

POPULAR Computing WEEKLY

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1-7 May 1986

40 Rock
Red C Vol 5 No 18

Two found guilty in hackers trial

SPECIAL SUPPLEMENT



COMMODORE

- Microprose – master of simulations (see above)
- Word processing packages compared
- 80-column displays made easier
- Commodore show – a preview

- Prestel hackers found guilty of forgery
- Details of how they broke into the system
- Both intend to appeal

Full details below and inside HACKERS trial defendants Robert Schifreen and Steve Gold were both found guilty of forgery last week, and were fined £750 and £600 respectively. They were also ordered to pay £1,000 costs each.

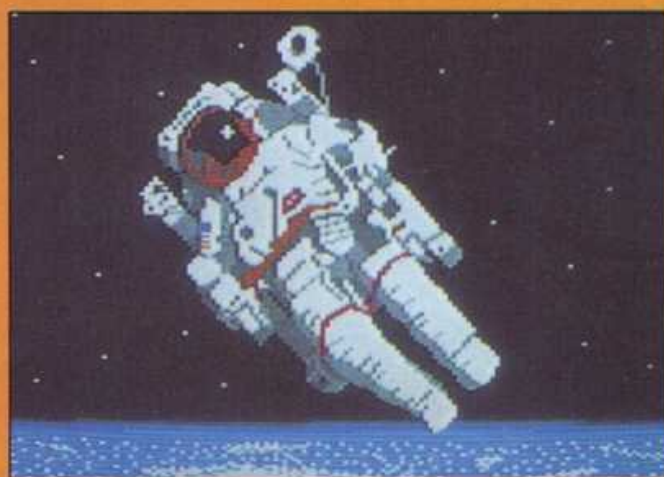
The two had been charged under the 1981 Counterfeiting Act after a series of Prestel security breaches between No-

vember 1984 and February 1985. Schifreen himself admitted to breaking into the Duke of Edinburgh's mail box.

The method the two used to gain access to the system revealed text-book lapses of security on Prestel's part. The

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**Word
Wizards**
entry form p35




COLOUR FEATURE

A gallery of prizewinners in our Touchmaster competition

ANOTHER FIRST FROM MICROPROSE

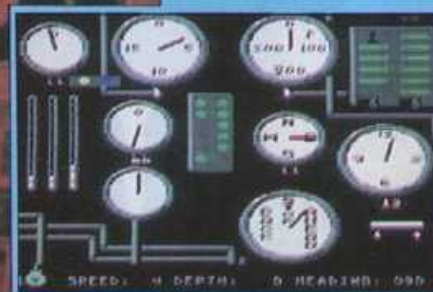


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Photo courtesy
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Museum.



THE FIRST AUTHENTIC SUBMARINE SIMULATION



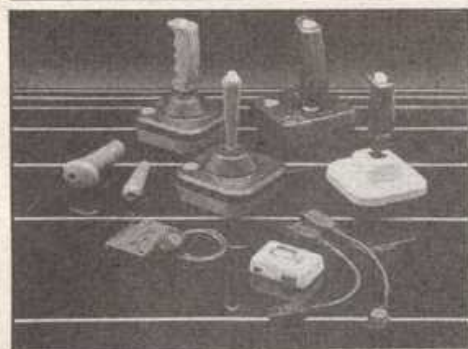
**MICRO
PROSE**

Special Supplement
Commodore

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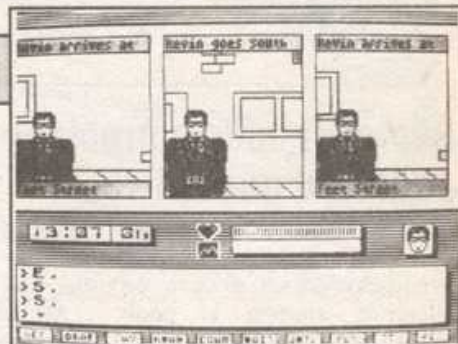
Melbourne House has been fairly quiet since the launch of *Lord of the Rings* – but *Red Hawk*, its newest release, is very different.

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Copy to come copy to come

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ABC

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QL rebirth for ZX Microfair?

AN announcement on the attempted buy-out of rights to the QL is expected to be made by the time of next week's ZX Microfair.

Leon Heller, chairman of Quanta, the QL user group, told *Popular Computing Weekly* he knew the details of the bid by a consortium of QL support companies (see *Popular Computing Weekly*, April 17), but he was unwilling to reveal them. He did however feel that Amstrad would be willing to sell the rights, and suggested that the upshot of the deal would be the long-awaited QL

2, with a full 68000 processor, 512-640K Ram and an internal 3½ inch disc drive.

Add-on supplier Micro Peripherals has also been spoken of as a possible buyer for the QL, but spokesman Ian Donaldson dismissed the suggestion. "We're not a micro manufacturer", he said, "we're a supplier of add-ons." He said he'd welcome any takeover of the QL, but felt that any company doing so would have to be "very, very big."

Meanwhile dealers are reporting difficulty in obtaining stocks of all Sinclair products.

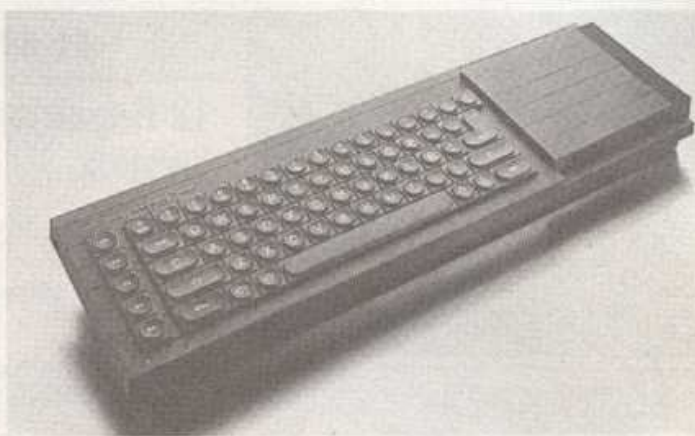
Micronet adds a problem page and goes hi-res

COMPUTER consultancy Interlex is now providing a technical support section on Micronet, starting at page *800900#. The new service is open to all Micronet users, and although it's aimed mainly at business subscribers should be able to answer interfacing and software queries for Amstrad PCW, Atari ST, Amiga, Apricot, IBM, and IBM compatible machines.

Interlex is also offering Micronet users access to its

telephone hotline query service for £25 a quarter rather than the normal £35.

Micronet itself has recently introduced high resolution graphics for BBC subscribers. These, says Micronet, are "photo quality", (see below), and can be accessed by using special software downloadable from the Net. The BBC service is currently experimental, and if successful will be extended to other micros.



Two found guilty in hackers test case

◀ Continued from page 1

court was told how the two had accidentally discovered telephone numbers for private Prestel computers. Schifreen then typed in a line of twos, and was asked for a four digit password. By typing 1234 at this point, he discovered a testing facility which gave him access to all Prestel boxes.

The security lapses had actually been reported to Prestel by Schifreen on October 23 1984, but this seems to have cut little ice with Prestel or the court. Wire taps installed after this date showed that Schifreen and Gold were still accessing the system, and the prosecution went ahead.

The discovery of the breaches last year caused a storm, and forced Prestel to tighten up its security. The mechanism used to prosecute hinged on the jury accepting that the two were guilty of "forging a computer disc" recording information from Prestel's computers.

The 1981 Act was used because there is no specific legislation covering hacking, and the trial has therefore been something of a test case.

Schifreen and Gold, who regard themselves as having done Prestel a service by uncovering the security lapses, are understandably bitter at the verdict, and intend to appeal. Steve Porter, solicitor for Schifreen, says they will be appealing against both conviction and sentencing. Grounds against conviction will be based on "legal technical arguments" which will be discussed over the next few weeks.

Prestel itself hasn't emerged unscathed. Subscribers whose files have been tampered with, the court was told, are now able to sue the system operator for damages under the Data Protection Act. This provision is backdated to cover breaches from September 12 1984 onwards.

Nemo educational robot is planned

NOLAN BUSHNELL, founder of Atari, and Steve Wozniak, co-founder of Apple, are to team up to produce a new educational toy called Nemo. Wozniak's company, CL9 Inc is currently developing a remote control device, while Bushnell's Axlon Inc produces the Petster range of robot pets. CL9 is to be merged into Axlon, with Wozniak and Bushnell becoming joint chairmen.

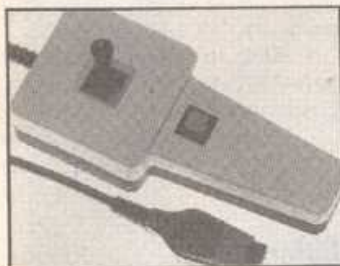
It's not clear what Nemo will be, but it's likely to be related to the Bushnell's robot pets. These were developed be-

cause Bushnell feels that, although it isn't currently possible to produce robots that operate on a human level, animal simulations are possible. The Petster range therefore consists of battery powered dogs and cats.

Amstrad show date

Amstrad watchers may have been confused by our story last week on the Amstrad PC. The Amstrad show organisers have rescheduled it to June 13-15. So our story "Amstrad's PC look set for May launch" should have read "Amstrad's PC may launch in June." Knuckles have been July rapped...





The joystick to revive Revs

MEEDMORE has come to the rescue of owners of Firebird's *Revs* on the 64 with its new Hotshot Revs Special analogue joystick. The stick is switchable between proportional non-centring action, allowing variable acceleration on stick forward and controlled braking on stick back, and conventional Commodore analogue use. It retails for £12.95.

Details from Meedmore, 28 Farriers Way, Netherton, Merseyside L30 4XL. (051 521 2202).

Pilgrim fathered

CRL is launch *Pilgrim*, a text adventure for the Commodore

64, at the end of this month. The game revolves around a search for the legendary Guardian, the only one who can save the land of Meridian from destruction at the hands of the Silvian invaders. An everyday story of impending apocalypse for £7.95.

Details from CRL, 9 Kings Yard, Carpenter Road, London.

P-80 pair join Epson's budget printer range

EPSON is bidding for the low cost printer market with the P-80 range. The two basic models, the P-80 and P-80X, are light and include rechargeable batteries for remote use. Like the Brother HR5 they can use thermal paper or carbon ribbon to produce an image on paper.

Both printers offer emphasised, enlarged, condensed and underlined styles, and the P-80X also includes superscript, subscript and seven bit-image graphics modes. The P-80 has two bit image modes.

The P-80 is £160, while the P-80X is £250.

Commodore 64 gets a cartridge Epprommer

EPILOG-1 is an Eprom system for the Commodore 64 and 128, and costs £144.95. It consists of a programmer unit, a mains powered UV eraser, an operating system cartridge and one 8K programmable cartridge. Extra cartridges cost £17.95 each, or £44.95 for three.

Details from Sircal Instruments, 11 Southfields Court, Sutton Common Road, Sutton, Surrey SM1 3HJ, (01-644 0981).

Locoscript extras with Amstrad discs

HI-TECH Business Systems is selling 3 inch Amstrad PCW discs with a selection of

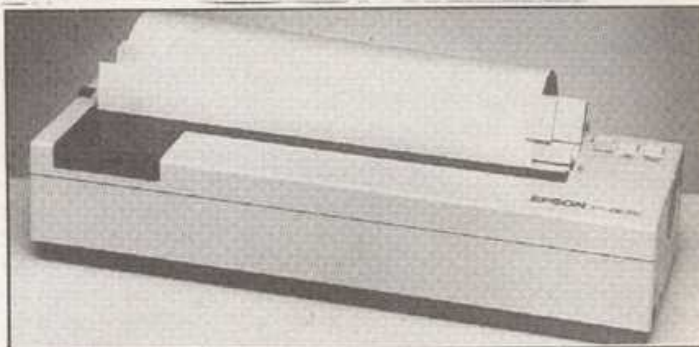
Locoscript templates installed on them. The discs cost £45.

Details from Hi-Tech Business Systems, St Peter's House, Gower Street, Derby DE1 1SB (0332 381657).

Education from Willow

WILLOW Software is to release two new educational programs for the BBC, Electron and Amstrad 464 and 6128. *Early Words* is intended to teach three to six year olds, while *Early Maths* provides four to eight year olds with training in basic arithmetic. The programs cost £7.95 for tape, £9.95 for BBC disc and £12.95 for Amstrad.

Details from Willow Software, (0934 834056).



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Letters

What price a QL?

Amstrad's pricing policy is beginning to make the old Sinclair look like Acorn. Sinclair sold the QL for £199. Some shops managed to sell it for £145. Once a computer has been developed and proven, it can be a licence to print money.

Here are my conservative guesses as to what it would cost to push the QL in a manner that Sinclair Research never did.

Prices for complete systems (components)

Item	Price
Monitor (colour)	£100
QL Printer	£100
QL	£100
Disc Interface	£50
Disc Drive	£50
10 Discs	£5
512K Ram Pack	£50

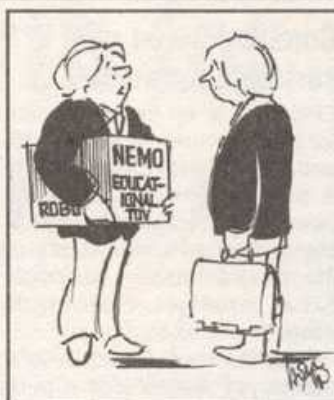
Those are my prices inflated to account for the usual overheads incurred in retailing micros.

Business package

Colour Monitor
QL Printer
QL and Eidsort's ICE
Disc drive and interface
10 Discs - one with Psion Xchange on it.
Total = £430

Home user Package

Colour Monitor
QL
Disc + Interface + 10 discs
A Book on Psion Xchange
A Game
Total = £325
Similar packages for hobbyists and games players might cost,



"It bit Sir Keith Joseph."

on my estimates, £245 and £230 respectively. I think these kinds of packages could mop up the competition.

Now comes the reason why Alan Sugar would not dream of offering these kind of options. He has his own problems. The 464 and PCW8256 are in less demand than the 6128 and PCW8256. The 464 and 8256 are not immortal but third party manufacturers will offer upgrades for the machines so that they are in line with the 6128 and 8256. Phasing out those models should be relatively easy with customers able to upgrade.

Atari and Commodore will be more than ready for Christmas, they sell expensive computers, which are nevertheless a potential and real threat.

Business purchasers will see an Amiga or 520ST with a user friendly desktop sitting next to an Amstrad with either a power up message or a game running. Possibly next to the

Amstrad will be a QL with ICE. Not as chic as the American micros but with a more fashionable price tag. Draw your own conclusions.

The QL has been, literally, in suspended animation for the past year. When all the fun and games went out of finding bugs there was mostly silence. The QL has a substantial user base, the right kind of software and has long since repaid its development costs. When was it last advertised?

I R Bruntlett
Coleraine A1
BT51 3LA

First service

I would like to write and tell you about an exceptional piece of service I have just received from Arnor.

I bought *Promerge Plus* on Rom, having been using *Protext* - also on Rom - for some time, with a KDS 8-bit printer port interface. I was very happy indeed with this combination, which involves a program which sets up the interface and sets the screen attributes the way I want them, then calls *Protext*.

When I fired up with *Promerge Plus*, everything I tried worked beautifully, except that all the printer would produce was garbage.

I called Arnor, and spoke to a programmer there, Gavin Ebury. Over the phone I read him the KDS set-up program; by the afternoon, he called me back with an amended pro-

gram. It worked first pop, perfectly.

I think this was wonderful service to an ordinary customer.

Peter Ceresole
London
SW14

Oxford blues

I purchased a Pascal language disc from Oxford Computer Systems. On trying this disc I could not get it to compile. I returned the disc to Limbic Systems UK at the same address as OCS. With the disc I enclosed £15 for a back-up disc.

That was January 11. On February 11 I sent a letter, but I have had no reply.

The disc was to be used for Open University homework, the lack of it means that I have to travel to a computer centre to try a program - about 25 miles by rail.

William McGill
50 William St
Helensburgh
Dunbartonshire

Unfortunately Oxford Computer Systems is now in receivership, which could explain why you have not had any reply.

There are, however, other Pascal programs available for the Commodore 64. You could make inquiries about Orpheus's *Pascal 64* (£24.95 on tape), or First Publishing's *Pascal 64* (£34.95 on disc). Orpheus's phone number is 0767 51481, First Publishing is on 07357 5244.

Puzzle

Puzzle No 206

When Mrs Hex took delivery of a new china dinner service, her husband, Professor Otto Hex, was considerably more interested in the box in which it had been mailed.

"This is curious", he mused, "the number of cubic inches which make up the volume is exactly three times the number of square inches which make up its surface."

The box was a cube with each side eighteen inches in length, and so the Professor was quite correct as the volume in cubic inches (5832) was three times the area in square inches (1944).

This set the Professor to wondering if there were any other examples, again with each dimension an exact number of inches, but this time with all three dimensions different.

What is the smallest box with this property?

Solution to Puzzle No 201

The books were originally arranged 5 3 4 6 on the top shelf and 1 7 8 2 on the bottom. The

```

10 FOR A=1 TO 2
20 FOR B=1 TO 8
30 IF B=4 THEN 240
40 FOR C=1 TO 8
50 IF C=8 OR C=6 THEN 250
60 FOR D=1 TO 8
70 IF D=8 OR D=6 OR D=4 THEN 240
80 LET DENOM=A*1000+B*100+C*10+D
90 LET NUM=DENOM*3
100 LET NUM=STR$(NUM)
110 LET T=0
120 FOR N=1 TO 4
130 LET V=VAL(MID$(NUM,N,1))
140 IF V=A OR V=B OR V=C OR V=D OR
V=8 OR V=9 THEN LET T=1:LET N=4:GOTO 150
150 NEXT N
160 IF T=1 THEN GOTO 240
170 FOR N=1 TO 3
180 FOR M=N+1 TO 4
190 IF MID$(NUM,N,1)=MID$(NUM,M,1)
THEN LET T=1
200 NEXT M
210 NEXT N
220 IF T=1 THEN GOTO 240
230 PRINT NUM;" / ";DENOM;" = 3"
240 NEXT D
250 NEXT C
260 NEXT B
270 NEXT A

```

fraction so formed, 5346/1782, is exactly 3.

We are required to arrange the digits 1 to 8 into a numerator and denominator (four digits in each), such that the fraction so formed is

equivalent to 3. The program computes all possible denominators such that all four digits are different. Also, the left hand digit can only be 1 or 2 as these are the only values which can give a numerator in the required range.

Once the denominator is evaluated, it is multiplied by 3 to find a possible numerator. Finally, all eight digits are tested to ensure that there is no duplication of digits. There are four possible values printed out, but the problem stated that none of the volumes was in its original position. Therefore all but one of these solutions can be eliminated as in each of these cases at least one of the volumes occupies its correct position.

Winner of Puzzle No 201

The winner is W H Roberts of Penprisk, Mid Glamorgan, who will be receiving £10.

Rules

The closing date for puzzle 206 is May 27.

KIREL



KIREL the 3D arcade challenge for the thinking player. Seventy mind stretching screens, each one more complex than the previous, but providing its own individual challenge. Obvious or obscure – can you get through before your time or stamina runs out? Can you find the transporter networks, snatch the energy supplies and defuse the bombs before you are blown up (or sucked into oblivion)? Can you avoid the lurking terrors, conquer invisible obstacles and immovable barriers?

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Letters

Give us a clue

I would like to make an appeal through the pages of your magazine, to the writers of computer program instruction manuals.

I have recently purchased *Superfile* and *Tasprint*, and I find that the manuals supplied with both programs assume that the person reading it understands computer jargon, and is conversant with such things as machine code and Ramtop! I for one am not familiar with either of these subjects, and so find that both programs are unusable, as I cannot get either of them to print out to my Brother HR-5 printer.

Masterfile is another program let down by its manual; however, I have managed to fathom this one out with some assistance from a friend.

I have written to both of the companies concerned, and am now waiting for a reply. But why should I have to write? There is no hint given in the advertisements for these programs that some programming knowledge is required. All manuals, regardless of what

they are for, should be written as simply as possible. Surely the author should assume that the reader has not got a clue, and start from there.

CWEM (O) A W Lewsey
Helensburgh
Dunbartonshire

Goonie's guide

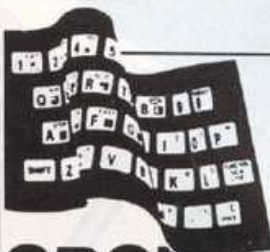
I thought that some of your readers who own a Commodore 64 and are puzzled by some of the problems within US Gold's *Goonies* game might like to know that a hint/instruction guide is now available.

It is a 12-page booklet, and thus too big to run on the letters page. Although it is not an encyclopaedia of every detail of the game, the tips will help you gain the game objective without giving everything away.

Anyone wanting the guide should send an SAE and 50p (to cover printing costs) to the address below.

Keith Sherling
32 Springfield Park
Kinross
Tayside
Scotland

ALL THE FUN OF THE FAIR



ZX MICROFAIR

It's that ZX Microfair time of year again, and as usual, *Popular Computing Weekly* has a special free offer for our readers.

We've got 100 tickets to give away – all it'll cost you is the price of a stamp.

We're not even going to tax your brains – all you have to do is fill in the coupon and send it to the address below, applying for up to two (no more than two

per application, please) free tickets.

You haven't got much time to lose either. The Microfair takes place on May 10, at the Horticultural Hall, Greycoat Street, London SW1. So, don't delay – we need your applications here by May 6.

The address is ZX Microfair Offer, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Please rush me 1/2 (delete as appropriate) tickets to the ZX Microfair on May 10.

Name

Address

REWARDING OPPORTUNITIES WITH MIKRO-GEN

Following Mikro-Gen's move to new premises we now require additional staff. If you believe your programming ability meets our high standard, please contact us by telephone or letter to the address below.

We also require finished programmes. Top payment or royalties given to software of suitable quality.

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Bracknell, Berks. RG12 1RW. Telephone number (0344) 427317**

B.B.B. BOUND TO BE A HIT..

"10 levels of fun make this torture excellent value for money. Nova rating. Definitely one of those 'just another go' games. Game of the month February" - Computer Gamer

"The most compulsive game I've ever played. If you don't buy it you'll never know what you've missed." says Gary Penn, Zzap! 64. Gold Medal Award. 97% overall.

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version only

Touchmaster Competition Winners

The quality of many of the entries to our Touchmaster graphics competition was so high, we reckoned you should see for yourselves what can be done with a micro and some imagination

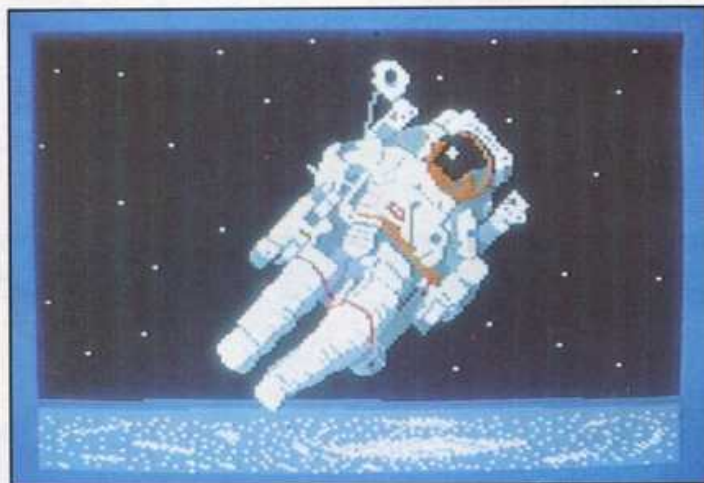
It's a shame we only had five Touchmaster graphics tablets to give away, since far more than five of our entries were deserving of recognition. Just selecting a shortlist gave the *Popular* office any number of headaches.

In the issue dated March 20, in conjunction with our special feature on graphics, we asked you to send in a work of art, any work of art, created with any graphics package – or none at all. Anything; so long as it had not been published elsewhere previously.

The response was overwhelming. Having waded through the pictures, we eventually agreed on nine masterpieces, shown on these pages, which were worthy of at least a prestigious *Popular* honour-

able mention.

After more heated argument, we whittled it down to the five prize winners, who will each receive a Touchmaster graphics tablet for their machine. The Touchmaster tablet is a pressure sensitive pad, operated by a plastic stylus. It enables you to create pictures on-screen using the stylus, and the manufacturer also produces



Above: The Swan by Simon Nicol

Below: Salisbury Cathedral by N Kenward

Above right: Bruce McCandless by Ian Murray

Right: Eliminator by Christopher Owczarek



Touchware; packages designed to help you get the best from the tablet.

The winners

First (in no particular order) to Simon Nicol of Hove in Sussex, for *The Swan*. Simon Nicol used an 'in-house' (his own?) utility to create the picture.

Next to join the prizewinners is Ian Murray, of Dunfermline in Fife, who managed to make outer space as colourful as possible with *Bruce McCandless*. Tony Hart's *Art Master* helped in the produc-

tion of this one.

Salisbury Cathedral, from N Kenward, of Leicester, was instantly recognisable as such. Mr/Ms Kenward created *Salisbury Cathedral* on a CPC464, with a DK'Tronics light pen, but will settle for a Touchmaster tablet for the BBC.



A Castle by the Lake may not be the most original of artistic themes – we had several castles by several lakes – but we reckoned the quality of Alan Diamond's picture merited a prize, especially since he used his own personally written sketch program.

The fifth Touchmaster tablet goes to a Spectrum owner, Geoff Burton of Middlesbrough, for *Dragonlance*, created using Softek's *The Artist* package.

Honourable mentions

Christopher Owczarek of High Wycombe just missed out with his version of the album cover of ZZ Top's *Eliminator* on the BBC, despite all the efforts of *Popular*'s resident ZZ Top fanatic, and another self-penned graphics utility, Gary Milton's *Robin*, on the Commodore 64, used Audiogenic's *Koala Painter*, and added an educational flavour to the competition.

Michael Sleight of Doncaster went for

the nostalgia vote with *I Only Get It for the PI-Man*. We've got *Melbourne Draw* to thank for that one.

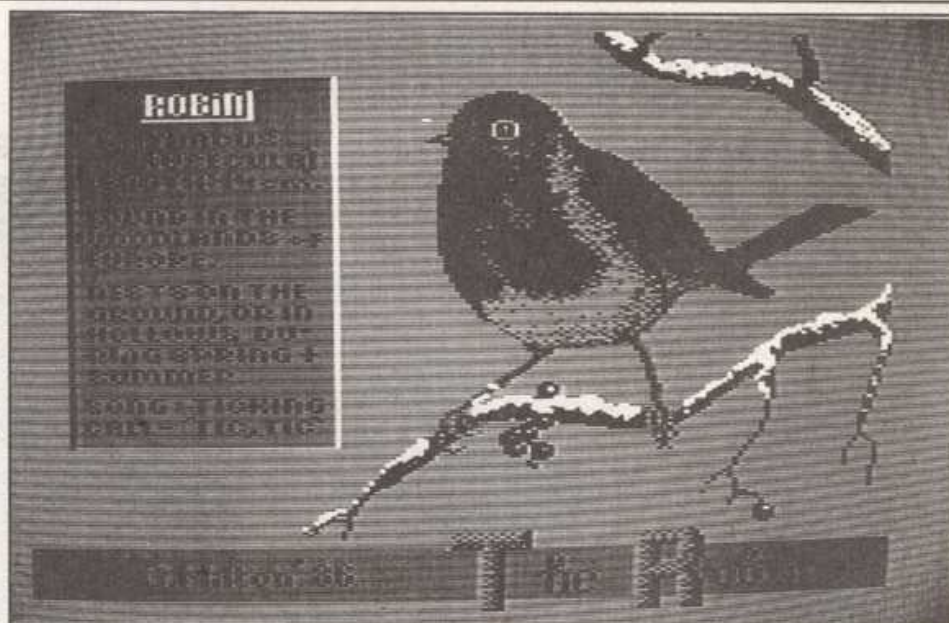
Last honourable mention goes to Alex King, of Bournemouth, and *Who Stole the Banana? He Did!*

Many thanks to everyone who entered the competition and we'd like to wish everyone who didn't win better luck next time.

Touchmaster tablet winners

Simon Nicol, Furze Hill, Hove, Sussex; N Kenward, Leicester Forest East, Iain Murray, Dunfermline, Fife; Alan Diamond, Wembley, Middx; Geoff Burton, Middlesbrough.

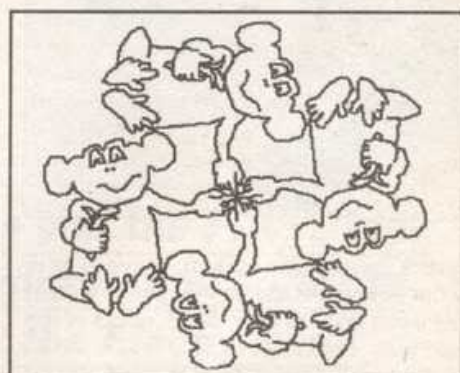
If you didn't win – or didn't enter – but would like a Touchmaster tablet, the product is available from Panorama Office Systems (Touchmaster division), Baglan Industrial Park, Baglan, Port Talbot West Glamorgan SA12 7DJ (0639 820310). The tablet costs £49.95, and is available for Spectrum, Commodore 64, Dragon 32 and BBC B machines.



Above: Robin by Gary Milton



Above: *I only get for the PI-man* by Michael Sleight Below right: *Castle by the Lake* by Alan Diamond



Below: *Dragonlance* by Geoff Burton



Repairing the damage

A Muir explains how to carry out simple repairs to your joystick

Joysticks and fast, furious arcade games just don't mix. And it's always the joysticks that end up losing. What is worse, they always break down just as I'm doing well on *Elite* or *Match Day*. Then of course, after I've pulled it free of the TV screen (which is where the unfortunate

found I could immediately understand what went on in there.

Unless the shaft has snapped, the integrated circuit has blown or a vital part of the mechanics has snapped off, mending your joystick should be a piece of cake. It will probably only entail a spot of solder or putting some spring back into the flexible contactors. If your shaft has snapped, forget it. I have tried any number of glues and none of them were strong enough to last five minutes. The same applies to a vital part of the mechanics breaking in two — unless you are very lucky you've had it.

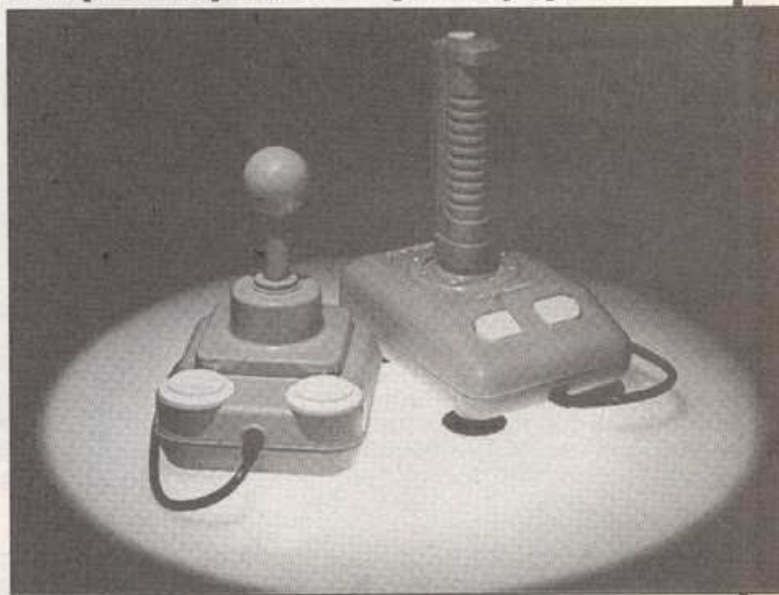
If you're familiar with soldering and flexible contactors you should be able to fix your joystick with your eyes closed. If not, read on carefully.

Inside your joystick there are just five circuits, not counting the ones in the chip, of course. See the diagram. All these circuits have one common return, ie, there are five half circuits and these are completed or closed by one other half circuit (the return).

Pressing your fire button or moving your joystick causes one of the five to come into contact with the one return. So if you can

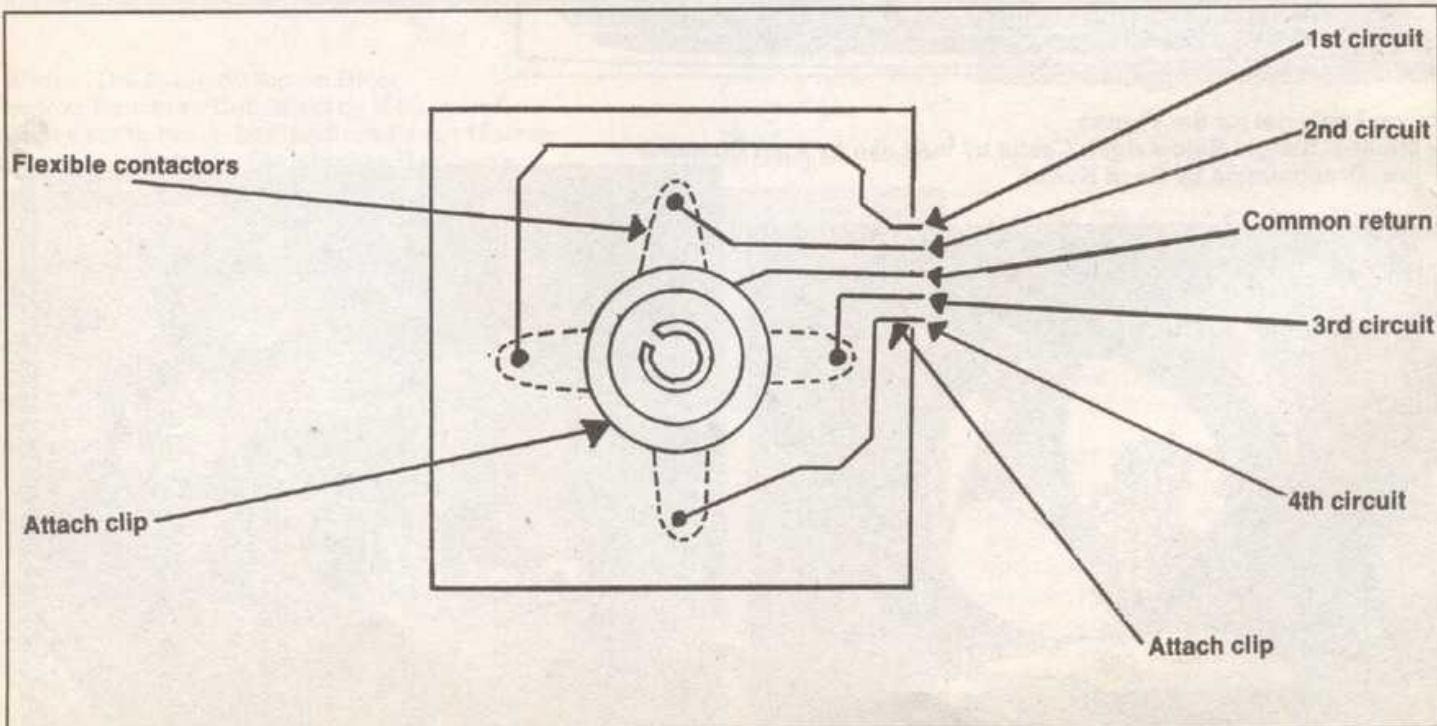
still get some movement out of your stick it must be one of the five circuits that has come adrift. It should be an easy enough matter to find the break in the circuit and put it right. If, on the other hand, you can get no movement at all out of your stick, then it must be the common return that has gone wrong. Again it should be an easy matter to spot the break in the circuit and put it right. It is highly unlikely that anything will be wrong with the printed circuit board and most of these faults will be broken or loose wires.

The most common failing among joysticks is the fire button. If anything is going to go wrong, the fire button will. Both Quickshot and Spectravideo models



joystick usually gets hurled), I have to fix it. By the time I get back to the game I've lost my thread and I'm soon dead, or out of the Cup Final.

Fixing your own joystick is much easier than you might think. I remember my first encounter with the innards of the infernal things. I was quite disappointed when I



(which are identical, by the way) have the most shameful arrangement for the fire button I have yet seen. It is quite likely to fail after even moderate use, never mind the battering I give them. If you have one of these joysticks and the fire button has packed in, then the wire from the fire button has probably worn through at the base of the shaft. You will have to replace this wire, I'm afraid, either with a stronger wire, (shielded wire is good), or modify the design slightly. The best modification I have found is to drill a small hole in the base of the casing in the place where the shaft rests and then drill another hole in the base. Then pass the wire out through the first hole, back in through the second and solder the connections again. Be careful not to crack the casing or to drill the hole too large.

Now a lot has been said about solder. If you have a duff joystick and are just about to rush out and buy a soldering iron so that you can fix it, try to buy a low voltage one. The connections inside your joystick are very small things, and you don't need a great big soldering iron that will melt everything in sight.

Another interesting exercise will give a clapped-out joystick a new lease of life. Get yourself two pieces of wire, connect each piece of wire to a paper clip and attach them to the printed circuit board in a manner similar to that shown in the dia-



gram. For the next part of the trick you have to type in the short program below. If you have a Spectrum and a Kempston interface you will be able to copy this program exactly. For other computers or interfaces you will have to make slight modifications. All the same you should get the idea from the listing:

```
10 LET X=IN 31
20 PRINT AT 0,0;X
30 GO TO 10
```

Once you have typed in the program and made sure the joystick is connected, run it.

You should see a 0 at the top left hand corner of the screen. If you touch the two wires together you will see the 0 change to 1 or 2 or 4 or 8. If your fire button is working try pressing that and you should get 16.

These figures are based on a Kempston interface, of course, and if you have a different one the values will naturally be different.

If you do not see what possible use this could be, try changing line 20 to:

```
IF X=2 THEN BEEP .5,10: BEEP .5,20:
BEEP .5,10: BEEP .5,20
```

By experimentation you will find that you can return 32 values from your joystick, all

the numbers between 0 and 31. I have managed to build a touch tablet using all these values but it takes time and a bit of patience.

At the other extreme I ran a buzzer-type game at a fund-raising event using just one value.

With a smattering of imagination, there's plenty you can build. Don't be afraid to experiment, since you cannot damage your computer (unless you connect the wires up to the mains, which is monumentally foolish).



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Better mouse trappings for AMX

It's a truism of this industry that computer hardware is useless without software and the success of any micro is dependent on the quality of the programs available.

AMX has learnt the lesson well. If it is to be singled out for credit it is in the way that it had produced some first class software for its mouse and thus generated enough sales to inspire third party companies to write for it as well.

AMX *Pagemaker* has been covered for the BBC before but new versions are notable in that all reported problems of incompatibility with obscure DFS's (more to do with the protection techniques than the software itself) are being tackled and overcome and there is an ever-growing range of printer dumps. The package can also now be controlled from joystick or keyboard, so although the mouse really does work like a dream with it, you can spread the cost.

Until I used it I didn't really appreciate what a gem of a program this is. The resolution of the screen mode and of the print is higher than most com-

peting utilities and it is extremely flexible.

The graphics are perhaps the weakest point: you get a mini-art utility included but there are none of the extensive graphics libraries of *Fleet St Editor*. However, AMX promises a support release very soon including extra utilities and graphics. Once you do have a picture on screen it can be stretched, cut and pasted, superimposed, etc. Another nice feature is the ability to convert colour pictures into shaded designs in Mode 0.

The package has its own mini-word processing abilities, but you can also import files from either *View* or *Wordwise*.

Super Art is a very versatile and powerful Mode 1 artist program that incorporates features from the earlier releases *AMX Art*, *AMX Paintbox*, *AMX Utilities* and then some. Almost every limitation that could have been pointed to in the original release has been overcome giving you features such as stippled colour fill, cut and paste, rotate, zoom, etc. One of its most important features is the ability to work on screens

buffered to disc such that an A4 size picture can be produced. When dumped to one of the supported colour printers these can look superb.



Again *Super Art* can be used with keyboard or joystick (the former is perhaps essential for some detailed work to overcome the 'wobbly hand' syndrome). It comes as a 16K Rom and disc of support routines.

Tony Kendle

Program AMX *Super Art* and *AMX Pagemaker* Micro
BBC B/Master Price Art & mouse £89.95 Page £49.95
Supplier Advanced Memory Systems, 166-170 Wilderspool Causeway, Warrington WA4 6QA

Top Notch

Andrew Pennell has written a number of good books on the QL Motorola 68008 so it is not too surprising that he should have also produced an excellent assembler for hobbyist and programmers alike.

Apart from the Assembler, *Devpac* comes with a screen editor to help with the writing of programs. A debugger is also included that is made up of disassembler and monitor. The monitor is a very flexible piece of software that can do a great deal of useful functions like dynamic multiple breakpoints.

At the moment the top spot in assemblers is dominated by Metacomco. However Mr Pennell says that his Assembler is more powerful and faster than any of his competitors. This I totally agree with and in addition, this development package is well documented and a great deal easier to handle.

Matthew Palmer

Program *Devpac* Micro QL
Price £39.95 **Supplier** Unisoft, 180 High Street, North Dunstable LU6 1AT.

A Bridge almost (but not quite) far enough

DEALER: West Non Vulnerable

North
1♦

West East
MB MB

South
??

Last bid

Hand: 001

47 HCP's

Distribution
3 3 3 2

K

Q

Q

10

10

7

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2

Conventions: Stayman & Blackwood

CP's latest *Bridge Player* in its series for a number of micros is the PCW 8256/8512 version.

For anyone who hasn't come across Bridge programs for micros, the standard format is that you play South, while the computer plays the East, West and North hands throughout the bidding and play. Good Bridge programs don't cheat by taking account of the distribution of all 52 cards, and they

also handle some of the better known conventions such as Stayman and Blackwood.

This one holds up on these three counts (well, it understands half of Blackwood), and it's a lot better than CP's 6128 version, *Bridge Player 3*. The play has been tidied up considerably; you now get the feeling that your computer opponents are sitting up, paying attention and keeping some kind of card count. East and West, however,

still get caught out not drawing their trumps early enough.

The bidding follows a standard Acol pattern, and is in most cases, sound, although North, your computerised partner, is timid to the point of cowardice, and you still can't get it to initiate Blackwood. This means that on borderline slam hands, you'll need to be bold - there's nothing more frustrating than discovering you have a lay-down Grand Slam when the contract's Two Clubs.

Complete newcomers to Bridge could, with patience, learn a reasonable game through trial and error on *Bridge Player*, especially with the 'sit back and watch' option where the computer selects all the moves.

Where this program really scores is in its speed and range of options. You are given five choices of speed: from lethargic, through slow, medium and fast, to instant. Translated

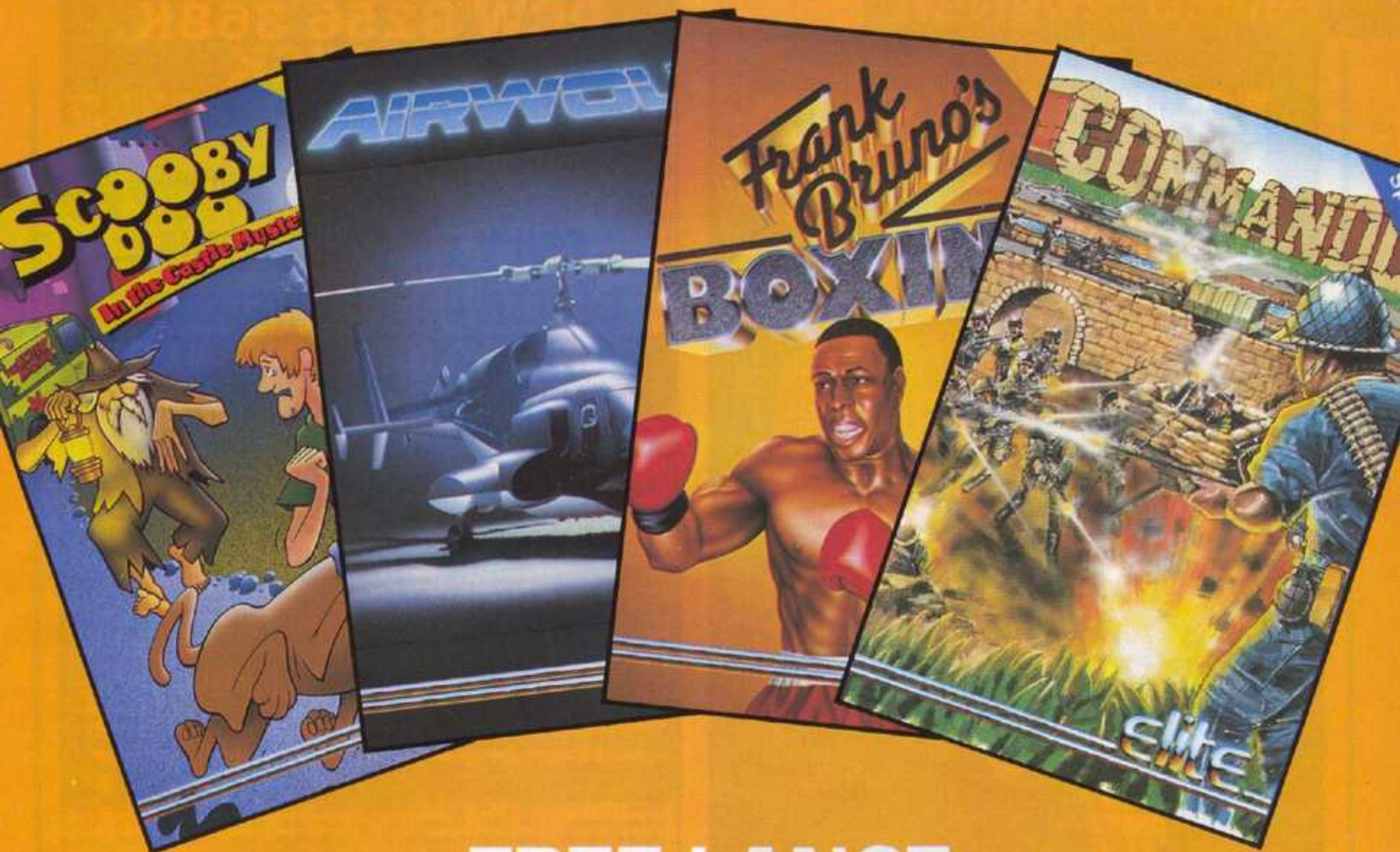
into actuality, medium is very fast, and slow is just right if you want to think about your play.

Options include full rebid and replay facilities - useful for trying alternative bids to goad North into a spot of derring-do, setting a specific point-count for your hand, instant abandonment of the hand - for when you're about to be utterly humiliated - and listing of the deal to the printer.

I can't help comparing every new Bridge program with my long-time favourite, *Serim's Grand Slam* for the C64. While *Grand Slam* can be unbearably slow, its card play still surpasses everything else I've seen, including, I'm afraid, *Bridge Player*.

Christina Erskine

Software *Bridge Player* Micro PCW 8256/8512 **Price** £19.95 **Supplier** CP Software, 15 Despard Road, London N19 5NP.



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Ghost gobble a go go

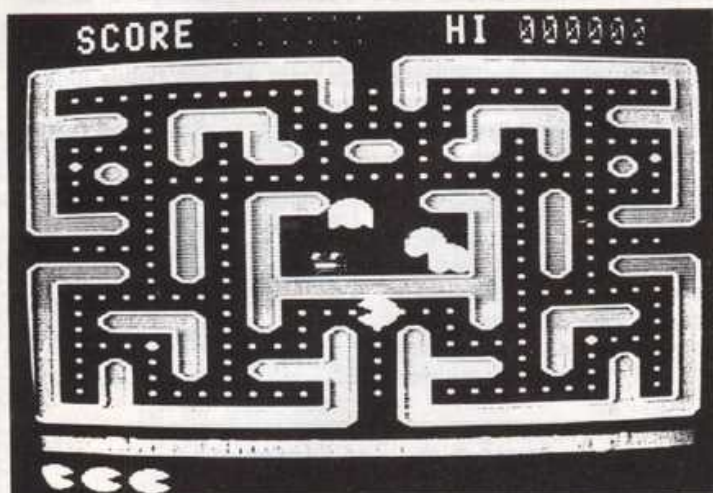
Gobble Gobble for the QL is at least relatively cheap. Beyond that... well, can you guess what the game it is from the title? Yep, afraid so, its *Pacman* again.

Gobble Gobble is not actually a bad version of the game,

extras in the game. Objects that travel through walls and some nasties other than the dreary old ghosts.

It looks OK I guess, about as good as a Spectrum equivalent, with quite a lot of colour.

Gobble Gobble is a fairly



except that in the early screens you (deliberately apparently) move around so lethargically the sense of threat is reduced to about nil. Believe me, if you can't crack it on the first screen of this one, you'd better hang up your joystick for ever. It does get faster.

To be generous there a few

complete version of *Pacman* — do you think that's worth £9.95? Maybe if you're absolutely addicted.

Graham Taylor

Program Gobble Gobble Micro QL Price £9.95 Supplier Eigen, 45 Bancroft Road, Widnes, Cheshire WA8 0LR.

The shoot em up blasts back

If you are going to do an arcade game spin off then this is the way to do it. Incentive trod the straight and narrow by creating *Moon Cresta* by actually buying the licensing rights. This meant a) that it could, in so far as it was technically possible, do as exact a copy as it wished and b) it didn't have to give it some silly surrogate name like *Space Cresta* or *Moon Attack*.

Incentive's *Moon Cresta* was first released on the Spectrum and has recently been converted to a number of other machines, in this case the Amstrad. Doing the conversion job properly certainly pays off. All the features of the original game have been retained, even down to the right blips and tunes.

For a game that was in the arcades several years ago *Moon Cresta* remains surpris-

ingly fresh and addictive. All shoot em ups are not alike, and the really good ones retain their appeal over many years.

For those too young to remember, *Moon Cresta* is one of those 'spaceships against the waves of aliens' affairs where the art of the game is accuracy of blasting, quickness of reactions (getting out of the way) and stabbing those defensive shields into action.

Incentive's *Moon Cresta* is a perfect copy of the original, and if it seems simple compared to current games, it is and always was a game and a half.

Graham Taylor

Program Moon Cresta Micro Amstrad Price £7.95 Supplier Incentive Software, 54 London Street, Reading RG1 4SQ.

Playing the fall guy

Rock n' Wrestle was Melbourne houses's big follow up to *Exploding Fist*. Despite the glowing quote credited to *Popular* on the back of the Amstrad version of the game (a bit of creative out-of-context-taking by MH) the review of the Commodore version had some doubts about playability.

Rock n' Wrestle is probably too clever. The range of wrestling moves and procedures is so vast (23 possible moves) that it detracts heavily from the playability of the game.

It looks good, just as good on the Amstrad, the 3D movement is certainly a technical achievement, but I doubt you'll really want to spend much time actually playing it.

What *Rock n' Wrestle* proves, perhaps, is that there is a limit to what you can ex-

pect people to do with joystick orientated, reaction testing games. *Fist* was enough, this is too much.

Graham Taylor



Program Rock n' Wrestle Micro Spectrum Price £9.95 Supplier Melbourne House, 60 High Street, Hampton Wick, Kingston Upon Thames, Surrey KT1 4DB.

Bounce, trundle and slurp

Whenver I read that my mission is to collect 25 keys my heart sinks, especially when I also have to rescue someone called Zelda. *Bug Eyes II* did not therefore fill

stand with one foot over the edge and leap whilst moving forward' type problems etc etc. The difference is that everything is on a bigger scale, *Bug Eyes* features almost *Frak*



me with confidence. However. Actually it has a few redeeming features.

Bug Eyes II is very *Manic Miner*, things bounce, trundle, leap and slurp around, getting in the way and losing you lives. There are platforms, lifts, 'seemingly impossible to collect keys that require you to

scale sprites, all nicely detailed.

Graham Taylor

Program Bug Eyes II Micro BBC Price £7.95 Supplier Audiogenic, 12 Chiltern Enterprise Centre, Station Road, Theale, Berks RG7 4AA.

Sounds like a job for . . . Redhawk

Redhawk is an unusual adventure from Melbourne House. It uses a style of presentation so utterly obvious and appropriate to

that the graphics are a series of frames, like those in comic strips, which scroll along as an action takes place. Similarly, when characters speak to one

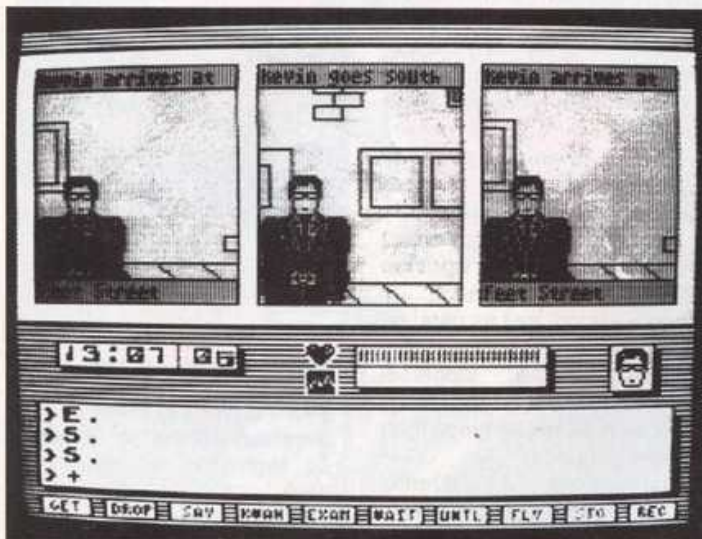
nary life, he becomes Redhawk, superhero, merely by saying 'Kwah' (superhero transformation methods have become more sophisticated since the days of Clark Kent and the telephone boxes). His task is to defuse a bomb in a local power station and, at the same time, clear the streets of criminals – too much concentration on either one of these activities will cause problems. Either there won't be enough time to get the bomb or he suffers loss of credibility amongst law-abiding citizens.

The graphics work very nicely indeed, not too detailed, but the scrolling comic strip technique is very pleasing. For its innovative features, *Redhawk* gets full marks. The problem

with the program is that the actual adventure is decidedly dodgy. There isn't much by way of a parser and the vocabulary seems fairly restricted. All too often the computer fails to understand a perfectly logical command and there is no attempt at making interesting and varied 'you can't do that' type responses.

I cautiously welcome *Redhawk*, although it is too expensive. It's worth a look, but I suspect the basic ideas can be (and will be) better implemented on later games.

Graham Taylor



some kinds of computer game it is astounding that nobody, to my knowledge, has thought of it before – comic strips.

It works more or less like a standard graphically illustrated adventure, the difference is

another you see a speech bubble form and the words scroll through it.

Redhawk himself is a slightly tongue-in-cheek super hero. A mild mannered photographer for the *Daily News* in his ordi-

Bloody deeds in the land of Meridian

It is gratifying to see a well-known company release a text-only adventure, since many companies will not touch an adventure unless 'pretty' pictures are included.

I am a firm believer that rich, imaginative text descriptions combined with a solid story, make for an enjoyable game. Indeed some adventurers would go further and say that pictures actually detract from the imagination. *Pilgrim* is all this and more. Set in the violent Land Of Meridian, author Rod Pike has excelled in his word-painting of this cruel and war-torn land.

The plot concerns the invasion of the peace-loving residents of Meridian who led a simple and happy life, watched over by the 'Guardian' who lived, so it was said, deep in the craggy mountains of Meridian and would, at some time in

their darkest hour of need, provide the ultimate help.

Suddenly, one dark stormy night, the hordes of the warlike Silvians attack your village, leaving behind them death and destruction, and you, the sole survivor of this onslaught, vow to find the Guardian and test the legend.

Despite mostly two word commands you'll find much to do and investigate. But be warned, this is no easy task for the faint-hearted or novice adventurer. However, it is a task you will enjoy immensely.

R Garrett

Program Pilgrim Micro
Commodore 64 Price £8.95
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The Spore looks like a cheap offering in more ways than one. The packaging is very basic indeed – but don't be fooled; this is a quality product in low budget clothing.

That's exactly what lies in store – or in *Spore* – because you're soon in an apparently deserted hospital with a strange green dust covering everything (could the title be a clue?).

The plot has some definite shades of *Day of the Triffids*, but that's no bad thing. Despite having both legs in plaster, you intend to investigate.

We're in the land of *Quill* and *Illustrator* again, but they're used to good effect, with simple pictures that appear quickly, using shading effectively.

Their use is far more imaginative than with most similar

offerings and they are fully credited on the cover. There are one or two spelling errors which is a pity as it spoils the professional look.

The adventure is rather linear at first, forcing you into the crash, but this is forgivable because it's not only amusingly written, it also manages to generate real suspense which – in the end – is what separates adventures you play to the end even if it takes months to solve from those you abandon after a dozen locations.

The gradual appearance of paragraphs keeps you hanging on for the outcome of events. I've also yet to see the appearance of the dreaded compass direction commands that make most adventures seem so artificial.

All in all, an excellent piece of interactive fiction from a new software house and at a budget price, available from the address below.

John Minson

Program The Spore Micro
Spectrum 48K Price £2.00
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Under the spell

This week Tony Kendle presents some vital clues for those struggling with *Spellbound* – straight from the author, David Jones

I know that a lot of people will be pleased to hear that we have received the long awaited tips for *Spellbound* from the hand of the author David Jones, complemented by some letters on the subject sent in by our readers. David has been kept busy by his latest project *Knight Tyme* so it was impossible to predict exactly when his tips were going to arrive, but now that they have done I'm sure that nobody will mind if we get straight on with them rather than concentrating on *Marsport* as promised.

By the time you read this both the Commodore version of *Spellbound* and the Spectrum 128K version of *Knight Tyme* (quite extraordinary value at the price) should be in the shops. The 48K Spectrum *Knight Tyme* and 128K *Spellbound* are expected sometime in May – even more good news is that David says he will let us have some clues that apply to both versions of *Knight Tyme* when everything is released (but that's no reason not to beat him to it if you get somewhere with the game).

David's next game will "probably not involve Magic Knight because I want to test a new way of doing arcade adventures, but there will be future games with the same character."

Before we get on with David's tips, can I give thanks to Jason Watkins of Gravesend for his pointers, which I will slip in with the rest in appropriate places. Another interesting letter comes from Eric Ellis of Fishponds in Bristol, who was intrigued by David's comment of a couple of weeks ago that as far he knew no one had finished *Spellbound*. Eric writes, "I'm sure a number of people like myself will write to say that we have done it (I had over 30 hours of time left)." Actually Eric you are the only one so far, so congratulations.

"*Spellbound* is the best game I have played, a bit like an Agatha Christie book full of clues, false trails and red herrings. Just when you think you are getting somewhere you either blow yourself up or fall into a pit, but at least with a touch of humour you are told how to avoid the same fate next time.

"*Spellbound* had me really hooked for about four weeks playing it into the early hours of the morning, making odd notes on every scrap of paper I could find – I had countless sleepless nights thinking about how to get over walls, how to keep Thor alive etc. I came to a complete standstill at

52% for 10 days and was convinced that the game was wrong." This midpoint puzzle seems to be troubling a lot of people and is the hardest bit in the game but David has asked us not to print the solution just yet. I will just say that the answer involves Thor and Erland.

Eric also writes that "there is one point in the game that may be a bug – on the second floor wall if you summon any three characters you can just walk through the wall – it could be a bug or another trick because if you do this you are unable to finish the game! Strength can be a bit of a problem but if you keep Florin under control and near the Teleportpad it's no trouble to pop back for a top up. Thor can be a pain as he seems to have no will to live at all and snuffs it despite many feeds but the game can be completed without even feeding him once which will surprise many people."

Cryptic hints

Well, after setting the scene with those cryptic hints let's get on with the nitty gritty from David. We'll let you know the secret of Thor next week.

First he was surprised at the start address given in the pokes from Paul Miller a couple of weeks ago – the actual start address of the game is obtained by

Randomise Usr 26627. One of the frequent comments we get is that readers find it refreshing that a programmer of David's quality doesn't try to stop people from hacking into the game. I suspect this is partly due to Mastertronic's pricing policy and I'm not sure how much say David would have in it if the cover price was £10 or so.

Lack of energy

Anyway regarding *Spellbound*, David confesses, "In the loader the start address was 26624. If any editing of the loader is performed the binary representation of the loader also gets automatically changed to become address 26624 and the game then jumps to a *Hackercatch* routine I wrote. I didn't do this to stop hackers, just to have a bit of fun with them. Any hacker worth his or her sodium chloride should cope with no problem.

"On to the proper clues. Read the Crystal ball every few minutes since there are a lot of clues to be had there and they will change as time passes. When you are not in the lift the ball can also be used to locate characters. It is useful to keep the transporter pad in the lift since you will then be able to get to different floors quickly from almost anywhere.

"If you are dying fast through lack of energy then you must use the bottle of restorative fluid from the left most room of the roof garden. Give this to Florin and then take it back for full energy. Then give it back to him etc. You could of course avoid this problem by using the pokes published.

"Before you can command anybody you must fetch one of the objects shown on the cassette cover from the roof garden.

"Once you have dropped the glowing bottle and released the Banshee it is useful to command her to help. Banshee has a series of clues that will change in a similar fashion to the ball.

"Lady Rosmar will help you later if you give her something to go with what she is carrying (ie, of the same category of object). She will help you in the room where you find the object.

"Samsun is a sporting chap and would like to have something decent to throw before he can help you with the object that he has. "Elrand Halfelen does not want or need the saxophone. There is some other instrument he would like to use."

The answer to more puzzles next week.



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The compilation craze hits adventures

Tony Bridge turns his attention to compilation tape comprising ten adventures, from Central Solutions

Central Solutions' *Ten Pack* was, for me, a *Nine Pack*, as one of the adventures, *Time Quest*, was missing from the tape sent to me for review: but unfortunately, this omission was soon rectified, threefold. Hugh Walker, old friend, immediately fired off his copy to me, and at the same time, I received another copy from Mr Kneller of Harrow. Central Solutions itself also supplied me with a copy of the errant adventure. Thank you all very much.

I have long since given up trying to fathom out the relationship between Central Solutions, Doubleplay and Logic Sales – the various adventures seem to go round and round these companies, and many of those *Quill'd* programs that have been mentioned in these columns have found their way on to tapes from one or other of the labels.

Time Quest, from the *Quill* of Peter L Robinson, is, I'm glad to say, well worth looking at, and makes the *Ten Pack* even better value than I had thought. Your hero starts his quest in a strange land, whose king has enjoined you with promises of great wealth, to find the seven fabulous treasures – methinks that these treasures are not going to let up their secrets lightly! The location descriptions are rather sparse, and problems will only be solved by careful matchings of words to deed. For example, *Push* the boulder to reveal a useful object tucked away beneath (for some reason), but later, you must *Slide* a table. There is no clue as to the word which must be used, so it's a case of out with the thesaurus and work through the synonyms.

This is a pretty good, though very small, adventure for beginner: an expert will not be diverted for long. However, despite the

short text descriptions, there is a good atmosphere about the game, and there is plenty to do while problems are being chewed over. And it's nice to see *The Quill* getting lots of mentions in the form of magic words and other gimmickry. Not worth an awful lot, I feel, on its own, though well worth a look at in the company of the other nine adventures on the *Ten Pack*. More details from Central Solutions Ltd, 500 Chesham House, 150 Regent Street, London W1R 5FA.

Now to a *Quill'd* program on the Amstrad. Longtime readers of *The Corner* will remember Neil Scrimgeour from many months ago (have you finished *Ring of Darkness* yet, Neil?). He has recently completed his own adventure for the Amstrad, *The Lost Phirious*, released through his own software house, Vidipix. This is the first *Quill'd* program that I've seen on the Amstrad, and it isn't too bad. It's not brilliant, either, but then the £2.50 asking price is not going to break the bank if you want to have a look. It's the first part of a 'quadrilogy' concerning your quest to recover the space cargo hauler *Phirious* and its 'mysterious contents': the story starts on board the *Casiopia*, a stranded space ship that you, on your way to Earth in search of more info on the fabled *Phirious*, have stumbled across drifting helplessly in space, just like the *Marie Celeste*. As you board the stranded hulk, your vessel explodes, leaving you to sort out the mess.

Stranded hulk

The scenario is hardly original, and the layout and appearance of the adventure (despite the name of the company, there are no graphics) are rather unprepossessing and haphazard – sometimes you are

told *Exits S,W* and at other times, *Exits are East, North*. The problems will have you scratching your head for a while, though careful scrutiny of messages will be of some use. An example here is the robot that kills you off with monotonous regularity, until you realise what he has said before despatching you: "Disgusting!". And here you are, *carrying* the fig leaf! Wearing it of course allows you past the robot – there are a couple of other locations which are similarly impassable until a simple routine is followed. And if you find a problem insoluble, don't as suggest by the *Help* command, write to me, as I haven't been given a help sheet either!

Four tapes

Although I wouldn't normally find it possible to recommend this adventure above others (I find such responses as "You cannot do that, my old goos-goog" and "what next, thy Mega-brain" particularly stupid and boring), the extended scenario spread over four tapes, and the suspense of finding the fabled treasure of *The Phirious* may keep the player engrossed. One other point is worth mentioning: the program tells you where to start your map, so there'll be no running off the sheet of paper after the first half-dozen locations, very useful!

Vidipix can be contacted at 125 Occupation Road, Corby, Northants NN17 1EG.

ADVENTURE HELPLINE

Sphinx on Electron. Where can I find the mouse to shift the elephant? How do I go west at the hall of the mountain king without the goblins tearing me limb from limb? Why is it I can only occasionally open the clam in the oyster room? What are the correct steps to open the clam? J B Lamont, 19 Halbert St, Shawlands, Glasgow, Scotland.

The Hobbit on Spectrum. I entered the goblin's dungeon and found a trapdoor but I can't open it. Hayden Price, 96 Manor Road, Upper Deal, Kent.

Message from Andromeda on Amstrad. I can't

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get the glowing sphere off the sunken dish upon the glass pedestal. Any help much appreciated, C C T Eng, 14 Amner Rd, London SW11

Heroes of Karn on Amstrad. I can't find the white potion or key for the golden gates to the north. I've freed Beren and Istar - what now? Can offer full solution on Jewels of Babylon. Send SAE to C C T Eng, 14 Amner Rd, London SW11



Castle of Terror on C64. I'm stuck in the Z part, and can't go west through drape. Tom Ellenrieder, 1 Brackenhill, Sandy Lane, Surrey KT11 2EW

Adventure Quest on C64. Who is the companion and where? Where are the four elements? Tom Ellenrieder 1 Brackenhill, Sandy Lane, Surrey KT11 2EW

Hitchhikers Guide on C64. I can't pen the screen door. Brendan Bradley, 54 Ashwood Road, Clondalkin, Dublin 22, Ireland

Lord of the Rings on Spectrum. I can't get the broken medallion from the green knight. Simon Lilley, 21 Roberts St, Rushden, Northants

Mordon's Quest on Spectrum. How do I get the torch across the quicksand? How do I open the south wing door? Gary Ball, 14 Old Mill Avenue, Sutton Leach, St Helen's, Merseyside

The Helm on Spectrum. How do I use the keyboard without falling through the trapdoor? Pauline Garnett, 13 Hogarth Court, Artists Way, Andover, Hants

Claymorgue Castle on Spectrum. I have completed half of the adventure, and want the full solution. Many adventures to swop! Pedro Diego Nungs, R Quelimane, 12 Carravelos, 2775 Parede, Portugal

The Hobbit on Spectrum. I've got the ring - how do I get out of the goblin's tunnels? Barry Mayes, 33 Briscoe Road, Pitsea, Basildon, Essex

Spiderman on Spectrum. How do you make the web formula? Barry Mayes, 33 Briscoe

Road, Pitsea, Basildon, Essex

Castle of the Skull Lord on Electron. How do I get out of the village once I've completed the tasks? Mrs J M Smith, 310 Twyford Avenue, Portsmouth, Hants

Sphinx Adventure on Electron. After 12 months - no score, no progress. G F Monnoyer, 26 Raylands Way, Leeds LS10 4AQ

Bored of the Rings part 2 on Spectrum. Where is the coin? How do I open the desk? How do I get out of the maze and morona? James Cameron, 6 Windy Hill, Hutton, Brentwood, Essex

Mordon's Quest on C64. How do you defeat the gladiator? N Hooks, 3 Overstone Court, Old Catton, Norwich, Norfolk

Marie Celeste on Spectrum. Where are the dymethium ingots? Alan Hughes, 22 Tyddyn To, Menai Bridge, Gwynedd

Castle of Terror and Red Moon on C64. C of T - how do I kill Dracula? RM - how do I get past room of blinding light? Jonathan Dale, 110 Thomson Drive, Codnor, Derbyshire

Demon Knight on Dragon 32. Any clues most welcome, Mrs M. Green, 10 Rowan Close, London Rd Estate, Thetford, Norfolk

Kentilla on Spectrum. Where do I find the bow and Arrow? R C Collinson, address as above.

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CBM 64

Jeff Minter's latest '64 game, **IRIDIS ALPHA**, has emerged from its chrysalis and looks beautiful. It includes yet another innovative game structure and like all of Jeff's work it has to feel right - he writes 'em to play 'em.

The game is made up of two different and challenging subgames, and features a nicely-animated and distinctly cute droid that can scuttle, jump, take off, even transform itself into a fast fighter craft with suitably loud and deadly laser cannon.

For those who like a little subtlety in with the shooting, this is going to be a blast with class...

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VIC 20

Message to owners; **DON'T THROW IT AWAY!**

VIVA VIC, a collection of eight LLAMASOFT games for the VIC 20, is now ready.

The contents range through **ABDUCTOR** and **GRIDRUNNER**, to **METAGALACTIC LLAMAS** and the amazingly fast **HELLGATE**. Many of the games are not available now commercially, and we feel we are doing everyone a favour, including ourselves, by publishing them in this form. The package includes Jeff's historical comments and comprehensive instructions.

GREAT VALUE AT £6.50 (tape)

COMIN' SHORTLY

CBM 16

We have now had **MATRIX** the enhanced and expanded successor to the famous **GRIDRUNNER**, re-written for the '16. It includes all the features of the original version, including that traitorous humanoid, 'the **SNITCH**', and the hallucinatory camels. **C16 MATRIX** features an even faster fire-rate than the original. Strategic decisions and rapid reactions become more and more essential as the game progresses... A similar conversion of **LASERZONE**, the hectic and challenging game which was such a notable success on the Vic 20 and the '64, will also appear shortly. It features a unique and ingenious method of joystick control. As you learn the skills of laser fire, things get rougher and tougher for those pesky aliens! Great sonix too.

..and yonder, still before us, lies.. the **AMIGA..**

LLAMASOFT



TOOLBOX

by Paul Murray

Two more new commands for your Spectrum Toolbox this week – an On Error command and a Block Delete facility – all in glorious machine code.

Error is a run-time facility and should be the first line in any program in which error trapping is required, together with the value of the line number to which control is to be transferred if an error is detected.

There are two entry points to Error. Randomize Usr 64163 is equivalent to 'On Error Goto', as a Return can be made to the statement subsequent to that at which the error occurred.

Randomize Usr 64167 is equivalent to On Error Goto as no record of the point at

which the error occurred is kept. The line number to which control is transferred is entered in Basic, using the variable LIN. Thus:

10 Let LIN= 1000: Randomize Usr 64163 is equivalent to 10 On Error Goto 1000; whilst 10 Let LIN= 1000: Randomize Usr 64167 is equivalent to 10 On Error Goto 1000

In order to permit different courses of action to be taken for different errors, a record is kept of the code of the error which occurred. This may be obtained by Peeking at 64283, which is the memory location at which the code is stored. The error codes are as shown below.

1. NEXT without FOR
2. Variable not found
3. Subscript wrong
4. Out of memory
5. Out of screen
6. Number too big
7. RETURN without GOSUB
8. End of file
10. Invalid argument
11. Integer out of range
12. Nonsense in Basic
13. Break-CONT repeats
14. Out of DATA
15. Invalid file name
16. No room on line
17. STOP in input
18. FOR without NEXT
19. Invalid I/O device
20. Invalid colour

21. Break into program
22. Ramtop no good
23. Statement lost
24. Invalid stream
25. FN without DEF
26. Parameter error
27. Tape loading error

Note that error codes 0 (OK), and 9 (STOP statement), are missing. This is because the program does not treat these as being errors and allows them through.

Delete deletes a block of lines between specified limits. The limits of deletion are entered in Basic using:

FL = First Line. Lower limit of deletion.
LL = Last Line. Upper limit of deletion.

For example, if

Let FL= 40: Let LL= 120: Randomize Usr 64493 is entered, then all lines in the range 40 to 120 inclusive will be deleted.

Don't forget, to install the routines, you'll have to use the Basic loader program, printed in the April 10 issue. However, for the faint hearted, cassette copies of the whole suite of programs can be obtained from Paul Murray, for the sum of £3. Write to 5 Hanham Mills, Bristol B15 3NU.

Name	Start Address	Parameters
Error	64163/64167 (Gosub/Goto)	LIN= Line to branch to on error (Error code picked up at 64283)
Delete	64493	FL= First line LL= Last line

```

64010 62 2 205 1 22
64015 221 33 248 249 175
64020 17 17 0 55 221
64025 229 205 86 5 221
64030 225 48 238 221 229
64035 221 126 0 17 192
64040 9 205 10 12 6
64045 10 33 249 249 126
64050 229 197 215 193 225
64055 35 16 247 62 13
64060 215 24 27 128 83
64065 84 65 82 84 73
64070 78 71 32 65 84
64075 186 76 69 78 71
64080 84 72 186 78 79
64085 32 76 73 78 197
64090 17 63 250 175 205
64095 10 12 221 225 221
64100 78 13 221 70 14
64105 221 229 221 126 0
64110 167 32 15 120 254
64115 128 32 10 62 2
64120 17 63 250 205 10
64125 12 24 6 205 43
64130 45 205 227 45 62
64135 13 215 17 63 250
64140 62 1 205 10 12
64145 221 225 221 78 11
64150 221 70 12 205 43
64155 45 205 227 45 62
64160 13 215 201 62 1
    
```

CHECKSUM=16826

```

64493 24 84 33 79 252
64498 34 93 92 205 178
64503 40 48 2 207 1
64508 35 17 146 92 1
64513 5 0 237 176 231
64518 205 178 40 56 239
64523 17 151 92 1 5
64528 0 35 237 176 239
64533 225 224 56 205 162
64538 45 96 105 205 110
64543 25 34 233 251 205
64548 162 45 96 105 205
64553 110 25 40 1 235
64558 237 91 75 92 229
64563 167 237 82 225 200
64568 35 35 94 35 86
64573 35 25 34 235 251
64578 201 205 239 251 237
64583 91 233 251 205 229
64588 25 207 255 70 76
64593 58 76 76 58 43
    
```

CHECKSUM=12774



SUBMARINE

by Daniel Bishop

To carry on from last week, beware of being too close to the sub. It may try to defend itself by firing torpedoes at you. If you are unlucky this may result in the destruction of your ship. Otherwise, the torpedo trails can give you a valuable clue, since they emanate from the location of the sub.

Another clue which you may be lucky enough to spot is the periscope. When the sub is just below the surface it may up-periscope. However, the wake caused by the periscope being out of the water is not very noticeable so you need to have sharp eyes to spot it.

As well as moving about as your ship may do, it may help you to know that the submarine alternately rises to the surface and then dives to the sea bed. The sub only fires torpedoes when it is just below the surface. But it may then dive very quickly to avoid your depth charges, if its torpedoes fail to destroy your ship!

Your mission is, of course, to destroy the submarine. When you think you are close enough to the sub, fire a depth charge by pressing the fire button or by pressing the spacebar. If your charge is successful you will hear the sub blowing. Otherwise you are free to fire another, if you can spare it!

Note that you will have to be almost upon the submarine to be sure of getting it. Also, the deeper the sub, the less effective are your depth charges.

The submarine may also ram your ship in a desperate bid to destroy you. This is, however, a rare occurrence, unless you continually cruise just above the sub!

To receive your briefing, press B at any time during the game. You will be given precise orders from the Admiral, plus information on which keys to use to control your ship.

When the game ends you may lose or gain points, depending on the outcome.

470-580 Get user's input and act upon it
590-790 Various calculations, mostly involving ship and sub movement
800-850 Briefing subroutine
860-910 Update display subroutine
920-970 Speed modifying subroutine
980-1030 Helm modifying subroutine
1040-1100 Depth charge firing subroutine
1110-1200 Explosion effects subroutine

1280-1310 'Bip' sound effect subroutine
1320-1340 Sets sonar 'flag' to 'on'
1350-1380 Clear display subroutine
1390-1470 Torpedo fired subroutine
1480-1620 End of game subroutine
1630-1660 Teleprint subroutine. This prints TP\$ like a printer would, fairly slowly with that staccato sound effect we know so well!

```

540 IF GAMEDX=5 THEN GOSUB 1490:GOSU
B 1340:GOTO 320
570 IF (USERX AND 1) OR (USERX AND 2)
THEN GOSUB 930
580 IF (USERX AND 4) OR (USERX AND 8)
THEN GOSUB 990
590 SHIPDX=SHIPDX+HELMX*SPDX/4
600 IF SHIPDX<0 THEN SHIPDX=SHIPDX+36
0
610 IF SHIPDX>360 THEN SHIPDX=SHIPDX
-360
620 SHIPX=SHIPX+SPDX*SIN(SHIPDX)/5
630 SHIPY=SHIPY+SPDX*COS(SHIPDX)/5
640 IF SHIPX<639 THEN SHIPX=639
650 IF SHIPX<0 THEN SHIPX=0
660 IF SHIPY>383 THEN SHIPY=383
670 IF SHIPY<0 THEN SHIPY=0
680 SUBX=SUBX+SIN(SUBDX)
690 SUBY=SUBY+COS(SUBDX)
700 SUBZX=SUBZX+SUBDX
710 IF SUBX>639 THEN SUBX=639:SUBDX=1
80+RND(1)*179
720 IF SUBX<0 THEN SUBX=0:SUBDX=RND(1)
*180
730 IF SUBY>383 THEN SUBY=383:SUBDX=9
0+RND(1)*180
740 IF SUBY<0 THEN SUBY=0:IF RND(1)<0
.5 THEN SUBDX=270+RND(1)*89 ELSE SUBD
X=RND(1)*90
750 IF SUBZX=0 THEN SUBZX=1
760 IF SUBZX=40 THEN SUBZX=-1
770 TMX=10.5-(TIME-TMX)/9000
780 GOSUB 1360
790 GOTO 480
800 REM- Briefing
810 TP$="CODE: 200:GOSUB 1640:TP$="F
ROM: FLEET COMMANDER ADMIRAL D.J.BISH
OP:GOSUB 1640:TP$="TO: CAPTAIN OF H.
M.S. ARNOLD:GOSUB 1640
820 TP$="MESSAGE FOLLOWS:"GOSUB 1640
830 TP$="ENEMY SUBMARINE IN YOUR SECTOR
STOP VERY DANGEROUS STOP:GOSUB 1640:
TP$="HAS ALREADY DAMAGED HMS ARK AMST
RAD STOP DETACH FROM FLEET STOP:GOSUB
8 1640
830 TP$="LOCATE AND DESTROY STOP UTMH
ST URGENCY STOP BEST OF LUCK STOP:GO
SUB 1640:TP$="END OF MESSAGE STOP:GO
SUB 1640
840 TP$="USE 1 X + AND ? KEYS OR
JOYSTICK TO CONTROL YOUR SHIP:GOSUB
1640:TP$="USE SPACEBAR OR FIREBUTTON
TO FIRE DEPTH CHARGES:GOSUB 1640
850 RETURN
860 REM- Update display
870 PLOT -5,-5,0:MOVE SHIPX-4,SHIPY+8
:TAG:PRINT SHIPX:ROUND(SHIPDX/360*8)
MOD 8):
880 IF SUBX=0 AND RND(1)<0.5 THEN PL
OT SUBX,SUBY:PLOT SUBX+1,SUBY+1
890 ORIGIN 0,0,0,639,399,0:MOVE 95,24
:DRAWR SPDZ*8,0,1:MOVE 376,24:DRAWR H
ELMX*8,0:ORIGIN 0,56,0,639,359,56
900 TAGOFF:LOCATE 67,24:PRINT USING "
##":DCX:LOCATE 77,24:PRINT USING "##"
:TMX:
910 RETURN
920 REM- Speed
930 IF USERX AND 1 THEN SPDZ=SPDX+1
940 IF SPDZ>28 THEN SPDZ=28
950 IF USERX AND 2 THEN SPDZ=SPDX-1
960 IF SPDZ<0 THEN SPDZ=0
970 RETURN
980 REM- Helm
990 IF USERX AND 4 THEN HELMX=HELMX-1
1000 IF HELMX<-10 THEN HELMX=-10
1010 IF USERX AND 8 THEN HELMX=HELMX+1
1020 IF HELMX>10 THEN HELMX=10
1030 RETURN
1040 REM- Depth charge
1050 SOUND 1,0,20,15,0,0,30:FOR LZX=1
TO 28:SOUND 1,LZX+500,3,7-LZX/4,0,0,
LZX:NEXT:SOUND 4,330,150,0,3,0,30
1060 DCX=DCX-1
1070 IF DCX=0 THEN GAMEDX=5
1080 IF RND(1)<12/RANGEX THEN TM1=TIM
E:GAMEDX=4

```

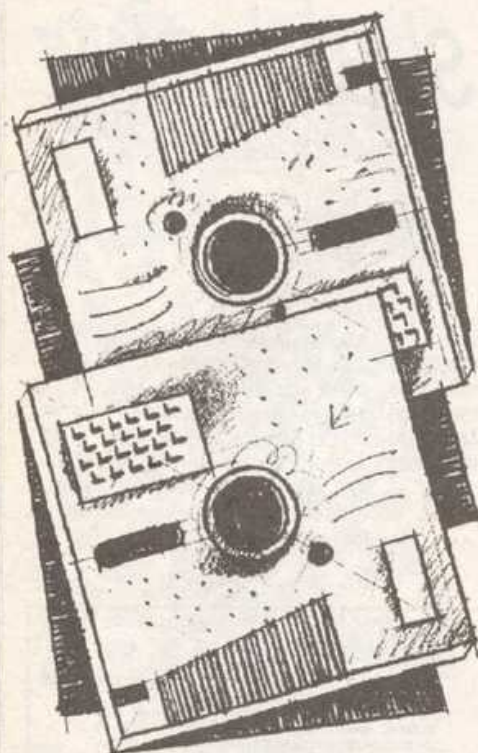
```

1090 FOR LZX=1 TO 5000:NEXT
1100 RETURN
1110 REM- Explosion
1120 FOR LZX=15 TO 0 STEP -1
1130 SOUND 1,0,40,LZX*0.0,RND(1)*31
1140 SOUND 4,0,20,LZX*0.0,RND(1)*31
1150 IF GAMEDX<4 THEN FOR L1X=1 TO
2:MOVE SHIPX,SHIPY:PLOT RND(1)*20-10
,RND(1)*20-10,0:NEXT:PLOT RND(1)*30-
15,RND(1)*30-15
1160 IF GAMEDX=1 OR GAMEDX=3 THEN I
F RND(1)<0.5 THEN BORDER 6,24 ELSE BO
RDER 15,25
1170 NEXT
1180 FOR LZX=1 TO 6000:NEXT
1190 BORDER 11
1200 RETURN
1210 REM- Click
1220 FOR LZX=1 TO 200:NEXT
1230 SOUND 2,0,1,14,0,0,1
1240 RETURN
1250 REM- Bing
1260 SOUND 1,30,40,15,1
1270 RETURN
1280 REM- Bip
1290 SOUND 4,30,9,12,2
1300 AFTER RANGEX GOSUB 1330
1310 RETURN
1320 REM- Sonar on
1330 SONARX=-1
1340 RETURN
1350 REM- Clear display
1360 CLS
1370 ORIGIN 0,0,0,639,399,0:MOVE 96,2
4:DRAWR 159,0,0:MOVE 296,24:DRAWR 159
,0:ORIGIN 0,56,0,639,359,56
1380 RETURN
1390 REM- Torpedo
1400 NX=SHIPX-SUBX:N1X=SHIPY-SUBY
1410 IF RND(1)<5/RANGEX THEN GAMEDX=
3 ELSE NX=NX-10+RND(1)*20:N1X=N1X-1
0+RND(1)*20
1420 FOR LZX=1 TO RANGEX
1430 MOVE SUBX,SUBY:IF RND(1)<0.3 THE
N PLOT NX*(LZX/RANGEX),N1X*(LZX/RAN
GEX),0
1440 SOUND 2,0,1,7*(LZX/RANGEX),0,0,1
1450 NEXT
1460 IF GAMEDX=0 THEN FOR LZX=1 TO 1
000:NEXT
1470 RETURN
1480 REM- End of game
1490 ON GAMEDX GOTO 1500,1510,1520,1
530,1540
1500 NX=-150:TP$="THE SUBMARINE RAMM
ED YOUR SHIP AND BOTH ARE DESTROYED":
GOTO 1550
1510 NX=-50:TP$="YOU FAILED TO DESTRO
Y THE SUBMARINE WITHIN THE TIME LIMI
T":GOTO 1550
1520 NX=-200:TP$="THE SUBMARINE SANK
YOUR SHIP WITH A TORPEDO":GOTO 1550
1530 NX=300:DCX+(90000-TM1+TM0)/500:T
P$="CONGRATULATIONS CAPTAIN. YOU HAV
E DESTROYED THE ENEMY SUBMARINE":GOTO
1550
1540 NX=-50:TP$="YOU ARE OUT OF DEPT
H CHARGES"
1550 GOSUB 1640
1560 TP$="YOUR SCORE "+STR$(NX)
1570 GOSUB 1640
1580 SCOREX=SCOREX+NX
1590 TP$="YOUR TOTAL SCORE IS NOW "+S
TR$(SCOREX)
1600 GOSUB 1640
1610 LOCATE 67,24:PRINT SPC(12)
1620 RETURN
1630 REM- Teleprint
1640 FOR LZX=0 TO 2000:NEXT:LOCATE 1,
2:PRINT TAB(80):LOCATE 1,2:PRINT CHR
$(143):GOSUB 1220:FOR LZX=0 TO 2000:
NEXT
1650 FOR L1X=1 TO LEN(TP$):PRINT CHR$(
0):MID$(TP$,L1X,1):CHR$(143):GOSUB
1220:NEXT
1660 RETURN

```

Program Notes

Line No	Remarks
10-70	Remarks
80-250	'Once only' initialisation. Note the circumflexes in line 180. They occur elsewhere in the program as well. Use the 'up-arrow' key (next to CLR) on the Amstrad keyboard
260-310	Screen display routine
320-390	'Every game' initialisation
400-790	Program core
400-460	Act upon various possible occurrences. Note that the Amstrad's AFTER interrupt facility is used in this program to control the sonar



DISC MONITOR

by D Baker

The Disc Monitor program is in two parts, the first being composed mainly of program messages and counters, etc, whilst the second is the run code itself.

Save each part as a Basic listing (as a

precaution) prior to loading and running Part One (printed this week). If the checksum doesn't flag an error Load and Run Part Two (printed next week) - this takes approx 20 seconds to run. If all is still OK, the program can be saved as a block of code from 49152 to 51976 (\$C000 - \$CB08) via a monitor or similar. The program is started via a SYS 51484 (\$C91C) command.

Assuming you have successfully loaded and started the program, you will see the current Disc Status and 'Menu' in the bottom part of the screen. The Disc Status will update regularly during program execution, informing you of any errors.

Commands are entered via the Function keys, and are as follows:

(F1) Load - You are prompted for *Track* then *Sector*; enter the required values in decimal, pressing *Return* as each is entered. The requested block will load into 1541 Ram and C64 Ram. The first page of the block will be displayed. (The display and paging are described later).

(F2) Chain Load - If you wish to 'step

through' a program or file, block by block and don't want to keep entering the values for the next *Track/Sector*, you can load the next block via F2. If you reach the last block and try to chain again, an end of program message is displayed.

(F3) Page - As described later, only half a block is displayed at a time. This key 'toggles' between the two halves to display the other half.

(F4) Save Block - This saves a displayed block to the *Track* and *Sector* it was loaded from. (Can be used to transfer disc to disc, if you know your way around the Ram etc!).

(F5) Printout - This dumps a whole block to the printer, giving Hex and ASCII as per the normal display format.

(F6) Backup - This is a no frills, six pass disc copier that produces a 100% copy of the original. It does not reproduce commercial protection devices, read errors, etc, and is only designed to copy unprotected software, prompts tell you when to swap discs. To abort a copy, press (A) when the 'Insert Source Disc' message is displayed.

```
10 REM DISK MONITOR PART ONE
```

```
20 PRINT CHR$(147)
```

```
30 NR=0
```

```
40 FOR X=49180 TO 49482
```

```
50 READ A
```

```
60 POKE X,A:NR=NR+A
```

```
70 NEXT X
```

```
80 IF NR<>18813 THEN PRINT "DATA ERROR-NR=";NR
```

```
90 STOP
```

```
100 DATA 21, 21, 21, 19, 18, 17, 1, 7, 13, 18, 25, 31, 36, 35
```

```
110 DATA 85, 49, 58, 32, 56, 32, 48, 32, 49, 56, 32, 32, 49, 66
```

```
120 DATA 45, 80, 32, 56, 32, 48, 84, 82, 65, 67, 75, 32, 61, 32
```

```
130 DATA 64, 83, 69, 67, 84, 79, 82, 61, 32, 64, 91, 70, 49, 93
```

```
140 DATA 45, 76, 79, 65, 68, 32, 91, 70, 50, 93, 45, 67, 72, 65
```

```
150 DATA 73, 78, 32, 91, 70, 51, 93, 45, 80, 65, 71, 69, 32, 36
```

```
160 DATA 48, 48, 47, 36, 56, 48, 64, 91, 70, 52, 93, 45, 83, 65
```

```
170 DATA 86, 69, 32, 91, 70, 53, 93, 45, 80, 82, 73, 78, 84, 79
```

```
180 DATA 85, 84, 32, 91, 70, 54, 93, 45, 67, 79, 80, 89, 64, 91
```

```
190 DATA 70, 55, 93, 45, 81, 85, 73, 84, 32, 60, 69, 68, 73, 84
```

```
200 DATA 32, 66, 89, 32, 79, 86, 69, 82, 84, 89, 80, 73, 78, 71
```

```
210 DATA 62, 42, 73, 78, 83, 69, 82, 84, 32, 83, 79, 85, 82, 67
```

```
220 DATA 69, 32, 68, 73, 83, 75, 64, 73, 78, 83, 69, 82, 84, 32
```

```
230 DATA 32, 67, 79, 80, 89, 32, 32, 68, 73, 83, 75, 64, 66, 65
```

```
240 DATA 67, 75, 85, 80, 32, 67, 79, 77, 80, 76, 69, 84, 69, 32
```

```
250 DATA 32, 32, 64, 84, 72, 69, 78, 32, 80, 82, 69, 83, 83, 32
```

```
260 DATA 65, 78, 89, 32, 75, 69, 89, 64, 1, 18, 25, 31, 21, 19
```

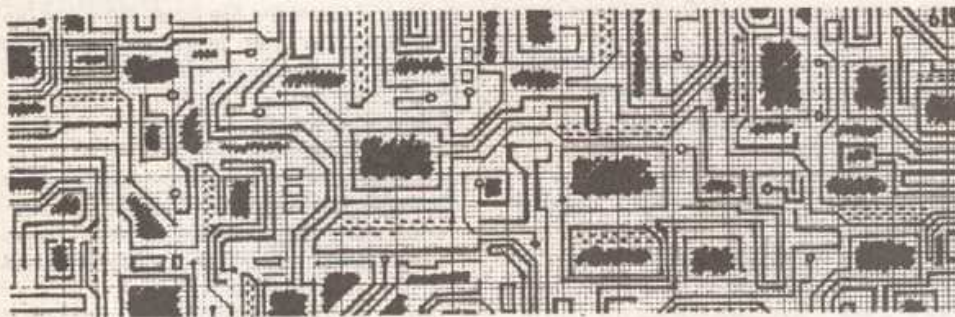
```
270 DATA 18, 17, 84, 82, 65, 67, 75, 32, 76, 73, 77, 73, 84, 32
```

```
280 DATA 48, 49, 32, 45, 32, 51, 53, 33, 64, 83, 69, 67, 84, 79
```

```
290 DATA 82, 32, 78, 82, 32, 84, 79, 79, 32, 72, 73, 71, 72, 33
```

```
300 DATA 64, 0, 21, 69, 78, 68, 32, 79, 70, 32, 80, 82, 79, 71
```

```
310 DATA 82, 65, 77, 47, 70, 73, 76, 69, 64
```

PRINT OUT

by Barry Ashfield

The excellent Brother EP44 typewriter printer has proved remarkably versatile for use with QL. Not only is it a quality printer for use with program listings or the *Quill* package, but it can also be used as a portable typewriter. Letters or programs can be typed into the EP44 on the train or in the bath if you like and can be transferred to the QL at your leisure.

Basic programs can be stored indefinitely in the printers memory to be run by the QL when required. In fact for short Basic programs, it is often faster and more convenient to load them from the printer rather than the microdrives. The printer will also act as an RS-232C terminal with 2 way communication between printer and computer.

Firstly, let's deal with connecting the two together. The Sinclair RS232 lead works fine with the EP44, but it is possible to make your own lead up if you can get hold of the special modulator. The connections are:

QL ser1		25 pin "D" plug	
1	GND	SG	7
2	TXD	SD	2
3	RXD	RD	3
4	DTR	ER	20
5	CTS	S	5

Now set up the EP44 by switching the mode switch to *Terminal*. The display will now read *Off Line*. Press the */Mode* key and the *Baud Rate* will be displayed. Use the *Return* key until *Baud Rate 1200* is displayed. Pressing */Mode* again will accept this setting and invite you to set *Bit Length* next. Continue using the */Mode* and *Return* keys until all the settings are the same as List 1. Press the *Cont* key and you are ready to print. Turning off the printer does not affect these settings so you only have to do this once.

For direct printing from the QL to the printer, type in *Baud 1200: Open#10, ser1c* and press *Enter*. Anything you now *Print* to #10 will now be printed on the EP44. If you wish to print a '£' sign use *Print#10, Chr\$(156)* or use *Ctrl+Shift+,* to give the Beta symbol which is printed by the the EP44 as a '£'.

To print a program listing, just type in *Lis#10* and the program will be listed on the printer. You must *Close#10* before switching off the printer or the QL will lock up. If this happens just turn the EP44 on again and *Close#10*.

The only problem with using the EP44 with *Quill* is printing the '£' sign correctly and using the underline facility.

To set up to give normal printing of all

LIST 1: BROTHER EP44

BAUD	1200
BIT LENGTH	8
PARITY	N
NEWLINE	CR
CODE	88IT
ER	Y

LIST 2: QUILL, INSTALL BAS

DRIVER NAME	EP44
PORT	ser1
BAUD RATE	1200
PARITY	NONE
LINES/PAGE	0
CHARACTERS/LINE	80
CONTINUOUS FORMS	YES
END OF LINE CODE	CR
PREAMBLE CODE	NONE
POSTAMBLE CODE	NONE
BOLD ON	NONE
BOLD OFF	NONE
UNDERLINE ON	DEF
UNDERLINE OFF	DEF
SUBSCRIPT ON	NONE
SUBSCRIPT OFF	NONE
SUPERSCRIP ON	NONE
SUPERSCRIP OFF	NONE
TRANSLATE1	£.p (type 96, 156)
TRANSLATE2	,@ (type 127, 64)
TRANSLATE3	0,0,BS,/ (type 48, 48, 8, 47)
TRANSLATE4	NONE
TRANSLATE5	NONE
TRANSLATE6	NONE
TRANSLATE7	NONE
TRANSLATE8	NONE
TRANSLATE9	NONE
TRANSLATE10	NONE

characters, set up the EP44 as in List 1 and then *run* the *Install Bas* program on the *Quill* cartridge. Keep the *Quill* cartridge in Drive 1 and enter the parameters in List 2. Some difficulty may be encountered on setting up the *Translate1* which ensures correct printing of the '£' sign and the following procedure should be used:

- 1) use cursor keys to move up/down to *Translate1*
- 2) use cursor left or right to give change item mode.
- 3) Type 96, 156 and press enter
- 4) If all is correct *Translate1* should appear as in List 2

Repeat the procedure for *Translate2* and 3 which print the zero and copyright symbols. When all is correct press F5 to install the printer driver and you can reset the QL and run *Quill*. Note that the superscript and subscript modes will be ignored with these settings.

Text can be sent very easily from the printer to the QL. Use the same settings on the EP44 as and on the QL just type in: *Baud 1200: Copy ser1c To scr.* Press *Enter* and with the EP44 in terminal mode, you can type directly on the QL's screen. If you have any test stored in the printer's memory, press the key marked *+ /text* and it will be sent to the screen also. To end transfer press *Code+Z* on the EP44. Of course you can't do anything much with this except print on the screen.

If you have an editor (such as the one

BASIC program A

```

100 REMark transfer EP44 textfile to form
110 REMark suitable for import to Quill
120 BAUD 1200
130 OPEN#10,ser1c
140 OPEN_NEW#20,mdv1_ep44_exp
150 CLS#0: PRINT#0,"CODE+ESC ( EP44 ) to
    end transfer"
160 REPEAT in_loop
170 a$=INKEY$(#10,-1)
180 IF CODE(a$)=27 THEN EXIT in_loop
190 IF CODE(a$)=156 THEN
200 PRINT "£";:PRINT#20,"£";
210 ELSE PRINT a$;:PRINT#20,a$;
220 END IF
230 END REPEAT in_loop
240 CLOSE#20:CLOSE#10
    
```


Programming: QL

supplied with the *Adder Editor/Assembler* text can be sent from the printer's memory to the editor by just giving *ser1c* as a filename and pressing *+ /text*. When the *Text End* message appears on the printer again, press *Code+Z* to send the EOF marker and end transmission. The *Baud* rate must be set to suit the printer (usually 1200) before attempting any transfer of text.

Text can also be sent from the printer to a Microdrive file and then imported into Quill. In fact this article is mostly written on the EP44 in *Store Text* mode and then later transferred to Quill for final editing and printing. The file to be imported *must* have

the extension *-exp* or *Quill* will not import it.

Set up the printer as in List 1 and place a suitable cartridge in Drive-1 then:

- 1) Load the Basic program *_A* but don't run it yet.
- 2) Have text ready in printer's memory.
- 3) Put EP44 in Terminal mode and press *cont* and *+ /text*.
- 4) Run the Basic program and the text will be sent to *mdv1_ep44_exp*
- 5) When the *Text End* message appears press *Code+Esc* to close the file. Do not use *Code+Z* as this will stop with an EOF

error and leave the file open. Running the program after you have sent the text ensures that the unwanted control characters are not sent.

6) Now load up *Quill* and place the cartridge with the export file in drive 2.

7) Select the Files command and then the Import option and enter the full filename *mdv2_ep44_exp* and the text is imported to *Quill* and can be edited as required and saved as a normal document.

As far as Basic programs go, if the text stored in the printer is in the form used by a Basic program (with line numbers), it can be loaded and Run quite simply with: *Baud 1200 : 1run ser1c*, and press *+ /text* to send the Basic program.

Code+Z ends the transmission and runs the program. If you have made any errors, they will be flagged by the QL and the program will stop at that line. This is faster than the microdrives for short programs, so it is possible to store often used programs of up to 3726 bytes in the printer for instant recall.

Finally, to use the EP44 as a terminal, first set up the printer as in list 1 and then *1run* Basic program - B. Anything typed on the QL will be printed on the printer and characters typed on the printer will be printed on the QL's screen. The program takes care of the '£' sign to ensure normal printing. *Code+Esc* on the printer ends the program.

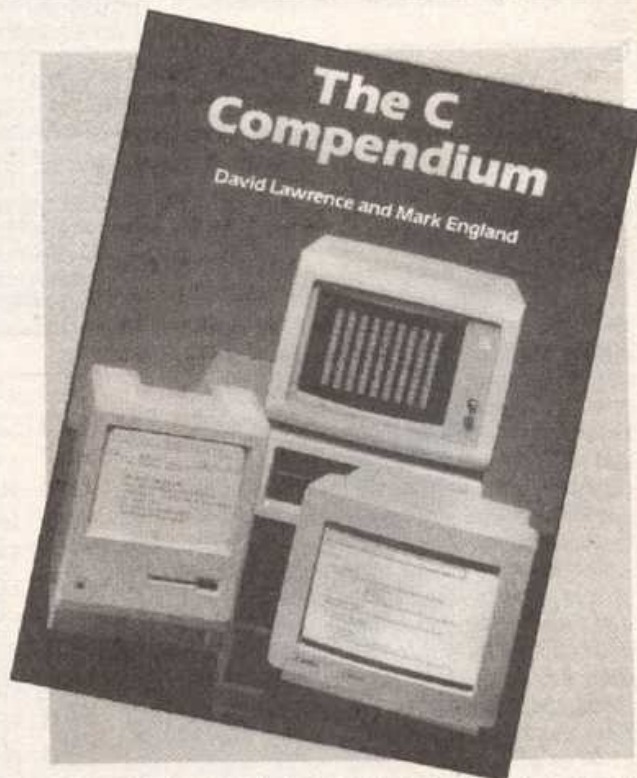
BASIC program B

```
100 REMARK QL to EP44 2 way terminal
110 CLS#0:PRINT#0,"CODE+ESC ( EP44 ) to Quit terminal"
120 BAUD 1200: OPEN#10,seric
130 REPEAT main_loop
140 REPEAT in_loop
150 a$=INKEY$:IF a$<>"" THEN EXIT in_loop
160 a$=INKEY$(#10):IF a$="" THEN NEXT in_loop
170 IF CODE(a$)=27 THEN EXIT main_loop
180 IF CODE(a$)=156 THEN PRINT '£':ELSE PRINT a$:
190 END REPEAT in_loop
200 REPEAT out_loop
210 IF a$='£' THEN PRINT#10,CHR$(156):ELSE PRINT#10,a$:
220 PRINT a$:
230 a$=INKEY$:IF a$="" THEN EXIT out_loop
240 END REPEAT out_loop
250 END REPEAT main_loop
260 CLOSE#10
```

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Anyshape on Amstrad by Jon Tarrant

This programme is a simple demonstration of the graphics power of DR LOGO (as supplied with the Amstrad disc systems). It defines a routine, called *anyshape*, which can draw any regular two dimensional figure.

When the routine is run it requests an input for the number of corners (sides) the shape is to have. Numbers between three and ten are most suitable; numbers greater than about 20 give essentially circular figures and are therefore of little interest.

All the shapes are drawn the same size by scaling the length of individual sides to fit the shape within a circle of radius 120 graphic units.

Incidentally, it is probably easiest to type-in the program using the CP/M editor ED.COM (ensuring that the filename is ANYSHAPE.LOG).

It is then possible, of course, to enter, load "anyshape, once Logo has been installed. This defines the routine which can then be run by typing in the word *anyshape*.

```
to anyshape
```

```
make "radius 120
```

```
cs ct
```

```
pu setpos[0 30] pd
```

```
pr[ENTER NUMBER OF APEXES OF OBJECT]
```

```
make "apexes rq
```

```
make "angle 360/:apexes
```

```
make "side (2*:radius)*cos(((apexes-2)*180)/  
(2*:apexes))
```

```
pu fd :radius pd
```

```
rt (90+(0.5*:angle))
```

```
repeat :apexes [fd :side rt :angle]
```

```
lt (90+(0.5*:angle))
```

```
pu bk :radius pd
```

80 Column view on BBC B by Andrew Homer

There you are, sitting at the keyboard writing away to your heart's content using Wordwise (40 column mode) and then it hits you. I wish I could preview section of my text in 80 column mode... have you ever wished you could preview sections of large Wordwise files in 80 column mode instead of 40 column mode?

Well, if you have, help is at hand for disc users, with this short segment program.

All you do is position the cursor under the last line of text you want to preview, check that F0 is set to 'insert', and run the program.

The text will be displayed in 80 column mode regardless of the size of the main file. It will also be displayed in conveniently sized pages which can be scrolled by pressing the spacebar. An additional advantage is that a backup copy of the whole text is stored in "FL" each time the program is used.

The total number of lines previewed is set by L% and the amount of text displayed between pauses is set by S%. These can be varied to suit requirements.

In order to use this utility you must have sufficient space for two extra files on any disc used with the program. If the main text is lost, it can always be recovered by loading "FL".

The program has been developed on a BBC B, but there is no reason why it shouldn't be OK for a BBC B+ or a Master - and all existing versions of Wordwise.

```
L%=132  
S%=20  
CLS  
SAVE TEXT"FL"  
CURSOR AT 39  
TYPE CHR$(13)  
FKEY3  
CURSOR UP L%  
CURSOR AT 0  
FKEY3  
CURSOR TOP  
.DELETE  
FIND"||GLM"  
IF EOT THEN GOTO SPOOL  
DELETE WORD  
GOTO DELETE  
.SPOOL  
DEFAULTS  
SPOOL MARKED"SP"  
LOAD TEXT"SP"  
*DELETE SP  
CURSOR TOP  
TYPE"||GLL180||W"  
.PAUSE  
CURSOR AT 39  
CURSOR DOWN S%  
IF EOT THEN GOTO VIEW  
CURSOR AT 0  
TYPE"||GPA||W"  
GOTO PAUSE  
.VIEW  
TYPE"||GPA||GPA||W"  
DEFAULTS  
PREVIEW TEXT  
LOAD TEXT"FL"  
CURSOR BOTTOM  
DISPLAY  
*FX21,0  
END
```




Disc drive advantage

Michael J King, of Newlands Road, Bently Heath, Solihull, writes:

Q I am intending to buy a disc drive for my Commodore 64 and I understand its advantages over tapes for loading adventures and such in parts. What I am uncertain about is whether there is any advantage with games like *Elite*, and *Way of the Exploding Fist*. I realise that they will load quicker from disc, but is this the only advantage?

A For games this probably is the only advantage and, although they may load a little faster, there is not much difference between a disc drive and one of the fast tape loaders, apart from reliability and being able to save your status quickly.

If, however, you want to do any programming on your 64, or use it for word processing and other business applications, then the advantages of using discs become far more obvious.

Drastic measure

Mike Williams, of Craigmont Drive, Edinburgh, writes:

Q On reading Mark Groom's letter about his Amstrad CPC64 tape problem, I thought my solution might help. I purchased my 464 when they first appeared and programs stopped loading about two months ago. The output was sounding wobbly - 'flutter' to hi-fi freaks. After a little poking around inside the machine, I decided that the drive belt was tired. As a temporary measure, I cut about 8mm out of it, and super-glued the ends back

together.

Although I don't use the cassette much now that I have disc drives, I don't see why this solution shouldn't work in Mark's case as I now have no problems, even with flash loaders.

A Before trying this rather drastic measure, it always helps to try cleaning the tape transport system. The main part that causes flutter is the capstan (the little rubber wheel and vertical spike) which pulls the tape through at a constant speed. Use a cotton bud dipped in some solvent (methylated spirits are best) to scrub the capstan and spike to remove any accumulated grime, and then make sure any excess cleaning fluid is removed.

While you're at it, it is also wise to clean the record and play heads in the same way. When you try the tape again, it should be much improved.

If you do try Mike's solution, make sure your Amstrad is out of its guarantee, otherwise you will almost certainly invalidate it.

Which computer?

R Cassidy of Stirling, writes:

Q I am contemplating the purchase of a computer and seek advice. My requirements are fairly straightforward: I require a computer which can play a range of games, for both my young family and myself to learn about computers through 'fun'.

The Amstrad CPC6128 or the Commodore 128? Would you recommend either of these, or do you see any other machines suited to my needs?

A Both the 6128 and the Commodore 128 would be suitable. While the Commodore's range of games software is arguably the best there is, games are being written and converted to the Amstrad all the time.

One consideration in your choice may well be price - a 6128 with a colour monitor costs £399, and you get a built-in disc drive as well as the monitor and CPU in the price. The counter to this is that disc-based Amstrad software is still not as readily available as tape versions. The C128 costs £269,

but no monitor or disc drive is included in the price.

The machine with the widest range of entertainment software is the Spectrum, but the Spectrum will almost certainly not be available in its current form for much longer, following Amstrad's takeover of the product.

Spectrum repairs

Rafferty Raf, of Casson St, Whitechapel, London, writes:

Q My Spectrum broke down several months ago and I have had to send it to a couple of repair shops. It was returned unrepaired. I then took it to a repair shop who said that it would cost about £35 to fix. Since a new Spectrum is about £60, I declined. They also said that the chips, including the CPU, would need to be replaced.

I have tried to get in touch with Sinclair several times but the phone has never been answered. To top it all, my friend's Spectrum Plus, which I use, has also broken down.

I would also like to know if there are any other computers around at about £100 that have good quality sound and graphics. I would use it mostly to play games.

A I don't know what you've done to the poor machine but it sounds a little drastic. It is rather unlikely that all the chips have broken down, although Spectrums have been known to crack-up completely for various reasons. The quoted cost of fixing seems a little high - there are many companies in our classified section quoting repairs for less than £20.

Getting in touch with Sinclair is now rather a waste of time since the Amstrad takeover and the best thing to do would be to contact the new owners. Unfortunately, Amstrad is still trying to sort out its Sinclair affairs, which should take around six weeks, and it recommends that faulty machines should be returned to the retailers.

Amstrad is, however, currently talking to firms about repairing Sinclair micros so the best thing to do is read the news pages, and wait for developments.

Probably the best computer

bargain for playing games on is the good old Commodore 64. Even considering that it is now a bit over the hill, there is still an awful lot of games software available for it.

Strings on the 64

Martin Lanni, of Valley Drive, Kendal, writes:

Q I own a Commodore 64, and am trying to write a program which accesses a file containing several strings and prints them up on screen. However, I am experiencing trouble as I keep receiving a "String too long error". I am using cassette.

A Imagine you want to keep a list of five items in two parts, perhaps a name and a number (as in a phone directory, or a stock list). The best way to handle this is to set up a two-dimensional array. Call the array `LS$()` in which case `LS$(n,1)` holds the name, and `LS$(n,2)` holds the number.

The program listed below demonstrates an example of this technique. If you run it, you'll be asked to enter five names and numbers. Following this, you'll be prompted to put a tape in your recorder. The program then writes the content of the array to the file.

After this, rewind the tape and the file will be read back into a checking array called `CH$()`.

The use of `C$` as a delimiter is the key to avoiding the "String too long error". And to identify strings in an array, simply loop through, comparing the array content with a target string until a match is found.

```
10 DIM LS$(5,2),CH$(5,2):C$=CHR$(13)
20 FOR I = 1 TO 5
30 INPUT "NAME";LS$(I,1)
40 INPUT "NUMBER";LS$(I,2)
50 NEXT
60 REM *** SAVE TO TAPE ***
70 PRINT "POSITION TAPE IN RECORDER"
80 PRINT "PRESS A KEY TO PROCEED"
90 GETA$:IFA$=""THEN90
100 OPEN "1,1","TEST FILE"
110 FOR I=1TO5
120 PRINT#1,LS$(I,1);C$;LS$(I,2);C$
130 NEXT
140 CLOSE1
150 REM *** READ FROM TAPE ***
160 PRINT "POSITION TAPE IN RECORDER"
170 PRINT "PRESS A KEY TO PROCEED"
180 GETA$:IFA$=""THEN180
190 OPEN "1,2","TEST FILE"
200 FOR I=1TO5
210 INPUT#1,CH$(I,1);CH$(I,2)
220 NEXT
230 CLOSE1
240 REM *** CHECK FILES ***
250 PRINTCHR$(147);LS$(1)
260 FOR I=1TO5
270 PRINTLS$(I,1);LS$(I,2)
280 NEXT
290 PRINT "PRINT:CH$( )"
300 FOR I=1TO5
310 PRINTCH$(I,1);CH$(I,2)
320 NEXT
```


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Setting up on one's own

David Wallin sifts through his mailbag and answers your Bulletin Board queries

Firstly this week, an apology: in a recent article about the history of Viewdata, I omitted to mention the main source of the information; it was, of course, the *Spectrum Micronet Book*, by Alan Giles, published by Melbourne House. Sorry for leaving you out!

One topic which many letters come to me about is the Protek 1200 modem. It's attracting a lot of attention largely because it's only £15, which includes Prestel and User-to-User communications software and leads for either the Spectrum, BBC or Commodore. The modem works at 1200/1200 and 1200/75; however, it's only an acoustic device, so you plug the phone into suction caps, but at £15 you can't expect that many features.

Protek Computing, which made the modem, has gone bust and its products are being sold off by Future Software at 4 Rowanburn, Canonbie, Dumfries, Scotland.

If you want a very cheap introduction to communicating, then in my opinion this is a good way to start.

Next, I've been told of two new Bulletin Boards by their sysops this week; they are Swindon ITeC and Techno Fresh Systems. Swindon is an information technology exchange centre Bulletin Board, of which there are a large number in this country. It runs using the CommuTel package, which means it is a Prestel compatible board and to access it you need to have Viewdata software. Therefore it's 1200/75 baud. The hours for this board are 1530-0900 Monday to Friday, and 24 hours at the weekends. The number is Swindon (0793) 610200.

In the letter the sysop said that to find out what's on it you'll have to call and find out for yourself; all he said was 'it has something for everyone', so I guess you'll have to give it a go.

On-line adventures

The other board, Techno Fresh Systems, is run by Llew Dickinson in Wales. It's only 300/300 baud but Llew hopes to get 1200/75 on-line soon as well. One interesting feature of this board is that it runs competitions for users, with software and books as prizes.

As with many boards there is loads of free telesoftware to download and mess about with. Most of this was uploaded by

users of the board in the past month; when the board was set up. There are lots of different sections as usual and there is also an OXO game – a user versus Llew game of noughts and crosses. Llew also hopes to have some on-line adventures running soon as well. Lastly, the times and number: 24 hours and 0570-423082.

I have received a letter from a person who goes by the name of 'ZandoR' about MUGs. A MUG is a Multi User Game; MUD is probably the best known example.

Demo account

According to ZandoR, alias Colin Curless, the MUG, called *Gods*, is 'really fantastic'. Well, he would say that, wouldn't he. It is run by Lap of the Gods Ltd; the personae of the people who run the MUG are Tiger Tiger, Major Malfunction and Lucy (which at least sounds vaguely normal). *Gods* costs £23 to register with which is, in fact, cheap as MUGs go. It runs alongside a Bulletin Board run by Tiger Tiger, on 01-994 9119, 8 bits, no parity.

When you dial this you get the option of either using the BB, which is free, or going to *Gods*, for which you need to have registered.

There may be a demo account, which you can use to see if you want to pay for full access, but ZandoR wasn't sure of this. Why not give it a try? If you want to contact Lap of the Gods Ltd for more information, the address is *Gods*, Lap of the Gods Ltd, 168 Portobello Road, London W11.

Another letter about starting a BB comes from B R Cossins, who has a tip for BB users when dialling a board. If it rings more than three times you may as well hang up. All boards should answer in less than three rings, so if you stay on the phone you will be likely to get a vocal answer, and probably a wrong number at that. Mr/Ms Cossins also wanted help starting a BB, especially with regard to the best micro on which to run one. I would go for a BBC, partly because there is cheap software readily available for running a BB, and also because setting up a BB on the BBC, with your own software, is dead easy. More on that in a few weeks.

The next part of the letter was about disc size. 100K will do but a 100K BB will, to put it politely, be pathetic! A good board needs a minimum of 400K but 800K is probably best to start off with. Most bulletin boards

on-line have at least 800K; if they don't it shows, because they lack many features, such as Sigs, messaging and telesoftware, all of which use a great deal of disc memory. The Micrognome, for example, uses just over three megabytes of disc space, which is 3,000K. Other boards run with Winchester, which store from 5Ms to 20Ms. For a really good board at least 1M would be used.

Also there is the question of Ram discs; users of the Amstrad PCW range of micros will know about these. A Ram disc consists of Ram chips, 32K, 64, 112K or whatever, set in separate disc drive format. On the PCWs this appears as drive M. The advantage of a Ram disc, over a floppy or even a Winchester, is that the time taken to access data is incredibly fast, because there are no motors to start and stop.

With a Ram disc, things like the user log could be stored on one and access would be almost instant. Anyone who uses Bulletin Boards on a regular basis will know how long it takes to check the user log to find out who you are, one or two units of phone cost, which is five or ten pence a time, it all adds up.

Save money

Lastly, this week, phone bills. Llew Dickinson pointed out that it is really frustrating if people do just turn off. J W Hughes pointed out that this doesn't even save you money. It is a bit complicated, but I'll try to explain.

Let's say that at the time you're on-line, you have five minutes to a phone unit. If you are on line for just one second, it costs one unit (5.75p plus VAT), the same as if you are on line for four minutes, 59 seconds. You are charged when you enter a band of time, not at the end of it.

So if you just break the line you are wasting money that you have already spent, not saving it. So don't just hang up, it's a waste of money and rude. Thanks to Mr. Hughes for pointing this out.

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

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

Get your share

And now the moment you've all been waiting for – your chance to grab a share of £2,000-worth of great hardware and software. Over the last three weeks we've presented you with three wordsearch grids, each containing six words, so by now you should have before you 18 words related to microcomputing. Remember, all words are definitely computer-oriented (they may cover hardware, software, peripherals, languages etc) and are at least four-letters long. Here's where the fun starts.

The initial letters of these 18 words form an anagram of a common computing phrase containing three words. To make it a little easier, the word

grids were given in order, so the six words from the first grid provide the first six letters of the phrase, etc.

To enter, fill in the form giving all 18 words, and the resulting anagram, and send it to the address below. Closing date for entries is Friday, May 23.

Prizes will go to the first all-correct entries out of the hat.

Competition Rules

- 1 All entries must be received by 5pm, Friday, May 23. Proof of postage will not be accepted as proof of receipt.
- 2 All entries must be made on the accompanying form. If you do not want to cut your issue of *Popular Computing Weekly* you should use a photocopy.
- 3 The prizes will be awarded to the senders of the first 28 all-correct entries.
- 4 In the event of any dispute, the editor's decision is final and no correspondence will be entered into.
- 5 Winners will be notified by post. A list of all prize-winners will also be published in *Popular Computing Weekly*, issue dated May 29-June 5.

Entry Form

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|----------|----------|----------|
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| 4 | 5 | 6 |
| 7 | 8 | 9 |
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New Releases

Graham Taylor looks through this week's new arrivals

AMSTRAD

Program Redhawk Type Adventure **Machine** Amstrad
Price £8.95 **Supplier** Melbourne House, 60 High Street, Hampton Wick, Kingston upon Thames, Surrey KT1 4DB



Program Equinox Type Arcade **Machine** Amstrad **Price** £9.95 **Supplier** Mikro-Gen, Unit 15, The Western Centre, Western Road, Bracknell, Berks RG12 1RW

Equinox is one of those games that has little by way of originality but is so well programmed and neatly presented that one feels well disposed towards it. Although Equinox reminds me of half a dozen arcade games I've already seen, a couple by Bubble Bus, for example, it looks spectacularly colourful on the Amstrad and the neatness of the sprite design makes for a very appealing game.

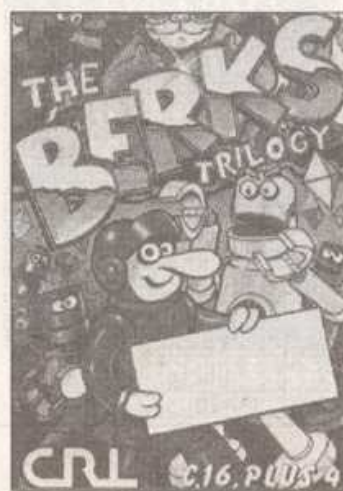
Plotwise - well, it's that "find the eight radioactive canisters and destroy them, use your teleporters, smart bombs, dynamite and other wacky objects" time again. The screens are chock full of bouncing aliens and you have only a rather pitiful laser with which to blast your way through to the next level. The cannisters lurk somewhere on each level and must be disabled by chucking them through the disposal chute, you need to teleport to the next level and for that you need a pass card.

The graphics are excellent, here and there there are some enormously large detailed objects like one-eyed monsters

which match anything previously seen on the Amstrad for beauty of design. If your appetite for collect and blast games is inexhaustible you should rate this one.

COMMODORE

Program The Berks Trilogy Type Arcade **Machine** C16 **Price** £8.95 **Supplier** CRL, CRL House, 9 Kings Yard, Carpenters Road, London E15 2UD



Program Galactic Patrol Type Arcade **Machine** Commodore 64 **Price** £1.99 **Supplier** Mastertronic, 6-10 Paul Street, London EC2A 4JH

Program Borrowed Time Type Adventure **Machine** Commodore 64 **Price** £14.95 **Supplier** Activision, Activision House, 23 Pond Street, Hampstead London NW3 2PN



Program Bump Set Spike Type Simulation **Machine** Commodore 64 **Price** £1.99 **Supplier** Mastertronic as above

Pick of the week

Cave Adventure

Program Very Big Cave Adventure Type Adventure **Machine** Commodore 64 **Supplier** CRL, CRL House, 9 Kings Yard, Carpenter's Road, London E15

The Very Big Cave Adventure is my kind of game. It's a genuinely funny (as opposed to embarrassing) parody of Colossal Caves, and created by the only software house ever to be based on a girls' school for grown-ups viz St Brides.

The connection between The Big Cave Adventure and things girlish is only that your leader in the expedition is Trixie Trinian - prefect at St Brides and all round good egg. St Brides claims that the Very Big Cave Adventure was the original before the other original adventure (it has merely been held back for reasons of taste) - now it is unleashed on the computer game buying public.

The graphics that illustrate most of the scenes are so-so, the parser is fair but no more, but all of this is beside the point.

The point is that there is a reasonable joke in every screen and every so often, absolutely brilliant ones. Any game which has as one of the solutions to its puzzles



lobbing a bomb at a bull (rather than those complicated affairs where you have to get 12 different objects, then assemble them in a certain order, then say the magic word...) is all right with me.

There are specialised jokes for people familiar with the Crowther-Woods original and jokes for the more general computer fan (a sharpened ZX81 is one key object). A mammoth spool and it works - I've actually been playing it more intensively than any other adventure I've seen recently. Quite cheap too.

Program Hocus Focus Type Arcade **Machine** Commodore 64 **Price** £8.95 **Supplier** Quicksilver, Liberty House, 222 Regent Street, London W1R7DB

Program Pilgrim Type Adventure **Machine** Commodore 64 **Price** £7.95 **Supplier** CRL, CRL House, 9 Kings Yard, Carpenter's Road, London E15 2HD

Program The Berks Trilogy Type Arcade **Machine** C16 **Price** £8.95 **Supplier** CRL Group PLC, CRL House, 9 King Yard, Carpenters Road, London E15 2UD

Program Vidcom 64 Type Utility **Machine** Commodore 64 **Price** £4.95 **Supplier** Media Matters, 23 - 25 Castlereagh Street, London W1H 5YR



SPECTRUM

Program Astro Cade Type Arcade **Machine** Spectrum **Price** £4.50 **Supplier** S Green, 49 Beaumont Road, Halesowen, West Midlands



Compilations are fundamentally not exciting. After all, they usually consist of well known games about which there is little new to say. Nevertheless all compilations are not the same. There are the 'never mind the quality feel the length' of tapes like Argus's *30 Games* and there are the half dozen 'but they're goodies' *Off the Hook* type packages.

Astrocade fills the gap by being half a dozen very dodgy games, but it is relatively cheap at £4.50. However, the titles are cheap in more ways than one: these barely reach even early Mastertronic quality and are so unoriginal the only good thing to be said about them is that at least you'll already know how to play them.

The games are: *Simeon*, the old match-the-colour-sequences game so often seen as a listing in magazines; *Caverns d'or*, a simple cavern-based monster bash; *Bomber*, which is, well, *Bomber* the 'frustratingly addictive' ie, very boring, demolish-the-buildings effort; *Zombie* is about running around and shooting; *Luna Rover* is scrolling landscapes and jump the potholes and kill things except that the graphics look like a ZX81, and *Alien* is more space shooting.

The best of the games are fairly bad, although you can't call it a rip off at the price. Even so, I'm not sure games like most of these here are even worth the loading.

Program Castle Thade Adventure Type Adventure Machine Spectrum Price £5.00 Supplier Spectrum Adventure Exchange Club, 4 Hilmarton Lane, Carlisle, Lanarkshire ML8 5RT

Program Hocus Focus Type Ar-

cade **Machine Spectrum Price £8.95 Supplier Quicksilver as above**

Program Merhownie's Light Type Adventure Machine Spectrum Price £2.00 Supplier K Soft 118 Kingsway, Ossett, W Yorks WF5 8HQ

Program The Spore Type Adventure Machine Spectrum Price £2.00 Supplier K Soft as above.

Program Valkyrie 17 Type Adventure Machine Spectrum Price £7.95 Supplier Ariolasoft, 68 Long Acre, Covent Garden, London WC2E 9JH

Valkyrie 17 is not a new program; it was originally released by Palace last year to some acclaim, but not much effect. Now it has been resurrected by Ariolasoft.

With *Valkyrie 17* the art of the game is all in the plot and wit. The graphics are reasonable, the text analysis fair, but those alone would not justify the game's existence. Sentences are single statement only, verb-noun in essence. The graphics are quite detailed and quickly drawn.

To the actual game: the plot concerns a secret Nazi device that is in danger of falling into the hands of a shadowy organisation known as Valkyrie 17. You play a sort of secret agent led into the mysterious affair by a series of strange telephone calls (present as an audio track on the b-side of the cassette). A dossier on Valkyrie 17 arrives and you are led to the Hotel Glitz on the shores of Lake Bruntz.

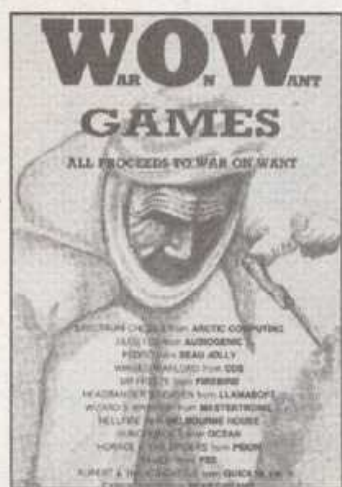
The whole thing is a very tongue in cheek, full of low voiced blonds - some of them Aryan males, rather than

femme fatales (though some are both) - and people speaking in heavy German accents. There are references to movies from the 40s and Philip Marlow style spy books. Indeed the game is a sort of tribute-come-parody of the spy genre.

Valkyrie 17 is exceptionally literate and witty in the 'slight smile' rather than the 'hysterical mirth' sense. For a rereleased game I think it could have been cheaper, but adventurers who like their adventures with style will find much to enjoy here.

Program Wow Games Type Arcade Machine Spectrum Price £9.95 Supplier War On Want, Three Castles House, 1 London Bridge St, London SE1 9UT.

There are many compilation tapes around, not a few designed for charitable purposes, but nevertheless *Wow Games* deserves a plug. *WOW* is War on Want and it has produced a 14 game collection for the Spectrum.



They are: *Spectrum Chess II*, *Bug Eyes*, *Pedro*, *Winged Warlord*, *Mr Freeze*, *Headbanger's heaven*, *Wizard's Warrior*, *Hellfire*, *Hunchback II*, *Horace and the Spiders*, *Xavier*, *Rupert and the Ice Castle*, *Cybertanks* and *Dr Franky and the Monster*. Of those there are a few gems, half a dozen goods, a few more okay and one or two absolute stinkers (*Pedro* gets my vote in this category).

The tape is worth while for anyone into basic arcade games - like *Bug Eyes* and *Dr Franky* - though there are some more complicated affairs like *Rupert* and the *Ice Castle*, which has never actually been released before. Surprising really, since it's jolly good.

Certainly worth £9.95 of anyone's money, this compilation is one of the more interesting ones around at the moment.

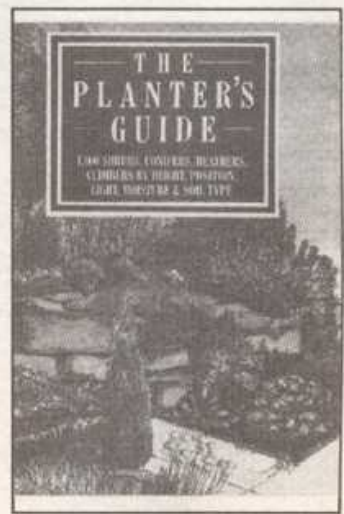
Program The Planter's Guide Type Utility Machine Various Price £14.95 Supplier Phoenix Publishing, 14 Vernon Road, Bushey, Herts WD2 2JL

Since I'm always pro any program that is out of the mainstream, I feel *The Planter's Guide* deserves a mention. It's a database plus a book with correlated information on over 1000 plants.

Now I know this doesn't sound very exciting, but for those people who occasionally manage to leave their computer screens and venture out into the garden, it's rather useful. The basic idea of the program is to help you choose plants appropriate to the soil and light conditions for any particular section of the garden.

It works both ways - either you can set up your growing conditions and see what suggestions the database comes up with, or you can consult the accompanying book to find a plant you like and find out what conditions it requires. Often these sort of specialist programs are very dodgy indeed - full of bugs and bad presentation, but *The Planter's Guide* is excellently put together with neat displays and well error trapped. You get versions for Amstrad, BBC, Commodore and Spectrum on the one tape and there are full instructions on saving your edition to disc or microdrive.

The Planter's Guide is a little expensive at £14.95 but could be invaluable for the ardent gardener.



Top Twenty

- 1 (2) Bomb Jack (Spectrum/C64)
- 2 (5) Commando (Various)
- 3 (7) Form One Sim (Various)
- 4 (10) Com. Hits 10 (2) (Various)
- 5 (6) Last V8 (C64/Amstrad/Atari)
- 6 (-) They Sold (2) (Sp, C64/Amstrad)
- 7 (4) Way of the Tiger (Sp, Atari, Msx)
- 8 (3) Green Beret (Sp)
- 9 (6) V (Sp, C64)
- 10 (9) Finders Keepers (Various)



Bomb Jack - new no 1

Top Tens

Amstrad

- 1 (3) Last V8 (M'tronic)
- 2 (6) Spindizzy (Electric Dreams)
- 3 (1) Into Oblivion (M'tronic)
- 4 (-) They Sold (2) (Hit Squad)
- 5 (7) Way Of The Tiger (Gremlin)
- 6 (10) Formula One Simulator (M'tronic)
- 7 (8) Get Dexter (PSS)
- 8 (-) Alien Highway (Vortex)
- 9 (-) Turbo Esprit (Durell)
- 10 (9) Comp. Hits 10 Vol 2 (Beau Jolly)

Atari

- 1 (-) Last V8 (M'tronic)
- 2 (3) One Man & His Droid (M'tronic)
- 3 (2) Action Biker (Unex)
- 4 (-) Tutankham (Unex)
- 5 (6) Fighter Pilot (Dital Int)
- 6 (-) Football Manager (Addictive)
- 7 (4) Chimera (Firebird)
- 8 (7) Spy vs Spy 2 (Databyte)
- 9 (10) Smash Hits 4 (English)
- 10 (-) Steve Davis Snooker (Cos)

BBC

- 1 (1) Commando (Elite)
- 2 (3) Karate Combat (Superior)
- 3 (2) Winter Olympics (Tynesoft)
- 4 (10) Comp. Hits 10 2 (Beau Jolly)
- 5 (-) Phantom Combat (Doctor Soft)
- 6 (8) Tennis (Bug Byte)
- 7 (6) Citadel (Superior)
- 8 (-) Fist (Melbourne House)
- 9 (5) Strike Force Harrier (Mirrorsoft)
- 10 (5) Yie Ar Kung Fu (Imagine)

- Elite
Elite
Mastertronic
Beau Jolly
Mastertronic
Hit Squad
Gremlin
Imagine
Ocean
Mastertronic



Formula One Simulator
- 33 weeks in the Top 20

- Mastertronic
Gargoyle Games
Mastertronic
Durell
Mastertronic
Tynesoft
Ocean
Vortex
Mastertronic
Mastertronic



Heavy on the Magic -
new entry

All figures compiled by Gallup/Microscope

Commodore 64

- 1 (-) Bomb Jack (Elite)
- 2 (3) Superbowl (Ocean)
- 3 (-) They Sold (2) (Hit Squad)
- 4 (2) V (Ocean)
- 5 (4) Uridium (Hewson)
- 6 (7) Phantom of 'Aster'ds (M'tronic)
- 7 (10) Zapp Sizzlers (Gremlin)
- 8 (5) Kane (M'tronic)
- 9 (-) War Play (Anco)
- 10 (-) Comp. Hits 10 (Beau Jolly)

Spectrum

- 1 (1) Green Beret (Imagine)
- 2 (3) Bomb Jack (Elite)
- 3 (-) Heavy On The Magik (Gargoyle)
- 4 (4) Way Of The Tiger (Gremlin)
- 5 (8) Shrinking Fireman (M'tronic)
- 6 (2) V (Ocean)
- 7 (-) Cyberun (Ultimate)
- 8 (9) Turbo Esprit (Durell)
- 9 (10) Devil's Crown (M'tronic)
- 10 (-) Alien Highway (Vortex)

NEXT WEEK

If you liked the extra reading provided by this week's special supplement, then don't miss next week's issue - because there'll be another one.

This time, the supplement will be looking at all aspects of the educational potential of your micro - an area often neglected in the consumer press.

● Mind your Language

A survey of programs designed to improve your French, German and Spanish - how effective are they?

● Adult Education

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● Mirrorsoft

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● Science now

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● Dealer Guide

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Don't miss out on *Popular* next week

The Hackers



THE PLANETS



LONG RANGE MAP FOR
DESTINATION SELECT.



VIEW FROM WINDOW OF THE
SURFACE OF PLUTO



IN ORBIT AROUND EARTH. WILL IT
SURVIVE?



AN ALIEN GAME - BUT WHAT DOES
IT MEAN?

The Year is 2007. Life on planet Earth is coming to an end. A series of monumental natural disasters has thrown the Earth's climate into a deadly spiral - a second ice Age has already begun. The skies are black with volcanic dust. Massive earthquakes hamper the world's futile attempts to cope with the changing environment. All seems doomed. Into this darkening chaos an Alien life force makes its presence known. A metal capsule plummets unscathed through the atmosphere. It contains a map of the Solar System and shows the position of eight similar capsules, one for each of the Earth's planetary neighbours, Mercury, Venus, Mars, Jupiter, Saturn, Neptune, Uranus and Pluto.

A radio signal is received from deep space. When decoded it is found to be a computer program. The program is loaded into a suitable microcomputer. A strange game unfolds which appears to obey certain complex rules - but there are no instructions or explanations. It is obviously of great significance, but what does it mean?

A spacecraft is prepared in a desperate bid to reach the eight remaining capsules. You are selected as its pilot. The hopes of the world go with you.

This outstanding program is much more than a game. Using stunning state of the art graphics and the latest programming techniques, the Solar System in all its power and mystery will unfold before your eyes. Heather Couper, President of the British Astronomical Association has been fully involved in its computerised creation to make sure that everything is as

accurate and up-to-date as possible. Even the results of Voyager 2's recent encounter with Uranus have been incorporated into the design of that cold and inhospitable world.

And yet it is a game, and a very challenging one at that. The Solar System, the strange alien game, the eight mysterious capsules are all interconnected. Together they hold the key to survival of life on Earth.

For those able to reach all eight capsules and make sense of all that they find - there are prizes to be claimed, but for all who attempt this exciting quest, the journey itself will prove more than worthwhile.

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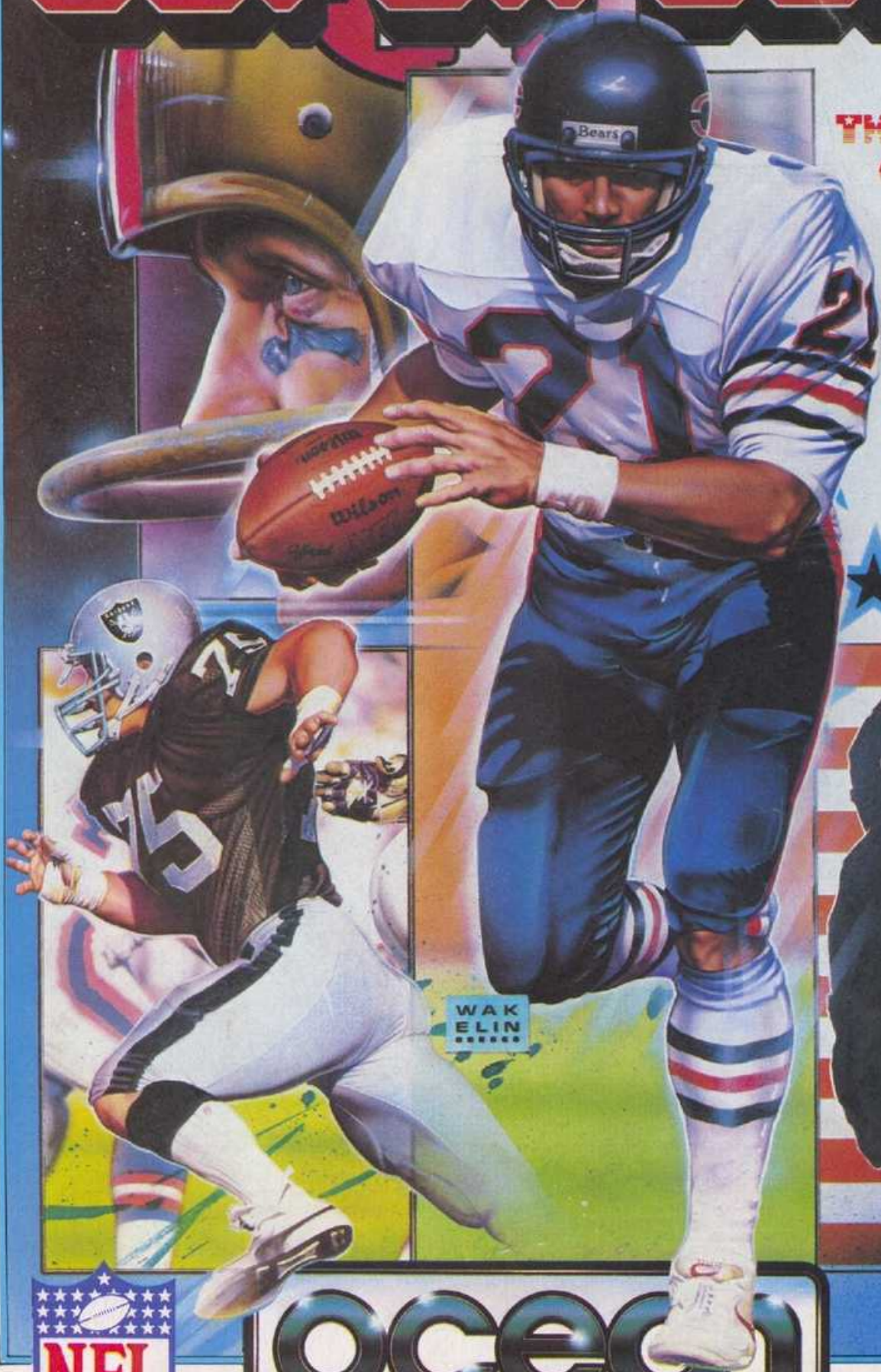


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