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No.16 July 95p

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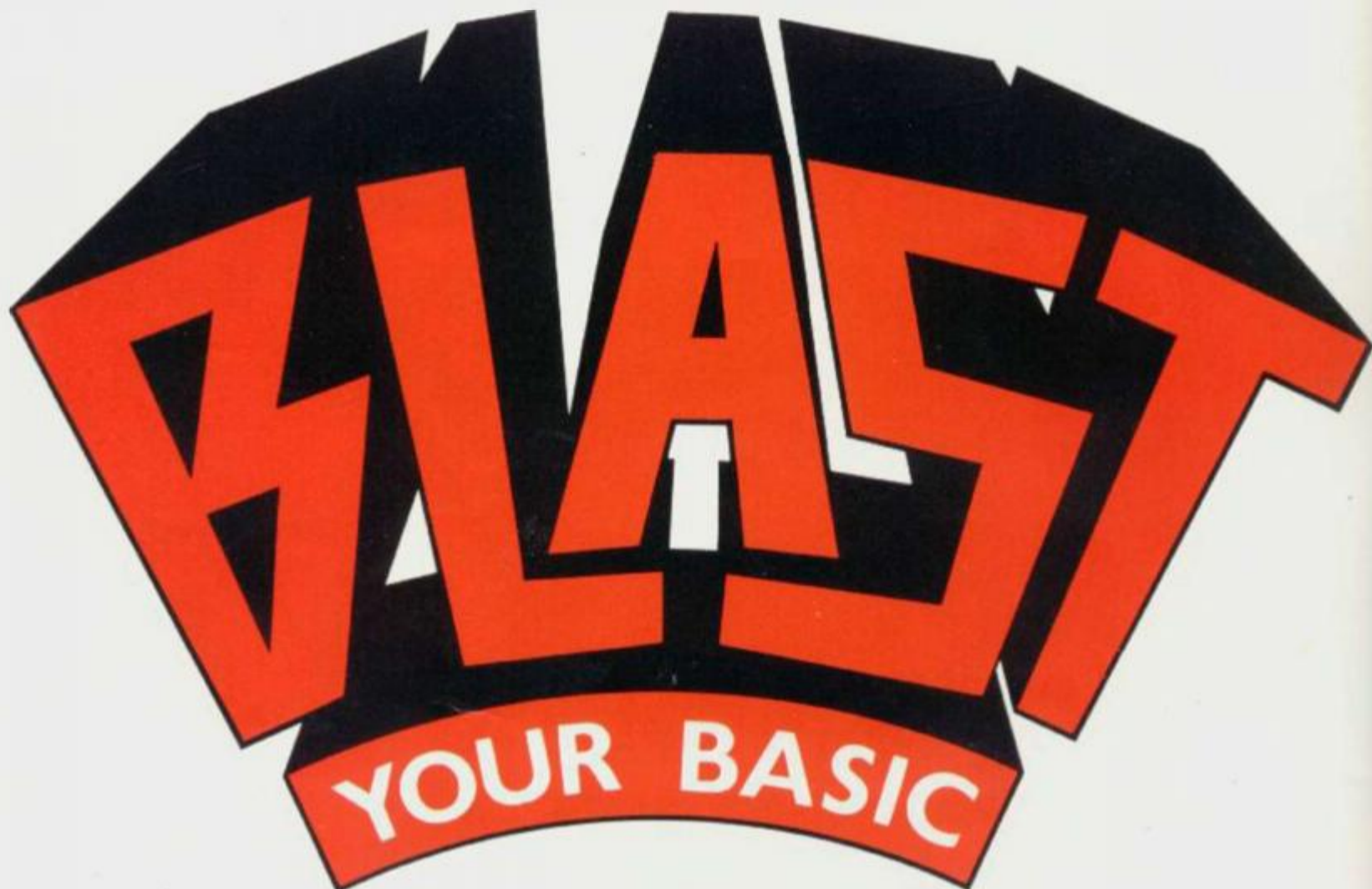
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W H Smith

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INSIDE YS

MEGAGAME



32

Firefighters Beyond's Shadowfire is blazing a new trail. Join the YS firing squad — and play with 'fire.

HARDWARE

Disko-Tech Full road-tests of two mini disk drives. The Opus Discovery and the Triton QD are the newest Speccy spin-offs.



24

GAMES



16

Go for Gold Join the gold rush for medals in the great YS hi-score chart challenge!

37

Joystick Jury It's judgement day for all the latest games. A full five pages of frantic arcade action.

PROGRAMMING

48

3D Daze Add a whole new dimension to your programs. It's the ultimate 3D graphics creator and it's yours to type in. You'll be amazed!



28

Flash Moves YSNewsflash: Loading screens are on the move. Turn on to it — and off!

PROGRAM POWER

50

Miner Mania More levels than nine and more platforms than Elton John! It's the miner game that's major fun!

Copy Right and **Edit Key** Two great utilities that are far from routine!

GAMES EXTRA

SPECTRUM ADVENTURES 37
D'you keep suffering death by misadventure? Help's here. Plus full reviews of *Funhouse* and *Ashkeron*.

HACK FREE ZONE..... 64
No hacks please ... only gamesplayers can go for it. Plus our shock, horror, probe on the *Rocky Horror Show!*

COMPETITION

VIRGIN COPTER COMPO..... 23
Up, up and away ... three lucky winners will be whisked away in a helicopter for the trip of a lifetime. Fly Virgin!

REGULARS

FRONTLINES 5
Rumour, gossip, scandal and, who knows, even some news. Plus *Hacking Away*, *Hard Facts* and *From the Hip!*

FORUM 19
It's the YS scribblers' spot. Send us your scrawl, scribes!

INPUT/OUTPUT..... 58
Book your space on the free YS billboard ... now!

SUBSCRIPTIONS 59
BACK ISSUES..... 36

SPECIAL OFFERS

YS SOFTWARES 16
Exclusive to YS readers — the chance to save £££s on all the latest software.

YS MEGABASIC 60
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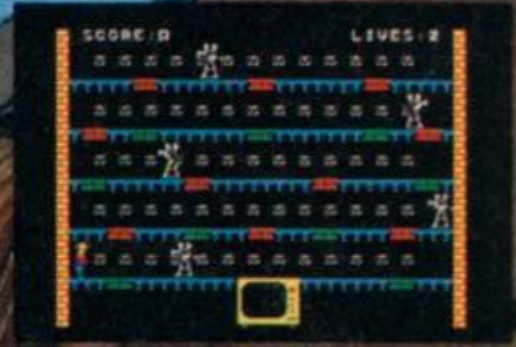
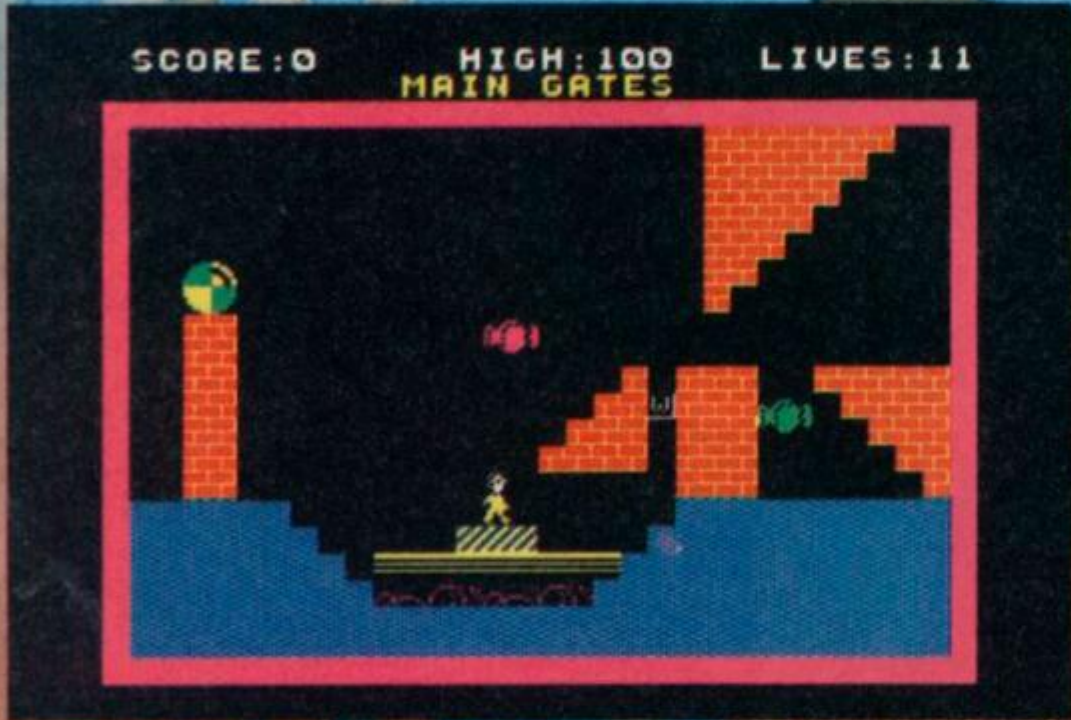
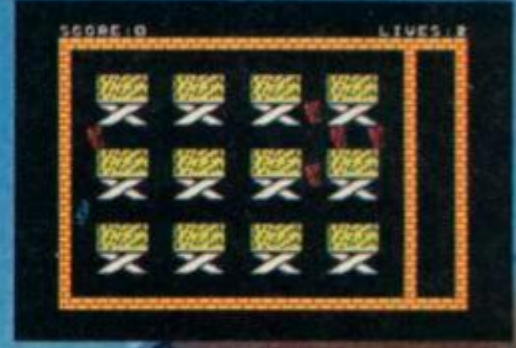
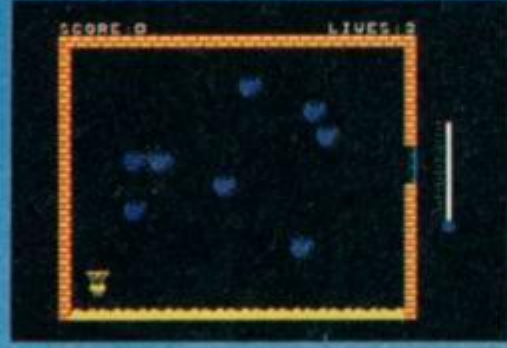
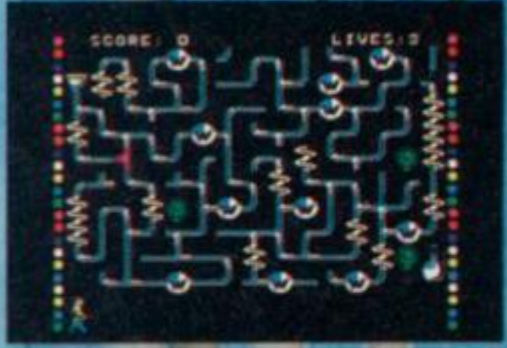
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Are you *Quackers*? Will *Kempston* drive you round the bend? Who won our Slimmer of the Year Award? Is it really super, man? Are we getting a new *Bond* age? How fast's a *Slomo*? Do these questions mean anything at all? Find out ... in Frontlines!

FRONTLINES



Let no-one tell you it's a cushy number working in the computer industry. Last Christmas saw Sir Clive pressing his point home in a more than usually physical way. And now this ... but the photo does have a dual purpose (geddit!). Domark is releasing its premium Bond arcade game, *A View to A Kill* based on the new James Bond movie. If you want to do a bit of pre-release espionage, call Nick Miles on 01-631 3434.

SETTING THE PACE

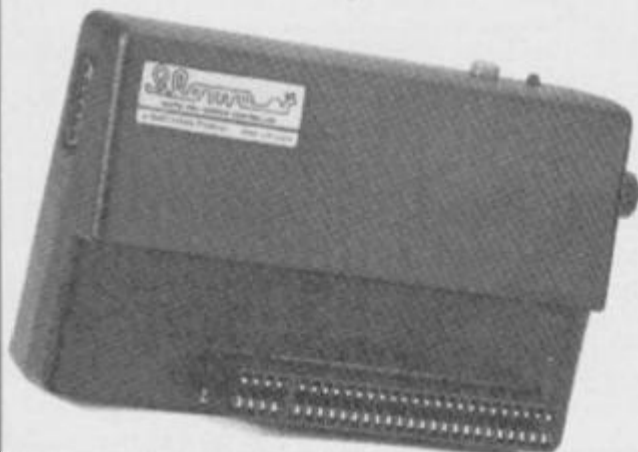
Remember the *Slomo*? The add-on that lets even the real duffers win at games by giving them total control over the program's speed. Well, the manufacturer, Nidd Valley Micro Products is launching two new peripherals incorporating the *Slomo* feature.

Both of the new additions are joystick interfaces. The first is the Spectrum Pacesetter — a standard Kempston compatible interface with the addition of the *Slomo* unit. The other one is a programmable version called the

Programmable Pacesetter. Both Pacesetters offer an on/off button plus an LED that lets you know when the *Slomo* is in operation.

How much, you cry? Well, if you're after the Spectrum Pacesetter prepare to shell out £14.95. The marginally more powerful Programmable Pacesetter will set you back another ten quid.

So, if the pace of some games is just too hot for you, give Nidd Valley Micro Products a bell on (0423) 864488 and find out how they can slow you down.



Slow, slow, quick, quick, Slomo!

FAT CHANCE

Mum, dad, I've got something to tell you. Sit down mum, this isn't going to be easy. I've been thinking about this one for some time now, and I reckon you ought to know. Mum, dad ... I'm fat! Please dad, don't blame yourself — it's quite normal. Mum, stop chewing the sofa.

OK, so I'm fat — but what should I do about it? F-Plan? Wire up me gnashers? Or will a hacksaw do the trick? I s'pose being 22 stone does have its advantages. No-one kicks sand in your face on the beach —

if they can find the sand, that is!

But then along came Microsoft with its *Joffe Plan*. Bona, I thought, a 'no-diet' weight control program it claims. 'No-diet'? No chance. And no more cream cakes, fizzy drinks or choccy biccies either! And if I followed the regime when could I hope to reach the sylph-like figure of nine stone? Weight (*sic*) for it! 1993.

That did it. There's only one way I can describe the program now and that's 'Thought for Food'. Grub up!



Tony 'Slim' Samuels: Before ...



and After — a quite remarkable change!

MORE DRIVE FROM KEMPSTON

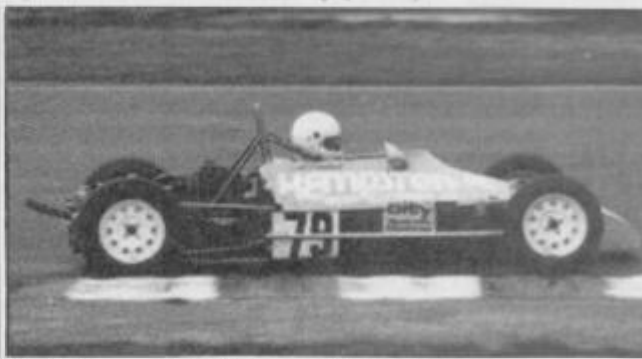
Kempston Micro has set the standard for the Speccy's joystick interface and Centronic's printer interface. Now it aims to do the same for disk drives with a new Spectrum interface. All its software is on ROM and the company claims that it'll work with all the standard drives.

And from one sort of driving to another. Kempston has transferred its interest in sponsoring real Grand Prix racing to the small screen with a new game

called *Chicane*. It's a racing driving simulation that includes gear changing, cornering at speed and, as the name suggests, it makes a special feature of

chicanes.

Chicane crosses the finishing line at £7.95 — if you want more info on either product race to the phone and ring (0234) 856633.



It's the Kempston C5 Interface!

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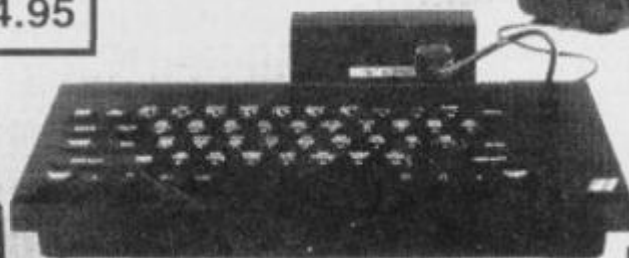
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32K RAMPACK

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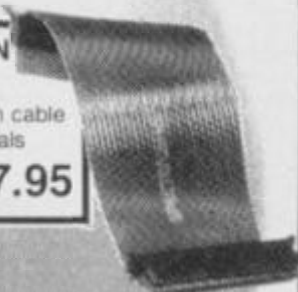
Comes without rear edge connector at £11.50

or with connector which allows other peripherals to be stacked up at £12.75

56 WAY EXTENSION CONNECTOR

Cheetah's 6' long extension cable enables Spectrum peripherals to be distanced from your computer

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Cheetah's neat splitter unit complete with self adhesive pad allows you to keep your T.V. and computer aerial leads plugged in without disturbing the picture

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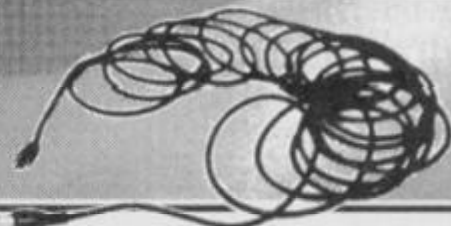
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YS BOUND OVER

Reports are coming in that thousands of old copies of *Your Spectrum* have been charged with vagrancy. Ageing but respected issues, circa 1984, have been sighted in increasingly tatty covers, worn out by a lifetime of hard labour.

Here at *YS* we think it's a crime. There are many years of life still left in these back numbers and yet we find them tucked away in cold cupboards or stashed under the bed with last week's socks. Something had to be done — so we did it: the *Your Spectrum* Binder. With one of our new deluxe binders all your back issues'll be able to

live long and useful lives together, in comfort.

Of course, we will be pressing charges — the binders cost £4.95 in the UK, £5.45 for Europe and £5.95 for the rest of the world. All these token fines include postage and packing. You can order yours on the Back Issues coupon or by sending a cheque for the appropriate amount to *YS Binders Offer, Your Spectrum*, 14 Rathbone Place, London W1P 1DE.

As one of the *YS* Joystick Jurors commented: "This is a marvellous idea. You are now all bound over to keep the pieces."



Poor Duncan Stark. He's only 16 but he's been through hell. First, they forced him to spend hours playing Quicksilver's ancient arcade game *Xadom*. Then they pressed a QL on him and pretended it wasn't the booby prize, made him wear an Observer sweatshirt, and sent him into two week exile in the US of A. And all because he won the first Observer Home Computer Challenge. Finally, he had to sit through a speech from our own Roger Munford (Zzzz. Ed) who was chairman of the judges and watch Troubleshootin' Pete eat and drink his way through the buffet. Truly horrible!

SPARKS FLY



Quackshot — let's hope it's not another lame duck.

Be prepared to duck and shoot when *Quackshot* wings its way onto the market. It's the first of Creative Sparks new range of cheapo games called Sparklers. Think of the funfair, picture the rifle range, and blast those ducks with just your joystick — gone are

the days of useless bean bags and bent sights. And if you don't get the ducks, then the rest of the frantic toys'll be out to get you. Get quacking and call Alison Calanda on (0990) 2711 to find out how to get more fun for the fair price of £2.50.

HARD FACTS



Hitches with your hardware? *Stephen Adams* is your man. Get in touch at **Hard Facts, Your Spectrum**, 14 Rathbone Place, London W1P 1DE.

Nobody likes getting bills. Still, it's a bit of a shock when your electricity bill triples and the only explanation is a new Speccy in the house. Well, that's what's happened to *Mrs A Barrasso*. And until she's convinced the Speccy's not the cause of her recent impoverishment her sons aren't allowed to touch it. Well, I reckon you can safely let them get back to the keyboard, Mrs Barrasso. The Spectrum only takes 9 watts and that's about a quarter of the power of the average light bulb.

Of course, there could always be something wrong with the power pack or perhaps you've forgotten how time flies when you're having fun! 'Cos don't forget you're also using a TV (average 300 watts) and a tape recorder (6 watts). Together they'll knock up your bills — but triple them? I don't know — it's been a mighty cold winter!

I've had letters from *Robin Strong* and *J Bullard* who've both been giving their keyboards a proper pounding. So much so, that they've cracked up — the keyboards, silly! The good news is that you can buy replacements for about £2.50. Bash on!

Telly problems next. *Jeff Mundell's* is corrupting all his tapes, Mmmm, there

are two possible explanations for this. It could be either a leakage to earth from the TV to the tape recorder via the Spectrum or bad shielding of the magnetism used to control the TV tube. Either way it's a job for the experts, so call for a qualified TV repairman pronto.

Same advice, I'm afraid, for *Keith Thomas*. His telly keeps on drifting off frequency and he can't adjust his Speccy 'cos he's got an issue 3. Sounds to me as though your TV is unstable when it gets hot.

AG Cailles wants to know how to get teletext on his TV using his Spectrum. Well, OEL produced a teletext adaptor that also lets you download software and print out teletext pages onto a Sinclair printer. I say 'produced' because OEL went down the tube (geddit?) last month. Still, that could mean some bargains coming onto the market as stocks are sold off — keep your eyes open!

Here's a quickie from *Reg Jones*. He wants to use the RGB monitor converter from Adapt Electronics but can't work out how he'll be able to connect up anything else. Simple, Reg. Look out for MicroSlot, a two edge connector from Welwyn Electronics or DK'tronics. It'll set you back about £9.

NO CHARGE

Have you ever had equipment or programs damaged by a build up of static electricity? Well, AKG has come up with a more sensible alternative to wearing wellies while you're programming. It's an eliminator mat designed to discharge that troublesome static.

Available in two sizes, the mat's said to be hardwearing and it comes with a snap-on earthing wire so your Speccy can have its very



The answer to all those electric blues?

own lightning conductor. Still, the price may give some of you a shock — you'll have to stump up £11.99. But if you don't

FRONTLINES

IV Newson's problem sounds simple enough till you start explaining it. He wants to connect Interface 1 to a printer. Well briefly, this interface requires the printer to be set to 8 bits, no parity, 1 stop bit and at a speed of 300 baud. You can increase this slowly at both ends until errors occur. Now, it's essential that the ER or NOT busy signal (also known as DTR) pin 20 on the printer connector is connected to DTR pin 1 on your Interface 1. This allows the printer to stop the Spectrum from sending data when it's full. If you can't get any data to print try reversing pins 2 and 3 as this is quite a common fault. The only other pin that needs connecting is the zero volt line to the common pin (pin 7) on the printer.

I hope you've got all that but if anything's still not clear just drop me another line. And the same goes for anyone else having hardware hassles — usual address, **Hard Facts, Your Spectrum**, 14 Rathbone Place, London W1P 1DE.

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YS7

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THE **LIST** MODE ALLOWS BASIC PROGRAMS TO BE MORE EASILY READ BY INDENTING THE PROGRAM STATEMENTS FROM THE CORRESPONDING LINE NUMBERS.

```

340 REM THIS IS AN EXAMPLE OF THE LIST
    MODE WHICH INDENTS STATEMENTS AND
    PREVENTS WORDS BEING SPLIT
345 DATA 10,38,42,22,65,2,43,54,67,75,8
    9,78
350 LPRINT "
360 LLIST
370 LPRINT "
    
```

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A BRIGHTER SHADE OF PALE

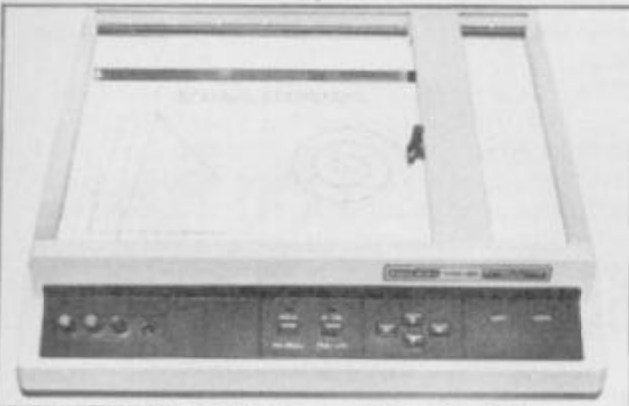
Bizzell Computers have announced a high speed, four colour printer/plotter for £399.

The printer/plotter prints vertically or horizontally in text, and in four directions in graphics mode. With a plotting area of 298x216mm, and a speed of 100mm/sec the machine is suitable for most normal

applications.

One big advantage is that it includes both parallel (Centronics) and serial (RS232) interfaces, and you can get at all its features through Basic.

If you want some more information on this new add-on, then give Bizzell Computers a ring on 095-389 592.



The Bizzell printer/plotter — could be the biz!

WE'VE GOT IT TAPED

Impressed by the power-packed programs in *YS*? Hooked on our unrivalled routines? Too lazy to type them all in? Well, now your problem's solved. We've joined up with Digi'Tape to bring the very best selection of the *Your Spectrum* monthly dose of programming to you on tape. So, if you've got better things to do with your hands, you can now say farewell to all that typing — LOAD "" are the only keys you'll ever need again!

If you like the idea — and at 3 quid including p&p you can hardly go wrong — you'll find the full details in Digi'Tape's ad on page 57 in this issue. Plus the tapes will be packed up and posted within 24 hours.

This is also good news if you're thinking of submitting your latest masterpiece to us. If it's published, you'll not only receive lots of lovely lolly but royalties for every tape sold. Even more reason (you need more? Ed) for sending in your megaprograms to Opportunity Knocks.



FROM THE H/P

Y'all came gunnin' for me again this month so it's straight in with some of your trickier shots.

Gary Siegal of Ramsey is a regular subscriber to the Helpline and he rang in this month about the Mac Hack letter that appeared in the May Forum. Remember that one — it offered infinite lives on the Macman program from issue 12. Well, it looks pretty clear that someone's made a boob here 'cos the listing is trying to POKE into the ROM and that's just not on. Gary's got a RAM Turbo, so he's come up with the following POKES that

TORC OF THE TOWN



Six days solid on *Dragonatorc* — how did he stay awake?

Does this scene look familiar? Cast your mind back to the quest to complete *Avalon*. Well, here's a double take ... but this time the game's *Dragonatorc*, the follow-up from Hewson Consultants.

Eamon McGing,

whose home-town is Camberley in Surrey, ended his epic adventure at 11.30pm on April 7th after six solid days of addictive playing. And his reward? The grand title of High Lorelord plus an official pat on the back from Hewson.

should get it going:

POKE 29256,247: POKE 29260,95: POKE 29265,247: POKE 29269,87: POKE 29274,247: POKE 29278,71: POKE 29283,247: POKE 29287,79

Gary assures me that this works just fine on the right-hand port of the RAM interface.

Off to Wolverhampton next. Bill Pitt phoned to ask how he could get a screen dump out of his Teletype printer with the Maplin EPROM RS232 interface. As Bill says, this set up works fine if all you want is a text printer but it hasn't got the flexibilities of a dot matrix head, so graphics are a bit of a problem. Now Bill admits that he's no master of machine code, so I've taken that into account with my solution. For what it's worth, here goes. Use a short loop that checks each pixel individually using the Point command. Then if a pixel is set, print an 'X' or something similar but if a pixel is reset, i.e. blank, then skip over it with a space. Slow, maybe. Crude, most definitely. Still, it works which is the main thing.

Jason Davis from Bournemouth rang in with a problem he's been

having with the Gosub stack. At present he's writing a megaprogram in Basic that uses one heck of a lot of Gosub statements. Problem is that he's filled the Gosub stack so some Returns fail to operate.

Well, Jason the quick and easy way round this is to use variable names as return addresses. Let's have a look at an example. Say you've got a subroutine at lines 9000 — now replace the Return command with the statement GO TO RETURN, then define your RETURN variable on the line before you call the subroutine. Simple? Well, take a look!

10 GO SUB 9000

9000 REM SUBROUTINE START

9100 RETURN

Now that'll become:

9 LET return = 11
10 GO TO 9000

9000 REM SUBROUTINE START

9100 GO TO return

Got that? Jolly good. I hope we get to have a look at this

megaprogram when it's finished.

Now up to Stockport where Melanie Wright wants to know how to control her Speccy's sound in machine code. Well, here goes Melanie — this routine should provide all the info you need to synthesise your Spectrum:

LD DE, (duration of sound)
LD HL, (pitch of sound)
CALL 949d (that's 0385h in hex)

Now to work out the duration, just follow the formula:

TIME (in secs) * FREQUENCY OF NOTES (in Hz)

And the pitch can be worked out using:

437500/FREQUENCY (in Hz) — 30.125

Watch out though 'cos the maximum duration is about ten seconds. Pretty neat, eh? (Oh, roll over Beethoven. Ed)

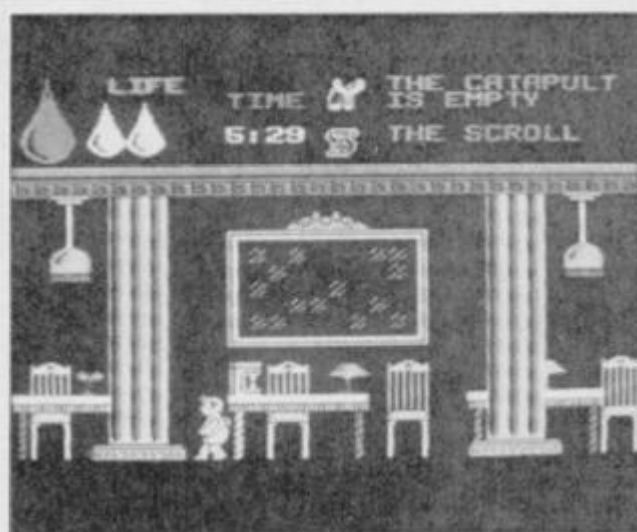
OK, that's it for another month. Keep those calls coming with all your programming quirks and queries. Till then, catch you on the phones...

Troubleshootin' Pete Pete's phone lines are open from 10am-1pm and 2-5pm on Wednesdays and Fridays. Ring him on 01-636 2416.

FRONTLINES

Now, if you're a careless torcer or you've found the game's beginning to drag on, send an sae to Hewson's offices at 7 Graeme Close, Blewbury, Oxon OX11 9QE and they'll unravel a few secrets for you.

FRONTLINES



Take a look at what's in store for you in Mikro-Gen's latest, *Herbert's Dummy Run*. Yes, Wally's bothersome babe is back to wreak havoc in the local department store. Your task is to guide the bouncing brat back to mum 'n' dad before he turns Harrods into Horrids. One to shop around for though it'll still cost you £9.95!

SPEND, SPEND, SPEND

Think of it — five hundred smackers to spend on your Speccy. What would you do other than jumping for joy? Well, it was a dream come true for **Brian Rumbelow** of Deal. If you remember from last month's Frontlines, he won the Spectrum UK Competition and with it a voucher for £500 to spend on Spectrum hard and software in one of their stores.

He came down to the smoke to collect his prize and lash out the lolly at Computers of Wigmore Street. So, what did he cart off in his giant carrier bag at the end of the day? The real biggie was an Opus Discovery 2 disk drive, the one with two drives. Brian saw it first in Frontlines, liked the look and the spec and knew straight away he wanted one. Instantly he could upgrade his Speccy into a powerful programming tool. But 330 quid's a lot of lolly — unless someone else is paying, of course.

Having splashed out on the Discovery, his Speccy would look a little lost without a real keyboard, so he plumped for the Saga 1. Yes, he'd read the keyboard review in *YS* but none of those impressed him. And after all the Saga has a pen rest!

The hardware was completed with a Quickshot II joystick as Daley Thompson got to Brian's last one! And a game to play with it?



It's the Your Spectrum Double or Drop compo

Gryon was the choice. Again he'd read about it in Frontlines, liked the look of the graphics and, as his luck's obviously in, thought he'd have a crack at winning the Porsche.

Add to this ten 3 1/2" disk, a copy of *The Complete Spectrum ROM Disassembly* from Melbourne House to help with his hacking and that's just about it. Oh, nearly forgot, there was one last thing — a copy of *YS MegaBasic*. Need we say more?

Finally, our thanks to

Spectrum UK for stumping up the cash (there were another five winners who each walked off with a hundred quid!), to Computers of Wigmore Street for getting everything in and to Brian himself for letting Sleepy make him look such a wally in the photo!

Right then, bet you're pretty jealous, eh? If you had five hundred quid what would you have spent it on? (*No, Peter, hols in the Bahamas don't count.* Ed)

Paperdata

The Century Programming Course for the Spectrum

Century Communications
£12.95



Tense, nervous headache? Have you just acquired a shiny new Speccy but found your first bash at learning Basic has proved a brain-numbing experience? Well, there are always alternatives to struggling with the Speccy's manual. Have you thought about joining a computer club or evening classes or perhaps you'd rather sit down with a book...

The Century Programming Course for the Spectrum is a new book from Century Communications that aims to teach you all there is to know about Sinclair Basic, as well as instilling in you the best programming techniques. To get the best out of it as a course, the book suggests that you should restrict yourself to reading an hour's worth a night. Now this mightn't sound very much but there's so much info here, you'd soon be overwhelmed if you attempted more.

The really gutsy part of the book is split into four sections. The first covers the relatively simple aspects of Spectrum programming like cursor modes, graphics modes, the PRINT statement, the LET command and simple arithmetic. OK, so far! Part two just about wraps up all the other commands, with full details of how each is arranged. Here you'll find IF THEN, FOR TO, STEP and NEXT plus the finer points of PRINT when using ink, paper and AT or TAB controls.

Between them, parts three and four go over all the really heavy programming techniques, like bubble, binary and ripple shorting. And although the book sets out to comprehensively cover Basic, it doesn't avoid all mention of machine code matters. My only quail is with the free'n'easy use of flow-charts throughout the book — I'm just not convinced that they add clarity, not confusion.

Still, there's no doubt that this is a pretty encyclopaedic tome (as it should be for £12.95!) that can be used as a reference book even if you don't need to begin right back at the basics. But be warned, it's full of jargon and often expects you to have an IQ in excess of Sir Clive's! So if you're a real beginner a better suggestion might be to splash out on a somewhat less technical book. (*How about a plug for the Capital Radio Book of Computers and Simple Programming? Troubleshootin' Pete*) Once you've mastered that, you'll be ready to have a crack at the Century course.

Tony Samuels

SUPERMANIC

Is it a bird? Is it a plane? Nope, it's another game based on a well-hyped cartoon strip star. This time it's *Superman* who's come out of the telephone booth and into the box.

The game's going to be among the first from a new label called Monolith, a sister company to Beyond Software. This first move from the new company is to dream up one of those corny titles for a chunk of code. This one's called 'authoring' and

it'll allow the game's designers to create superb animated cartoon graphics. (*What, no Reprosound, Sensory Animation and Smellyvision as well?* Ed)

While we all wait for Superman to change into his underpants, Monolith is releasing a couple of games called *Rockford's Riot* and *Quake Minus One*. If you find all this too Kryptic, get on the hotline to Mark Gardiner on 01-353 8445.



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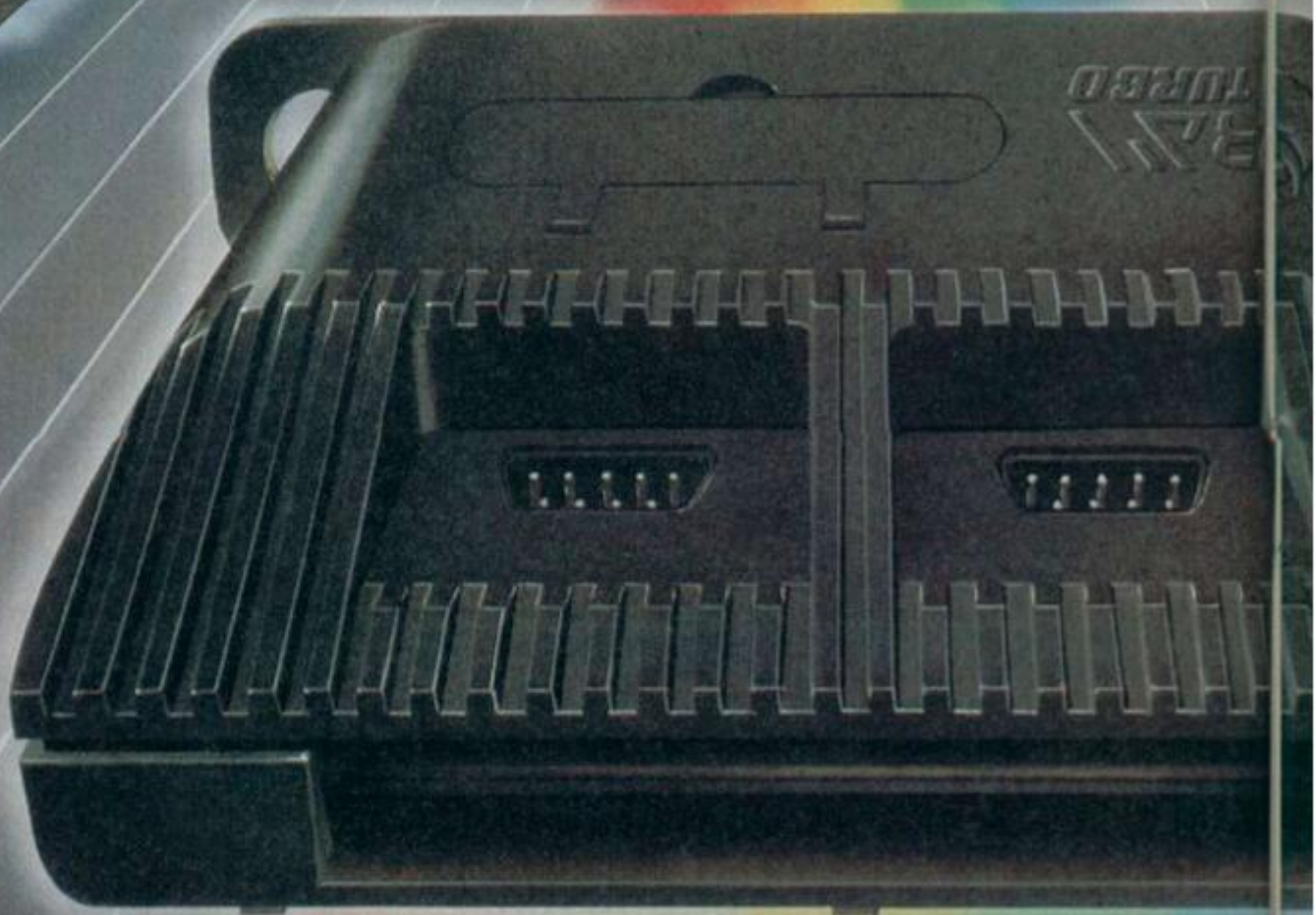
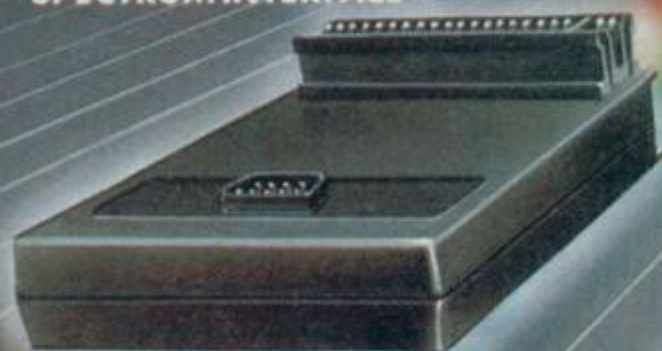
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QUICKSHOT II AUTO RAPID-FIRE JOYSTICK

SPECTRUM INTERFACE



An astronaut in a white spacesuit stands on a brown, cratered moon surface. The astronaut's helmet visor reflects a bright orange glow. In the background, dark, jagged mountain ranges rise against a light, hazy sky. The overall scene is a classic representation of a lunar landing.

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HACKING AWAY



The column that POKEs more fun. Send your hacking hints to Andrew Pennell, *Your Spectrum*, 14 Rathbone Place, London W1P 1DE.

D'you remember back as far as issue 147 Well, Mark Gibson was pretty desperate for POKEs for *Pinball Wizard*. As usual a couple of *YS* readers have come to the rescue. So, here goes Mark, the magic POKEs that'll turn you into a wizard at Pinball. First, LOAD "CODE 36384 to get it in, do POKE 51566,0 for endless lives, then SAVE "PINBALL" CODE 36384, 16128 to save the modified version. Next, change the LOAD "" CODE command in the loader to LOAD "" CODE 16384 and the pinball table is now yours. Rock on, Tommy!

Those same *YS* hackers, Tom Dalziel and Paul Macpherson, have also come up with the goods on *Finders Keepers*, that royal rollick from Mastertronic. For infinite lives, POKE 34208,0 will for the trick or you could try POKE 30394 with the number of lives you want. Watch out though 'cos more than four may make a mighty mess of the screen so you'll need POKE 33969,0 to disable the printing of remaining lives. Thanks also to a hacker from Holland, Felix Gerrinckx from Antwerp whose help was also worth a king's ransom.

And now code-crackers, here's a record breaker. James Cockle is nine years

old and easily qualifies as the youngest hacker who's ever written in. He's come up with a POKE for *Alic Atac* that'll stop you losing energy — POKE 35353,0. I dread to think what young James'll be getting up to by the time he's my age! (*Drawing his pension I expect. Ed.*)

Now here's a funny thing. Kieron Matthews has found that a POKE we printed way back in issue 9 for *Sabre Wulf* has a rather peculiar effect on *Lunar Jetman*. It prevents the missile from launching and ruining your chances. Then, to reach the next level you should wait for the time to run out and shoot at the base. Trouble is Kieron just can't get past level 10 even with the POKE, 'cos he can't find the trailer anywhere. Mind you, there's a good reason for that — the trailer just doesn't exist! It may be on the inlay card but it's certainly not in the game. To get any further you'll just have to do a Robert the Bruce — try and try again!

There now follows an intermission for a spot of complete lunacy. Hacker Hook has written to ask for the POKEs for *Pud Pud* from Ocean. Now I've never heard of it but I was willing to give him the benefit of the doubt until he declared that he's also a fan of *Pud*

Pud music. Yeah, yeah! We'll be sending the van around.

Another candidate for the men in white coats is Mark Sanderson — he's mad enough to send in yet another POKE for ... no I can't bring myself to say it ... oh, alright but only if I can jumble it up — *Jilly T. Sweet!* This is the last one EVER — or at least till the next time whichever is the soonest. Try: FOR f=44800 TO 44928:POKE f,PEEK(f+512):NEXT f. Now one of Matthew Smith's unused sprites is revealed — you'll see the penknife change into a moving top-hat. To see another one alter the 512 to 640, run it again and you'll get a rotating periscope.

Moving on to a rather newer game, George Baselen has sent in the code words that'll help you get from level to level in *Wizard's Lair*. They are LYONS, LIAYR, VAULT, DUNGN, CRPYT, HAWLO and CAIVE. I just hope the magic spells in the game are better than these ones!

Finally, a word about Microdrive conversions. A lot of you are asking about the programs that do the conversions for you. Well, the simplest is actually free, supplied with the Expansion System on the demo cartridge, written by yours truly. It's a 'dumb' converter (*I was gonna say that figures, but I wouldn't dare! Ed*) just copying blindly, though it makes no attempt to change any code.

One secret I'm suprised no-one's sussed yet can be seen if you load the program 'copier' as usual, then enter as a command: *©. Since I was the one who hid it, I shan't give away the message here — so get cracking.

YS FAILED

Did you type in our Mastermind program from the last issue with the intention of boning up for your 'O' Levels? You did? Oops! We're sorry if you failed them 'cos you spent most of your revision time trying to iron out the buglets.

Just whip out the two POKEs in line 320 and while you're at it, you don't need lines 1090-1100. Look at it this way — you can always re-sit them again next year!!

MICRODRIVIN'

... STRAIGHT ON

Till now, it's been a bit of a rough ride trying to convert all your programs from tape to microdrive. But the Evesham Micro Centre reckons its new Interface III will smooth the way to trouble-free conversions.

The Interface III's an easy-to-operate hardware add-on that allows a 'snapshot' to be

taken at any stage of a program. At just under £40 it's not cheap but it could be the answer to every microdriver's dream.

If you're not convinced that it'll cope with all your software, check it out on (0386) 49641. Or you can wait for a full road-test in the next issue.

JET LAG

Just when you thought it was safe to go back to your Speccy ... he's back! And just when we thought we might never have to mention the initials JSW again, Software Projects has done the dirty on us. Yep, *Jet Set Willy II* is due for imminent release.

While you're reaching for the tranquilizers, we'll tell you what we've weeded out of Software Projects. The game's going to be set once again in Miner Willy's mansion but he's had a few extensions built to the West Wing since JSW — there'll be a lot more rooms this time.

So, what's the cost? Well, other than sleepless nights and sore eyes, it'll set you back

FRONTLINES

£6.95. That's all Software Projects is telling us at the moment but if you want to have a go at getting more info, ring them on 051-428 7990.

ALIEN MATE

Following our call for your *Alien 8* masterpieces, comic cartoonist Jeff Thomas has sent in his spaced-out creation in the form of an *Alien 8* comic book designed to run on the Speccy.

Jeff put it together using *YS MegaBasic* and the Screen Scrunger

program from Issue 13 and as you can see from our selection of his screen shots, his sense of humour is definitely as warped as the Editor's. And that's why the Ed's awarding the software prize to Jeff — unless of course, you reckon you can do better!



Just two of joker Jeff Thomas's cartoon creations

Save £££s off selected software titles in the exclusive special offer for all YS readers. Go for it . . .

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YS SOFTWARES!

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<input type="checkbox"/> Give My Regards to Broad St. Mind Games (032)	£7.99	£6.99
<input type="checkbox"/> The Rocky Horror Picture Show CRL (033)	£8.95	£7.95
<input type="checkbox"/> Everyone's A Wally Mikro-Gen (023)	£9.95	£8.95
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At these ridiculous prices, how could I resist this exclusive YS offer? I've ticked the games I want to order and enclosed a cheque for £..... made out to SportsScene Specialist Press Ltd.
Please charge my Access/Visa/American Express/Mastercharge card

number*
(*Delete as applicable)

Signature
(Credit card orders cannot be accepted without a signature.)

Name

Address

Postcode

Name

Address

Postcode

Complete this coupon (or photocopy of same) and send it off to YS Softwares, *Your Spectrum*, PO Box 320, London N21 2NB. Please allow 20 days for delivery.

For office use only!

--	--	--	--	--	--



Fitness, stamina and hours of jogging in the rain — you won't need any of these to win a YSGames Gold Medal. But you're gonna have to be good at games — the Best!

Go for gold, we cried ... where were you? The race to win got off to a false start! I'm afraid and it was only the YS supreme team that sweated it out to the top of the high score challenge! So come on, limber up and join the frontrunners. We want to see *your* triumphant faces opposite next month! Now's your chance to shine as a star games player, but remember no hyped or hacked scores please, they'll only trip you up at the YS Games Finals to be held later this year.

Of course, if you can't match any of the scores, don't be put off. We're still after your votes. Send in your list of the five games you find most unput-downable and your pick of the up'n'coming chart-toppers for the YS Top 10 Hot Shots. Do it and you'll be in with a chance of winning three free pieces of software — just like *Ian Wong of Workington*. Nice one Ian — watch out for the postman!

YS GO FOR GOLD

My top 5 all-time greats are:

- 1
- 2
- 3
- 4
- 5

My top scores are*:

- 1
- 2
- 3
- 4
- 5

The next games I'm gonna rush out and buy are:

- 1
- 2
- 3
- 4
- 5

If you're going for gold, stick your mugshot here

*You don't have to fill it all in but make sure you specify the level of difficulty for your scores.

Make sure you send us a black and white photo of yourself if you've filled in your high scores.

I'm going for gold! My name is:

Address

Postcode

Now ask an independent witness to sign the coupon

Independent Witness

Name

Address

Postcode

Complete this coupon and send it to Go For Gold, Your Spectrum, 14 Rathbone Place, London W1P 1DE.

ALL-TIME-TOP-TEN

 Teresa Maughan Level 18	 David Baskerville Level 15	 Roger Munford Level 12	1 MONTY MOLE GREMLIN GRAPHICS 5	 Claudia Jeffries 38%	 Jerry Lewis 30%	 Steve Malone 16%
			NEW ENTRY 2 ALIEN 8 ULTIMATE			
 Wendy Smith Day one 470,002 Day two 604,324	 Joe Harrower Day one 302,382 Day two 403,426	 Kevin Cox Day one 232,322 Day two 320,344	3 DALEY THOMPSON'S DECATHLON OCEAN 2	 Susie Matthews 75 items	 Steve Shreyas 73 items	 Mike Leaman 60 items
			6 JET SET WILLY SOFTWARE PROJECTS 4			
 Trevor Emmanus 30%	 David Baskerville 27%	 Louise Cook 22%	5 UNDERWURDLE ULTIMATE 1	 Andrew Stark 8-1 (five minute game)	 Derek Cohen 7-2 (five minute game)	 Steve Colwell 5-1 (five minute game)
			3 MATCH DAY OCEAN 6			
 Pete Shaw 50% 3 Charms	 Jimmy Egerton 35% 2 Charms	 Penny Rouch 30% 2 Charms	7 KNIGHTLORE ULTIMATE 4	 Martin McGuinness 67%	 Roger Willis 53%	 Steve Broadhurst 42%
			9 ATIC ATAC ULTIMATE 8			
 Alan Towler 23,000	 Beth Ford 16,000	 Julian Dorr 12,500	9 GHOSTBUSTERS ACTIVISION 10	 John Kay 260,000 at 84%	 Steve Colwell 200,000 at 70%	 Steve Malone 160,000 at 49%
			8 SABREWOLF ULTIMATE 10			

TOP TEN HOT SHOTS

- | | |
|---|--|
| 1 STARION
MELBOURNE HOUSE | 6 GIVE MY REGARDS TO BROAD ST.
MIND GAMES |
| 2 SPY HUNTER
BALLY/MIDWAY | 7 ROCKY HORROR SHOW
CRL |
| 3 RAID OVER MOSCOW
US GOLD | 8 EVERYONE'S A WALLY
MIKRO GEN |
| 4 SHADOWFIRE
BEYOND | 9 WRIGGLER
ROMANTIC ROBOT |
| 5 GREMLINS
ADVENTURE INTERNATIONAL | 10 GYRON
FIREBIRD |



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Computer and Video Games May 1985

SINCLAIR USER CLASSIC "Stands in a class of its own . . . Firebird has produced a brilliant game combining strategy and arcade skills"
Sinclair User May 1985

PICK OF THE WEEK "graphically there is little to rival it in the entire world of Spectrum programs . . . utterly original"
Popular Computing Weekly 24 April 1985

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We **guarantee** that this is the **best** tape to disc utility on the market. **Very easy to use no programming knowledge needed**. Automatically handles device numbers and multi part programs. Programs **auto load** and run once transferred and can also be made to **fastload** with **Quickdisc**. Handy for making your own disc programs auto run.

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Fed up waiting for programs to load and save? Rocket is a utility for the programmer, speeds up loading and saving by about **8 times** while still allowing for normal speed operations. **Does not** affect the speed of BASIC as no wedge is used. Programs can also be saved with high speed system to **reload independently**. A must for serious programmers who have no disc drive.

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The **superb** new speech synthesis program for the '64. Uses "speak" as a basic command. **Very easy to use**. Can be incorporated into your basic programs. Words are entered in phonetic English, i.e. spelt as they sound. Therefore vocabulary is **unlimited**. **Great fun** and good for educational purposes.

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TOY SHOP

At Eldon Square in Newcastle the assistant in the computer shop needs a visit from the big boys.

When I visited the shop with a Commodore user (his name's Paul Mallabar but I don't suppose you're interested) (*Nope. Ed*) and asked if the assistant had a Spectrum in stock, he said no. What's more, he even gave my friend a letter saying that compared with the Commodore, the Spectrum's just a toy.

I think this man's a real (*at this point the letter has a nasty attack of the editorial red pen. Ed*). Do you agree? If I get this letter published I'll take it into the shop and show it to him. That should make him feel a bigger... (*more red pen. Ed*)

**Jonathan Barry
Tyne & Wear**

Don't start dragging us into your squabbles. And as for the big boys, there's no one at the YS Tower Block over 3ft 6ins. Honest. Troubleshootin' Pete.

FOR...

May I add a point to your *Speed Trial* review in issue 14? I may? (*S'pose so. Ed*) Thanks. I bought a Wafadrive in December '84, and I got what I thought was a wrong 'un.

Well, a letter to Rotronics brought an offer of a replacement and this was despatched before they received my Wafadrive. A phone call came the same day the Wafadrive was delivered enquiring if things were OK. They weren't, so they suggested my Speccy spent a holiday at their place for a check-up where a faulty ULA was found and replaced.

Marvellous service, don't you think? The Wafadrive may not be as fast as some but this more than makes up for it.

Finally, how about a *Patching Up the Drives* for Wafa owners?

**A E Denison
Wortley**

Any takers on that one? Ed.

AND AGAINST....

After seeing your bit on the Wafadrive in *Frontlines* of November '84, I sent to SMT for more info. I was impressed, so I thought, great I'll send for one. Forty-two days later (another twenty-eight day promise down the drain) it arrived.

Having scanned the manual to find out how to load a program, I tried to load

FORUM

Write to us — there's a bundle of free Spectrum software for this month's Star Letter! Write to Forum, Your Spectrum, 14 Rathbone Place, London W1P 1DE.

Spectral Writer. After several error messages, it finally loaded. A few days later, I had another go. No luck. So, I rang Rotronics who said I probably had a faulty wafer and I should send it back. The replacement also failed to load.

This was not the only problem. The tape inside the 64K wafer had snapped and the 128K had packed up altogether. The Wafadrive O/S was also refusing to accept legal commands. All the wafers were entrusted to the postman. A fortnight later I received a call apologising for the problems and then the new wafers arrived.

My troubles are still not over. The *Spectral Writer* wafer has given up the ghost again though I did manage to save it to tape this time. The O/S still fails to accept commands and another 128K wafer has packed in.

Is it just me?

**Robert Emery
Sheringham, Norfolk**

Could be. But then again we'll wait and see how others have fared. Troubleshootin' Pete.

UP 'N' DOWN UNDER

In *Circe*, *YS* issue 14, why is Tim Hartnell holding a book upside-down? Is it because he's Australian?

Please tell me as I've never managed to program upside-down.

**James Harrington
Scunthorpe**

*Ed
Should have been upside-down. Tim, being an Australian, right way up all the time but up. The book was really the course, printed the wrong way mistake. The photo was, of OK, James you spotted the*

OFF 'IS ED?

Don't keep us nosey-parkers in suspense any longer! Where has Bodger Munford, I mean our, good ol' Ed, gone skedaddling off to lately? Could the rumours be true?

Has he really done a bunk with the petty-cash and you-know-who's missis!? (*Tell me more. T.P.*)

Of course, I fully realise, thing (I can call you thing, can't I?), (*call me whatever you like, just stop writing me letters.*

Ed), who your new boss is. Why else would I put you in the awkward and potentially dangerous situation of publishing this insinuating piece of garbage!? (*Sense at last. Ed*). I just hope that he doesn't box you in the ear-socket, that's all! He might even sack you! (*I should be so lucky! Ed*.)

You really ought to be more careful about offending your boss you know.

My kindest regards to Bodger, I mean Rodger for all the hard work he's put into *YS* as Editor, and good luck to you Kev. (Hmmm, we'll have to think of a nickname for you too!)

**Anthony Mayers
Clywd**

Nickname? Huh, they'll be giving me a number and locking me away if I receive any more loony letters like this. What do you think has really happened to Roger? Still, they

say he's being well looked after and there's a bed reserved for me. Ed.

MEGAHACK

Pssst, wanna be an instant hacker? Then load a copy of *YS MegaBasic* right now (you do have a copy don't you?).

Once it's loaded, you're asked to Press 'm' to copy to a microdrive (aaargh, I feel an attack of *BAD SECTORS* coming on). Instead, quickly press the following sequence of keys: g,a,m,l.

Do it as quickly as possible as you've only got four seconds to press all four keys. For all your hard work you'll be greeted with a message usually hidden from yer average Speccy user.

**Andy Taylor
Sheffield**

*And of course, there's no chance of us letting on what the secret message is. You'll just have to take a butchers at your own copy of *YS MegaBasic* for that.*

Now, what we'd really like to know is, what do the letters stand for? We can work out m,l, no problem, but who's g,a? C'mon Mike, name the mystery person — we think the world should be told!

PATIENT ROYALTY

After your request in *Program Power* for a short routine that would only allow kings to be placed on empty files in the *Patience* game, *YS* issue No. 14, here are my alterations to allow you to do just that.

First of all, modify line 1628 to read:

PRINT INK 4:AT

THE YS TRAINSPOTTER AWARD



Keep your eyes open and you too could be catching a YS Trainspotter's award!

OK, the game's up! I found the mistake. Yes, believe it or not, I have. Guess where?

I was reading through the *May Top 20* and at number 16, there's *Chequered Flag*.

Well, the bit at the end says "Rev-right-up and win the race in this speed bike fun!"

Bike? *BIKE*? It's about *CARS*! Spelt C-A-R-S. Honestly, I couldn't put you in charge of a C5.

You silly boy, Ed! Take 10,000 lines! Wally, Bikes? Hah!

**Keith Whitmore (aged 11)
Basildon**

I must not have any more silly ideas like the YS Trainspotter Award. Ed.

I must not have any...

Thinking so ... thi

THE TASWORD WORD PROCESSORS

The extensive features of the Tasword word processors are ideal for both the home and business user. Every Tasword comes complete with a comprehensive manual and a cassette or disc. The cassette or disc contains your TASWORD and TASWORD TUTOR. This teaches you word processing using TASWORD. Whether you have serious applications or simply want to learn about word processing, TASWORD and TASWORD TUTOR make it easy and enjoyable.

TASWORD TWO (Spectrum)

64 characters per line on the screen!

"Without doubt, the best utility I have reviewed for the Spectrum." HOME COMPUTING WEEKLY APRIL 1984

"If you have been looking for a word processor, then look no further." CRASH JUNE 1984

The cassette program is supplied with instructions for microdrive conversion.

TASWORD TWO* ZX 48K Spectrum
cassette **£13.90**
microdrive cartridge **£15.40**

TASWORD EINSTEIN

A sixty-four character per line display and the ability to hold over five hundred lines of text at any time are just some of the features of this, the most recent, of the Taswords. Full interaction with the disc system—e.g. Tasword detects the presence of added drives and allows their use.

TASWORD EINSTEIN Tatung Einstein
disc **£19.95**

TASWORD 464

"There is no better justification for buying a 464 than this program."

POPULAR COMPUTING WEEKLY NOVEMBER 1984

A particularly sophisticated yet easy to use program. Now available on disc. The cassette version is supplied with instructions for transferring to disc.

TASWORD 464* Amstrad CPC 464
cassette **£19.95**
disc **£22.95**

TASWORD MSX

With all the features of the Spectrum Tasword Two including the amazing sixty four character per line display. The Tasword MSX machine code program utilises the 32K of memory not normally available to Basic allowing over five hundred lines of text to be held in memory.

TASWORD MSX* 64K MSX Computers
Fully inclusive mail order price **£13.90**
(cassette includes both disc and tape versions)

THE TASCOPY SCREEN COPIERS

The TASCOPY screen copiers print high resolution screen copies with different dot densities and patterns for the various screen colours. This gives the screen copies a shaded effect which presents on a monochrome scale the colours on the screen. With TASCOPY you can keep a permanent and impressive record of your screen pictures and diagrams. TASCOPY supports all the printers mentioned under TASPRIINT.

TASCOPY (Spectrum + Interface 1)

The Spectrum TASCOPY is for use with the RS232 output on ZX Interface 1. It produces monochrome copies (in a choice of two sizes) as well as copies with the shaded "grey scale" effect described above.

TASCOPY ZX Spectrum cassette **£9.90**
microdrive cartridge **£11.40**

TASCOPY 464

Adds two new commands to the 464 Basic to give both a standard shaded screen copy as well as a "poster size" copy which is printed onto two or four sheets which can be cut and joined to make the poster.

TASCOPY 464 Amstrad CPC 464 cassette **£9.90**
disc **£12.90**

TASCOPY QL

TASCOPY QL adds new commands to QL Superbasic. Execute these commands to print a shaded copy of the screen contents. Print the entire screen or just a specified window. TASCOPY QL also produces large "poster size" screen copies on more than one sheet of paper which can then be cut and joined to make the poster, and high speed small copies.

TASCOPY QL Sinclair QL
microdrive cartridge **£12.90**

THE TASPRIINT STYLE WRITERS

A must for dot-matrix printer owners! Print your program output and listings in a choice of five impressive print styles. The Taspriints utilise the graphics capabilities of dot matrix printers to form, with a double pass of the printhead, output in a range of five fonts varying from the futuristic data-run to the hand writing simulation of Palace Script. A TASPRIINT gives your output originality and style! The TASPRIINTS drive all Epson compatible eight pin dot-matrix printers, e.g.

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EPSON RX-80
EPSON MX-80 TYPE III
NEC PC-8023B-N

MANNESMANN TALLY MT-80
STAR DMP 501/515
BROTHER HR5
SHINWA CP-80
COSMOS-80
DATAC PANTHER
DATAC PANTHER II

Five impressive print styles for your use:-

COMPACTA - bold and heavy, good for emphasis

DATA-RUN - A FUTURISTIC SCRIPT

LECTURA - clean and pleasing to read

MEDIAN - a serious business-like script

Palace Script - a distinctive flowing font

Typical Taspriint output. Please note that different makes of printer produce different sized output.

TASPRIINT (Spectrum)

Drives all the printer interfaces compatible with TASWORD TWO and can be used to print TASWORD TWO text files as well as output from your own Basic programs.

TASPRIINT 48K Spectrum cassette **£9.90**
microdrive cartridge **£11.40**

TASPRIINT 464

Can be used to print AMSWORD/TASWORD 464 text files in addition to output from your own Basic programs. Drives the Amstrad DMP 1 in addition to the printers listed to the left.

TASPRIINT 464 Amstrad CPC 464 cassette **£9.90**
disc **£12.90**

TASPRIINT QL

TASPRIINT QL includes a screen editor used to modify files created by other commercial software, such as QUILL, or by the user from BASIC. These modified files include TASPRIINT control characters and may be printed, using TASPRIINT, in one or more of the unique TASPRIINT fonts.

TASPRIINT QL Sinclair QL
microdrive cartridge **£19.95**

Software? ... Think Tasman

OTHER TASMAN PRODUCTS FOR THE ZX SPECTRUM

TASMERGE

The Mail Merger

Transfer data from MASTERFILE to TASWORD TWO! Letters and forms typed on TASWORD TWO can be printed with addresses and data taken from MASTERFILE. The mail merge facility allows, for example, multiple copies of a letter to be printed, each containing a different name and address taken from your MASTERFILE data. To use TASMERGE you must have one or more microdrives as well as TASWORD TWO and MASTERFILE by Campbell Systems. (version 9 or later).

TASMERGE ZX 48K Spectrum **£10.90**

TASWIDE

The Screen Stretcher

With this machine code utility you can write your own Basic programs that will, with normal PRINT statements, print onto the screen in the compact lettering used by TASWORD TWO. With TASWIDE you can double the information shown on the screen!

TASWIDE ZX 16K + 48k Spectrum **£5.50**

TASMAN PRINTER INTERFACE

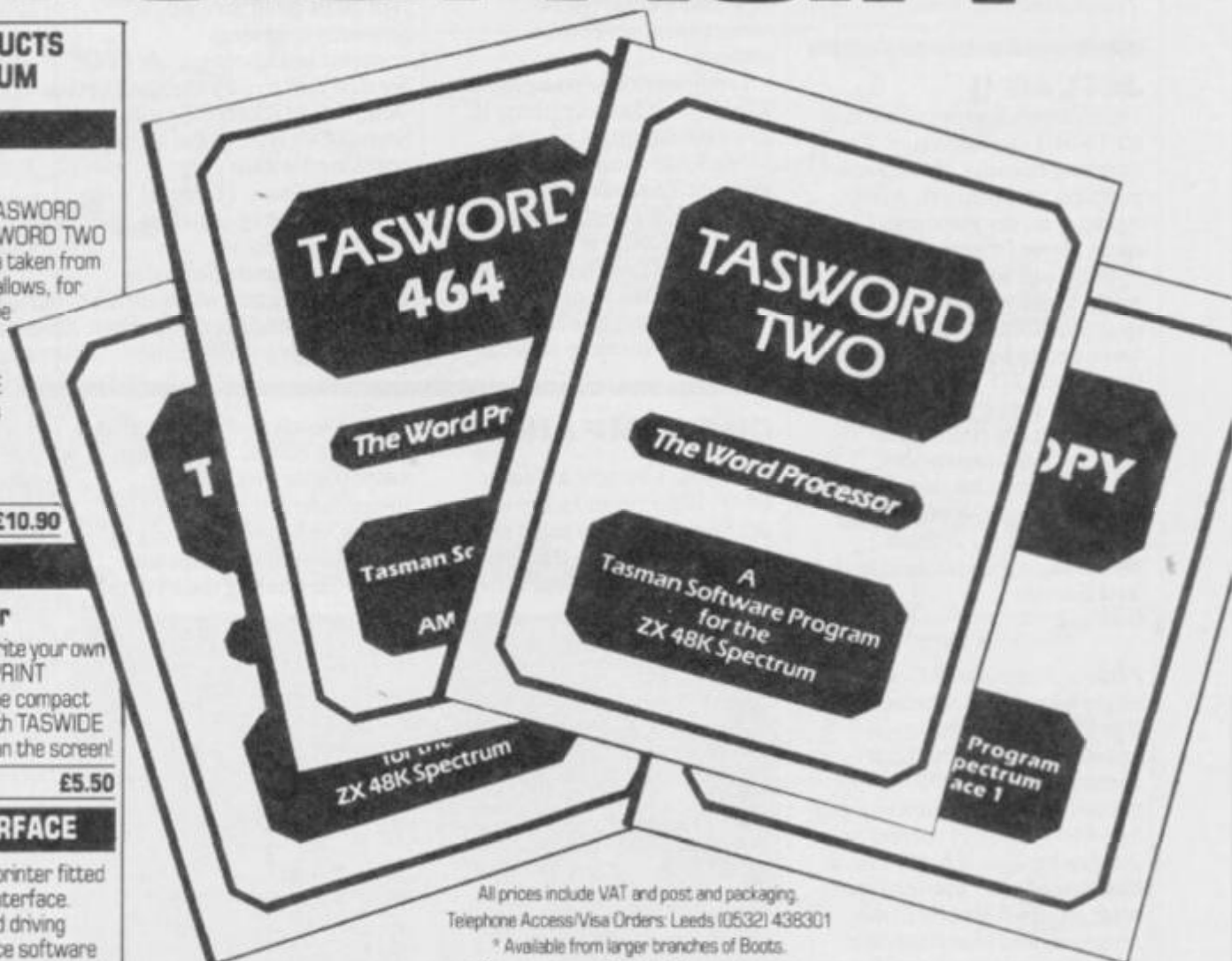
Plug into your Spectrum and drive any printer fitted with the Centronics standard parallel interface. Supplied complete with ribbon cable and driving software. The user changeable interface software makes it easy to send control codes to your printer using the method so successfully pioneered with TASWORD TWO. The cassette contains fast machine code high resolution full width SCREEN COPY SOFTWARE for Epson, Mannesmann Tally, Shinwa, Star, and Tandy Colour Graphic (in colour!) printers.

TASCOPY, shaded screen copy software for this interface (value £9.90 - see description on left) is included in this package.

CENTRONICS INTERFACE ZX Spectrum **£39.90**

COMPUTER PRINTER CABLES

RS232 for ZX INTERFACE 1 **£14.50**
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AMSTRAD CPC 464 CENTRONICS **£9.90**



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W+2,Z;""3 spaces";INK 0;:"

Secondly, renumber line 1643 to 1642, and then include the new line;

```
1643 IF ATTR (3,pp*4)=36 AND
cS(1)=""graphics M." THEN GO
SUB 1784:RETURN
```

J Sneideris
Gildersome, Leeds.

Well, we didn't have to wait long for that. I s'pose you're a Jack of all trades. Troubleshootin' Pete.

JETLAG II

I wasn't very happy with issue no. 14 of *Your Spectrum*. I'm moaning because of the *Jetman* program you printed. After typing it in, my mate and I spent about fifteen minutes figuring out why it wouldn't work. Finally, after much stompin' about, we found there was a bug in line 460. It should have read LET P=65278. I find your mag by far the best for the Speccy (there is no other serious contender), though it was a bit of a shock after typing in the excellent *MacMan* to find *Jetman*. Please keep the standard high.
Neil Forster
Bedford

Feeling better now? Good. You might have liked Jetman better if you'd typed in our version instead of your own! Your correction to line 460 may have got your program working, but line 460 is already correct in our books. You'd better check that you haven't made a typing error somewhere else in the program, and that your line 460 edit is not just a patch-up. So there! Not very happy... moaning... Someone pass me some of the grovelling letters to cheer me up. Troubleshootin' Pete.

THE LAST POKE

At last, I've done it! I've found a POKE to get rid of *Jet Set Willy*!! It's: POKE JET SET WILLY, BIN. And it works.
Mal Goodman
Leeds

Nice one, Mal. We've found a similar POKE for the Ed. It's POKE ED, PUB. Works every time! Troubleshootin' Pete.

WITHDRAWAL SYMPTOMS

Aaaaagh! Disaster! Save me! You've guessed it! Another one back to Sinclair! If I remember rightly that's the fourth one in two years. Another two months without a Speccy! I can't stand it! In

December, when I had a Speccy, I sent off for *YS MegaBasic* and on the seventh of Feb, I received a little parcel addressed to me. (So we got something right then? Ed) I immediately dashed up half the stairs and hopped up the other after bashing my toe on the wall, gave the Speccy a 9 volt dinner and typed in the famous phrase — none other than LOAD"". I then started the tape and waited for two minutes and seventeen seconds.

I only have one complaint. Why does it keep crashing if you make a mistake on a *MegaBasic* command? (But I thought *YS* readers didn't make mistakes. T.P.) And also, who is George? Why is he waiting?

Anyway, now I must go back upstairs, trying to avoid bashing my toe and lie back in a darkened room to wait for

the arrival of my Speccy.

Ian Comerford
Wallasey

Are you sure it was just your toe you bashed? George? Waiting? Will someone explain or I'll start to think it's me who's nuts. Ed.

TOO HOT TO HANDLE?

Not all of us sit around on Saturday mornings contemplating our navels (well, we don't all live by the sea like you. T.P.) (Idiot! Ed.), Oh, no! Some of us type in the listings contained within your wonderful mag. (Careful, I can feel an attack of crawling coming on. Ed.)

On one certain Saturday morning recently while sitting at my MFI budget computer desk, banging away at the

rubber keys, I discovered that someone at *YS* had messed around with the UDGs listing on page 17 of the May issue. The last column of this should read 255, 239, 213, 85, 85, 42, 16 and 0.

After altering the data and running the program I was overcome by the fumes from my ZX printer, and what's more, I was rushed into intensive care, but I dare not go into detail over where the tubes were placed. (Have I missed something here? Ed.)

As a result I am demanding compensation of either a Porsche 924 or a Trainspotter Award (whichever is the more valuable).

Jon
St Annes-on-Sea

Can there be any doubt about their relative merits! As it is you're not getting either. Ed.

ONE DUMP AHEAD

Recently, I bought a Tandy DMP 105 Printer to use with my Spectrum. The main reason for choosing it was the price (under £200 complete with

tractor feed) and the fact that it supports RS232. It was also easy to wire — Tandy's instruction book gives all the details, especially bearing in mind the odd way Sinclair insists on sending data via the

RXD line. Anyway, it worked fine first time and it's giving good service.

My only problem was that I didn't have a hi-res dump program, so remembering Andy Pennell's *Dumps of Distinction* in issue 4, (how could anyone forget it? Ed) I decided to have a crack at the necessary modifications.

The main problem is that Tandy in their wisdom only allow for 7 dot feeds in graphics mode. However, in character mode you can select as few or as many as you need. So, it's necessary to select the elite mode and adjust for 3 dot line feeds before changing the printer to graphics and entering the routine. Then returning to text mode before doing a line feed and back to graphics prior to doing the next line. That done, the bit pattern for printing needs to be flipped and have bit 7 set (ie. add 128).

The assembler listing shown is a Zeus dump of my efforts.

Finally, may I join the ranks of many readers to congratulate you on your excellent magazine. It is without question, in my humble opinion, full of useful and interesting information, programs and reviews.

Derrick Lambert
New Milton, Hants.

*C'mon, cut the crawling. I dunno, some people will say anything to get into print. Since when has a *YS* reader had a humble opinion? Still, one bit of useful and interesting info is that Dumps of Distinction is this month celebrating its first birthday! Celebratory champagne may be sent to the usual address. Ed.*

00010	LD A, 27	00040	JR C, NEY
00020	CALL OUTCH	00045	***
00030	LD A, 23	00046	Andy's routine ENDS
00040	CALL OUTCH	00050	LD A, 30
00050	LD A, 13	00060	CALL OUTCH
00060	LD A, 13	00070	LD A, 13
00070	CALL OUTCH	00080	CALL OUTCH
00080	LD A, 10	00090	LD A, 10
00090	CALL OUTCH	00100	CALL OUTCH
00100	LD A, 23	00110	INC C
00110	CALL OUTCH	00120	JR NZ, NLINE
00120	LD A, 27	00130	LD A, 30
00130	CALL OUTCH	00140	CALL OUTCH
00140	LD A, 91	00150	LD A, 27
00150	CALL OUTCH	00160	CALL OUTCH
00160	LD A, 3	00170	LD A, 91
00170	CALL OUTCH	00180	CALL OUTCH
00180	LD A, 18	00190	LD A, 18
00190	CALL OUTCH	00200	CALL OUTCH
00200	LD C, 0	00210	LD A, 18
00210	NLINE LD B, 0	00220	CALL OUTCH
00220	NYX PUSH BC	00230	LD C, 0
00230	CALL #22AA	00240	NLINE LD B, 0
00240	LD B, A	00250	NYX PUSH BC
00250	INC B	00260	CALL #22AA
00260	LD A, 1	00270	LD B, A
00270	LD A, 1	00280	INC B
00280	LD A, 1	00290	LD A, 1
00290	LD A, 1	00300	LD A, 1
00300	LD A, 1	00310	LD A, 1
00310	LD A, 1	00320	LD A, 1
00320	LD A, 1	00330	LD A, 1
00330	LD A, 1	00340	LD A, 1
00340	LD A, 1	00350	LD A, 1
00350	LD A, 1	00360	LD A, 1
00360	LD A, 1	00370	LD A, 1
00370	LD A, 1	00380	LD A, 1
00380	LD A, 1	00390	LD A, 1
00390	LD A, 1	00400	LD A, 1
00400	LD A, 1	00410	LD A, 1
00410	LD A, 1	00420	LD A, 1
00420	LD A, 1	00430	LD A, 1
00430	LD A, 1	00440	LD A, 1
00440	LD A, 1	00450	LD A, 1
00450	LD A, 1	00460	LD A, 1
00460	LD A, 1	00470	LD A, 1
00470	LD A, 1	00480	LD A, 1
00480	LD A, 1	00490	LD A, 1
00490	LD A, 1	00500	LD A, 1
00500	LD A, 1	00510	LD A, 1
00510	LD A, 1	00520	LD A, 1
00520	LD A, 1	00530	LD A, 1
00530	LD A, 1	00540	LD A, 1
00540	LD A, 1	00550	LD A, 1
00550	LD A, 1	00560	LD A, 1
00560	LD A, 1	00570	LD A, 1
00570	LD A, 1	00580	LD A, 1
00580	LD A, 1	00590	LD A, 1
00590	LD A, 1	00600	LD A, 1
00600	LD A, 1	00610	LD A, 1
00610	LD A, 1	00620	LD A, 1
00620	LD A, 1	00630	LD A, 1
00630	LD A, 1	00640	LD A, 1
00640	LD A, 1	00650	LD A, 1
00650	LD A, 1	00660	LD A, 1
00660	LD A, 1	00670	LD A, 1
00670	LD A, 1	00680	LD A, 1
00680	LD A, 1	00690	LD A, 1
00690	LD A, 1	00700	LD A, 1
00700	LD A, 1	00710	LD A, 1
00710	LD A, 1	00720	LD A, 1
00720	LD A, 1	00730	LD A, 1
00730	LD A, 1	00740	LD A, 1
00740	LD A, 1	00750	LD A, 1
00750	LD A, 1	00760	LD A, 1
00760	LD A, 1	00770	LD A, 1
00770	LD A, 1	00780	LD A, 1
00780	LD A, 1	00790	LD A, 1
00790	LD A, 1	00800	LD A, 1
00800	LD A, 1	00810	LD A, 1
00810	LD A, 1	00820	LD A, 1
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00840	LD A, 1	00850	LD A, 1
00850	LD A, 1	00860	LD A, 1
00860	LD A, 1	00870	LD A, 1
00870	LD A, 1	00880	LD A, 1
00880	LD A, 1	00890	LD A, 1
00890	LD A, 1	00900	LD A, 1
00900	LD A, 1	00910	LD A, 1
00910	LD A, 1	00920	LD A, 1
00920	LD A, 1	00930	LD A, 1
00930	LD A, 1	00940	LD A, 1
00940	LD A, 1	00950	LD A, 1
00950	LD A, 1	00960	LD A, 1
00960	LD A, 1	00970	LD A, 1
00970	LD A, 1	00980	LD A, 1
00980	LD A, 1	00990	LD A, 1
00990	LD A, 1	01000	LD A, 1
01000	LD A, 1	01010	LD A, 1
01010	LD A, 1	01020	LD A, 1
01020	LD A, 1	01030	LD A, 1
01030	LD A, 1	01040	LD A, 1
01040	LD A, 1	01050	LD A, 1
01050	LD A, 1	01060	LD A, 1
01060	LD A, 1	01070	LD A, 1
01070	LD A, 1	01080	LD A, 1
01080	LD A, 1	01090	LD A, 1
01090	LD A, 1	01100	LD A, 1
01100	LD A, 1	01110	LD A, 1
01110	LD A, 1	01120	LD A, 1
01120	LD A, 1	01130	LD A, 1
01130	LD A, 1	01140	LD A, 1
01140	LD A, 1	01150	LD A, 1
01150	LD A, 1	01160	LD A, 1
01160	LD A, 1	01170	LD A, 1
01170	LD A, 1	01180	LD A, 1
01180	LD A, 1	01190	LD A, 1
01190	LD A, 1	01200	LD A, 1
01200	LD A, 1	01210	LD A, 1
01210	LD A, 1	01220	LD A, 1
01220	LD A, 1	01230	LD A, 1
01230	LD A, 1	01240	LD A, 1
01240	LD A, 1	01250	LD A, 1
01250	LD A, 1	01260	LD A, 1
01260	LD A, 1	01270	LD A, 1
01270	LD A, 1	01280	LD A, 1
01280	LD A, 1	01290	LD A, 1
01290	LD A, 1	01300	LD A, 1
01300	LD A, 1	01310	LD A, 1
01310	LD A, 1	01320	LD A, 1
01320	LD A, 1	01330	LD A, 1
01330	LD A, 1	01340	LD A, 1
01340	LD A, 1	01350	LD A, 1
01350	LD A, 1	01360	LD A, 1
01360	LD A, 1	01370	LD A, 1
01370	LD A, 1	01380	LD A, 1
01380	LD A, 1	01390	LD A, 1
01390	LD A, 1	01400	LD A, 1
01400	LD A, 1	01410	LD A, 1
01410	LD A, 1	01420	LD A, 1
01420	LD A, 1	01430	LD A, 1
01430	LD A, 1	01440	LD A, 1
01440	LD A, 1	01450	LD A, 1
01450	LD A, 1	01460	LD A, 1
01460	LD A, 1	01470	LD A, 1
01470	LD A, 1	01480	LD A, 1
01480	LD A, 1	01490	LD A, 1
01490	LD A, 1	01500	LD A, 1
01500	LD A, 1	01510	LD A, 1
01510	LD A, 1	01520	LD A, 1
01520	LD A, 1	01530	LD A, 1
01530	LD A, 1	01540	LD A, 1
01540	LD A, 1	01550	LD A, 1
01550	LD A, 1	01560	LD A, 1
01560	LD A, 1	01570	LD A, 1
01570	LD A, 1	01580	LD A, 1
01580	LD A, 1	01590	LD A, 1
01590	LD A, 1	01600	LD A, 1
01600	LD A, 1	01610	LD A, 1
01610	LD A, 1	01620	LD A, 1
01620	LD A, 1	01630	LD A, 1
01630	LD A, 1	01640	LD A, 1
01640	LD A, 1	01650	LD A, 1
01650	LD A, 1	01660	LD A, 1
01660	LD A, 1	01670	LD A, 1
01670	LD A, 1	01680	LD A, 1
01680	LD A, 1	01690	LD A, 1
01690	LD A, 1	01700	LD A, 1
01700	LD A, 1	01710	LD A, 1
01710	LD A, 1	01720	LD A, 1
01720	LD A, 1	01730	LD A, 1
01730	LD A, 1	01740	LD A, 1
01740	LD A, 1	01750	LD A, 1
01750	LD A, 1	01760	LD A, 1
01760	LD A, 1	01770	LD A, 1
01770	LD A, 1	01780	LD A, 1
01780	LD A, 1	01790	LD A, 1
01790	LD A, 1	01800	LD A, 1
01800	LD A, 1	01810	LD A, 1
01810	LD A, 1	01820	LD A, 1
01820	LD A, 1	01830	LD A, 1
01830	LD A, 1	01840	LD A, 1
01840	LD A, 1	01850	LD A, 1
01850	LD A, 1	01860	LD A, 1
01860			

COMPETITION

CHOPPER PATROL

Cop a load of this. Virgin Games has come up with the amazing offer of a helicopter trip for three. Chop, chop!

That's right, Your Super Soaraway Spectrum is offering three lucky readers the chance to fly in a chopper over London. Imagine it! The blades whirring overhead, and London — St Paul's, Parliament, Westminster Abbey and the Thames — set out beneath you like a map. You'll be aloft for an hour on this trip of a lifetime. How many people d'you know who've been in a 'copter, let alone flown right over the heart of the capital?

Take-off will be from Battersea Heliport in a four-seater Jet Ranger. Then it's up, up and away. For the next hour you'll see a side of London that very few people have ever viewed. And to make sure it's a day you'll never forget, Virgin will feed you and pay for your train travel to the smoke.

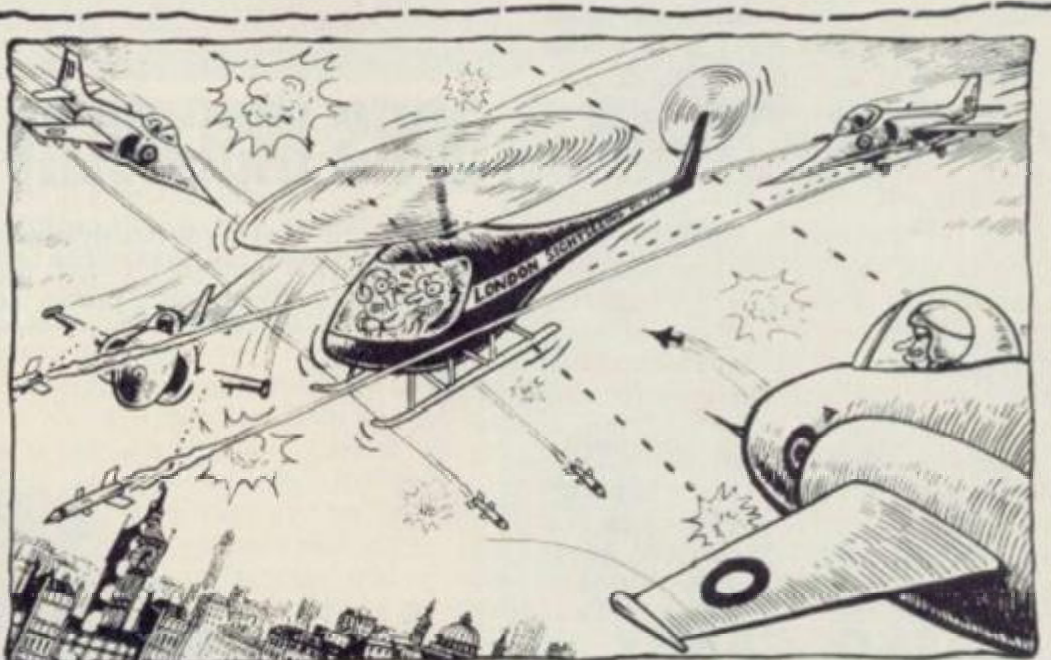
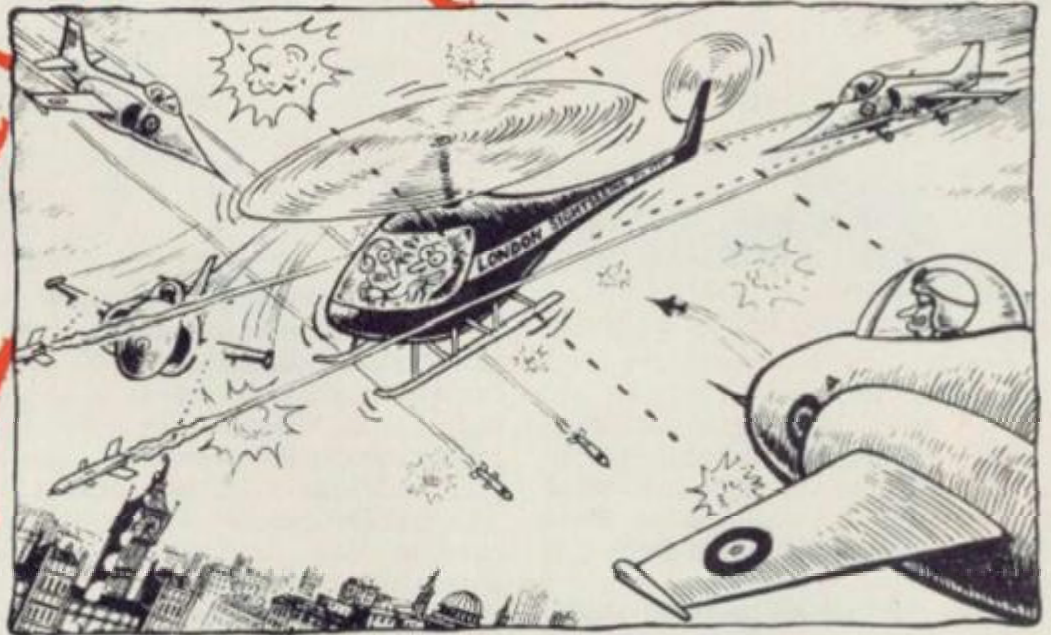
VIRGIN TERRITORY

So, what's prompted this magnificent munificence on Virgin's part. Well, they want to tell you about their new Specky game Falcon Patrol II which features three different types of helicopter. The only problem is that your task in the game is to shoot 'em down from your fighter plane. But then it would be pretty tricky arranging for a jaunt out in a jump jet! And just as difficult shipping you over to the desert for the day to where FP II takes place.

Finally, to show that their generosity knows no bounds, Virgin is also offering ten runners-up a Fly Virgin bag and T-shirt, Virgin calculator and a copy of their Specky game, Strangeloop.

SPOT ON!

All you have to do is look at the two pictures, then ring each difference on the coupon cartoon. Once you've completed the rest of the coupon, jot down the number of differences you found on the back of an envelope and send the lot off to Virgin Copter Compo, Your Spectrum, 14 Rathbone Place, London W1P 1DE. Now that shouldn't present any problems for all you Trainspotters out there, should it?



I spotted differences between the two cartoons!

Name.....

Address.....

..... Postcode.....

Now post this coupon pronto to Virgin Copter Compo, Your Spectrum, 14 Rathbone Place, London W1P 1DE.

MAGAZINE HEALTH WARNING

If you're for the chop but don't want to chop up your copy of Y.S. use a photocopy instead!

VIRGIN RULES OK!

Entries for the Virgin Copter Compo must be post-dated no later than 31st July 1985. Each entry form must have the number of differences between the two cartoons clearly written on the back of the envelope. The Editor's decision is final and no correspondence will be entered into regarding this competition. Under no circumstances can Troubleshootin' Pete enter this competition unless he gives an undertaking to jump out of the helicopter without a parachute.

DISKO TECH

Get the low-down on hi-tech. YS disk jockey, Iolo Davidson takes two new disk drives out for a spin. Prepare for a close encounter of the 3" kind!

Mention disk drives and most people's minds immediately turn to thoughts of speed, but that's only one of the advantages. In fact, some disk drives won't even give you much in the way of speed.

Some would say the major advantage of disk over tape, and especially over stringy-floppy tape cartridges (and they're pretty fast anyway), is the greater reliability and security of data storage. This is at least as important as fast access if you're using the disk for business — a loading error could mean financial disaster.

The third advantage of disks is the filing system used by disk operating systems. It's true that stringy tapes, like the Microdrive, have a similar kind of thing, so this isn't exclusively an advantage of disk, but you certainly don't get it on cassette.

The disk operating system, or DOS (you realise, of course, that some software houses, like Digital Research and Microsoft, are also DOS houses!), keeps a DIRectory or CATalogue of the pro-

grams or data files on each disk. You can use the DIR or CAT (Speccy uses CAT), command to see what's on a disk, and the other DOS commands allow you to SAVE, LOAD or ERASE files, without having to manually operate rewind, play and record controls. It's this that makes the real difference — it's quick and easy for your programs to use the disk to store and retrieve data — and not just the sheer speed of disk loading.

The Spectrum disk drives we're looking at here share all the above advantages, though to varying degrees. The only real drawback is the price. It's not *too* much to pay for what you get, but it's still a lot of cash to splash out on what's supposed to be a peripheral. You probably ought to think twice about stumping up the ready if you're really only interested in nothing more than world record non-stop JSW marathons.

You Spin Me Round ...

Both these drives use the new smaller size disks, rather than the industry standard 5 1/4" workhorse. But it's not so long ago that the standard size was eight inches, and 5 1/4s were reckoned to be toys, so pay no attention to any dinosaur who pooh-poohs diddy disks. The new sizes, in the region of three inches, are every bit as good as 'real' disks, except for the amount of storage available per disk. Problem is, these three inchers cost at least twice as much as Microdrive cartridges or 5 1/4 inch disks, and sometimes a fair bit more.

Perfection is unobtainable anywhere in the known universe (*When did you last visit Castle Rathbone? Ed.*), but I've seen nearer misses than these two. Certainly, both drives are more reliable than the Microdrive, but neither DOS offers much improvement on the arduous Microdrive syntax. If you already have one of Sinclair's little brown stringy spoolers (and assuming that it works for you), then suffer on — there's no point forking out again for something slightly better. Also, you can't connect disks and Microdrives at the same time, because the shadow ROMs clash.

But, and it's a big but, if you're still using cassette and need more speed, or if your Microdrives treat you like they treat me, then either of these machines will give you fast storage and more reliability than Microdrives at only double the price.

Transferring your own programs to disk is a doddle, but the commercial software that's designed to be copied to Microdrive or Wafadrive, is still going to give problems.

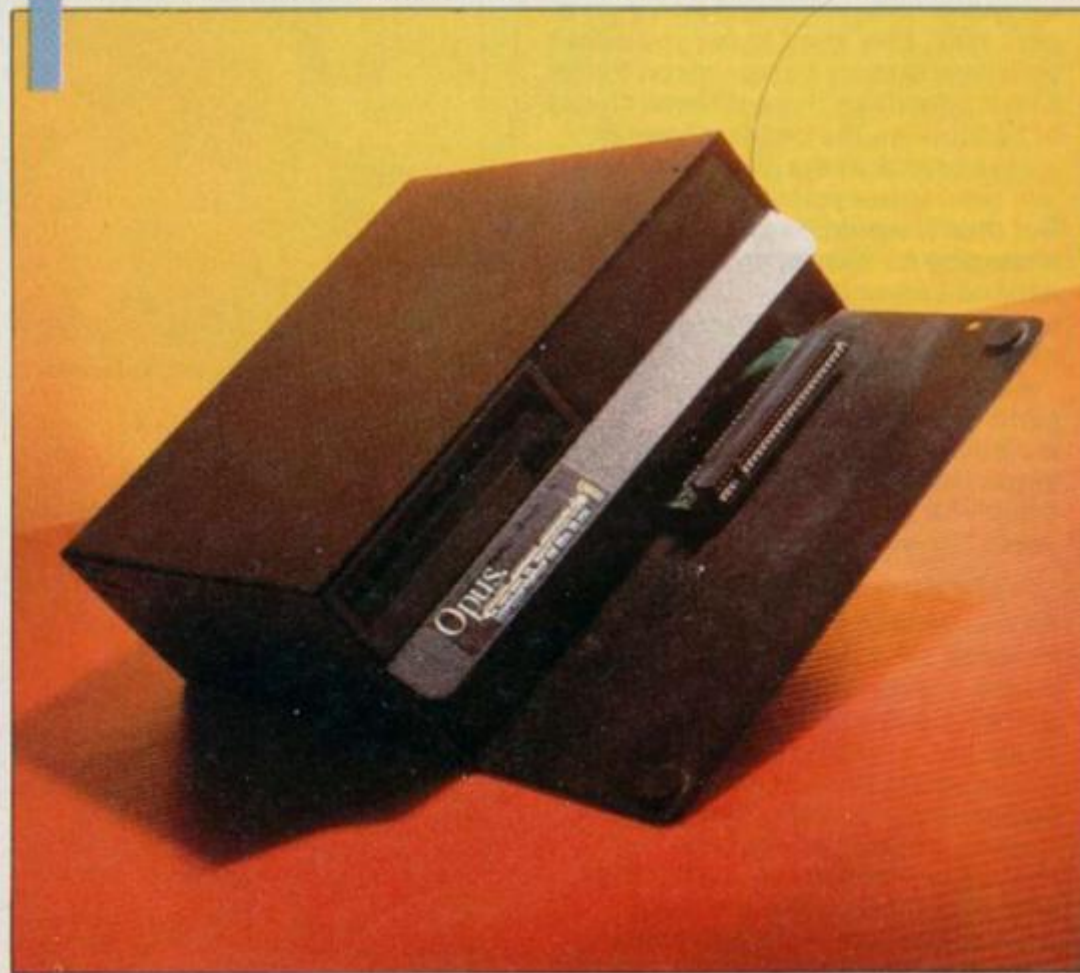
Now, there are plusses and minuses on both drives. Of the two, I'd put my money on the Opus as it has more storage on line at one time and the extra interfaces. The Triton would fit different keyboards more easily, it didn't hum or overheat, and it was faster, despite a rather dodgy DOS. But, despite all my griping, these are both good products, not just the toy for the boy whose Dad has everything!

OPUS DISCOVERY 1

If you're thinking seriously about a disk drive, it's quite likely that you'll already have invested in a proper key-

board — and no, I don't mean a Plus. Well, that's where you're going to hit the first snag with the Opus *Discovery* — it's constructed in such a way that the use of these add-on keyboards is extremely tricky.

The computer sits half on a shelf, and



DISKOGRAPHY

Drive	Opus Discovery 1	Triton QD
Storage per side	178K	100K
Storage per side	178K	50K
Auto-Verify On Save	No	Yes
No. Files per side	No limit	20
Simplest case Syntax	LOAD *1; "name"	LOAD *1; "name"
Price	£199.95	£119.95
Disk Type	3 1/2" Sony	3" Top-loading
Through connector	Yes	Yes
Other Interfaces	printer and Joystick	None



TRITON QD

QD stands for quick disk, a name given to the top-loading 3" version of the minidisk drive. This isn't the same as the Hitachi designed 3" disk used on the Amstrad, which is front loading and has a protective shutter. The top-loader is less widely used than the Sony or Hitachi type, so you may have trouble tracking down the disk — a point to bear in mind.

There's nothing intrinsically wrong with the smaller disk, but there are differences. One is that the drive has a flip-up door that you slide the disk into and then shut, just like on a standard cassette tape machine. You turn the disk over to see the other side, again like a cassette. There's no sliding shutter to protect the magnetic surface.

More importantly, the 3" quick disk is generally capable of less storage than the 3½" though this does depend partly on the drive mechanisms. The Triton's 50K

per side for 100K per disk is typical, and compares with Opus's 178K per disk. This limits the amount of storage that you can have active at any one time to, say, one large arcade game.

The Triton file directory is more informative than that of the Opus, with info on file type (Basic, Code or Data), start address and size. Pretty essential stuff, this.

After that advance on the Discovery, the QD starts slipping back. There are no interfaces for printers or joysticks, only a

you're supplied with a pair of stick-on feet to support the rest of the machine. Without the feet, you're magically transported back to the ZX81 days of Rampack wobble and white-out. There's a single fixing screw sited to suit both the Spectrum Plus and the original Speccy, but most add-on keyboards won't have a convenient hole in the right place. Some keyboard upgrades mount the computer's circuit board too high from the keyboard's base, so that there's not enough room between the connector and the shelf on the Opus to fit the computer.

The practical solution to the problem is to buy an extension ribbon cable to connect the two units — but that costs money, (unless you pinch the one from your VTX 5000 modem!). Some kind of flexible connection should've been a part of the original design, as it is for the Triton QD. This would've also made it much easier to get at the tape and TV sockets, which are otherwise jammed tight against the Discovery's case under the shelf.

While I'm whining, suppose I'd better mention the Opus's power supply. The one on our review machine sure makes a bit of a hum. The drive itself is quieter than the Triton's, but the transformer providing the power is on all the time.

Overheating's also a slight problem. It doesn't get dangerously hot, but with the case removed, I still found the transformer too hot to touch. I have a hunch that it was chosen for its ability to fit in the box rather than its output current rating. It's a very tight fit, jammed as it is between the

bottom of the case and the actual drive. The problem is that fitting a more capable unit would've probably meant going over to a circular design.

It's possible to fit a second drive into the Discovery 1 (or rather, have Opus fit it) whereupon it becomes a Discovery 2. I do hope that they uprate the transformer at the same time.

The Discovery uses the Sony-designed 3½" disks — just feed them into the slot as if you were posting a letter. To get them out again, you press the eject button. This is a slick system and great improvement on large disk drives that require the manual opening and shutting of a 'door'. To use both sides of this kind of disk, the drive must have two heads, as you can't flip the disk over to get to the other side. The Discovery has only the one head, so the capacity of each disk is about 178K — half of what it could have been if both sides were used — but that's still more per disk than the Triton.

You also get a good selection of expansion options with the Discovery. There's a joystick port, parallel printer output, composite video socket and a through connection for hooking your other peripherals to the Speccy edge connector.

Unfortunately, the video output is in black and white only, and the printer port has an edge connector instead of a proper Centronics socket. The printer connection works in input as well as output, so you can use it to hook two Spectrums together — provided they both have Discovery 1 attached, of course.

The DOS commands are mostly identical to those of the Microdrive. The bad news is that the Microdrive has a tortuous command syntax. But the good news is that this awkward syntax means Microdrive software works on the disks without alteration, provided it uses Basic for saving and loading. Machine code tricks using hook codes won't work, as the Discovery shadow ROM is different from the Microdrive's.

Programs that have the facility to transfer to Microdrive 'should transfer to disk in exactly the same way' (it says here). The only program I own with that facility is *Superchess 3.5* and it doesn't transfer, probably because it tries to do it in machine code. HiSoft's *Devpac* can save assembly language programs created with *Devpac* to Microdrive, and this also didn't work.

The CAT command gives you a Microdrive-like catalogue, with just the names and amount of storage left on the disk. Not a patch on the Triton's comprehensive directory.

The command syntax differs from Microdrive in one rather neat way, as it defaults to the "m" channel. This means that you can save four keyboards by omitting the "m"; (including the quotes and the semi-colon) in the LOAD "m";1;"name" command. This is also the case with SAVE *, ERASE and so on.

The Opus manual's a neat little production and shows that the Discovery hasn't been rushed into the market.

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TRITON QD

through connection for the Spectrum edge connection, which you're told to use only for the ZX Printer or another Triton QD. Mind you, I did manage to connect a Kempston interface — it doesn't fit properly physically, but it's all right electrically.

The command syntax is neither usefully identical to the Microdrive syntax, nor a simplification. It's different enough to be incompatible with programs using Microdrive commands, but just as much of a chore to type. Some disk commands

cannot be used within a program, and other must have a line to themselves. There's a default to the disk (there are no Microdrive type channels anyway) which disposes of the "m", but you must add a type specifier for Basic, Code and Data when saving.

Plus, there's lots of opportunities for operator error built-in. You must *not* power-up the Spectrum before the disk drive, you must *not* touch the (hair-trigger) eject button during a disk access, you must *not* access the disk continuously more than three times without a few seconds rest. In an ideal world, these mistakes would be made impossible by

OPUS DISCOVERY 1

Trouble is it just doesn't contain all the info required. It's good on the command structure you'll need to use the machine from Basic (in fact, better than the Microdrive manual at explaining some things), but it doesn't tell you about the amount and location of RAM used for disk and other channels and streams. This seems to be similar to the Microdrive system, with the DOS in shadow ROM and chunks of memory being inserted between the systems variables and the Basic program for print channels and so on. It seems though, that merely loading a file doesn't move the start of Basic like it does with Microdrives, but you're not told.

You're also given all sorts of info and sample listings for using the joystick in your own programs. But the one item of info that you're actually going to need is that you should select the Kempston option from a game's joystick menu. Again, they haven't divulged this.

Finally, one last added attraction. The Discovery can set aside the top half of the Spectrum memory as a RAM disk. This allows disk commands to be used on DATA files at memory access speeds without waiting for disk reads, once the files have been downloaded to the RAM disk. This is a pretty powerful technique when used on big 'PC' type micros with huge memories and although the Spectrum doesn't have a lot of room for the program when you have the RAM disk active, it's still good to have.

the hardware or operating system — not left as pitfalls for the user to avoid.

If you've got the gelt, you can buy another QD and chain the edge connectors to run two disks at once. This'll probably be more expensive than adding a second disk to the Discovery, and it'll certainly take up a lot more disk space, as you can't stack a top-loading unit.

The QD has its DOS in ROM and uses the printer buffer as workspace when loading and saving, so very little memory is used by the disk system. Most software shouldn't have any trouble with space, unless it has some of its own code in the printer buffer, like some tape copiers do.

TIME TABLE

Drive	Opus Discovery 1	Triton QD
Format Time	20 sec	9 sec
CAT Time	2 sec	3 sec
SAVE 35K Time	20 sec	15 sec
LOAD 35K Time	20 sec	7 sec
Erase 35K Time	3 sec	10 sec

Pipped at the Post Script

We'd hoped to include the Crescent Quick Disk in this review, but there was only a prototype in existence at press time, and Crescent was reluctant to let us have a go at it, as it's still under development. They've been advertising since February, and presumably accepting orders. Well, it's happened before. Let's hope they get their act together soon.



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3D DAZE

It's here — the ultimate in 3D graphics. Mr MegaBasic, Mike Leaman shows another side to his talents with a program that'll transport you into the third dimension.

How often have you wished you could create the smooth three dimensional graphics like the ones Ultimate has made famous in *Knightlore* and *Alien 8*? Well, now you can — almost. Of course, the Ultimate team doesn't actually program on the Spectrum but on a much larger machine, then squirts it down. But you can get pretty close with these machine code routines that'll enable

you to move objects in three dimensions. The tricky bit about 3D graphics is making sure that the objects meant to be at the front of the display look as though that's where they are. So, how's it done? Well, briefly, you have to draw the objects at the back first and then work your way forward. I've tackled it by keeping a list of all the objects that appear on the screen and this

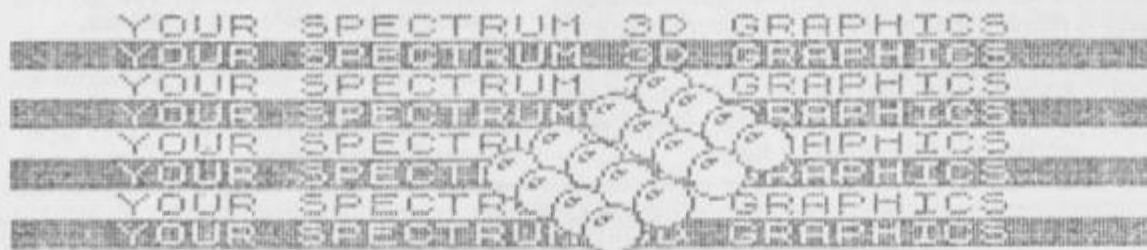
list contracts and expands according to how many objects there are. The list starts at 64700 and each entry consists of four bytes. Understanding these is the tricky bit. The first byte is the 'X' co-ordinate, the second the 'Y' co-ordinate, the third the 'Z' co-ordinate and the last byte is the objects' code number. The easiest way to understand these co-ordinates is to think in terms

of a matchbox — hold it up in front of you. 'Y' runs along the bottom from left to right, 'X' runs up the edge that goes from the top to bottom and 'Z' is the co-ordinate that travels along the edge that's going away from you. If you're still in trouble or you want to go into further depth, take a look at the articles on 3D plotting in *YS* issues 2 and 3.

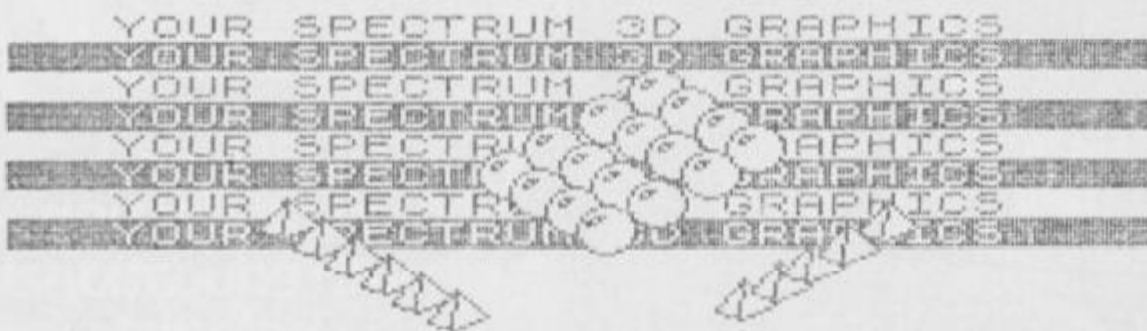
Now back to that list. Those objects that are to be placed at the back come at the start of the list. Then each time an object is displayed or erased, the list is scanned and the appropriate action taken. The shape of each object is stored in 64 bytes of RAM and I've included three objects with the code. The shape list starts at 65047, so that's where you'll find the first object, then the second object is at 65047+64 and so on. The 64 bytes of character info is split into two halves — the first 32 bytes represent the actual shape of the object, similar to the way you would define a UDG but with much more information because of the third dimension. This is followed by the second 32 byte block that describes the shape of the mask needed to erase the object.

Now take a look at the code. It's in two parts — the first part that does all the work starts at 64000 and the second part contains shape info for the three example objects and starts at 65047. Here's how you enter the code. First type in the Hex loader and save it — you may need it later. Now RUN it and it'll automatically lower RAMtop so that there's space for the code. You'll then be asked for a start address — for the main block, enter 64000 and for the shape info enter 65047. Once you've put those in, you can press on with entering the actual code. For starters, you'll be prompted with an

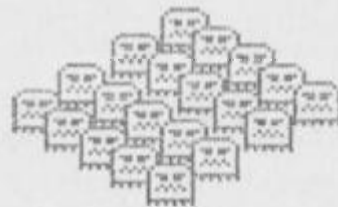
A NEW DIMENSION



Memories of *Knightlore* come flooding back already. Here's the first of Mike's 3D graphics emulator. The background's been stored already in high memory so that once the characters are moved, the picture will not be obliterated.



Now another set of graphics has been added to the screen. Not only can the program cope with the spheres going back into the picture but also with graphics coming forward.



The shape of the characters that you put up on the screen using the 3D graphics routines is totally up to you. They're created on a 16 X 16 matrix with a similar mask. Watch out for the manic 3D Space Invaders!

address — look at the main listing — the first prompt'll be 64000 so you should enter F3. The second prompt is 64001, so you'll enter CD93FB, remembering, of course, not to enter any spaces.

When you've reached the end of a block, enter 'S' — the loader will then ask you for a Checksum. For the main block enter 79933, then for the shape data enter 17774. Now the loader checks the code for errors. If it finds one you'll just have to go back and re-check. As soon as you've entered the main block, carry on and enter the shape data and then save the code using:

SAVE "code" CODE 64000,1368

Now enter NEW and type in the test program, again remembering to save it just in case the code crashes. At last, you're there! If all's well, you

should be greeted by a number of bubbles moving across the screen in full and glorious 3D.

OK, I can already hear you asking how you can use the routines yourself. As I've said, it takes four parameters to describe an object — the 'X', 'Y' and 'Z' co-ordinates plus the shape code that defines what shape the object is to take. These parameters are passed to the machine code in four locations:

- 64637 'Y' co-ordinate
- 64638 'X' co-ordinate
- 64639 shape code
- 64640 'Z' co-ordinate

Well, there are three routines that you can usefully adapt. The first is the one that covers the background. To understand this, you must know that the middle third of the screen is printed first, so you can use this part as a back drop. So, design your

back drop and save it into memory which you can do as follows: first, reserve an area of memory using the CLEAR command, then POKE the address of this area into locations 64635 and 64636. Once you've drawn your backdrop, call the routine at 64423 and this'll save the

middle third of the screen into memory.

Now to print an object POKE its co-ordinates into the correct memory locations and call the routine at 64489. Then to erase an object POKE its co-ordinates into the correct locations and call the routine at 64556.

HEX LOADER

Use this Hex loader to enter the hex code from both the character info and the main assembler listing.

```

10 CLEAR 63999
15 POKE 23658,B
17 DEF FN H(H#)=16*(CODE (H#)-48-7*(H#(1)>"9"))+
(CODE (H#(2))-48-7*(H#(2)>"9"))
20 INPUT "Start address ";a
25 LET Z=A
30 INPUT (a), LINE a#
35 IF A#="S" THEN GO TO 90
40 PRINT a,a#: POKE 23692,255
50 FOR Z=1 TO LEN A#/2
60 POKE a, FN H(a#((z*2)-1) TO )): LET a=a+1
70 NEXT z
80 GO TO 30
90 INPUT "CHECKSUM:";D
100 LET C=0: FOR B=Z TO A-1: LET C=C+PEEK B: NEXT B
110 IF C=D THEN PRINT "The code is OK!": STOP
120 PRINT "Oh dear , the code is incorrect": STOP

```

ASSEMBLER 3-DUMP

This program's on Digi'Tape — see page 57

This is the main assembler listing, which you can either type in using an assembler, monitor or our own Hex loader.

```

64000 F3 DI
64001 CD 93 FB CALL 64403
64004 DD 21 BC FC LD IX,64700
64008 DD 7E 03 LD A,(IX+3)
64011 A7 AND A
64012 28 1E JR Z ,64044
64014 CD 32 FA CALL 64050
64017 AF XOR A
64018 DD 6E 00 LD L,(IX+0)
64021 DD 66 01 LD H,(IX+1)
64024 DD 56 02 LD D,(IX+2)
64027 DD 23 INC IX
64029 DD 23 INC IX
64031 DD 23 INC IX
64033 DD 23 INC IX
64035 DD E5 PUSH IX
64037 CD 6B FA CALL 64107
64040 DD E1 POP IX
64042 18 DC JR 64008
64044 FD 21 3A 5C LD IY,23610
64048 FB EI
64049 C9 RET
64050 3D DEC A
64051 26 00 LD H,0
64053 6F LD L,A
64054 29 ADD HL,HL
64055 29 ADD HL,HL
64056 29 ADD HL,HL
64057 29 ADD HL,HL
64058 29 ADD HL,HL
64059 29 ADD HL,HL
64060 01 17 FE LD DC,65047
64063 09 ADD HL,BC
64064 44 LD B,H
64065 4D LD C,L
64066 C9 RET
64067 3E BF LD A,191
64069 90 SUB B
64070 47 LD B,A
64071 21 00 40 LD HL,16384
64074 78 LD A,B

```

```

64075 E6 C0 AND 192
64077 1E 00 LD E,0
64079 57 LD D,A
64080 CB 3A SRL D
64082 CB 3A SRL D
64084 CB 3A SRL D
64086 19 ADD HL,DE
64087 78 LD A,B
64088 E6 07 AND 7
64090 84 ADD H
64091 67 LD H,A
64092 78 LD A,B
64093 E6 38 AND 56
64095 C6 27 SLA A
64097 CB 27 SLA A
64099 5F LD E,A
64100 16 00 LD D,0
64102 19 ADD HL,DE
64103 06 00 LD B,0
64105 09 ADD HL,BC
64106 C9 RET
64107 32 8B FB LD (64395),A
64110 E5 PUSH HL
64111 C5 PUSH BC
64112 DD E1 POP IX
64114 21 20 00 LD HL,32
64117 09 ADD HL,BC
64118 E5 PUSH HL
64119 FD E1 POP IY
64121 E1 POP HL
64122 CD 6B FB CALL 64363
64125 F5 PUSH AF
64126 CD 47 FB CALL 64327
64129 C1 POP BC
64130 4F LD C,A
64131 E6 07 AND 7
64133 32 8C FB LD (64396),A
64136 6F LD L,A
64137 26 00 LD H,0
64139 29 ADD HL,HL
64140 29 ADD HL,HL
64141 29 ADD HL,HL
64142 C5 PUSH BC
64143 01 0E FB LD BC,64270
64146 09 ADD HL,BC
64147 C1 POP BC
64148 36 C9 LD (HL),201

```

```

64150 22 91 FB LD (64401),HL
64153 79 LD A,C
64154 CB 3F SRL A
64156 CB 3F SRL A
64158 CB 3F SRL A
64160 4F LD C,A
64161 32 8D FB LD (64397),A
64164 78 LD A,B
64165 32 8E FB LD (64398),A
64168 CD 43 FA CALL 64067
64171 06 10 LD B,16
64173 3A 8E FB LD A,(64398)
64176 C5 PUSH BC
64177 E6 07 AND 7
64179 FE 07 CP 7
64181 20 07 JR NZ,64190
64183 ED 4B 8D FB LD BC,(64397)
64187 CD 43 FA CALL 64067
64190 FD 46 00 LD B,(IY+0)
64193 FD 4E 01 LD C,(IY+1)
64196 16 FF LD D,255
64198 CD 0D FB CALL 64269
64201 E5 PUSH HL
64202 7E LD A,(HL)
64203 A0 AND B
64204 77 LD (HL),A
64205 23 INC HL
64206 7E LD A,(HL)
64207 A1 AND C
64208 77 LD (HL),A
64209 23 INC HL
64210 7E LD A,(HL)
64211 A2 AND D
64212 77 LD (HL),A
64213 FD 23 INC IY
64215 FD 23 INC IY
64217 E1 POP HL
64218 3A 8B FB LD A,(64395)
64221 A7 AND A
64222 20 1C JR NZ,64252
64224 E5 PUSH HL
64225 DD 46 00 LD B,(IX+0)
64228 DD 4E 01 LD C,(IX+1)
64231 16 00 LD D,0
64233 CD 0D FB CALL 64269
64236 78 LD A,B
64237 86 OR (HL)

```

```

64238 77 LD (HL),A
64239 23 INC HL
64240 79 LD A,C
64241 86 OR (HL)
64242 77 LD (HL),A
64243 23 INC HL
64244 7A LD A,D
64245 86 OR (HL)
64246 77 LD (HL),A
64247 DD 23 INC IX
64249 DD 23 INC IX
64251 E1 POP HL
64252 3A 8E FB LD A,(64398)
64255 3D DEC A
64256 32 8E FB LD (64398),A
64259 24 INC H
64260 C1 POP BC
64261 10 A9 DJNZ 64176
64263 2A 91 FB LD HL,(64401)
64266 36 CB LD (HL),203
64268 C9 RET
64269 5A LD E,D
64270 CB 38 SRL E
64272 CB 18 RR B
64274 CB 19 RR C
64276 CB 1A RR D
64278 CB 38 SRL E
64280 CB 18 RR B
64282 CB 19 RR C
64284 CB 1A RR D
64286 CB 38 SRL E
64288 CB 18 RR B
64290 CB 19 RR C
64292 CB 1A RR D
64294 CB 38 SRL E
64296 CB 18 RR B
64298 CB 19 RR C
64300 CB 1A RR D
64302 CB 38 SRL E
64304 CB 18 RR B
64306 CB 19 RR C
64308 CB 1A RR D
64310 CB 38 SRL E
64312 CB 18 RR B
64314 CB 19 RR C
64316 CB 1A RR D
64318 CB 38 SRL E

```

This program's on Digi'Tape — see page 57

You'll also have to remember to execute POKE 64703,0 before you start printing — that way you'll clear the display list. And finally a word of warning — so that the routine's as fast as

possible I've left out all the error checking. You'll have to make sure that none of your 3D objects goes wandering off the edge of the screen or you may find yourself with a system crash.

THREE D-EMONSTRATION

Once you've entered all the code, here's the program that'll give you the moving picture show. Just type it in and then RUN it. Back row of the stalls, please.

```

10 BORDER 0: PAPER 0: INK 6: CLEAR 63999
25 POKE 64703,0
30 FOR y=0 TO 30 STEP 10
40 POKE 64637,y: POKE 64638,0: POKE 64639,1:
POKE 64640,0
50 LET print=USR 64489
60 NEXT y
70 FOR y=0 TO 30 STEP 10
80 FOR x=0 TO 162 STEP 3
90 POKE 64637,y: POKE 64638,x
100 LET erase=USR 64546
110 POKE 64638,x+3: LET print=USR 64489
115 PAUSE 2
120 NEXT x
130 NEXT y
140 FOR y=0 TO 30 STEP 10
150 FOR x=165 TO 3 STEP -3
160 POKE 64637,y: POKE 64638,x
170 LET erase=USR 64546
180 POKE 64638,x-3: LET print=USR 64489
185 PAUSE 2
190 NEXT x: NEXT y
200 GO TO 70
    
```

And now onto next month. Watch out for a 3D graphic designer that'll let you create your own clockwork mice or mutant daleks. Plus, for all the clever people who've mastered *YS MegaBasic*, I'll be showing you how to convert this month's machine code into MegaBasic. All

you'll have to use then are a number of new Basic commands. Of course, all you poor socially deprived Speccy owners still relying on Sinclair Basic will have to resort to the infamous commands POKE and USR. It's a tough life!

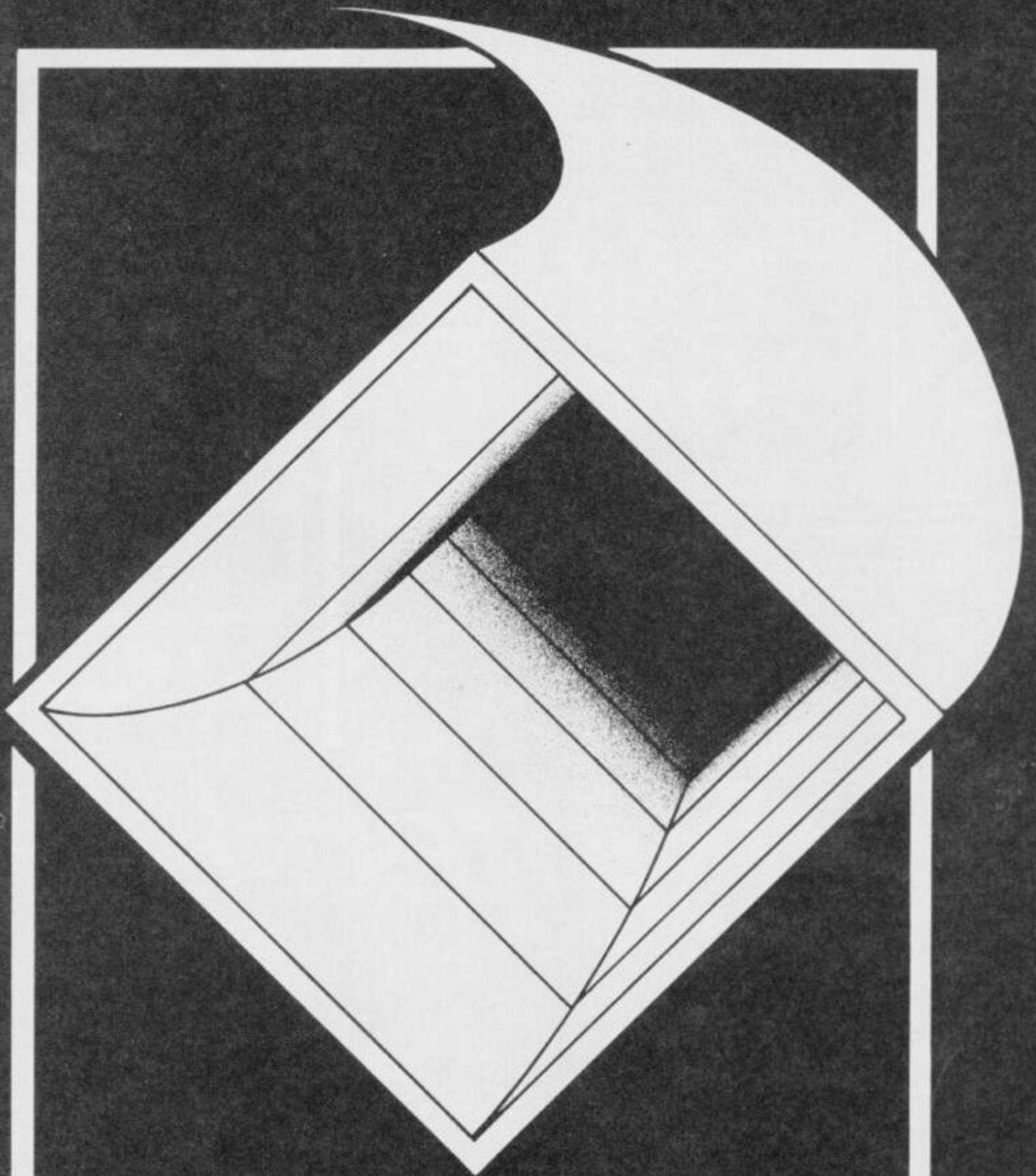
CHARACTER INFORMATION

This is the character info used by the main listing for the graphics displayed in 3D. These are stored in 64 bytes, 32 bytes for the shape and another 32 for the mask.

65047**03 00 0C 30	65111**00 80 01 C0	65175**00 00 07 F0
65051**10 08 27 04	65115**01 A0 02 90	65179**08 08 10 04
65055**2A 04 4C 02	65119**04 88 08 84	65183**17 74 13 64
65059**40 02 40 02	65123**09 02 11 01	65187**10 04 12 A4
65063**40 02 20 04	65127**21 06 31 18	65191**15 54 10 04
65067**20 04 10 08	65131**0F 60 01 80	65195**10 04 1F FC
65071**0C 30 03 C0	65135**00 00 00 00	65199**15 54 00 00
65075**00 00 00 00	65139**00 00 00 00	65203**00 00 00 00
65079**FC 3F F0 0F	65143**FF 7F FE 3F	65207**FF FF F8 0F
65083**E0 07 C0 03	65147**FE 1F FC 0F	65211**F0 07 E0 03
65087**C0 03 B0 01	65151**FB 07 F0 03	65215**E0 03 E0 03
65091**80 01 B0 01	65155**F0 01 E0 00	65219**E0 03 E0 03
65095**80 01 C0 03	65159**C0 01 C0 07	65223**E0 03 E0 03
65099**C0 03 E0 07	65163**F0 1F FE 7F	65227**E0 03 E0 03
65103**F0 0F FC 3F	65167**FF FF FF FF	65231**EA AB FF FF
65107**FF FF FF FF	65171**FF FF FF FF	65235**FF FF FF FF

ASSEMBLER 3-DUMP

64320 CB 18 RR B	64383 7D LD A,L	64465 88 CP B	64561 A7 AND A
64322 CB 19 RR C	64384 93 SUB E	64466 28 04 JR Z ,64472	64562 C8 RET Z
64324 CB 1A RR D	64385 82 ADD D	64468 30 0A JR NC,64480	64563 78 LD A,B
64326 C9 RET	64386 67 LD H,A	64470 18 EC JR 64452	64564 DD BE 00 CP (IX+0)
64327 C5 PUSH BC	64387 3A 90 FB LD A,(64400)	64472 DD 7E 02 LD A,(IX+2)	64567 20 0C JR NZ,64581
64328 D5 PUSH DE	64390 84 ADD H	64475 BA CP D	64569 79 LD A,C
64329 E5 PUSH HL	64391 E1 POP HL	64476 30 02 JR NC,64480	64570 DD BE 01 CP (IX+1)
64330 5C LD E,H	64392 D1 POP DE	64478 18 E4 JR 64452	64573 20 06 JR NZ,64581
64331 26 00 LD H,0	64393 C1 POP BC	64480 DD 23 INC IX	64575 7A LD A,D
64333 E5 PUSH HL	64394 C9 RET	64482 DD 23 INC IX	64576 DD BE 02 CP (IX+2)
64334 29 ADD HL,HL		64484 DD 23 INC IX	64579 28 0A JR Z ,64591
64335 C1 POP BC	64395**00 00 00 00	64486 DD 23 INC IX	64581 DD 23 INC IX
64336 09 ADD HL,BC	64399**00 28 00 00	64488 C9 RET	64583 DD 23 INC IX
64337 CB 3C SRL H	64403 2A 7B FC LD HL,(64635)	64489 ED 4B 7D FC LD BC,(64637)	64585 DD 23 INC IX
64339 CB 1D RR L	64406 11 00 48 LD DE,18432	64493 ED 5B 7F FC LD DE,(64639)	64587 DD 23 INC IX
64341 CB 3C SRL H	64409 01 00 08 LD BC,2048	64497 C5 PUSH BC	64589 18 DF JR 64558
64343 CB 1D RR L	64412 1A LD A,(DE)	64498 D5 PUSH DE	64591 DD 7E 03 LD A,(IX+3)
64345 CB 38 SRL E	64413 86 OR (HL)	64499 CD B4 FB CALL 64436	64594 CD 32 FA CALL 64050
64347 7D LD A,L	64414 12 LD (DE),A	64502 DD E5 PUSH IX	64597 C5 PUSH BC
64348 83 ADD E	64415 13 INC DE	64504 D1 POP DE	64598 21 2F FD LD HL,64815
64349 F5 PUSH AF	64416 23 INC HL	64505 21 2F FD LD HL,64815	64601 DD E5 PUSH IX
64350 CB 3F SRL A	64417 0B DEC BC	64508 E5 PUSH HL	64603 D1 POP DE
64352 E1 POP HL	64418 78 LD A,B	64509 A7 AND A	64604 ED 52 SBC HL,DE
64353 84 ADD H	64419 F1 OR C	64510 ED 52 SBC HL,DE	64606 44 LD B,H
64354 67 LD H,A	64420 29 F6 JR NZ,64412	64512 44 LD B,H	64607 4D LD C,L
64355 3A BF FB LD A,(64399)	64422 C9 RET	64513 4D LD C,L	64608 62 LD H,D
64358 84 ADD H	64423 ED 5B 7B FC LD DE,(64635)	64514 11 33 FD LD DE,64819	64609 68 LD L,E
64359 E1 POP HL	64427 21 00 48 LD HL,18432	64517 E1 POP HL	64610 23 INC HL
64360 D1 POP DE	64430 01 00 08 LD BC,2048	64518 03 INC BC	64611 23 INC HL
64361 C1 POP BC	64433 ED B0 LDIR	64519 ED 88 LDDR	64612 23 INC HL
64362 C9 RET	64435 C9 RET	64521 D1 POP DE	64613 23 INC HL
64363 C5 PUSH BC	64436 DD 21 BC FC LD IX,64700	64522 C1 POP BC	64614 ED B0 LDIR
64364 D5 PUSH DE	64440 DD 7E 03 LD A,(IX+3)	64523 DD 70 00 LD (IX+0),B	64616 C1 POP BC
64365 E5 PUSH HL	64443 A7 AND A	64526 DD 71 01 LD (IX+1),C	64617 3A 7D FC LD A,(64637)
64366 5C LD E,H	64444 C8 RET Z	64529 DD 72 02 LD (IX+2),D	64620 67 LD H,A
64367 26 00 LD H,0	64445 DD 7E 01 LD A,(IX+1)	64532 3A 7F FC LD A,(64639)	64621 3A 7E FC LD A,(64638)
64369 E5 PUSH HL	64448 89 CP C	64535 DD 77 03 LD (IX+3),A	64624 6F LD L,A
64370 29 ADD HL,HL	64449 28 08 JR Z ,64462	64538 AF XOR A	64625 3A B0 FC LD A,(64640)
64371 C1 POP BC	64451 D0 RET NC	64539 32 33 FD LD (64819),A	64628 57 LD D,A
64372 09 ADD HL,BC	64452 DD 23 INC IX	64542 CD 00 FA CALL 64000	64629 3E 01 LD A,I
64373 CB 3C SRL H	64454 DD 23 INC IX	64545 C9 RET	64631 CD 68 FA CALL 64107
64375 CB 1D RR L	64456 DD 23 INC IX	64546 ED 4B 7D FC LD BC,(64637)	64634 C9 RET
64377 CB 3C SRL H	64458 DD 23 INC IX	64550 ED 5B 7F FC LD DE,(64639)	64635**00 48 00 00
64379 CB 1D RR L	64460 18 EA JR 64440	64554 DD 21 BC FC LD IX,64700	64639**00 00
64381 CB 38 SRL E	64462 DD 7E 00 LD A,(IX+^)	64558 DD 7E 03 LD A,(IX+3)	64641 00 NOP



KONPLEX CITY

LEGEND

48K SPECTRUM



"I, Zark Montor, have been chosen by our beloved Emperor to lead the Enigma team on its rescue mission. Follow me ..."

This window gives you an overview of your position in the Spaceship but the shutters are drawn until you choose a character to move. To the left, the clock counts down the hundred minutes until the hostage cops it. You can carry on after that time but you can't complete the game.



All hail — it's the Emperor who oversees your mission to rescue Ambassador Kryxix held hostage on the spaceship. When you've chosen a member of the Enigma team from the line-up below, his or her picture will appear in this window.

This is the first adventure that breaks the language barrier — it's completely icon-driven. Move the cursor over the picture you wish to choose and click — you'll be surprised at how quickly you build up speed at it. When you want to change screens move the cursor to the icon in the right-hand corner.

This is the Enigma team — and you'd have to look far and wide in the universe before you'd come across a more 'orrible looking bunch of mercenaries. Crooks, trained killers and cut-throats to the man, and woman. (Looks a bit like the YS team to me. Ed.)



Steve: Four minutes in, and we still haven't decided who goes where yet. I'm gonna choose Manto, as he can use the transporter. I think we should beam down just two or three.

Ross: I just hope you've fully armed them all before sending them to the ship. I'd take Sevrina, Maul and Zork to clear the way — but I'm not holding the joystick so anything could happen!

40 fighters!



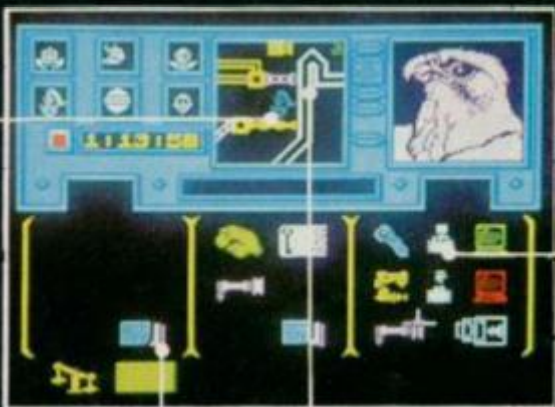
Steve: This is another fine mess you've got me into. If we'd only done it my way, we wouldn't have ended up with forty minutes left on the clock and nowhere to go. Aaargh!

Ross: Don't you start blaming me. We did do it your way. There's a first and last time for everything and this is the first and last time I play this game with you. Humph!



"The name's Torik. And before anyone says this mission's failed because I'm bird-brained, I'm winging my way out of here."

This is one of the three starting points that Manto can beam you up to. There are plusses and minuses to all of them so it's just a question of trial and error. At this stage of the game, now that Manto's copped it, there's no chance of saving the Ambassador.



Keep track of where you are by making a note of your current location. But be warned — if the word 'security' is in there, you're likely to have big trouble with the bad guys.

The movement arrows work in the same way as the attack arrows — you can only travel in the direction of the filled in ones. Quite often you'll come up against locked doors, so either Sevrina will have to open them or you'll need the correct coloured pass-card.

It's a space shuttle — not that it'll do you a lot of good now. Your mission's finito!



"Brrr...phtt...zzz...Name: Maul...Status: Weapons droid...Damage: Limited...phtt...zzz..."



Steve: What not gonna talk. They're just battles at our words, we lip Security with them.

Keep a constant check on the status of the six members of the Enigma team. Blue means they're on the move, magenta on the attack, cyan defending, yellow retreating, flashing indicates a character's weak and if the box is empty ... RIP!

These are the grenades the like you'll need for close combat. You want to test his theory you'll but don't be surprised they



"I am Syylk, the muscle on this mission. And that's gonna come in pretty handy at the moment as we've just cornered Captain Churl ..."



Steve: It's all the monkey, we should be grinder? The here and we're precious time

This is the attack screen — in this section you'll see just who you're up against. This is Sky Fortress Captain Churl, second-in-command to General Zoff. Luckily, he's on his tod and can put up little resistance but you won't be able to duff 'em all over this easily.

Sevrina can open all the doors if she meets a sticky end! To find that the master gun-ord comes in handy — if she g have to colour co-ords



ve: It's all very well going for monkey, but don't you think should be after the organ der? The Ambassador ain't and we're just wasting ous time.

Ross: It's not a waste of time — if we're going to crack this we've got to explore everywhere. Look, we've found the master pass-card here that'll give us access to all the locked doors on the ship.



These are the three action icons — top is attack and advance, middle is stand and attack and the bottom is retreat. To help you choose the best course of action use the icon on the right of them — it lets you look around to see if the enemy's ganging up.

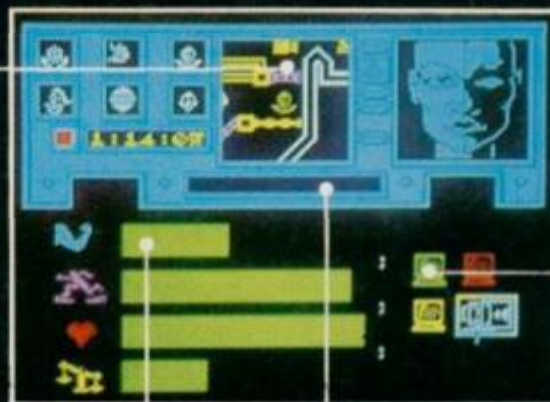
If the doors but what happens licky end? That's when you'll er pass-card in Chief's office ly — it's the pass that doesn't r co-ordinate with the doors.

You can only attack or retreat in the direction of the filled-in arrows. The order of combat is to choose one of the action icons on the right and then one of these arrows to direct your attack.



"Sevrina's the name. There is no lock I cannot unpick, no door I cannot pass through and no man who can match me ..."

The map window shows the area in the immediate vicinity of your chosen character. Here's Sevrina about to unpick the lock on a door, a knack that'll come in very useful during the game. Just in view at the top of the picture is the icon for an enemy trooper waiting to go on the offensive.



The three telly icons give you immediate access to the other screens. Green takes you to the movement screen, yellow to the object screen so you can see what you're carrying and red to the attack screen.

These four bars give an indication of strength, speed, stamina and the weight of any objects you're carrying. The quickest way to reduce strength is to get into scraps with the enemy but luckily resting aids recovery. Also if you carry too much, the weight bar will go into the red and make you more vulnerable.

If any of the characters comes under attack, you'll learn the bad news here first. Obituary notices will also be posted here!



Steve: We're very close to the robot armoury here so we can stock up on weapons. As soon as Sevrina opens the door let's start legging it ...

Ross: For once I agree with you! This is a tricky spot but if we move in enough fire power we can wipe the floor with this bunch. But we'll have to put a spurt on before they regroup.

Light the blue touch paper and stand back for ... Shadowfire, the new firework from Beyond. It's a real-time adventure without words — you have just 100 minutes to board the enemy's space ship, rescue the hostaged ambassador, capture General Zoff, the enemy leader, and then destroy his ship. And all without typing so much as one piece of text. So, the YS fire brigade of Ross Holman and Steve Malone prepared to play with fire...



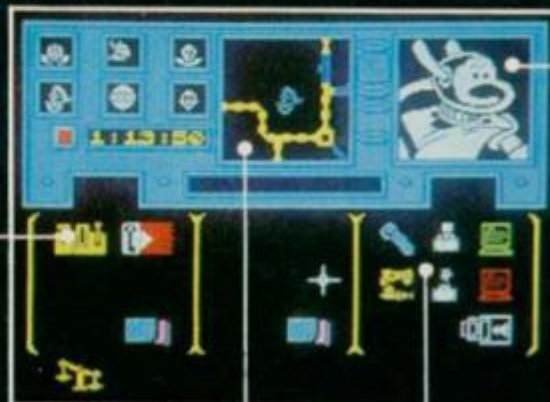
Steve: Didn't I say we should've brought Torik, the explosives expert along? We've found the self-destruct but we can't trigger it and we can't pick it up. Any more bright ideas?

Ross: Just shows what you know. We don't need to pick it up — all we have to do is collect the self-destruct card from Zoff's office and then any character can set it off. So there!



"Look I'm just here to carry the transporter ... stand back. Just don't leave me alone or I won't make it through — and neither will you ..."

All the objects to be found in your present location are displayed here — most of them can be picked if they're not too heavy but this one's the exception. It's the destruct unit that'll blow the ship to smithereens.



Here's the big piccy of your current character — in this case Manto. It's worth learning their names pretty quickly 'cos when a message comes through that they're under attack you've got to move fast.

It's worthwhile keeping your own detailed map of the spaceship or you may end up hopelessly lost — even with our blueprint.

Use these four icons on the object screen to handle your weapons and so on. You can pick up objects and drop them just so long as they're not too heavy for you. Also, make sure you've got a weapon 'in hand' before trying to use it or you're likely to come unstuck.

ve: What'd you mean you're gonna take the grenades? y're just the business for les at close quarters. Mark my ds, we'll never get out of the urity section alive without n.

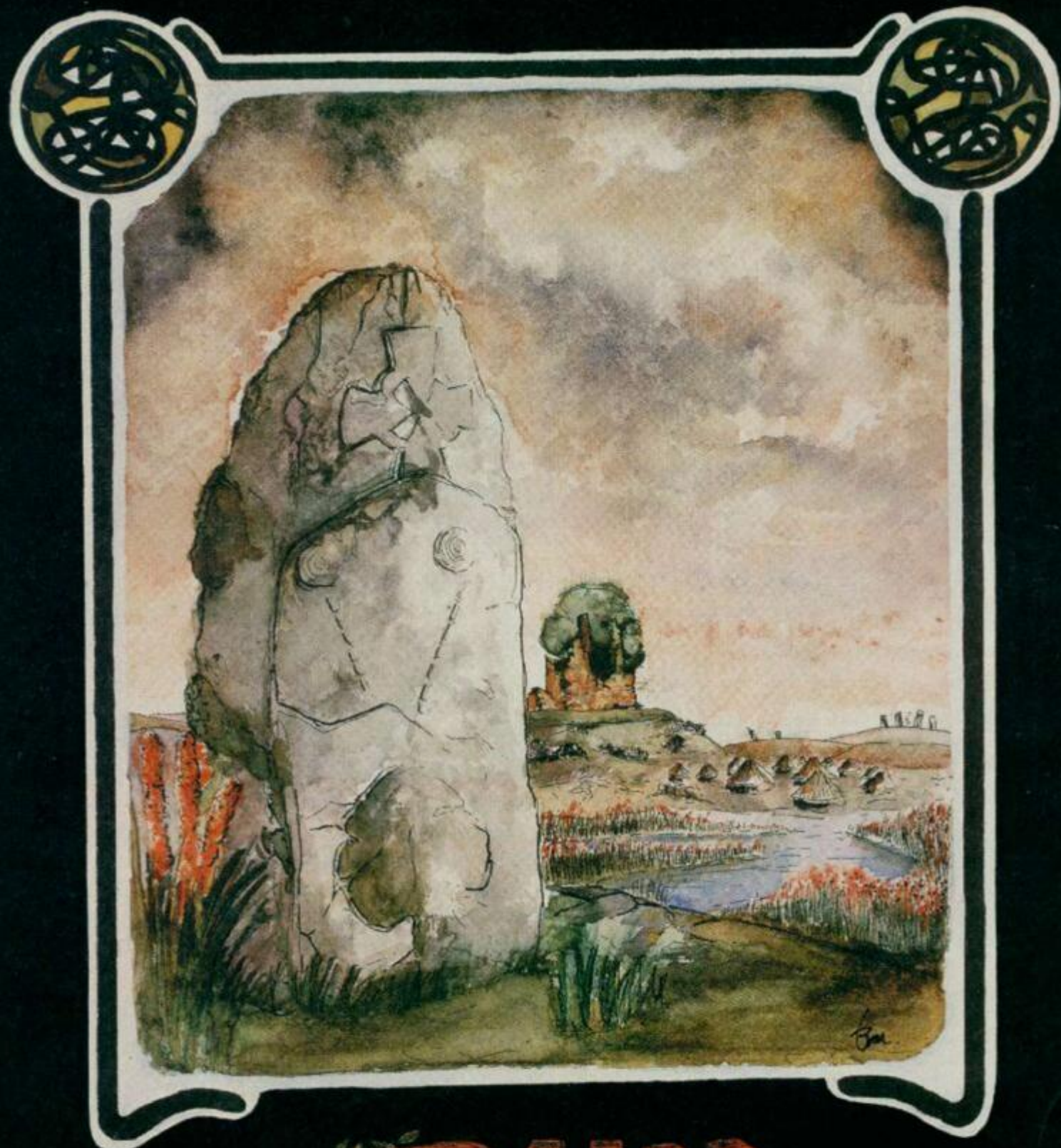
Ross: That rocket launcher's worth any number of your puny grenades — just look at how heavy it is! If we're going to get into Zoff's office we'll need all the fire power we can muster.



Any object displayed here is being carried by your character. You'll often stumble across weapons on your travels but it's better to stay armed at all times than take the risk of finding something suitable when you need it.

rades that Steve's so adamant se contact chibbering — if you reory you'll have to give it a go rprised if they blow up in your face.

When you pick up a weapon, look at the weight bar — it'll give you a good idea of how powerful it is. The heavier the better, of course, but make sure you don't overstretch your team member.



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HACKER'S GUIDE

The hairy hacker, *Dave Nicholls* is back. Join the prying man as he jumps into *Shadowfire*.

Most hackers are constantly on the lookout for new products that'll make their lives easier (*so, who isn't? Ed*). More often than not, these are special disassemblers, or monitors with extra features that can cope with the 'strange' situations brought about by the latest protection techniques. While hacking *Shadowfire* I found that there was one item in particular that helped me enormously but the strangest thing is, it hasn't been released yet! It's the *Shadowfire Tuner* that's scheduled to hit the streets later this year. With it, you'll be able to modify the program to suit your own taste.

Now, I haven't been slipped a pre-pre-production copy or anything like that — it's just the fact that it's coming out, has forced the *Shadowfire* programmers to be extra neat with their coding. They've placed all the useful info into tables that can be changed by the Tuner. This means, of course, that once you've sussed out what the table's are for, it's easy to see what each piece of code is doing, just by noting the table it accesses.

The program contains four main tables — one for the objects, one for the locations, and two character tables, divided into one for the Enigma team and one for the rest. These last two tables are in the same format,

```
100 LET c=0
110 FOR x=23296 TO 23435
120 READ y: POKE x,y: LET c=c+y
130 NEXT x
140 IF c<>14868 THEN PRINT "Checksum error !!
!": STOP
150 PRINT "Now insert Shadow Fire tape"
160 RANDOMIZE USR 23296
1000 DATA 243,49,240,95,17,144,1,221
1010 DATA 33,64,156,62,7,55,205,86
1020 DATA 5,48,241,33,64,156,6,255
1030 DATA 205,123,91,6,255,205,123,91
1040 DATA 33,82,156,1,144,1,22,165
1050 DATA 205,130,91,62,201,50,93,156
1060 DATA 205,82,156,33,0,128,34,105
1070 DATA 251,62,201,50,120,251,205,78
1080 DATA 251,33,0,96,1,124,146,126
1090 DATA 237,103,35,11,120,177,32,247
1100 DATA 33,0,96,1,124,146,22,82
1110 DATA 205,130,91,33,16,167,34,54
1120 DATA 92,33,0,0,34,27,131,34
1130 DATA 237,130,62,255,33,21,127,6
1140 DATA 6,119,35,16,252,237,86,251
1150 DATA 195,3,129,126,237,103,35,16
1160 DATA 250,201,126,170,119,35,11,120
1170 DATA 177,32,247,201
```

To move more quickly and carry as much as you want, type this in, save to tape and run it. When you're prompted, insert *Shadowfire* and press play. *Shadowfire's* an enigma no longer!

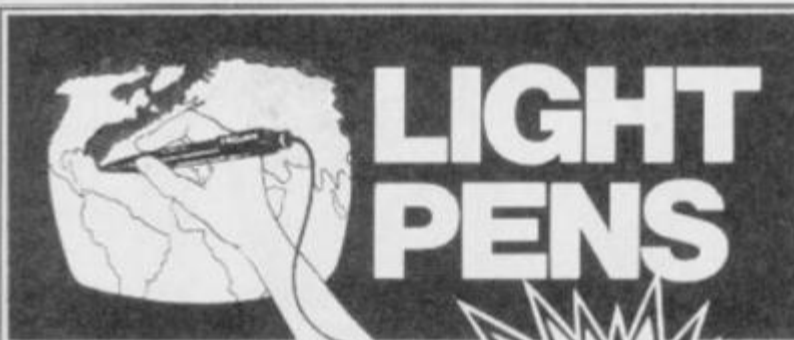
with 9 bytes for each character. Each entry describes the location of the characters (and where they're going if they're on the move), what they're up to, and gives the complete gen on the state of their health. After a quick count-up of the entries, I reckon there are nigh on 42 independent characters wandering about.

In the object table each entry has 5 bytes — one byte handles the info on how heavy it is, two bytes give the address of the routine that handles the object, one byte gives its position (if it's being carried then the number of the character becomes its location) and the final byte gives variable info about the state of the object as the game progresses.

The location table is a touch more tricky. It consists of one table of two byte address entries which 'point' to a location where further info can be found. This is done because each of the different rooms has a different number of exits and such like, so each one takes up a different amount of space. So much cleverer than the method used in, say, *Jet Set Willy*, (*Nope, I shan't say it — you can't make me. Ed*) where each room uses the same amount of space even if it's empty.

The coding in *Shadowfire's* a pretty professional job — it uses interrupts to keep everything moving at once, and it's all nicely laid out, though there are a few unexplained gaps in the middle. Is the *Tuner* going there perhaps? If it's not, then the space could've been used to expand on the current 165 locations.

Shadowfire certainly offers plenty of scope for POKES. In fact, by the time the *Tuner* makes a showing, it'll probably be out-of-date. Well, just to get the ball rolling, here's my program!



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SPECTRUM ADVENTURES

The aliens have landed and snatched Dave Nicholls's body — they obviously forgot their glasses! But it's OK, he's grabbed it back in time to go walkabout in Ashkeron.



Smother mouldy, green bap with mouldy, green mustard and throw at mouldy old vendor! (Tee-hee!)

FUNHOUSE Pacific Software/£3.99

This game's a real body snatcher — once it's got a hold on you it'll be difficult to throw it off.

It is night in an abandoned amusement park when an alien spaceship crash lands. But instead of dashing around on the dodgems and whirling on the Waltzer, these aliens have a much more sinister aim. They gradually take over the surrounding neighbourhood, kidnapping all the inhabitants. Now, controlling them is a central brain (*sounds a bit like YS — we couldn't afford one each. Ed*) and it's your task to destroy it. At least it makes a change from most other adventure games where it's usually my brain that gets destroyed. Watch out too for a wandering hermit called Herman who'll occasionally lend a helping hand if you get into a spot of bother.

Although *Funhouse* was written with *The Quill*, UDGs have been used to produce simple graphics and there's a rather natty semi-script redefined character set. If I have a gripe, it's more with the version of *The Quill* that was used than with the game itself. After a while the messages that appear between commands become very tedious — I don't want to keep reading 'I await your command' every other go. (I have enough of that at work every day!) The latest version of *The Quill* allows you to redefine all these messages.

Putting gripes aside, *Funhouse* is an excellent game and at this price it has to be a good buy.

ASHKERON Mirrorsoft/£5.95

Up till now, Mirrorsoft has made quite a name for itself with its educational software. (*Troubleshootin' Pete's still trying to master the Mister Men game! Ed*). But here's a new departure, an adventure game and a pretty good one at that.

You play Stephen the Blacksmith who's been chosen by his fellow villagers to go into the castle of the evil wizard. His task, once there, is to recover the five treasures that'll allow the wedding of the fair Princess Zeraphone to go ahead. For, according to local legend, the marriage will be cursed without them. They're obviously a jolly lot, the local folk.

The game makes a special feature of its 'walk-thru' graphics. And what are they, you ask? Well, basically they consist of a fairly normal



Disguise yourself as a pantomime cart-horse and you're away! At least the nose-bag will stop you chomping at the bit while you wait to get in!

screen picture covering part of the screen that scrolls in the direction you travel. The piccies are reasonable, if a little 'blocky'.

Watch out too for a couple of other unusual features of the game. There's a joystick option — for entering direction commands — and a randomising feature. Choose this and all the objects appear in different places in each game.

Ashkeron is well up to Mirrorsoft's usual standards and buried within it are some tricky problems waiting to be solved. So, if you're just hanging around street corners waiting to rescue another princess in distress, you'll be pleased to know this game gets my royal assent.

You're in a right pickle. Visible exits are North, South, East and West. You go East. You're still in a right pickle. Visible exits are ... Well, now there's another way out — and we don't mean pulling the plug. You can write into Give Us A Clue and contact your fellow adventurers through the pages of *Your Spectrum*. Someone somewhere has solved your problem and is just dying to tell you how clever he/she is.

ADVENTURE AID

First, let's meet some of the brains so we can pick them! **Martin Mulracey** has somehow found the time to complete *Lords of Time* and send in the following advice for the less fortunate. To get the keys in time 1, wave the lodestone and then in time 7, use your gauntlet to nab the falling star before trotting off to the spaceship.

James Elliot's sent in a long list of the adventures he's cracked, but we've only room for one clue. In *The Mountains of Ket* he recommends that you wave your wand and say 'Polo' to get round the wall — well, it is in mint condition! Hmm, just hope that nobody can find holes in that. And well done James, 'cos your our Star Helper this month so watch out for the three pieces of software winging their way to you.

If *Snowball's* the game that's currently driving you insane, here's a tip from **Harvey Lodder**.

When you're in danger type 'P' and you'll find yourself in an asylum. To escape you'll have to type 'Pull Machine' and Enter, then retype 'Pull Machine'.

If none of these hints helps you, you'll just have to contact the ace adventurers listed below. Or failing that you'll have to admit defeat and fill in the coupon, won't you?

THE CHAMPION ADVENTURERS ...

Lords of Time
Martin Mulracey, 234 Kerselbank Avenue, Grangemouth, Stirlingshire, Scotland FK3 0BS.

The Hobbit, Snowball, Inca Curse, Waxworks, Urban Upstart, Espionage Island, Planet of Death.
Harvey Lodder, 35 Shelley Avenue, Bullbrook, Bracknell, Berks. RG12 2RP.

The Hobbit, Urban Upstart, Quest for the Holy Grail.
Philip Kevin Bugler, 209 Trealaw Road, Rhonda, Mid-Glam., S. Wales. CF40 2NT.

Twin Kingdom Valley, The Hobbit, Lords of Midnight, Doomdark's Revenge, Urban Upstart, The Mountains of Ket.
James Elliot, 266 Caresview, Tullibody, Alloa. FK10 2SU.

Espionage Island
Mark Sayers, 38 The Drive, Amersham, Bucks. HP7 9AD.

THE LOST ONES ...

The Wrath of Magra "I can't get out of the valley (stage 1)." K.R. Hill, 1 Lake Cottis, Lake Lane, Barnham, W. Sussex. PO22 0AJ.

The Hobbit "How do you kill the dragon?"
Richard Weeber, 20 Barry Close, Chadwell-St-Mary, Nr Grays, Essex. RM16 4SU.

Sherlock "How do you stop Inspector Lestrade terminating the game when he arrests Major Foulkes?"

Hamptead "What do I need, or where do I go for the cocktail party?"
Andrew Wesley, 61 Offchurch Road, Chubbington, Leamington Spa. Warwickshire CV32 7NG.

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They came, they saw and they conked out — or rather the joysticks did. Dave Nicholls, Roger Willis and Ross Holman hung on just long enough to give the verdict on all the new games.

CHUCKIE EGG

A'n'F Software £7.95

Ross: Hen House Harry's back but he's no longer running round collecting seed while avoiding maniac hens. Harry's chucked up his rural roots to help out in a chocolate egg factory. The ladders and platforms have partly been replaced by ropes and travelators and there's not a caged bird in sight. Harry's task now is to collect all the goodies that go into making a chocey egg as well as the pieces of the toy to go inside it.

Harry can also pick up and drop many items that may help him on his way. For example, the first problem you come up against is an outsized pooch that's far from friendly. To get past him you have to collect a bone and then drop it at his feet. The dog then turns away, his tail wagging with pleasure and lets you pass. In the next 117 screens be prepared to meet all sorts of nasties and to face many more problems.

Harry runs around and bounces off walls in the same hectic way as he did in the original *Chuckie Egg*, but somehow the game lacks a certain appeal. To be fair to A'n'F they haven't tried to produce a clone of *CE1*. But by going for a game with 120 screens, each screen lacks a lot in the way of content.

You'll find your path is generally easy and very often there are no nasties to stand in your way. Still, it's enjoyable enough, though it may not appeal to the more sophisticated games player.

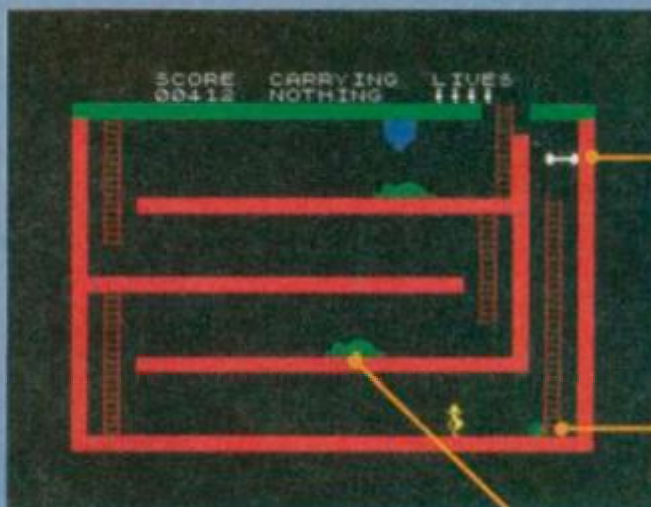
3/5

Dave: Reasonable graphics, smooth movement, more platforms than Waterloo Station and about as addictive as British Rail coffee! **HIT**

Roger: As platform stuff goes, this is bad enough to make a chap chuckie up. Never mind the 'henhouse', I'd put Harry in the doghouse...

1 1/2/5

MISS

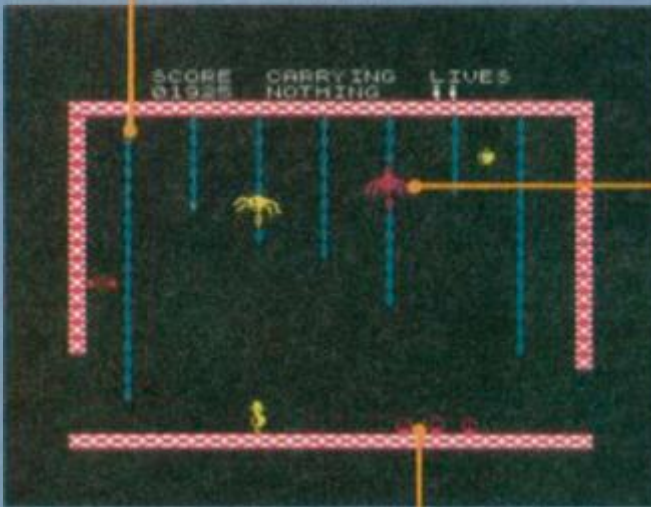


Here's your first challenge — to get past the pooch in the next screen you'll need the bone from this one. It's the only way you'll get a prolonged active life.

There are extra bonus points to be had if you collect objects like this apple but they serve no other useful purpose.

You've fed Fido and you've passed the A'n'F chocolate factory, so now it's on to this screen. To get through you've got to jump from chain to chain avoiding the 'armful' arachnids as you go.

Watch out for your first taste of the moving meanies. You'll soon suss out that the only way to get round them is to take a running jump and hope you don't come a cropper.



The spiders go up and down the chains just to make life difficult for you. And they don't even travel at the same speeds — the one on the right is faster than his mate on the left. If you fail to get past them, you'll just have to try and try again.

You can't jump over the three objects at the bottom of the screen. Well, who'd go across the top if you could?



GIVE MY REGARDS TO BROAD STREET

Argus Press Software £7.99

Ross: From the same stable as *Alien*, here's another film follow-up that's billed as a sophisticated adventure and strategy game. The plot pursues Paul McCartney's attempt to save his band and their music

from the evil financier Rath (*any relation to Rath Bone? Ed*).

You take Paul's part in his last ditch bid to track down the seven people involved in producing his latest album. They're the only ones who can help reconstruct the final missing track before midnight. Problem is that the magnificent seven are spread all over London. But to help you in your search, your in-car computer tracks their movements on the London tube system so you can predict where they're off to. If you're outside the tube station as they emerge then they'll hand over a snatch of the tune. Once all seven pieces are in the bag you can trundle off to Abbey Road for the remix.

The game comes with a large scale map of London and a tube map. On the reverse you'll find full details on the people you're after. This'll help you plot their movements as the game progresses. The screen is split into 4 areas — a large section

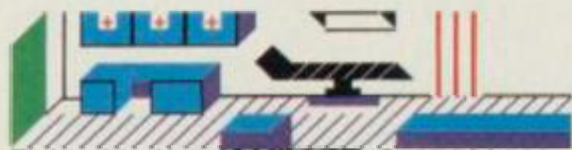
across the top of the screen shows your car (*is it a Beetle? Ed*) and a small area of London's streetplan. The other three sections give the gen on the missing people's movements and more detailed info on the locality.

It's an original idea for a game but it's pretty dull in the playing. It might offer a painless way for prospective cabbies to learn about London — but if this is how pop stars spend their time I think I'll hang up my guitar. **MISS**

Roger: Another game-of-the-film-of-the-book-of-the-song that is best described as a spin-off that should, er spin off... **MISS**

Dave: The map is quite big (and wrong in places!), and I found it rather more interesting than the game. If you like driving around in central London (do cab drivers read *YS*?), then you might enjoy it, otherwise give it a Broad (St.) berth. **MISS**

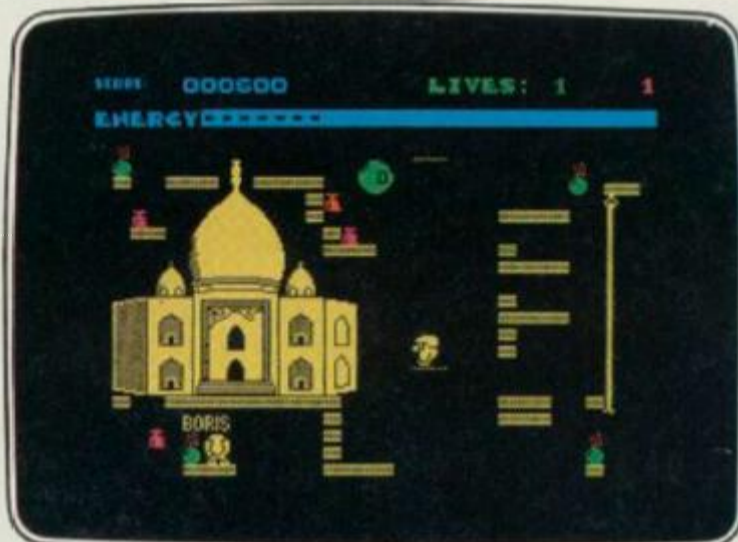
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THE BIZ

Virgin Games £6.95

Roger: Well, like, er, man, this is one tremendously bankable game even if it lacks stage presence in visual terms. Virgin has turned back to what it, like any record

industry outfit made big, does best — explaining how the completely talentless can become international megastars.

The Biz is a perfect teaching aid for bongo thumpers on the make. It leads aspirants through the rock rat race, underlining how it's much more important to know the wheeling and dealing techniques than learning a few wretched riffs to strum. Just like in real life, you can forget the E sharp and F flats because the only important notes have pictures of the queen on 'em.

The cassette, besides carrying the necessary Spectrum-dedicated program, also has eight audio recordings including that well-known smash hit 'I'm in love with the girl on the Virgin Manchester Megastore checkout desk'... No, well I've never heard of it either, but there again I've never heard of you... If you get really

good at the game, though, and become the first person to score a No. 1 hit, I might just start throwing knickers at you from the audience, along with millions of other screaming fans, because you'll actually be invited to record with Chris Sievey and The Freshies and appear live on stage. A Doo Wop, a loo bop a wham bam boom? **3/5** **HIT**

Dave: I'm about as musical as a prune so I thought I'd be quite good at this. Four singles and a year later I'd managed to get to number 120! Mind you, I did make a lot of money from live performances — perhaps the punters thought I was a comedy act! Horribly addictive and great fun — see you on The Tube. **4/5** **HIT**

Ross: If music be the way to earn a fortune, you can count me in. This really is the biz. **4/5** **HIT**

ARCHON

Ariolasoft £8.95

Ross: This is a strategy game that pits the forces of good against those of evil. You're greeted by the opposing forces lined up on either side of a board that

Use the revive spell to bring back to life any of your lost characters — but make sure it's one of the strongest. There's no point in reviving a knight when you've got a wizard waiting in the wings.

chess players will no doubt recognise. At the start you're given the option of controlling the good guys or the bad guys, and whether to battle it out with the computer. You've got 18 pieces at your disposal and they can all move different

Don't bottle out with your strongest characters — be brash with them to take out the lesser enemies with some swift moves from the back.

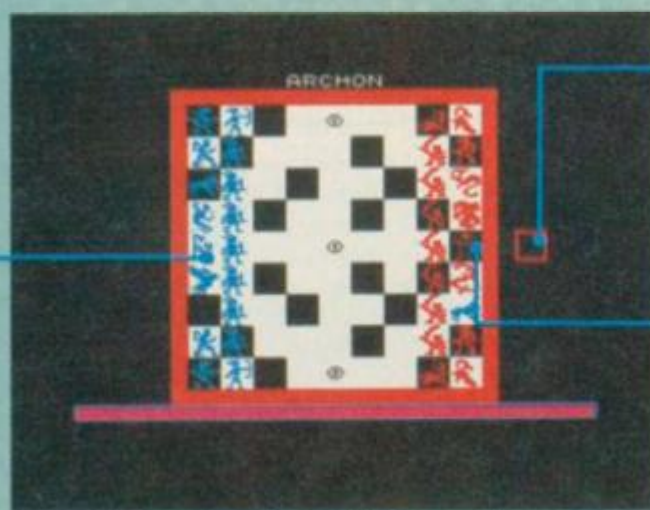
distances though there are no restrictions on the direction.

But that's where the similarity with chess ends. In *Archon*, each character earns the right to take over an occupied square by beating the opposition in a bout of single-handed combat. There are many different forms of defence — some characters throw fireballs, some wield swords, while others generate a deadly force field. This mystic fisticuffs takes place on a separate screen with the characters' respective strengths shown by a bar at each side. Each time you're hit this strength reduces until one of the pieces is completely clobbered. Each side also has one magical being that can cast spells on the opposition. The ones to watch out for are the revive and heal spells that'll bring a defeated piece back to life or restore its strength.

To move the pieces, you must position a square on the chosen character's symbol and then press the key to pick it up. From there you can move it and drop it in the desired location. Although the board is chequered black and white, there are also some grey squares — the colour of the square a piece occupies will affect its fighting fortunes. The forces of darkness for example, do best on black squares. An added complication are the five power points positioned like a cross on the board. These squares have the power to restore strength and to protect from magic — occupy all five and you're automatically the winner.

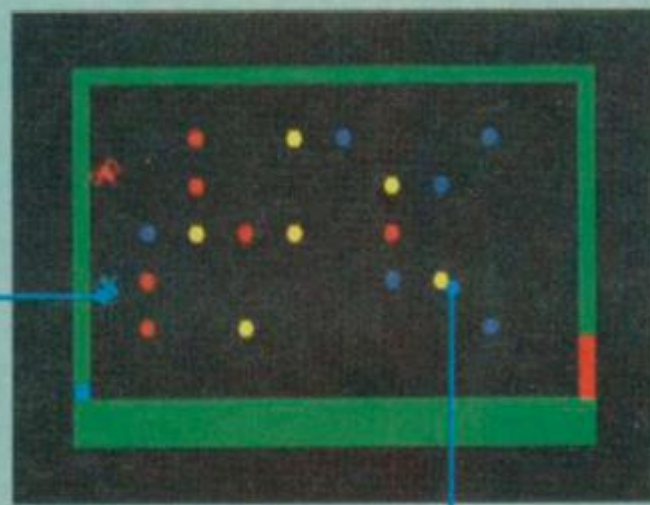
At first, *Archon* appears quite simple, but there's an underlying complexity to it that offers a formidable challenge. The combat screen is marred by jerky graphics and be warned, the computer's an annoyingly good shot. But then I always was a bad loser. **3/5** **HIT**

Roger: More of a boring game than board game, but both? **2/5** **MISS**
Dave: A strategy game and an arcade game in one package can't be bad (*who says? Ed*). The computer plays a decent game, and I haven't yet come close to beating it. Still, it's got me hooked, so I'll crack on. **2 1/5** **HIT**



Use this box to indicate the character you want to move — and where you want to move him. Then tap the fire button and pow!

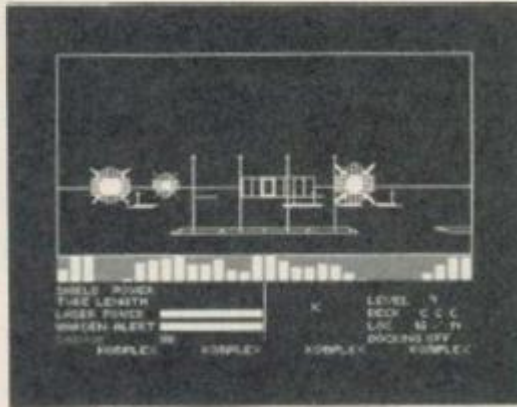
Try this for openers — before the opposition has time to rally, take out their main man. If you get the strongest character early on, it'll give you the edge.



A tip if you're playing the computer — move in close and then nip in and out of your opponent's firing line. That way you'll fool him into firing and you'll have as much time as it takes his missile to reach the other side of the screen to pump him full of lead. Go on, make my day punk!

On the combat screen get your chosen battle warrior body-poppin' — the more jerky his movements are, the less chance you have of being hit.

These objects just get in the way but if you use them to good effect you can use them as defence shields.



KOMPLEX

Legend £9.95

Roger: Komplex is just what it says — complex. Apparently, you can create seventy thousand million different maps if

so inclined but player-generated maps, just like the standard K.O.M.P.L.E.X. one, all have seven deck levels of a diamond shape. Changing the map is just like changing one's underpants — you don't notice after you've put your trousers back on. That, pretty much, (*not that there's anything pretty about Willis's underwear. Ed*) sums up the game. Despite excellent scrolling 3-D action, a high yawn factor is guaranteed by crushingly similar — and uninteresting geography.

But that's not all, because location complexity (groan) can be safely ignored. The less-cerebral amongst us just zap about blasting the monitors and wardens with lasers and collecting and dropping Target Modules in the appropriate place. Fallen safely to sleep yet? Yes, Komplex isn't really complex (double groan) at all

because it's just another old dose of shootiebangs in space clothes.

Komplaining without kompassion about the kontent without kongratulating (*kut it out! Ed*), the programmer on graphical action excellence may seem unfair, but computer games are supposed to be fun, not works of art, and this ain't. Just like the last offering, *The Great Space Race*, it's better than Valium.

2/5

Dave: Will Legend ever release a good game? This one's just as boring as *TGSR* though the graphics are a bit better.

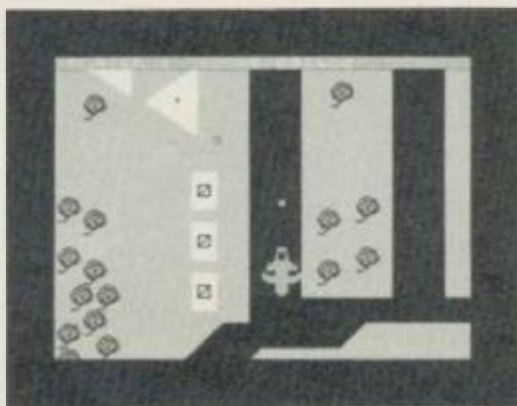
Basically a komete waste of time and money. 0/5

Ross: Is it me? I couldn't make head or tail of this and when I did I realised it was a waste of time. Nope, it was them! 1/5

MISS

MISS

MISS



FLAK

Funsoft £7.95

Dave: Right from the start the signs aren't

at all promising. There on the inlay card is a screen shot from the Commie 64 version. When you've loaded up you can see why they decided against printing a Speccy shot. There you are, a badly drawn sprite with an attribute problem flickering across a charmless landscape made up of character squares. Now that's not really a big enough inducement to put on the cover to persuade me to part with the readies.

The game's really just a rip-off of the arcade classic Xevious that offers a trip out in an 'advanced AGX hypersonic fighter' — that's the flickering sprite. Occasionally another sprite flickers up to you and that usually triggers off a dull looking cyan explosion. The screen scrolls more slowly than a C5 at top speed and your

hypersonic wotsit flies at such a snail's pace that it's impossible to dodge the barrage of missiles blasted at you. Consequently, each game lasts about 10 seconds and can only be stretched out should you really want to, by using the one obvious bug — keep your finger on the fire button at take-off and you're invincible for a few seconds.

All in all, one that should've been drowned at birth. 0/5

Roger: The player may hope to 'take over the universe' but this game won't. 1 1/2/5

Ross: How could they do this to one of my fave arcade games? The 'awe-inspiring' scenery only inspired me to turn the Speccy off. 1/5

MISS

MISS

MISS

JONAH BARRINGTON'S SQUASH

New Generation £7.95

Roger: I'd always thought that squash was a silly game played by overweight and middle-aged executive types to burn off the worst effects of their business lunches. The obvious reason for playing

it inside a big indoor 'box' is to stop the rest of us from seeing them at it and cracking up in helpless mirth... That's still probably a fairly accurate description of the real thing but the Speccy version is something else.

It features all the basic elements of the

sport with two players on court, one of whom can be computer controlled. The only thankful absence is the wobbling bellies and puffing and panting.

The graphics and ball movement are realistic but the computer chooses stroke for you if the player has been positioned with some reasonable degree of accuracy. There are four options of difficulty and I can say, from experience, that it's easily possible to beat the Spectrum at the easier levels. Squash is a well-crafted chunk of sporting software which, usually, isn't boring to non-enthusiasts of the aforesaid physical pursuit.

It won't cut down on the jolly old midriff bulge, but then nobody will laugh at you either. 4/5

Dave: It felt a bit strange playing squash and not ending up drenched in sweat and gasping for air. Still, the graphics are good and the game's addictive. I also found out that Jonah Barrington is mike shy — the voice synthesis sounds like he spent hours down the pub getting his courage up... 3/5

Ross: Master the techniques necessary for hitting the ball against the wall and you'll find this an enjoyable game. The lack of diagonal movement though is a pain, but not as much of a pain as playing the real thing. It's a pity that Jonah Barrington sounds like he's got a squash ball in his throat. 3 1/2/5

HIT

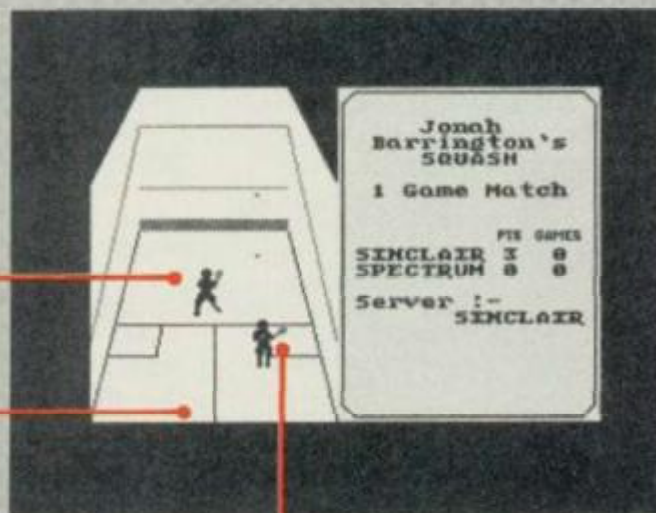
HIT

HIT

To put some spin on your serve, try pushing the joystick forward as you press fire. It's not in the instructions but it seems to work for us!

As soon as you've returned a serve, leg it to the front of the court. That way you're in charge of the action.

While your opponent's serving, you'd be well advised to take up a position at the back of the court. Nine out of ten times this is where the ball ends up.



You can choose any one of six different angles to hit the ball by holding down the fire button for different lengths of time. Phew this is nearly as tiring as the real thing!

The computer automatically moves your racquet from one side to the other to strike the ball. Make sure you press the fire button only when you're on the side you want to play from.

Pick of
the week

POPULAR
Computing
WEEKLY

Legend is the only company I can think of at the moment that manages to be both famous and infamous at the same time. I would describe the credibility history of the company roughly like this: *Valhalla*, two steps forward, *The Great Space Race*, two steps back. Now we have *Komplex* and I'm pleased to say it's at least 1½ steps forward again.

Komplex is not, in any significant way, an adventure - it looks vaguely like *3D Battlezone* but it's better than that. Call it an abstract arcade game that could last for a couple of hours in play.

It works like this: two thirds of the screen displays a three dimensional view of the decks and levels of an alien world. In this world are scattered letters of the title K,O,M,P,L,E,X. You must locate each letter and place it in the central control computer.

Moving from level to level takes place via a tube which is protected by various devices. Other devices on each deck drain power from you.

You could say *Komplex* is a 3D collect and dodge type of game but that's to denigrate it. The strategy elements of the game are fairly sophisticated and you don't just blast and blast - there is no question of three lives here.

But the most impressive thing for me is the look of the game. The landscape where all this action takes place is genuinely strange and alien. What you see, as you move around this world (in excellent hi-res scrolling perspective), are rectangles in the middle of nowhere, curious spindly poles, sudden holes in the ground, dream-like floating geometrical aliens and the fact that it's all in black and white just adds to the faintly mathematical and disturbing effect.

Komplex is a truly imagination gripping game, something that cannot be said for many others. You'll need to map its world if you're going to stand any chance of locating the letters and finding your way through the service tubes to the CCC. It's mostly brains, not brawn, that's required.

KOMPLEX

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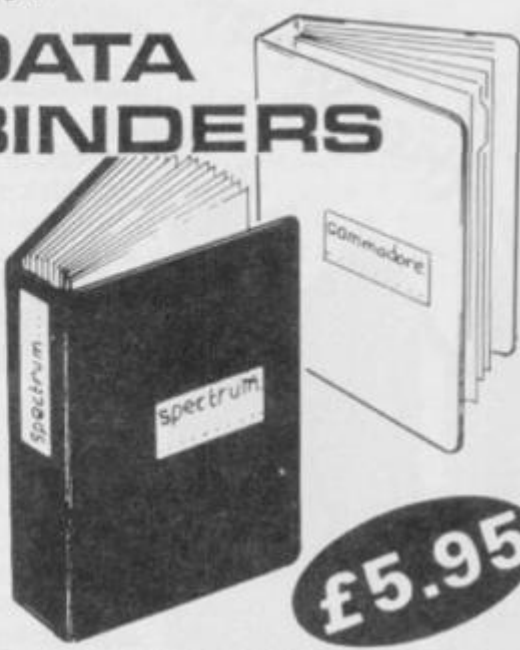
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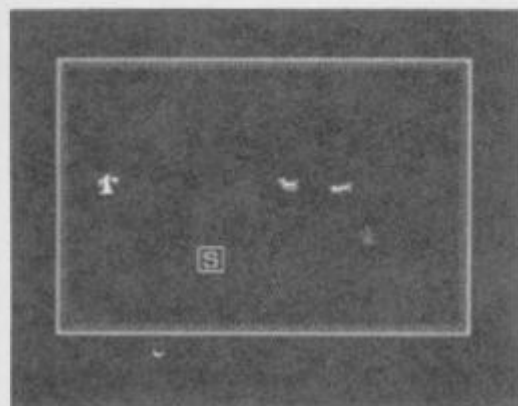
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CHAOS

Games Workshop £7.95

Dave: This one's subtitled 'Magic and Death on the Plane of Limbo' which

makes it sound like an occult version of Airplane II. In fact, it's another magical mystery tour-type strategy game that's enlivened by some creative touches of animation.

At the off, you can choose up to eight different wizards any or all of whom can come under the control of the computer. If you're feeling really limbo-like, it's a wheeze to set them all off and sit back to watch them slug it out. There's also a random hand-out of spells that allow you to summon monsters and call up a plethora of peculiar weapons. Luckily, they're all spelled out in the manual.

There are eight different difficulty levels for you to choose so it'll take more than a morning to master. And the game's fast enough to provide a satisfying slugfest for

all but the most hardened arcader, plus the animated graphics make it constantly entertaining to watch — well, what d'you think a Goocy Blob looks like?

Chaos offers enough magical unpleasantness to keep swords and sorcery fans in a teeth gnashing frenzy — just what the dentist ordered. So grab your box of magic tricks and do it to them before they do it to you ...

4/5

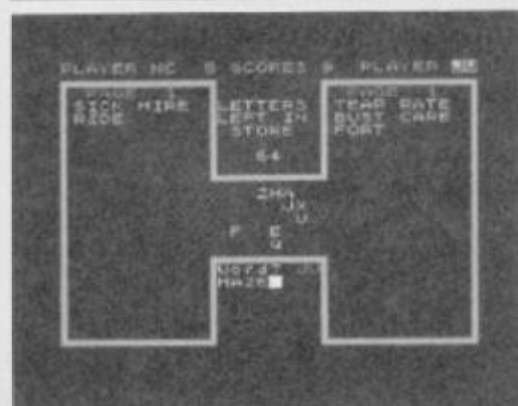
Roger: The Concise Oxford Dictionary gives a variety of meanings to this game title, many of which are applicable to content. 2/5

Ross: It takes a while to get into the swing of this game but once you've sussed the sorcery, it'll have you under its spell. 3/5

HIT

MISS

HIT



SNAFFLE

Longman £9.95

Dave: Here's a word game that bears a

remarkable resemblance to another word game called Sc.... well, let's just say that any resemblance between the two is probably purely intentional. This one's described as a fast and furious game for all the family. Mmmm. Fast, maybe but furious, almost certainly — one of those games that's likely to have everyone from 8 to 80 arguing like good'uns.

Certainly, the booklet that comes with it isn't bad so what about the game? Well, on loading you're first asked how many players there are. At the last count there was only one of me, so I shall invent a chum called Bob. In go our initials and away we go. I press a key until a letter appears. Bob presses one, another letter. And so it goes on until one of us spots a

word. We then use the Pick key to regroup the letters and the word's made. I'm then asked if I agree that Bob's word 'Blitnung' is valid. If Bob's happy with it, so am I!

The booklet suggests that we keep a dictionary handy. I agree. Word games on the computer will always seem a bit pointless until they have a dictionary built in. This game should aid the decline of literacy no end. 2/5

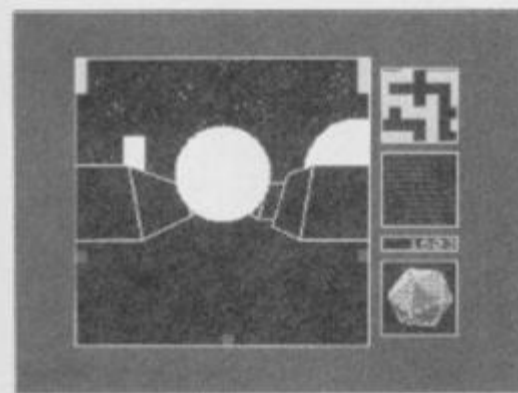
Roger: There's a word to describe this game but the Ed would only cross it. Suffice it to say I wasn't impressed. 1/5

Ross: There's no reason to put this on computer at all. In fact, there's no reason for the game at all. Bored then snored! 1/5

MISS

MISS

MISS



GYRON

Firebird £9.95

Roger: Any lump of software that gets

nominated as a legend in its own lunchtime, is in serious danger of a generally rocky ride. Well, Gyrion cannot escape completely. The ten battalions of mathematical geniuses who took about seven trillion light years to carve the game out of living machine code have created some stunning visual effects but they haven't come up with the game content.

Gyrion is best described as a 3D maze of considerable complexity. The quality of the graphics is certainly exceptional as you trundle through the corridors of alien power pursued by giant spheres. But this is no variety act. It could take another trillion years to suss out the maze exits and the scenery will still stay the same. A small hint that some smart marketing kiddie has

sussed the problem comes with Gyrion's attachment to a spiffing competition — the winner gets a Porsche 924 just like the ones we had on YS before we got our Rollers. Pass me the joystick and, er, wish me luck!

2 1/2/5

Ross: This is impressive — until you start playing. Then it's just a question of slowly trundling round a 3D maze trying to justify forking out a tenner

on this tedium. 2/5

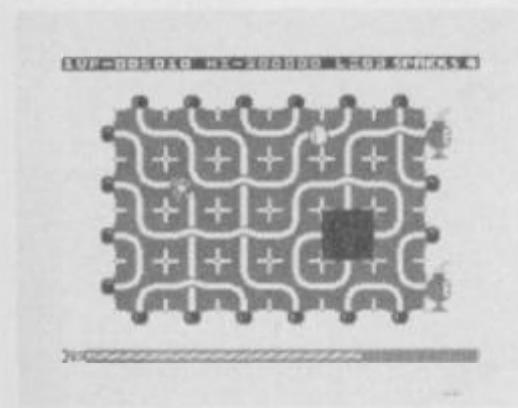
Dave: Firebird says that the changing elements of the maze repeat every 100,000 years — that means they'll be coming round again just about the time I next load the game up.

1/5

MISS

MISS

HIT



CONFUZION

Incentive Software £6.95

Ross: Haven't we been here before? This puzzle-type game's very similar to Zenji

by Activision and will appeal to much the same people. The game's built up of fuses, bombs and sparks and the idea is simply to arrange the fuses so that they lead the sparks to the bombs. Explosive stuff, eh? Well, not quite. The fuses are split into curved sections so they can be rotated through 90 degrees and joined in a multitude of ways. To make life trickier you've only a limited time to complete each grid.

The number of bombs you have to blow up and the complexity of their fuses range from the 'possible to the close your eyes and hope for the best'. The controls are a synch and you can use the joystick to highlight a large portion of the fuse-ways — the fire button then rotates that bit.

The difficulties begin when you attempt

to usefully direct the constantly moving spark. By luck rather than judgement, I managed to clear a few screens. Nevertheless, you will develop a feel for the game and I don't doubt that with some thought you could work out a perfect system. The graphics and sound are reasonable so if you fancy blowing cobwebs from some of those dormant brain cells check it out. But don't expect the big bang. 2/5

Roger: Read the name and then agree that yes it is, isn't it! 2/5

Dave: I do have rather a soft spot for puzzles and this one isn't at all bad. It'd be nice if you could slow it down a touch though — my brain just can't keep up — and I don't want any sarky Ed's comments. (As if! Ed) 3/5

HIT

MISS

MISS

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ARNHEM

CCS £7.95

Dave: At last — a wargame that's both playable and makes full use of the Speccy's graphics. If I've been hard on this type of game in the past it's because none I've seen has yet come up to this standard.

First off, you're given the choice of four basic scenarios. If you're new to the game it's an idea to go for the easy option, a seven turn reccy round the battlefield. The next three cover specific operations that take more time but should turn you into a battle scarred veteran. Only when you've got ten hours

to spare is there any point in tackling the final scenario that covers the complete Market Garden area. At the beginning it's sure to be a whole river full of bridges too far.

If you're on your tod, you'll control all the allied forces while the computer plays the Germans — with a friend, the allies split into Brits and Yanks and there's even a three player mode that offers a complete free choice.

Play is certainly fast but it's easy to follow so you shouldn't get hopelessly lost just as you thought you'd got 'em outflanked. Plus there are sound effects and on-screen flashes that show when a

unit is under attack.

The scrolling screen covers the whole of the Arnhem area and there's also an accompanying map and booklet for budding battlers. In-door generals who'd probably find the real thing a touch too noisy could do worse than take a look. **4/5**

Roger: Outside my usually cowardly tastes but good enough to make me take a general's job — leading from the rear... **4/5**

Ross: Not my sort of software but I soldiered on — and then got beat! **3/5**

MISS

HIT

HIT

Here's an overview of your immediate terrain. It probably covers somewhere in the region of a fourteenth of the total battlefield.

The Advance to Eindhoven is on. This is the easiest of the five different scenarios and it'll only take you seven turns. The objective is to clear the centre road of German units. Course, if you're really a military megabrain you could change the course of history, beat the Germans and star in a remake of the film epic.

More info on what stage of the game you're at — on the easiest level there are seven phases building up to twenty-six on the trickiest. The border colour even changes to let you know when a different player's turn's come.

Keep off the grass! It's a lot trickier trudging over the rough terrain than going by road, so travel by tarmac if you've got to be there yesterday. But remember — you're a lot more vulnerable to enemy action when you're in the open.

Each unit has the option of travelling in two formations — either four character blocks in size or scrunched down to just one. Spreading out means you can go on the attack and your troops are less vulnerable. In the tight formation you can squeeze through smaller gaps, march along the roads at double quick time but if you're clobbered your troops'll sustain twice the damage.



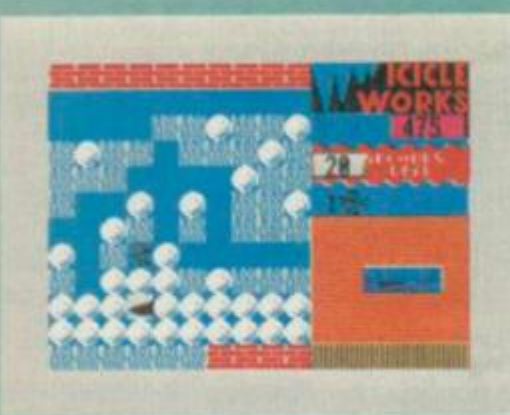
There's a right barney going on here. To engage in battle with the enemy choose the bombard option from the menu, position the cursor and you'll be taken straight into the thick of the battle. The on-screen icons'll let you know the fire power of the opposing units.

Here's the roll-call of your troops. If you're yomping your way through one of the trickier scenarios, one or more of your units may be off-screen. When their turn comes round the screen scrolls to that territory.

All the computer's despatches are posted here. You could almost class *Arnhem* as a menu-driven wargame.

If the bridge is too far you'll find that the enemy has moved in pronto to guard it. Once they've put troops on bridge patrol, you'll find it pretty tricky to shift 'em.

The symbol here shows the type of unit you're moving. The 2nd Bn. Irish Guards is all tanked up and ready to roll...



ICICLE WORKS

Centresoft £6.95

Roger: Have we been here before or what?

Turning down the temperature on stuff like *Boulderdash* doesn't improve a tired scenario.

All that's demanded of the undemanding is to scuttle about collecting stuff, tunnelling through poorly defined and barely visible snow-like substances and avoiding the dislodged balls that might fall on one's little frosty head. Jerky scrolling moves the action across the screen and the clock runs out even faster than my short-fuse patience. The thirteen ice-cold rooms offer as much fun as a fortnight in a fridge-freezer though the fauna is more fearsome — polar bears and killer penguins.

Having seen this type of software product climb up into precision platform

pleasure, all I can dumbly consider is that *Icicle Works* has stepped through a time warp, missing all the clever programming trickery of the last year or so.

Icicle Works? No it doesn't. **1/5**

Dave: I've been waiting for a good Digdug/Mr Do game to come out on the Speccy and after seeing this, I reckon I'll just have to wait a bit longer. It's a good idea but the implementation lets it down. When was the last time you saw sprites moving two cursor blocks at a time?

2/5

Ross: There's nothing original here and, yes the graphics are jerky and sometimes obscure but it still got me hooked. If you haven't seen its predecessors take a look. **3 1/5**

MISS

MISS

MISS

FLASHMOVES

Flash, bang, wallop, what a picture! 20th Century Chris Somerville takes a look at loading screens and shows you how to turn them into moving pictures.

A title page is a great way of adding that extra professional touch to your programs. Use SCREENS to save it and it'll load before the main program. That way you'll keep up flagging interest during those long LOADs and raise expectations for the program ahead. The big snag (*I knew it — there's always a snag!* Ed) is that it adds considerably to the loading time — a standard loading screen takes up 6.75K of memory.

Now, it's possible to design a much simplified title screen using only the 768

bytes of the Attribute File. You'll find this reduces the loading time from around forty-five seconds down to about five. And it's here that you get the added bonus — animation throughout the loading. You can flash words on the screen just like in *Manic Miner* — take a look at the demo program to see how it's done. Or you could extend the process to cover anything that moves. How about a ghost that appears and disappears, a see-saw rising and falling or Troubleshootin' Pete getting in'n'out of his comfy chair!

NAME DROPPING

Our name in lights at last! Pretty flash, eh? These two piccies show you exactly what you'll get by typing in the listing below.

When you're designing your own screens always think in terms of two different screens. Draw the first one on squared paper — graph paper's a good idea — showing all the colours. Remember these are Paper colours.



Next, design the screen for stage two, this time on squared tracing paper, making sure the squares match up with those on screen one. Then indicate each colour with its initial or code number — these are all Ink colours. Now, lay the tracing paper over the graph paper and you should see just what Paper and Ink colour you need at every character position when FLASH is set to 1.

There are two ways you can now build up your piccy on screen. Either POKE the Attribute File with the appropriate numbers or you can PRINT spaces (CHRS 32) in the right Paper and Ink colours.



This demo program POKES all the data into the Attribute area of memory. Every time you enter 191, for example, you're supplying info about one character square that has FLASH set to 1, PAPER white and INK white (128+56+7). As the Paper and Ink colours are the same there'll be no movement or colour change to these areas of the screen.

```
10 REM DEMONSTRATION LOADING
   SCREEN
20 REM
   RUN THIS PROGRAM THEN
   SAVE THE RESULTING
   SCREEN BY:
   SAVE "ys"CODE 22528,768
25
26
```

Lines 10-26 REMark statements for your info

```
100 DATA 9,191,191,191,191,191,
151,191,191,191,191,191,151
105
110 DATA 191,191,151,151,191,19
1,151,191,191,151,191,151,151
115
120 DATA 151,191,191,191,191,19
1,191,186,186,186,191,186,186
125
130 DATA 151,191,186,186,151,19
1,186,146,191,186,146,186,151
135
140 DATA 186,186,151,191,146,19
1,186,151,186,191,191,191,186
145
150 DATA 186,191,191,191,186,19
1,186,151,186,151,191,186,191
155
160 DATA 151,191,191,146,191,15
1,186,191,146,191,146,191,186
165
170 DATA 151,186,186,191,186,18
6,191,186,191,191,186,186,191
175
180 DATA 191,146,186,191,186,19
1,151,191,191,146,191,151,186
185
190 DATA 186,151,191,146,151,14
6,191,186,191,186,191,186,191
195
200 DATA 191,186,191,186,191,19
1,191,146,191,191,186,191,151
205
210 DATA 191,191,146,191,151,18
6,191,146,191,146,191,186,151
215
220 DATA 186,191,191,191,186,18
6,186,186,191,186,191,191,191
225
230 DATA 146,186,191,191,186,14
6,191,191,146,191,151,186,191
235
240 DATA 146,191,146,186,186,15
1,186,191,191,191,186,191,191
245
250 DATA 191,191,191,191,191,19
1,151,191,191,191,191,191,151
255
260 DATA 151,191,191,191,151,15
1,191,191,151,191,191,151,191
265
270 DATA 191,191,191,191,9
275
280
```

Lines 100-280 The data statements with all the info to be POKEd into the Attribute area

```
1000 CLS : RESTORE
1010 READ a
1020 FOR i=22528 TO 22687: POKE
i,a: NEXT i
1030 FOR i=22688 TO 22911: READ
a: POKE i,a: NEXT i
1040 READ a: FOR i=22912 TO 2329
S: POKE i,a: NEXT i
1050 STOP
```

Lines 1000-1500 This part of the program POKES the data into the attribute area.

```
9999 PAUSE 300: INK 7: CLS : LIS
T
```

Line 9999 This line halts the program for a few seconds, then lists it.

MOVING PICTURE PAINTER

Here's the easy way to create your animated loading screens — an on-screen editor that lets you create two independent attribute pictures before mixing them together.

```
10 REM TWIN SCREEN PAINTPAD
20 CLS : PRINT "Build your first
Screen by using the CURS
OR KEYS (5 to 8). You can change
COLOUR at any time by pressi
ng C and entering a colour numbe
r (0 to 7). Press F when F
INISHED."
```

Lines 10-20 Here are the (brief) instructions — practice'll show you just what you can and can't create.

```
30 RESTORE : FOR i=USR "a" TO
USR "a"+7: READ x: POKE i,x: NEX
T i
40 DATA 170,85,170,85,170,85,1
70,85
50 PRINT "Press a letter to s
tart"
60 PAUSE 0
70 FOR j=1 TO 2
80 PAPER 7: INK 0: CLS
90 FOR k=0 TO 20 STEP 2: FOR l
=0 TO 31 STEP 2: PRINT AT k,l: I
NK 0:CHR# 143:CHR# 144:AT k+1,l:
CHR# 144:CHR# 143: NEXT l: NEXT
k
100 LET x=0: LET y=0: LET o=0:
LET p=0
110 PRINT# 1:"CURSOR COLOUR =":
p
```

Lines 30-110 Set up the initial routines. Lines 30 and 40, for example, set up a UDG character for the checkerboard screen pattern that'll help when you're working from squared paper.

```
120 PRINT FLASH 1: OVER 0: INK
p:AT y,x:CHR# 143
130 LET i%=INKEY$: IF i%="" THE
N GO TO 130
140 IF CODE i%<53 OR CODE i%>56
AND i%<>"c" AND i%<>"f" THEN G
O TO 130
150 IF i%="c" THEN INPUT "Colo
ur ? ":p$: IF CODE p%<48 OR CODE
p%>56 OR LEN p%>1 THEN GO TO 1
50
160 IF i%="c" THEN LET p=VAL p
$: PRINT# 1:"CURSOR COLOUR =":p
170 IF i%="f" THEN PRINT AT y,
```

NAILING THE FILES

So, how's it done? First off, let's have a look at the two areas of the Spectrum's memory that cover screen pictures, the Display and Attribute files. The first covers shapes, such as lines, circles and so on, whilst the second's concerned with the quality of those shapes, their colour, brightness and whether or not they're flashing. If you're into the technical details, the Display File starts at address 16384 and ends at 22527, that's 6143 bytes and the Attribute File runs from 22528 to 23295, or 768 bytes.

Now, the reason that the Display File's so much longer is because a shape can be drawn to pixel definition but when you assign attributes you can only do it for blocks of eight by eight pixels. Say you were to design a picture that didn't use shapes, only squares of colour. Then you wouldn't need to save the Display File or any of its 6143 bytes at all.

The Attribute File holds its info in a pretty straight-forward way, as it follows the normal PRINT AT position of the screen. So, the file's first address (22528) is equivalent to the first PRINT position on screen (Line 0, Column 0), the second

```
x: OVER 0: INK p:CHR# 143: LET x
=x-1: IF x<=-1 THEN LET x=31: L
ET y=y+(1 AND y<21)-(y AND y>=21
)
180 IF i%="f" THEN PRINT AT y,
x: FLASH 0: INK p:CHR# 143: GO T
O 240
190 IF i%="8" THEN PRINT AT y,
x: OVER 0: INK p:CHR# 143: LET x
=x+1: IF x>=32 THEN LET x=0: LE
T y=y+(1 AND y<21)-(y AND y>=21)
200 IF i%="6" THEN PRINT AT y,
x: OVER 0: INK p:CHR# 143: LET y
=y+1 AND y<21
210 IF i%="7" THEN PRINT AT y,
x: OVER 0: INK 0+(p AND o=0)+(A
TTR (y,x))-56 AND o=1:CHR# 143:
LET y=y-1 AND y>0
220 PRINT AT y,x: FLASH 1: OVER
0: INK p:CHR# 143
230 PAUSE 20: GO TO 130
```

Lines 120-230 This is the main loop of the program.

```
240 IF j=2 THEN GO TO 310
250 INPUT "": PRINT# 1:"PLEASE
WAIT A MOMENT"
260 DIM a(704): FOR i=22528 TO
22528+703: LET x=PEEK i: LET x=(
x-56)*8: LET a(i-22527)=x
270 NEXT i
280 CLS : PRINT AT 10,1:"PRESS
ANY LETTER TO BUILD YOUR
SECOND SCREEN"
290 PAUSE 0
```

Lines 240-290 This part of the program stores the first screen ready for you to start on the second.

```
300 NEXT j
310 FOR i=1 TO 704: LET x=PEEK
(i+22527): LET x=x-56: LET x=x+a
(i): LET x=x+128: POKE (i+22527)
,x: NEXT i
320 INPUT "": PRINT# 1:"Press B
to SAVE your picture"
330 IF INKEY%<>"B" THEN GO TO 3
30
340 LET i%=INKEY$: IF i%="" THE
N GO TO 340
350 IF i%<>"s" THEN STOP
360 INPUT "ENTER PICTURE TITLE"
:p$
370 SAVE p$CODE 22528,704
380 STOP
```

Lines 300-380 The final part of the program mixes the two screens and then saves your creation to tape.

address (22529) to the next PRINT position (Line 0, Column 1) and so on. You can POKE into the Attribute File with the Ink colour number plus eight times the Paper colour number. Then add 128 to this number if you want the square to flash or for a bright square add 64. To give it a go, try:

POKE 22592,186: REM (7*8)+2+128

That'll give exactly the same results as:

PRINT PAPER 7: INK 2: FLASH 1: AT 2,0:
CHRS 32

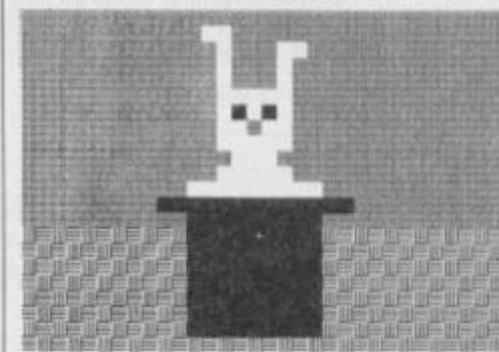
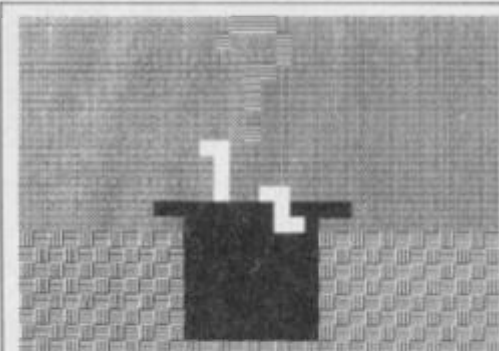
In both cases you'll get a red and white flashing square to the left of the screen three lines down.

Of course, you can also use the ATTR function to discover the Attributes at any character position. You'll see that PRINT ATTR (2,0) gives the same result as PRINT PEEK 22592. You can save the screens you've created in this way, not by SCREEN\$, but by:

SAVE "picture" CODE 22528, 32*22: REM 32
columns, 22 lines

then load it back with:

LOAD ""CODE, 22528



HAT TRICK

See just what you can do with a picture constructed entirely of squares. If you prefer you can use a commercial graphics program — Melbourne Draw's the one to go for as you can easily set and change the Attributes. Watch out though, 'cos these programs SAVE both the Display and Attribute Files. You'll have to make some slight changes to the program or else LOAD back the SAVED piccy and then SAVE it a second time with only the Attribute File.



NOW YOU SEE IT ...

Of course, you don't have to go the whole hog and animate all the screen. You can always move just a small area within a larger static picture that can be drawn to pixel definition. Turn FLASH on for your chosen section and off for the rest of the screen. The problem is that you'll have to use SCREEN\$ for saving and loading, so you'll lose the advantage of a fast load.

In just five seconds your title screen will have loaded.

ON THE MOVE

From here, you can start adding animation. It's a doddle to do and the devil to describe. It all hangs on the way FLASH operates. When FLASH is on, each of the character squares alternates between the Paper colour and Ink colour of that square. So, if you design using, say, red Paper with yellow Ink and keep the surrounding area set to yellow paper with yellow Ink, then your picture alternately appears and disappears. That's because the effects of FLASH become invisible as soon as you have the same Ink and Paper colours.

It's not far from making a design appear and disappear to changing from one design to another. And that's the basis of all animation. Walt Disney eat your heart out!



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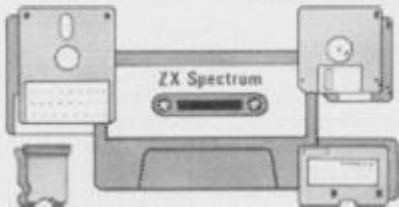
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PROGRAM POWER

```
401 IF INT U=1 THEN PRINT AT 21,0; PAPER 6; INK 2; "
; INK 0; PAPER 7; "
402 IF INT U=2 THEN LET U=0
403 LET U=U+.2
405 RANDOMIZE USR 60051; PRINT AT X,Y; PAPER 8; INK 8; CHR# PEEK 23296
```

Lines 400-405 This is the start of the main loop.

```
420 IF IN 57342=251 AND Y>0 THEN LET Y=Y-1; PRINT AT X,Y; PAPER 8; INK 8; "
; POKE 23296,148
430 IF IN 57342=254 AND Y<30 THEN LET Y=Y+1; PRINT AT X,Y-1; PAPER 8; INK 8; "
; POKE 23296,151
440 IF IN 32766=251 THEN GO SUB 510
```

Lines 420-440 This section reads the keyboard.

```
445 IF POINT ((Y*8)-2,175-(X*8)-4)=1 THEN GO SUB 590
446 IF POINT ((Y*8)+10,175-(X*8)-4)=1 THEN GO SUB 590
```

Lines 445-446 Has the miner been hit by a truck?

```
447 IF INT U=0 THEN PRINT AT 21,0; PAPER 6; INK 2; "
; INK 0; PAPER 7; "
448 RANDOMIZE USR 60051; PRINT AT X,Y; PAPER 8; INK 8; CHR# PEEK 23296
500 GO TO 400
```

Lines 447-500 Animate the flames at the bottom of the screen.

```
510 POKE 23301,120; POKE 23305,0
515 IF X<8 THEN GO SUB 650
520 PRINT AT X,Y; PAPER 8; INK 8; "
530 FOR N=X-1 TO X-2 STEP -1
540 PRINT AT N,Y; PAPER 8; INK 8; CHR# PEEK 23296
550 PRINT AT N+1,Y; INK 8; PAPER 8; "
560 RANDOMIZE USR 23300
570 NEXT N
575 LET X=X-3
576 PRINT AT X+1,Y; PAPER 8; INK 8; "
580 RETURN
```

Lines 510-580 This routine is called once the man reaches the top of the screen — t'house at t'pithead.

```
590 PRINT AT 21,26; "
; POKE 23305,0; FOR N=0 TO 200 STEP 5; POKE 23301,N; RANDOMIZE USR 23300; NEXT N
600 PRINT AT X,Y; INK 8; PAPER 8; "
; LET X=21; LET Y=24; LET L=L-1
605 IF L<1 THEN GO TO 620
610 GO TO 386
```

Lines 590-610 Kill man when he's hit by a truck.

```
620 PRINT AT 10,11; "GAME OVER"
621 FOR N=120 TO 255; POKE 23301,N; RANDOMIZE USR 23300; NEXT N
630 PAUSE 0
640 GO TO 10
```

Lines 620-640 This is the game over routine.

```
650 PRINT AT X,Y; PAPER 8; INK 8; "
660 FOR N=Y TO 26
670 PRINT AT 4,N; BRIGHT 8; PAPER 8; INK 9; "
;
680 PAUSE 10
690 PRINT AT 4,N; BRIGHT 8; PAPER 8; INK 9; "
;
700 PAUSE 10
710 NEXT N
```

Lines 650-710 Make the man run home.

```
720 FOR N=56 TO 127
730 POKE 23504,N
740 RANDOMIZE USR 23500
```

```
750 POKE 23301,127-N; RANDOMIZE USR 23300
760 NEXT N
```

Lines 720-760 Flash the screen using a machine code subroutine.

```
770 POKE 23504,56; RANDOMIZE USR 23500
780 GO SUB 8000
```

Lines 770-780 End-of-screen routine.

```
800 FOR N=0 TO 5; PRINT AT N,0; PAPER 0; INK 7; BRIGHT 1; NEXT N
810 FOR N=175 TO 175-(6*8) STEP -1; PLOT INK 8; RND*255,N; NEXT N
815 GO SUB 250; PRINT AT 0,31; PAPER 0; "
820 FOR N=6 TO 20; PRINT AT N,0; PAPER 0; INK 0; OVER 1; NEXT N
825 PRINT AT 9,4; "
; AT 9,23; "
826 PRINT AT 12,17; "
; AT 18,20; "
829 IF DE=1 THEN RETURN
830 GO TO 380
```

Lines 800-830 1st screen.

```
900 FOR N=0 TO 5; PRINT AT N,0; PAPER 5; BRIGHT 1; NEXT N; GO SUB 250
910 PRINT AT 18,19; "
920 PRINT AT 9,4; "
; AT 9,23; "
; AT 12,17; "
929 IF DE=1 THEN RETURN
930 GO TO 380
```

Lines 900-930 2nd screen.

```
1000 FOR N=0 TO 5; PRINT PAPER 2; NEXT N
1001 GO SUB 250
1010 PRINT AT 9,4; "
; AT 9,23; "
1020 PRINT AT 18,19; "
1030 PRINT AT 12,17; "
1039 IF DE=1 THEN LET D=1900; RETURN
1040 GO TO 380
```

Lines 1000-1040 3rd screen.

```
2000 FOR N=0 TO 5; PRINT AT N,0; PAPER 1; NEXT N; GO SUB 250
2010 PRINT AT 9,0; "
;
2011 PRINT AT 12,0; "
;
2012 PRINT AT 15,0; "
;
2013 PRINT AT 18,0; "
;
2014 FOR N=6 TO 20; PRINT AT N,0; PAPER 0; INK 0; OVER 1; NEXT N
2015 IF DE=1 THEN RETURN
2016 LET SR=2000; GO TO 380
```

Lines 2000-2016 4th screen.

```
2100 FOR N=0 TO 5; PRINT AT N,0; PAPER 6; NEXT N
2110 GO SUB 250
2120 FOR N=6 TO 18; PRINT AT N,0; OVER 1; PAPER 0; INK 0; "
; AT N,28; "
; NEXT N
2125 IF DE=1 THEN RETURN
2130 GO TO 380
2135 IF DE=1 THEN RETURN
```

Lines 2100-2135 5th screen.

```
2200 FOR N=0 TO 5; PRINT AT N,0; PAPER 3; BRIGHT 1; NEXT N
2210 GO SUB 250
2220 FOR N=6 TO 18; PRINT AT N,0; OVER 1; PAPER 6; NEXT N
2230 PRINT AT 12,0; OVER 1; PAPER 0; INK 0; "
; PAPER 7; "
; PAPER 0; INK 0; "
2231 IF DE=1 THEN RETURN
2240 GO TO 380
2300 FOR N=0 TO 5; PRINT AT N,0; PAPER 1
```

Lines 2200-2240 6th screen.

```
2400 FOR N=0 TO 5; PRINT AT N,0; PAPER 4
```


PROGRAM POWER

```

1,,1 NEXT N
2410 GO SUB 250
2420 PRINT AT 9,0;"
2430 PRINT AT 12,0;"
2440 PRINT AT 15,0;"
2450 PRINT AT 18,0;"
2455 IF DE=1 THEN RETURN
2460 GO TO 380
    
```

Lines 2400-2460 8th screen.

```

2500 GO SUB 250
2505 PRINT AT 9,0;,,
2506 PRINT AT 9,5; INVERSE 1;"NOW THIS I
S EASY"
2507 IF DE=1 THEN RETURN
2510 GO TO 380
    
```

Lines 2500-2510 9th screen.

```

2600 FOR N=0 TO 5: PRINT AT N,0; PAPER 4
; INK 6; FLASH 1;,,: NEXT N
2610 GO SUB 250
2620 PRINT AT 9,0; INVERSE 1;"LAST STAGE
LAST STAGE"
2630 PRINT AT 12,0;"
2640 IF DE=1 THEN FOR N=0 TO 255: RANDO
MIZE USR 60051: NEXT N: GO TO 10
2700 LET SR=700: GO TO 380
    
```

Lines 2600-2700 10th screen.

```

8000 FOR N=0 TO 21: PRINT AT N,0;,,: NEX
T N
8010 LET SC=SC+RND*400: PRINT AT 1,0;"YO
UR SCORE SO FAR:";INT SC;AT 3,0;"THE HIG
H SCORE IS ";("STILL" AND HI>SC)+("NOT"
AND SC>HI);" ";HI: PRINT "("SO YOU HAVE
    
```

```

TAKEN IT" AND SC>HI)
8020 PRINT AT 21,0;"PRESS ANY KEY TO SEE
NEXT SCREEN"
8030 PAUSE 0: CLS
8040 GO TO SR
    
```

Lines 8000-8040 Print the between-screen message.

```

9000 DATA 23300,33,20,0,17,20,0,195,181,
3
    
```

Line 9000 Data for the machine code sound.

```

9010 DATA 23500,33,0,88,54,57,35,62,91,1
88,40,2,24,246,201
    
```

Line 9010 Data for the machine code flash.

```

9020 DATA 60000,14,8,175,229,17,31,0,237
,82,126,25,23,6,32,126,23,119,43,16,250,
225,36,13,32,233,201
    
```

```

9030 DATA 14,8,229,17,31,0,25,126,237,82
,31,6,32,126,31,119,35,16,250,225,36,13,
32,234,201
    
```

```

9035 DATA 33,64,80,205,122,234,33,255,72
,205,96,234,33,128,72,205,122,234,33,63,
72,205,96,234,201
    
```

Lines 9020-9035 Data for the machine code pixel left/right scroll.

```

9040 DATA 65368,0,0,127,127,55,43,20,8,0
,0,254,254,236,212,40,16,81,132,18,64,8,
161,247,255,0,0,255,255,255,255,0,0,24,2
4,8,126,24,8,8,24,48,48,16,126,24,38,66,
64
    
```

```

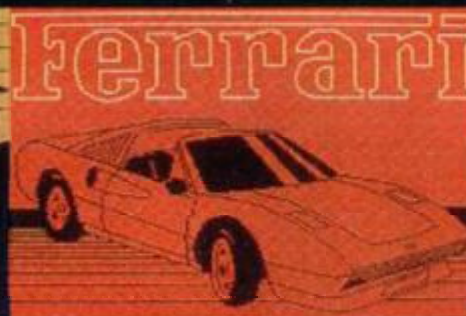
9050 DATA 12,12,8,126,24,100,66,2,24,24,
16,126,24,16,16,24,130,73,34,144,72,161,
247,255,82,251,215,126,235,175,255,255,2
55,85,255,0,0,0,0,0
    
```

```

9060 DATA 0,0,255,255,247,235,20,8,189,1
26,255,255,189,66,165,66,1,3,5,11,23,47,
95,255,128,192,160,208,232,244,250,255,2
55,153,153,255,255,153,153,255,66,36,24,
255,247,235,20,8
    
```

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PROGRAM POWER

```

1547
1020 DATA 225,241,251,201,62,254,219,254,1707
1030 DATA 230,1,40,1,201,62,253,219,1007
1040 DATA 254,230,2,40,1,201,221,33,982
1050 DATA 165,254,62,0,17,17,0,205,720
1060 DATA 194,4,6,50,118,16,253,221,862
1070 DATA 33,0,64,62,255,17,0,27,458
1080 DATA 205,194,4,201,0,3,115,99,821
1090 DATA 114,101,101,110,32,32,32,32,55
1100 DATA 0,27,0,64,14,128,0,0,233
    
```

Lines 1000-1100 Machine code data.

EDIT KEY

KEVIN SWIFT

Cast your minds back — many moons (and issues ago), YSprojects manager, Penny Page, set you all a small task. How, she asked, could you alter the Speccy's editing facilities so that the cursor should be moved up and down an edit line, as well as from left to right. At last, we bring you a solution to the problem.

To get it going just type in the loader program, run it and save it as usual. Then to start the routine type Randomise Usr 65123. To disable it, type Randomise Usr 65133. You can also change the speed of the cursor simply by entering:

POKE 65053, new value

POKE 65065, new value.

The new value is the number of characters to be moved each time.

OK, put on the green eye shade (*just like the one I wear! Ed*) and get editing.

```

1 REM Edit Keys
5 CLEAR 65000: LET cs=0
10 FOR i=65023 TO 65133
20 READ a: POKE i,a: LET cs=cs+a
30 NEXT i
40 IF cs<>11802 THEN PRINT "ERROR IN
DATA": STOP
50 SAVE "Editkey"CODE 65023,120
100 DATA 1,254,255,243,245,229,197,213,
58,8
110 DATA 92,254,10,40,7,254,11,40,3,195
120 DATA 90,254,254,10,40,12,42,91,92,1
130 DATA 31,0,167,237,66,229,24,8,42,91
140 DATA 92,1,31,0,9,229,42,97,92,43
150 DATA 43,193,197,167,237,66,56,39,42,
89
160 DATA 92,193,197,167,237,66,48,29,22
5,34
170 DATA 91,92,58,8,92,254,10,32,7,62
180 DATA 9,50,8,92,24,5,62,8,50,8
190 DATA 92,209,193,225,241,251,201,225,
24,247
200 DATA 58,0,254,214,1,237,71,237,94,2
01
210 DATA 62,63,237,71,237,86,201,0,0,0
    
```

```

0100 K48 DEFL OFDFH
0150 ORG K48
0200 VECTR DEFW K4B+2
0250 RST 38H
    
```

Line 250 Calls the ROM routine that reads the keyboard and updates the system variable FRAMES.

```

0300 DI
0350 PUSH AF
0400 PUSH HL
0450 PUSH BC
0500 PUSH DE
0550 LD A,(23560)
    
```

Line 550 Loads 'A' with the value of the last key if or the 'NO-KEY' value

```

0600 CP 10
0650 JR Z,START
    
```

Lines 600-650 Check if the last key was Cursor Down. If so jump to START.

```

0700 CP 11
0750 JR Z,START
    
```

Lines 700-750 If the last key pressed was up then also jump to 'START'.

```

0800 JP END
    
```

Line 800 If neither up or down was pressed then jump to 'END'.

```

0850 START CP 10
0900 JR Z,ADD
    
```

Lines 850-900 If DOWN was being pressed then jump to 'ADD'.

```

0950 LD HL,(23643)
1000 LD BC,31
1050 AND A
1100 SBC HL,BC
1150 PUSH HL
1200 JR TEST
    
```

Lines 950-1200 Assuming that up must have been pressed read the cursor position, move 31 characters down the line and jump to 'TEST'.

```

1250 ADD LD HL,(23643)
1300 LD BC,31
1350 ADD HL,BC
1400 PUSH HL
    
```

Lines 1250-1400 Read the cursor position. Move 31 characters up the line.

```

1450 TEST LD HL,(23649)
1500 DEC HL
1550 DEC HL
1600 POP BC
1650 PUSH BC
1700 AND A
1750 SBC HL,BC
1800 JR C,END1
    
```

Lines 1450-1800 Test to see if the cursor is going off the end of the line, and if so jump to 'END1'.

```

1850 LD HL,(23641)
1900 POP BC
1950 PUSH BC
2000 AND A
2050 SBC HL,BC
2100 JR NC,END1
2150 POP HL
    
```

Lines 1850-2100 Test to see if the cursor is going too far up line, if so then jump to 'END1'.

```

2200 LD (23643),HL
    
```

Line 2200 Stores the news cursor position.

```

2250 LD A,(23560)
2300 CP 10
2350 JR NZ,UP
    
```

Lines 2250-2350 If DOWN wasn't the last key pressed then jump to 'UP'.

```

2400 LD A,9
2450 LD (23560),A
2500 JR END
    
```

Lines 2400-2500 Make Basic think that cursor right was pressed and jump to 'END'.

```

2550 UP LD A,8
2600 LD (23560),A
    
```

Lines 2550-2600 Make Basic think that cursor left was pressed.

```

2650 END POP DE
2700 POP BC
2750 POP HL
2800 POP AF
2850 EI
2900 RET
2950 END1 POP HL
3000 JR END
    
```

Lines 2650-2900 Restore all preserved registers, enable interrupts and return to Basic.

PROGRAM POWER

```

3050 GO LD A, (VECTR+1)
3055 SUB 1
3100 LD I,A
3150 IM2
3200 RET
    
```

Lines 3050-3200 Set up interrupt routine, set interrupt mode 2 and return to Basic.

```

3250 STOP LD A,3FH
3300 LD I,A
3350 IM1
3400 RET
3450 END
    
```

Lines 3250-3400 Switch the routine off by setting interrupt mode 1 and return to Basic.

OPPORTUNITY KNOCKS

The search is on. YS is looking for the greatest, hottest, brightest Speccy programmers around. Sounds like you. Read on ...

Last month we told you about our search for the *Your Spectrum* Supreme Programmer. Well, it's hotting up already. For the duffers who didn't read about it then, we'll recap.

If you've written a program that you reckon's hot stuff, now's the time to send it to us. We don't mind if it's an arcade, and adventure, a utility or whatever

or if it's in Basic, MegaBasic or machine code — just so long as it does what it sets out to do. Games should be fun and utilities must be original and hard-working.

We're not really imposing any restrictions. Well not many anyway! The first is on the size of the programs. Last month we asked you not to go over 15K. If you're up to about 14.5K now — STOP! I'm afraid the gremlins crept in. That should've read 5K 'cos there's no way we can publish anything much longer than that. Sorry if that means you've now got to start chopping chunks out of your code. And where were all you trainspotters then?

The only other problem concerns programs that contain attribute control characters within Basic program lines — those are the ones you get using extended mode 0 to 9. Don't use them, cos we can't print them out and this does serious damage to programs that use the ATTR function.

We'll be printing six of the best programs over the next six months and then it'll be up to the thousands of YS readers to vote for their fave program. As well as being published and generously paid for, the six picked programmers will also receive royalties on the tape versions — see this month's Frontlines and the ad from DigiTape for the details.

When you make your final choice from the six best, we'll be talking to a number of big software houses about tapping all that talent. More details follow.

For now, fill in the form below (or a photocopy of same) and get programming. As the man says, don't knock it till you've tried it!

Opportunity knocked and I answered — here is my Megaprogram. It sure gets my vote as the program of the year!

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- Swap two of the following: *Android II, Ant Attack, Artic Humptyseries* and others for *The Quill*. Tel. (06517) 2838 (after 4pm) and ask for Brian.
- Swap *Strange-Loop for Sabrewulf or Fall-Guy*. Tel. Yatton 833567 and ask for Julia.
- Swap *Raid over Moscow, Pitfall 2, Zaxxon, Alien 8, Witch's Cauldron, Airwolf* etc. Write to Paul Ledger, 2 Henconner Garth, Chapel-Allerton, Leeds LS7 3RZ.
- Will swap *Fred, Trashman, Underworld, Starship Enterprise, Ant Attack, Night Gunner, Pyramid, JSW for Knightlore, Ad Astra, Space Shuttle* etc. W.H.Y. Tel. 061-747 3130 and ask for Dave.
- Spectrum software to swap. Send your list for mine and see or Tel. (0642) 605662 and ask for Dave.
- Swap *Timebomb, Planet of Death or Mr. Freeze for Pole Position, Underworld, Cyclone, Zombie Zombie, Airwolf* or any other recent popular games. Tel. (033 981) 594 and ask for James.
- Swap VU-Calc for any business or utility program. Tel. Oxted Surrey 6175 and ask for SF Clark.
- Swap *3D Tank, Cricket Captain, Royal Birkdale, Braxx Bluff, 3D Lunatic for Survival, Pitfall II, Combat Lynx, Make a Chip*. Write to Alan Belben, 18 Steppes Crescent, Martock, Somerset TA12 6EQ.
- Will swap *Lords of Midnight, Make a Chip, Atari Joystick and Cascade 50* games tape for Datapen & appropriate interface. Write to Jeremy Housden, 14 Wharf View, Buckingham.
- Swap software with me. Send your list for mine. Send sac. Also, does anyone want a broken, but fixable ZX printer cheap? Write to A B Murray, Saumarez Block, HMS Nelson, Portsmouth, Hants.
- Swap *Hobbit, Hungry Horace and Inca* Curse all for *Quill* or help in how to program a simple adventure. Write to Terry Braverman, 23 Aragon Close, King's Hedges, Cambridge.
- Swap software and ideas utilities and games. Any hackers in the area? Share BT costs. M J Adams, 112 Milton Road, Fallings Park, Wolverhampton, WV10 0ND.
- Will swap *Devil Rides In* for either *Manic Miner, Knight Lore, Sabre Wolf, Lunar Jetman, Pole Position, Combat Lynx* etc. Tel. Winchester 883481 after 4.15pm and ask for Eddie.
- Have *Snowball, Gift from the Gods, Monty Mole* and more to swap for a Currah MicroSpeech or good arcade games. Your list for mine. Write to Paul McMurtle, 23 Radstock Road, Stretford, Manchester M32 0AJ.

- Swap *Knight Lore, Technician Ted, System 15000, Lunar Jetman for Machine Code Tutor*. Tel. 061-368 6935 and ask for D Spinks.
- Have *Colditz, Skool Daze, Scrabble, Survival of the Wild Bunch, Booty, Byte Bitten* etc to swap for *JSW* and other games. Send offers to Ian Hoyle, 31 Livestey Branch Road, Blackburn, Lancs BB1 4QJ.
- Swap *3D Combat Zone, Wheelie, Giant's Revenge and Bhee Max* for the Dk'tronics Lightpen. Tel. 061-436 4875 (after 5.30pm) and ask for Denis.
- Will swap *Fifth, PSS Compiler and The Crypt* for the *BLAST* compiler. Will sell for £20. Tel. (03902) 367 and ask for Simon.
- Swap any of *Avalon, Pyramid, The Hobbit, Ant Attack, Hunchback, Penetrator, Booty, Timegate, Pimania* etc. Tel. Ascot 22750 and ask for Orlando.
- I have about 600 titles to swap! Please send your list for mine. Write to Clemens Oelker, Woderichweg 5, 2000 Hamburg 63, West Germany.
- Software worth £350 including *Tasword, White Lightning, Raid over Moscow, Ghostbusters, Skool Daze*. Send sac for list to J D Bisset, Inverberg Inn, Luss, Dumbartonshire G83 8PD.
- Swap *Machine Lightning for Tasword, VU3D, Chequered Flag and Hungry Horace and YS MegaBasic*. Also send your list for mine. Tel. Bradford 679153 and ask for Damian.
- Swap *Pitfall II, Doomsday Castle, Zip-Zap, Molar Maul, Caterpillar*, etc. Tel. Wellingborough 223552 (4-6pm) and ask for Ian.
- Swap *Avalon, Ghostbusters, Sabrewulf* and more wanted. Swap for *Manic Miner, JSW, Underworld, Full Throttle* etc. Tel. Stratford-on-Avon 69300 and ask for Martin.
- Swap any five of *Backpackers, Valkalla, Battle Cars* and more for *Match Point* and *Zombie Zombie* etc. Tel. (0353) 860046 and ask for Glen.
- Swap any of *Chequered Flag, Horace Goes Skiing, Dinky Digger, Master Mariner* and *Survival for Vufile, VuCalc, Bridge* or other serious software. Tel. (0732) 843323 and ask for W D Ogilvie.
- Swap *Pitfall II, Danger Mouse, Grand National*, etc for *Formula 1* or any good sports games. Tel. Hull 506283 and ask for Steve.
- Have *Valkalla, Monty Mole, Dark Star, Cyclone, Starstrike, Full Throttle, Daley's Decathlon* etc. Any four for *Quill* or *White Lightning*. Write to John Cameron, 36 Kingsland Avenue, Glasgow G52 2NF.
- Swap *Genesis II, Orbiter and Ground Attack* for either *Knightlore, Lords of Midnight or Zombie Zombie*. Tel. (0642) 551256 (after 4.30pm) and ask for Richard.
- Swap *White Lightning and Jungle Fever* for either *HURG* and *YS MegaBasic or Machine Lightning*. Write to G Carling, 15 Station Road, Nassington, Peterborough PE8 6QB.

- Adventurers! *Valkalla and The Hobbit*, boxed with manuals. Offers to A Wiseman, 68A Mayfield Road, Hartford, Huntingdon, Cambs. PE18 7NJ.
- Swap *JSW and/or Beach Head for Quill*. Tel. Uttoxeter 3782 and ask for Chris.
- Swap *Mount Monty, Tribble Trouble, Booty, Menace* and more. Your list for mine to Steven Smart, 118 Hancock Road, Stoppley, Luton Beds, LU2 8JF.
- Will swap *Ghostbusters, D.T. Decathlon, Zoom and Chequered Flag*, for *White Lightning and Match Day*. Your list for mine. Write to D Wheatley, 20 Tudhoe Moor Estate, Spennymoor, Co. Durham, DL16 6HA.
- I have *Ghostbusters, 1984, Splat, Scrabble, BMX Racers* etc. Would like any decent adventures. Tel. Plymouth 339361 and ask for Mark.
- Swap any three of *Quest, Ship of the Line, Micro Olympics, Avalon, TLL for White Lightning* or any good new games. Write to S White, 1 Umfala Place, St Ives, Cornwall TR26 1QF.
- Swap many games including *Technician Ted, Monty is Innocent, Airwolf, Ghostbusters and Gift from the Gods*. Send sac to Christopher Jenkins, 48 Gaddys Street, Aberlarem, Mid Glamorgan, S Wales CF44 8BH.
- Complete *Machine Code Tutor* wanted with manuals. Swap for software. I have many new titles including *Airwolf, Xavior*. Write to Jens Norgard, Alssundevej 24, 6400 Sonderburg, Denmark.

» HARDWARE

- Saga Systems keyboard for sale. Spare set of keyboard transfers. £25 ono. Tel. (08267) 423 after 6pm and ask for D. Edwards.
- ZX81 minus aerial lead £25. Broken 16K RAMpack for ZX81, £10 plus free 'wobble stopper'. Also software £1 per tape. Tel. 01-330 2929 and ask for Jason.
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HACK-FREE ZONE

Given a hacker a good poke recently? — literally and right between the eyes. If you play games for the challenge and not 'cos you want the infinite cheat POKE, then this is the page for you!

C'mon all you games players — you're not alone. Already many of you have come out into the open to prove that

there's no game that can't be cracked without resorting to POKES.

Who'd have thought, for instance, that anyone could possibly rescue all twenty-two rooms of cryonaughts in *Alien 8*? Well, **Carl Parkin's** done it and he sent us a shot of the final screen to prove it. He reckons the best method is the obvious one — keep a rough map of everywhere you go and try to keep three objects with you at all times. You'll also need unlimited patience, plenty of time and an understanding family.

Still on the Ultimate challengers, **Ian Pullen's** got the measure of *Knightlore*. His news is that you need to put fourteen items in the cauldron and it doesn't matter how many rooms you visit in the castle.

Alan White from Poole may not be the first to finish *Dragonorc* (see this month's Frontlines) but his knowledge of the game is encyclopaedic — he sent us a thirteen page hint sheet! This month though

there's only room for one cryptic message:

*Do not kill the hand,
Find something in the South,
That comes from the far East,
To use in the West.*

Err, cheers Alan. Ummm, I'm sure they'll be letting you

out soon.

Our challenge still stands. Let us know as soon as you've finished a game that everyone else reckoned was impossible. But remember, hackers, you know where you can stick your POKES!

I've done it! (Cries of Yippee!) Though they said it couldn't be done, I finished the following game(s) and there wasn't a POKE in sight.

My name is.....

Address.....

Postcode.....

Here are some of my hints'n'tips:

It's all true. With my own eyes I saw him/her do it.

Signed.....

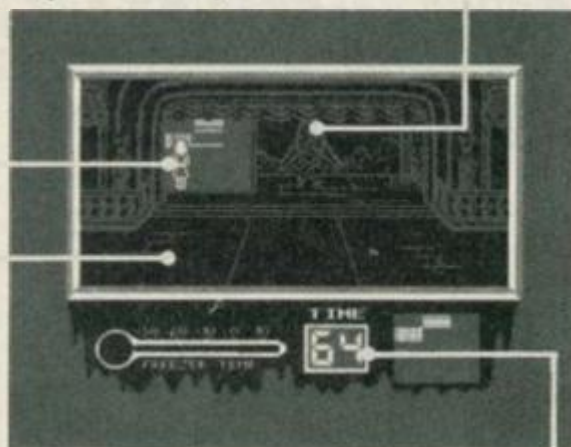
ROCKY HORROR STRUCK

Our very own Riff-Raff, Peter Shaw settles down in his stall seat for the opening performance of The Rocky Horror Show from CRL. Be there for a bit of audience participation . . .

This is you playing the part of Janet Weiss (Dammit, Janet!) who's innocently stumbled upon this eccentric enclave. At the start of the game, you're given the choice of playing Janet or her boyfriend, Brad Majors.

The stage is hidden behind the curtain — it's here that you have to deposit each part of the De-Medusa machine as you collect it. You have until the clock runs out and then the whole household is transported up to Frank's home planet. By the way, don't ask what Brad's doing, 'cos you wouldn't want to know!

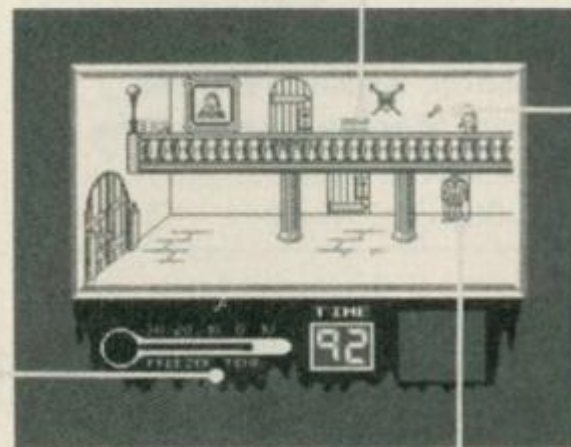
Here's one part of the De-Medusa machine that Dr Frank'n'Furter's scattered around Frankenstein Place for you to seek out. It's the only way of bringing your beloved back from the stone-dead. Only when they're all in the bag can you make good your escape.



Riff-Raff, the paranoid manservant (*Where is he then? Ed.*), wanders about this area firing his laser in a most erratic fashion — well, you wouldn't expect anything to be logical. Get in the way of the laser beam and you've bought it! After all, the laser is made from pure anti-matter. (*Shriek from the back!*)

This is the freezer temperature — once it cracks the 0°C mark, the crazed Roger Willis look-alike, Eddie, will be out on the rampage in his souped-up C5.

Keep an eye on this counter — when it reaches zero you've got zilcho chance of rescuing your loved one as the whole house lifts off.



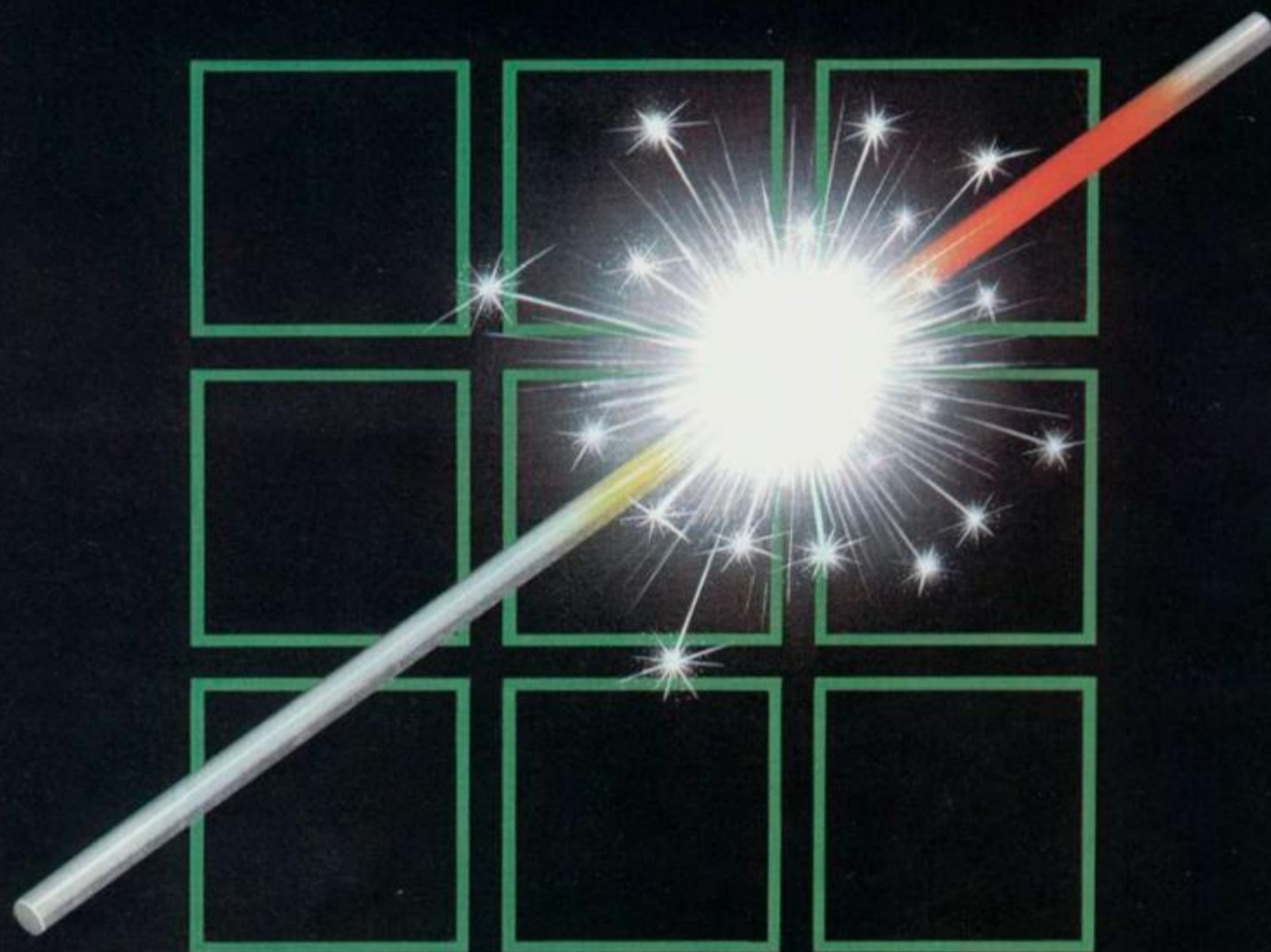
These keys are dotted all over the castle and, guess what you use them for? — yep, opening doors. Watch out though, 'cos you can only carry one at a time, so try to make a note of their position as you spot each one.

Talk to the natives — some of them are friendly. It's just a question of sussing out which ones. You can usually trust Columbia, but watch out for the rest. Be careful of Eddie (*The geezer from the freezer!*) as he comes throttlin' through on his motorbike.

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