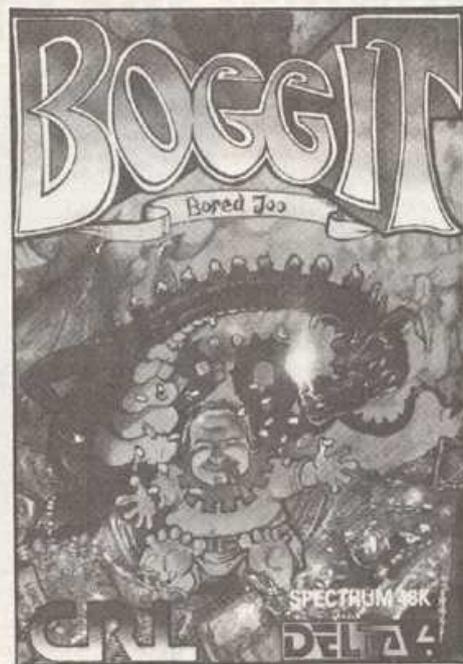
Terry Braverman will be known to Corner addicts from his contribution to the recently-released *Ten-Pack* from Automata; the title of that story was *Royal Adventures of a Common Frog*, a well-written satire using the *Quill* (and in good company, I might add, with Bob Franklin's *Here be Tygers*).

That utility has been used again to write a story for his own label, Venturesoft: the scenario of *The Eleventh Hour* concerns a bomb-scare at Harridges of London – of course, you, the bomb-disposal expert, have been volunteered to enter the store and defuse the bombs. Bombs? Well, these are the work of the mad janitor, who hasn't had a pay rise for many years, and there is one on each

floor, set to explode after a certain time.

If you happen to be on the same floor as an exploding bomb – bye bye; otherwise, you're okay for the moment, but you'll find the structure of the store weakened. The janitor himself is wandering the empty store, babbling in his dementia, and toting a loaded shotgun – waiting for a poor sucker, I mean bomb disposal expert, such as yourself.

*The Eleventh Hour* is also *Patch'd* and



*The Boggit* – see below for more McNeill details

*Illustrated* – the graphics are very good and quite up the standard of *Rebel Planet*, although the *Illustrator* doesn't allow for very fast drawing. All the *Patch* sound effects (phone rings and so on) are pressed into service, and these can get a little boring at times as they take up quite a lot of time.

Although you can turn the pictures off, you are lumbered with the sound effects. However, the program is blessed with *Ramsave* and *load*, as well as unique commands like *Bombs* (number defused) and *Time* (taken so far). Graphics may be switched on and off with the simple to remember *Pictures* or *Words*, which is a lot better than *Gron* and *Groff* and other

such concoctions.

The adventure is quite large, with lots of objects to be picked up and used. Some are red herrings, but most require careful manipulation and must be used in the correct sequence, which is where *Ram* memory comes in particularly handy.

Although the location descriptions are rather brief, atmosphere drips from the program: two reasons for this – the feeling of being in a large department store is well created, with all the usual nooks and crannies of the leather goods, the restaurant, the paint store, the pharmacy, general office, accounts departments and so on; and on top of it all, that janitor roving around, likely to appear at any moment, and those bombs ticking, ticking away...

Although I enjoyed the adventure immensely and found the ideas of the plot interesting and unusual (and at £3.99 it is certainly this side of good value), I had a few doubts about the tastefulness of the project, what with bombs in large department stores, and Harridges being hardly an impenetrable disguise.

Adventure Soft UK, Distributed by US Gold, Unit 10, The Parkway Industrial Centre, Heneage Street, Birmingham B7. Venturesoft, 23 Aragon Close, Kings Hedges, Cambridge CB4 2SU.

### Fergus's latest

Now to an adventure that hasn't been released yet, in fact is still in the process of being written.

Fergus McNeill can't sit still! Now that he has a superb hit with *The Boggit*, he has turned his attentions to more recent fantasy fiction. *The Colour of Magic* is a novel by Terry Pratchett – I haven't read it yet, but I have seen some of the game that Fergus has constructed around the book, and it's another winner. The two main characters are Rincewind and Two-flower, but there is a grand parade of others including a piece of luggage that walks on a hundred legs and the old spectre himself, Death. The story is spread over three parts, so if you want to be one jump ahead, start badgering your local library now for a copy.

## ADVENTURE HELPLINE

**Robin of Sherwood on Spectrum.** Where and how do I find Siward the Thief? How do I enter the grange? Peter Van Wingerden, Dierenriem 24, 3225 EC Hellevoetsluis, Holland. Help offered on Lords of Time, Lords of Midnight, Doomdark's Revenge, Golden Apple, worm in Paradise, Emerald Isle.

**See-Kah of Assiah on Commodore 64.** How do you escape from the castle when the huge bird arrives? Paul Stratton, 32 Hy Regt RA, BFPO 20.

**Starcross on Commodore 64.** How do I get the blue rod from the silver

sphere, and still have enough power in the gun to get to the control bubble? David Stewart, 3 Avenue des Linottes, 1160 Brussels, Belgium.

**Zork I on Commodore 64.** What do I do with the brass bauble, and how do I finish the game? David Stewart, 3 Avenue des Linottes, 1160 Brussels, Belgium.

**Zork III on Commodore 64.** How do I get past the statues of the guardians? David Stewart, 3 Avenue des Linottes, 1160 Brussels, Belgium.

**Snowball on Commodore 64.** How do I wake the man to get the password? David Stewart, 3 Avenue des Linottes, 1160 Brussels, Belgium.

**Exodus Ultima III on Commodore**

**64.** I have mapped and searched all the dungeons but I cannot find the mark of the snake, Help! David Stewart, 3 Avenue des Linottes, 1160 Brussels, Belgium.

**Suspended on Commodore 64.** I have replaced the faulty wire but I still cannot reset the system. Also I cannot find the wire cutters. Please help. David Stewart, 3 Avenue des Linottes, 1160 Brussels, Belgium.

**Zkul on Sinclair QL.** How do I get across the underground lake; I can't find the ock. Pete Coombes, 2 Castledene Crescent, Parkstone, Poole, Dorset, BH14 8DP.

**The Pawn on Sinclair QL.** 1) How do I pass the alchemists? 2) How do I open the door under the tree? 3) What use are the red, green and blue? Michael Scott, 10 Hough Green, Chester, CH4 8JG.

**Robin of Sherwood on Amstrad.** Where can you find the Holy Crest, and where do you find the 400 gold pieces? Gavin Lennon, Wattle Bridge PO, Newton Butler, Co Fermanagh.

**System 15000 on Spectrum.** I would like any information on playing the game that anyone can offer, Steve Chapman, 8 Oak Gardens, Ivybridge, Devon, PL21 0NB.

### Adventure Helpline

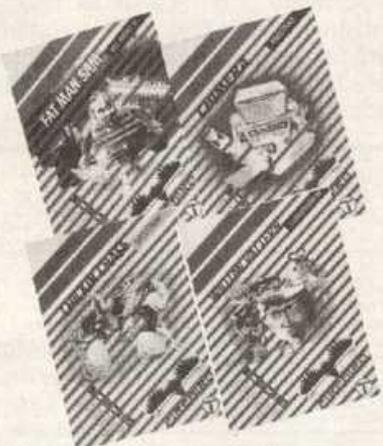
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# Finding the Pharoah

Tony Kendle peeks into the mailbag and finds some pokes

Here's a letter from Alasdair MacDonald of King's Lynn concerning the new QL game from Talent, *The Last Pharoah*. Knowing how much you like finding decent QL games I'm sure you will find the following infinite lives poke invaluable.

"To get the extra lives you need to write a slightly altered boot program which contains the required poke in it. To see the original boot program just type "copy mdv1\_boot to scr".

Your new version should read

```
10 CLOSE#1:CLOSE
#2:MODE 8:c=RESPR
(RESPR(0)-187216);
c=187384:LBYTES
mdv1_pharao_scr,
134272:LBYTES mdv1_
code,c:POKE_W
191178, 21418: CALL c
```

"Make sure you type "POKE\_W" or it won't work.

"A further way to avoid being killed in the game is to press ALL keys in KEYROW(1) - all four cursor keys, space bar, ENTER and back lash (top right of the keyboard) and lastly Escape. This removes all baddies but if you get stuck you will be unable to abandon the game by pressing escape.

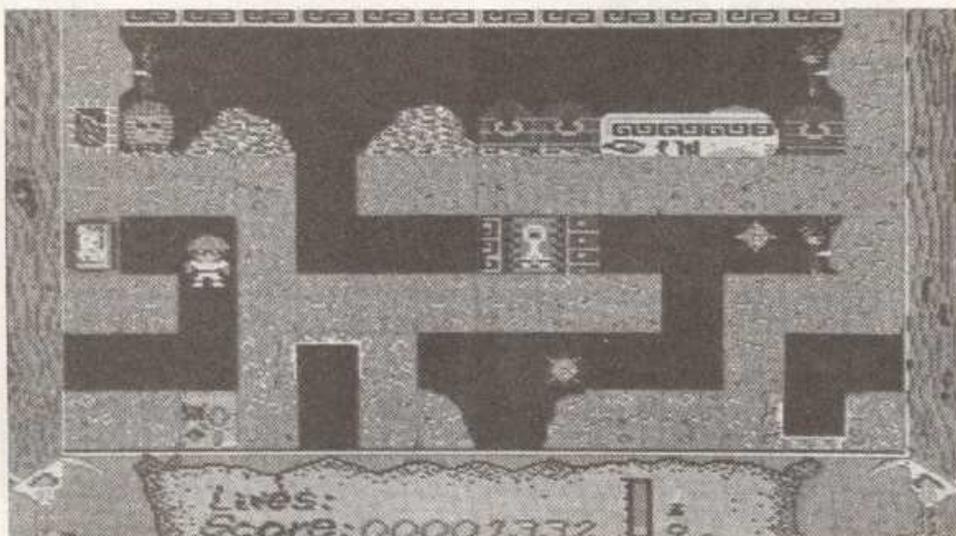
"The game itself consists of a very large maze - I've visited at least a hundred screens so far. I've now almost finished it - unfortunately some keys and the wall 'paintings' which change colour and gain points only appear after one has visited a particular room or something, so it's difficult to know where to look for the remaining keys. Eventually you get to a stage where you're stuck having used up all your keys, not knowing where else to look.

"I've also just completed Split Personalities on the C64. The technique for solving the game is to get lots of bonuses on the easier screens since every last picture takes so long and will undoubtedly involve loss of at least one life. The pictures are Reagan, Thatcher, Kinnock, Sir Clive, Sugar, Bogey (an awful picture), Charles and Di, Andy and Fergie and lastly Monroe. To complete Monroe you have to get all the pieces from the left hand side and bottom row out in order but make sure there is an easy way for getting rid of bombs and if a piece comes out which isn't from the two edges mentioned don't crowd up the board with it - get rid of it.

"It is an excellent game but nothing exciting happens when you have finished Monroe and the high score isn't even saved (I've had around 300000). Inci-

led." Thanks for your helpful advice Alasdair, write again soon.

To finish this week here's a tip from the horse's mouth, as it were, of Incen-



dentally the gun and bullet pair are worth saving for accumulation of points - put them aside and once you've got most bonuses from the screen push them together and your bonus score is doub-

led. tive Software - enter IAN as the high score on the Off The Hook version of Splatt! and you should find you have access to the cheat mode and thus every level.

## Charts

### Top Twenty

1	(1)	Speed King	Mastertronic
2	(2)	Thrust	Firebird/Superior
3	(4)	Ghosts and Goblins	Elite
4	(4)	ACE	Cascade
5	(5)	Ninja Master	Firebird
6	(8)	Green Beret	Imagine
7	(16)	Kane	Mastertronic
8	(9)	Dragon's Lair	Software Projects
9	(-)	Knight Rider	Ocean
10	(6)	Ninja	Mastertronic
11	(14)	Video Olympics	Mastertronic
12	(15)	Formula One Simulator	Mastertronic
13	(10)	Molecule Man	Mastertronic
14	(7)	Hole in One	Mastertronic
15	(-)	Dan Dare	Virgin Games
16	(19)	Kick Start	Mastertronic
17	(20)	Dynamite Dan 2	Mirrorsoft
18	(18)	Jack the Nipper	Gremlin
19	(-)	Skool Daze	299 Classics
20	(13)	Leaderboard	US Gold

Figures compiled by Gallup/Microscope

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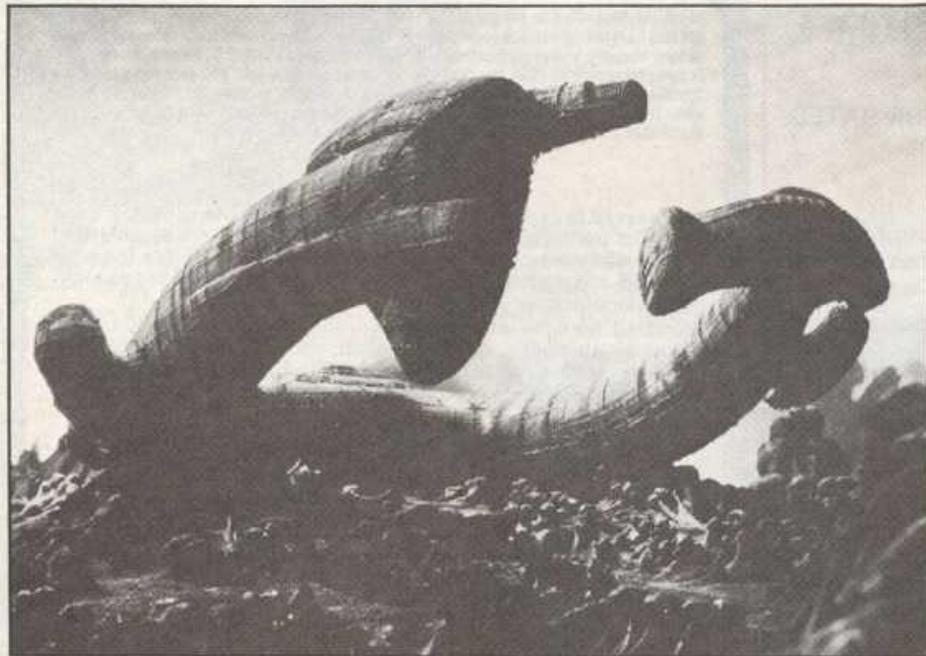
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COTTERIDGE, BIRMINGHAM.  
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## Name that sci-fi movie still



Picture 1

### What you have to do

Science Fiction movies are the theme of this competition, which will run for five weeks. Each week, we'll print two still photographs from well-known SF films. All you have to do is identify them – it's as simple as that.

Don't send anything in yet; remember there are six more stills to come.

Study the photographs shown here carefully. If you think you can identify the films from which they were taken, then you're off and running. Keep this page handy – you'll need it in four weeks' time.

Don't give up yet if you don't recognise the pictures – we just might give out the odd clue in the final instalment of the competition!

Picture 1: An easy one to get you started

Picture 2: Which film featured these strange characters?



Picture 2

### First prize

The long-awaited Sinclair/Amstrad machine is here, with all the best features of both the Spectrum and the CPC micros.

The Spectrum Plus 2 operates like a 128K Spectrum, but has a full-travel keyboard, built-in tape deck, RGB, RS-232 and MIDI ports and an expansion facility for microdrives.

The Plus 2 also has twin joystick ports, and will have a range of disk drives and other peripherals available. Retail price is £149.

The prizes of *Popular's* autumn competition this year are really hot!

We've got five (yes, five) brand new Spectrum Plus 2 machines to give away to the top winners this time.

But don't despair if you just miss out on the first prizes, because the next ten winners will receive a Star Micronix STX-80 printer.

Then there are 50 Mastertronic Magnum joysticks to the runners-up. New on to the market, the Magnum is the joystick everyone's talking about at the moment.

## Five Spectrum Plus 2s

# Ten Star Micronix printers

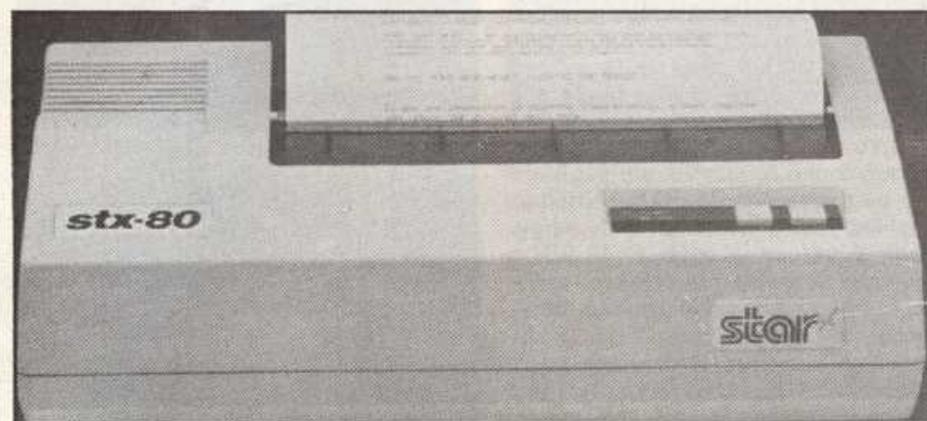
# 50 Magnum joysticks

### Second prize

Budget software champions Mastertronic have now come up with an excitingly advanced joystick which will make the most of your games-playing skills. Ergonomically designed for right- or left-handed players, the Magnum features high speed electronic switching, a fast-action trigger, counter-balanced "pistol-grip" handle, steel shaft and bearings and extra-long cable. Compatible with Commodore, Atari, Amstrad and Sinclair micros (with suitable adaptor), the Magnum normally retails at £12.50.



First prize: The Spectrum Plus 2.  
Five to be won.  
Second prize: The Star Micronix printer. Ten to go!  
Third prize: The Magnum joysticks: 50 for the runner-ups



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# Promises, promises...

John Lettice on the wealth of new hardware at the show

**P**romises are going out of fashion, if last week's PCW show is anything to go by. Shows in years gone by always used to have a substantial contingent of starry-eyed optimists, promising staggering new products Real Soon Now (RSN), but nowadays sadder (and sometimes wiser) manufacturers actually have the products finished, and on display. Some of them even have them in the shops.

Alan Sugar's Amstrad has been one of the main influences on this reformation of the micro market, and true to form the new PC range (see last week's issue for full details) was there in force, and allegedly on display in branches of Dixons.

Amstrad's stand was packed to capacity, giving the impression that someone in the heart of the throng was shouting "free money", but the draw was the fact that the new machines were more than living up to expectations.

*"Amstrad's stand was packed to capacity... the new machines were more than living up to expectations"*

They're fast in operation, and running Digital Research's Gem windowing environment do a creditable impression of Apple's Macintosh. The machines' display controller is one of the major things that will make them stand out from the crowd, as even the monochrome versions will support graphics, while most entry-level PC clones will need a more

sophisticated display controller to run a graphics package like Gem.

Until its rivals wise up and fit high-res controllers as standard Amstrad is liable to have the graphics field to itself, and will be flogging Gem for all it's worth in its sales pitch.

The Sinclair stand next door was less well-populated despite the presence of the new Spectrum Plus 2 and the Amstrad CPC machines, now apparently relegated to the games division.

The new Plus is a tidy implementation of the old Spectrum standard, and although purists will deplore its new colour scheme of Amstrad grey rather than Sinclair black the full travel keyboard and built-in tape recorder should make it a good seller this Christmas.

Acorn's new machine, the Master Compact, looks attractive, although it's pricey by the standards of the Amstrad PCW. The basic machine with single 3½ inch drive comes in at £441.25, a version bundled with monochrome monitor costs £537.85, while a colour monitor model will set you back £687.35. At these prices the Compacts aren't going to stop hearts round at Amstrad, but they should be of interest at least to Acorn enthusiasts.

Tatung's new machine, the Einstein 256, is a more overt challenge to the Brentwood contingent. It's priced at £444 for a 256K machine with single 3 inch drive and colour monitor, and although it's not directly compatible, ACC was displaying a £19.95 PCW emulator on Tatung's stand.

On top of this it's compatible with the previous version of the machine (now being knocked out for £229), and has an



The Spectrum Plus 2: should sell well this Christmas

amazing all-singing, all-dancing video chip that should do the most incredible things, just as soon as the software houses figure out how to program it. This chip is also to feature in Memotech's new machine, which is due for launch shortly.

One machine that didn't quite make it to the show was the QL, which remains in limbo for the present. It appears that Amstrad was willing to sell the rights to the machine, but has backed off again. The company may just be keeping its options open, but could also be considering relaunching the machine.

CST's Thor upgrade for the QL, which currently seems to be the machine's best hope for survival, was, however, being exhibited, and he expects to be able to deliver with or without Amstrad's co-operation. The company claims 30,000 circuit boards for the machine are still in existence, so feels it can continue selling the Thor, which is basically a QL upgrade, for some time.

As predicted, Commodore used the show to launch the 64c, but as the company was in the Business rather than the Home Hall it fell to third party companies like distributor Lightning to show



Amstrad's Sinclair stand

it. The Amiga was a little better catered for, acquiring a new high-res Mitsubishi colour printer that Commodore intends to sell bundled with the Amiga for



The Spectrum Plus 2

£5,500. The company was also demonstrating an interactive video system for the machine, which it hopes will make its sales in vertical markets.

## Atari launches the blitter chip

*Duncan Evans tours the Atari village in search of new machines and software*

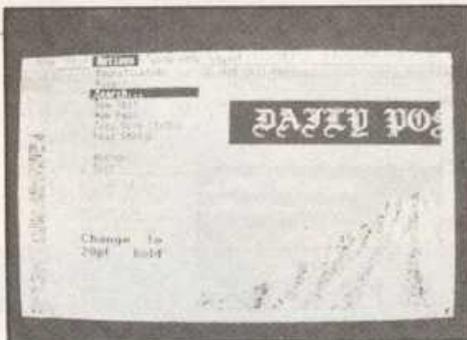
The main revelation as far as hardware from **Atari** was concerned was the re-packaged machine consisting of a two megabyte ST with detachable keyboard, monochrome monitor and disc drive box (see page four for more details).

Also lurking in Sam Tramiel's office were the chunky looking prototypes of a 2080STS and 4160STS, officially launched today. Another item in the pipeline is a box containing a 66020 processor running drive which will simply plug into your ST and might be available in the second quarter of 1987.

The 520 STFM, the one with the built-in disc drive and modulator, which was originally going to be released at the same time as the 520 STM but was then rescheduled for a September launch, was nowhere to be seen. However, according to Tramiel, it will be here in November, priced at or under the cost of an STM plus disc drive.

One product that was here was the blitter, the chip enables large chunks of graphics to be moved around at great speed. Atari had two machines, one with a blitter and one without, next to each other running a demo of a flock of flying birds. The machine with the blitter, which is of course what the Amiga possesses, produced an impressive, fast moving, more complex and very well

animated display. Rather than just a chip on its own it will be sold in a set which you can simply plug into your 520 or 1040ST. It's not available anywhere yet, although it has an initial price tag of \$150 (about £100), but should be in this country in November.



Fleet Street Editor

A contender for the desktop publishing market came from the combination of an ST, *Fleet Street Editor* (move on *FSE* elsewhere in this report) and a laser printer from **Quadram** called, appropriately enough, *Quadlaser*. This machine has 1.5 megabytes of memory, a printing speed of eight pages a minute at 300 x 300 dpi per page. Centronics and RS2320 interfaces and a price of around £5000.

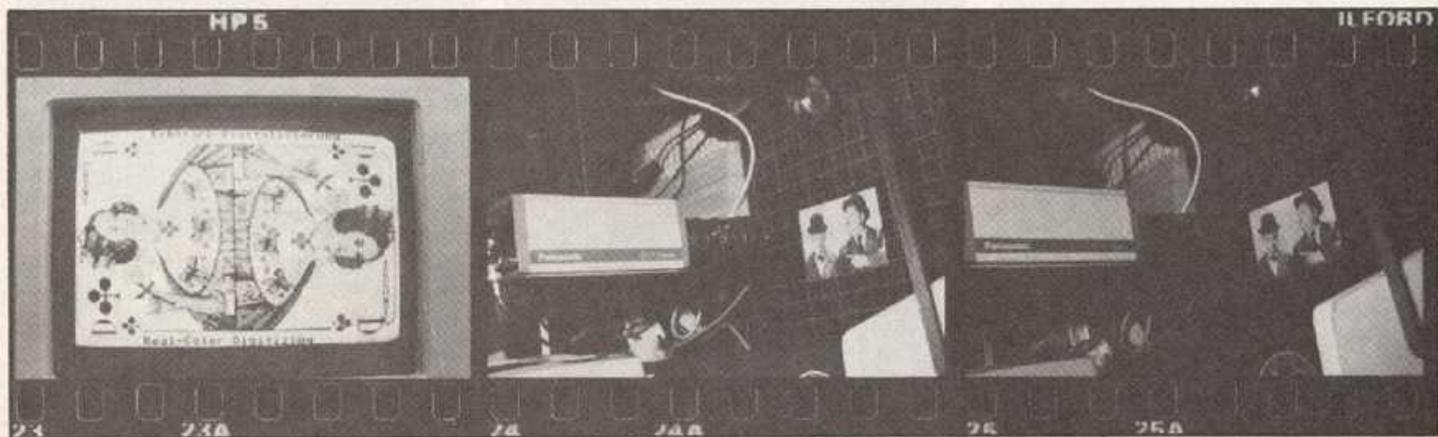
If it's a really impressive hardware

peripheral you're after, then *K-Max* from **Kuma Computers** should fit the bill. *K-Max* consists of box which is connected to the cartridge port of an ST, containing an interface board, dual processor board with two Inmos T414 transputers and two blocks of 256k Ram. Each T414 is a 7.5 million instructions per second, 32 bit Risc (Reduced Instruction Set Computer) parallel processor. The price range kicks off at £1450.

**Haba Systems** had a video digitiser, from the German company Print Technik, on display which enabled you to digitise pictures from a camera or video recorder. Watching the thing being demonstrated, it only took around four seconds for a screen picture to appear once the video camera was rolling. The camera is simply plugged into the digitiser, itself plugged into the ST via the Centronics interface, and then the special software is run. The cost of this device, soon to be reviewed in *Popular*, is £249.95.

On the games front **Eidersoft Software** launched the most titles at one go for the ST, and all but one of them were finished. *ST Karate* featured digitised sound (which was inaudible because of the noise coming from the other games), single and two player option, multiple

continued on page 26



◀ continued from page 25

graphics and some very good scenery backgrounds.

*ST Protector* was a *Defender* style game with a mountainous skyline (as opposed to the normal line drawing) but can hardly be said to be wonderfully exciting.

*Space Station* looked okay even if it did resemble a poor rendition of *V* on the 64c. *Fire Blaster* was basically a shoot the things coming down from the top of the screen game and then there was a platform game with very small, if colourful, graphics.

The prices ranged from £24.95 to £29.95 which was a bit on the high side even if there aren't any plain shoot 'em ups on the ST yet.

The most impressive games came from **Psygnosis**, authors of *Brattacas*. *Deep Space* had some excellent graphic scenes, namely one featuring a close up of a "Death Star", seemed to be very much in the *Star Raiders* department. I say seemed because the game kept crashing early on when someone tried to give me a demonstration. He assured me it would work in the end and would cost £34.95.

The other product from the Liverpool lads was *Arena*, a sporting events game, which had *Brattacas* sized character graphics set against a stadium type backdrop. Eight events were on offer, including running, javelin and shot put.

Once an event is started and you don't start beating the hell out of the keyboard speech bubbles appear from your athlete requesting, amongst many other things, that someone wake you up. If you perform something fairly badly, then another character appears on screen and, well... takes the mickey is the polite expression. Costing a modest (in ST terms) £29.95, *Arena* is one to look out for.

**Microdeal** had various pieces of new software on display, most of which, they reluctantly admitted weren't finished



### ST Protector

yet. Among these were *Electronic Pool*, not graphically brilliant but seemed realistic in play, and *Pinball*.

*Pinball* has the facility to design and colour your own pinball table. Graphically speaking, the best thing from Microdeal was *Karate Kid 2*. Unfortunately the

game hasn't been written yet and all they had on display were some very good pictures which will be in it. The game should follow the basic plot of the film rather than just being of the hack, chop, next variety. The release is tenuously scheduled for release in November.

**Mirrorsoft** also announced *Strike Force Harrier* and *The Bermuda Project*.

The eight-bit Atari's were represented in the Atari village, but only just. **Red Rat Software** had on display the *Panic Express* (disc £5.95/tape £3.95), *Screaming Wings* (£9.95/£7.95) and *A Day at the Races* (£9.95/£7.95). Announced were *Freaky Factory*, *Rocket Repairman*, *War Copter*, *Astro Droid*, *Demolition Derby*, *Treasure Island*, *Dragon's Breath*, *Domain of the Undead* and *Escape from Planet X*.

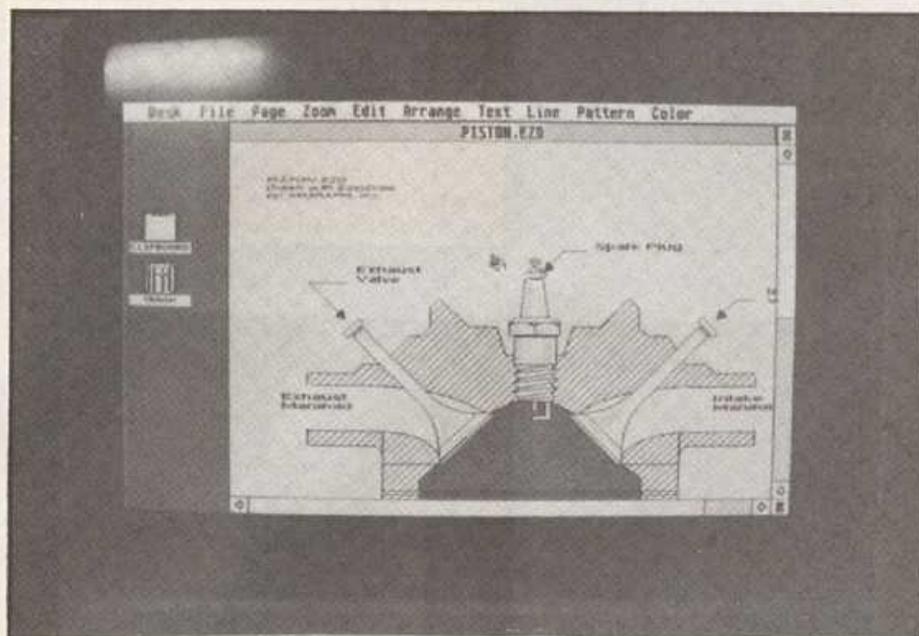
Red Rat also intends to convert *Screaming Wings* to the ST to retail at £19.95.

Finally on the games front, Atari had some of its prehistoric games consoles, the 2600's, over in one corner, happily running cartridges from a large collection.

**GST**, authors of *1st Word*, bundled with the ST at the moment, were showing the follow up, imaginatively called *1st Word Plus*. This version kept the same basic style as its predecessor but incorporated a number of new features including a spelling checker. The most interesting feature, beyond the merely



*Arena* and *Deep Space* for the Atari ST



for £39.95 and a *Fractal Generator* costing £19.95.

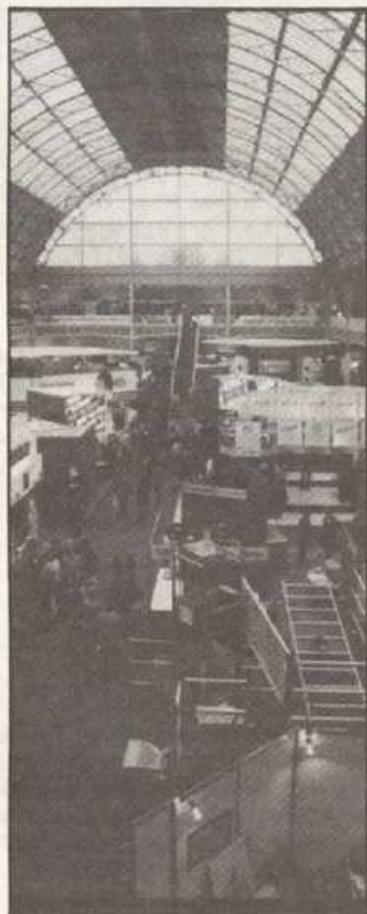
**Cashlink Software** was displaying *Cashlink ST Accounts* which claimed to be a complete accounts department. It handles all credit accounts with full accounting ledgers and maintains records for your stocks using stock control. This comprehensive accounts package would set you back £295 (plus VAT).

For those interested in other languages **Prospero Software** was showing its Fortran-77 and Pascal compilers. The Fortran-77 was a full Ansi X3.9-1978 Fortran compiler for the ST featuring 7 and 16 digit precision floating point, four byte integers and full Gem AES and VDI bindings.

*Pro Pascal* is a complete Ansi 770X3.97 Standard Pascal compiler with the same sort of features found in the Fortran compiler. Both programs cost £129 (plus VAT).

cosmetic additions, was the facility to allow graphics from any Gem application to be included in the document. There is an accessory which comes with the program called *Snapshot* which 'snaps' a picture of any Gem program and stores the screen in a GST packed format. Once saved the picture can then be loaded and incorporated into any document.

Also from the GST stable were *1st Mail*, a mail merge program for £29.95, *C Compiler* for £59.95, *Macro Assembler*



ST Karate



ST Karate

# Marbles, madness and Scooby Doo

John Cook with the fun and games part of the show

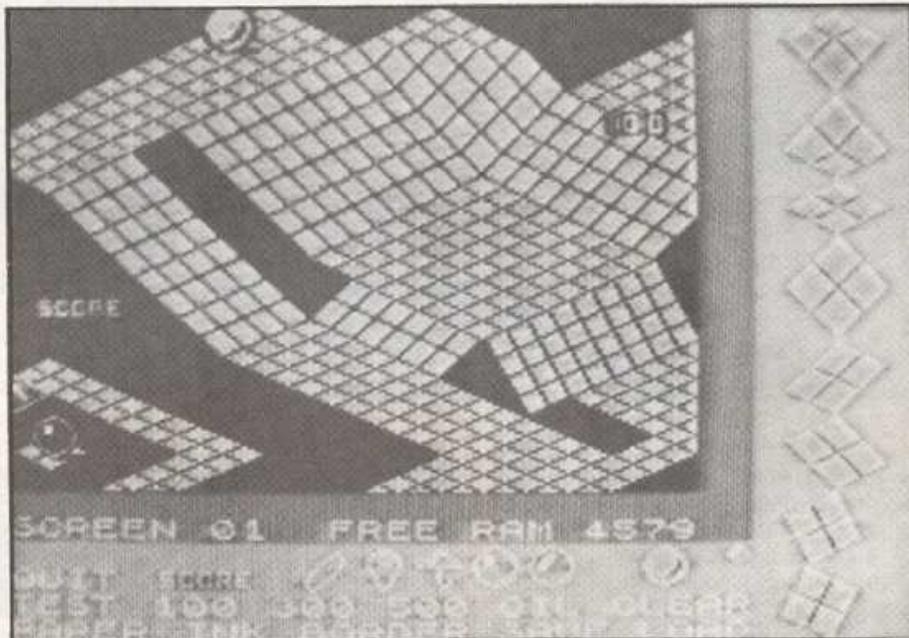
The first day of PCW – the TV personalities, the glitter, the razzamatazz, the hum of business deals being closed, the shouts of the workmen nailing together unfinished stands, the burst of white noise as pre-production programs crash spectacularly.

This is the stuff shows are made of and this year was no exception. The big trend (as far as games software goes) was, of course, coin-op conversions – even **The Edge** is getting in on the act with *Shao-Lin's Road*, from Konami, which was the follow-up to the game made successful on home micros by **Imagine**, *Yie Ar Kung Fu*. "We want to prove we can do coin-op conversions as well as anyone," said Tim Langdell, "better even!"

Such bullish optimism was a hallmark of most exhibitors; "Things are looking up," was the concensus. Certainly a change from the gloom and despondency displayed at some points last year. So what did you miss, if you weren't there?

**Activision** – while vying for the hotly contested prize for "Most Impenetrable Press Release of PCW 1986" – had a wide range of software under its own name and under the increasing number of associated labels, the newest of which is **Advents**.

This is a label dedicated to the production of graphic/text adventures, the first of which is *Chicago*. In this one you play the part of Rats Muldano – recently released from gaol. What makes this effort particularly noteworthy is the fact that it was written by **The Ram Jam Corporation** using its custom designed adventure writing system, *The Biro*. The warped mind of Ram Jam mastermind



Marble Construction Set from Melbourne House

George Stone will ensure that this is going to be one to watch out for. Available on Spectrum, C64, Amstrad CPC, Amstrad PCW and Atari ST soon.

**Loricels** had its newest, *Bactron*. This is a 3D perspective job on the Amstrad CPC that has you fighting to keep yourself healthy while you're being attacked by sundry bacteria and viruses. The ideal program for hypochondriacs. Out later on in the month.

*Hacker II* was impressive. With several video displays functioning on screen at once, this one looks good. Out on all major formats soon.

*Howard the Duck* was in evidence on

the 64, being based on the film which was based on the comic book and was using his unique "quack-fu" skills to battle his way through a treacherous volcanic island.

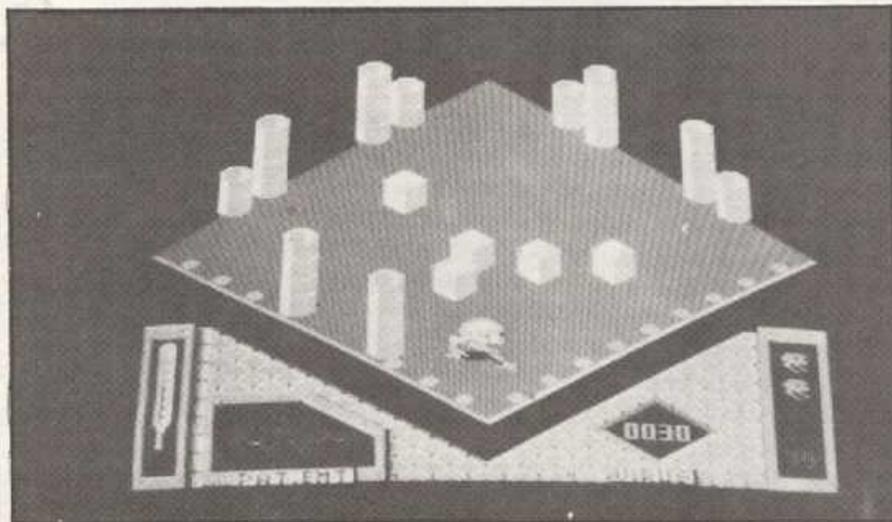
Wackier still, try *Tass Times in Tone-town* as an experiment in alternative reality adventuring. Utterly weird disc based entertainment on CBM 64, Apple II, PC, Mac, Amiga and ST.

What has David Crane been doing since *Little Computer People*? *Transformers* is the answer – the game of the toy. One of a number of toy/comic spin-offs this year, it's out for Commodore owners in October.

Sports simulation were glued to the **Gamestar** section – with the unveiling of three new programs from the US; *Championship Golf*, *Championship Basketball* and *Championship Baseball*, while **System 3** fans were glued to the wall – reading the promotional posters for *The Last Ninja*, *Bangkok Knights* and *Domination*. The lack of any working demos suggests that the "available shortly" tag should be interpreted as "don't hold your breath."

The battle of the robots could be coming up on your computer soon – Activision's *Transformers vs Ariola-soft's Gobots*. Although Ariola might be behind in the programming stakes (the licensing deal was only very recently signed) it did have the advantage of having a fully functioning robot actually present on their stand.

Other highlights of the stand included hands-on demos of the flagship of the



Bactron, courtesy of Activision/Loricels

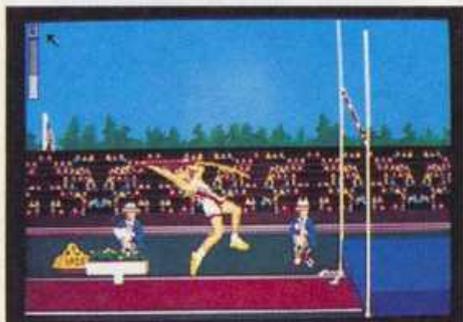
new Reaktor label, *Deactivators*, and, at last, *Marble Madness* on the 64.

With the launch of the Amstrad PC – Ariola also had *Pinball Construction*, *Music Construction*, and *Seven Cities of Gold* for the beast. Queue here.

**Alligata** was strategically placed near the lower ground floor bar – allowing persons to stagger out and try their hand at *Pub Games*, on the Spectrum, C64 and Amstrad machines, with darts, skittles, bar billiards, table football, dominoes, pontoon and poker to choose from. Announcements included the next Tony Crowther game on Commodore, *Kettle* (is the lad going mad we ask ourselves?) and a two game package for the PCW 8256/8512, *Guardian* and *Blogger*. Full reviews appearing here very soon! Alligata is also claiming a first – chess on MSX in the shape of *Cyrus II* (also on Spectrum). Unless you know differently, of course.

**Anco** was displaying a wide selection of games – but the monitor that was being given the closest inspection was *Strip Poker* on the Atari ST. Described as “sizzling entertainment” – Anco precariously avoids the charge of sexism by making available data discs containing extra opponents, both male and female. The question of the program’s naughtiness, however, is never in doubt.

**Addictive** was headlining with *Head-coach* on Spectrum, but anyone that saw



the *Kirel* CPC conversion cannot fail to have been impressed. Out soon – so Amstrad arcade/puzzle addicts, start saving.

Interesting things you can do with your Spectrum number 1097 – use it to help you pass your driving test. The program of the same name, (a Supersoft release, but on the **Audiogenic** stand takes you through 40 lessons, with graphics, giving you driving tips and asking you questions. Based on an existing best selling book, it’s not as crazy as it sounds.

On the **Beyond** stand, the organised crowds of Trekkies running over to the left, then the right, then throwing themselves on the ground, failed to appear. Shame, but early video demos of the game were present – looking very nice indeed. Other Beyond games were on display, such as *Dante’s Inferno* from Denton and the new *Best of Beyond* compilations.



The cheerful chappies from **CDS** were keeping a lowish profile; but had *Colossus Bridge* on display for CPCs plus plenty of existing software to play hands-on... which cannot be said of **CRL**. An impressive bank of 20 video screens – and that’s it. It was OK for people “in the know” – who were ushered into the CRL inner sanctum for VIP treatment, but what about everybody else?

*“If Batman was the death of the idea that you couldn’t write arcade games for the Joyce, then this must be the equivalent of jumping up and down on the grave”*

Displayed on the screens (carefully placed at neck straining height, so it seemed – probably for the same reason you don’t get comfy chairs at Macdonalds) was, amongst other things, *Cyborg*, and CRL’s *3-D Game Maker*, which allows you to create your own *Knight Lore* type games.

Not much hands-on stuff at the **Durell** stand either, but certainly the promise of some excellent new releases, most impressive of which was *Thanatos*.

Programmed by Mike Richardson (author of *Combat Lynx*, *Turbo Esprit*, et al) the central character you control in this game is a giant dragon. The animation of this main sprite is stunning, and if the rest of the program is up to the demo, Spectrum owners should be queuing up to buy this one at the end of the month.

Also announced at the show, a Durell compilation *The Big 4 – Combat Lynx, Critical Mass, Turbo Esprit and Saboteur* on Spectrum, CBM 64 and Amstrad CPC

– all formats £9.95.

**Digital Integration** has taken two years to write *TT Racer* – and the finished product was there on Spectrum, together with hunky Suzuki racing bike. Just as good and twice as unexpected, *Tomahawk* was up and running the Amstrad PCW. If *Batman* was the death of the idea that you couldn’t write arcade games for the Joyce, then this must be the equivalent of jumping up and down on the grave.

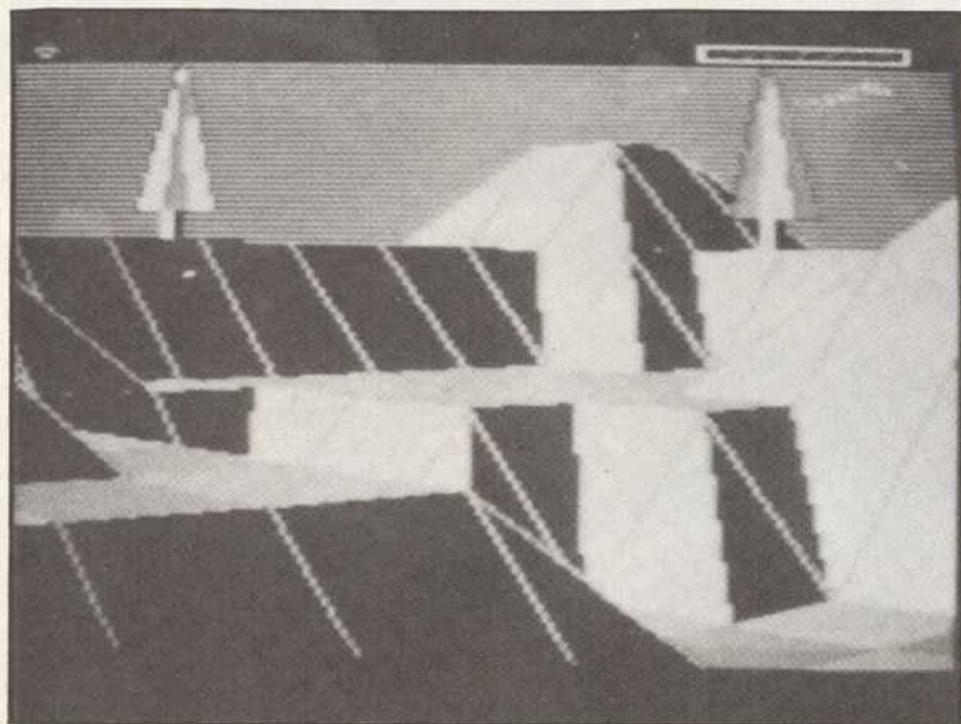
**Domark** officially released *Trivial Pursuit* – the computer game – and with Young Player, Baby Boomer and Genus II questions planned, this one will run and run. Watch out for their game based on the next James Bond film, due for release next Spring. And when we say “watch out”...

Eyes were on the few screens available for *Fairlight II* subtitled *A Trail of Darkness*, from **The Edge**. Specifically written with the Spectrum 128/Plus 2 in mind (although there is a multi-load 48K version), improved graphics and outdoor locations have been promised.

Colourful 3-D was in evidence on the Amstrad CPC in the shape of *Palitron* – written by ex-Virgin programmer Charles Goodwin.

Equal first (with *Gauntlet* on the US Gold stand) for the most queued-up-at-





*Sentinel*

to-play coin-op was *Space Harrier* – supplied by Elite. Not much sign of the game yet, but the hydraulically operated stand-alone was a massive hit.

Available to play – *Scooby Doo*, *1941*, and Commodore *Paperboy*, all up to the usual standard.

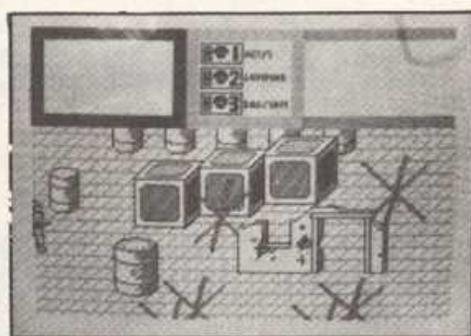
**Electric Dreams** has a massive white pyramid dominating their stand – what some executives will do to save buying a new packet of razor blades. Bags of new stuff though. Two licences to produce conversions of the old Atari classics, *Tempest* and *Star Raiders II* and an amazing looking "Gauntlet" type game, *Dauntless*, to name but two – and news of two film tie-ins, *Big Trouble in Little China* and *Aliens II*.

**Firebird** were out in force, with first public viewings of megagames to be, *Cholo* and *Sentinel* – both out first on BBC, *Druid* made quite an impression (another game in the "Gauntlet" mold) and head and shoulders above the other Silver releases, *Gyron Arena*. If you never bought the original – try this cut down version. It's great!

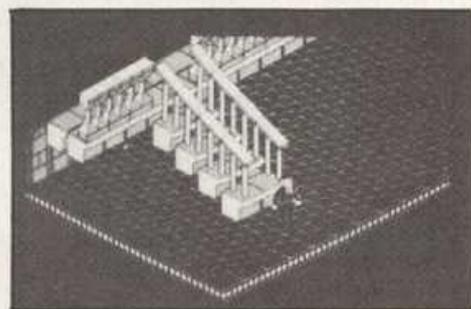
Sharing the stand were **Odin**, with many of their newest releases, including the stylish *Heartland*, and a demo of a new autumn release, *Hyperball*.

**Gremlin** were well represented, the most interesting program being a Bouncer derivative, *Trailblazer*. It's another, "bounce on the squares or fall off" job, granted, but from a different perspective – the 64 version has a great two player simultaneous race version.

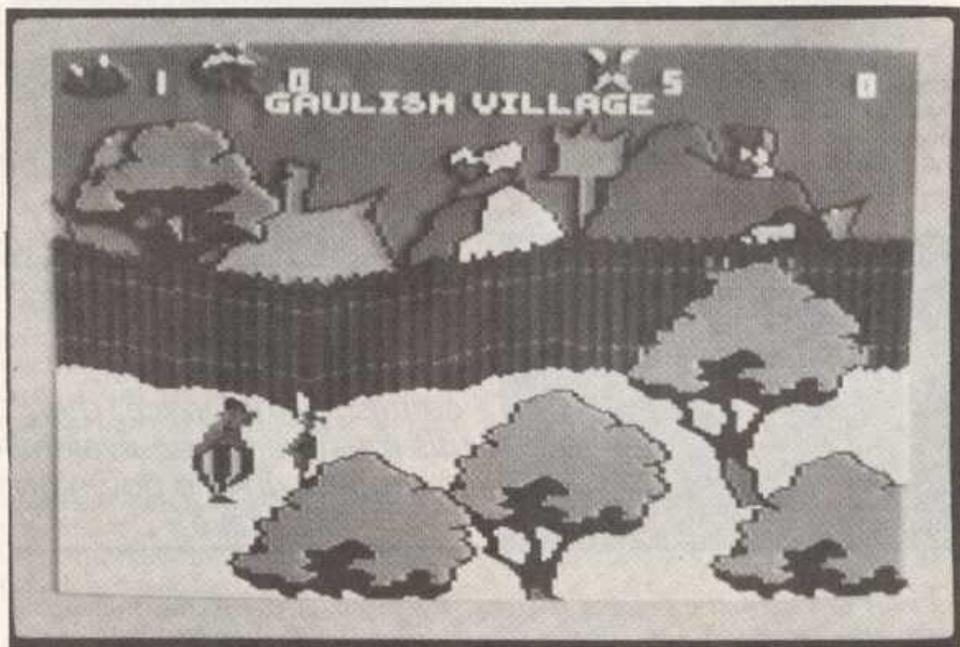
Glum faces at the **Mikro-Gen** stand, as the PCW Show organisers decided that it was too dangerous to have members of the SAS hanging round the stand, promoting the yet to be released, *SAS Strike Force*. The appearance of teenage pash *Ricky Steel*, complete with



*Rogue Trooper*



*Nosferatu*



*Asterix*

prosthesis, was little compensation it seems – or did it have something to do with the fact that Brian Jacks was on the **Martech** stand, promoting *Uchi-Mata*?

The organisers did, however, allow Mikro-Gen to release *Frostbyte* on Amstrad CPC, an arcade adventure featuring a liquorice allsort as the main character. Identify with that, kids.

After a relatively silent summer, a flurry of activity from **Melbourne House**, with *Fist II* taking the starring role, closely followed up by *Asterix and the Magic Cauldron* amongst others. Far from being just a load of old Gauls, the game genuinely seemed to capture the spirit of those excellent comic books – well worth looking out for. As for *Marble Madness Construction*... take me to it.

Pride of place was given to the Mag-

num joystick on the **Mastertronic** stand, with games taking a second place to the strangely shaped beast as it perched resplendent beneath the perspex. The less awe struck, however, would have *Flash Gordon* – coming to your Commodore soon.

**Mirrorsoft** was out in force with a number of recent and future releases on display. With *Icon Jon*, it asks the philosophically daunting question, "What happens to a program when the computer gets turned off?"

As a program trapped inside a computer due to shut down in thirty minutes, you must scurry around collecting and manipulating objects – all under Icon control of course. A nice looking game on Amstrad CPC – out soon. Other thought provoking masterpieces are

rumoured to include a title in which you must stack as many angels as possible on the head of a pin.

With **Novagen**, the *Mercenary* machine rolls on with an excellent SI version being launched at the show, an Amstrad CPC version due out in October and a Spectrum conversion out by Christmas. Trivia collectors will be pleased to learn there are now a total of 15 different machine/language *Mercenary*'s. As for *Mercenary II* – expect that mid '87 – as Novagen's Tim Boshier says, "*Mercenary I* is a hard act to follow."

On the **Ocean/Imagine** stand, the sharp eyed could spot the one we've all been waiting, and waiting, and waiting, and waiting for. *Street Hawk* was seen up and running on Amstrad – and looked very impressive to boot.

Good news for C16/Plus 4 owners – versions of *Rambo*, *Green Beret* and *Hyper Sports* are on the way.

If only Eddie Waring were here to see it – that game without frontiers, *It's a Knockout* has finally reached the home computer (Commodore 64 and Atari only).

No Spectrum version, which is a pity as a decent attribute clash would have perfectly replicated Stuart Hall's usual shirt/tie combination.

**Palace Software** releases are few and far between, but they tend to be good. Demoad at the show this year was their next release *The Sacred Armour of Antiriad*. The plot comes straight out of pulp comic fiction, which isn't surprising, since a comic artist, Dan Malone designed it. Set in a post-holocaust world where the primitive survivors have been enslaved by an alien race (never rains but it pours, eh?).

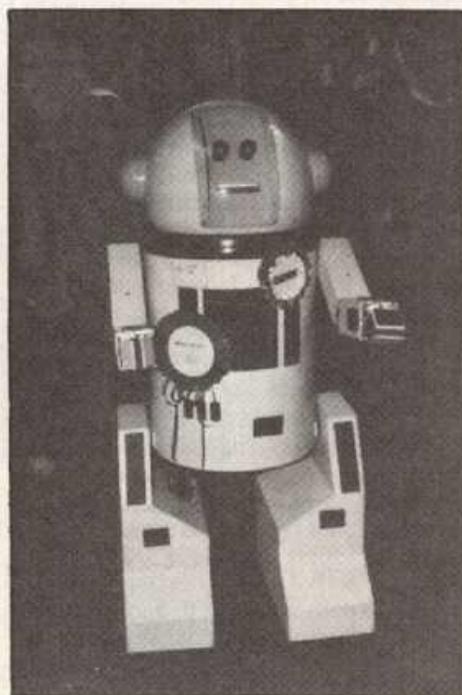
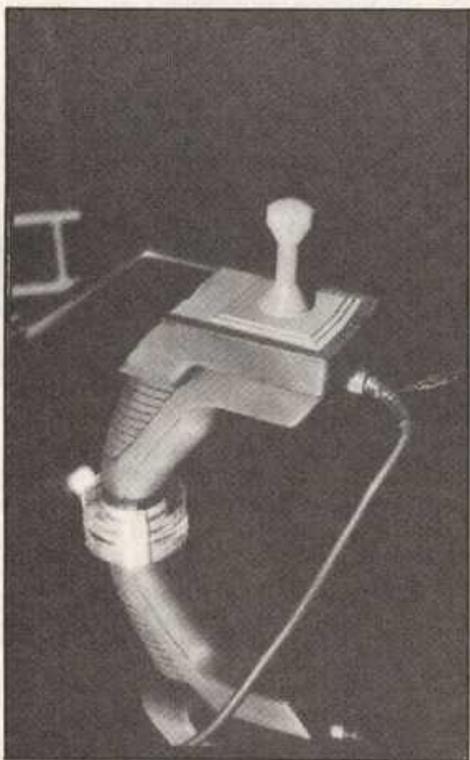
Your quest, as Tal, is to find the Sacred Armour and defeat them single handed. This is the stuff arcade adventures are made of. On Commodore 64 and Spectrum in October, Amstrad CPC by Christmas.

**Piranha** had plenty of bite on its stand – a tankful of them in fact, complete with bones stripped clean of flesh by the little beasties. The latest release *Trap Door* was in evidence (play the game, eat the record) – and on preview was *Rogue Trooper* and a few beautifully detailed screens from *Nosferatu*.

**Rainbird** had a good show, with pride of place being taken by *Starglider* running on the ST. Although not quite finished yet, an advanced demo was up and running and performing very well indeed. Vector graphics space games will never be the same again.

Other highlights: *Tracker*, billed as an arcade/strategy wargame – and a game that seems to have been hanging around for ages one way and another – now on Commodore 64 – *The Pawn*.

**US Gold** have kept the video makers busy this summer – but not a hands-on home micro game to be seen. While



these promotional devices certainly have great advantages for the exhibitor – videos of pre-production games have never been known to crash for example – there were one or two murmurs of discontent on this and, to be fair, other stands, where you couldn't get your hands on a working game.

Never-the-less, US Gold has a lot of good stuff coming out this autumn, with the highlights being *Gauntlet* (on Spectrum, CBM 64, Amstrad CPC, Atari, ST, PC and Amiga), *Super Cycle* (motor racing from the guys that brought you *Pole Position*, Epyx) and *AcroJet* – what looks

like an astounding flight simulator by Microprose.

The first **US Gold/Vortex** tie-up has produced *Revolution*, a game which looks as challenging and stylish as that previous Vortex hit, *Highway Encounter*. Another complex arcade puzzle with some great 3D perspective effects.

Top photo: At the PCW show

Photo left: Mastertronic's macho Magnum joystick

Photo right: Denby, Ariolasoft's promotional robot

# Infinite variety on the 8256

Christina Erskine leaves the crowds round the Amstrad PC to view the new PCW 8256/8512 products

If the first public showing of Amstrad's PC range drew some attention away from the now well-established PCW machines, it made no difference to the third party companies.

The sheer variety of software and add-ons being developed and launched far exceeds the expectations of a year ago, when the 8256 "word processor" was unveiled.

Graphics? No problem. Take your pick from a light pen, mice, a forthcoming graph pad, or Mirrorsoft's ambitious graphic operating system, all of which were being publicised at the show.

Electric Studio's light pen (for a full review, see *Popular Supplement*, September 4) plugs directly into the PCW's expansion port, and comes complete with *Art*, a graphics software package. With *Art* and the pen, most standard graphics features are supported: pencil, spray can, multi-brush and fill effects, plus, a variety of polygons, and various copying, moving of pictures, etc. options. A GSX driver is included to enable the pen to be used with *DR Draw*.

*Art* is also supplied with the mouse package, and adds facilities to expand and contract screen areas, and a horizontal and vertical lock for the mouse.

Curiously, Electric Studio is also providing a joystick slot on the mouse interface, and a joystick driver program on each disc. Just in case the mouse doesn't win you over, I suppose.

The *Art* software is being pressed to various uses. Forthcoming Electric Studio products include a PCW video digitiser, and a font module, both of which are compatible with and expected to be used with the *Art* package.

The light pen costs £79.95, the mouse pack £129.95. Electric Studio can be contacted at Unit 13, The Business Centre, Avenue One, Letchworth, Herts.

Another PCW mouse comes from Kempston. While the mouse itself has been around for some time, Kempston launched the PCW interface at the show. It's early days yet for details of the software, but the package is set to cost £79.95. AMX is also planning a version of its mouse and interface for the PCW 8256/8512.

The graph pad mentioned above was on display courtesy of Grafsales. Together with the company's G3 software, Grafpad 3 offers a professional CAD system. The pad features include line drawing, rectangles, circles, arcs, zooming and panning, rotation and tilt. Special defining symbols can be created and saved. Hard copy, obviously, can be dumped to the PCW printer, but addi-

tional driver routines must be bought for plotters.

Grafsales is also making this product available for the Commodore 64, and hoping to link it with Geos. Grafpad 3 is also ready for the PC1512 (and thus other IBM compatibles), the CPC range, and the BBC Master series.

Mirrorsoft's *Graphics Operating System* is still very much in the embryonic stage, but when released, will provide programmers with a set of graphic tools on disc. Features include all the usuals, plus character drawing to any screen pixel, ellipses, windowing and rotation.

Mirrorsoft was also showing a demonstration of *Fleet Street Publisher* on the PCW machines.

This is *Fleet Street Editor* but an echelon higher, in that more sophisticated newsletters can be written - to the extent that the *Fleet Street* series can begin to approach a typesetting machine level. See elsewhere in this report for more on *FSE*.

More details on Mirrorsoft's products can be obtained from the company at Maxwell House, Worship Street, London EC2.

Publishing type programs are much in vogue at the moment, with several font packages - to enable print-out in a variety of different typefaces - being exhibited.

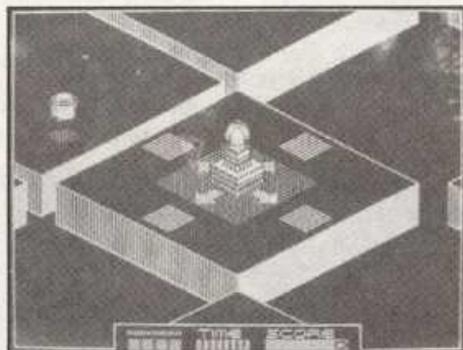
One such is Gemini's *Fontgem*, which gives a choice of eight different printing styles, and avoids the all too usual pitfall of offering typefaces which have a novelty value only, and are generally illegible.

But the main asset of *Fontgem* is that it is compatible with both *Locoscript* and CP/M programs.

Also new from Gemini is *Taxgem*, a "beat the Inland Revenue to it" program. *Taxgem* enables you to work out your tax liability for the year, a depressing occupation that I doubt is made any happier by doing it faster than on the back of an envelope.

Both Gemini products are £19.95. Gemini is at Gemini House, Concorde Road, Exmouth EX8 4RS.

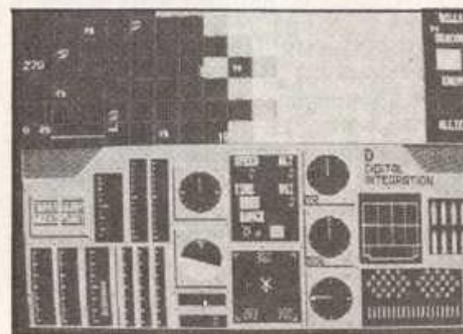
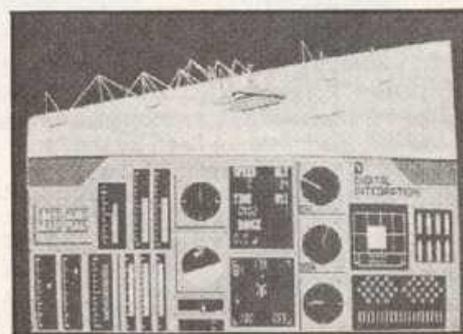
The flurry of games being released on the machine about two months back (*Batman*, *Graham Gooch's Test Cricket*, *Fairlight*, etc) seems to have abated somewhat, but *Interceptor* is converting its latest adventure *Aftershock* (anyone know what to do with the ceiling panel right at the beginning?), and Digital Integration has put its helicopter simulation, *Tomahawk*, on to the machine. *Aftershock* will cost £17.95, *Tomahawk* £19.95.



Top: Vortex's *Revolution*, see page 31

Above: Piranha Software's stand representatives take a break

Below: More PCW games DI's *Tomahawk*



# Read all about it

Mirrorsoft's Fleet Street Editor programs appeared on no less than three show stands. Christina Erskine finds out why

**M**irrorsoft's plans for its Fleet Street Editor series were taking a solid shape at the show. The BBC version, released earlier this year, was very much a "print your own club newsletter with help from some of the stored graphics" affair. Fleet Streets demonstrated for the PCW 8256/8512, Atari ST and IBM PC compatibles (thus including you-know-what) use the more powerful features of the machines to their best effect.

The series will include two "labels"; Fleet Street Editors and Fleet Street Publishers.

Put simply, Editors specifically cater for one page news-sheets, while Publishers cater for multiple page numbering. Some of the machines will have both Editor and Publisher versions.

On display last week was a scrolling demo of PCWFS Publisher, still in embryonic stages, a very nearly finished ST Publisher and a finished IBM Publisher plus laser printer.

When released the ST version should be a very professional package. Within

its text output options include facilities for point sizes to the nearest quarter, measurements in millimetres, inches or ems, half tones, eight different fonts, plus a font designer, a hyphenation dictionary and kerning (a thoroughly complicated process dealing with the spacing between individual characters). It will also have facilities for freehand graphic drawings for its illustrations, and sizing and scaling for those graphics.

For the ST, three versions are planned: an Editor, a Publisher which can be linked to a laser printer, and a Publisher which can become a typesetting workstation.

The PCW version is being developed go a very highly sophisticated specification, with features similar to that of the ST version. At present, however, its output is necessarily geared to the PCW's printer. Again, more than one version is planned: an Editor, and a Publisher. For Amstrad CPC owners, a Fleet Street Editor is planned.

The point of all this is to build up the range so that it can be used by not only individuals with club newsletters, etc,

Created with - Fleet Street Editor / PC

October '86 **NEWS** from **VAXOFIL** For all our Customers & Dealers

The newsletter of the VAXOFIL Packaging Corporation  
Published by The VAXOFIL Corporate Marketing Department

### Meet the new men on the Southern Beat

You will be seeing new faces in the Southern sales area from this month onwards. We are delighted to welcome Freddy Henschel and William Stele to the VAXOFIL sales force.

Freddy, who joins us after four years with another firm in the packaging industry will be taking over Cecil Viper's area. Cecil is going to VAXOFIL's new Italian venture based at Florence.

We wish him well.

William, who has had experience in shipping will be VAXOFIL's new representative in the Southern Region and will be based at Funchal. This is a new position and William's job is to service the growing number of our customers moving from traditional packing to containers.

William and Freddy bring our customers services Department in the Southern Division up to a strength of 15. We have a sales

Even if seven, three product advisors, for PAPER, CORRUGATED, THREE TONNE (corrugated) and two side engineers who specialise in shipping. You can contact the Southern Area Customer Services Team via our Action (0122) 4567.

Our Man in Hawaii Hooks the BIGGEST and the BEST

15 sales manager George Emerson took a break from a foreign sales trip for a week-end's "connoisseur" fishing off Hawaii. And that was where he made a big killing! On his first day on the charter boat the lucky NEWBIE he hooked the biggest catch: this year, weighing in at 240 lbs! 25 more FT for Well Done George! We hope the sales trip landed a few big ones too.

### Pack-Flat Crates Take a Load off Your Mind

This month we launch an addition to our range of packing boxes - reusable folding wooden crates. VAXOFIL folding crates are only second to stainless or domestic.

They are constructed with strong polystyrene corners and a galvalume base with integral forklift slots.

These economical crates are strong, the standard size will carry 2700 lbs, and they can be stacked eight high when loaded to 2000 lbs or even high when loaded to 2000 lbs or even high when loaded to the maximum.

These pack-flat crates are versatile too. A custom model is available which will take up to 1000 litres of liquid. Other models feature 600 litre capacity systems for delicate loads, and special air freight configurations adapted to standard airfreight.

Continued on page 4

from MIRRORSOFT

but also professionally in liaison with typesetters, and to sell to hardware manufacturers on an OEM (Original Equipment Manufacturer) basis.

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London W11 2DX  
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## Furniture

by Richard and Jackie Gain

If you ever get the urge to move the furniture around to give a room a new look it can take hours trying out the various combinations, not to mention the effort involved. This program will hopefully solve these problems.

Start by typing in the program and saving it with *Goto 9000* if you have microdrives or *Goto 9100* if not.

Now, run the program, select option

one and enter details of the room(s) by following the instructions on screen.

Next it's the turn of the furniture, and these are represented as rectangles for simplicity.

Once the initial preparations are completed selecting option three allows you to move the furniture around to your heart's content. Use 'N' for the next item until you arrive at the desired piece then use 'S' to select that item. You now have the choice of '5/6/7/8' for moving the

item and '9' to rotate through 90 degrees.

'S' changes the step size used when something is moved and finally 'O' fixes an item at its present location. Another menu will now appear and pressing 'C' will send the display to the printer. 'N' will allow you to move the next piece of furniture while 'F' returns you to the main menu.

The second part of the listing will be given next week.

<pre> 10 POKE 23658,8: REM CAPS ON 100 DIM R(40,2) 110 DIM F(40,4) 120 DIM F\$(40,16) 130 LET FC=0: LET S=1 140 DIM S\$(3,10) 1000 REM MENU 1010 CLS : PRINT AT 0,10;"FURNITURE" 1020 PRINT AT 6,4;"1: DESIGN ROOM" 1030 PRINT AT 8,4;"2: DESIGN FURNITURE" 1040 PRINT AT 10,4;"3: MOVE FURNITURE" 1050 PRINT AT 12,4;"4: SAVE ROOM DATA" 1060 PRINT AT 14,4;"5: LOAD ROOM DATA" 1070 PRINT AT 18,8;"SELECT NOW:*" 1100 LET I\$=INKEY\$: IF I\$="" THEN GO TO 1100 1110 IF I\$&lt;"1" OR I\$&gt;"5" THEN GO TO 1100 1120 GO TO 1000+1000*VAL I\$ 2000 REM DESIGN ROOM 2010 CLS 2030 PRINT #0:AT 0,0;"BEGIN AT TOP LEFT CORNER": PLOT 0,175: PAUSE 100 2040 LET S=1 2050 PRINT #0:AT 0,0;"PRESS 5/6/7 OR 8 F OR DIRECTION OF NEXT WALL - 0 TO FINISH" 2060 LET I\$=INKEY\$: IF I\$="" THEN GO TO 2060 2070 IF I\$="0" THEN LET S=S-1: GO TO 1000 2080 IF I\$&lt;"5" OR I\$&gt;"8" THEN GO TO 2060 2090 IF I\$="5" THEN LET X=-1: LET Y=0 2100 IF I\$="6" THEN LET X=0: LET Y=-1 2110 IF I\$="7" THEN LET X=0: LET Y=1 2120 IF I\$="8" THEN LET X=1: LET Y=0 2130 INPUT "ENTER WALL LENGTH (MAX 32x22 FT)":FEET: ";FT,"INCHES: ";IN 2140 LET PIX=INT (8*FT+2*IN/3) 2150 LET X=X*PIX: LET Y=Y*PIX 2160 DRAW X,Y 2170 LET R(S,1)=X: LET R(S,2)=Y 2180 LET S=S+1 2190 GO TO 2050 2500 REM DRAW ROOM SO FAR 2510 CLS : PLOT 0,175 2520 FOR N=1 TO S 2530 DRAW R(N,1),R(N,2) 2540 NEXT N 2550 FOR N=1 TO FC 2560 IF F\$(N,16)&lt;&gt;"*" THEN GO TO 2600 2570 LET S1=F(N,1): LET S2=F(N,2) 2580 LET X=F(N,3): LET Y=F(N,4): GO SUB 4800 2590 PRINT AT 22-INT (Y/8),1+INT (X/8);N 2600 NEXT N: RETURN 3000 REM DESIGN FURNITURE 3010 CLS : LET FC=FC+1 3020 INPUT "ENTER SIDE 1 LENGTH (INCHES)",S1 3030 INPUT "ENTER SIDE 2 LENGTH (INCHES)",S2 3040 LET F(FC,1)=2*S1/3 3050 LET F(FC,2)=2*S2/3 3060 INPUT "ENTER NAME OF FURNITURE",F\$(FC) 3070 PLOT 0,175: DRAW S1,0: DRAW 0,-S2: DRAW -S1,0: DRAW 0,S2 3090 PRINT #0:AT 0,0;"PRESS 1 FOR MORE - 0 TO FINISH" 3100 IF INKEY\$="1" THEN GO TO 3010 3110 IF INKEY\$="0" THEN GO TO 1000 3120 GO TO 3100 4000 REM SELECT FURNITURE 4010 GO SUB 2500: LET STEP=1: LET FC1=1 4020 PRINT #0:AT 0,0;"PRESS N FOR NEXT 0 R S TO SELECT";FC1: ";F\$(FC1): "; 4030 IF INKEY\$&lt;&gt;"*" THEN GO TO 4030 4040 LET I\$=INKEY\$: IF I\$="" THEN GO TO 4040 4050 IF I\$="S" THEN GO TO 4100 4060 IF I\$&lt;&gt;"N" THEN GO TO 4020 4070 LET FC1=FC1+1: IF FC1&gt;FC THEN LET FC1=1 </pre>
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

## Programming: C128

### Bigtext



by Steve Dunn

This small utility program allows text of any width or height to be printed to a hi-res and multicolour screen. The text can also be highlighted, printed upside down, left to right and textured.

To use this program it must be entered as a subroutine at the end of your own programs and called with a *Gosub*, after setting up certain variables as follows.

*XP* and *YP* are the starting coordinates of the text.

*W* and *L* are the width and length of the

text and have values of 1-100.

With the following variables a value of zero cancels and a value of one sets, a feature.

*RUF* gives textured print.

*IV* gives highlight print.

*UD* gives upside down print.

*LR* gives left to right print.

*LC* gives lower case letters.

After the variables have been set you must select a graphics mode and *Gosub* the line number where you have placed the utility.

In the listing lines 30 to 280 are a demo only.

```

30 GRAPHIC 1,1 : REM ** GRAPHIC MODE **
40 XP=0:YP=0 : REM ** X & Y CO-ORDINATES **
50 LR=0:UD=0:REM ** LEFT TO RIGHT & UPSIDE DOWN CANCELED **
60 L=3:W=2:REM ** LENGTH AND WIDTH **
70 IV=0 : REM ** INVERTED OFF **
80 A$="BIGTEXT BY STEVE.D" : REM ** TEXT TO BE PRINTED **
90 GOSUB 1000 : REM ** EXECUTE BIGTEXT PROGRAM **
100 :
110 IV=1 : REM ** INVERTED ON **
120 XP=100:YP=100 : REM ** X & Y CO-ORDS **
130 A$="INVERTED" : REM ** TEXT **
140 GOSUB 1000
150 IV=0:LR=1
160 A$="LEFT TO RIGHT"
170 W=1:L=1
175 XP=0:YP=100
180 GOSUB 1000
190 LR=0:UD=1
200 A$="UPSIDE DOWN"
210 XP=150:YP=100
220 GOSUB 1000
230 XP=150:YP=190
240 UD=0:LC=1
250 A$="LOWER CASE"
260 GOSUB 1000

```

```

270 LC=1
280 END
1000 FOR I=1 TO LEN(A$):CC2=ASC(MID$(A$,I,1))
1010 IFCC2=64 ANDCC2<=95THEN BASE=DEC("D000"):V=64
1020 IFCC2=32ANDCC2<=63 THENBASE=DEC("D100"):V=32
1030 IFCC2=160 AND CC2<=191 THEN BASE=DEC("D300"):V=160
1040 IFCC2=192ANDCC2<=223THENBASE=DEC("D200"):V=192
1050 IFIV=1 THEN BASE=BASE+DEC("400")
1060 IF LC=1 THEN BASE=BASE+DEC("800")
1070 BANK 14:MEM=(INT(CC2)-V)*8+BASE
1080 FOR X=0 TO 7:V(X)=PEEK(MEM+X):NEXT
1090 FOR Y=0 TO 7:CHANGE=.5 IFLR=1 THEN FORY=0 TO 7:ELSE
FOR Y=7 TO 0 STEP -1
1100 CHANGE=CHR$(2*TEMP(X)+V(X)) AND CHANGE:IFTEMP(X)>0
THEN BEGIN
1110 IF RUF=1 THEN ROT=INT(RND(0)*25) ELSE ROT=0
1120 IFUD=1THENY2=YP+((UD*2*2-UD)-X)*L:ELSE
Y2=YP+(X)*L
1130 BOX 1,XP+(I-1)*(8*W)+(Y*W)+N,Y2)P+(I-1)*
(8*W)+(Y*W),Y2+L,ROT,1
1140 BEND
1141 NEXT
1142 NEXT
1143 NEXT
1144 RETURN

```

## Mushroom Mania

by Jonathan Temple

This week features the final part of the Mushroom Mania listing. The 'Z' and 'X' keys move your spray can about whilst Return fires the spray. There are five different speeds and two skill levels. You start off with three lives and are awarded an extra one after completing the first screen.

The program will also run on the Electron if the following changes are made. Delete lines 1030-1120 and replace them with -

```

1030 FOR K% = 1 TO 45 + J% * 15:
VDU 31, RND(40) - 1, RND(27) + 2, 224:
NEXT

```



```

1820 LDA B%+2:JSR oswrch
1830 LDA #226:JSR oswrch
1840 .return
1850 RTS
1860 .psnail
1870 LDA #228:JSR oswrch
1880 LDA #229:JMP check
1890 .pspider
1900 LDA #230:JSR check
1910 LDA #231:JSR check
1920 LDA #232
1930 .check
1940 PHA:JSR store:PLA
1950 CPX #129:BCS ncent1
1960 CPX #132:BCS ncent1
1970 LDA #0:STA $414:RTS
1980 .ncent1
1990 JMP oswrch
2000 .read
2010 LDA #31:JSR oswrch
2020 TXA:JSR oswrch

```

```

2030 TYA:JSR oswrch
2040 .store
2050 LDA #135:JSR osbyte
2060 STX $40C:RTS
2070 ):NEXT
2080 ENDPROC
2100 DEFPROC titles
2110 VDU 19,3,5;0;12
2120 PRINT TAB(15) "MUSHROOM MANIA"
2130 RESTORE 2360
2140 FOR N=1 TO 6:READ C
2150 VDU 31,10,N*2+2,17,C
2160 REPEAT READ M:VDU M+224
2170 UNTIL M=-1:READ P:VDU 17,2
2180 PRINT TAB(19,N*2+2) "... ";P:TAB(27,
N*2+2) "points"
2190 NEXT: *FX 202,32
2200 PRINT TAB(10,26) "Press SPACE BAR to
play"
2210 VDU 17,3:REPEAT
2220 PRINT TAB(10,18) "Sound effects (Y/N

```

```

): ";CHR$(sound)
2230 IF sound=78 THEN *FX 210,1
2240 IF sound=89 THEN *FX 210,0
2250 PRINT TAB(10,20) "Speed (1-5)"
2260 VDU 31,30,20,58,32,UX+49
2270 PRINT TAB(10,22) "Skill level (A-B)"
2280 VDU 31,30,22,58,32,YX+64
2290 G=GET
2300 IF G>48 IF G<53 UX=G-49
2310 IF G=65 OR G=66 YX=G-64
2320 IF G=78 OR G=89 sound=G
2330 UNTIL G=32
2340 ENDPROC
2360 DATA 1,0,-1,5,2,11,-1,20
2370 DATA 3,2,2,2,2,3,-1,50
2380 DATA 2,6,7,8,-1,50,2,4,5,-1,150
>
2390 DATA 2,12,-1,200
2410 DEFPROC info
2420 VDU 19,3,5;0;12
2430 PRINT TAB(13) "MUSHROOM MANIA"

```

## Programming: BBC

```

2440 COLOUR 2
2450 PRINT " In Mushroom Mania you must prevent ""the centipede reaching the bottom of""the screen by shooting it, segment by ""segment."
2460 PRINT " You will also have to contend with a ""dangerous mushroom-laying spider, and""a snail who is anything but slow. The ""snail leaves poisoned mushroom rooms in its"
2470 PRINT "wake, which (if the centipede touches""them) are fatal to both you and the ""centipede."
2480 PRINT " On later screens a killer flea will""appear, the number of mushrooms will""increase and so will the length of the ""centipede."
2490 PRINT " There are five speeds and two skill""levels to choose from. You will start""with three lives, although a bonus life""is awarded on completion of the first""screen."
2500 COLOUR 3

```

```

2510 PRINT TAB(9)"Press SPACE BAR to start"
2520 REPEAT UNTIL GET=32
2530 ENDPROC
2550 DEFPROCchars
2560 VDU23,224,0,60,118,223,-5,24,24,24
2570 VDU23,225,60,110,-1,15,63,126,60,0
2580 VDU23,226,60,126,-1,191,223,102,60,0
2590 VDU23,227,60,118,-1,240,252,126,60,0
2600 VDU23,228,7,8,17,14,16,15,127,-1
2610 VDU23,229,193,34,162,167,39,207,-2,-4
2620 VDU23,230,0,1,63,79,147,35,68,8
2630 VDU23,231,60,-1,189,153,-1,-1,126,9
2640 VDU23,232,0,192,-4,242,201,196,34,16
2650 VDU23,233,24,24,24,36,90,90,189,18,9
2660 VDU23,234,24,24,24,24,24,24,0,0
2670 VDU23,235,0,60,126,-1,-1,24,24,24

```

```

2680 VDU23,236,33,51,12,12,30,45,33,0
2690 ENDPROC
2700 :
2710 DEFPROCcens
2720 ENVELOPE 1,1,0,-4,0,0,50,0,42,-16,-2,-2,126,94
2730 ENVELOPE 2,1,0,0,0,0,0,120,-1,-2,-3,127,127
2740 ENVELOPE 3,1,5,2,3,75,23,20,123,0,0,-5,100,80
2750 ENVELOPE 4,3,6,6,-1,0,0,-1,100,-1,0,-1,126,126
2760 ENVELOPE 5,133,8,4,8,3,1,1,126,0,0,-10,126,0
2770 ENVELOPE 6,1,0,0,0,0,0,126,-1,0,-5,126,0
2780 ENDPROC
2800 MODE7:REPORT:PRINT" at line ":ERL
2810 *FX15,1
2820 END

```

## Programming: Amstrad CPC

### Xen

by Simon Goodwin

On we go with part two of Xen for the Amstrad CPC's.

:Ascii, start address, length reveals text anywhere in memory.

:Proglen returns the length of CPC464 Basic programs.

:Deek, address, @n% and :Doke, address, 16 bit number perform a two byte Peek or Poke.

:Pron and :Proff direct all output to the printer and revert things to normal.

:Key, @n% returns the Ascii value of a key pressed. Much faster than Inkey.

:Flush flushes the keyboard buffer.

:Shift, source address, destination address, length moves a block of memory to a new location.

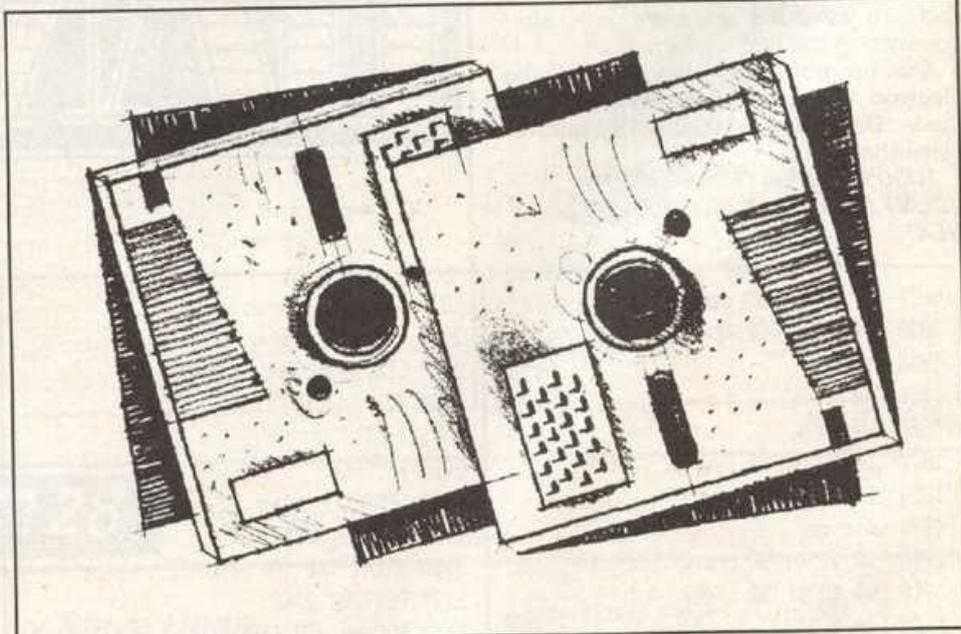
:Disable and :Enable affects the break key.

:Waitkey waits for a key to be pressed.

:Rompeek, rom, address, n% is used to examine either the upper (rom=1) or lower (rom=0) Rom. The start address should be between zero and 16384 for the lower Rom or 49152 and 65536 for the upper Rom.

:Help lists all the Xen commands.

Note that where a command requires a variable which is prefixed by @ the variable should be defined before using the command, ie type a%=0



```

200 DATA 221, 110, 0, 221, 102, 1, 205, 96, 187, 119, 201, 205, 255, 187, 205, 7, 8, 187, 201, 221, 110, 0, 221, 102, 1, 205, 27, 187, 119, 201, 42, 131, 174, 23, 7, 91, 129, 174, 237, 82, 205, 187, 16, 4, 201, 6, 255, 205, 27, 187, 16, 251, 2, 01, 221
201, 221, 110, 2, 221, 102, 3, 221, 126, 0, 119, 35, 221, 126, 1, 119, 201, 42, 212, 189, 34, 162, 163, 33, 130, 163, 34, 212, 189, 201, 42, 162, 163, 34, 212, 189, 201
220 DATA 245, 58, 161, 163, 188, 56, 7, 62, 10, 205, 241, 189, 48, 249, 124, 50, 161, 163, 241, 245, 205, 241, 189, 21, 8, 159, 163, 241, 24, 227, 241, 201, 0.

```

0, 0, 221, 110, 2, 221, 102, 3, 221, 9	260 DATA 3, 19, 205, 173, 164, 221, 33,	5, 104, 188, 201, 33, 77, 1, 62, 25, 205
4, 0, 221, 86, 1, 62, 22, 205, 161, 188,	60, 165, 33, 5, 1, 6, 16, 205, 173, 164,	, 194, 188, 201, 70, 73, 76, 69, 78, 65
201	221, 33, 168, 165, 221, 110, 21, 221,	, 77, 69, 32, 32, 32, 32, 32, 32, 58, 32
230 DATA 221, 110, 2, 221, 102, 3, 221,	102, 22, 205, 187, 164, 221, 33, 76, 16	, 70
94, 0, 221, 86, 1, 62, 22, 205, 158, 188	5, 33, 7, 1, 6, 16, 205, 173, 164, 221,	300 DATA 73, 76, 69, 32, 84, 89, 80, 69,
, 201, 205, 108, 187, 62, 44, 17, 64,	33, 168, 165, 221, 110, 24, 221, 102, 2	32, 32, 32, 32, 32, 58, 32, 83, 84, 65,
0, 33, 168, 165, 205, 161, 188, 221, 33,	5, 205	82, 84, 32, 65, 68, 68, 82, 69, 83, 83,
28, 165, 33, 1, 1, 6, 16, 205, 173, 164	270 DATA 187, 164, 221, 33, 92, 165, 33,	32, 58, 32, 76, 69, 78, 71, 84, 72, 32,
, 33, 168, 165, 126, 254, 0, 32, 12, 221	9, 1, 6, 16, 205, 173, 164, 221, 33, 168	32, 32, 32, 32, 32, 32, 32, 58, 32, 69,
, 33	, 165, 221, 110, 26, 221, 102, 27, 205,	88, 69, 67, 32, 32, 32, 32, 32, 32,
240 DATA 130, 165, 6, 15, 33, 1, 17, 205	187, 164, 201, 205, 117, 187, 221, 126,	32, 32
, 173, 164, 221, 33, 168, 165, 6, 15, 33	0, 205, 90, 187, 221, 35, 16, 246, 201,	310 DATA 32, 58, 32, 40, 66, 65, 83, 73,
, 1, 17, 205, 173, 164, 221, 33, 44, 165	229, 245, 62, 35, 205, 90, 187, 241, 22	67, 41, 40, 66, 73, 78, 65, 82, 89, 41,
, 33, 3, 1, 6, 16, 205, 173, 164, 33, 16	5, 124	40, 65, 83, 67, 73, 73, 41, 85, 78, 65,
8, 165, 1, 18, 0, 9, 126, 230, 15, 198,	280 DATA 205, 205, 164, 125, 205, 205, 1	77, 69, 68, 32, 70, 73, 76, 69, 32, 32,
36, 245, 205, 90, 187, 241, 254, 36, 32	64, 201, 205, 221, 164, 58, 167, 165, 20	32, 32, 32, 32, 40, 80, 82, 79, 84, 69,
, 14	5, 90, 187, 58, 166, 165, 205, 90, 187	67, 84, 69, 68, 32, 66, 65, 83, 73, 67,
250 DATA 221, 33, 108, 165, 6, 7, 33, 3,	, 201, 245, 230, 240, 203, 63, 203, 63,	41, 0
19, 205, 173, 164, 24, 48, 254, 38, 32,	203, 63, 203, 63, 205, 248, 164, 50, 167	320 DATA 0, 0, 0, 0, 0, 83, 46, 84, 46,
14, 221, 33, 115, 165, 6, 8, 33, 3, 19,	, 165, 241, 230, 15, 205, 248, 164, 50,	71, 32, 32, 32, 49, 50, 46, 56, 46, 56,
205, 173, 164, 24, 30, 254, 42, 32, 14,	165, 165	54, 22, 8, 33, 0, 192, 1, 64, 0, 203, 6
221, 33, 123, 165, 6, 7, 33, 3, 19, 205	290 DATA 201, 254, 10, 56, 3, 198, 55, 2	2, 35, 16, 251, 13, 32, 248, 21, 32, 239
, 173, 164, 24, 12, 221, 33, 147, 165, 6	01, 198, 48, 201, 205, 110, 188, 201, 20	, 201
, 17, 33	5, 113, 188, 201, 33, 110, 0, 62, 15, 20	

## Memory Recall

by Endaff Bowen

The following menu driven program provides a way of examining the contents of memory, altering them and then rewriting to memory or microdrive. The left and right arrow keys move backwards and forwards in memory whilst *Enter* saves the contents in memory.

```

180 editor:REMark <<<< call MEMORY EDITOR .
190 :
200 DEFine PROCedure editor
210 FIRST_LOCATION=213500
220 LOCATION=FIRST_LOCATION
230 :
240 Start_Ad=0:END_AD=0
250 WIDE 0:set_windows:UPDATE
260 CSIZE #9,3,0:PRINT #9,TO 4:"MEMORY RECALL V : 3.00 "
270 PRINT #9,TO 5:"(C) 1986 ENDAFF BOWEN"
280 PRINT #4," LEFT << ARROW " " KEY MOVES BACK " " IN MEMORY."
290 PRINT #4," RIGHT >> ARROW " " KEY MOVES " " FORWARD IN " " MEMORY."
300 PRINT #4," S > " " QUILTS PROGRAM"
310 PRINT #5," S > " "START ADDRESS " "OF PROGRAM"
320 PRINT #5," E > " "END ADDRESS " "OF PROGRAM"
330 PRINT #5," < ENTER > " " KEY SAVES " " CONTENTS IN " " MEMORY"
340 PRINT #5," (start & end address must be fixed first)"
350 :
360 REPEAT LOOP
370 :
380 IF KEYPW(3)≠0
390 Start_Ad=LOCATION
400 UPDATE
410 END IF
420 :

```

```

430 IF KEYROW(6)&&16
440 END AD=LOCATION
450 UPDATE
460 END IF
470 :
480 IF KEYROW(6)&&8
490 CSIZE #0,0,0
500 EXIT LOOP
510 END IF
520 :
530 KEYBOARD=KEYROW (1)
540 SELECT ON KEYBOARD
550 =1:recall_mem:PRINT #0,"QUIT ....":STOP
560 =16:LOCATION=LOCATION+1:CURS:UPDATE
570 =2 :LOCATION=LOCATION-1:CLS #3:CURS:UPDATE
580 END SELECT
590 IF LOCATION<=FIRST_LOCATION:LOCATION=FIRST_LOCATION
600 IF LOCATION>=PEEK_L(163856):LOCATION=PEEK_L(163856)
610 END IF :END IF
620 END REPeat LOOP
630 END DEFIne
640 :
650 REMark **** update notices ****
660 :
670 DEFIne PROCedure CURS
680 PRINT #3,CHR$(PEEK(LOCATION)):
690 END DEFIne
700 :
710 DEFIne PROCedure UPDATE
720 CSIZE #0,2,1
730 AT #0,0,3:PRINT #0,"start ad":Start_ad
740 AT #0,0,24:PRINT #0,"end ad":END_AD
750 AT #0,1,10:PRINT #3,"ADDRESS=":LOCATION:" "
760 END DEFIne UPDATE
770 :
780 DEFIne PROCedure recall_mem
790 CLS #3:CLS#0
800 PRINT #3,\\
810 INPUT #3,"NAME OF PROGRAM (including device): ";\NAME#
820 PRINT #3,\\Saving Program In Address :
830 PRINT #3,\\Start_Ad:" To ";END_AD:" To device ";\NAME#
840 PRINT #3,\\IS THIS OK Y/N "
850 :
860 key#=-INKEY#(-1)
870 IF key#="" OR key#="N"
880 PRINT #3," 1) Return to EDITOR "
890 PRINT #3," 2) Enter file name again "
900 INPUT #3,"Choose ( 1 or 2 ) ??? >>":choice#
910 IF choice#="1"
920 editor
930 END IF
940 IF choice#="2"
950 recall_mem
960 END IF :END IF
970 :
980 IF key#="Y" OR key#="y"
990 OPEN_NEW #10,\NAME#
1000 :
1010 FOR address=Start_Ad TO END_AD
1020 PRINT #10,CHR$(PEEK(address)):
1030 PRINT #3,CHR$(PEEK(address)):
1040 END FOR address

```

```

1050 :
1060 CLOSE #10
1070 END IF
1080 END DEFine
1090 :
1100 DEFine PROCedure set_windows
1110 OPEN #6,con_512x200a0x0
1120 WINDOW #0,512,256,0,0:PAPER #0,0:CLS#0
1130 OPEN #4,con_100x150a20x40
1140 OPEN #5,con_100x150a40x40
1150 OPEN #7,con_100x100a205x78
1160 OPEN #9,con_470x30a25x7
1170 PAPER #6,4:CLS #6:BORDER #6,2,2
1180 :
1190 BLOCK #6,100,150,10,45,0
1200 BLOCK #6,250,150,130,45,0
1210 BLOCK #6,100,150,390,45,0
1220 BLOCK #6,470,30,15,10,0
1230 BLOCK #0,480,43,5,211,4,0
1240 :
1250 WINDOW #0,480,43,12,205
1260 PAPER #0,4:BORDER #0,1,7:INK #0,2:CLS #0
1270 FOR win=1 TO 3
1280 OPEN #win,con_250x150a140x40
1290 PAPER #win,7:CLS #win:BORDER #win,1,2:INK #win,0
1300 NEXT win
1310 PAPER #4,7:CLS #4:BORDER #4,1,2:INK #4,0
1320 PAPER #5,7:CLS #5:BORDER #5,1,2:INK #5,0
1330 PAPER #9,7:CLS #9:BORDER #9,1,2:INK #9,0
1340 END DEFine
    
```

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## Block Delete

by Graham Young

This Spectrum program can be used to delete blocks of lines from programs. Just enter the following line and save it. Then, when you want to use it, merge it with the target program.

To delete a block mark it out by placing *Data 0* at the start and finish of the block. Then, type *Goto 9999* and enter the line numbers of the two *Data* statements. Now delete the first *Data 0* statement and the rest of the block will be deleted with it.

```
9999 INPUT X2,X1: RESTORE X1: READ X1: L
ET X1=PEEK 23639+256*PEEK 23640+1: RESTO
RE X2: READ X2: LET X2=PEEK 23639+256*PE
EK 23640-8: LET X3=X1-X2: POKE X2-2,X3-I
NT (X3/256)*256: POKE X2-1,INT (X3/256)
```

## Double Height

by R Doughty

This program for the Spectrum will create double height text. The routine takes approximately 30 seconds to create the two character sets (which can be saved with *Save "Dbl" Code 63232,1536*) necessary.

Lines 70 to 90 demonstrate how to use the routine. The variable *A\$* contains the text, *r* is the line number and *c* is the column where the text is to be printed.

```
10 FOR b=0 TO 767 STEP 8
20 FOR y=0 TO 7
30 POKE (63232+b+y),PEEK (15616+b+INT
(y/2))
40 POKE (64000+b+y),PEEK (15616+b+INT
(y/2)+4)
50 NEXT y: NEXT b: STOP
70 CLS: LET a$="MONSTERS": LET r=5: G
O SUB 140
80 LET a$="OF": LET r=8: GO SUB 140
90 LET a$="ARCTURUS": LET r=11: GO SUB
140: STOP
140 LET c=INT ((32-LEN a$)/2)
150 FOR h=0 TO 1
160 POKE 23607,246+3*h
170 PRINT AT r+h,c:a$
180 POKE 23607,60
190 NEXT h: RETURN
```

## TV Test Pattern

by John Yobec

The following Spectrum program will enable you to discern whether your TV set is functioning correctly.

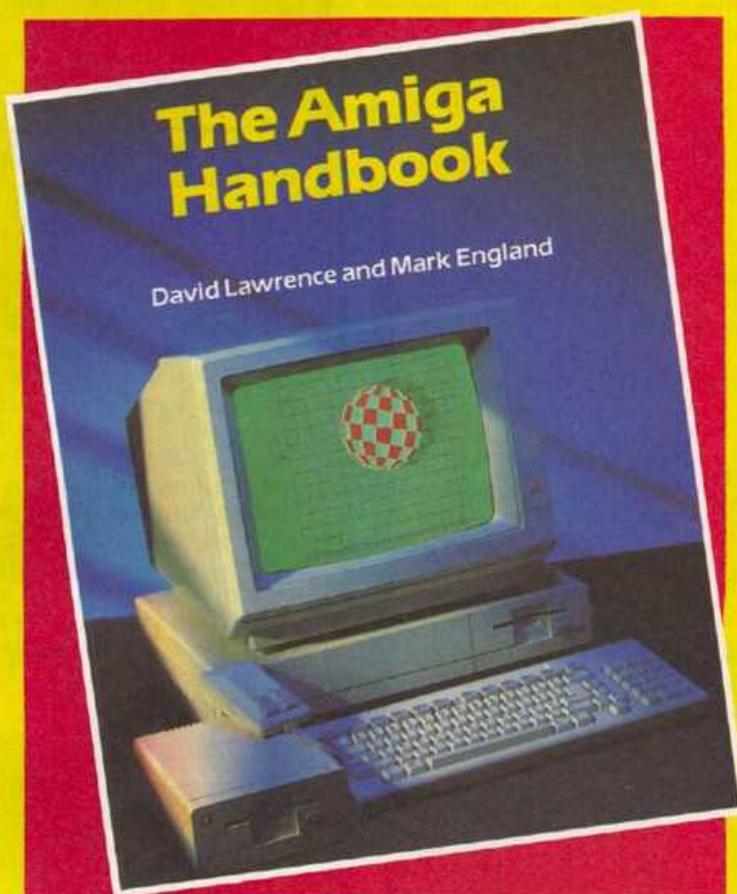
On running the program a colour bar containing six colours will be displayed. They are, in order, yellow, cyan, green, magenta, red and blue. If any of the colours are incorrect then your set is in need of repair or adjustment.

Now, press any key and then a circle and cross hatch display will appear. The lines of this pattern should be sharp. If not then adjust the focus.

If the lines are not black then your convergence needs adjustment. If the circle is egg shaped then linearity needs adjusting.

```
10 BRIGHT 1
20 FOR n=1 TO 22
30 FOR c=7 TO 0 STEP -1
40 PAPER c: PRINT " ";
50 NEXT c:NEXT n
60 BRIGHT 0: PAPER 7
70 IF INKEY$="" THEN GO TO 70
80 CLS
90 FOR y=0 TO 175 STEP 16
100 PLOT 0,y
110 DRAW 255,0
120 NEXT y
130 FOR x=0 TO 255 STEP 16
140 PLOT x,0
150 DRAW 0,175
160 NEXT x
170 PLOT 255,175: DRAW 0,-175
180 PLOT 0,175: DRAW 255,0
190 CIRCLE 127,88,84
200 IF INKEY$="" THEN GO TO 200
210 GO TO 10
```

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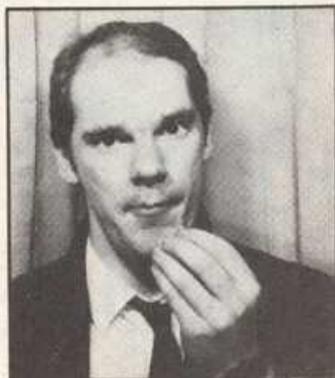
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Name (capitals please) \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



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## Bored with games

*A Harvey of Wellingborough, Northamptonshire, writes:*

**Q** I recently bought a Commodore 64 and after getting bored with playing games, decided to try my hand at programming in Basic. All went well until I came across the commands AND, OR and NOT. What do these do and why do they not always appear to work correctly?

**A** The logical operations AND, OR and NOT can be used in two ways. The most obvious is for dealing with situations where things are true or false. The other use is for bit orientated operations, perhaps the most useful in the long run.

On the Commodore, any non-zero value between -32768 and 32767 is regarded as being true, zero being false as the following program shows.

```
10 A=1
20 IF A THEN PRINT "A IS TRUE"
30 A=0
40 IF A THEN PRINT "A IS STILL TRUE"
```

If you had a program that took in a set of responses to questions, either true or false (One or zero), the AND operator could be used to test them e.g.

```
IF A AND B AND C AND D THEN "ALL ANSWERS ARE TRUE"
```

The problem comes when you want to test if some are true and some are false. Here it is best to use -1 as true since NOT -1 is 0 and NOT 0 is -1. As I will explain in a mo, this is due to the bitwise

operation of the logical operators and the way in which integers are stored. Unfortunately, for logic in IF statements, it is not always possible to use the AND and OR operators on any old values, you must make sure that you stick to one value for true i.e. -1 and 0 for false otherwise, things will go awry.

The whole thing becomes more obvious when the bitwise logical operations are used. The computer stores numbers in 16 bit binary form (-32768 to 32767, the most significant bit being used to denote plus or minus), these bits can be one or zero. Taking the logical operations on two bits, they are:

Considering all possible values of bit 1 and bit 2.

	bit1	bit2	bit1 AND bit2	bit1 OR bit2
bit1	bit2	bit2	bit2	bit2
0	0	0	0	0
0	1	0	0	1
1	0	0	0	1
1	1	1	1	1

These are known as truth tables and show the results of all possible inputs to the functions AND and OR.

## Fun with the 6502

*B Devlin of Norwich, Norfolk, writes:*

**Q** I have been playing around with the 6502, for fun more than anything else. One part of the processor I don't understand are the interrupts and how they work. Could you explain what IRQ and NMI are?

**A** The 6502 microprocessor has a number of interrupt possibilities, the main ones are IRQ (interrupt request) and NMI (non-maskable interrupt). Reset is also an interrupt but is used for power up purposes only i.e. it causes the microprocessor to jump to its first instruction. On the 6502 chip itself, there are pins available for the IRQ, NMI, and RST inputs. These are all active low which means that, ordinarily, they are held at 5 volts; but an external piece of hardware is used to pull them down to 0

volts informing the processor that an interrupt has occurred.

Once the 6502 has been notified of an interrupt, it drops what it is doing and jumps to the specified interrupt service routine. The addresses of these routines are kept at the top of memory from FFFA to FFFF (hex). The first is the NMI address kept in two bytes in locations FFFA (low 8 bits) and FFFB (high 8 bits). Following this is the reset address in FFFC and FFFD (again low high respectively) and finally the IRQ address in FFFE and FFFF. Before going to the service routine, the 6502 stores the processor status, and the value of the program counter on the stack. These can then be accessed by the RTI (return from interrupt) instruction to continue the program where it left off. The NMI interrupt cannot be stopped if the NMI pin is pulled low (obviously this is why it is called non-maskable). On the other hand, the status register contains a mask bit for the IRQ interrupt which, if set denies the processor access to the interrupt service routine. If this is cleared (using the CLI instruction), the processor will save its current position and jump to the routine whose address is given in locations FFFE and FFFF. At this point, the processor also sets the mask bit in the status register to disable any other IRQs that might come along. The mask bit can also be controlled from the program with the SEI and CLI instructions to set and clear the bit respectively.

The reset line can also be used as an interrupt although most systems won't allow this since the signal also goes to the reset pins of all the external circuitry. The 6502 also has a hangover from the 6800 processor called the software interrupt. This instruction (BRK) causes the processor to think an IRQ has occurred although BRK is not disabled by the IRQ mask bit. The vector (address where the address of the interrupt routine is held) is the same as that for IRQ (FFFE and FFFF) and the IRQ mask bit is set by the processor when a BRK occurs. The break flag in the status register is also set so that the program can tell

whether the interrupt was caused by IRQ or BRK.

NMI, IRQ and BRK interrupt service routines are all terminated with the RTI instruction which causes the processor to retrieve the status register and the program counter from the stack to continue execution where it left off.

## Forth From Basic

*L Burbridge of Hinkley, Leicestershire, writes:*

**Q** I have been programming in Basic now for two years and have decided that it is time I branched out to another language, I would like to get a Forth for my micro but am put off by the use of Reverse Polish Notation. Could you explain the difference between this type of arithmetic and the normal kind I was taught in school?

**A** Reverse Polish Notation (RPN) is used in Forth because of the language's almost total dependence on the LIFO (Last In First Out) stack. Normal arithmetic puts its operators (+, -, x, /) in between the numbers to be operated on i.e. it is infix. RPN, on the other hand is post fix which means the operators come after the numbers. For example:

2+3 would be 23+ in RPN  
2+3x10 could be 23+ 10x or 23 10+x in RPN

The latter example shows that RPN is a lot more specific without the need to resort to brackets or set forms.

In Forth, things must be placed onto the stack before they can be operated on. The sum 23+10x is entered as exactly that in Forth. Entering 2 and 3 puts them on the stack [from the bottom the stack is 23] entering + leaves 5 on the top of the stack (with nothing underneath). The 10 then leaves the stack with 510 on it. The x multiplies these two together leaving 50 on the top. The LIFO stack is therefore ideally suited to RPN and once you get the hang of it, it makes a lot of sense.

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## Listen to your radio

*David Wallin introduces radio communications, an alternative to modems*

**A**s I said a few weeks back, I'll be doing quite a bit on the use of radios for micro users to communicate with each other. The advantage of communicating via radio is the loss of high quarterly phone bills, the disadvantages are the loss of range and to a certain extent the cost of equipment.

This week we'll introduce the use of radio for communication, mainly dealing with receiving only. Why? Because to transmit you need a licence, which costs money and requires you to take an exam. Lots of stuff about transmitting will be pretty boring to a person with no licence and who therefore can't transmit or make use of the information.

This article should tell you where you can get more information, explain a few things, and for the most enthusiastic of you, tell you what equipment will be needed for listening so that you can get started.

### The Radio Amateur Exam

As I said above, to transmit on the air waves you must first take, and pass, the radio amateur exam. The RSGB (Radio Society of Great Britain) supplies a comprehensive booklet telling you what's in the syllabus, conditions, costs, etc. This booklet is free on request to the RSGB, whose address is at the bottom of the page.

### Required Equipment

Here's the part for those of you who wish to get started right away. Information about the required equipment. There are three main pieces of equipment required to use your micro to *listen* in on the airwaves. These are a communications receiver, an antenna, an interface (and or software).

*Communications Receiver* is the technical name given to a good quality short wave (high frequency) radio receiver. Second hand they cost about £80-£120, brand new they cost from £150 upwards. A 'normal' radio with SW reception can be used, though it is not really suitable as SSB and CW modes are required as well as AM. A good receiver (£100 upwards 2nd hand, from £250 new) should have a minimum specification of:  
500kHz-30MHz coverage,  
more than 100Hz resolution, and

AM, USB, LSB and CW (morse) anodes.

A variable bandwidth is an advantage, but an expensive one and is by no means vital. To get started cheaply, one of the radios with nine or 10 SW bands would suffice, though they are normal radios, not communications receivers.

A good antenna is vital for SW reception. A number of different antennae, including small satellite reception antennae, are advertised in amateur radio magazines. An active dipole is a popular SW amateur antenna and generally they are not too expensive and can even be home made. An active dipole is a good 'starter' antenna.

A serious radio enthusiast will have many antennae ranging from specialised antenna for satellite reception (super high frequency) to a general coverage antenna, such as an active dipole. Warning: an antenna should be kept well away from the computer as the CPU has a habit of causing bad interference.

There are a number of interfaces or terminal units on the market. These range from a £50 Maplin Electronics' RTTY kit to the highly expensive multi-mode TV's with everything from RTTY to Packet.

The Maplin Kit is a good TV and ideal for the beginner. It is not too expensive and offers good facilities for the price. It works with all RS 232 compatible micros. Another TV, for the C64, called the Pakratt PK-64, is available which offers; Morse, Baudot RTTY, Ascii RTTY, Amtor and Packet. This costs about £250 though, but does include software.

A good place to look for an interface or software is again in amateur radio magazines. Some micros will require special RTTY software and others will be able to use their normal telephone communications software.

There are packages available for the BBC, Spectrum and C64 which use the cassette port to take an input direct from the headphone socket on the receiver, by-passing the need for an interface. This makes reception a lot cheaper.

The total cost of equipment, for the beginner, could be from about £35 (only software, no TV or proper communications receiver) to about £200 (Second hand receiver, TV and software).

More to come on radio communications next week.

#### The most commonly used abbreviations in radio communications:

- AM - Amplitude Modulated
- AMRAC - AMateur Radio and Computer (club)
- AMTOR - AMateur Telex Over Radio
- BARTG - British Amateur Radio Teleprinter Group
- CW - Morse
- FM - Frequency Modulated
- FSK - Frequency Shift Key
- LSB - Lower Side Band
- RAMTOP - Radio Amateur Microcomputer Techniques, Operations and Programs (society)
- RIF - Radio Interference Filter
- RFI - Radio Interference
- RSGB - Radio Society of Great Britain
- RTTY - Radio TeleTYpe
- SSB - Single Side Band
- SSTV - Slow Scan TeleVision
- TV - Terminal Unit
- USB - Upper Side Band

#### frequencies:

- SHF - Super High Frequency (30GHz-3GHz)
- UHF - Ultra High Frequency (3GHz-300MHz)
- VHF - Very High Frequency (300MHz-30MHz)
- HF - High Frequency (30MHz-3MHz)
- MF - Medium Frequency (3MHz-300kHz)
- LF - Low Frequency (300kHz-30kHz)
- VLF - Very Low Frequency (30kHz-3kHz)

# Tape reviews and PCW's musical news

*Mark Jenkins brings you musical news from the all-encompassing PCW show*

**N**o shortage of music products for a wide range of machines at the Personal Computer World Show. Ranging from a £29.95 complete music system for the Spectrum to pro quality software and hardware for the Atari ST, the latest products proved that music and micros go together right across the market.

Perhaps most impressive for sheer power and economy was the RAM Music Machine for the Spectrum. Designed by Sinclair offshoots Flare Technology, the Music Machine crams an incredible amount in one small plug-in package. It features an eight-voice digitally-sampled drum machine, which can be played directly from the keyboard or programmed (up to three voices can play at once) to create rhythm patterns which can be chained into 255-pattern songs. There's a "piano" function which allows you to play instrument sounds from the keys or from a Midi keyboard; a bar editor to create and edit tunes; a tune editor to form songs from recorded patterns; a sampler with editing features, waveform display, zoom feature, multi-sampling and effects such as digital delay; and full Midi out control over synths via the In, Out and Through sockets. You can play pre-set sample sounds off your Midi keyboard, or replace them with your own samples.

The software is menu-driven and seems clear and easy to use, and the pack comes equipped with the microphone you'll need for sampling, and a demo tape. Cost? Not £200, not £100, but £49.95. We'll publish a full review as soon as possible. An Amstrad version is on the way too.

Just along the balcony was the Cheetah Marketing Stand, showing the long-promised Midi interface and sound sampler for the Spectrum. If you bought the Cheetah SpecDrum, Midi Interface and Sound Sampler you would have spent almost £130. Does the Ram Music Machine outperform the lot at £49.95? We'll be able to tell you when we get all four products to review!

Further up-market, Hybrid Arts showed some impressive Midi software for the Atari ST in the Atari Village. EZ-

Track ST is a 20-track real-time Midi recorder with extensive editing facilities which should enable you to produce a note-perfect performance. DX-Droid and CZ-Droid are software sound library packages for the Yamaha and Casio synths, which include "intelligent" sound creation routines which enable you to create new sounds more easily. On the hardware side, ADAP is a "sound workstation", basically a sampler with extensive editing facilities. 16-bit sampling at 44.1KHz gives a 20 second sample. At 10KHz you can have an astounding 80 second monophonic sample. The ADAP is fully Midi compati-



ble, allows stereo panning, 64-way multi-sampling, delay, reverb, oscilloscope displays, on-screen sample editing featuring cut and paste, auto-looping, full compatibility with the new Midi sample information standard, and lots more. Threatening to outperform multi-thousand pound studio gear like Bel and Rebis devices, the ADAP is standard 19-inch studio rack-mounting and costs \$1995. Prices and distribution for the Hybrid Arts products in the UK have not yet been fixed.

Some interesting bits and bobs in the post sack. Paul Wood of Wooden Software, Worcester, is working on Midi hardware and software for the Memotech machine. The prototype board is apparently up and working, and the software, designed specifically for the Casio and Roland synths (although presumably it will work with all Midi gear) is under development. Paul would welcome enquiries from Memotech owners, or anyone else with specific Midi instru-



ments in mind, on 0905-24260 (after 6.00 pm) or at Wooden Software, 12 Bishops Avenue, Worcester WR3 8XA.

Lastly, an excellent audio tape from Andrew Wilson of Edinburgh. Andrew's system proves that Midi and computer control allow you to dispense with expensive eight- or sixteen-track recorders. Unfortunately, Andrew seems to have spent a fortune on synths instead, with a Mirage sampler, Yamaha DX7, TX7, Oscar monosynth, Sequential Six-Trak, and the awesome Elka Synthex appearing on the tape together with Yamaha RX15 drums. All the music is sequenced live using a BBC B with the UMI soft/hardware package. This powerful (though, in some people's opinion, overpriced) package allows very sophisticated real-time and step-time compositions to be built up. Andrew's pieces showcase the power of the sequences, as well as the abilities of the instruments, in a series of pieces which are recorded directly to the master stereo tape. This results in excellent recording quality and complete control over the music and sounds using the UMI's editing features. One problem in recording in this way is that unless you have a big mixer with a lot of effects sends, the plenty of reverb and echo units, the overall ambience of each piece is difficult to vary. Most of Andrew's pieces, which are fairly light, up-tempo instrumentals sounding very much like advertising jingles (and that's meant as a compliment!) are awash with the same sort of reverb setting for each instrument - but with the introduction of more and more Midi-controlled effects units, such as the economical Alessis Midiverb, even this aspect of recording should be under Midi control from your computer soon. If anyone would like to hear a copy of Andrew's excellent tape, send an sae to this column and we'll forward it to Andrew.

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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- 4) BASIC - Personal Basic by DR (with manual)
- 5) LOGO - Logo language by DR (with manual)
- 6) DOODLE - Simple paint/doodle drawing package (works on mono or colour systems)
- 7) MEGARIDS - Asteroids type game by Megamax
- 8) NEOCHROME - A powerful colour paint and graphics package (only useable with colour systems)
- 9) CP/M EMULATOR - Allows the use of DR's Z80 C/P/M software to run on any ST system

### 3rd PARTY SUPPORT

The power and potential of the ST range of computers is causing a flood of new software titles, peripherals and accessories from third party manufacturers. Titles range from word processing to spreadsheet programs, from graphics and games to database management - all with those easy drop-down menus and windows. With the list of companies producing ST software including dozens of top names, you can expect some first class titles for the new ST range. The following includes a selection of the third party manufacturers who have developed, or are working on, products for the ST range.

AMACUS	EXTENDED SW	MICRO-ED INC	ROBINSON SYS
ACADEMY	FIDELITY	MICROPRO	SCARBOROUGH
ACCOLADE	FIRST BYTE	MICROPRO ENG	SIERRA ON LINE
ACTIONSOFT	FIRST PUBLISH	MICROPRO INC	SM SOFTWARE
ACTIVISION	FLIP N' FILE	MIRAGE	SOFTK
ADVENTURE INT	GLENTOF PING	MIRAGE	SOFTLABS
ANTIC	GST SYSTEMS	MIRAGE	SOFTLOGIC
AMERICAN COVERS	HABA	MIRAGE	SOFTWARE COMS
ARTWORKS	HAYDEN	MIRAGE	SECS
ASHFORD TATE	HIPPO	MIRAGE	SOFTWARE PUNCH
ATI	HISPT	MIRAGE	SOFTWARE
AUDIO LIGHT	INFOCOM	MIRAGE	SORCINERUS
AZTEC	INSIGHT	MIRAGE	SPINNAKER
BATTERIES INC	INSOFT	MIRAGE	ST SYSTEMS
BAYVIEW	ISLAND LOGIC	MIRAGE	STONEWARE
BEDREMEYER	KNOWLEDWARE	MIRAGE	SUBLOGIC
BETTER WORKING	KUMA	MIRAGE	SURDATA SERVICES
BILLIE CNP	LASERSOFT	MIRAGE	SUNSHINE BOOKS
BOB	LEHNER	MIRAGE	SUPPLEMENTAL
CASHLINK	LEVELS	MIRAGE	SYSTEMATICS
CHANG LABS	LIONHEART	MIRAGE	TALENT
CHELITEK SYST	LLAMASOFT	MIRAGE	TEI
CHIPSOFT	LONGMINSTER	MIRAGE	TELARUM
COMPUTE!	MAINTHINK CORP	MIRAGE	THE COMPUTER PRO
CROSSBOW MUSIC	MAP COMPUTERS	MIRAGE	TOP EXPRESS
DATABASE	MARK OF UNCOMMON	MIRAGE	TOWNGATE
DATACODE SYS	MARK WILLIAMS	MIRAGE	TYNESOFT
DATA SYSTEMS	MARTIN CONSU	MIRAGE	UNISON
DELTRON	MICROW HILL	MIRAGE	VIP
DILITHUM PRESS	MEGAMAX	MIRAGE	WAGON MICROCHIP
DRAGON GROUP	MEMOREX	MIRAGE	WHITENDALE
DUPOSE PUBLISH	METACOMCO	MIRAGE	WINDHAM CLASSICS
ELECTRONIC ARTS	MICROTRON	MIRAGE	WORD IF GOD COM
EXECON	MICROCEAL	MIRAGE	XLENT

### 520ST-M

**NEW 512K 520ST-M KEYBOARD:** The new 520ST-M keyboard costs only £346.99 (+VAT=£399) and is yet another price breakthrough for Atari Corporation. The keyboard now includes both an RF modulator and cable, allowing you to connect it to an ordinary domestic television set. In addition, the keyboard is supplied with 512K RAM, a mouse and a free set of 3 1/2" disks containing applications software. The TOS operating system and the GEM graphics package are now supplied on 102K-ROM chips which are already installed in the keyboard. This means that the operating system will automatically boot in when you switch the power on. In addition to the keyboard, you will also need to purchase either a 1Mbyte disk drive (RRP £130+VAT) or a 1Mbyte disk drive (RRP £174+VAT). Either disk drive will provide you with fast information retrieval and a vast amount of storage space. If you prefer not to use your own TV set, you may connect your ST to a monitor. You may purchase the Atari 5M124 monochrome monitor (RRP £120+VAT), or one of Atari's two Thomson colour monitors. Alternatively, you may choose one of the many third party colour monitors which are available.

**NEW 1024K 520ST-M+ KEYBOARD:** In addition to the standard 520ST-M, we have a new keyboard which we are calling the Atari 520ST-M+. The M+ is a 520ST-M keyboard which has been enhanced by a third party RAM upgrade to 1 megabyte of memory. The 520ST-M+ is available from Silica at a retail price of only £433.91 (+VAT=£499). This product will provide you with an alternative to the 1040ST-F, but at a lower price. Additionally, it features the advantage of the 520ST-M's built in modulator.

### 1040ST-F

For the businessman and the more serious home user, Atari have introduced the 1040ST-F, a low cost powerhouse which can be introduced to a business environment as a stand-alone system, or can support a mainframe computer as a terminal. The new one megabyte 1040ST-F enhances Atari's value for money reputation in the marketplace as it is the first personal computer available with one megabyte of memory for less than £900. You can purchase the 1040ST-F as a monochrome or colour system. The price of the monochrome system is £799 (+VAT = £918.85), with the colour system at only £999 (+VAT = £1148.85). The 1040ST-F not only features twice as much memory as the 520ST-M, but also includes a one megabyte double sided disk drive and mains transformer, both built into the console to give a compact and stylish unit with only one mains lead. The 1040ST-F is also supplied with a free software package. Unlike the 520ST-M, the 1040ST-F was manufactured solely with business use in mind and as such is supplied with a monitor. It does not include the RF modulator or lead. We now have stock of the 1040ST-F at all four branches of Silica Shop. Call into your nearest branch for a demonstration.

**1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX  
117 Orpington High Street, Orpington, Kent, BR6 0LG  
Lion House (1st floor), 227 Tottenham Court Rd, London, W1  
Selfridges (1st floor), Oxford Street, London, W1A 1AB**

# £799

### THE ATARI EXPLOSION!

If you read the specialist computer press, you will have noticed that there is one company which is getting a large slice of editorial space at the moment, that company is Atari Corporation. Atari have been making the news since the launch of their new 16/32 bit range of ST computers. Led by the powerful figure of Jack Tramiel and under the banner 'Power Without The Price', Atari are manufacturing new computers at unheard of prices, with the power to challenge firmly established market leaders. With the introduction of IBM compatibility, a CP/M emulator, a powerful networking system and a communications package for their new low cost powerhouses, it doesn't look as if it will be long before there is an explosion of the magnitude which will see Atari placed firmly besides such names as IBM and Olivetti in the personal computer marketplace. Read on for more details of what Atari are doing, and how they are putting their 'Power Without The Price' computers beyond the reach of the competition.

### FREE CP/M EMULATOR

This newly announced CP/M Emulation Package, will enable software written under Digital Research's Z80 CP/M operating system to be run on the ST family of computers. There are several thousand applications written for CP/M in the UK alone, and several of the major CP/M software development houses may convert their programs to 3 1/2" disk format for the ST range. The CP/M emulation package is supplied FREE OF CHARGE by Silica Shop with all ST computers.

### IBM COMPATIBILITY

To make the ST available to those businesses who currently run IBM systems and are looking for a low cost expansion method, Atari have announced a co-processing unit for ST computers. This processor will open the ST range to all IBM or IBM compatible software applications. The unit, which attaches to the ST computers via the DMA (Direct Memory Access) port, contains an Intel 8088 processor with 512K of RAM and will accept a 5 1/4" disk drive. In its ST mode, the unit will also act as a second disk drive, offering the user an additional 500K of memory. The IBM co-processing unit should be available in late Summer 1986. If you would like to be informed when it is released, please complete and return the coupon below. We will send you further details as soon as we have them.

### 20Mbyte HARD DISK

£739

The new Atari hard disk for the ST range has just been released. All ST computers already have a hard disk interface built into them so there is no external interface required. The memory size of the disk is a massive 20 megabytes (unformatted) with a data transfer rate of 1.33 Mbytes per second. At a price of £739 (+VAT=£849), the 5 1/4" hard disk offers massive storage with fast access at a very reasonable price.

### NEW ST SOFTWARE PACKAGES

There are now hundreds of software packages which have been announced for the Atari ST range. Titles available now include DB Man, a DBase 3 clone as well as H3 D Base, a DBase 2 clone. In addition, PG Intercomm is a VT100 emulator which enables you to use any ST keyboard as a terminal connected to a mainframe or mini. Other programs include a Lotus 1-2-3 clone (see paragraph below).

### VIP PROFESSIONAL - LOTUS 1-2-3" CLONE

This is probably the most impressive program to have been released so far for the ST range. VIP Professional is an extremely easy to use, integrated spreadsheet, database and graphics program which is identical both in features and commands to Lotus 1-2-3". The same spreadsheet analysis, information management and extraordinary business graphics are all combined in one easy to learn, affordable package. What's more, VIP Professional not only has all the features of 1-2-3", you can also type the same commands to do the same things. Probably the most surprising feature of VIP Professional is not its total compatibility with Lotus 1-2-3", nor its ease of use, but its price. Lotus 1-2-3" for the IBM PC/AT costs £395 (+VAT=£454.25), whereas VIP Professional for the ST is a mere £169 (+VAT=£194.35). That's less than half the price! If you would like further details, of VIP Professional, please return the coupon below.

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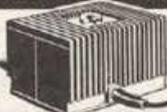
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Pick of the week

John Cook looks through this week's new arrivals

## Amiga

**Program** *The Pawn* **Type** Adventure **Micro** Amiga **Price** £24.95 **Supplier** Rainbird Software, 64-67 New Oxford Street, London WC1.

## Amstrad CPC

**Program** *The OCP Art Studio* **Type** Utility **Micro** Amstrad 6128 **Price** £19.95 **Supplier** Rainbird Software, 74-76 New Oxford Street, London WC1.

**Program** *Miami Dice* **Type** Arcade **Micro** Amstrad CPC **Price** £2.99 **Supplier** Bug-Byte, Victory House, Leicester Place, London WC2.

**Program** *Frost Byte* **Type** Arcade Adventure **Micro** Amstrad CPC **Price** £9.95 **Supplier** Mikro-Gen, Unit 15, Western Centre, Bracknell, Berks.

Did you ever have one of those Slinky spring things that you could make walk downstairs by themselves? More interestingly, has anyone ever found another use for the little bleeders? Mikro-Gen has - by making one the star of its latest Amstrad opus, *Frost Byte*.



In this scenario, it seems that Keezers (Slinky's to you) are being captured all over the frozen world of Cosmia, and it is up to you (playing the only Keezer to break free) to liberate your Keezer brethren from the goulsh monsters that are your captors.

This involves collecting different types of ammunition... and eating different

types of sweets. Teenage hero Ricky Steel he isn't, and although it's nothing out of the ordinary, the chances are you'll quite enjoy flopping around the colourful and nicely animated screens of this one.

Especially if you recently bought yourself a Slinky.

## Atari

**Program** *Jewels of Darkness* **Type** Adventure **Micro** Atari 800/130 **Price** £14.95 **Supplier** Rainbird Software, 64-67 New Oxford Street, London WC1.

**Program** *Leaper* **Type** Arcade **Micro** Atari XL/XE **Price** £2.99 **Supplier** Bug-Byte, Victory House, Leicester Place, London WC2.

## BBC/Electron

**Program** *The Last of the Free* **Type** Arcade Adventure **Micro** BBC/Electron **Price** £7.95 **Supplier** Audiogenic, PO Box 88, Reading, Berkshire RG7 4AA.

**Program** *Psycastris* **Type** Arcade **Micro** BBC/Electron **Price** £7.95 (tape) £11.95 (disc) **Supplier** Audiogenic, PO Box 88, Reading, Berkshire RG7 4AA.

**Program** *Galaforce* **Type** Arcade **Micro** BBC/Electron **Price** £9.95 (tape) £11.95 (disc) **Supplier** Superior Software, Regent House, Skinner Lane, Leeds LS7 1AX.

There are some games that deserve great praise for being original. *Galaforce* is not one of these. However, it is worth going gaga over because it draws from several very old shoot-em-up concepts, almost every classic from *Galaxian* upwards in fact, and presents it so well that you can't help but sit back and applaud.

Alternatively, you can crouch forward in frustration at not being able to get past the eighth screen and bang your fists up and down on the

# Tomahawk!

**Program** *Tomahawk* **Type** Simulation **Micro** Amstrad PCW **Price** £19.95 **Supplier** Digital Intergration, Watchmoor Trade Centre, Watchmoor Road, Camberley, Surrey GU15 3AJ.



This is the stuff - this is what the kids want - this is what the accountants want more to the point. As if it needed making even more emphatically, what we have here is a flight simulator on the PCW. You know, the word processor that nice Mr Sugar started selling late last year.

*Tomahawk* is a direct conversion of the program that was so successful on Spectrum, Amstrad CPC, Atari and Commodore 64. And it might

be green, but it's great. Being from Digital Integration, simulation supremos, it is not easy to play. Helicopters aren't supposed to be easy you know.

To start off with, try reading the detailed résumé on aeronautics in general and the Hughes Apache Advanced Attack Helicopter in particular. Learn all about thrust and drag, translational lift and ground cushions. Then read the instruction, then take off... then crash spectacularly into the ground.

There's always a logical explanation for this, of course. A message comes up - my favourite was "Sink rate to high". Sink rate? Still, as with all quality games, practice is well rewarded.

And when you've mastered the flying bit, it's kill, kill, maim with the three on-board weapon systems.

Bags of different features, difficulty levels, etc - joystick compatible, if you've already invested in one, and challenging without being unplayable.

The lack of sound effects does add a rather unearthly atmosphere to the thing, but if you have to get one arcade game for your Joyce, then this has to be it.

keyboard until it breaks. Which is what I did.

Written in Mode 2 (that's 16 colours, but 20K of the BBC B's 32K of Ram used up), *Galaforce* looks pretty. It's also very fast - really fast - and will have you gnashing your teeth as you get killed time and time again. Just one more time, you think to yourself; just one more time.

Vast numbers of colourful aliens swoop down on your ship, positioned at the bottom of the screen (although you can move around within the bottom third) and you must do your best to shoot them down with your finger firmly glued to the auto-repeat fire button. Even though they don't start firing back until Zone Four, some of the waves require split second timing and nerve (not to say a fair measure of luck) to complete.

Time after time you will say to yourself... "I will not be

beaten by a game this simple"... and time and time again you get blasted into oblivion.

With some good sound (which can be turned off for those late night sessions) and some great simple reflex action, this will appeal to every arcade masochist, that ever existed.



## C16/Plus 4

**Program Karate King Type** Arcade **Micro** C16/Plus 4 **Price** £6.95 **Supplier** Anco, 35 West Hill, Dartford, Kent DA1 2EL.

**Program Jeep Command Type** Arcade **Micro** C16/Plus 4 **Price** £2.99 **Supplier** Bug-Byte, Victory House, Leicester Place, London WC2.

## Commodore 128

**Program Thai Boxing Type** Arcade **Micro** Commodore 128 **Price** £11.95 (disc only) **Supplier** Anco, 35 West Hill, Dartford, Kent DA1 2EL.

## Commodore 64

**Program Thai Boxing Type** Arcade **Micro** Commodore 64 **Price** £7.95 (tape) £9.95 (disc) **Supplier** Anco, 35 West Hill, Dartford, Kent DA1 2EL.

**Program L'Affaire Vera Cruz Type** Adventure **Micro** Commodore 64 **Price** £8.95 **Supplier** Infogrames, Mitre House, Abbey Road, Enfield, Middx EN1 2RQ.

**Program Galax-i-Birds Type** Arcade **Micro** Commodore 64 **Price** £1.99 **Supplier** Firebird, 64-67 New Oxford Street, London WC1.

**Program The Best of Beyond Type** Compilation **Micro** Commodore 64 **Price** £9.95 **Supplier** Beyond, 64-67 New Oxford Street, London WC1.

**Program Leaper Type** Arcade **Micro** Commodore 64 **Price** £2.99 **Supplier** Bug-Byte, Victory House, Leicester Place, London WC2.

**Program Jeep Command Type** Arcade **Micro** Commodore 64 **Price** £2.99 **Supplier** Bug-Byte, Victory House, Leicester Place, London WC2.

**Program Miami Dice Type** Arcade **Micro** Commodore 64 **Price** £2.99 **Supplier** Bug-Byte, Victory House, Leicester Place, London WC2.

## MSX

**Program Jewels of Darkness Type** Adventure **Micro** MSX **Price** £14.95 **Supplier** Rainbird Software, 74-76 New Oxford Street, London WC1.

## Spectrum

**Program Scuba Dive Type** Arcade **Micro** Spectrum **Price** £2.99 **Supplier** Elite Systems, Anchor House, Anchor Road, Aldridge, Walsall WS9 8PW.

**Program TT Racer Type** Arcade **Micro** Spectrum **Price** £9.95 **Supplier** Digital Integration, Watchmoor Trade Centre, Watchmoor Road, Camberley, Surrey GU15 3AJ.

**Program Jewels of Darkness Type** Adventure **Micro** Spectrum **Price** £14.95 **Supplier** Rainbird Software, 64-67 New Oxford Street, London WC1.

**Program Icon Graphix 128 Type** Utility **Micro** Spectrum 128 **Price** £12.95 **Supplier** Audiogenic, PO Box 88, Reading, Berkshire RG7 4AA.

**Program Kai Temple Type** Arcade **Micro** Spectrum **Price** £1.99 **Supplier** Firebird, 64-67 New Oxford Street, London WC1.

**Program Olli and Lissa Type** Arcade **Micro** Spectrum **Price** £1.99 **Supplier** Firebird, 64-67 New Oxford Street, London WC1.

**Program The Best of Beyond Type** Compilation **Micro** Spectrum **Price** £9.95 **Supplier** Beyond, 64-67 New Oxford Street, London WC1.



**Program Miami Dice Type** Arcade **Micro** Spectrum **Price** £2.99 **Supplier** Bug-Byte, Victory House, Leicester Place, London WC2.

**Program Gyron Arena Type** Arcade/Puzzle **Micro** Spectrum **Price** £1.99 **Supplier** Firebird Software, 64-67 New Oxford Street, London WC1A 1PS.

It almost makes me nostalgic to think that *Gyron* was released almost two years ago now – the first of the Gold range from the Firebird stable. So why bring out a version of it now?

Well, *Gyron*, an excellent 3D arcade/puzzle game, looks as impressive now as it did then – and all credit to the original authors for that – but what we have here is the version of the game that was presented to the finalists of the *Gyron* competition – first prize being a Porsche or £12,500.



Thirty English contestants were gathered together (simultaneously with contestants in Denmark and Spain), and had to complete this *Arena* maze – together with those mysterious moving spheres and deadly towers – as fast as possible. The winner did it in 18 minutes, so give your ego a chance and see if you can do better.

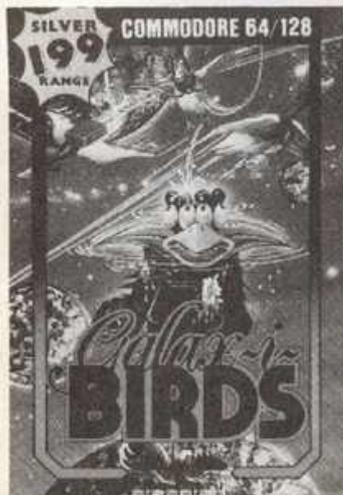
Exactly the same as the original in gameplay, at this price, it's worth getting even if you have the Mk 1 version (for the new challenge) and if you never bought it in the first place, then here's your chance to find out what all the fuss was about for £1.99. The winner? Oh – he was a Spanish guy – but there again, we didn't win the World Cup either, did we?

**Program Nightmare Rally Type** Arcade **Micro** Spectrum **Price** £7.95 **Supplier** Ocean Software, 6 Central Street, Manchester M2 5NS.

*Nightmare Rally* may sound like the average trip down the M6, but National Coaches were never like this. 3D scenery with a strict time limit, bumpy terrain, all the action of skidding and harsh last minute breaking together with trees that'll stop you dead if you crash into them. On the other hand – was anyone else on the 0637 from Chester to London last week?

Well, in any case, no videos aboard your supercharged buggy in *Nightmare Rally*, as you scream up through the gears, weaving through the slalom-type gates to finish the course.

Broadly based on a very successful arcade racing game, this is good fun, with a 3D display of the action on the top two thirds of the screen, and the various instruments (rev counter, speedo, etc) on the bottom third. The scrolling is fairly smooth and fast, the sound is certainly noisy and although far from being a driving simulator, if you are in the mood for a fun driving game in which you can somersault your vehicle and get away with it – grab it while it's going.



## More substance, less show

In 1984, any new games released appeared to be judged by its resemblance to *Manic Miner*/*Jet Set Willy*. Last year, licensing deals kicked off the spring fashions (if it moved, it was licensed), then sports simulations took over in time for the PCW show. This year, it's the coin-ops.

And very nicely this trend is doing, too, with plenty of conversions of excellent arcade games on the way this autumn.

The PCW show is always the one that no-one wants to miss. In five days at Olympia you can see exactly what will be on the market this autumn and Christmas.

It also signifies the end of that home computing bogle, the "dead summer".

This summer, however, doesn't appear to have been so bad, something which is probably connected with the weather. The software and hardware companies pray for poor weather because it keeps their customers indoors and at their computers.

Last year's PCW show surprised many people with its record-breaking levels of attendance, and this year's looks to be just as successful if not more so. Even on the trade days, the show was packed to bursting point, and business frantic. Visitors and stand holders mopped brows in unison.

This year will probably be

remembered as the Year of the Stand. Trestle tables, coloured nylon sheets and hand-written "special show offer" posters had to take their places at the sides of the hall, as the construction companies moved into the centre to build on-site high-tech, high rise blocks from scratch. Elite, Melbourne House, Ocean and US Gold vied for the architectural design awards. Enough people have been to exhibitions in the States to decide to go the American way.

But the PCW show isn't really about three storey stands with en-suite bathrooms. It's about products that people can look at, get a hands-on test, and decide whether to buy when released. The glossy stands are just part of the marketing. *Revolution* from Vortex/US Gold would look just as good displayed on a wooden bench with a dust cover backdrop.

Heaven knows exhibitions are about the one place where the software customer can get a demonstration or play test before buying (any hardware customer who doesn't demand a full demonstration before buying needs their head examining). Video demos are beginning to reach the retailers, but have been a curiously long time in coming.

It's a shame therefore that quite a few companies were showing videos of the original, or the original coin-op

machine *instead* of the game – or some screens from the game if it wasn't ready for public consumption. I would have preferred it if the videos/arcade machines had been *as well* as a look at the game. Videos of the game itself or part thereof are an acceptable compromise, I suppose. Still, it's all better than nothing at all.

One company that is making a point of timing its product launches exactly right to capture the public's interest for the show is Amstrad. Last year, the CPC 6128 and PCW 8256 had been launched ten days previously and given heavy coverage in newspapers – and TV, if I remember rightly.

This year, the Amstrad PCs (subject of more anonymous sightings than Lucan) filled the same gap. On both occasions, the Amstrad stand has been congested in the extreme. This year, I don't think there was a single show visitor who didn't crane their neck to a glimpse of the much-fabled machines.

Last year, Amstrad's rival for crowds was Atari. This time, Atari dissociated itself from the riff-raff and cunningly relocated in the corridor. The corridor, that is, between the home and business sections of the show, nicely bridging the gap between the home and business market.

Christina Erskine

## NEXT WEEK

### Special supplement QL developments

The QL is not dead. CST's Thor and Q Jump QLT compared.

Plus *Eye-Q*, graphics from Digital Precision, and *Giga Basic* and *Giga Desk*.

### Chess

Martyn Bryant with the second of our new monthly series on computers and chess.

All the latest news and events, plus a report on the progress of the *Popular vs Colossus* chess tournament.

### Communications

All you ever wanted to know about radio communications but were afraid to ask. Phil Bridges has the details.

### Games

The latest from Vortex, producer of such goodies as *Highway Encounter*. This one's called *Revolution*, and maintains the Vortex tradition.

And new from Quicksilver is *Glider Rider*, a 3D arcade adventure.

## Hackers



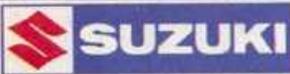
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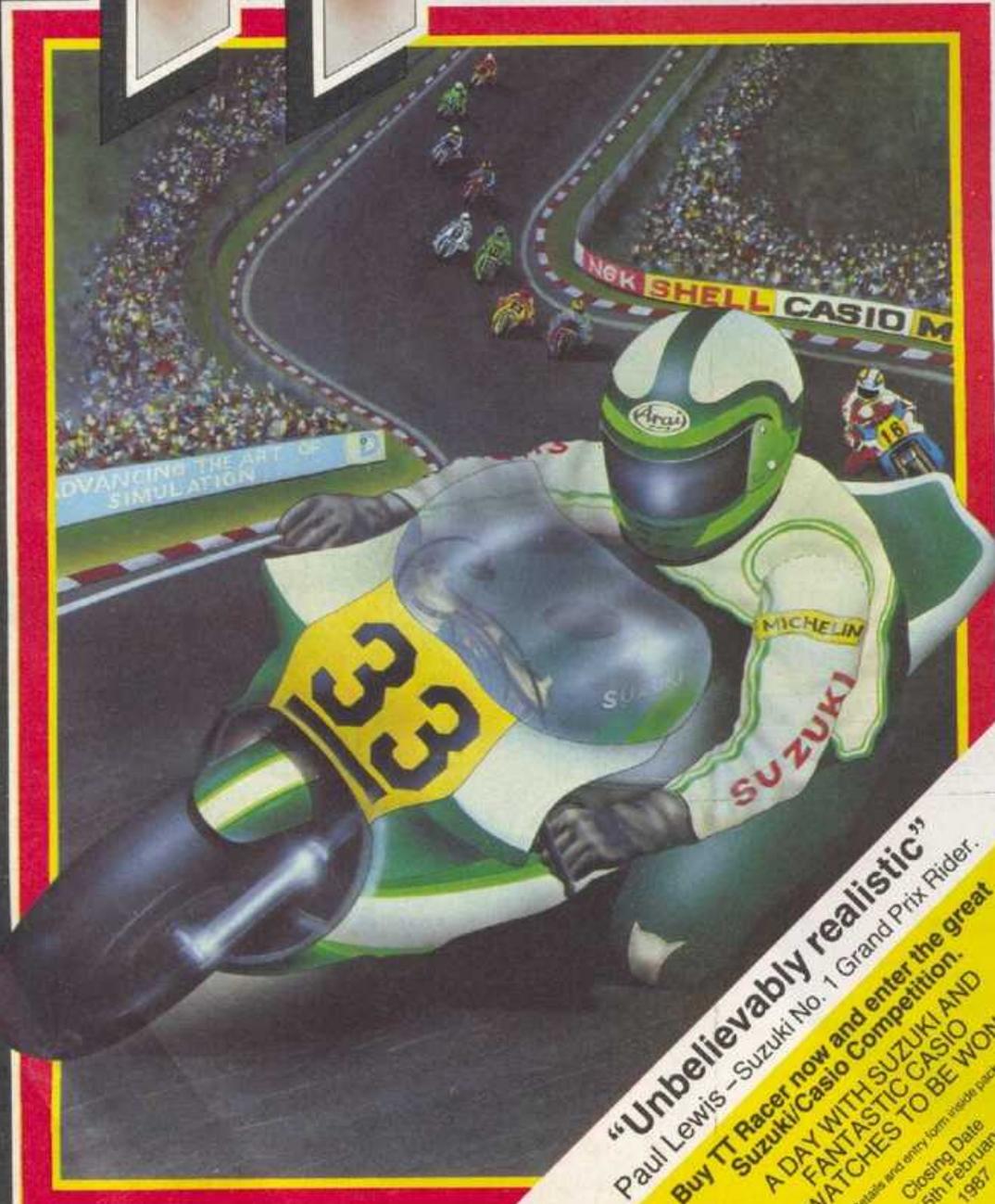


# RACER

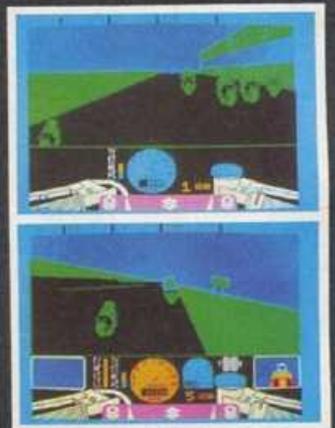
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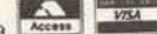


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