WIN A CHEETAH RAT IN OUR £800 COMPO!!

YOUR SPECTRUM

No. 9 November 85p — *Byte High, No Limit*

Inside YS

QL AFFAIRS
Spectrum/QL ... The Missing Link?
— Page 24

MANIC MIMICRY
Astronut v. Frank N Stein v. Monty Mole
— Page 42

CHIP CHATTER
Sounding Out Speech Synthesisers
— Page 52

NEW LOOK SPECTRUM FOR XMAS

Announcement imminent despite Sinclair denials?

SCOOP

DESPITE "official" denials, Sinclair Research looks set to announce an addition to its family of computers — the ZX Spectrum+.

Your Spectrum has uncovered enough data on the soon-to-be-announced device to bring you an exclusive preview.

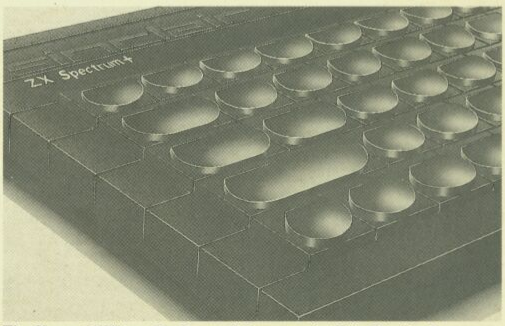
FULL STORY
—Page 36

EXCLUSIVE

New micro will be called Spectrum+!

OVER recent weeks, Sinclair has denied all rumours of a new micro in the pipeline.

However, once it seemed information had been leaked, MD Searle was quick to assure *YS* readers that, "the Spectrum, *in whatever form*, will be with us for many years".



The Shape Of Things To Come: A Spectrum in QL's Clothing?

WIN £25,000 AND SAVE THE WORLD

Eureka!™

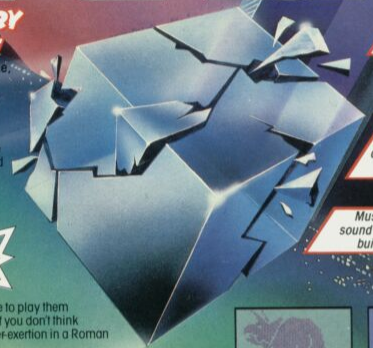
250 K OF PURE MYSTERY BY IAN LIVINGSTONE

- 5 complete Adventures, each with its own Arcade, in one multi-load mega-program: "Eureka!" is *the* ultimate computer Epic.
- Epic in scale: "Eureka!" spans five eras of history! You battle against the dinosaurs, outwit Nero and his gladiators, join the Knights of the Round Table, escape from Colditz, and finally into 1984 defeat the evil master of the Caribbean who is holding the world to ransom.
- Epic in sheer size — there's more than 250K for you to get yourself killed in.

Spectrum 48K or Commodore 64 (Turboload)

Full-colour booklet, packed with cryptic clues to help you unravel the mystery — and win the £25,000 reward

Music and sound effects built in



5 PROGRAMS IN ONE

- All 5 Adventures are linked — but you can choose to play them separately. And they all have REAL TIME built in. So if you don't think fast, you wind up as a pterodactyl's lunch, die of over-exertion in a Roman orgy, or just lose your mind...
- "Eureka!" is not just an Epic — not just an Adventure. At the start of each historical era, you face an Arcade Action test, to decide your strength level for the Adventure to come.
- The better your score, the stronger and faster you'll be.
- And it'll keep you on your toes, with constantly-changing, static and moving graphics. Brilliant music and sound effects add to the excitement.
- As part of the "Eureka!" pack, you receive a full-colour illustrated booklet, containing cryptic riddles and mysterious illustrations. Using booklet and screen *together*, you steadily unravel the clues and build up a secret phone number piece by piece.
- If you're first to ring it, you save the world and collect the £25,000!
- Quite a package! And to give everyone a fair chance, "Eureka!" will be released simultaneously worldwide on October 31st, 1984. No packs will be available until that date. All orders received by mail or phone by 26th OCTOBER will be despatched by post on the 31st right across the world. So order now, and be one of the first off the mark.



High quality, full-colour, static and moving graphics

Just clip the coupon. Or, for even faster action, order by Credit Card on the "Eureka!" Telephone Hotline 01-460 6000.

Eureka!™

Send your order now to:
"Eureka!", FREEPOST, Dept 400, Mount Farm, Milton Keynes, MK1 1HQ

THEN THE RACE IS ON!!!



DEVISED BY IAN LIVINGSTONE

The storylines for "Eureka!" are by Ian Livingstone, whose "Fighting Fantasy" books have sold over 2,000,000 copies. He's dreamed up some rather nasty tricks and twists for you in this Epic, because he has also devised the cryptic clues and conundrums in the booklet that goes with the program. He's the one who knows the answers.

"Eureka!" was programmed by Andromeda teams led by Hungarians Donat Kiss and András Császár. It took the equivalent of 5 YEARS to create, and the skills of 4 graphic artists, 2 musicians and a professor of logic too. We told them to stretch the hardware's capabilities, and make sure you were kept awake for hours!! They've done it...

£7 BONUS

When you order "EUREKA!" before 26 OCTOBER 1984, you receive an additional bonus: £7 voucher off the price of the **TROJAN LIGHT PEN** from PSS MANUFACTURE. Normal price is £17.75. You buy it for just £10.75.

NO STAMP NEEDED

To: "Eureka!", FREEPOST, Dept 400, Mount Farm, Milton Keynes, MK1 1HQ

Please send me "Eureka!" packs, complete with cassette, full-colour booklet, instructions and rules, at **£14.95** each PLUS 55p post & packing. If my order is received before 26 October 1984, I will receive a free £7 DOMARK voucher towards a Trojan light pen.

MY COMPUTER IS	No ordered	Total at £ 15.50
COMMODORE 64		
SPECTRUM 48K		
	TOTAL £	

24 HOUR PHONE HOTLINE NUMBER 01-460 6000 For Credit Card Orders

I enclose payment by cheque/P.O. payable to DOMARK LTD

OR Please charge my Credit Card VISA ☐ ACCESS ☐ AMEX ☐

Card Number

Expiry Date Date

Name Signature

Street

Town Post Code YS

The race for the £25,000 starts on 31 Oct 1984 and closes on 31 Dec 1985.

Domark Ltd., 228 Munster Road, London SW6. Reg. No: 1804186 (England).

INSIDE YS

36 THE NEW SPECTRUM

A scoop for *Your Spectrum!* From the hallowed halls of Sinclair Research, the word is that the Spectrum's in for some radical changes. Turn those pages . . . fast! *Roger Munford*

SOFTWARE



42

Manic Mimicry What have *Frank N Stein, Astronut* and *Monty Mole* all got in common? Find out inside . . . *Ross Holman* and *Dave Nicholls*



29

A 'Venture Into The Unknown A regular page for adventurers. We take a look at *Lords of Midnight* and *Sherlock*, with helpful hints for *Hobbit*-eers.

FEATURES



31

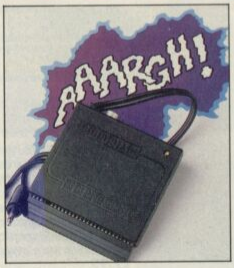
YS MegaBasic
The First Tutorial — Part One An in-depth study of windows and character sets — as well as the last minute inclusion of a Front Panel. *Mike Leaman*

PROGRAMS

24

Spectrum Spooler *YS* provides the missing link between the QL and ZX Spectrum. *Simon Goodwin*

HARDWARE



52

Spectrum Speakers You want your Spectrum to talk to you? Owning a speech synthesiser could be one of the first signs of madness — check it out. *Henry Budgett*

REGULARS

FRONTLINES 3
From The Hip, Rumbles, Concurrent Affairs and *Hacking Away*, alongside all the latest happenings...

FORUM 14
Readers' revenge! Hints, harrassment and humble pie.

SPECTROLYSIS 67
Ian Beardsmore dips into the problem postbag...

INPUT/OUTPUT 69
Your chance to sell and swop, and make a few friends into the bargain.

CIRCE 88
Sue Denham tackles Colin Stokes of Software Projects.

SUBSCRIPTIONS 28

YS T-SHIRT OFFER 50

BACK ISSUES 87

GAMES

TOP 20 20
Readers poll their fave raves. Will nothing knock *Sabre Wulf* from No. 1 position?

JOYSTICK JURY 59
Check out the verdicts of our panel on the latest software.

PROGRAM POWER

OCEAN DEFENCE 75
Save your home base by dropping depth charges on the submarines lurking beneath the waves. *Danny Sheehan*

TURN-UP 81
A new implementation of an old classic. A board game you'll never get bored with! *Adrian George*

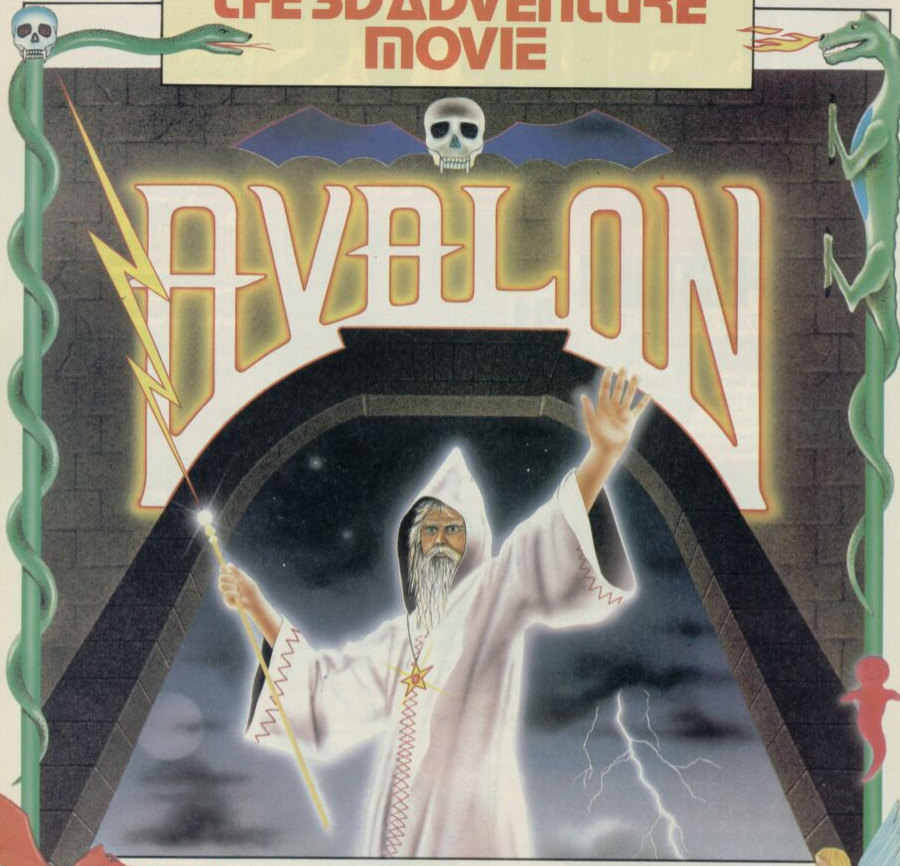
COMPETITION

WIN A CHEETAH RAT ... 39
Over £800 worth of prizes must be won.



Editor Roger Munford; **Deputy Editor** Tina Boylan; **Technical Editor** Peter Shaw; **Editorial Consultant** Andrew Pennell; **Software Consultant** Gavin Monk; **Contributors** Ron Smith, John Torofex, Dr DC Threlfall, Roger Willis, David Lester, Ian Beardsmore, Ross Holman, Dave Nicholls, Clive Gifford, Mike Leaman, Henry Budgett, Simon Goodwin, Sue Denham; **Art Editor** Hazel Bennington; **Art Assistant** Steve Broadhurst; **Group Advertising Manager** Jill Harris; **Advertising** David Baskerville; **Typesetters** Carlinpoint; **Group Art Director** Perry Neville; **Publisher** Stephen England; **Published by** Sportscene Specialist Press Ltd, 14–, Rathbone Place, London W1P 1DE. Company registered in England. **Telephone (all departments)** 01-631 1433. **Telex** 8954139 BunchG. **Reproduction** Graphic Ideas, London; **Printed by** Chase Web Offset, St Austell, Cornwall; **Distribution** Seymour Press, 334 Brixton Road, London SW9. Telephone 01-733 4444. All material in *Your Spectrum* © 1984 Felden Productions, and may not be reproduced in whole or part without the written consent of the publishers. *Your Spectrum* is a monthly publication.

THE 3D ADVENTURE MOVIE



AVALON

For the first time ever there is an all action, 3D adventure game with stunning moving graphics – the unique Avalon.

Only Hewson Consultants could bring you Avalon with its awe inspiring animation. Avalon is the breakthrough that brings adventure to life. In this challenging game you must use your astral projection Morac the Mage to search into the heart of the Isle of Glass and forever banish the Lord of Chaos before he can subject Earth to the Dark Ages for a thousand years. You must explore a three dimensional world with more than 220 separate rooms and over 30 tunnels. On your way you will be challenged by over a hundred animated foes, goblins, wraiths, guardians and evil wizards. Your only protection is the magic of your spells. Avalon, by Steve Turner, is the adventure game of the year, and is available NOW! from your local software stockist. Remember, a world of graphic adventure awaits for only **£7.95**

Other titles for ZX Spectrum

3D LUNATTACK – Steve Turner
Fly your Hover Fighter over the 3D Lunar landscape battling the SEIDDAB.
Joystick compatible, 48K only **£7.95**

3D SEIDDAB ATTACK – Steve Turner
Using your radar, missiles and sixth sense clear the city area of SEIDDAB.
Joystick compatible, 16K or 48K **£5.95**

3D SPACE WARS – Steve Turner
Hunt the Seiddab through four levels of 3D hyperspace and destroy them.
Joystick compatible, 16K or 48K **£5.95**

NIGHTFLITE II – Mike Male
Flight simulation with full instrument display and perspective runway view.
Joystick compatible, 16K or 48K **£7.95**

HEATHROW AIR TRAFFIC CONTROL – Mike Male
Written by a professional air traffic controller.
16K or 48K **£7.95**

QUEST ADVENTURE – Kim Topley
Find a map hidden in an inhospitable world inhabited by gruesome creatures.
48K only **£5.95**

FANTASIA DIAMOND – Kim Topley
Retrieve the magnificent Fantasia Diamond and rescue Boris the master spy.
48K only **£7.95**

KNIGHT DRIVER – Clive Brooker
Steer your car round a tortuous circuit of roads, braking and accelerating as you go.
Joystick compatible, 48K only **£5.95**

Books

20 Best Programs for the ZX Spectrum **£5.95**
40 Best Machine Code Routines for the ZX Spectrum **£5.95**

As part of our continuing development of innovative software we are always happy to evaluate software sent to us with a view to publication.

GSH

HEWSON CONSULTANTS

56B Milton Trading Estate, Milton, Abingdon, Oxon OX14 4RX

Selected items available from Centresoft Dealers and all leading computer software retailers.

WHSMITH Rumbelows John Menzies TIGER TRADER spectrum LASKYS HMV

FRONTLINES

DOUBLE CHIPS



The BBC Radio stand at The PCW Show, where Barry Norman broadcast the second edition of The Chip Shop live!

BBC Radio kicks off with a double-helping of computing this Autumn with Barry Norman re-opening *The Chip Shop* on Radio 4 and Radio 1 listeners getting their own computer show with the launch of Radio 1's *Chip Shop* which makes up part of the Saturday morning *Mark Page Show*.

The Radio 1 *Chip Shop* will be broadcast at 7.33 am on Saturday morning, starting on September 29th and will be presented by David Freeman. Free *Basicode* software will be broadcast on Sunday morning at 5.55am and repeated at the same time on Saturdays. You'll need a *Basicode Kit* for this though, costing £3.95 from Broadcasting Support Services, 2 Cater Road, Bristol BS13 7TW.

If you really can't stand the thought of getting up so early on a Saturday morning, you could always tune into *The Chip Shop* on Radio 4 at the slightly more reasonable time of 4.15pm though you won't get the software.

Barry Norman broadcast his second show of the series 'live' from the PCW Show on September 22nd this year.

MODEM TO MODEM



Protek's flexible link modem can be used with just about any old phone ... except the Trimphone.

Protek Computing has released their 1200 Modem recently, providing a computer/telephone link which they claim is four times as fast as any of its competitors.

The modem is compatible with any RS232/243 computer — although driving software is required. The Protek device is battery-powered and completely portable with a flexible acoustic link Good news for those with a fear of the phone is that you don't need to adapt the system at all.The price is a competitive £59.95 and further details are available from Protek Computing on 0506 415353.

NORSE SENSE

Mosaic Publishing has come up with a new fully illustrated text adventure based on the book 'The Saga of Erik the Viking' by Terry Jones of *Monty Python* fame. This package has been programmed by Level 9 Computing and is designed for all ages from eight upwards. Terry Jones himself thinks it's pretty good stuff and says, "It's a real extension of the book, not a re-telling of the story ... playing the game, even I don't know what's going to happen to Erik next".

The Saga of Erik the Viking costs £9.95 and comes with a 20-page booklet including extracts from the original book.



As we announced in the July news of *YS*, Adventure International have signed up a deal with the Marvel Comics Group, and at last the software is available. The first package is *The Hulk* which should be in your shops right now. If *Spiderman*'s more your type of Superhero, you'll have to wait until November for the release of that one. Both packages retail at £9.95 each.

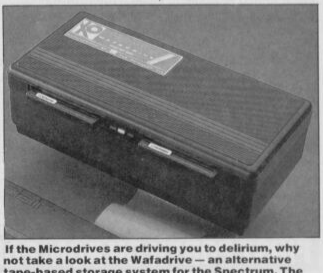
TRASHMAN ON THE MOVE

Not content with cleaning up the streets in sunny Suburbia, New Generation's hero, Trashman, is off on a plane to de-litter the rest of this mucky planet.

Travel with Trashman takes you to 13 countries around the world collecting a whole host of items apart from the usual rubbish. In Germany, for instance, Trashman has to collect the empties at a beer festival, whereas in Paris he devotes his skills to newly-released frogs outside a café!

TWT is available for the 48K Spectrum and costs a mere £5.95 from 'the usual stockists'. 'Dirty' phone calls should be made to 0225 316924.





If the Microdrives are driving you to delirium, why not take a look at the Wafadrive — an alternative tape-based storage system for the Spectrum. The device used two string/floppy cartridges (called Wafers, would you believe?) which can each store up to 128K; there's also a Centronics and RS232 interface lurking around somewhere as well. Wafers are available at the reasonable price of £3.45 (16K), £3.65 (64K) and £3.95 (128K), and the whole bundle will set you back £129.99. Perhaps the best news is that there's already a range of commercial software available on Wafer. Contact Rotronics on 0494 452757.

RUMBLES



Our sleuth on the software scene,* Ron Smith *reveals the rumours.

Earlier this year the BBC filled its early Saturday evening spot with an American series that was all about the adventures of a computer whizzkid and his machine-projected, holographic friend, known as Automan.

Exciting stuff, eh? Anyway, spotting a good theme for a computer game, Liverpool-based Bug-Byte decided to pursue the idea, and is now working on a Spectrumised version which should be in the shops just before Christmas.

According to B-B boss, John Phillips, the game will begin with an underworld consortium having stolen the design of the program to create and control Automan, which they use to produce an evil facsimile. That, of course, will never do, so it's up to the player to find the imposters' controller and destroy the program — a task which will only be possible after working through the game's two main modules.

The first of these will be a cartoon adventure in which animated characters move around on what John describes as a lifelike display, while carrying a variety of objects and performing an equally varied selection of tasks. Exactly what these objects are, or what dangerous deeds are to be performed, JP isn't saying. Anyway, on to phase two.

This is where it'll all happen, because the imposter's controller will have to be chased through a 3D display of Manhatten skyscrapers to his home base, where there'll be a cartoon showdown as you try to destroy this techno-criminal's computer and black out the imposter Automan. The game — predictably entitled *Automan* — will probably sell for £6.95.

Short of fresh programming talent, Dream Software decided to place one or two discreetly worded advertisements offering heavy-readies, eternal life and super-stardom (but definitely no Porches) to anyone who had written, or was writing, a nifty piece of Spectrum code. Well, quick as lightning — via bush telegraph — came a promising-looking reply. It was from an Australian lady who was working on a program called *Crystal Caverns*, the aim of which is being kept quiet, mainly because finding out what it's all about is part of the game. However, Dream spokesman, Keith Williams, says that the final program will feature a few railway carriages littered about and a ventriloquist's dummy (who just happens to be a prince who's been zapped by a spell some time in the distant past) to help the player through what's claimed to be a very hard game.

The release date hasn't yet been fixed, but it'll probably be some time in November, though a minor miracle could bring this forward a little. The price will be in the traditional £4 to £6 price range.

Mastertronic, the cheap games outfit, say they've had such a good response to two games written previously for some lesser-known micro (the CBM64?) that they're currently converting them to run on the Spectrum. The first is *BMX Racers*, which features the player astride his trusty cycle, passing bushes, lakes, trees, pedestrians, park wardens and so on, as he braves the various jumps and tries to cope with unexpected oil slicks — all in an effort to get along the track as far as possible.

The other game, which sounds less than original, is all about leaving a spaceship and venturing into deep space to rescue a satellite that's floating aimlessly about. Of course, the obligatory aliens are present and these should be either blasted or avoided; blasting them will result in the player scoring more points.

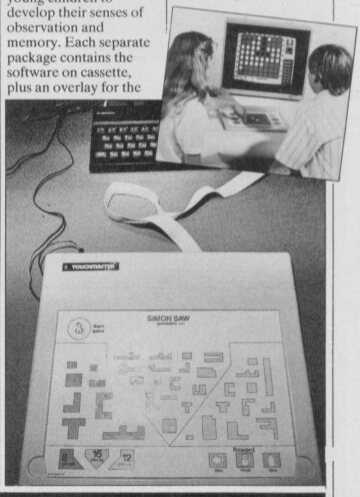
Both games should be available some time in January and will sell for the famous Mastertronics price of £1.99.

TOUCHING STORY

Designed specifically as a robust and easy to use unit, the Touchmaster is a new graphics pad for the Spectrum. There's a range of software available to suit various applications. The unit is supplied with *Multipaint* - a graphics package that allows you to either doodle or draw complicated designs; specialist modes like 'circle' and 'box' allow you to define the edge points of a shape with a touch of the stylus and the Touchmaster then draws them in for you.

Other packages for the Spectrum version include such diverse things as *Othello*, *Perilous Castle* (a graphic adventure), *Draughts* and five learning packages for young children to develop their senses of observation and memory. Each separate package contains the software on cassette, plus an overlay for the graphics pad. A useful feature of the pad is that you can use either the stylus provided or your finger, so children don't even need to be able to hold a pen to use it.

The starting package of Touchmaster, power supply, leads and *Multipaint* is priced at £149.95 and the software packages are £9.99 each. If you choose to upgrade your computer (heaven forbid!) then other interfaces are available for many other machines for around £16. Further details on the Touchmaster are available on (0656) 744770.



Get in touch with the Touchmaster graphics tablet — with the stylus provided or the tips of your fingers.

FIRST FORTH ON ROM FOR CURRAH

Currah, manufacturers of the MicroSpeech unit, has announced a new product to be available from them...'soon'.

Called the MicroSource, it allows you to write and use assembler or Forth in Basic lines, which means you can run either added languages on their own or even 'integrate' them into Basic programs.

Looking uncannily like the MicroSpeech, the MicroSource is another one of those flat black boxes. At the time of writing, Currah weren't giving away enough for us to find out whether there would be an expansion port carried through. This was one of the only big criticisms of the MicroSpeech and is probably the reason for the launch of their MicroSlot motherboard.

The MicroSource has a planned release price of £44.50 but more details should be available from Currah by the time you're reading this. If you want the info first hand, give 'em a ring on 0429 72996.

The Sinclair QL and you



Exploring the Sinclair QL — An Introduction to SuperBASIC

Andrew Nelson, £4.95

The QL has a rich, new programming vocabulary, and this great book gives you the chance to master the host of new words Sinclair has added. Sure, you can use the QL more or less just like a Spectrum, but if you do, you are missing the extraordinary power which lies behind the radical concepts of SuperBASIC. Command by command, statement by statement, Andrew Nelson takes you through the richness of QL SuperBASIC in *Exploring the Sinclair QL — An Introduction to SuperBASIC*. Just £4.95 and available from most book and computer shops. In case of difficulty, you can order it directly from Interface Publications, using the coupon below. (Trade only: Interface Publications are distributed exclusively in the UK and Eire by W H S Distributors. Export orders handled by Interface Publications.)

Interface Publications, Department QYS, 9-11 Kensington High Street, London W8 5NP.

Please send me the following books. I enclose a total of £_____

- ☐ **Exploring the Sinclair QL — An Introduction to SuperBASIC** Andrew Nelson, ISBN 0 907563 84 8 — £4.95
- ☐ **Mastering Machine Code on your ZX Spectrum** — Toni Baker £9.95
- ☐ **Spectrum Machine Code Made Easy, Volume One for beginners** — James Walsh £5.95
- ☐ **Spectrum Machine Code Made Easy, Volume Two for advanced programmers** — Paul Holmes £5.95
- ☐ **The Spectrum Machine Code Reference Guide** — Richard Ross-Langley £4.95
- ☐ **Creating Adventures on your ZX Spectrum** — Peter Shaw and James Mortleman £4.95
- ☐ **Putting Your Spectrum to Work (including 15 major programs, including a word-processor and spread-sheet calculations)** — Chris Callender £4.95
- ☐ **Creating Arcade Games on the ZX Spectrum** — Daniel Haywood £3.95
- ☐ **Programming Your ZX Spectrum** — Hartnell/Jones £6.95
- ☐ **60 Games and Applications for the ZX Spectrum** — David Harwood £4.95
- ☐ **Beyond Simple BASIC — Delving Deeper into your ZX Spectrum** — Dilwyn Jones £7.95
- ☐ **Instant Spectrum Programming (tape and book)** — Tim Hartnell £4.95
- ☐ **20 Simple Electronic Projects for the Spectrum** — Stephen Adams £6.45

Name.....

Address.....

.....

.....QYS

INTERFACE PUBLICATIONS

We're the experts!

QUICK OFF THE MARK

You can tell it's getting near Christmas when the software companies start to announce what might be termed their 'Autumn Collection'. So, with its first major product since the Argus Software takeover, Quicksilva has released five new packages for the 48K Spectrum.

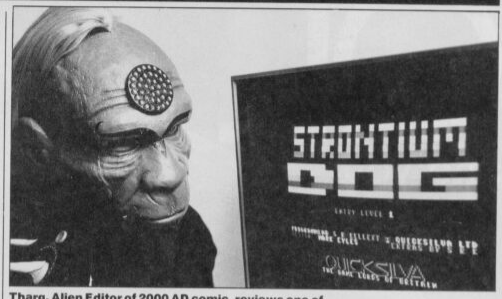
The first game for the Spectrum was one we reported in *Rumbles* some months back — a game based on the IPC Comics character Johnny Alpha, currently battling his way through each issue of *2000 AD*. Called *Strontium Dog and The Killing*, the game seems to be a fairly standard 'shoot-em-up' package.

Next up were *Eric Bristow's Pro Darts* and a game licenced from Atari (and therefore no stranger to the high street arcades) *Battlezone*. Not particularly inspiring packages, but again the *Battlezone* game boasts fast line-drawing routines which, it's claimed, keep the quality of the original game.

Of course the show belonged to Sandy White and his co-creator girlfriend Angela Sutherland for their new package *Zombie Zombie*. The game itself does look just a little bit like its predecessor, especially as it makes use of the Softsolid routines developed for *Ant Attack*. Instead of ants though, this time you've got zombies chasing you all over the place. Before you start getting upset, the game does have some interesting new features which help to make it much more than a cash-in on *Ant Attack*. Not only can you fly around the city in a helicopter — a good trick when you're surrounded by zombies — but, once you've mastered one particular environment, the program offers you the opportunity to redesign the city buildings any old how. The game also offers two-channel sound, and if you want to attach a midi-synthesiser (around £1,200 for the one Sandy was using to demonstrate!) there's a circuit diagram for the interface you'll need included on the cassette's insert.

Almost stealing *Zombie Zombie*'s thunder was a program called *Blood and Guts*, which involves the player being shrunk down in size and having to battle the various diseases inside the human body.

All the Quicksilva packages are priced at £6.95.



Tharg, Alien Editor of 2000 AD comic, reviews one of Quicksilva's 'Autumn Collection'.

ROMANTIC ROBOT
present
MUSIC TYPEWRITER

COMPLETE MUSIC SYSTEM
FOR THE ZX SPECTRUM

MUSIC TYPEWRITER gives you all facilities needed for music making. Using a special keyboard overlay it turns Spectrum into simulated music keyboard and enables you to write, edit, play & store music. Music is shown as played in **STANDARD NOTATION** and can be copied to a printer (see example above). **MUSIC TYPEWRITER** is easy to use even without any music knowledge and is an ideal educational tool for learning music. It's fun to play with for music novices and yet offers a lot even to professional musicians (like full transposing).

It has up to 16 compositions; 6 octave range; treble & bass clefs; two staffs on screen; mast time signatures & note values including dotted notes & triplets; staccato, tenuto; many automated features like tails direction, bar length, use of accidentals; error trapping; on-screen instructions; eight page manual, overlay and much more.

Please send me a copy of **MUSIC TYPEWRITER** at **£ 9.95** each | Y.S.
(European orders please add £1 overseas £2)
Name/Address .....

ROMANTIC ROBOT 113 Melrose Ave, London NW2

malan MAIL ORDER
FOR COMMODORE USERS

JOIN ALBERT BATTERSBY IN HIS SEXUAL FANTASIES AND ADVENTURES IN HIS DESIRE TO ACHIEVE THE ULTIMATE SENSATION

"SOHO SEX QUEST"

Albert is a 27 year old sewing machine attendant from North Yorkshire. He wins a national contest. The prize "A Night With Zelda The First Lady of Soho". What a way to go, but before you get to Zelda's bedroom, you must first encounter the dark and luring parts of soho. If you go wrong the pimps, perverts and police will get you.
Good Luck Albert . . . you'll need it.

£7.50 48K SPECTRUM

"HERPES OR BUST"

It's not a good start I'm afraid Albert . . . you're back at the sewing machine factory and after the thrills of Soho and Zelda, life is all too boring. However, you read in a book of a strange trance you can get into where fantasies. Yes especially sexual fantasies can take you over. It's up to you Albert. First achieve the trance like state and work towards a world of ultimate unreal sexual fantasies.
Will your body stand it? Will your sewing machine ever mean the same?

£7.50 48K SPECTRUM

Cheques/PO made payable to:
MALAN ASSOCIATES
PO Box 390, Purleigh, Essex CM3 6QQ.

Orders processed same day 0621-828763 (24 hrs)
SOLD ONLY TO PEOPLE OVER 18 YEARS OLD

FROM THE HIP



Troubleshootin' Pete Reporting

Pete's phone lines are open from 10 am-1 pm and 2-5 pm on Wednesdays and Fridays. Ring him on 01-631 1433.

It's been a bit quieter on the phones this month — apart from the endless requests for infinite lives POKEs on every game you can possibly think of! (Remember, for those sort of questions it's best to write into our 'Hacking Away' column.)

On the technical side, John Dorset from Ilford (who's getting to be something of a regular customer) rang to complain that his Microdrive had failed him yet again. After having returned the drive to the shop twice already, he was beginning to think the fault lay elsewhere.

The Interface 1 seemed perfectly OK, so what could it be? A simple process of elimination pointed towards the cable connecting the two and this was indeed where the problem lay. A quick cable swop with the help of the nice man from Menzies and all was well again. Next time your drive and Interface refuse to talk to each other, check that the connecting lines *are* actually connected.

Just to bring home the fact that my knowledge of the Spectrum's ROM is next to useless, one caller rang to ask me whether there was a ROM routine which would print the contents of the BC register. A quick glance through Melbourne House's *The Complete Spectrum ROM Dissasembly* didn't help much, so I told him there wasn't one. Of course, the very next day, while reading Interface's *Delving Deeper into Your ZX Spectrum* by Dilwyn Jones, I found the very routine that I'd said didn't exist! All together now, it's 6683d. Well you *do* learn something new every day.

John See from Margate called in simply to ask whether we knew of a high-resolution colour monitor which didn't need adapting for the Speccy. It's an easy answer; there's only one (unless someone out there knows different — in which case drop me a line), the Cub 1431/MZ monitor from Microvitec on (0274) 390011. The Cub, which Microvitec have kindly loaned to us, is used in all our screen shots — so you can see for yourself the quality of the machine.

Just for a change I end this month with a query of my own. Attention all QL owners, how can you control the line width when listing on the printer?

I need my programs to be 40 characters across and not the 80 I'm getting at the moment.

KIDD'S JUMPING FOR KIDS

Martech joined the 'new product' bandwagon at the PCW Show with the release of *The Official Eddie Kidd Challenge*. The general gist of the program is pretty obvious from the title, but more precise details of it go along the lines of a potted history of Eddie's career.

Kidd apparently started off by jumping oil drums on his pushbike when he was 12 years old and progressed to his world-breaking jump of 190 feet at the age of 18. Basically that's the idea reproduced in the game; you start on a BMX bike jumping barrels and work through various stages of difficulty until you reach your limit. The best jump of the game so far is by Eddie himself with 39 cars.

There's a competition tied into the program, the winner being the player who can get the best score by the closing date — and there have been two closing dates set for the would-be entrants, one in October and the other in January. The prizes up for grabs include a BMX bike.

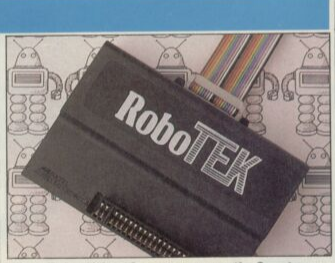
Eddie Kidd's Jump Challenge is available for the 48K Speccy at £6.95 from Martech at Martech House, Bay Terrace, Pevensey Bay, East Sussex BN24 6EE or from all the big high street stockists.

ROBOT CONTROL

If you've got a robot hanging around somewhere in the garden shed just waiting for the day you'll be able to control it with your Speccy, then wait no longer . . . for that day's here.

The Robotek interface allows you to control the motors and servos of your robot so that you can direct the type and duration of movement. Not only that, it should be possible to mount a switch at the front of the robot for sensing obstacles and, with a few lines of Basic, to turn on the robot's reverse motors when it encounters an obstacle.

The Robotek interface is priced at £29.99 post free from Datel Electronics. Unit 8, Fenton Industrial Estate, Dewsbury Road, Fenton, Stoke-on-Trent, or phone up those wise heads at Datel on 0782 273815.



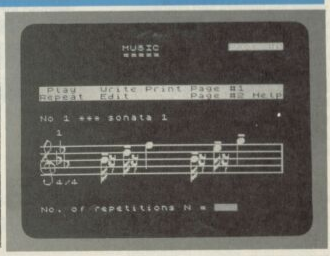
With a Robotek interface you can use the Spectrum to control a robot's movements.

THE FOOD OF LOVE?

Romantic Robot has made available a package called *Music Typewriter*. Priced at £9.95, complete with cardboard overlay for the keyboard, the product is said to be suitable for "music novices with a lot to offer professional musicians".

Designed to get potential musicians writing, playing, editing, printing and storing their symphonies to tape, *Music Typewriter* uses real notation — with graphics appearing simultaneously with sound — and provides the basics of music, such as notation, rhythm, scales and intervals. To give you a chance to get the hang of the package, there are on-screen instructions, error reports and, if you get the whole thing round your neck, 'help' pages. Once you've managed to get composing, there are full editing and transpose facilities.

Keeping up with the keyboard kings of the pop world is still going to be a job and a half — simply because the Spectrum seems incapable of producing a good healthy sound output. But if music's your bag, get in touch with Romantic Robot at 113 Melrose Avenue, London NW2.

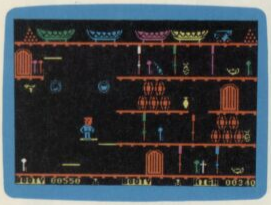


Seeing is

You'll see the difference from the moment you pick up one of the games from Firebird's new Silver Range.

We keep our flights of fancy for the game. On the pack, you'll find there is a true representation of the high quality screen graphics.

Here's a sneak look at three of the NEW games:



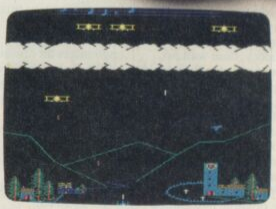
BOOTY

Well shiver me timbers and splice the mainbrace and pass the grog, me hearties. Here be the greatest pirate adventure of them all, aboard that scourge of the Seven Seas – the dreaded Black Galleon. Feast yer eyes on the BOOTY-ful treasure stored in 20 holds. There be pirates, parrots and fun galore. If you don't like it, matey, we'll hang you by the highest yard-arm!!!



THE WILD BUNCH

Blamed for a murder you did not commit, your only hope is to identify and capture the real killer – a member of the notorious gang, The Wild Bunch. But can you also survive life on the run in this adventure set in the Wild West…



BIRD STRIKE

Wing a plane to release a carrier pigeon…shoot the carrier pigeon and add a note to the stave at the top of the screen…shoot enough pigeons to complete the tune (without getting wiped out by the relentless, pursuing planes)…next wave.

Look out for these games in the FIREBIRD silver range at selected high street stores.

SPECTRUM: THE WILD BUNCH · BOOTY · MR. FREEZE · TERRA FORCE · VIKING RAIDERS · MENACE · BYTE BITTEN · EXODUS · RUN BABY RUN ·
COMMODORE 64: BOOTY · MR. FREEZE · EXODUS · HEADACHE · ZULU ·
VIC 20: SNAKE BITE · MICKEY THE BRICKY ·
BBC MICRO B: BIRD STRIKE · GOLD DIGGER · ACID DROPS · DUCK!

believing

There are twenty games now available from Firebird, and that's just the beginning. All the software is produced to the same high professional standards and all are available at the remarkably low price of

£2.50



FIREBIRD

SOFTWARE

The new range from British Telecom. **You'd better believe it!!!**

FIREBIRD SOFTWARE, WELLINGTON HOUSE, UPPER ST. MARTIN'S LANE, LONDON WC2 9DL. TEL: 01-379 6755/5626

Firebird and the Firebird logo are trademarks of British Telecommunications plc.

HACKING AWAY

Welcome to our regular column for hacker's hints and tips. Poke some fun into your programs and write to
Andrew Pennell, Hacking Away, Your Spectrum, 14 Rathbone Place, London W1P 1DE.

To kick off with this month the irrepressible **Dave Nicholls** has sent in some POKEs for *Sabre Wulf*, along with a couple for other games. For those from Ultimate, you have to duplicate the single line of Basic, as it normally loads as line 0, which is un-editable. Add the POKEs just before the PRINT USR command.

They are: *Lunar Jetman* — for infinite lives, do POKE 36966,224 and POKE 36945,3; *Sabre Wulf* — for infinite lives, do POKE 43575,255 and POKE 45520,255; *Tutankhamun* (never heard of this!) — for infinite lives POKE 27783,0 and to enter on any screen do POKE 34970,63, and then press the ASCII for the screen number + 48; and finally, *Tranz Am* — for, guess what, infinite lives, do POKE 25446,0.

Still on the subject on *Sabre Wulf*, **Gavin Beny** and young **Peter Featherstone** both supplied POKE 44929,0, which disables the baddies in the game, so that they only appear when you press Fire. To get an object after this you've got to stand on it and Fire, though you don't have to actually collect anything to be able to see what happens when you finish!

At a recent ZX Microfair I had the misfortune to be accosted by three lunatics who wished to be known as the **Romford Hacketeers**, who gave details of some more alterations for *Kosmic Kanga*, namely POKE 35136 with the height you wish to jump, and POKE 23994 with the number of lives you want to start with — it allows up to 255 lives, no less. They also told me of an interesting feature of *Cavalon* (by Ocean), whereby if you hold down the complete row of keys starting with QWERT and the row ASDF, etc, all at once, the program says 'Hi Chris, what do you want' and you can then jump to any screen. The best ways of holding these keys down is with two rulers, or several cassette boxes. (I have reason to believe that the real identities of two of these guys are Steve and Daz).

Also at the ZX Microfair I bumped into a chap who told me a long time ago about *JSW* having the remnants of TRS-DOS in it, which I mentioned in a previous article though I neglected to give his name, so under threat of death I must mention **Steve** as the source of the fact.

Yet more POKEs have come in for *JSW* — there can't be many left now, surely! Anyway, here goes: **A Wiseman** sent in POKE 37874,0 which makes you collect any object as soon as you enter each room, and POKE 36353,60 which improves your jumping abilities. **M Firby** sent in POKE 36353,44 which makes it much easier to get the object in The Nightmare Room, and **Andy W** (what's with the anonymity Andy?) reveals that POKE 38207,24 removes the dreaded Maria (though you can still see the final effect).

A Wiseman also gave info on two other progs — namely *Wheelie* and *Sabre Wulf*. About *Wheelie* — to get to different levels just press these sequences:

1. ENTER	**5. XENON**
2. WITTY	**6. ZX83B**
3. SHARK	**7. 2MQL3**
4. BEBOD	**8. HRME2**

Regarding *Sabre Wulf*, he told me that you can work out where the Amulets are by looking at the natives — when they are directly in line vertically or horizontally they turn slowly, go yellow and play a tune. That's the sort of useful fact Ultimate would never put in their very brief instructions.

Next month in response to your letters, I'll be explaining how to go about hacking *Chuckie Egg* (among others) and how to get it going with a joystick. If I've not yet covered a game that you've successfully (or unsuccessfully) hacked into, drop me a line to the *YS* office and tell me about it.



On your way round the PCW Show, if it wasn't the sight of Mike Leaman fighting off the hordes as he demonstrated *MegaBasic* that caught your eye, it could've been a series of animated screens especially created for us by *YS* reader Christopher Hester of Basildon, West Yorkshire. Shown above is just one of the five screens in Christopher's display, which was put together using *Paintbox* and *Screen Machine* in tandem over a two-week period.

WILDLIFE AT BOOTS

Microvitec, the people who make the CUB monitor (the one *YS* uses for its screen shots) has just announced that Boots, that great high street institution, are going to stock two of their monitors, including one for the Spectrum.

It's good news for those of you who like to buy equipment 'on the spot'. After that thumbs up, Microvitec get a thumbs down for having three live tiger cubs on their stand at the recent PCW Show; they didn't take too kindly to the noise, crowds and the heat.

ANIROG DELETE SPECTRUM

In one fell stroke Anirog software have deleted all but one of their Spectrum titles and are going to start concentrating on Amstrad and MSX titles.

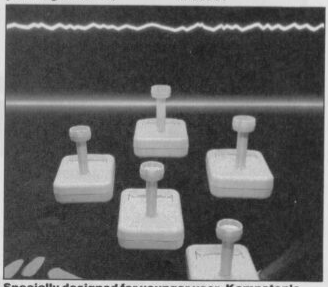
A spokesperson on their stand at the PCW Show said that because of the immense competition in the Spectrum software market they only want to keep their one strong Spectrum title going, *Specgraf*.

The company is looking to establish itself as major competition for Amsoft in the Amstrad market and, among other imaginary pastimes, also want to make a big hit in the MSX scene. If you reckon you're going to miss the software, contact Anirog on 0322 92513.

JUNIOR JOYSTICK

Kempston Micro Electronics, the 'interface-anything' people, has designed a new style of joystick for the infant computer-user. Called the Junior Pro Joystick, it's moulded in bright red and has been released only after extensive market tests.

With a pocket-money price tag of £5.99, Kempston believe it will be a firm favourite for Christmas. They're also doing a package deal of a Junior and a Kempston 5000 Pro Joystick for a total of £14.99. If you're in the market for a Junior or just feeling childish then pop along to your local computer shop or phone Kempston on 0234 856633.



Specially designed for younger user, Kempston's Junior Pro Joystick comes at the pocket-money price of £5.99.

THOUGHTS & CROSSES

37 MARKET STREET, HECKMONDWIKE, WEST YORKS.

Telephone 0924-402337

ALL PRICES INCLUDE VAT AND DELIVERY

COMPUTERS

BBC B.....£399
(Free software £50 + Free)
BBC B with DFS.....£469
Electron.....£189
Spectrum 48K.....£125
(Free software worth £57)
Memotech 512.....£275
Commodore 64.....£189
Oric 1 48K.....£89
Limited number available
Apple IIe with Disk
Drives 2 & Controller.....£985

PRINTERS

Canon PW1080A NLQ.....£305
Canon PW1080A NLQ
+CBL RS232 Interface.....£350
Canon PW1156A NLQ.....£380
Canon PJ1080A (colour).....£399
Canon RS232 Interface.....£80
Epson RX80.....£269
Epson RX80FT.....£299
Epson FX80.....£389
Epson FX100.....£520
Epson DX100.....£475
Brother HR5.....£155
Brother EP55.....£235
Juki 6100.....£375
NEC PC8023.....£210
Shinwa CP80.....£199
Shinwa RS232 + 2K buffer....£54
Commodore 1520 p/p.....£95
Commodore MPS801.....£210
Alphacom 32.....£59
MCP 40.....£119
Riteman A1.....£249
Riteman RS232 Interface....£39
Epr/son RS232 Interface.....£29
Epson RS232 with 2K buffer£65

DISK DRIVES

Sinclair Microdrive.....£45
Sinclair Interface 1.....£45

Pace or Cumana

All with separate PS
100K S/S 40T.....£149
200K D/S 40T.....£173
400K D/S 40T.....£215

Double Drives

200K S/S 40T.....£295
400K D/S 40T.....£329
800K D/S 80T.....£417
800K D/S 40/80T.....£478
3" 200K D/S.....£125
Commodore 1542/10
Torch Disk Pack
with free software.....£800
Memotech Single
inc free software.....£410
Memotech Double
inc free software.....£800
6502 2nd processor.....£195
Z80 2nd processor
inc free software.....£295

Wafpash or 3M Disks

5¼" or 8"
S/S S/D 40 track.....£17
D/S S/D 40 track.....£20
D/S D/D 40 track.....£22
D/S D/D 80 track.....£28
3" Maxwell.....£4.50
3½" Hewlett Packard.....£4.50
Further discounts for quantity.
50 + 10% discount.
100 + 15% discount.

MONITORS

Microvitec 1431MS (std).....£199
Microvitec 1451MS (med)...£290
Microvitec 2031 20".....£299
Microvitec 1451MZ.....£245
Microvitec QL (med).....£275
Philips TP200 Green
Antiglare.....£70
Commodore 1701.....£210
Fidelity.....£210

CASSETTE RECORDERS

Commodore C2N.....£40
Ferguson.....£27.50
Benkson.....£25
Bell & Howell 3179CX.....£39
Panasonic.....£30

JOYSTICKS & INTERFACES

Quickshot II.....£11
Sure Shot.....£15
Slak. BBC Dragon,
Spectrum or Commodore
Pro Ace.....£9
Zip Stick.....£12
Kempston 5000.....£11.50
Cambridge Joystick.....£29
+ interface and program
Kempston Interface.....£11.50
DK Tronics Programmable...£22
DK Tronics Dual Port.....£12
Shure Shot Interface.....£20
First Byte Interface.....£24

DESKS

Opus Model 1.....£110
Opus Model 2.....£130
Opus Model 3.....£130
Opus Model 4.....£110
Opus Model 5.....£150
Opus Model 10.....£200

BBC

Electron Plus 1.....£65
The Key (disk).....£11.50
Replica 2 (disk).....£10.50
Replica 2 (3" disk).....£13
Grafkey.....£8
Grafdisk.....£11.50
Beta-Base (disk).....£22
Beta-Base (3" disk).....£22
Wordwise.....£40
Disk Doctor.....£30
Gremlin.....£30
Caretaker.....£32
B.C.P.L.....£95
Acorn Speech Rom.....£54
View.....£65

P.V.C. COVERS

BBC.....£3.99
Microvitec 14".....£4.80
Acorn Electron.....£2.99
BBC Cassette Rec.....£2.99
Spectrum.....£1.99
VIC 20/64.....£2.99
Epson FX80.....£4.80
Epson RX80.....£4.30
Apple.....£4.50
Apple + Monitor.....£5.75
Seikosha 80.....£3.50
Seikosha 100.....£3.75
Over 40 different covers
available. Phone for
availability and price.
BBC B Hard cover (plastic)£9.90

RIBBONS

Epson MX/FX/RX80.....£6
Epson MX/FX100.....£15
Seikosha GP.....£4.50

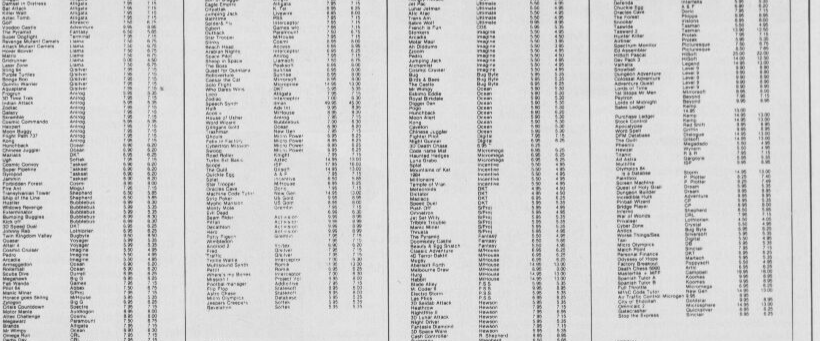
Microline.....£2.30
Anodex...£12.50MPS801...£9.50
NEC 8023.....£7
Canon PW1080.....£11
Canon PW1156.....£11
Epson 100 Refill.....£3.30

LEADS

BBC to Parallel Printer.....£10
BBC to Serial Printer.....£10
RS423 Spin DIN to Spin DIN
.....£4.50
RS232 'D' to 'D'.....£13.50
Memotech Printer Lead.....£10
Dragon to Parallel Printer£13.50
Commodore to Parallel Printer
.....£13.50
Oric to Parallel Printer.....£13.50
Pet to Parallel Printer.....£13.50
Atari to Parallel Printer.....£13.50
BBC to Single Disk Drive....£13
BBC to Dual Disk Drive £16
BBC Single Power.....£5
BBC Dual Power.....£5.50
7pin DIN to DIN & jack.....£2.40
7pin DIN to 3 jacks.....£2.40
5pin DIN to 5pin DIN & jack
.....£2.40
5pin DIN to 3 jacks.....£2.40
Sinclair 48K cassette lead £1.80
RGB monitor (8pin DIN).....£3.20
The Plug suppressor
and RFI filter.....£16
Spectrum on/off switch.....£3.99

SPECTRUM

Spectrum Amplifier.....£10
Light Pen.....£18
Keyboard.....£45



Range of programs available for MTX, BBC and Electron

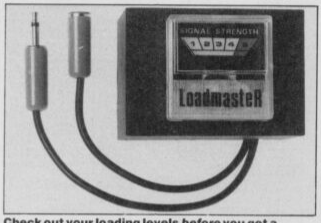
Please order stating (1) Programs required; (2) Computer; (3) Amount enclosed; (4) Name & Address.
All prices include, packing & VAT. Overseas orders welcome.

A LOAD OFF YOUR MIND

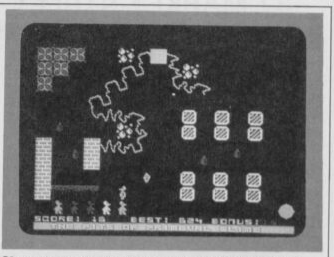
How many times do you reckon you've waited for a tape to finish running, only to find that the program hasn't loaded properly? Next comes the check — are the leads plugged in OK? Then, blast it, you find the volume isn't set correctly, and all because you were playing your favourite *Motorhead* tape the night before!

Well, the Loadmaster Volume Indicator from Probemaster might just sort you out. You simply plug the EAR lead from the computer into the Loadmaster socket, then plug the Loadmaster plug into the EAR socket of the recorder. The Loadmaster now indicates the level being fed into the computer on its meter — the needle undulating as it follows the train of pulses.

The whole package will cost you £11.49 — which is a whole lot more expensive than checking the volume control before you start loading . . . but it's certainly more accurate. Queries should be directed to Probemaster Ltd, 23 Ridgeway, Cuffley, Herts EN6 4BB.



Check out your loading levels *before* you get a loading error using the Spectrum Loadmaster.



Character names seem to be of rising importance in software product identification at the moment, right through from Horace to Willy. Well, Monty seems to be the current vogue right now, for as well as Gremlin Graphic's *Monty Mole* Artic Computing has released a new game called *Mutant Monty*. Featuring the now standard 40 rooms, Monty has to rescue the 'damsel in distress' *(What another one! Ed.)* from various meanies like the dreaded Parellanians and the Quantum Leapies. It's all played against the clock and you have just five lives to fight your way through the Pit Of Eternal Slime, the inside of a neutron accelerator and cross the desolate wastes of Pithor. Priced at £5.95, it should be in the shops soon.

CONCURRENT AFFAIRS

Our man at the PCW Show,* John Torofex, *got out and about to check out the rumours of the moment — here's his report . . .

At long last, it looks as though the QL backlog may have been sorted out. The hard evidence comes in the form of Sinclair Research minions distrubuting QLs to any lucky punters who happened to be strolling around the PCW Show with £399 in their hot and sweaty hands.

I even saw one disgruntled owner wheeling a faulty machine up to the stand to have it replaced with a shiny new one in seconds — there was only a brief altercation between the parties, but I'm sure the publicity wouldn't have done Sinclair Research much good, especially at its first real opportunity to *sell* the machines. I never found out what happened to the punter I saw wearing the 'I've already had two broken QLs' badge though . . .

LISTING THROUGH

If you're feeling LISPless, not to worry — the word is that LISP, the list-processing language frowned upon by the Artificial Intelligence fraternity, has been implemented on the QL. And who should take on this great task? None other than the programmer who developed it for the BBC Micro.

THE FINAL WORD?

Version 'JM' of the QL firmware ('JM' standing for its programmer, John Mathesson, by the way), which is intended to be the final version, appears to have a brand new bug which never troubled the 'AH' version (the one that preceded it, for all you QL watchers). Someone I know who wrote a 68000 assembler in SuperBasic on his 'AH' machine was more that put out to find the program wouldn't run on the latest version.

Chatting to the staff down on the Sinclair Research stand, the aggrieved programmer was first informed that his program was faulty and then — once he'd demonstrated it on an 'AH' machine — was told by David Karlin that he'd be "looking into it". Watch this space for developments.

RUNNING AMOK

Although rumours are emerging that Sinclair Research QL software duplication is done by a number of people running between machines , there's talk of a new wonder-machine being used for this purpose. This specially designed microcomputer-controlled



duplication system will be able to copy many more cartridges at a time from a master cartridge. But don't worry too much about the people it's replacing — apparently, someone still has to put the blank cartridges in and take the loaded ones out . . . the miracle of modern science!

IN GOOD COMPANY

Getting on to some of the other companies caught up in the affairs of the QL, OE Ltd is developing a professional quality modem. Using a single chip, the modem will connect the single baud rate serial port of the QL to the 1200/75 baud rate necessary for Prestel and generate the requisite Prestel frequencies. The device is expected to be able to auto-dial and auto-answer, and includes some very sophisticated software. I wouldn't expect too much change from £200 though.

There's also some news on the software front as well . . . from Computer One of Cambridge. It's just announced an editor/assembler package (partly written in SuperBasic) and a Pascal compiler; Forth is on its way, as is a touch-typing program. Prices are said to be in the £20-30 range. You'll also find an editor/assembler from Metacomco — this one's priced at £59.

68K/OS, an alternative to QDOS, is now available from GST for just under £100. The software is in EPROM and plugs into the expansion port. A switch is provided so that you can select either QDOS or 68K/OS.

In last month's QL Affairs Leon Heller suggested that you could get 8-pin DIN plugs to connect up your RGB colour monitor from Maplin Electronic Supplies Ltd. Well I'm afraid they're the wrong ones. Instead try Videk Ltd, Videk House, 26 Queensbury Station Parade, Edgeware, Middlesex. The connectors are only 40p.

HIRE SPECTRUM SOFTWARE

OVER 280 different tapes for hire including **ARCADE, ADVENTURE, BUSINESS, EDUCATIONAL**, etc. –even an m/c Compiler. **FREE** 26 page catalogue. **FREE** newsletter, with hints, tips and our top tape chart.
OVER 3000 tapes in stock, with up to 60 copies of each title for fast service. All tapes sent by 1st class post.
LOWEST PRICES – hire up to 3 tapes at a time, from 63p each for two weeks hire. (Plus p&p and VAT). European members welcome.
Tapes for sale at DISCOUNT prices. Telephone 01-661 9240 (9am - 5pm) or write for further details, or complete the coupon and **JOIN TODAY** – you've nothing to lose!

SAVE £3.00!!

For a limited period, we are offering **HALF-PRICE** membership to readers of this magazine. Join now, **LIFE** membership is only £3.00 (normally £6.00).

SWOP SHOP

A new service from N.S.L. **SWOP** your unwanted tapes with tapes from other members for a small handling charge of only 60p (plus p&p and VAT)

NATIONAL SOFTWARE LIBRARY

200 Mulgrave Road, Cheam, Surrey SM2 6JT.

I enclose cheque/postal order for £3.00 for LIFE membership. Please rush my membership kit to me. If, within 28 days, I'm not delighted with your service you'll refund my membership fee..

Name _____

Address _____

_____

_____ YS10



COURSEWINNER

The Punters Computer Program

COURSEWINNER allows you to use the power of your computer to get the edge on the bookmaker.

- COURSEWINNER contains a database full of detailed information on all English and Scottish flat courses. The ten leading jockeys and trainers, and effect of the draw is detailed for each course. This information can be displayed on the screen at any time.
- The program analyses these factors combined with the results of the last three outings, starting price and weight carried.
- COURSEWINNER is simple and quick to use, yet very powerful.
- Boxed with detailed instruction booklet.

Price £12.50 all inclusive IMMEDIATE DISPATCH / RETURN OF POST

Available for:
SPECTRUM 48K, BBC 'B', COMMODORE 64, DRAGON, APPLE II/IIe, ATARI 48K.

POOLSWINNER



The Ultimate Pools Prediction Program

- POOLSWINNER is the most sophisticated pools prediction aid ever produced. It comes complete with its own massive database.
- Can be used for Scoredraws, Draws, Aways and Homes.
- The database contains over 20000 matches (10 years league football). It updates automatically as results come in.
- The precise prediction formula can be set by the user. This allows development of your own unique method.
- Package is complete with program, database and detailed instruction booklet.
- Now also for Amstrad, IBM PC

Price £15.00 all inclusive IMMEDIATE DISPATCH / RETURN OF POST

Available for: SPECTRUM (48K), ZX81 (16K), BBC (B), COMMODORE 64, DRAGON, APPLE II/IIe, ATARI (48K).

Available from dealers or direct (return of post) from:

VISA PHONE

selec SOFTWARE

PHONE

37 Councillor Lane, Cheadle, Cheshire. Phone: 061-428 7425

DISCOUNT GAMES CLUB

- ***The most exciting game selected each month for your Spectrum!***
- ***Builds into a challenging and varied collection!***
- ***Satisfaction or your money back!***
- ***Superb FREE arcade-standard game to new members!***
- ***Many other top tapes at 20% discount!***
- ***Only £5.50 per month (plus p&p)!***

running new features, amazing sound effects, brilliant high-resolution graphics, challenging adventure and fast arcade action . . .
These are the qualities our team seeks among the hundreds of new games now available for the Spectrum. Each month we will send you the very best one of all, a ***classic*** of tomorrow . . . and month by month you will build a library of software that will be the envy of your friends!
Included will be spectacular games such as:

Death Chase by Micromega: a desperate chase through the trees on your motorbike, some of the most effective 3D action yet! (16/48K)

Scuba Dive by Durrell: the brilliant new underwater quest for treasure . . . sharks and squids have to be seen to be believed, and the caverns change each time you play! (48K)

Manic Miner by Bugbyte: penguins, man-eating toilets, falling skylabs etc. try to end your subterranean quest for treasure! (48K)

Atic Atac by Ultimate: explore secret passages and fall through trap doors, escape hungry ghouls and vampires, hear the incredible sound effects . . . a great real-time adventure! (48K)

Arcade action, irresistable adventures, true-to-life simulations . . . and due to the savings of mail-order, all for only **£5.50** per month (plus p&p) . . . MUCH LESS on average than you would pay in the shops!

Act now for a FREE game!
As a new member of the Discount Games Club, you can choose a superb, exciting arcade-standard game - ABSOLUTELY FREE!

Satisfaction guaranteed!
As a member you won't waste money on a tape you don't like. If you aren't 100% delighted with your game of the month just return it within seven days for a prompt replacement or refund. And of course, you can stop collecting at any time.

20% OFF extra tapes!
Also, you will be entitled to receive our list of over 300 Spectrum games, a much better selection than in most shops, available to club members at amazing prices; for example Chequered Flag (usually £6.95) **only £5.56,** Birds and the Bees (usually £5.95) **only £4.76,** Alchemist (usually £5.50) **only £3.16** at least 20% off the recommended retail price! **In fact, if you see any of your extra games offered anywhere else for less, we'll refund the difference!**

How to join
Post your coupon today . . . and your first game will be on its way to you by return, but do it now, don't miss this great offer.

DISCOUNT GAMES CLUB
27 Old Gloucester St., London WC1N 3XX

Please enrol me as a member of the Discount Games Club, and send me the best game available for the Spectrum, each month. As a member I will receive a free game and have the chance to purchase a wide selection of others at 20% off recommended retail price. If I am not satisfied, I may return my game-of-the-month within seven days for replacement or refund, and I may stop my subscription at any time. I enclose a cheque/postal order for £5.95 (£5.50 plus 45p p&p) for my first game.

Spectrum memory size K

Name: ..... PLEASE PRINT

Address: .....

.....

.....

A division of Targetpride Ltd., Reg. No. 1789230

FORUM

Is there something you're not telling us? Write to Forum, *Your Spectrum*, Rathbone Place, London W1P 1DE.

THE LUCK OF THE DRAW

I've had a bit of bad experience with a Trojan Light Pen, and I think some of your readers could benefit from my problems.

I purchased the device at the Alexandra Palace ZX Microfair early this year after seeing an impressive demonstration at the Trojan stand. I tried it as soon as I got home and, after loading successfully, tried to use the commands as shown in the instruction sheet. I couldn't get the screen instructions to work at all and, when I eventually managed to get to the Hi-res screen, positioning the pen over the letters on-screen gave no response whatsoever.

I gave the device to one of the brightest hackers we have in the sixth form at the school where I teach and, although he had more success than myself, reported that he wasn't impressed, especially with the DRAW command.

Eventually, I decided to return the device to Trojan, who made no apology for my lack of success, quoting their experience of a 12-year old girl who managed to make it work within 30 minutes. Having recently bought a new TV with a higher resolution, I settled down to try again — and this time found that I could get further. But still, the flickering cursor meant that my drawings were far from accurate.

I doubt if Trojan will take much notice of further complaints from me, but I would be interested to hear how other readers have fared with the device. I would also recommend that other potential purchasers should check out the Light Pen on a TV similar to the one they own before they part with their money.

A Brown, Leighton Buzzard

MANAGING MICRODRIVES

Having recently become the proud owner of a Microdrive, I though I'd let you in on some of my recent findings. On the subject of converting programs to run on the Microdrive, my first attempt was to buy and use *Trans Express* — a beautiful piece of software (and definitely worth having), but it does have its limitations — my success rate at getting programs on cartridge range from five to 20 per cent ... and I still couldn't get my favourite series of programs (the Level 9 adventures) to work with those cunning cartridges.

My next step was to buy the *Lerm MD1*. After getting over the shock of having to read the instruction manual, success started to come my way — so far 100 per cent success. Level 9's *Colossal Caves* now loads off cartridge in 53 seconds (from power-up to first screen). So my advice is, before you buy *Trans Express*, check out *Lerm MD1*.

I also found that my cartridges tended to 'go walkies' in the general mess around my Spectrum. So I took a quick trip into WH Smith's, bought a *Mini Index Box*, threw away the cards and, hey presto — ten cartridges fit perfectly.

Jon McNamara, Bishop's Stortford

HOBBIT HACKERS

I have set up a Hobbit Appreciation Society to exchange hints, tips, interesting happenings, etc, with its members. Membership is free as is the monthly newsletter. Could all correspondence also include an SAE for prompt reply; members should also include as many SAEs as they want newsletters.

I look forward to hearing from you.

Nigel Foster, The Hobbit Appreciation Society, 12 Middlefield Lane, Hinckley, Leics LE10 0RB

KATAPROBLEMS

Help! I typed in your program *Krazy Katapilla* from issue 5 of *Your Spectrum*, but when I RUN it, all I get is 'E: OUT OF DATA, 2550:1'. Where have I gone wrong, I checked my typing and still can't find the problem, please can you explain?

Tom Jenkins, Heaton, Newcastle-Upon-Tyne

There have been a number of calls on the Helpline enquiring about Krazy Katapilla. *There's nothing wrong with the listing in the magazine — as it was checked. But we do appreciate that it's very easy to miss out something or make a simple typing error, particularly in the huge data sections of the program. Your problem sounds as though you have missed out a comma, or a number in the last block of data. Re-check this and you'll probably find the cause. Troubleshootin' Pete.*

MIS-TIMED?

Should Ian Beardsmore buy himself a new watch? Having read his *Crash Theory* (issues 5 and 7) in which he stated that the 64000 display didn't NEW itself for at least half an hour, I decided to check! After entering the CLEAR, the POKE, line 110 and RUN, I started timing; 29 minutes and nine seconds later I was rewarded with my Speccy NEWing itself. So how many minutes are there in Ian's half hour?

Incidentally, while PEEKing around after the NEW, I discovered that the '66' POKEd into 64001 had not been protected by the CLEAR statement as it would with a normal NEW, having been replaced by a zero. Can anyone suggest why?

Patrick Fox, Birmingham

I think you're being a little unfair about Ian's half hour, 29 minutes and nine seconds is near enough half an hour isn't it? As for your last question, the Spectrum doesn't do a normal NEW, it performs a System Reset, which has the same effect as pulling the plug out and then replacing it. Troubleshootin' Pete.

BIGGER'S NOT ALWAYS BETTER

With reference to the article in your September issue discussing the latest model of the Spectrum, I feel I should warn all potential (and current) games designers in your readership of a possible programming difficulty with the new issue 3, mark 5.

As Simon Goodwin mentions, previous versions of the 48K Spectrum have had their memory in two separate blocks of 16K and 32K. But, as explained in my books, *Supercharge Your Spectrum* and *Advanced Spectrum Machine Language*, machine code placed in the lower 16K of the Spectrum RAM runs about 20 per cent slower than code placed in the top 32K bank. Briefly, this is due to the fact that the ULA needs to access the lower 16K to produce the TV display, whereas it leaves the other eight chips containing the top 32K alone.

Now, according to Mr Goodwin, the new machine contains both sections of memory in eight 64K chips and I think this will result in machine code running at the same lower speed — wherever it's placed in RAM. Many programmers, including myself, have in the past taken advantage of the higher speed of the top 32K — so now you know why *Manic Miner* and *Jet Set Willy* start at 32768! — and may find that their games do not run quite as fast as they used to!

Another consequence of the new issue will probably be that previously 'pure' sound effects ('whoopees' and laser blasts) will sound 'rough' due to the ULA, which just won't stop interrupting.

I must stress that at the time of writing I have not been able to obtain a '3.5' Spectrum to confirm this and would therefore be very interested to hear from anyone who has.

David Webb, Woking

CENTRONICS CONFUSION

I'm afraid there's a slight error in the text for the article *Softening Up The Hardware* in issue 6 of *Your Spectrum*. The error was the port address assigned to the Centronics port — the diagrams were correct but the words weren't. The text said that the port address was 'DF' (that's 223 in decimal) whereas it was, in fact, '3F', which is 63 in decimal.

John Flenley, Waterlooville

Sorry about that, folks — but these things do happen. Hopefully, though, it's not too bad to correct — just alter the lines 01040, 01100 and 01260 so that the value in brackets is '63' and not '223'. Any queries you may have on the DIY Centronics article please send to John, c/o Your Spectrum, 14 Rathbone Place, London W1P 1DE and we'll pass them on to him. Ed.

HOT GOSSIP

Thanks for Steven Stratford's excellent *Chip Chat* speechcode programs (*YS* issue 7) which appeared in *Program Power*. Unfortunately, there's an error which crept in somehow that

CURRAH μSPEECH



Speech Synthesiser for ZX Spectrum

The **CURRAH μSPEECH** is ready to talk immediately on power-up, has an infinite vocabulary and outputs speech and ZX Spectrum sound through your TV speaker. There is no software to load with **μSPEECH** — sophisticated Gate Array technology means you can just plug in and start constructing words and sentences like this:
LET S$ = "sp[ee]k [nn][oo] [ee]vl!" will say "speak no evil"! Further commands control the "voicing" of keys as they are pressed, and an intonation facility allows you to add expression to the speech.

μSPEECH is fully compatible with ZX Interface 1 and may be used with the **CURRAH μSLOT** Expandable Motherboard, allowing easy expansion of your ZX system. **μSPEECH** and **μSLOT** will also be compatible with the **CURRAH μSOURCE** unit when it arrives later this year, allowing you to write **Assembler** and **FORTH** statements directly into your **BASIC** programs!

Top selling games like ULTIMATE'S Lunar Jetman feature **μSPEECH** voice output — watch out for other titles from Bug-Byte, CDS, Ocean, Quicksilva and PSS.

μSPEECH is available from COMET, W.H. SMITH, WOOLWORTHS, GREENS, BOOTS, JOHN MENZIES, SPECTRUM STORES and good dealers nationwide — or use the form to order the **CURRAH μSPEECH** — winner of the CTA 'Product of the Year' award 1984.

CURRAH

To: MicroSpeech Offer, P.O. Box 1, Gateshead, Tyne & Wear, NE8 1AJ

Please Supply ..... **MicroSpeech** unit[s] at **£29.95** each incl. VAT & P & P

..... **MicroSlot** unit[s] at **£14.95** each incl. VAT & P & P

Name (please print) .....

Address (please print) .....

..... Postcode .....

I enclose a cheque/PO payable to 'MicroSpeech Offer' value £ .....

or debit my Access/BarclayCard No. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Cardholder Signature YS11

Credit Card Hotline 091 - 482 4683 *Please allow 28 days for delivery. Offer valid UK only*

μSpeech, μSlot and μSource are trademarks of Currah Computor Components Ltd.
ZX, ZX Spectrum and ZX Interface 1 are trademarks of Sinclair Research Ltd.

can be corrected in one of two ways.

Either change the '11984' in line 30 of the Hex loader to 12067 and enter the data as shown, or enter the Hex loader with 11987 (but on data statement 65180, there shouldn't be an '80', only three zeros). Thus, line 65180 should read:

```
65180! 225 201,0,0,0
```

I found the second method to be best, but both work well.
A Husain, Ramsgate

MICKROSZAMITOG-EP — WHO HE?

While on holiday in Hungary, I came across a magazine called *Mickroszamitogep Magazin* (Micro-Computer Magazine). (*Hey, why didn't we get a snazzy title like that. Ed.*) It has advertisements for various home-grown office computers (including an IBM-compatible!) and educational machines. There are technical articles on subjects such as 'The inner workings of a Basic interpreter', 'APL', and some complex 3D graphics.

A *secondhand* Spectrum there costs around £500, but the magazine gives a detailed review of Psion's *Vu-Calc* as well as several listings for the ZX81 — so there must be a few rich people around in Hungary.

There's also a lot of eductional computing material in it, including a major article about computers in maths teaching. The magazine itself costs only 40p for 48 pages — and it's really packed with computing material.

You'll be pleased to hear that it's not by any means on a par with *YS*, especially when read through an interpreter (my father).
Johnathan Frank, Birmingham

PALS OF PASCAL

I recently bought a copy of Hisoft's excellent *Pascal Compiler* for the 48K Spectrum and the increase in speed over ZX Basic is pretty difficult to believe. It's obviously not as fast as assembly language, but have you ever tried to assemble SIN(X/PI*2)+COS(Y)?

The biggest problem I've experienced is a lack of published programs in Pascal. With this in mind I am thinking of starting a Spectrum Pascal Users Group for exchange of programs, procedures and answers to problems. If any of your readers are interested in this idea, they should contact me (especially if they can help in the organisation of such a project).
Frank Hollis, 92 Little Pynchons, Harlow, Essex CM18 7DE

PARANOID POKER

Well, that's really brilliant, isn't it!! OK, I accept your excuses about not giving your poor humble readers those luscious juicy POKEs for *JSW* but then, having at last printed all the info, you do it again! AARRGHH!

I dip my snout into your *Cry of the Wulf* article, only to find ol' Dave Nicholls overjoying himself about the fact that he's found the infinite lives POKE, etc. But do we get to know it? NO!

Ooo, you make me *SEETHE*, you do!

I'm not talking to my issue till it repents and gives me that POKE!
Thomas 'Erauqs' Smith, Lewisham

CODING CORRECTIONS

Nice to see that you've got around to publishing your first 100 per cent machine code game — trouble is, some of your readers might not have noticed that you've transposed two of the lines in the listing — and because you've included such an efficient checksum in the loader, they won't notice until it's too late!

On page 78 (*Program Power*, issue 8 of *YS*), you'll see the line numbers on the Hex listing start with the number 25000. Now look down to line 25184. The next line that should be input is line 25192 — the two lines 25360 and 25368 should be input after line 25352 in the next column after line 25352.

Apart from that, thanks a lot for a great game!
Daniel Mills, Hartlepool

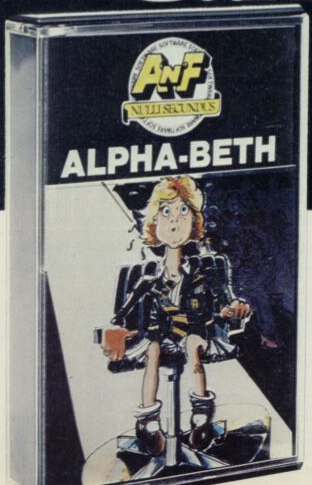
PENNING THE QUILL

I've just read the article about *The Quill* which, although being very good, has four points that I may be able to clarify for other readers.

Firstly, setting up a maze. The way I do this is to have four or five rooms allocated to the maze. Each room has a number so that you can exit from 'room 1' and return to 'room 1', and you can have exits from each room in all directions, ie, North, South, West and so on.

The way out of the maze is a little more difficult; I find it best to structure the

Can you handle
Alpha





exits/entrances so that going N, S, E and W from any location, for instance, exits the maze. You can, of course, even have a letter for your exit code, eg, D, E, W, and then use the letter in a 'help' message.

To make a creature follow your character, you can type:

```
AT 10. ZERO 11. PRESENT 12. SET 14.
LET 5-4
```

as the first entry in status table, followed by:

```
ZERO 11. NOTZERO 13. ABSENT 12.
CREATE 12. MESSAGE "The Rat
followed me"
```

as the second entry in status table. Finally, enter:

```
PRESENT 12. ZERO 5. CHANGE 25.
MESSAGE "The Rat is tearing at my
jugular". SET 18
```

as third entry in status table. SET 18 refers to another entry in the status table which causes a score turn end.

One thing that you didn't mention in the review was how to use BRIGHT and FLASH.

```
E MODE Cap Shift 9 (FLASH on)
E MODE Cap Shift 8 (FLASH off)
E MODE 9 (BRIGHT on)
E MODE 8 (BRIGHT off)
```

I'm not sure just what you mean by 'if A is true or if B is true then move an object from one location to another', but if you have to collect a certain item to complete an adventure, a good way is to 'hide' the object and then create it at a location that would have already been discounted, as in do something in location 100 which would create a 'gun' in location 5. You could do it by entering the following in the event table:

```
PRESENT 14. MESSAGE "THAT MADE
AN IMPRESSION!". PAUSE 50.
MESSAGE "BUT I DON'T SEEM TO BE
GETTING ANY FURTHER".
DESTROY 14. GOTO 5. CREATE 15.
GOTO 100.
```

Tony Bryne, Bolton, Lancashire

HERE WE GO AGAIN . . .

I though I'd write to you and point out some interesting things you seem to have missed in your articles on *Jet Set Willy*.

Firstly, it was suggested that you need to get the invisible object in the First Landing. You don't. The invisible object, which is actually lodged in the wall, is almost certainly another bug in the program. I've heard that you can reach it by jumping off the 39th step of the ladder (could this be a tie-in with the famous book *The 39 Steps?*) but I've not managed to get the blasted thing yet! Perhaps someone out there has managed it?

You're right in thinking that the room called Nomen Luni is a take-off of Imagine's *Zzoom* game — in Latin, *Nomen Lundi* can be roughly translated as 'The name of the Game', Imagine's old catchline. But there's more to this than meets the eye. If you look at the central graphics blocks in this room, you wouldn't be blamed for thinking they gave the impression of the tail end of an aircraft. Now look at the room below (Under The Roof) — can you make out what could be the front end of the plane? Hey presto . . . the joke is that a plane, probably from Imagine's *Zzoom* has crashed into the top of Willy's mansion.

I do admit to being one of those poor souls who, having read the *Jet Set Loony* letter in issue 7's Forum, waited six hours for the raft to appear. Well, I thought it was a joke at the time, but you can never be too sure. You also made a bit of a mess of your WRITETYPER chart by saying that Nomen Luni, The Wine Cellar, The Watch Tower and The Tool Shed can be reached using this method — they can't! You're forgiven this time, but consider your knuckles rapped.

Oh, by the way, my Speccy *does* prefer your Top 20 chart!

David Bailey, Mosley, Birmingham

FAIR ENOUGH?

I just thought I'd write to say thanks for all the programming tips I managed to eke out of Troubleshootin' Pete at the last ZX Microfair back in early September. Unfortunately I didn't have enough money on me at the time to buy one of your T-shirts . . . but if you could tell me when the next fair is being held, I'll be there, cash in hand.

I was a bit disappointed not to be able to buy back issues 2 and 3 of *Your Spectrum*, but was more than pleased to get a sneak preview of *YS MegaBasic*. When's it going to be available?

Stuart Cooper, Andover

Well, to kick off, we'll certainly be making an appearance at the next ZX Microfair — and that's being held at Alexandra Palace on 17-18th November. YS MegaBasic, for all Mike's last-minute additions, is now finished — all we've got to sort out now is the manual to go with it. Ed.

e mind boggling
a-beth?

A super new game from A'n'F that will have you tearing your hair out. She's called Alpha-Beth because she's very bright, but under constant pressure, Alpha-Beth has got a problem that is doubly difficult to find the right answer. **£5.75**

ANOTHER RIVETING GAME FROM A 'n' F

SPECTRUM 48k—Other games available: Chuckie Egg-£6.90, Cylon Attack-£5.75.

Interested?

A'n'F SOFTWARE SOFTWARE SOFTWARE
NULLI SECUNDUS

A&F Software, Unit 8, Canal Side Industrial Estate, Woodbine Street East, Rochdale OL16 5LB Telephone: Rochdale 341111

Why wait any longer?

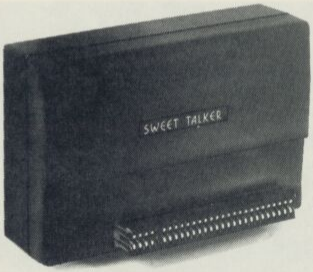
Upgrade your 16K ZX SPECTRUM Now!



The CHEETAH 32K RAMPACK simply plugs into the user port at the rear of your computer and increases the memory instantly to 48K.

- ★ Fully compatible with all SINCLAIR accessories via rear edge connector
- ★ **NO NEED TO OPEN COMPUTER AND INVALIDATE GUARANTEE**
- ★ Why send your computer away and wait weeks for upgrade
- ★ Fully cased tested and guaranteed.

only £39·95
including VAT and P&P.



Now make your Spectrum and ZX-81 Talk

Compatible with Interface I & II

The Cheetah "SWEET TALKER" just plugs into the back of the computer using the existing power supply. Based on an allophone system you can easily program any word sentence or phrase. Fully cased, tested guaranteed and compatible with all SINCLAIR accessories via rear edge connector. Complete with demonstration cassette and full instructions.
No more lonely nights!

Simply incredible at **£29·75**

(Please quote when ordering whether Spectrum or ZX81 owner)

16K RAM Pack for ZX-81	£19.75
64K RAM Pack for ZX-81	£44.75

Prices include VAT, postage & packing. Delivery normally 14 days. Export orders at no extra cost.

Dealer enquiries welcome

Cheetah, products available from branches of

John Menzies Boots WHSMITH Rumbelows
and all good computer stores

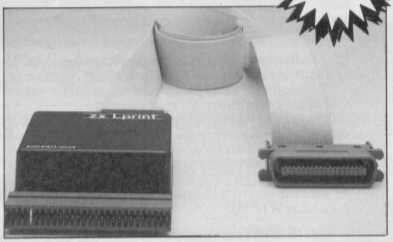
Cheetah Marketing

Cheetah Marketing Ltd, 24 Ray Street, London EC1R 3DJ. Tel: 01 833 4909. Telex: 8954958.

NEW RS 232 & PARALLEL PRINTER INTERFACE for ZX SPECTRUM

Connect to professional printers with this improved and cheaper printer interface.

£34.95 cable £9.95 inc. VAT



ZX Lprint III interface enables your ZX Spectrum computer (16 or 48k) to print on almost any dot matrix or daisywheel printer with RS 232 or Centronics input. Just plug in ZX Lprint III and LPRINT and LLIST commands will work. COPY works without any additional software on Seikosha 100 & 250, hi-res Epsons, Star 510, 515, STX 80, Gemini & Delta, Walters WM80, Shinwa and CTI . . . Plus Seikosha GP 700 in full colour. COPY on other printers coming soon.
And because NO additional software is needed all of your RAM is free to take Tasword 2 or Kemp Business Accounts, Viewfile etc.

- ●WORD PROCESSING
- ●HIGH RESOLUTION SCREEN DUMPS
- ●PRINTS SPECTRUM AND USER DEFINED GRAPHICS
- ●JUST PLUG IN FOR LPRINT LLIST and COPY
- ●COMPATIBLE WITH MICRODRIVES & PRESTEL ADAPTOR

EURO ELECTRONICS

ORDER: To EUROELECTRONICS, 26 Clarence Square, Cheltenham, Glos. GL50 2JP Tel: (0242) 582009

From: Name:

Address:

This order is for: (Quantity)

ZX LPRINT III at £34.95 _____

Centronics Cable at £9.95 _____

RS 232 Cable at £9.95 _____

Tasword 2 at £13.90 _____

Please add £1.45 p&p

Cheques/PO payable to EUROELECTRONICS

Amount enclosed_____
Microdrives adaptor for ZX Lprint I and II £4.50 + 70p p&p

POKER



5.99 inc. p&p

DRAW POKER FOR THE 48K ZX SPECTRUM

- Complete implementation of the classic gambling game.
- You play 1 hand in a school of 5 players.
- Full gambling and drawing facilities.
- Beware — your opponents may be bluffing!
- For the experienced player — but can also be used to learn the game.

De Barron

SOFTWARE LTD.
"BOWIE HILLOCK"
FYVIE,
ABERDEENSHIRE

Name .....

Address .....

NOW 3RD GREAT YEAR!

HIRE SPECTRUM PROGRAM TAPES

HUGE RANGE!
ADVENTURE GAMES
ARCADE and SIMULATION GAMES
BUSINESS and PRACTICAL PROGRAMS
UTILITIES
M/c COMPILERS
EDUCATIONAL
FROM OVER 60 TOP SUPPLIERS

FREE ILLUSTRATED QUARTERLY MAGAZINE WITH TIPS, NEWS, REVIEWS DISCOUNT OFFERS

LIFE MEMBERSHIP £5.00 TAPE HIRE FROM 50P INCLUDING VAT

OVER 3,000 DELIGHTED MEMBERS!

■ The first true software library to be set up in the world—and still the largest ■ Unrivalled tape stock, as you'd expect from our head start ■ Run by a 16-bit computer (**2 million bytes** of program and data on disk!) with the help of six less able but more friendly mere humans! ■ Often imitated (sometimes almost to the letter—flattery indeed!) but never equalled ■ Friendly, helpful service—at the end of a phone it needed ■ **Free** membership of our Discount Club: pounds off peripherals and top-of-the-chart tapes ■ Any loading problems (rare!) automatically credited ■ Shop now open (next to Post Office) for rental and discount sales of tapes and peripherals ■ Branches throughout the world ■ No complicated schemes, no commitment to quantity—rent what and when you like ■ Printed, illustrated magazine "Computerchat" packs in more than any mere typed newsletter ■ Keenest-ever rates ■ ACCESS holders can join by telephone on 0730 892732 ■ **NO RIVAL can offer all this....**

SPECIAL OFFER! YOUR FIRST TWO TAPES FREE
IF YOU USE THIS COUPON!
or send £1 for magazine & details. Props: ALEC FRY ARPS, FRSA and ERNA FRY, BA

To: **SOFTWARE LIBRARY**, Farnham Road, West Liss, Hants GU33 6JU.

NAME.....Machine.....

ADDRESS.....

THE ORIGINAL SINCLAIR LIBRARY!

Special offer from this issue: LIFE MEMBERSHIP £5 (normally £9.50). Overseas (Europe only) £10, or join local branch in W. Germany, France, Holland, Belgium, Scandinavia, South Africa, Ireland—send Int. Reply Coupon and we'll forward your enquiry.

YS

REGARDEZ

LANGUAGE LEARNING AIDS FOR FRENCH, GERMAN & SPANISH

FOR BBC(32K) · ELECTRON SPECTRUM (48K)

As used in numerous schools and colleges these programs provide a highly successful aid to modern language learning. Each cassette contains a sophisticated control program and a comprehensive series of vocabulary lessons which can be used in a variety of self-paced learning and test modes. Words, phrases etc are displayed with all necessary accents and special characters, different colours are used for masculine, feminine and neuter words to assist gender learning.

The programs are suitable for beginners, 0-level and beyond as simple commands enable new lessons in vocabulary or grammar to be created by the user, edited as required, then permanently saved for later use. Invaluable for homework and exam revision!

Two cassettes are available for each language, together these contain a vocabulary of thousands of words; Level A provides 16 lessons in general subjects; Level B provides a further 16 lessons including adjectives, adverbs and fully conjugated verb lists.

Available from your computer store or by mail order Price £9.95
Also Available "ANSWER BACK General Knowledge Quiz" Price £10.95



KOSMOS SOFTWARE

KOSMOS Software 1 Pilgrims Close, Harlington, DUNSTABLE, Beds. LU5 6LX
Telephone (05255) 3942

Please supply the following programs

The French Mistress	Level A @ £9.95 ☐	The French Mistress	Level B @ £9.95 ☐
The German Master	Level A @ £9.95 ☐	The German Master	Level B @ £9.95 ☐
The Spanish Tutor	Level A @ £9.95 ☐	The Spanish Tutor	Level B @ £9.95 ☐
ANSWER BACK Quiz (Senior) @ £10.95 ☐			

I have a BBC/Electron/Spectrum computer (delete as necessary)

Mr/Mrs/Miss.....

Address.....

.....

.....Post code.....

I enclose a cheque/postal order for £_____payable to KOSMOS Software

KOSMOS SOFTWARE
1 Pilgrims Close, Harlington, DUNSTABLE, Beds. LU5 6LX

THE YS TOP 20

View the fruits of your labours in this the November chart. This month's software prizewinner is S E Roberts of Grantham in Lincs. Three software packages are now winging their way north, courtesy of the Post Office.

Don't forget that you can send in your votes every month, but if you don't like mutilating your magazine, a photocopy will do just as well. Fill in those Turkeys as well, December is fast approaching and we're going to have Turkeys for Christmas. (*Who doesn't. Ed.*)

Post your entries to YS Charts, Your Spectrum, 14 Rathbone Place, London W1P 1DE.

YS TOP 20 READER POLL

My top five raves on the Speccy are:

1 _____

2 _____

3 _____

4 _____

5 _____

My three top turkeys for the Speccy are:

1 _____

2 _____

3 _____

Name _____

Address _____

_____

_____

_____

Postcode _____

I understand that when this chart was tested — eight out of ten owners said their Spectrums preferred it. (*What? Ed.*)

YS TOP TWENTY
YOUR SPECTRUM
14 RATHBONE PLACE
LONDON W1P 1DE

YOUR SPECTRUM

YS TOP TWENTY CHART

THIS MONTH	LAST MONTH	MONTHS IN CHART		
1	1	3	**SABRE WULF** ULTIMATE	"YES! I'VE CRACKED IT — THE BEST GAME AT THE MOMENT". **G M & C G SMITH, LOUGHTON.**
2	2	6	**JET SET WILLY** SOFTWARE PROJECTS	MINER WILLY IS MAKING SURE NO-ONE CAN KNOCK HIM OFF THE NUMBER TWO SLOT.
3	5	5	**LUNAR JETMAN** ULTIMATE	MOON MADNESS ON THE FROZEN WASTES IS RALLYING ONCE AGAIN.
4	19	5	**TRASHMAN** NEW GENERATION SOFTWARE	JUST WHEN YOU THOUGHT THE DUSTMAN HAD HAD HIS DAY.
5	7	6	**MANIC MINER** SOFTWARE PROJECTS	GOOD GAMES NEVER DIE. THEY JUST HANG AROUND THE CHARTS.
6	3	6	**ATIC ATAC** ULTIMATE	IT LOOKS LIKE THE SPOOKS HAVE ALREADY REACHED THEIR PEAK AND ARE ON THE WAY DOWN.
7	10	5	**FIGHTER PILOT** DIGITAL INTEGRATION	YOU DON'T NEED A PILOT'S LICENCE TO FLY AROUND THIS GAME — JUST NERVES OF STEEL.
8	NEW	1	**ANT ATTACK** QUICKSILVA	WHERE DID THIS OLDIE SPRING FROM? YES, IT'S ANT-ICS IN ANT-ESCHER AGAIN.
9	6	6	**CHUCKIE EGG** A & F SOFTWARE	FARMYARD FROLICS WITH FARMER GILES IS LOSING ITS GRIP WITH THE VOTERS.
10	NEW	1	**THE HOBBIT** MELBOURNE HOUSE	THIS FAVOURITE SPECCY ADVENTURE IS GAINING IN POPULARITY ONCE MORE.
11	13	3	**LORDS OF MIDNIGHT** BEYOND	THE 32,000 POSSIBLE SCREENS OF THIS UNUSUAL ADVENTURE MAKE IT A SURE-FIRE HIT.
12	14	5	**WHEELIE** MICROSPHERE	RACING DOUBLE-DECKER BUSES AND MANIC HEDGEHOGS IS STILL A POPULAR PASTIME.
13	15	3	**MUGSY** MELBOURNE HOUSE	HAVE 'DA BOYS' BEEN PUTTING THE PRESSURE ON YOU TO VOTE FOR THIS ONE?
14	NEW	1	**MATCHPOINT** SINCLAIR	RELIVE THE PLEASURES OF WIMBLEDON WITHOUT THE STRAWBERRIES AND CREAM.
15	8	6	**SCUBA DIVE** DURELL SOFTWARE	THIS ONE'S SINKING SLOWLY INTO THE MURKY DEPTHS OF THE CHARTS.
16	18	3	**WORLD CUP** ARTIC COMPUTING	AS THE FOOTBALL SEASON COMES INTO ITS OWN, SO DOES THE THRILL OF THIS GAME.
17	NEW	1	**JET PACK** ULTIMATE	BUILD A SPACESHIP THEN TREK THE GALAXY IN SEARCH OF TREASURE.
18	NEW	1	**FULL THROTTLE** MICROMEGA	A NEW MEANING TO GETTING ON YOUR BIKE. TRY AND BEAT THE OTHER BIKERS IN THIS FAST AND FURIOUS RACE.
19	11	6	**CHEQUERED FLAG** PSION	YOU MAY BE STILL TRYING TO BEAT THE CLOCK, BUT THIS RACING GAME'S JUST TRYING TO HANG ON IN THE CHARTS.
20	NEW	1	**KOSMIC KANGA** MICROMANIA	WELL COBBER, YOU'VE GOT TO HELP KANGA FIND HIS SPACESHIP SO HE CAN RETURN TO HIS PLANET.

JOHN HALLET

The ultimate development from

agf



Designed exclusively for the ZX Spectrum, Protocol 4 brings you game control customising in a way that no other interface does. It can accept all commercially standard joysticks, including the Quickshot II with 'rapid fire' or Trackball controllers, and is compatible with ALL Spectrum software. **OPERATES LIKE FIXED OPTION INTERFACES OR CAN BE FULLY HARDWARE PROGRAMMED**

The flexibility of Protocol 4 control is achieved by a specially designed 'CustomCard' system. CustomCards are easily programmed to suit all types of games.

Simply clip in a programmed card for immediate customised control. You can even change or reprogram the cards without affecting the game in the computer so that you can get exactly the responses you want. With the addition of extra cards you can build up a whole library of 'CustomCards' for all your favourite games.

Utilising Hardware Programmed technology you have the benefit of automatic eight direction control, no power-down programming loss, guaranteed conflict-free operation with other peripherals, including microdrives, and no extra software to load or awkward joystick movements and key presses to make each time you load another game. The keyboard remains fully operative at all times.

It is also perfectly possible to connect up to five Protocol 4's on one Spectrum, each programmed separately, for multiple player control — only possible with the hardware programmed design.

Incorporated into the design is a computer Reset button for clearing the computer memory between games without pulling the power plug out.

Fully guaranteed for 18 months, Protocol 4 comes supplied with five CustomCards, ten Quick Reference Programming Cards and complete instructions.



PROGRAMMABLE INTERFACE ROMSLOT INTERFACE II



QUICKSHOT II QUICKSHOT

PROGRAMMABLE INTERFACE

As the first fully hardware programmed joystick interface, this product has become well established over the past year and will accept ALL standard joysticks or trackballs, including Quickshot II with 'rapid fire', for use with ALL Spectrum or ZX81 software — not just those with a joystick option.

* No Software programming required.
* Programming is *not* lost when power is disconnected between games.
* Eight way movement — with or without the fire button pressed — only requires setting of the four normal directions.
* Compatibility is guaranteed with ALL key reading techniques — machine code or BASIC.
* Several interfaces can be separately programmed and fitted to one computer for multiple player games.

Keyboard operation is totally unaffected by this interface, as with all AGF add-ons, and will never conflict with *any* other device fitted at the same time.

Twelve months guarantee, key programming information and a pack of Quick Reference Cards, to speed up setting of the clips, are supplied with full instructions.

INTERFACE II

The AGF Interface II represents the best low cost introduction to joystick control.

The 'AGF' control standard is now offered by over 100 games or utility programs for use with any joystick or trackball.

Any game which is controlled by the cursor movement keys (5,6,7,8) or has a Protek option is also compatible with Interface II.

A rear connector allows other peripherals to be connected at the same time.

This product is available for either the Spectrum or ZX81, is supplied with full instructions, a 12 month guarantee, and a 12½% discount voucher against further AGF mail-order purchases.

ROMSLOT

The new AGF RomSlot is designed for anyone who already owns a programmable joystick interface, or prefers to use the keyboard to control games, and would like to add the facility of ROM cartridge software to their system.

RomSlot will accept the Sinclair range of instant loading games and will also be compatible with the new releases from Parker Software — exciting new games only to be available in ROM format.

This system allows instant play. Your computer memory size is not important and you will be able to play games that could ordinarily require more RAM.

RomSlot incorporates an extra feature called 'Restart'. This allows you to instantly *restart* the ROM game.

RomSlot is guaranteed for 12 months and has a full width expansion connector to accept joystick interfaces, speed units and printers etc.

QUICKSHOT

The Quickshot joystick is an excellent value game controller incorporating suction cups for sure-footed precision with a comfortably contoured handle offering a convenient top firing button as well as one on the base.

QUICKSHOT II

Quickshot II has improved styling with a trigger type firing button as well as the top firing action, with a broader base for greater suction stability.

It also has a unique 'Auto-Fire' facility which at the flick of a switch provides a constant rapid firing action simulating a fast trigger finger.

	PRICE	TICK BOX OPPOSITE REQUIRED ITEM
AGF Protocol 4	£29.95 + £1.00 p&p	☐
AGF Programmable Interface	£24.95 + £1.00 p&p	☐
AGF RomSlot	£ 9.95 + £0.50 p&p	☐
AGF Interface II	£ 9.95 + £0.50 p&p	☐
Quickshot II Joystick	£10.50 + £0.50 p&p	☐
Quickshot Joystick	£ 7.95 + £0.50 p&p	☐
Extra 'CustomCards' (5 per pack)	£ 3.95 inc. p&p	☐
Extra Quick Reference Programming Cards (10 per pack)	£ 0.65 inc. p&p	☐

SPECIFY COMPUTER

I enclose cheque for .....
(total for items required)

My Name .....

Address .....

.....

Send to: AGF Hardware, 26 Van Gogh Place, Bognor Regis, West Sussex, PO22 9BY.
(0243) 823337

There's nowhere else to go

agf

SPECTRUM SPOOLER

Having problems interfacing? Peripherals won't talk to you any more?* Simon Goodwin *has a solution for QL and Spectrum owners throughout the land . . .

This project sets out to cure two major weaknesses of the Sinclair Research QL: first the unorthodox RS232 printer port, and second the lack of multi-tasking when printing (the computer stops dead while data is being printed). The solution costs precisely nothing, so long as you've already got a Spectrum with Interface 1 and a printer. Needless to say large numbers of QL users fall into that category. If you haven't got a Spectrum, perhaps now's the time to mend your ways!

Many QL users own Centronics printers which are incompatible with the new machine's cheap general-purpose RS232 printer port. The Centronics system uses seven or eight data lines, sending 'parallel' data a byte at a time, whereas the RS232 standard uses only one data line, sending characters bit by bit (literally). Obviously this saves transistors for Sinclair Research, but it's also landed many QL users in the unfortunate position of having a posh printer and a posh computer, with no means of making the two talk to one another.

BLACK BOX

There are two ways of getting around this problem. You can either adapt your printer to accept RS232 signals — which usually means that you lose the Centronics interface — or you can buy a 'black box' to go between the QL and the printer thus converting the RS232 data into its parallel equivalent.

Both solutions would be expensive, except that many QL users have already got the right kind of 'black box' languishing in the attic or the garden shed. All you need to convert the data is a trusty Spectrum (16K or 48K) plus Interface 1.

After spending a few weeks poring over the QL manual, I finally persuaded the computer to talk to a Spectrum via the Sinclair Research network. This may not sound like a major feat, but it has apparently defeated hordes of software houses and computer journalists. Indeed, one guru with a 'spy' at Sinclair Research told me there was a 'hardware fault' which prevented the network from working. Luckily, I persevered!

SLAVERY

The programs were tested on version 'AH' of the QL and the network is potentially very fast. A 100K listing can be transferred in about eight seconds giving an extra feature; you can use the Spectrum as a 'slave processor', so that the QL can be used for something else while the file is being printed. This is called 'spooling', an acronym for Simultaneous Peripheral Operation On-Line (SPOOL).

```
 10 CLEAR #
 20 CLEAR 24999
 30 OPEN #4;"n";1
 40 LET m=25000
 50 LET a$=INKEY$#4
 55 IF a$="" THEN  GO TO 50
 60 POKE m,CODE a$: LET m=m+1
 70 GO TO 50
 80 REM End of File
 90 PRINT m-25000;" bytes recei
ved."
100 FOR i=25000 TO m-1
110 LET m=PEEK i
120 IF m=10 THEN  LET m=13
130 LPRINT CHR$ m;
140 NEXT i
```

An early attempt to read data from the QL. The program's very slow as the Basic reads the network character by character.

```
 10 CLEAR #
 20 CLEAR 24949
 30 FOR i=24950 TO 24982
 40 READ m
 50 POKE i,m
 60 NEXT i
 70 RANDOMIZE USR 24950
 80 LET m=PEEK 24983+256*PEEK 2
4984
 90 PRINT m-25000;" bytes recei
ved."
100 FOR i=25000 TO m-1
110 LET m=PEEK i
120 IF m=10 THEN  LET m=13
130 LPRINT CHR$ m;
140 NEXT i
200 DATA 62,1,50,214,92,207,45,
33,168
210 DATA 97,34,151,97,221,34,81
,92,205
220 DATA 230,21,183,40,250,42,1
51
230 DATA 97,119,35,34,151,97,24
,240
```

Using machine code, the printing loop can be accelerated to more than 1K per second — a slight improvement over my first program!

The problem now resolves itself into two parts — first we must move the data from the QL to the Spectrum and store it in the Spectrum's memory, then it must be output, character by character, to the printer.

Use a network or cassette lead (two 3.5mm jack plugs connected together) to join the computers — it doesn't matter which network socket you use. On the QL, three simple statements are needed to send a program listing down the network:

```
OPEN #3,neto_1
LIST #3
CLOSE #3
```

The first statement opens a channel for output to network Device 1 and then the listing is directed to that channel — you could use PRINT #3 to send text or numbers instead of LIST. Finally, the network channel is closed which ensures that the last few characters of the file are sent. Those keen enough can bundle the three statements into a PROCedure called, say, LLIST to save typing them repeatedly. You can output individual lines, or part of a listing, with commands like:

```
LIST #3,10 TO 50
LIST #3,20,310,400
```

At the Spectrum end, things are a little more tricky. You can't use INPUT to read lines from the QL, because the QL uses CHR$ 10 (line feed) to mark the end of each line, rather than the Spectrum's CHR$ 13 (carriage return). This means you have to resort to INKEY$ to read characters, one by one, from the network.

FORGING THE LINK

The first listing shows my early successful attempts at reading data from the QL. An OPEN is used, as normal, to associate Channel 4 with data from the network. Then, INKEY$ fetches characters one by one. These are then POKEd into reserved memory — about 40K of data can be stored on a 48K Spectrum, and 7K on a 16K machine. In the interests of speed, there's no check for overflow.

Once all of the data has been received, the Spectrum stops with an 'End of file' report. You could trap this error, but personally I chose not to, since I use the ZX LPRINT printer interface which requires that you throw a switch to select it in place of the Interface 1. When you're ready to print, type GO TO 80 and the Spectrum prints out the characters it's received, while the QL can get on with other things. If you have trouble typing 'blind' you can add this line to the program:

AUTOMATA U.K.

The Piman's Software House



DEUS EX MACHINA

DEUS EX MACHINA 48K Spec. Kempston Joystick & ZX Interface 2 compatible. The unique new era of entertainment, starring Ian Dury, Jon Pertwee, Frankie Howerd and you, in an animated televised fantasy, synchronised to an incredible stereo soundtrack. There is nothing like it in this world.



PIMANIA

PIMANIA 48K Spec. The Cult Adventure that's for real! Could you be the lucky winner of 'The Golden Sundial of Pi'? Many have tried and failed. Voted program of 1983 by the Computer Trade Association (Joint winner).



PIROMANIA

PIROMANIA 48K Spec. M/C Arcade Style, Kempston Joystick & ZX Interface 2 compatible. Strike a light! Fire your imagination. That bright spark of a Piman is flaming well out to make the residents of Automata Towers the toast of the town! Can you help Walter Hose dampen the Piman's extinguished career and help the inmates give up smoking?



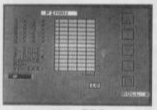
DARTZ

DARTZ 48K Spec. Family fun. This 'arrowing version of your local's favourite game! Includes true life scoring with 'The more you play the more you drink, the worse your game becomes' rule!



PI-EYED

PI-EYED 48K Spec. M/C Arcade Style. Kempston Joystick compatible. The Piman's hit the bottle! Can you help him negotiate the traffic and drink the town dry?



YAKZEE

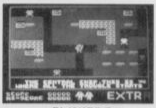
YAKZEE 48K Spec. and Dragon. Family fun. An oriental game of luck and skill for 1 to 4 players, playing between 1 to 4 rounds. Each tape comes with both the Dragon and the 48K Spectrum versions along with a simple to follow guide on how to play YAKZEE.

NEW WHEELS JOHN? 48K Spec. Family fun. Would you buy a used motor from this man? Dare you clock an old banger? Have you ever wondered what it's like to run your own second-hand car lot? Wheel leave the rust to you!



CRUSOE

CRUSOE 48K Spec. M/C Graphic & Text Adventure. Shipwrecked and stranded, on ye remote island, with nothing save a bottle of Granny's patent elixyr, an empty stomach, ye shorts that he stands up in . . and thou. Ye adventure is only just beginning. Can you help him escape ye island's perils?



PI-IN'ERE

PI-IN'ERE 48K Spec. M/C Arcade Style. Kempston Joystck & ZX Interface 2 compatible. 61 screens of action as Burt searches for the elusive bug inside a computer, while keeping out of the reaches of the minor menaces. The program includes Hi-Score, Save and Load facility as well as Replay from last position feature.



OLYMPIMANIA

OLYMPIMANIA 48K Spec. M/C Arcade Style. Currah Micro Speech & Kempston Joystick compatible. For all those who just can't get enough of the Olympics, the Piman stages his own just for you! Yes he's going for gold in the craziest events you've ever seen! Can you set new world records in the Speepichase, Alpi Ski-ing, Pitathlon, Pi-Jump, or even the Butterpi? The Piland International Anthem on the flip side.



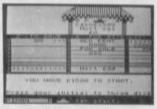
PI-BALLED

PI-BALLED 48K Spec. M/C Arcade Style. Currah Microspeech & Kempston Joystick compatible. Bouncy, bouncy, this fast action game will let you have a ball! Starring The Balls Brothers, Sid the Snake, Jas'n'Col, and your friend and ours The Piman.



MORRIS/BIKERS

MORRIS MEETS THE BIKERS
16/48K Spec. M/C Arcade Style. Kempston Joystick compatible. Morris finds himself abandoned in a multi-storey car park. Help him gather the 10 coins per screen to pay his way out, while avoiding the kamikaze bikers.



GO TO JAIL

GO TO JAIL 48K Spec.
Family fun. A computer property trading game for up to 5 players. Your computer not only acts as a banker, but can also take on the roll of a ruthless player, buying, selling and trading its own property.

BACKCHAT CBM64 Speech Synthesiser. Automata's speech synthesiser comes complete with easy to use Programming Manual and Software cassette containing both BASIC & M/Code programs, so you can now add speech to all your home grown games using BACKCHAT's allophone vocabulary.

ORDER COUPON

CRUSOE ..... 48K Spec £6☐	DEUS EX MACHINA ..... 48K Spec £15☐	PIMANIA ..... 48K Spec £10☐
PI-EYED ..... 48K Spec £6☐	GO TO JAIL ..... 48K Spec £6☐	OLYMPIMANIA ..... 48K Spec £6☐
PIROMANIA .... 48K Spec £6☐		PI-BALLED ..... 48K Spec £6☐
PI-IN'ERE ..... 48K Spec £6☐	MORRIS MEETS THE BIKERS .. Any Spec £6☐	DARTZ ..... 48K Spec £5☐
YAKZEE .. Dragon/48K Spec £5☐	T-SHIRTS State Size ..... Price £5☐	NEW WHEELS JOHN? 48K Spec £5☐
'BACKCHAT' Speech Synth. CBM64 with Software & Programming Book ..... £25☐		Piman's Stereo L.P. Cassette .... £3☐

PIMANIACS CLUB for 20% off all products, PI-Monthly Magazine. Annual Subscription U.K. £5☐ Overseas £7☐

I enclose the right money, or debit my ACCESS/VISA Card. My Card number is .....

Card holders signature ..... *Card holders name* ..... *My name* .....

My address .....

..... *Post Code* .....

NO EXTRAS! *All our prices include VAT and Postage & Package. 24 hr.–CREDIT CARD HOT LINE (0705) 735242.*
Send your order and payment to: **AUTOMATA U.K. LTD. 27 HIGHLAND ROAD, PORTSMOUTH, HANTS. PO4 9DA, ENGLAND.**

SPECTRUM SPOOLER

```
25 LET g=80
```

Then, use 'GO TO g' (all on one key) to start printing. In the printing loop an IF statement is used to convert CHR$ 10 into CHR$ 13. Some printers don't require this.

That listing worked, but it was irritatingly slow — the Basic program read the network character by character, taking ages to read the entire file. The slow speed of the printing loop didn't matter so much, since the QL could get on with other things by that time; anyway, it didn't have much trouble keeping up with the 80 characters per second (with a following wind) of my printer.

SPEEDING

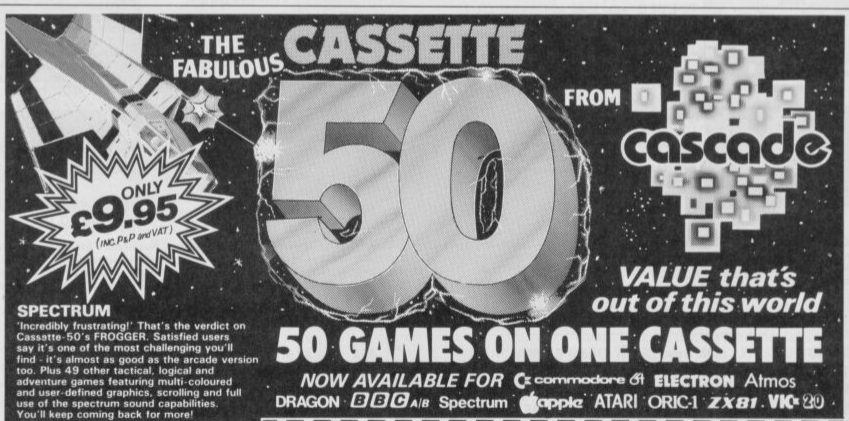
The solution is shown in the second listing, which does exactly the same thing as the first except that it uses machine code to read the network, consequently working much faster. This code reads the network at a rate of more than 1K per second. It keeps the next data address at 24983 and 24984, so that line 80 can locate the end of the data when it has all been received. Once again, you should use GO TO 80 to start printing once the QL cursor has re-appeared.

The machine code assumes that the QL is Net Device 1 (the default). Change the second item of DATA on line 200 if this is not the case, or if you are using a network containing a group of QLs or Spectrums with a variety of device numbers. If you store the Spectrum program on Microdrive under the name 'run' you can set up the spooler by just typing the keyword RUN once the computers are turned on.

This program could save you £50 or more for an RS232 to Centronics converter and it also makes your QL more powerful into the bargain. YS



"If it's so user-friendly, why does it always thrash you at games?"



ONLY
£129.95
INC. VAT & POSTAGE

How much would you expect to pay for a dual 128K fast access storage system for your Spectrum that included Centronics and RS232 interfaces and free word processing software as standard?

Chances are it's a lot more than £129.95. But this is what will buy you the incredible Rotronics Wafadrive unit. There are no extras – this price includes VAT and postage.



A fast reliable dual-drive storage system

Integrated System

The Wafadrive is a complete system which contains the micro interface, two 128K drives, RS232 and Centronics ports, all in one attractively-styled, compact unit. There is a minimum of connecting leads and no extra boxes to clutter the desk top. Like the majority of professional systems, the units are dual drive. This offers the optimum balance between system flexibility and cost. Built-in serial and parallel interfaces allow the direct connection of just about any popular printer.

Fast and Reliable

The Wafadrive achieves very fast loading and saving, but not at the expense of reliability. Extensive research and the use of high grade materials ensure that the Wafadrive will give years of dependable operation. Data integrity is on a par with floppy disk. The fully interchangeable wafers are available in three sizes – 128K, 64K and 16K. Low capacity wafers give faster access. They are therefore most suitable for program development applications. The high capacity wafers are suitable for more general data storage. Loading rate is well over ten times as fast as cassette!

Software

Armed with the comprehensive user manual, blank wafer and word processor supplied, you can use your Wafadrive straight away. There is also a rapidly growing range of software to enable the programmer and games player to exploit the Wafadrive system to the full.

Wafadrive for the 16/48K Spectrum is available now. Versions for other popular home computers are under development.

Send a 16p stamp for a full colour brochure and information on software and accessories.

FOR USE WITH THE SINCLAIR SPECTRUM

YS II 84

Please send me (enter as appropriate):

___	ROTRONICS Spectrum Wafadrive(s)	@ £129.95 each ___
___	16K wafer(s)	@ £3.45 each ___
___	64K wafer(s)	@ £3.65 each ___
___	128K wafer(s)	@ £3.95 each ___
___	Heathrow/Nightflite II (48K: Hewson)	@ £14.95 each ___
___	Space Wars/Seiddab Attack/Luna Attack (48K:Hewson)	@ £14.95 each ___
___	Bear Bovver/Wong's Loopy Laundry/ World Cup (48K:Artic)	@ £9.95 each ___
___	Starbike (48K:Softek)	@ £7.95 each ___
___	The Artist – graphic utility (48K:Softek)	@ £9.95 each ___
___	ZAP machine code development package (48K:Hewson)	@ £19.95 each ___
___	RS232 lead	@ £9.95 each ___
___	Centronics lead	@ £9.95 each ___

All prices include VAT and P&P — TOTAL £ ___

☐ I enclose a cheque/PO* made payable to SMT

☐ debit my Access/Barclay card* account no.

(*delete as applicable)

Signature: ___

Name: ___

Address: ___

Send to (no stamp required): **SMT, FREEPOST, Greens Norton, Towcester, Northants, NN12 8BR**

Please allow 28 days for delivery.

ACCESS VISA

SMT

SUBSCRIBE TODAY... AND SEE WHAT YOU'RE MISSING

Don't get caught without the latest copy of Your Spectrum. Avoid the queues and be the first to have the magazine that's informative, accurate and fun! Just send off the coupon below and mail it to Speccy Subs, Your Spectrum, 14 Rathbone Place, London W1P 1DE.



SUBSCRIPTIONS: PRIORITY ORDER FORM

YOUR SPECTRUM

I would like to subscribe to Your Spectrum. Please start my subscription from the ..... issue.

Please tick appropriate boxes:

☐ One year (12 issues) £12 UK and Eire

☐ One year (12 issues) £15 Europe

☐ One year (12 issues) £25 Rest of the world

I enclose my cheque/postal order payable to Sportscene Specialist Press Ltd for £.....

☐ Please charge my Access/Visa/American Express/ Mastercharge card number .....
(Delete where not applicable)

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

Name .....

Address .....

Postcode ..... Phone no.....

Send the completed form with payment or credit card number to: *Your Spectrum Subs, 14 Rathbone Place, London W1P 1DE.* If you don't want to cut up your magazine, use a photocopy of this coupon.



COMPUTERS AT WORK IN THE VEGETABLE GARDEN????



Here, at last, is a really practical use for the home computer. To ensure optimum utilisation of your plot and avoid that glut of vegetables during some months and nothing at all for others, here is the . . .

VEGA-TABLE

This versatile and easy to use program for the 48K SINCLAIR SPECTRUM computer is designed to help you decide what to have in your vegetable garden and when, where and how much to plant. You have only to divide the plot into manageable sections and then you move around it selecting and positioning crops as you wish. They "grow" before your eyes! You can see immediately if you are planting too close together or wasting space and you are guided into a straightforward 3 year rotation scheme.

You finish your planning with a clear picture (literally) of exactly where everything will be on your plot and a chart giving the date each crop is to be sown, when it should be ready for planting out and the likely harvesting season. You even get an estimate of the yield you might expect.

Stored within the program are details of over 40 varieties of commonly grown vegetables e.g. planting distances, sowing and harvesting dates etc. All carefully researched and verified.

Well worth £6.75 inc. VAT, p&p

Order now from:
VEGA SPACE SYSTEMS LTD.
Dept YS, Waxhouse Gate,
15 High Street,
St Albans, Herts AL3 4EH

VEGA

DOWNSWAY

THE ULTIMATE in computer hardware

SIMPLE TO USE!

fully PROGRAMMABLE for the SPECTRUM

ONLY £25·95!

JOYSTICK INTERFACE

Downsway Electronics (UK) Limited.
Depot Road. Epsom. Surrey KT17 4RJ
tel:Epsom (03727) 27222 tlx:877837 Merit G.
Access/Visa cards welcome.

***Welcome to our regular adventure page. The cast of contributors includes* Clive Gifford, *author of* Adventures For Your Spectrum, Gary Smart *and* Neil Mackintosh *who are all avid adventure fanatics. The Green Goblin is our own* Peter Shaw, *author of* Creating Adventures on Your ZX Spectrum.**

A'VENTURE INTO THE UNKNOWN

Probably the most popular adventure ever created for any home computer is Melbourne House's *The Hobbit*. It's fitting therefore that our first foray will be into this computerised version of Tolkien's classic book.

Most of you will have read (or have found out by other devious means) the art of escaping the Goblin's Dungeon on the shoulders of Thorin. (By the way, Thorin's usefulness is over once he has performed this task — but stick with him in case you get thrown back in the dungeon.) The quickest way to the dragon's domain — and hence the treasure — is via the Elfking's Dungeon, so tarry by the Forest Gate until an elf comes along and throws you in the Red Dungeon. From there, wait until the Red Door is unlocked, go West and hang around until the butler throws the barrel through the trap door; when that occurs, jump on to the barrel and you'll be taken down the river towards Long Lake and the Bard.

THE FINAL STAGES

Once you've reached the village in the middle of Long Lake island, you'll meet the Bard with his bow and arrow. This is the only weapon that can kill the dragon and the Bard is the only person with the strength to use it, so tell the Bard to go North, then follow him. After a while he'll stop at a point where there is no exit in that direction. Tell him to go up, follow him, then continue north.

When you encounter the dragon, tell the Bard to shoot it. This leaves the way open for you to take the treasure from the dragon's halls and escape.

THE LONG WAY HOME

Head south, back the way you came, until you reach the fountain. It's rumoured that there is in fact a way back through the fountain itself — but after spending hours trying, the method still eludes me. The only alternative seems to be to go along the Forest Road. Those of you who have already tried this particular stretch will have realised the difficulty of negotiating it without finding something dropping on your head and stinging you to death. The solution is to wait twice in each location. Once through all that, getting home is pretty straightforward. The adventure is completed by the act of putting the treasure in the chest. YS

Having problems with an adventure? Can't get past the Green Door? Well, the YS *Adventure Helpline will get you through. Just telephone when you're lost, stuck or just plain suicidal. In England and Wales the contact is Gary Smart (0264 59489). In Scotland, try Neil Mackintosh (041 332 2216).*

SHERLOCK

Sherlock the so-called sequel to *The Hobbit* is with us at last. I say 'so-called' because in actual content there's little resemblance between the Middle Earth fantasy of *The Hobbit* and the Victorian setting of *Sherlock*.

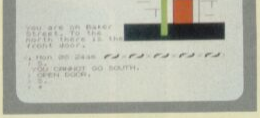
Again, *Sherlock* is an adventure which has yet to be beaten. It's based (of course) around the famous series of books and follows the detail of the Sherlock Holmes mystery stories quite accurately.

The Melbourne House team, headed by *Hobbit* programmer Phillip Mitchell, has made good use of detail and the overall effect is most realistic. From taking a Hansom cab or train from Baker Street (Sherlock Holmes never walked unless he had to), to paying for everything in pounds, shillings and pence, one's taken realistically back to the Victorian streets and submerged in a really impressive adventure setting.

Presumably sheer size and realism have taken their toll of available memory, so the result is simpler than *The Hobbit*, though not by much. *Sherlock* also boasts Animtalk and Inglish. Animtalk is a development that allows the player to converse and instruct the other characters in the adventure — including the amiable Watson, the baffled Inspector Lestrade and a host of 'nasties' (from the humblest housebreaker to . . . no, that would be telling).

Inglish is a more significant development. It allows you to talk to the characters and control Holmes in a language that's far closer to plain English than has previously been achieved with Spectrum adventures. A sentence like 'pick up the note and take the lamp out of the house', or 'open the window quietly with the large stick' will be happily accepted and acted upon by the computer.

Is *Sherlock* as good as *The Hobbit*? I'd say yes and possibly (though further playing would reinforce this) even a little better.



***Sherlock* — an *elementary* program from Melbourne House — looks set to top *The Hobbit*!**

LORDS OF MIDNIGHT

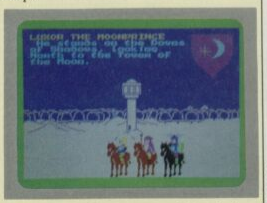
It wasn't that long since computer adventures were solely text affairs. Now there are hundreds that boast total graphics or a hybrid text/graphics name tag.

Now standards are set to rise again with the release of Beyond's *Lords of Midnight* — an adventure featuring a new system of graphic design called 'landscaping'. It may not be what you had in mind for gardening, but with landscaping, *Lords of Midnight* is able to provide some 32,000 different panoramic views. Astounding!

The adventure itself has strong Tolkien overtones. You control four characters, including Luxor the Moon Prince, to defeat the extremely evil Doomark the Witchking. The game is very complex, but always fascinating.

Apart from the landscaping system, the other feature which sets it apart from the rest is the way you control the characters and see the world through their eyes. Each of them must be guided using commands which, unlike the majority of adventures, are given to you — there's no need to search for them in the game. Each character has his own distinctive personality which colours the way each character thinks and helps to determine the options open to you as controller.

Mike Singleton, master adventurer and renowned 'Play By Mailer' has produced a program that, with luck, will start an industry trend towards more complex plots, multi-character interaction and superior graphics. *Lords of Midnight* is a must for all serious adventurers . . . you'll find it a taxing and exciting change from the usual crop.



***Lords of Midnight* uses a graphics designing technique called 'landscaping', which allows some 32,000 different screens!**

IAN McKINNELL

Peripheral perfection



No more fumbling with the game control keys, now you can have joystick control on the ZX Spectrum. The Kempston joystick interface allows all joysticks in the Kempston range (and others that are Atari compatible) to be used with the Spectrum. Simply plugs into the edge connector. No modifications necessary. **ONLY £11.50**



Compatible with ZX Interface 1 the Pro-Interface has three 9-way D Sockets. Two of the sockets allow compatibility with Sinclair/Psion software whilst the third offers the dual facility of both Kempston joystick software and cursor key software. The Pro-Interface also features a cartridge slot for ROM based software. **ONLY £19.95**



Maximum arcade quality features at a reasonable price. Features: ☐ Top fire button for one handed thumb control ☐ Trigger button for one handed index finger control ☐ Base fire bar for left or right handed control ☐ 8-way arcade quality leaf switches ☐ Rubber return action ☐ 1.5 metre cable. Commodore and Atari compatible. See joystick interface for Spectrum compatibility. **ONLY £12.75**



At last an RS 232 interface for the ZX Spectrum allowing connection to any printer which follows the RS 232 protocol. The interface has its own EPROM allowing the use of keywords LLIST, LPRINT and COPY. We recommend the Brother EP44 Printer for use with this interface. Interface complete with cable and connector. **ONLY £45.00**



The ultimate joystick for the home computer. Features: ☐ Ergonomic design and nylon covered steel shaft ☐ 8-way arcade quality leaf switches ☐ Dual fire buttons for left or right handed play ☐ Rubber return action for smoothness ☐ 1.5 metre cable. Commodore and Atari compatible. See joystick interface for Spectrum compatibility. **ONLY £13.50**



The Kempston centronics interface will allow you to utilise a vast range of printers with an industry standard centronics input port on the ZX Spectrum. **Interface E** has all operating commands held in an EPROM, so plug in and its ready to use. **ONLY £49.99** **Interface S** offering similar features as above but software routines are provided separately to initialise the interface before use. **ONLY £35.00**

KEMPSTON MICRO ELECTRONICS LTD

Full details on all our products are available on request S.A.E. please. Most products are available from WH Smith, Boots, Spectrum Computer Centres, good computer shops or direct. All prices include VAT and P & P. Please allow 21 days for delivery.

Kempston Micro Electronics Ltd., Singer Way, Woburn Road Industrial Estate, Kempston, Bedford, MK42 7AF. Tel. (0234) 856633 Telex. 826078 KEMPMI G

Trade Enquiries Welcome

THE COMPLETE MEGABASIC TUTORIAL PART 1

Your Spectrum *presents the first in a series of tutorials on the amazing new language for the ZX Spectrum* — YS MegaBasic. Mike Leaman *details two of its most outstanding features — windows, and the manipulation of character sets.*

Once you've got hold of your very own copy of *YS MegaBasic* (*And that won't be long now! Ed.*), the features that are going to grab your attention first of all are going to be the use of windows on-screen and the ease with which you can manipulate the different character sizes. So, without further ado, let's take a look at the screen output and the commands you'll need to be *au fait* with before you get down to some serious Mega-programming.

FRAMING WINDOWS

A 'window' is an area of the screen to which you can output any characters. This area can be specified to be any size and in any position on-screen. Users can have any number of windows active at any one time, but the normal limit is 10 without involving the use of special memory-saving techniques which I'll detail once you've had a chance to play with *YS MegaBasic* yourself.

If windows are positioned on-screen such that they overlap, you'll find that printing to one window will obliterate whatever's in the other window. For this reason, it's best to plan out exactly what screen layout you're after before you commit yourself. You'll also find that characters scrolled off the top of a window are lost — an indication that the window techniques offered by *YS MegaBasic* are not quite the system you'd expect to find in computers like the Apple Mackintosh ... but then, there's a slight difference in the price of the Spectrum compared to the Mac!

The normal Spectrum can be thought of as having a single window of a fixed size, and associated with this window are the following features — the PAPER colour, the INK colour, the BRIGHT state, the FLASH state, the INVERSE state and the OVER state. However, with *YS MegaBasic*, the Spectrum can make use of up to 20 user-definable windows, each having the following features attributed to them — the character size, the PAPER colour, the INK colour, the BRIGHT state and the FLASH state. The current character set or FONT, the INVERSE state and the OVER state can be said to be features of all 10 windows and so are referred to as 'global' features. It must be noted that the FONT state only has effect when normal and double-height characters are selected; half-width characters use a special predefined character set.

A SIGN OF CHARACTER

Moving on to the character sets themselves, the Spectrum screen under *YS MegaBasic* can be thought of as having 64 columns and 24 lines. This feature allows half-width characters to be used on-screen; half-width characters can be printed in any column of the screen, whereas normal and double-height characters can only be printed at column

SCROLLING WINDOWS DEMO

```
10 CURRENT_4
20 WINDOW_6,0,10,64: PAPER 6: INK 1:CLW_0
30 CURRENT_5
40 WINDOW_0,12,6,40: PAPER 7: INK 1:CLW_0
45 MODE_3: PRINT AT 0,10;"MEGA-BASIC"
50 CURRENT_6
60 WINDOW_16,12,6,40: PAPER 7: INK 1:CLW_0
70 MODE_3: PRINT AT 4,10;"MEGA-BASIC"
80 FOR A=0 TO 255
84 CURRENT_4
90 PLOT 255,88-35*SIN (A/128*PI)
95 PLOT 255,88+35*SIN (A/128*PI)
100 PAN_0,-1
110 CURRENT_5:SCROLLW_-1
120 CURRENT_6:SCROLLW_1
130 NEXT A: GO TO 80
```

Selects window 4.

Selects window 5.

Defines the size and position of window 5, and clears it with white PAPER and blue INK.

Defines the size and position of window 6, and clears it with white PAPER and blue INK.

Selects window 4.

Plots a sine wave.

Scrolls window 5 down one pixel.

The 'NEXT' part of the loop, creating the movement on-screen.

Defines the size and position of window 4, and clears it with yellow PAPER and blue INK.

Prints the message 'MEGABASIC' using double-height characters.

Selects window 6.

Prints the message 'MEGABASIC' using double-height characters.

Sets up a FOR ... NEXT loop (see line 130).

Plots a cosine wave.

Scrolls window 4 one pixel to the left.

Scrolls window 6 up one pixel.

This demonstration creates a central window (window 4) containing a sine and cosine wave moving from right to left. In the top and bottom windows (windows 5 and 6 respectively) the word 'MEGABASIC' scrolls down and up the screen.

positions which have an even number. It must also be noted that although the character resolution has been improved, the colour resolution has not.

The character sets for FONTs 1 and 2 are stored in RAM allowing users to re-define them at will for whatever requirements you may have. Also, characters 128 to 143 are also stored in RAM (the normal Spectrum character set). Thus, it's now possible using the normal method of constructing Spectrum user-definable graphics to obtain up to 229 UDGs — just think of the graphics you'll be able to include in your own Mega-programs!

IN COMMANDS

Before you take a look at the listing I've prepared to illustrate these aspects of *YS MegaBasic*, have a look through the detailed explanation of each of the commands associated with the creation of windows and the manipulation of the different character sets.

Note that when you're looking through the tables of commands that 'n' denotes a numeric expression and 'S' represents a string expression; and expressions shown in brackets are optional. When you're using *YS MegaBasic* commands which require numeric or string expressions, there's no restriction to the complexity of the expression and all standard ZX Basic functions can be used alongside the new ones. YS

THE YS MEGABASIC TOKEN

YOU CANNOT BE SERIOUS....

64-COLUMN TEXT?
THREE-CHARACTER SIZES?
QL-STYLE WINDOWS?
TWO-CHARACTER FONTS?
SPRITES GALORE?
SINGLE LETTER ENTRY?
NAMED PROCEDURES?

... ON A SPECTRUM!!??

Well, if you've read this far you've probably guessed that we're *very* serious! It's all possible — on a 48K Spectrum, with or without Microdrives. All you need is a copy of *YS MegaBasic* ... the inexpensive miracle on cassette. Next month, we'll be providing you with a coupon to send off, pricing details of the package and instructions for what to do with this token (especially if you want to be one of the first to transform your computer into a Mega-Spectrum). Be there next month ... and prepare yourself for the unimaginable — the one and only *YS MegaBasic*!

YS MEGABASIC WINDOW COMMANDS

COMMANDS	COMMENTS
CLW__(n),n	This command enables the user to clear a window in a number of different ways. The numeric expression will usually be in the range '0' to '3', any other number will be taken by the MegaSpectrum to be a '3'. Action taken by CLW depends very much on the value of the numeric expression, as shown below: (0) — The window is cleared, just as the CLS command on the standard Spectrum; (1) — The window is cleared with INK instead of PAPER; (2) — The window is inverted, ie, the INK is turned to PAPER and the PAPER is turned to INK; (3) — Only the attributes are cleared. This final option allows you to change the colour of a window without clearing the contents of the window.
CURRENT__n	This allows the user to select which window is used for output. The variable, n, can be any value between zero and nine; any value outside these limits will result in an 'illegal window' error.
DOWN__n,n,$	This command prints a string downwards in the current window. The two numeric expressions give the co-ordinates from which the string should be printed.
FX__n,n	This is a general command enabling the user to control the way in which the *YS MegaBasic* system operates. FX calls values of '0', '1', '2' and '3', allowing users the option of which windows are used for specific tasks by the system. For example, FX__0,n selects which window is used for command input, FX__1,n decides the window used for automatic listings, FX__2,n selects the window used as the default program output window and FX__3,n decides the window used by the Front Panel. Using each of these FX calls, it's possible to use the same window for all four functions!
PAN__n,n	This command's used to scroll the current window to the left or right, pixel-by-pixel. The first expression defines whether the window is filled with INK or PAPER, and the second controls which direction and by how many pixels the window should be scrolled.
PANW__n	This is similar to PAN, except that the window's contents wrap around; that is, what comes off one side of the window automatically appears at the other side.
SCROLL__n,n	This command is similar to PAN, except for the fact that the window is scrolled up and down instead of left and right.
SCROLLW__n	Again, the equivalent to PANW, except that it controls up and down scrolling instead of movement left and right.
WINDOW__n,n,n,n	This command defines the size and position of the current window. When the command is executed, the position of the cursor is reset to the top left corner of the window. The first two numerical expressions define the position of the window — first the Y co-ordinate, then the X co-ordinate. The second two expressions define the depth and width of the window respectively; if either of these two expressions are zero, you'll get a 'window too small' error. If the Y co-ordinate plus the depth give a window greater than 24 lines, or the X co-ordinate and the width give a window greater than 64 columns, a 'window too large' error will be produced.

YS MEGABASIC CHARACTER COMMANDS

COMMAND	COMMENT
FONT__n	This command selects the character set used for screen output. FONT__0 gives you the standard ZX Basic character set, and FONT__1 and FONT__2 and select between the two RAM character sets. If you use a value of 'n' that's greater that two, then FONT__2 is assumed.
MODE__(n),n	The MODE command enables the character size to be used for printing. If two expressions are specified, the first value denotes the window whose character size is to be defined and the second expression is the character size to be selected. If you use only one expression, it's assumed that any alteration is carried out on the current window. The value of 'n' should be '1', '2' or '3'; any other value given will mean that no characters are printed — quite useful if you want to switch off a particular window.
PRINT CHR$	Character sizes can also be defined in a PRINT statement by use of control codes. Character sizes '1', '2' and '3' are now used to select the character size for the current window, ie, PRINT CHR$; "MEGABASIC" would print the message 'MEGABASIC' using double-height characters.

The above tables detail the commands associated with the construction of windows and the manipulation of character sets.

TT-S: SPECTRUM TOOLKIT £7.95
For the 16 or 48K Spectrum. 5 programmer's programs on one cassette. *"You certainly get your money's worth" (YS Aug 84)*

★ **GAMMA:** A relocatable, microdrive compatible BASIC extension giving improved editing plus 10 new keywords including intelligent RENUMBER and MOVE as well as DELETE, FIND, TRACE, FREE, AUTO and VARIABLES.
★ **SCREEN:** A High resolution drawing utility.
★ **UDG:** A powerful aid to creating user-defined graphics characters.
★ **TAPE:** Reads valuable information from tape file headers.
★ **RAM:** A thorough memory test program.

HI-T: SPECTRUM SCREEN ENHANCER £5.95
Gives the option of using 32 rows of 64 characters each on the screen of a 16 or 48K Spectrum, with text 'windows', superscripts and subscripts and INPUT AT any part of the screen. A fully relocatable microdrive compatible machine code program, integrated with the Spectrum's normal PRINT, INPUT and LIST commands. Invaluable for serious Spectrum users.

BOOKS for the serious programmer;
Exploring Spectrum Basic: ISBN 907892 03 5: £4.95
Explorers Guide to the ZX81: ISBN 907892 02 7: £4.95

ZXS SPEECH SYNTHESISER for the Spectrum or ZX81: £24.99
ZXM 3-CHANNEL SOUND BOX for the Spectrum or ZX81: £29.95

QL CONNECTORS
Joystick adaptor; for use with any standard joystick: £6.00
SER plug with 1 m cable: £3.00
CTRL plug with 1 m cable: £3.00

★★ ORDERS DESPATCHED WITHIN 48 HOURS OF RECEIPT ★★

Prices inclusive of VAT and U.K. P&P. Overseas customers add £1.50 per item for surface mail. Access/Visa accepted.

TIMEDATA Ltd., Dept
16 Hemmells, Laindon, Essex SS15 6ED
Tel: (0268) 418121

Another great idea from
Computerworld

Over 500 Jokes in large text Spectrum 48K. inc P&P
Only £4.95
Also available on microdrive £8.95
WORLD'S FIRST COMPUTER JOKE BOOK

RESET SWITCH BOX
Eliminates hassle. Saves wear. On/Off with LED. Superior box and styled switch.
SPECTRUM/ORIC/ATMOS
£4.49 inc P&P

For every £5 you spend at **Computerworld** we'll give you a free entry number for our **Grand Competition.** Your chance to win the Micro prize of your dreams could be **10 to 1** or better.
OVER **£1000** IN PRIZES in our **GRAND** COMPETITION

SPECTRUM Small Business Systems
From Only **£550**
An amazing all-in package including micro, printer, leads, microdrive & software.

Ask in your local Computer Shop or direct from **Computerworld.**

WE RECOMMEND DINERS CLUB INTERNATIONAL

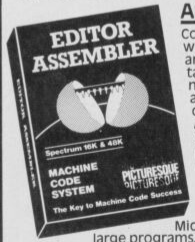
Computerworld
208 Kent House Road, Beckenham, Kent BR3 1JN
Telephone: 01-778 0479

The Key to Spectrum Machine Code Success.

Picturesque's MACHINE CODE SYSTEM is used and recommended by professional software writers, yet the excellent documentation and the friendly, easy-to-use programs have been highly recommended for beginners.

You will only buy one Machine Code System, so buy the best, the one the professionals use.

NEW IMPROVED PROGRAMS — MICRODRIVE COMPATIBLE



ASSEMBLER

Completely self-contained with its own line editor, giving an easy-to-read 40 column tabulated listing. Auto line numbering, line renumbering and auto tabulation make this one of the fastest and easiest Assemblers to use. 5-character label names. Decimal, Hex or ASCII constants. SAVE/LOAD/VERIFY both the listing and Machine Code to cassette/MICRODRIVE/NETWORK. Assemble from cassette or Microdrive into memory for very large programs. Customise to most Centronics printer Interfaces, or RS232 (with Interface 1) for 80 column printout. FAST ASSEMBLY — 1k of code in 7 seconds. Assembler Directives:— ORG, END, DEFB, DEFW, DEFM, EQU, DEFL. (Microdrive and Centronics facilities only operate with 48K machines.)

£8.50
INCL. VAT & P&P.



MONITOR

The ideal tool to help the beginner get started, yet it contains all the commands for the experienced programmer to run and de-bug machine code programs. Inspect and alter memory contents in Hex or ASCII. Breakpoints and full Register display. NOW WITH SINGLE STEPPING through RAM or ROM. Disassemble any part of memory, RAM or ROM. Dec-Hex-Dec number converter. Printer output to ZX printer or via RS232 (with Interface 1) or customise to most Centronics printer Interfaces. General memory management commands include Hex dump, Insert, Delete, Fill and Move. Can reside in memory with the Assembler (48K machines only) to give a complete Machine Code programming system.

£7.50
INCL. VAT & P&P.

Programs supplied on cassette with option to Save onto Microdrive (cartridge not supplied.)

Existing owners can obtain the new programs by returning the **cassette only** to Picturesque, along with a cheque/PO, for **£1.50 per program** (inc. VAT & P&P). New cassettes will be supplied by return of post.

Available from the "SPECTRUM" chain of stores, branches of John Menzies and all good computer shops, or by mail order by sending cheque/PO to:
PICTURESQUE, 6 Corkscrew Hill, West Wickham, Kent, BR4 9BB. Send SAE for details.

PICTURESQUE PICTURESQUE PICTURESQUE

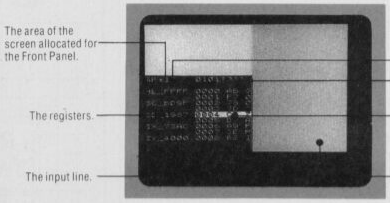
Being given a deadline for a piece of software that's taken me over a year to produce, I couldn't resist adding a few final touches to make it last just that bit longer in the marketplace ... and also to make it more user-friendly!

You may have noticed in this month's tutorial a brief mention of the Front Panel. Well, to explain that a little, the Front Panel allows the user to get to the heart of the Spectrum — the Z80 processor itself. Thus, you can easily alter the contents of the registers and alter the way the Spectrum operates.

Entering the Front Panel using the command 'MON' (or pressing the Space and 'F' key together) produces a display showing the current piece of memory in yellow and the registers in cyan. At the bottom of the display is a green cursor which the user can use to enter bytes into memory by typing their values in hexadecimal. Each time a value is entered, the current memory location is advanced by one or, if a change isn't needed, you can just press Enter. Stepping back through memory is just as easy using the minus key.

As well as entering bytes into memory, users can also make use of other features using the single-letter commands shown below. If you make a mistake, not to worry, any command can be aborted simply by pressing the Space key. YS

Note that in the table on the right, the variable 'n' represents a hexadecimal number.



Once called on-screen, the Front Panel appears in the Input window of the layout.

MEGABASIC FRONT PANEL COMMANDS

COMMAND	COMMENT
I n,n,n	Fills a block of memory with a certain value.
J n	Calls a machine code routine at the address specified by the user.
L n,n,n	Moves a block of memory from one location to another.
M n	Sets the current memory location to the address specified by the user.
P	Advances the current register pointer.
R n	Enters a value into the current register.
S	Sets a 'break-point' at the current memory location. (A 'break-point' is a piece of machine code which transfers control to the Front Panel; so if you set a break-point at a certain address, when the processor reaches that address the Front Panel will appear.)
U n	Recovers the break-point. This command restores the machine code which was over-written by the break-point code.

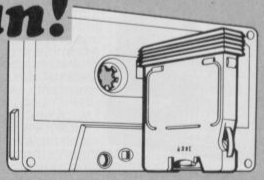
campbell systems for spectrum 48k

Can YOUR Database Handle This?

With MYRMIDON'S Micro-Print © up to 51 columns!

PROFESSIONAL FILE MANAGEMENT, DATA RETRIEVAL AND PRESENTATION ANY ADDRESS LISTS, INVENTORY, CUSTOMER OR PERSONNEL RECORDS...

MASTERFILE can!



Microdrive commands included; 32, 42 or 51 characters per line!; 26 fields per record; Unrestricted number of records; 36 user defined Display/Print formats; Fast search & sort facilities; Around 32K of RAM available for data!

Now with MF-PRINT and MASTERFILE version 09, you can format your data for a full width printer!

Works with most popular printer interfaces. Fully variable report widths (over 100 columns) and lengths. Powerful numeric editing and column totals. Almost no reduction in space available for data. *Many more products available. Send SAE for details!*

MASTERFILE version 09	£15.00
MF-PRINT	£ 6.95
MASTERFILE with MF-PRINT	£19.95

All programs mailed 1st class by return. Prices include VAT and postage within Europe.

New Address: Campbell Systems (Dept.YS) 57 Trap's Hill, Loughton, Essex. IG10 1TD. England 01-508 5058

CS

SEE-SAW

COMMODORE 64
Turbo load
£7·95



COMMODORE 64
Turbo load £7·95 each

QUICKSILVA

A GAME OF STRATEGY THAT WILL TEST YOUR MIND TO THE LIMIT!

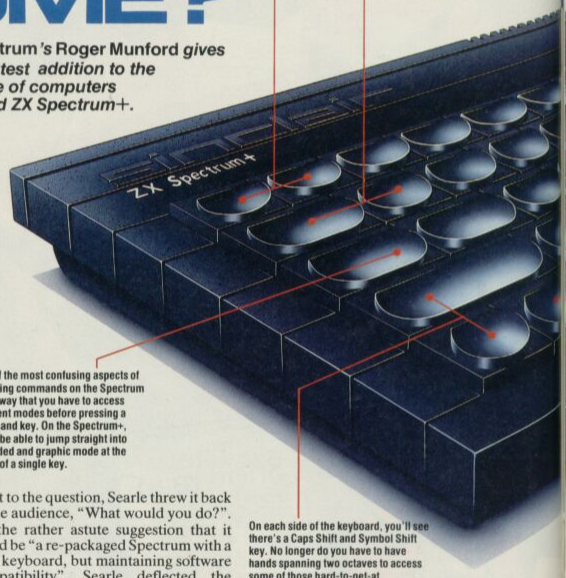


The Evil Castle Lord has trapped the members of the brotherhood in his castle. Only you, the Grand Master, can rescue them, but to do this you must vault the castle walls and unlock their cells...

All titles available from Quicksilva Mail Order, PO Box 6, Wimborne Dorset BA21 7PY. Tel (0202) 891744.

THE SHAPE OF THINGS TO COME?

More than just a rumour ... Your Spectrum's Roger Munford gives you a sneak preview of the latest addition to the Sinclair Research range of computers — the soon-to-be-released ZX Spectrum+.



The video functions have been pulled out on to separate keys to make these controls more accessable.

Another annoying consequence of squeezing so many functions on so few keys of the Spectrum is that editing and deleting program lines can be quite tricky. With separate keys to carry out these functions, the whole process becomes much easier.

One of the most confusing aspects of selecting commands on the Spectrum is the way that you have to access different modes before pressing a command key. On the Spectrum+, you'll be able to jump straight into extended and graphic mode at the touch of a single key.

On each side of the keyboard, you'll see there's a Caps Shift and Symbol Shift key. No longer do you have to have hands spanning two octaves to access some of those hard-to-get-at commands.

This time last year, the spicier rumours around town concerned the identity of the new machine Sinclair Research was keeping very close to its chest. Speculations ranged from a complete re-design for the business market (which it turned out to be) to an upmarket Spectrum re-package, complete with Interfaces 1 and 2 and Microdrives (which also played their part in the QL's design). However, once the QL was launched, all thoughts of any other machine were lost in the press attention that followed ... until now.

ON THE PLUS SIDE

Your Spectrum has good reason to believe that Sinclair Research will be launching a new machine to hit the market just before Christmas. Called the Spectrum+ (Plus), the computer will look a little like a QL, only not quite so big, incorporating a QL-like keyboard — complete with Space bar, separate cursor keys, left- and right-hand Shift keys, additional command keys, and a membrane beneath the keyboard.

The first signs of any future development was the announcement that Sinclair Research would be "doubling production of the Spectrum ... allowing production to ramp up to over 200,000 units per month by the end of the year" (as reported in *YS Frontlines* issue 7). OK, so we know Sinclair Research has cracked the foreign computer markets of late ... but 200,000 per month?

At a recent 'selected' press meet, Managing Director Nigel Searle was up against a barrage of questions as to what announcements Sinclair Research would be making — just what was its next computer going to look like? Sensing no real meat to the question, Searle threw it back at the audience, "What would you do?". To the rather astute suggestion that it could be "a re-packaged Spectrum with a new keyboard, but maintaining software compatibility", Searle deflected the remark skillfully with another question, "Why would we want to do that? The Spectrum's already a successful product — this new machine would cost around £149/159 ... does that seem to make commercial sense to you?". After much wise shaking of heads from those assembled, the idea was dismissed as ridiculous.

But it's not that ridiculous when you *really* think about it. OK, the Spectrum's an old product — in terms of computing, it's positively ancient! But that's not to say that it's out of date — the Spectrum is still extremely good value for money and the support it has from software and hardware companies is unbelievable — and that's over two years *after* its launch.

Think back to the press release announcing the production figures for the Spectrum — 200,000 per month by the end of the year. Now cast your eyes over the illustration we've constructed of the Spectrum+; the casing for it is very similar to that of the QL, so presumably the equipment to manufacture it would only have to be slightly tailored to suit the new machine's dimensions. Is it all beginning to make a bit more sense? Yes, it seems that Sinclair Research could be

The Break key will assume the role previously sited on the Space Bar. Sensible positioning of this key will not allow the user to press it accidently.

The Spectrum+'s keyboard will be a full-size QWERTY layout, complete with a membrane beneath the keyboard itself to protect the circuit board. It's quite possible that, like the QL's keys, an audible click will signify a key making contact.

The Enter key has been enlarged à la QL. Those used to a conventional typewriter-key layout should be dancing in the aisles.



The Space Bar has been made into a reasonable size for those amongst you wanting to use the machine for serious applications like wordprocessing.

Separate cursor control keys, for use in games and the like.

Here's where a touch of mystery comes in — we at *YS* can't think what these keys could be for. However, logic dictates that they could be duplicates of the most popular keys, such as separate Load, Save and List keys.



in the position to not only announce the Spectrum+ over the next few weeks, but also to have some of the devices available for sale *immediately!*

NOT ON SHOW

The rumours of the new machine were strongest at the PCW Show, where an announcement was supposed to have been made. But the show passed without comment and it is left for Nigel Searle to make the final contribution, "I can't comment on the possibility of a new machine — but I can promise you the Spectrum, *in whatever form*, will be with us for many years to come." Searle also mentioned the possibility of TV advertising, supposedly over the pre-Christmas period, which will be used to promote Sinclair Research products. Could this be a hint that it's for the Spectrum+? Watch this space for further developments... YS

SPECTRUM+ SPECIFICATIONS

DIMENSIONS
Width 320mm
Depth 150mm
Height 50mm (at back)
40mm (at front)

CPU

MEMORY CAPACITY AND SPEED
16K ROM (containing Basic interpreter and operating system)
48K RAM
3.5 MHz

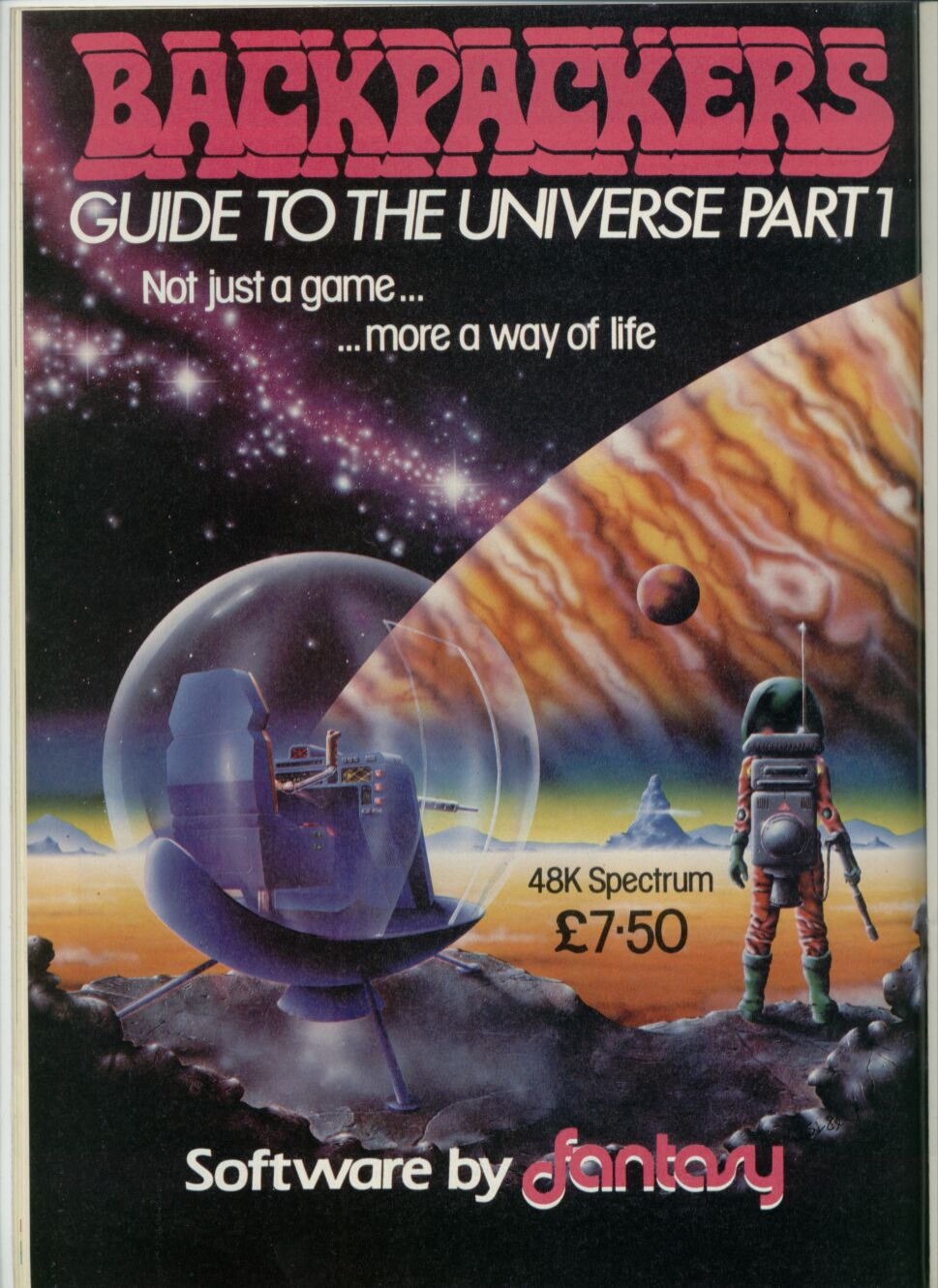
SCREEN CHARACTERISTICS
The screen comprises 24 lines of 32 characters. Bit-mapped graphics with resolution of 256 x 192. 16 pre-programmed block graphics. 21 user-definable graphics characters. Eight colours (plus FLASH, two brightness levels and an independent Border colour.)

INTERFACES AND PORTS
System bus connector. (From the information available to *YS* it would seem that the Interface 1 unit will need substantial re-design to connect to the Spectrum+.)
Sockets for cassette storage and TV.

LANGUAGES
ZX Basic and Z80 assembly language.

KEYBOARD
58 moving-key membrane QWERTY layout (à la QL). All keys have auto repeat. Although the majority of the Spectrum+'s keys can each access up to eight separate functions (using a similar Shift system to that used by the Spectrum), the Spectrum+ has a number of command-specific keys to ease accessability; these include separate cursor keys, left- and right-hand Shift keys, Edit, Delete, Inverse Video, True Video, Break, Extended Mode, Graphics Mode, as well as a much larger Space Bar. There's also the possibility of separate List, Save and Load keys.

DOCUMENTATION
The Spectrum+ will come complete with a new manual, containing a guide to the computer's operation and an introduction to ZX Basic. There will also be a 'Horizons+' tape for first-time users to get the hang of manipulating cassette-based programs.


BACKPACKERS
GUIDE TO THE UNIVERSE PART 1
Not just a game...
...more a way of life
48K Spectrum
£7·50
Software by fantasy

CHEETAH COMPETITION



In association with Cheetah Marketing and Cheetahsoft, Your Spectrum brings you a wordsquare competition with over £800 of prizes for the ZX Spectrum.

Here's a competition that everyone can enter — simply because we've split the entrants into three age groups: 12 years old and under, 13-18 years old, and 19 years of age and over. So, there's no excuse this time — if you think you're too old for competitions, you're just going to miss out!

HOW TO ENTER

Here, you'll see a 15 by 15 wordsquare and beneath it, 40 words relating to the world of Sinclair Research. All you have to do is to circle words in the wordsquare that are also in the list as well and make a note of the number you find; remember that the words can also be spelt backwards, diagonally and upside-down!

Once you've found as many words as you can (you won't find all of them because there are a few that've been thrown in to confuse you), fill in the form below with your name and address, age group and the number of words you've discovered and send it off to *Cheetah Competition, Your Spectrum, 14 Rathbone Place, London W1P 1DE. Also,* please put the number of words that you've found in the wordsquare on the back of the envelope as this'll help us find winners quickly — and get your prizes to you faster as well!

WHAT YOU'LL WIN



There will be two outright winners from each age group and these lucky lads or lasses will win a Cheetah RAT— the infra-red joy stick that's compatible with all Kempston and Cheetah RAT games. The two second prize winners from each group will win themselves a Cheetah Sweet Talker each — the speech synthesis module comes with full instructions on how to convert your Spectrum into a right old chatterbox! There are also two third prize winners in each group and these will take away copies of Cheetahsoft's latest games — *Perils of Bear George, Dragon Fire* and *MoonSweeper.* Finally, there'll be 14 runners-up for each age group, and these will win either *Conquest* or *3D Bat Attack* — two of Cheetahsoft's classic software offerings.

So, what are you waiting for? Pens and pencils at the ready and go for it . . .

RULES

- *Entries for the Cheetah Competition will be divided into three age groups, with ages taken as of 31st October 1984.*
- *In each age group, the Editor's decision is final and no correspondence will be entered into.*
- *Each entry form must have the number of words found written on the back of the envelope.*

CHEETAH/YS WORDSQUARE

B	U	S	C	Q	Y	C	O	M	P	U	T	E	R	W
A	E	R	A	T	Y	R	U	H	A	T	E	E	H	C
U	I	O	S	O	P	D	O	A	S	D	P	F	G	H
D	H	J	S	M	A	R	O	M	J	E	V	I	R	D
E	J	R	E	K	L	A	T	T	E	E	W	S	K	L
G	L	Z	T	Q	X	G	C	W	V	M	T	B	N	M
R	A	T	T	M	Q	O	S	P	E	C	T	R	U	M
O	K	Q	E	W	E	N	Y	I	E	C	R	T	O	T
E	C	Y	U	I	O	F	N	O	N	P	I	A	S	P
G	I	D	M	O	N	I	T	O	R	C	X	S	F	H
R	T	H	M	J	K	R	A	L	Z	C	L	Z	A	V
A	S	E	X	B	N	E	X	P	I	H	C	A	T	B
E	Y	N	P	M	E	C	A	F	R	E	T	N	I	Q
B	O	E	R	A	W	T	F	O	S	E	T	Y	B	R
R	J	T	T	A	T	E	E	R	A	W	D	R	A	H

RAT
DRAGON FIRE
CHEETAH
BIT
SOFTWARE
TAPE
SYNTAX
PORT
ROM
QL
SWEET TALKER
BEAR GEORGE
SPECTRUM
JOYSTICK
PROGRAM
DRIVE
BYTE
RAM
COMPUTER
ZX
BAT ATTACK
MOONSWEEPER
INTERFACE
CASSETTE
MONITOR
BUFFER
BUS
MACHINE
CHIP
CARTRIDGE
CONQUEST
SINCLAIR
PROGRAM
HARDWARE
MEMORY
BASIC
EPROM
CLIVE
BAUD
CP/M

Name .....

Address .....

.....

.....

..... **Postcode** .....

Age Group
(please tick) ☐ 12 or under ☐ 13-18 ☐ 19 or over

Number of words found .....

Complete the wordsquare coupon and send it to: *Cheetah Competition, Your Spectrum, 14 Rathbone Place, London W1P 1DE.* And *don't* forget to write the number of words you found on the back of the envelope.

If you don't want to deface your issue a photocopy of the form is acceptable.

THE GREAT SPACE




RACE
MOVI SOFT 2

MANIC MIMICRY

MIMICRY
MIMICRY
MIMICRY
MIMICRY
MIMICRY
MIMICRY

Could it be that there are too few original ideas coming out of UK software houses?* Ross Holman *examines three new releases* — Astronut, Frank N Stein *and* Monty Mole — *and draws the inevitable conclusion ...

In the current post-*Manic Miner*/*Jet Set Willy* depression, many software companies seem to be striving to emulate the success of these two games, resulting in a number of semi-clones appearing recently on the market. Of the three games reviewed here — *Astronut, Frank N Stein* and *Monty Mole* — all the clichéd elements can be found, ie, little jumping figures, platforms, and collecting objects while avoiding the nasties.

I'm sure that the companies themselves had no intention whatever of the games bearing any resemblance to other packages. But, having said that, it does seem that effort, conscious or otherwise, has been made to identify the addictive or attractive elements in already published software — such as the collection of objects, pixel graphics, colourful screens and figures leaping around a series of platforms. Throw these factors into a computerised melting pot and hope that something playable comes out.

Maybe what the software houses fail to realise is that originality is a very important 'success' factor in any new package. A new version of *Defender* may still sell well, but too many variations on a theme and it's surely doomed to failure. Even Matthew Smith realised that *Jet Set Willy* had to be very different from its predecessor — just take a look at the increased size of the game, the 'move anywhere' ability and those wonderful ropes.

The novelty value of a game and the comparative standard of the coding at the time of release are also important factors — most games players look back fondly to the days of the first copies of *Space Invaders* and the excitement generated by the first 48K arcade adventures like *Time Gate*, but they certainly wouldn't fork out hard cash for them today. You only have to take a time-trip back a few months to remember the furore created when *Sabre Wulf* was released, mainly due to its similarities to *Atic Atac* — but try booting up *Atic Atac* now and you may be surprised (I certainly was!) to discover it wasn't quite as good as you'd remembered.

Producing an original game these days must be very difficult, especially as so many of the good ideas have been used. Also, it must be noted that, despite my criticism of the three games here being just a little reminiscent of others, it may well be that Matthew Smith himself had a good look at a game called *Miner 2049'er* before he buried himself in machine code to produce *Manic Miner*. The difference is, of course, that he turned a good idea into a brilliant one, with lots of original implementation based on his own ideas.

It's the originality and complexity of UK software that makes it so good, and I hope we see more and more excellent material being produced for 1985.

ASTRONUT
SOFTWARE PROJECTS

Astronut is produced by the same company responsible for *Manic Miner* and *Jet Set Willy*, although it's not billed in any way as a sequel to Matthew Smith's games. Written by Patrick Richmond, the game is attractive and colourful — but as a 'platform' game, I'm sure Software Projects are hoping that their reputation for this type of package will help this one on its way to the high street shelves.

The lack of instructions both on the cassette sleeve and on-screen (at least with the copy I've got anyway), didn't actually inspire any confidence that it was a particularly polished piece of software. To start the game, you need to press the 'S' key — and the 'O' key is used to turn off the terrible sound effect (you'll find this is probably the most useful key in the whole game!).

Astronut's a game of some 15 screens; the object of the exercise on each screen is to push three resource blocks from various platforms down to ground level. You control the little two-cursor man and can move him left or right, or get him to drop bombs. To move the figure up the screen, you have to position him above a volcano and wait for it to erupt or, on the later screens, you can manoeuvre the figure up the ladders. Beware though, once you've started to climb there's no turning back.

Stopping you gathering the power capsules and moving the resource blocks are, of course, many assorted meanies which have to be negotiated. There's also the problem of extending platforms, which have an annoying habit of collapsing just when you want to use them!

The sprites move fairly smoothly by one or two pixels and come in the usual horizontally and vertically moving varieties; some are even more tricky and cascade back and forth along the platforms, defying gravity more often than not. The stationary graphics characters aren't your average run-of-the-mill platforms either — you may encounter dragons spitting fire and amazing castle towers — and they certainly go some way to brightening up the game.

Despite the pixel movement of the sprites, your man moves by cursor block stages, although the figure is animated within each stage. Unfortunately, this, coupled with the 'attribute collision detection' routine used, sometimes causes your figure to be pronounced dead even when there's lots of clear air between you and your killer.

Astronut is visually appealing, but it's too easy! Dropping bombs to protect yourself and timing the jumps to collapsing platforms do add an element of skill, but overall I didn't find it challenging enough. Each of the screens can be reached independently of the others by instructing the program to start on a specific screen — in my view, this spoils any suspence for the enthusiast.

FRANK N STEIN
PSS

Despite the obvious enthusiasm for this game generated by the games players in the *YS* editorial office, *Frank N Stein* was the game I liked least of the three programs.

The object of the game is to guide your two-cursor figure along platforms collecting the constituent parts of a Frankenstein-type monster — making it a little more complicated is the fact that all the limbs, etc, have to be collected in the correct order; head first, then torso, then hips and so on. To collect all the parts of the body, you have to walk over the dissected parts, while avoiding the various sprites that go through set patterns of movement around the screen.

Again, you can move left or right, but vertical movement can only be achieved by standing over strategically placed springs and hitting the 'fire' button. Small jumps are possible, but these are used mainly for letting one of the sprites pass underneath allowing your figure to safely carry on his macabre search. There are also a number of poles which can be used to descend from level to level.

The graphics characters are mostly two-cursors, very colourful and animated fairly well, adding some welcome relief from the overall red appearance of the game. They move pixel by pixel, but they're a might bit slow — which means there are times when you're hanging around waiting for the baddies to get out of the way. This aspect is no doubt intended — escpecially as the game is played against the clock — but I feel that overall it detracted from the game.

PSS claim *Frank N Stein* has 50 screens, but don't let that mislead you as there are only 26 *different* screens. After each 'collecting' screen, there's one that repeats; this special screen is slightly different from the rest in that the object this time is to get to the top platform while avoiding random graphics characters and rolling barrels (shades of *Kong* here).

AT LAST THE ARCADE ADVENTURE FROM MICROMEGA

For The 48K Spectrum

JASPER!

Available through good computer stores everywhere.



MAGIC POTION

DOWN

22 screens of stunning cartoon arcade action. Swimming through the water, collect, drop and use the objects scattered around. Speed of reaction is one thing, in Jasper you must also think fast and plan. Are you sure you can handle it?

MANIC MIMICRY CO

MANUFACTURER
Gremlin Graphics
ADDRESS
Aloha House, 10 Carver Street, Sheffield.
Tel. 0742 753423
PRICE
£6.95
USE OF GRAPHICS
9/10
NUMBER OF SCREENS
21

MONTY MOLE





Here's the miner — perhaps the only reference to this game having anything whatsoever to do with the current industrial dispute!

And here's our hero, Monty, already dead from a nasty case of 'free-fall'. You can fall a certain distance without harm — but watch you don't try jumping from too great a height.

These ropes can be useful, especially when making a quick exit from a tight spot.

Be careful you don't slip into one of the ponds or you'll come to a swift, watery end.

The crusher in all its lethal splendo It seems to be totally unpredictable its movements and you'll have to nimble to get through — just don hesitate . . . or you're dead!

This here's a managed to go able to negot below w

MANUFACTURER
PSS
ADDRESS
452 Stoney Stanton Road, Coventry.
Tel. 0203 667556
PRICE
£5.95
USE OF GRAPHICS
7/10
NUMBER OF SCREENS
50

FRANK N STEIN





Welcome to this game's hero, the professor. Typically inept at putting together the limbs of the monster, here we see him slipping on the ice. Watch out for nasties when you're negotiating the ice, as once you're on it you can't stop.

This is the home of Prof. FN Stein — a modest abode, tastefully decorated with a portrait, light bulb and bookcase. Seems like he might be a nice enough chap . . . he's just got an odd hobby!

As you walk along, the springs allow you to move up a level when you press the 'fire' key. You'll find that when you jump your head can impinge on the next level up — so make sure there's not an obstacle up there, or you'll have to start again.

The squares marked 'J' act like transporters which slow you down on this stage of the game. As well as the ice, there's also patches of slime to slow your movements down.

This screen shows the 'A part of the game, which ha each 'real' part of the adv you have to do is get to the screen and pull the p moves.

MANUFACTURER
Software Projects
ADDRESS
Unit 1, Bearbrand Complex, Allerton Road, Woolton, Merseyside. Tel. 051-428 9393
PRICE
£5.95
USE OF GRAPHICS
8/10
NUMBER OF SCREENS
15

ASTRONUT





Astronut can set the odd bomb in the path of any nasties following — it'll stop 'em for a while but don't expect miracles!

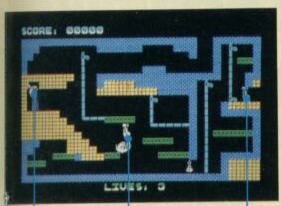
The next resource block is already in position once the first block has been placed in the flashing area designated for it. The idea is to get one side of the block and give it a gentle nudge in the direction you want it to fall.

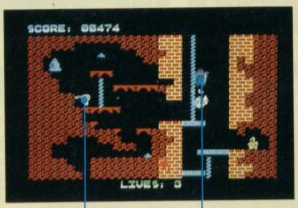
Astronut nudges the first resource block into place. You have to move three of these blocks into place to get on to the next level — unless, of course, you've chosen to start on the last level first, that is!

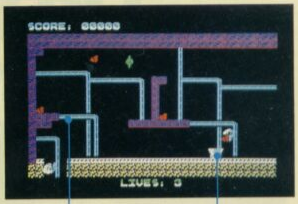
This is a pulse generator — which sends out deadly beams of energy to stop Astronut journeying round the screen.

The stair getting to th is that once there's no sure your

COMPARISON CHART







s lethal spleen-
ly unpredictable in
d you'll have to be
ugh — just don't
r you're dead!

This here's a shower — and if you manage to go and collect it, you'll be able to negotiate the moving tap below without a problem.

Here we see poor Monty failing to collect the shower and falling foul of the tap.

Even if you do manage to get through to *this* tap, you may have difficulty getting past it. This game demands that certain objects have to be collected in order to progress; so, if you touch one and die, you must have forgotten to do something on a previous screen.

While he's down in the pit, Monty must collect all manner of objects to progress further in other levels. Here, Monty must get the drill so that he can power-drive his way to the next cavern.

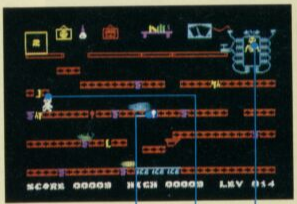
Each time you die, Monty's ghost ascends to the top of the screen and you begin again from the point you entered the screen. Trouble is, anything you've collected is taken away from you and you've got to go through the whole process again!

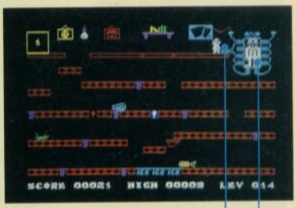
On this level, Monty has to climb all over the pipes to get through. Who'd be a coal-miner? Any takers out there . . .

There aren't all that many moving menaces in *Monty Mole*, but usually the few that exist are pretty lethal. Watch out for the mining truck that nips back and forth at the bottom of the screen — it always seems to be wherever you don't want it!









een shows the *'Krazy Kong'*
e game, which happens after
a' part of the adventure. All
e to do is to get to the top of
een and push the plunger to
move on.

The fireman's poles come in very useful when there's no other means of escaping the nasties in your path. Their use is similar to the springs, only you go down instead of up. As the game's all played against the clock, you'll have to use the poles so's as not to waste too much precious time.

This meter tells you how much time you've left to collect all the bits and pieces that go to make up the monster. If you don't manage to push the plunger by the monster-maker in time you have to start again, right from the beginning!

Stepping on the exclamation marks causes our hero to have a fit of what looks like *delerium tremens*. Again, it's just another method of slowing you down in your quest.

This is where the monster's made. You have to collect the limbs of the monster in the correct order and once found, they appear in this chamber.

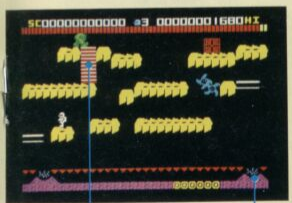
Here we see the professor just about to collect the monster's hip bones. However, as there's a nasty on his tail, he's going to have to get on the spring double-quick and get on to the next level; then he's free to snap up the monster's other hip bone.

Once you've collected all the bones to make up the monster, you've got to rush up to the top level and push the plunger to send a couple of million volts through it.

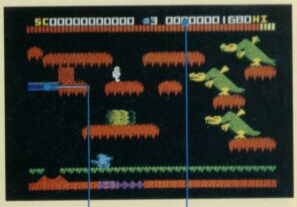
The power must have done the monster some good — he looks very dapper kitted out in his Sixties outfit!

act like
u down on
well as the
f slime to
down.









The staircases provide a way of getting to the upper levels — trouble is that once you've started the climb there's no turning back . . . so make sure your path is clear before you begin.

An alternative method of gaining access to the upper levels is to step on one of the volcanoes and wait. When it blows, you get shot up to the first level above, whether it be a collapsible platform or a firm pathway.

You'll know where to nudge the resource blocks on each screen as an area of the bottom of the screen will flash on and off until it's filled.

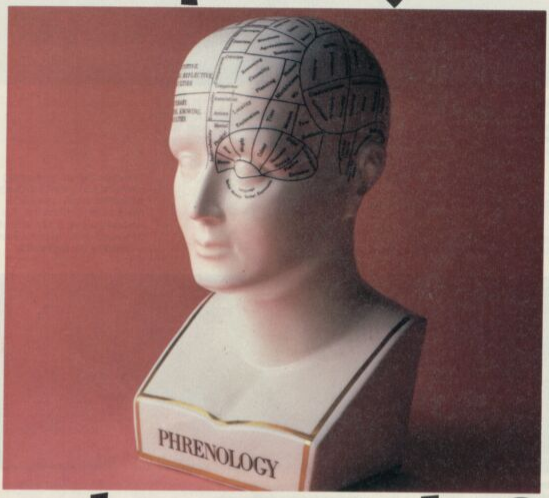
You can fall as far as you like in *Astronut* without coming to grief. Trouble is, falling can sometimes land you in more trouble than you bargained for. . .

Some of the platforms comprise some very interesting graphics — take this tree for example. The graphics in *Astronut* are certainly a sight for sore eyes.

Watch out for the moving platforms. One minute there nice and safe . . . the next, they've completely vanished and you've nowhere to go but down!

The line at the very top of the screen is incremented and filled in as time porgresses. Needless to say, you've to complete your task on-screen before the time's up . . . otherwise it's back to the beginning of the screen.

Do you want to expand your mind



or lose weight?



Home computing isn't all fun and games. The Mirrorsoft Home Discovery series of software programs can help broaden your knowledge and experience or even assist you to lose weight.

KNOW YOUR OWN PSI-Q

How strong are your Psi powers? This intriguing and comprehensive package, by Prof Hans Eysenck and Carl Sargent is based on their book published by Michael Joseph. It checks for and helps develop latent Psi ability in individuals or groups of individuals – notably clairvoyance, recognition of hidden objects or symbols, and precognition, foretelling future events.

On cassette for the CBM64, Spectrum 48K, BBC B, Electron. **£9.95**

KNOW YOUR OWN PERSONALITY

A fascinating way to get through to the 'real' you. Devised by Prof. Hans Eysenck and Dr. Glenn Wilson from their Pelican book of the same name. You'll get a clearer insight into yourself, and others too.

On cassette for the Spectrum 48K, BBC B, Electron. **£9.95.**

STAR SEEKER

Published in association with the London Planetarium. This pair of programs, written by Dr. Paul Phillips FRAS, brings the magic of the heavens into your home.

Star Seeker accurately plots the most prominent stars from any position on Earth; at any time in this or the next century. You can obtain information on individual stars, and draw constellations. Solar System plots Planets and Halley's Comet, with us next year!

On cassette for the BBC B (Spectrum 48K and CBM64 versions coming soon). **£9.95**



MASTERMIND

Adapted from the well known BBC TV quiz game, this program lets you take the chair for general knowledge and special subject questions. It comes with two sets of each. Up to four players. Further low-cost packs of questions coming soon.

On cassette for the Spectrum 48K, BBC B, Electron. **£9.95**

THE JOFFE PLAN

A 'no-diet' personal weight control program. Prof. Joffe's Plan awards credits or penalties based on progress to a target weight agreed between the user and the computer. Food is the best reward for an over-eater. So credits earned allow you to indulge a favourite dish. Penalties mean less food, more exercise.

On cassette for the CBM64, Spectrum 48K, BBC B, Electron. **£9.95**

Also available: Mastermind QUIZMASTER – Set your own questions to run on the Mastermind program. On cassette for the Spectrum 48K, BBC B, Electron. **£5.95**



MIRRORSOFT

SOFTWARE FOR ALL THE FAMILY

Available from Boots, W. H. Smith, Spectrum and all good software stockists. Write for free catalogue to: Mirrorsoft, Holborn Circus, London, EC1P 1DQ.

MANIC MIMICRY

Planning out a route through each screen is reminiscent of *Manic Miner*, but it doesn't work out quite as well. If you miss the opportunity to jump for something, then very often you either die or have to hang around for the same pattern of events to repeat itself — there's not much room for you to experiment with new and original ways round each screen as more often than not, there's only one way round and that's your lot!

MONTY MOLE
GREMLIN GRAPHICS

Monty Mole is probably the most similar to *Manic Miner* but there are many similarities to Quicksilva's *Fred* as well.

This time, you get to play a mole whose graphic is on four cursors, thus avoiding any confusion that this game is based on *Manic Miner*. Your task is to guide the mole around a series of caverns — about 21 in all — until your eventual escape. This package received a lot of media attention a few weeks ago due to its supposed connections with the miner's strike and its inclusion of an Arthur Scargill character. How Gremlin Graphics conned the TV companies into believing this, I'll never know — I've been through the whole game and can find no real links at all with the current industrial situation.

Anyway, back to the game. On the first screen you guide Monty over a river to collect a coal bucket in which to steal your coal — but the owner's not too happy about this and starts chasing you down the nearest available mine shaft. Once there, you can start collecting the twinkling pieces of coal. (For all you bug-hunters, try carrying on running towards the house and jumping just before you reach it — with any luck you'll find yourself in the coal-miner's house and he can't do a thing about it.)

The caverns are, in essence, very similar to those found in *Manic Miner*, with platforms and graphics characters trolleying along, and up and down. Ropes have also been added for Monty to climb up and down (á la *Fred*), and extending platforms are also used quite effectively. You'll also come to hate the Coal Crushers that appear in most screens — they are totally unpredictable, except for the fact that you can assure yourself that whenever you decide to walk under them you'll be crushed! Another nice feature is the *Antics*-like technique of being able to change events by doing certain things; carrying certain objects around with you makes various walls disappear when you enter the screen, allowing you to explore still more of the caverns.

The program has a number of slightly off-putting characteristics which don't enhance its playability — for example: the graphics routine allows you to stand on any INKed pixel; you can get Monty actually standing in a graphic and still not have the fact that you've collected it registered; and if you die in a room having just caused a wall to disappear, that wall will appear with your new life and there's no way you can get past it!

Despite all this though, I still thought *Monty Mole* the most challenging of the three — even though it's the most blatant clone of Matthew's *Manic Miner*. YS

HACKER'S GUIDE

Codebuster* Dave Nicholls *examines the major problems experienced by designers of the ever-popular 'platform' games, discussing the methods of program storage that make this kind of multi-screen adventure possible in just 48K.

Ever since Matthew Smith first let his 'manic' imagination run away with both him and his assembler, a large percentage of the games produced for the Spectrum have been of the 'platform' variety. This presents two major problems for programmers wishing to emulate the jet-setters of the software industry. The first and most obvious is how to design one original screen, let alone the 20 or more that will be needed to satiate the needs of today's buying public! The second problem, and one to which I personally find the solutions much more interesting, is that once you've designed your screens, you've got to find a way of squeezing them — along with the rest of the data and the code to use them — into just 48K!

CODE CONCERN?

Before I explain the way in which *Frank N Stein*, *Astronut* and *Monty Mole* solve this problem, there are a few other points to note concerning the construction of the games' code. First off, *Monty Mole* has to take my prize for being the most untidily coded piece of software that I've seen for ages — several routines are duplicated (one is even triplicated!) and many's the gap you'll find between the routines. I realise that when you're putting a game together there's a great temptation to leave in the routines you tested it with, but a good assembler (I use OCP's full screen one, incidentally) makes the job of linking all the bits and pieces quite simple and the saving in loading time can be considerable. On the plus side, *Monty Mole* has an interrupt handler that's set up to work properly with *any* peripherals. It also contains some very nice movement routines for the graphics characters (I think the Thumpers are great!).

Having said all that about *Monty Mole*, I must admit that in the sloppiness league *Astronut* comes a close second, with even bigger gaps between some of the routines and, the hacker's nightmare, self-modifying code! *Frank N Stein*, on the other hand, had me fooled for a while — it took me several minutes to realise that what I'd mistaken for incredibly inefficient coding was, in fact, the output from a Basic compiler. The compiler itself is still in memory with the game and, if you know where to look, can be taken out and used on its own — two programs for the price of one maybe?

Frank N Stein, incidentally, also has an interrupt handler that's been written separately in machine code and, like *Monty Mole*'s, can be used with all but the kitchen sink hanging out the back of your Speccy. My one gripe, however, is that the routine to handle the Kempston joystick only recognizes the straight left and right movements, and not the diagonals — but I soon got used to it.

WHAT'S IN STORE?

Returning to the storage methods I mentioned earlier, let me first emphasise that in all the games I've ever looked at, I've only really found two different way of compressing data — although like most other things to do with computing, there's always more than one variation on a theme.

The first method is to store information about each screen cursor position and use that to work out what should go on to the screen. In the case of *Monty Mole*, three bits are stored per position and these are used to pick one of eight attribute/pixel sets for display (including the blank one); this means that there can never be more than seven distinct platform shapes on each screen. This is also exactly the method used by Matthew Smith in *Manic Miner*. Overall, however, it's probably the most inefficient of the two methods for most cases because you have to store information about the empty parts of the screen as well as the rest.

The second method, used by *Astronut* and *Frank N Stein*, gets around this problem by only storing the sections of the screen that have something in them, ignoring all the empty areas. This is usually accomplished by storing the starting screen position and the length of each platform, and expanding it out as a loop. *Frank N Stein* does this by PEEKing the two values and then using them as the start and end parameters of a FOR . . . NEXT loop. Once all the red parts have been drawn in, the same procedure is followed for the slime, ice and other bits and bobs around the screen. *Astronut* varies its format because it has different types of platform — that is, some are one character high and some are two — so it reads in an extra value that tells it which routine to run to print the platform correctly; other than this though, both games work in the same way.

One obvious thing in all three games is that the moving graphics characters are added last of all, using extra data which normally consists of a start and end position for their travels, along with an initial start position. The exceptions to this are the graphics characters in *Astronut* whose movements aren't linear — for these a 'route' has to be calculated as well.

FOX YOUR SPECTRUM

WITH THE

ULTIMATE IN JOYSTICK INTERFACES

"IS VERY CLEVER AND PROVIDES THE EASIEST INTERFACE ON THE MARKET TO USE"
SINCLAIR USER FEBRUARY 1984



- ★ Complete compatability with all programs.
- ★ In-built memory to store up to 16 different keysets at one time.
- ★ Battery back-up so no loss of memory after power off (battery recharged during use so no replacements are required).
- ★ Full casing.
- ★ Full through port for further expansion.
- ★ Proven compatability with the Microdrive.
- ★ Built in pseudo ROM facility with room for personal tool kit.
- ★ Compatible with all Atari type joysticks.
- ★ Compatible with Quickshot II Rapid Fire.
- ★ One switch only for simplicity of use.

ONLY **£28.95**

NO NEED TO REPROGRAM FOR EACH GAME JUST FLICK THE RESET SWITCH AND SELECT A NEW GAME KEYSET FROM THE MENU. IT'S SO SIMPLE, NO TAPES TO LOAD, NO LEADS, IT'S ALL IN ITS MEMORY!!

SPECIAL OFFER
OR BUY THE INTERFACE ABOVE WITH THE
QUICKSHOT I JOYSTICK ONLY **£32.95** OR QUICKSHOT II **£36.95**

SPECTRUM UPGRADES

(ISSUE 2 AND 3)

16K to 48K

THE KIT REVEIWED AS *"THE EASIEST TO FIT"*
SINCLAIR ANNUAL

Full instruction supplied with this simply inserted kit, a high quality kit at a LOW! LOW! price.
(Please state issue 2 or 3 when ordering).

ONLY **£23.00** INCL.

NEW! NEW! NEW! SPECTRUM KEYBOARD

THE CHEETAH 68FX1, AN ALL NEW VERY HIGH QUALITY PRODUCT WITH

★ Full size querty keyboard ★
★ Numeric pad ★
★ Compatible with Microdrive ★
★ Accepts Interface 1 and Interface 2 (without modification) ★
★ Simple to fit ★
★ Sixty eight keys ★

A SUPERB NEW KEYBOARD ONLY £67.95 INCLUSIVE

SEND NOW TO:



FOX ELECTRONICS LTD
FOX HOUSE
35 MARTHAM ROAD
HEMSBY
GREAT YARMOUTH
NORFOLK NR29 4NQ
TEL: 0493 732420

PLEASE SEND ME
INTERFACE ☐
QUICKSHOT I + INTERFACE ☐
QUICKSHOT II + INTERFACE ☐
UPGRADE ☐
KEYBOARD ☐

VISA

Name .....
Address .....
.....
.....

Barclaycard/Access Number

COULD THIS BE YOUR PROGRAM?



Is your program good enough to fill this spot?

Will your game be the next No. 1 hit?

Are you looking for **worldwide** marketing and **top** royalties?

Are you writing for leading computers such as Spectrum, CMB-64, Vic 20, ZX81, Amstrad, BBC etc?

Answer yes to any of these questions and we would like to hear from you.

Send your program on tape together with full instructions for fast evaluation. Be sure to include computer type, memory, peripherals used and your name, address and telephone number.

R&R SOFTWARE

R&R Software Ltd. 5 Russell Street Gloucester GL1 1NE
Tel (0452) 502819

on·off
re·set
switch
for
spectrum



- No more crashing from worn power supply socket
- Does not affect expansion port and use of interfaces
- Just pushes into position does not affect spectrum or power supply lead.
- No need to remove once in position.
- Ergonomically designed — no more fumbling with power supply leads.
- Positive rocker action prevents accidental operation.
- Ideal for re-setting rom cartridge games — saves time when changing microdrive cartridges.

£4.95

I enclose a cheque/postal order for £_____payable to TEC Publications 24 Victoria Road, Bromsgrove, Worcs. B
Name_____
Address_____

Dealer Enquiries Welcome. Telephone (0527) 74567

THE SOFT-WEAR NO
SPECTRUM
OWNER SHOULD BE
WITHOUT



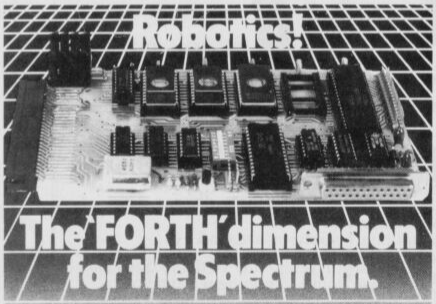
THE YOUR SPECTRUM
T-SHIRT

Specially designed to slip over users of both the 16K and 48K machines, the *YS* T-shirt is the peripheral that costs a mere £4.99. Just fill in the form below, telling us how many you want, what colour you'd like (white, grey or black) and the size/s you require — then mail it off with a cheque or Postal Order for the correct amount (made out to Your Spectrum, please) and we'll do the rest. Send your orders to: *Your Spectrum T-shirt offer, 14 Rathbone Place, London W1P 1DE.*

I want to look cool in a *YS* soft-wear peripheral!
Please send me:

		black	grey	white	
.....	T-shirts	☐	☐	☐	small
.....	T-shirts	☐	☐	☐	medium
.....	T-shirts	☐	☐	☐	large
.....	T-shirts	☐	☐	☐	Xtra large

Name .....
Address.....
.....
..... Postcode .....



The FORTH dimension for the Spectrum.

Now your 16k and 48k Spectrum get 12k of fig-FORTH from a new cartridge that's re-tect for robotics.

This piece of genius is the creation of David Husband and it's the only ROM cartridge of its kind available.

It has RS232 and Parallel ports that not only facilitate remote control but are usable from FORTH or BASIC with the parallel also allowing a Centronics printer to be driven.

Due to an interrupt driven 'Break' key the machine cannot be 'hung-up' and a number of routines and FORTH words are Vectored allowing reconfiguration.

Later in the year a software upgrade will be available which will permit multi-tasking.

Order the Spectrum FORTH I/O Cartridge £59+VAT using the coupon adding £5.75 p&p & insurance (£10 for Europe, £15 outside) or if you want more detailed information, tick that box instead. SUBJECT TO AVAILABILITY

Please send me Spectrum Forth I/O Cartridge. £59+VAT.
Tick whether for 16k ☐ or 48k Spectrum ☐
Cheques to Skywave Software Readers A/C (or enter Visa No.) Please send me more information ☐
Multi-Forth 83 ☐ ZX81 Forth ROM ☐
Name.....
Address.....
.....
.....Post code.....
Send to Skywave Software, 73 Curzon Road, Bournemouth, BH1 4PW, Dorset, England. Tel: (0202) 302385

Skywave SOFTWARE

SPECTRUM FORTH I/O CARTRIDGE



Sheer Elegance

SAGA 1 EMPEROR

THE KEYBOARD FOR ZX SPECTRUM COMPUTERS

AVAILABLE NOW

- EASY FITTING
- PLEASURE TO USE
- LONG LASTING
- SELLING FAST

Saga 1 Emperor, equipped with 67 keys, has been carefully designed to incorporate the prime keyboard functions of the ZX Spectrum personal computer.

The style is easy: — for your benefit, the SAGA 1 Emperor Keyboard and housing retains the rear expansion dimensions and accessibility for compatibility with all Sinclair's own peripherals including interfaces and microdrive 1 and most other add-ons . . . including ours!

Not only this but we have ensured that the assembly of the keyboard is simple — and fast. No soldering is required, so that within just 5 minutes you can replace your current ZX Spectrum keyboard with the new SAGA 1 Emperor.

AND ALL THIS FOR JUST £54.95 (inc. VAT)

SOUNDBOOST



Hear that keyboard click . . . with a SAGA SOUNDBOOST

Your Spectrum's sound could be continuously adjustable from a whisper to a roar through your television. With our soundboost, no modifications need be made — just three easy push on connections. Supplied built and tested to fit in minutes with no previous experience required; we send full instructions for immediate use. Yours for Only **£9.49**

FLEXICABLE



Developed to relieve your Spectrum from the pressures of life. This neat 9 inch FLEXICABLE comes with two connectors which fit your Spectrum and your add-ons — taking the load with ease. Only **£9.49**

DEALERS CONTACT CAROL MOTE ON WOKING 69527

These products are obtainable through stockists both in the U.K. and abroad, or call us and we will deliver direct — our products are available ex-stock.

Stop press just released, two NEW products added to our range:

1 — latest top quality dust covers available just £4.95

2 — Saga PC! — your very own carry case! — fits everything — keyboard, data recorder etc — Customise — further details and spec sheet available on request.

Please write to: SAGA Systems Limited
Woodham Road, Woking, Surrey
Telephone Woking (04862) 69527/22922
or Telex 859298
all prices include VAT
P&P free for Sound Boost and Flexicable.
P&P £1.25 for SAGA 1 Emperor U.K.
£4.00 for SAGA 1 Emperor Europe

Please send me

Name . . . . . .

Address . . . . . .

. . . . . .

The following SAGA PRODUCTS

. . . . . .

Please make CHEQUES/P.O. Payable to SAGA Systems Ltd.

SSL

For years science fiction films and futuristic novels have depicted an era when man and machine can communicate in perfect harmony. The reality, of course, is slightly different. While speech recognition has yet to be fully developed (ACT's latest Rascal notwithstanding), chip-based speech synthesis has been both mastered and available for several years. Until recently the computing power needed to produce human-sounding utterances was substantial. Now almost every home computer is capable of being equipped to talk back to its owner at a price that won't even break the average piggy bank.

SOUNDING OFF

When we speak we produce three distinctly different types of sound. The most obvious are the 'voiced' or vowel-type sounds; oo, ar, ee, and so on. These are produced by air from the lungs making the vocal cords vibrate. The frequency of this vibration determines which vowel sound we hear.

The second group is the unvoiced or 'fricative' sounds; ss, sh, t and ff. Here the air from the lungs rushes past the vocal cords without making them vibrate and the frequency produced is controlled by the positioning of the lips and tongue. Finally there's silence or, to be more precise, the minute gaps that occur within words (for example six, eight) where we change from voiced to unvoiced and *vice versa*.

FAKING IT

In order to generate speech-like sounds, the electronics designers generally go for one of two methods. The first — and until

SPECTRUM SPEAKERS

SWEET TALKER
Price £29.75
Cheetah Marketing
24 Ray Street
London WC1R 3DJ

HARDWARE: Based on the by now familiar General Instruments allophone chip, this unit comes housed in a vertical box that measures 100mm by 75mm by 50mm.

Offering the benefits of an internal speaker (without volume control) and an expansion bus, Sweet Talker stays pretty much on a par with its rivals in terms of design; although it is well made and very neatly assembled on its single PCB.

SOFTWARE: This is the easy bit. Unlike the Currah MicroSpeech where the allophones are built up in strings (which is neat but consumes memory) the Sweet Talker simply uses numbers to generate the allophones. These can be stored as DATA statements ready assembled in word order, or you could build a list in alphabetical order sorted by position within a word. You can generate any of the allophones simply by keying OUT 7,n — where n is the allophone number.

MANUAL: It's virtually non-existent and the meagre four sides of A5 give you just the allophone list with some examples of how they would be used and that's about it. The tape includes a short demonstration which, according to the manual, "will explain precisely how to use it."

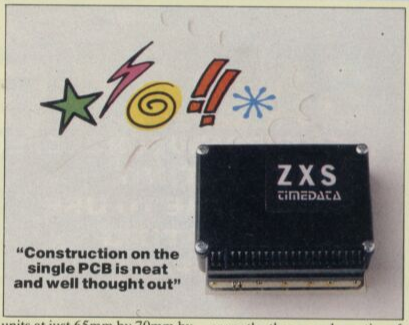
SUMMARY: The quality is as good as any other allophone-based synthesiser and the box does have the space-saving advantage of being vertically mounted.



"The quality is as good as any other allophone-based synthesiser"

ZXS SPEECH SYNTHESISER
Price £24.99
Timedata
16 Hemmells
Laindon
Essex SS15 6ED

HARDWARE: Physically this is the smallest of the review units at just 65mm by 70mm by 40mm. Housed in a vertically mounted 'potting' box it offers an expansion bus connector and uses the GI allophone chip.



"Construction on the single PCB is neat and well thought out"

The unit is too small to include a loudspeaker so a 3.5mm jack socket is provided for connection to an external amplifier and speaker. Construction on the single PCB is neat and well thought out.

SOFTWARE: Two programs are provided on the accompanying cassette, but the second one — a speech editor from the manual — stubbornly refused to perform, giving 'out of memory' errors when trying to RUN. The cause was an overdimensioned array, but it's a bug all the same.

You can access the allophones direct by using their codes and doing an OUT, or you can make use of the machine code subroutine provided and build strings of allophones in the reserved variable sS. In this respect the unit works in much the same way as Currah's MicroSpeech, but without the advantage of having the software built-in.

MANUAL: Twenty A5 pages cover the theory and practice of allophone synthesis and example programs are included as well as being supplied on tape.

SUMMARY: Although it's the cheapest of the bunch, the lack of an internal amplifier and speaker is a nuisance. With these added it would have been directly comparable to the Cheetah.

CURRAH MICROSPEECH
Price £29.95
Currah Computer Components Ltd
Graythorp Industrial Estate
Hartlepool
Cleveland

HARDWARE: Fitted into a neat, flat, black box (75mm by 75mm by 20mm) the unit is certainly designed economically. Just three chips from General Instruments and a handful of resistors and so on are assembled on to a very clean PCB. The standard Spectrum edge connector is fixed horizontally and there's no expansion port. The MicroSpeech will have to be the last unit you fit on the back of your Spectrum, but that's probably a small price to pay.

recently the most common — is synthesis by rule. If the frequencies contained within speech are analysed it's possible to devise a system of rules that allow us to re-create any sound from its basic frequencies.

These 'building blocks' of sound are called phonemes and by using them in various combinations any word can be constructed. The individuality of a human speaker tends to be lost when speech is generated like this but the words can be clearly understood. Because the synthesis rules for each phoneme are built into the equipment, the user has simply to supply a list of phonemes to be spoken. It's then possible to generate complete sentences instantly, simply by calling up a string of stored phoneme commands. In reality these phonemes tend to be called allophones; this is because the various building blocks sound different depending on their positioning within a word or phrase. However the principle's much the same.

The second method for generating speech relies on the fact that the human ear and brain are very good at filling in gaps. The speech we hear over a telephone line is (British Telecom permitting) perfectly understandable. Yet technically the quality — the range of frequencies we can hear — is only one-fifth of what we'd expect from a standard hi-fi system. We understand what's being said only because our brain does the job of filling in the gaps.

With the fall in cost of computer memory it's now possible to convert speech into digital information compressed many hundreds of times by a

The word is that attaching any old speech synthesiser to your Spectrum will allow you to have cosy chats together.* Henry Budgett *determines whether this is one of the first signs of madness.

This interesting design puts the Spectrum sound (including any speech) through your TV's loudspeaker — which makes a lot more sense than many of the other methods I've seen. To get the sound out there's one flying lead from the back of the MicroSpeech that goes to the EAR socket and another for the TV socket. (The new TV socket is fitted to the back of the unit.) You do, however, have to unplug the EAR lead when you want to LOAD a new program; perhaps another socket would have been better. A small 'trimmer' is fitted to allow the TV signal to be tuned in to produce the best combination of sound and picture and once set the MicroSpeech didn't need any further adjustment.

MicroSpeech uses the allophone system, with the added advantage that every keyword on the Spectrum can be voiced for you. 'Great for the blind', I thought, but then someone pointed out that it isn't a Braille keyboard . . . Anyway, you can turn the keyboard voicing off if it gets too much for you.

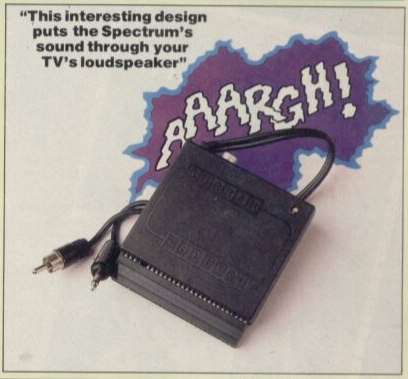
SOFTWARE: The MicroSpeech comes with a cassette that on one side offers a rather silly adventure game that speaks to you, and on the other a demo of the various facilities. Written in Basic, the demo is well worth a look if only to see how the 'professionals' construct their words from the allophone set.

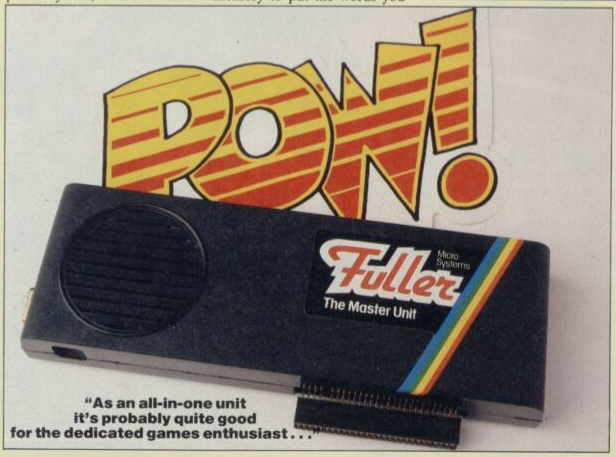
When you're driving the device from your own programs the allophone strings are built up in a special string variable which is then automatically spoken. It may save a lot of memory to put the words you want into DATA statements as strings, rather than to store the actual strings themselves. Experimentation here is probably worthwhile if you've got a lot to say!

MANUAL: Neat, clear, well presented and very thorough! Need I say more?

SUMMARY: If you want to boost your Spectrum's sound output and fancy the idea of a speech synthesiser, then this has to be worth considering. The only possible complaint about it is the fact that it doesn't have an expansion connector.

"This interesting design puts the Spectrum's sound through your TV's loudspeaker"





"As an all-in-one unit it's probably quite good for the dedicated games enthusiast . . ."

FULLER BOX/ORATOR
Price £56.00
Fuller Micro
71 Dale Street
Liverpool

HARDWARE: Designed as much more than just a speech synthesiser, here is a unit that fits right across the back of the Spectrum and measures 235mm by 100mm by 40mm. Because the casing masks all the

IAN McKINNELL

All or NOTHING

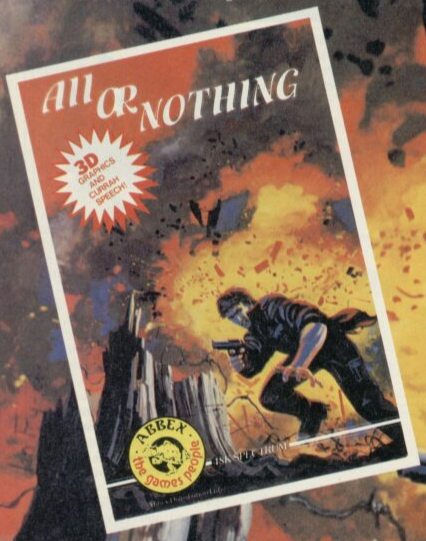
3D GRAPHICS

... He knew that parachuting in the enemy compound was no problem. The run for his life was getting from one place to another searching for the scattered secret files ...

The task required every skill he could master!

ALL OR NOTHING – WITH CURRAH SPEECH!
Three D action – a superb combination of arcade, adventure and strategy – Superfast – Packed with action SPECTRUM 48K – £6.95.

(Send for our full list of games).



Do you write your own programmes? If you do, we would be delighted to evaluate, and perhaps make your game part of our range!

HOW TO ORDER
To purchase "ALL OR NOTHING" simply write on a piece of paper your name, address, and game name, enclosing your cheque/P.O. for £6.95 made payable to: ABBEX ELECTRONICS.

OVERSEAS ORDERS
Please add £1.00 per game ordered.

Please allow 14 to 28 days for delivery.

ABBEX the games people

ABBEX DISTRIBUTION LIMITED
17 MARBLE HOUSE, ELGIN AVENUE, MAIDA VALE, LONDON W9.
TEL: (01) 286 2371.

wonderful mathematical technique called Linear Predictive Coding. The resulting numbers representing the original speech are stored in a ROM. To get any of the stored words out again as speech is easy; we simply give the computer the address in memory of the word and the digital information is recovered and converted back into sound, and because the original speaker's words have been stored, all the personal characteristics remain. That's why Acorn's speech chips for the BBC Micro really *do* sound like Kenneth Baker.

WHAT'S THE USE?

The commercial uses for speech synthesis are so many and varied that it's just about impossible to list them all. Looking just at the tip of the iceberg it can be used to replace taped announcements at railway stations and airports; in America it's widely used on the telephone system to inform callers of misdialled numbers and engaged or withdrawn services. Speech synthesis units are also being incorporated into cars like Maestros and Montegos as part of the standard instrumentation so, as well as being something of a sales ploy, they can provide warnings the driver can hear without having to take his or her eyes off the road. A major contribution to road safety perhaps?

As far as we are concerned in the home computer and electronic games market, speech synthesis is generally used to enhance games. Scores can be read out and warnings of imminent enemy attack can be given to warn players leaving them free to concentrate on the tactics of the game. Of the five speech units under review here, four of them use the phoneme system and one the stored

SPECTRUM SPEAKERS



"For pure speech that's immediately understood, this wins hands down"

normal socketry at the rear of the Spectrum most sockets are duplicated on the back of the Fuller Box. I say 'most' because the TV aerial lead isn't; you've got to take the box apart to feed this through.

The inside of the box is, to be reasonably polite, a mess! The sound and speech chips are both standard socketed General Instruments devices, but the rest of the construction is a hotchpotch of extra wires and piggy-backed chips.

Still, as well as providing sound and speech the fully expanded Fuller Box also provides a BEEP amplifier with volume control, joystick port and an electronically switched LOAD/SAVE system — which means that you don't have to keep on unplugging the EAR lead while saving programs.

An extra 3.5mm jack socket has been installed at the back of the unit which isn't explained anywhere in the manual, but it turned out to be an extension speaker socket.

SOFTWARE: Activating the speech chip is just a matter of using the OUT statement to pass the relevant allophone number to the Orator. The chip contains 64 standard allophones, but quite why Fuller suggest you try a loop from one to 255 is a mystery.

Included are two demonstration programs; one covering the Box in general, the second dealing with the Orator. Listing the program is likely to provide rather more information than just listening to it! Imagine gets a posthumous plug for its software, some of which works with the Orator, I believe, and all their joystick games are compatible with the joystick system used by the Box.

MANUAL: It's the sort of paperwork that looks good at first sight but doesn't really tell you very much. If you want more details on the sound chip itself, try the official GI Data Sheet. The manual's explanation of allophones is quite good but fails to expand into real example. That's why it's a good idea to LIST the demo program.

SUMMARY: As an all-in-one unit it's probably quite good for the dedicated games enthusiast who likes the idea of tinkering with sounds and speech. As a speech unit in its own right, it's rather big and clumsy and nearly twice the price of its opposition.

S-PACK
Price £29.95
(Extra Word Packs £12.95 each)
DCP Microdevelopments
2 Station close
Lingwood
Norwich NR13 4AX

HARDWARE: Based on the National Semiconductor 'Digitalker' system this was the only review device to use compressed speech. In terms of producing intelligible utterances it wins hands down over all the rest but there are several reservations.

It comes housed in a 75mm by 110mm by 45mm plastic box and mounts horizontally behind the Spectrum. In its favour is the provision of an expansion bus connector but, unfortunately, the rest of the construction is fairly low-grade. Inside are two PCBs, one providing the bus and the other the speech synthesis components. An internal speaker is provided along with a 3.5mm jack socket to connect the device to a larger external speaker. The volume control is an edgewise potentiometer, in my view a cheap and nasty approach.

The speech chips are all socketed and there's provision for installing four vocabulary ROMs . . . our review model had all four fitted. When I first tested a Digitalker system some three years ago these were the standard chips. Although the price has fallen dramatically (the experimenter kit was then about £130 with two vocabulary ROMs), the repertoire hasn't. It may be worth contacting National Semiconductor direct to see what else it can offer (UK offices are in Bedford).

The speech quality from this unit is excellent. It's easy to hear that the log-on message "This is Digitalker" is spoken by an American female and the rest of the words in the first two ROMs are spoken by an American male. I'm also pretty sure that there are two other people speaking on the second pair of ROMs, which is an indication of the sort of information a digitised speech system contains that you don't get from an allophone system.

SOFTWARE: Er, there isn't any! You just OUT the required word number to the appropriate port and the device says it.

MANUAL: Not a lot of use, I'm afraid. The four A5 sides tell you how to use the thing, but miss out on all sorts of interesting details. Your best move is to get the National Semiconductor data sheets (usually free) and find out from them how to string words together, get parts of words and a whole lot more besides.

SUMMARY: For pure speech that's immediately understandable this wins hand down. On the other hand you may want words that aren't in its vocabulary and, as it stands, there's no way to make them. Therefore, it's main use would be in a dedicated system announcing times and other numeric data — it's not much good for games and so on.

IAN McKINNELL

TRANSFORM LTD. Microdrive Business Software

Invoicing/Ledger £25.00

This program will enable you to prepare invoices from a built-in price list. The invoice can then be transferred to your customer's account, the number of accounts are unlimited. The program will also print orders, credit notes, remittance notes, mailing lists and statements. It is also possible to use this program as a purchase ledger.

Superfile £14.95

A new data base program which will store pages of text 64 columns x 22 rows. This program comes complete with a word processor including word wrap and justification. The search facility will allow you to search for page numbers, page title and selected pages. This program is compatible with both microdrive and cassette, will also print on full-size printers.

Tasmerge £10.95

This program will allow you to transfer Masterfile data into Tasword. This gives you the facility to use Tasword for mail merge, printing forms, acknowledgement of orders, etc. You are also able to specify the line and column of each field.

Printers

Centronics/RS232 Interface	£45.00
Dot matrix printers	
Brother HR5	£132.00
Admate	£199.00
Star Gemini 10x	£209.00
Epson RX80 FT	£250.00
Epson FX80	£350.00
Daisywheel printers	
Smith-Corona TP I	£189.00
Silver Reed EXP500	£284.00
Brother HR15	£349.44

Please add **£5.00** delivery plus VAT to the price of printers and monitors. All software prices include VAT, post and packing.

TRANSFORM LTD. (Dept. YS) 01-658-6350
41, Keats House, Porchester Mead, Beckenham, Kent.

Paint pictures on your television screen

WITH THE

The RD Digital TRACER

■ CREATE UNIQUE GRAPHIC DESIGNS QUICKLY AND ACCURATELY ■ TRANSFER MAPS, NEWSPAPERS OR TEXT BOOK ILLUSTRATIONS ■ USE COMPUTER GRAPHICS IN YOUR PROJECTS REPORTS, LECTURES AND PRESENTATIONS



* ONLY £59.50 inc. VAT

Kane-May Limited
FREEPOST
Welwyn Garden City
Herts AL7 4BR
Telephone (07073) 31051

Convert your Sinclair into your very own digital paintbox.
Without complicated programming you can paint anything quickly onto your TV screen. You can draw lines of varying thickness, blocks of colour or shading at a stroke and print text anywhere. Then you can enlarge or reduce your picture, turn it upside down or even make a mirror image. You can print it or store it on cassette or microdrive.
The Tracer comes complete with a software cassette, tracing grid and interface compatible with ZX Spectrum (BBC-B Models are also available).

To Kane-May Limited FREEPOST, Welwyn Garden City, Herts AL7 4BR

Please send me:

_____ RD Digital Tracer(s) RDZX/A4 at £59.50 inc VAT + £3.00 Postage & Packing
I enclose a cheque/postal order for £_____
or please debit my Access/Barclaycard.
(Delete as necessary)
Card Number_____
Signature_____
Mr/Mrs/Miss_____
(BLOCK CAPITALS PLEASE)
Address_____
_____ Postcode_____

SPECTRUM SPEAKERS

speech method. Let's take a look at how they succeed in fulfilling their purpose.

SUMMARY

If you're looking for a means of adding a voice to your Spectrum and of incorporating the facility either into games or just for fun, then the Currah MicroSpeech is almost certainly going to be the best buy for you. It's also got the largest number of games already written for it if you prefer to use shop-bought software. Another of its clear advantages over the other units is the addition of a BEEP amplifier for putting the sound through the TV.

For those of you who haven't yet bought a joystick controller or a sound generator and fancy a speech synthesiser at the same time, then the Fuller Box/Orator combination — though expensive — offers the lot in one package.

Serious users of speech output have an equally clear-cut choice. The superior quality offered by the DCP S-Pack's Digitalker chips make this the logical buy for anyone using the Spectrum as an annunciator rather than as a games machine. The manuals supplied aren't good enough by far, but the Digitalker chips are more versatile than you might think, so if you buy this one get in touch with National Semiconductor for the real data.

Of the remaining two units, the Cheetah offers a built-in amplifier and speaker whereas the Timedata unit doesn't; their respective prices reflect this. Neither of them comes close to the overall 'usableness' of the MicroSpeech and they both lack the BEEP amplifier and keyword voicing. VS

SPEAKER COMPARISON CHART

SYNTHESISERS	Currah MicroSpeech	Fuller Box/Orator	DCP S-Pack	Timedata ZXS	Cheetah Sweet Talker
FEATURES					
Synthesis type	Allophone	Allophone	Compressed speech	Allophone	Allophone
Allophone coding	String	Numbers	Numbers	String/Numbers	Numbers
Keyword voicing	Yes	No	No	No	No
Internal amplifier	Uses TV	Yes	Yes	No	Yes
Internal speaker	Uses TV	Yes	Yes	No	Yes
BEEP amplifier	Yes	Yes	No	No	No
Volume control	Uses TV	Yes	Yes	No	No
Demonstration tape	Yes	Yes	No	Yes	Yes
Software provided	In ROM	No	No	On tape	No
Games available	Yes	Yes	No	No	No
PHYSICAL NOTES					
Size (in mm)	75 by 75 by 28	235 by 100 by 48	75 by 110 by 45	65 by 78 by 40	110 by 75 by 50
Format	Horizontal	Horizontal	Horizontal	Upright	Upright
Case material	Plastic	Plastic	Plastic	Plastic	Plastic
Expansion bus	No	Yes	Yes	Yes	Yes

NEW!

Better Ways to machine code

MODER-80 really helps you read, write and test machine code. Monitor features include breakpoint set, execute, hex-dec-hex conversion, hex arithmetic, hex/ASCII dump to screen or printer, hex modify, memory move, and single-step (with register display) through programs in ram or rom. The disassembler can output to tape (for use with Gener-80) as well as to screen or printer. And, unlike comparable products, Moder-80 even contains a simple non-symbolic assembler so beginners can use proper assembly language instead of hex when entering short programs into memory.

Spectrum 16k/48k £6.95

GENER-80 is the wasy-to-use assembler with a full-screen 40-column editor which processes source text upon keyboard entry, giving immediate error detection, shorter source code and much faster assembly! Block delete and move also available. Full Microdrive compatibility on 48k Spectrum includes save, load (with auto-merge) and verify to tape, Microdrive or network. Can co-reside on 48k Spectrum with virtually any monitor (not just Moder-80) to form a machine-code development system.

Spectrum 16k/48k £7.95

Programs can be transferred to Microdrive (full instructions supplied), and can be used with ZX printer *and* most 80-column printer interfaces without modification. All prices post free.

SEVEN STARS

Seven Stars Publishing, Dept S, 15 Gloucester Avenue, London NW1 7AU.

Make 'em sell!

Family panel — Ergonomist, Teacher, Psychologist, Nurse and Children — Offer

SPECTRUM PROGRAM ASSESSMENT AND RECOMMENDATIONS.

REPORT HEADINGS INCLUDE:

PRESENTATION
GRAPHICS
SOUND
TIMING
ADDICTABILITY
SUGGESTED MARKETS

Professional standards of honesty and confidentiality observed.

SEND YOUR TAPE WITH £5, to:

5, NANPUSKER ROAD, HAYLE, CORNWALL. TELEPHONE: 0736-753646

BETA BASIC 1.8

ENHANCED BASIC FOR SPECTRUM 48K

FOR GRAPHICS — STRUCTURED PROGRAMMING — DATA HANDLING

Release 1.8 is more powerful than ever! We don't have space to do this program justice — if you can't believe the ad, send us a large S.A.E. for further information.

Features: Commands are single-entry keywords in graphics mode. Syntax is checked on entry. Fully compatible with Spectrum Basic. Microdrive compatible. Comprehensive manual.
NOTE: Release 1.0 is still available for 16/48K Spectrum at £11.00.

ALTER screens colours (general or specific)
AUTO line numbering
CLEAR to specific loops
CLOCK digital clock
CURSOR CONTROL CODES allow strings to have complex shapes
DEF KEY user definable keys
DELETE a block of lines
DO-LOOP structure
DPOKE double poke
EDIT specified line
ELSE (used with IF... THEN)
EXIT leave DO LOOP
FILL enclosed area with specified ink or paper
GET wait for keypress
JOIN two program lines
KEY$ a string
KEYWORDS new keywords on/off
LIST/LLIST one TO line
USED (used with GOTO, GOSUB)
ON ERROR trap errors (with LINE, STAT and ERROR)
PLOT a string (may contain cursor control codes)
POKE$ a string
POP Basic's stack
PROC, DEF PROC, END PROC (for named procedures)
RENUM versatile renumber
ROLL all or part of screen in any direction by specified number of pixels, with or without attributes
SCROLL like ROLL, but without wrap-round
SORT arrays (very fast)
SPLIT program lines
TRACE for step execution
UNTIL (used with DO or LOOP
USING (used with PRINT
WHILE (used with DO or LOOP
XOS, YOS move PLOT origin
XRG, YRG change PLOT scale

FUNCTIONS

AND (bit-by-bit)
BIN$ decimal to binary
CHAR$ number to 2 characters
COSE fast cosine
DEC hexadecimal to decimal
DPEEK double PEEK
FILL$ filled area
HEX$ decimal to hexadecimal
INSTRING string search
MEM free memory
MEMORY$ all of memory as a string
MOD modulus
NUMBER 2 characters to number
OR (bit-by-bit)
RNDM fast RND
SCRN$ recognises user graphics
SINE fast sine
STRING$ repeats strings
TIME$ current time
XOR (bit-by-bit)

Only £11.00 inclusive! (Upgrade price for Release 1.0 owners is £4.00. This includes a 12-page supplement to your manual. Please quote date of purchase. If you did not purchase from us, state supplier and return original cassette.)

Please send me:
Beta Basic, Release 1.8. Payment of £11.00 is enclosed.
for £11.50 for foreign orders). Cheques payable to BETASOFT.

I don't believe it! Please send me full details of Beta Basic 1.8. I enclose a stamped addressed envelope.

NAME: .....

ADDRESS .....

.....

BETASOFT
92 OXFORD ROAD, MOSELEY,
BIRMINGHAM B13 9SQ.

WD Software

QL Utilities (£10 on Microdrive)

This package offers single-key loading, running or deletion of files, multiple formatting of cartridges to another with optional over-writing of namesakes. In addition, a directory of 60+ files can be viewed without screen overflow. NB a VERIFY program is unnecessary — QDOS does this automatically. Now includes directory print-out and "qprint" to print any or all files on a cartridge with optional dated titles. Owners of the earlier package can update by sending OUR cartridge and 25p.

Current Spectrum Software

Tradewind (£5 cassette)
Buy a ship, provisions and cargoes to trade between the harbours of the Coral Islands. Make a fortune if the weather and pirates let you live long enough to master seamanship and economics. A strategy/adventure game with graphics for 48K.

Jersey Quest (£5 cassette)
Following an accident, you are stranded in the labyrinth of time and must find you own way back to the present with the aid of persons and objects from Jersey Folklore. Meet the Black Horse of St Ouen, the Dragon and Knight of La Hougue Bie, the Black Cat of Carrefour a Cendre, the Witches of Rocqueburg and many others. A text-only adventure for 48K in machine code (Quill).

Morse Tutor (£4 cassette)
This one has it all! 4-19 words/minute, variable spacing, variable number of groups of random letters, numbers or mixed, random sentences, own message, single characters (including punctuation), variable pitch FEEDBACK via screen, printer or SPEECH (phonetic alphabet via Currah u-Speech on 48K version only), and repeat facility. Takes you to and beyond RYA and Amateur Radio receiving standards. 16K and 48K versions on one cassette, 48K only on Microdrive cartridge.

Spectrum Programs on Microdrive

All the above are available on Microdrive cartridges at a price of £4.50 for one cartridge + the price of each program as shown above, e.g. a cartridge with Tradewind and Morse Tutor would be £13.50. As a BONUS, Gavin Monk's Indexed Loader is included FREE with each cartridge.

Available from:

WD SOFTWARE
Hilltop, St Mary, Jersey, c.I. Tel: (0534) 81392

STOP on the QL

DOUBLES THE CAPACITY OF MICRODRIVES!

STOP is a Storage Optimiser that will compress your microdrive files to as little as half their original size. Ideal for storing large amounts of text, BASIC programs, word processor documents etc., compatible with QL supplied software. STOP also works on data files for which the size reduction may be less and will vary.

Supplied on microdrive with full instructions. Send SAE for details. Available soon for the Spectrum.

Save pounds — it really works!

Only **£17.95**
inc. VAT, post free

DIGITEX DIGITEX COMPUTERS LTD
4 AMWELL HOUSE
THE WOODLANDS
ISLEWORTH, MIDDX TW7 6NX

SPECTRUM

Dual Function
Joystick Interface



£13.95 **SPECIAL** offer
for limited period

£12.50 INC.

FEATURES

* Compatible with any software that lists the Kempston Joystick.
* Compatible with any software that uses cursor keys.
* Half a Sinclair interface i.e. simulates keys 6-0.
* Allows use of any standard joystick.
* Eight directions can be programmed in simple basic.
* Free draw programme full instructions supplied.

CRACKSHOT

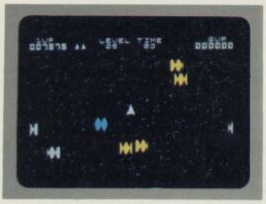
Joystick with pistol grip central fire button & sucker feet

ONLY £7.50
(as shown above)

Send cheques/P.O. to:
JILES ELECTRONICS
48 Parkway, Chellaston, Derby DE7 1QA
Overseas Orders add £2.00 or £3.00 with joystick.

JOYSTICK JURY

Success in the charts doesn't always mean it's the best game around. Check out the thoughts of our jury this month* — Ron Smith, Roger Willis *and* David Lester — *and you'll see what we mean ...



HYPERBLASTER

Lothlorien/£5.95

Roger: Get ready for a thoroughly hyper-yawn experience, because this is nothing but a down-market and down-wind re-work of that lounge bar favourite of yesteryear, *Asteroids*. Read and then instantly forget the fantasy blurb on the cassette liner, as the game's got virtually nothing to do with "hi-tech galaxy surveillance craft".

If there's anyone left in this universe who isn't familiar with the game format, then tough — I'm not about to bore you all by describing it. It's enough to say that for the sake of 'originality', the victims of player aggression have been named 'Deltanoids'. Their spherical appearance and painful manners, which are alleged to become "more brutal and devious" as infantile skill level rises, should really have attracted the seminal title for games of this ilk, which has to be *Heamorroids*.

And if you haven't got it yet, let's just say this one's guaranteed to give you a meaningful pain in the bottom — especially if you've clawed yourself up to a respectable height on the evolutionary ladder. *1/5*

MISS

Ron: I thought we killed off *Asteroid* lookalikes sometime in the dark ages of computing. Will software houses never learn that you can't lump together *Asteroids* and *Arcadia* and get away with it! *1/5*

MISS

David: A pretty good version of *Asteroids*, but then I'm sure we've all got at least one copy somewhere at home. The graphics get more interesting as you progress the levels. *3/5*

HIT



PI IN 'ERE

Automata/£6.00

David: The tedious scenario for this arcade game casts you as a miniaturised BURT inside a computer. Your mission? To track down the 'Big Bug', by tunnelling through RAM and collecting various items along the way. And if you think that sounds like an original idea, I don't know where you've been for the last few months.

The graphics are very reminiscent of *Pi-Balled*'s characters, and are both colourful and well-animated. The game's actually quite difficult to succeed at, especially when you're creating new tunnels knowing that there's a band of nasties on your tail. I must admit though, that it didn't inspire the 'just one more go then ...' feeling that should come with a good game. On the other hand, it's a reasonable version of its kind and is well supported by good graphics and sound. While it does have a Kempston joystick option, I found it too unresponsive to be useful and ended up back at the keyboard.

This game certainly won't stun the computer world by leaping up the charts — but it should be a success among Piman fans. *3/5*

MISS

Ron: The title does nothing to suggest that this is nothing but a *Mr Do!* rip-off ... but so what. The game's great fun, and it's certainly my tip for the top. *4/5*

HIT

Roger: At last — an arcade game that requires some detailed strategic planning. Automata's Piman games do have a tendancy to be a bit similar but, having said that, it's quite difficult to play. *3/5*

HIT



FULL THROTTLE

Micromega/£6.95

Roger: As a long-standing motorcycle fetishist, *Full Throttle*'s simulator promises were fatally attractive to me and it absorbed far more of my time than I originally planned — however, I couldn't help having one or two misgivings.

Program content initially exudes Grand Prix bike racing authenticity; the player is offered a menu of 10 of the greatest Grand Prix circuits in Europe. Throttle, brakes and steering all function in an apparently realistic way — the 'racing line' you take through the corners is critical to speed — but complete control is difficult on the keyboard. The 3D graphics are fairly good but, comprimised by a lumpy horizon, each track has a habit of looking the same. Worse still, an absence of visual reference make 'learning' each circuit almost impossible, so anticipation is seriously limited; just naming the corners of each circuit would have helped.

Unfortunately, the whole thing crumbles into arcadia when the player gets fast enough in the saddle to ride with the pack. The other 40 riders hop about like a bunch of idiots ... and bang goes the realism. Aspirant Barry Sheenes will bite Sinclair's finest with abject frustration as the opposition crank through the turns without ever crashing. *4/5*

HIT

Ron: I found this game quite impossible to play — the only way I got to race with the rest of the pack was to let them lap me. *2/5*

HIT

David: It's not the most colourful game I've seen, but it's certainly the best bike-racing game by far. Impressive 3D bikes and a selection of race tracks made this a winner! *4/5*

HIT



ALCATRAZ HARRY

Mastertronic/£1.99

Ron: Imprisoned in Alcatraz, it's up to Harry to search for and steal some secret files which've been stored in an underground vault and, once found, he must escape through a hole in one of the fences.

Now all this seems pretty simple until you see a grid map of the prison layout, which shows the 144 different locations in which the files could be hidden. To make sure that you visit most of them, it's necessary to search for 30 items of escape equipment as well. This done Harry must be helped back to the compound and begin his walk across the minefield to safety beyond the electrified fence.

This is no easy game to complete, but with only average use of colour, flickering repetitive graphics and a fairly slow playing speed, it's unlikely anyone would want to. However, to its credit, there are some fun locations to visit; for instance, go past certain guards too many times and you'll be arrested for loitering and have your head blown off — violent stuff, but done with humour. Definitely reasonable value for the price that's being asked. *2/5*

MISS

David: It's a shame Mastertronic's machine code programmers were out to lunch when this one got away. Thus, play is fairly slow and tedious. *2/5*

MISS

Roger: This one's a curious mixture of arcade and adventure action, but overall I'd say Harry deserved to stay incarcerated. I think some thrilling text might have made it better. *4/5*

MISS

IAN McKINNELL

JOYSTICK JURY



BC BILL

Imagine-Bo Jolly/£5.50

Roger: The fallen empire of Imagine Software bears guilt for *BC Bill*'s creation; Imagine may be 'the name of the game', like it says on the packet, but whoever wrote this didn't exactly apply a vast amount of imagination to this sample of Stone Age programming. Maybe everyone was too busy winding up the company to notice what the programmers were doing ...

The game is essentially lightweight stuff involving a primitive character who looks and behaves like your average Liverpool or Everton supporter — probably Imagine's way of introducing a little local colour. Bill, under player control, has to scuttle about a primeval landscape, clubbing wives and collecting food, before dragging the goodies back to his cave. An ever-increasing number of children, resulting from the collected and nourished wives, complicate matters as do the carnivorous (news to me!) dinosaurs dropping in for lunch.

Well, it's obvious it's going to be a success — everyone loves a good old dinosaur ... you only have to see how many people settle down to watch that load of old tott *One Million Years BC* each time the BBC repeat it. For me though, there wasn't enough going on — I spent the first few games just trying to find another screen (having got bored with the first fairly quickly); needless to say there isn't one — equally needless to say, it needs one. *3/5* **HIT**

David: Sexism to the fore in this strange little Stone Age scenario. It'll be a sure-fire hit — nice graphics and excellent sound help — but the initial attraction soon wanes. *4/5* **HIT**

Ron: What a load of sexist nonsense — great graphics, but the storyline stinks. Personally, I wouldn't give it house-room. *3/5* **HIT**



HUMPTY DUMPTY MEETS THE FUZZY WUZZIES

Artic/£6.95

Ron: This is a maze game with a difference, although you'd never guess it from the title or the silly picture on the cassette insert. It's all about helping Humpty escape from his enemies, the Fuzzy Wuzzies (who're responsible for all the bombs) and the Deadly Snappers.

The game's twist is that instead of having control of our egg-shaped hero, you get to direct the movement of the maze itself. The reason for this is that not only does Humpty look like a rugby ball, but he also behaves like one. He sits lifeless until the maze is turned through 90 degrees, whereupon he tumbles downward by the force of gravity. Only when an object is encountered or the Fuzzy Wuzzies get in the way, does Humpty actually come to rest again. There are 18 mazes in all, complete with teleports to help poor ol' Humpty out of the stickiest of situations.

While the use of the rotating maze is interesting, in play it tends to be very disorientating — especially as it disappears momentarily each time it's rotated. However, the overall display make use of clearly defined graphics and pleasant use of colour. Best of all though is the speed. *3/5* **HIT**

David: Despite the age-old theme, this maze game is different enough to warrant attention. The graphics and sound are good, although there's a distinct lack of addictiveness. *3/5* **HIT**

Roger: Who dreams these things up? The title's enough to put anyone off — which is a shame because it's really a very good game. I'm not too sure if it'll reach the charts . . . *4/5* **MISS**



THE PERILS OF BEAR GEORGE

Cheetahsoft/£6.95

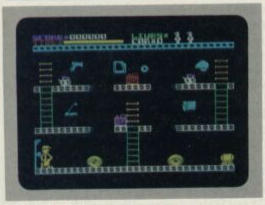
David: Believe it or not, the idea behind this game is to eat as many apples as possible, so that you can build up enough fat to last out the Winter in hibernation. For those of you, like me, expecting a game based on *Boy* George, you're going to be disappointed!

The first (of three) screens shows the bear in an orchard, waiting with mouth agape for some apples to fall from the trees. It's not that difficult — the only thing that can hurt you is a magenta-coloured apple falling on your head and knocking you out for a few seconds. Then, after three types of apple have been consumed, you automatically move to the ski-piste (?) and have to manoeuvre Bear George to his cave while avoiding the skiers. Once at the mouth of the cave, the scene changes again and it's now your task to walk along the bottom of the cave without touching the spiders who've attached themselves to the ceiling to block your path. When you reach your bed, there's a couple of seconds rest for Winter (yawn) and it's back to the beginning again.

Although the animation and graphics are superb, and the sound well above average too, there's little addictiveness to this at all — I found it far too easy. Nevertheless, this could be a commercial success. *2/5* **HIT**

Ron: *Bear George* is a really odd game. I haven't quite got the hang of the storyline yet — I refuse to believe it's that simple — but the graphics and sound are above average. *3/5* **HIT**

Roger: The thought of a game in which you've to force-feed a bear with over-ripe apples in a two-minute binge before hibernation suggests a crafty call to the RSPCA. Overall, one of the most unrealistic games I've seen. *1/5* **MISS**



AUTOMANIA

Mikro Gen/£6.95

Ron: Wally, the manic mechanic, has got to build 10 cars. What could be simpler? Well, after playing this game for a while, the answer's got to be 'just about anything!'

Wally's first job us to go along to the stores and collect the first part he needs — however, this is no ordinary storeroom. Most of the spare parts have taken on a life of their own, rolling about menacingly (if you can call a gentle rolling movement 'menacing' that is). Anyway, avoiding these, Wally must climb the ladders and jump across holes in the crumbling floors until he finds the part he's looking for; once he's got it, it's back to where he started. Thus, the game continues until the first car's built ... and then it's on to the next car. Whew!

The theme's original (although jumping over moving objects and climbing ladders certainly isn't!) and graphics, colour and speed are all used to good advantage. The presentation and execution of the game are excellent. *4/5* **HIT**

David: The graphics in this game are quite superb, which is a shame because the game isn't. Basically just another 'climb the ladder' game, I'm look forward to the sequel. *4/5* **HIT**

Roger: As games go, this ain't bad at all. Shame they called the hero of the game Wally, as that's exactly how he acted with me at the controls! I'd give it the thumbs up ... *5/5* **HIT**

WATFORD PLUGS THE GAP



SP-DOS
Spectrum Disc Operating System

- Single Drive capacities from 200K to 800K (formatted)
- Expandable to a massive 3.2Mb (formatted)
- Turn-key System capabilities
- Disc versions of Tasword Two, Masterfile and Omnicalc 2, together worth £50 included FREE OF CHARGE
- 100% compatible with the Watford Centronics/RS232 Printer Interface
- Comprehensive manual with step by step instructions

Watford Centronics/
RS232 Printer Interface

- The first and still the best Printer Interface
- Centronics and Bi-directional RS232 with full hand shaking
- Compatible with Interface 1, Interface 2, Microdrives and Watford's Spectrum Disc Operating System
- Compatible with most Professional programs
- Hi-Res screen dumps in two sizes on most dot matrix printers—a standard feature not an extra

£99.00
(Carr. £2)



£29.95
(Carr. £2)

Professional Computing Power

Get plugged into real computing with Watford's Spectrum Disc Operating System and Centronics/RS232 Printer Interface. Professional power for Spectrum users starts at under £400 with a 200K Disc Drive, Seikosha GP100A Printer, Spectrum Disc Operating System, Centronics/RS232 Printer Interface, printer cable and Tasword Two, Masterfile and Omnicalc 2 included absolutely FREE OF CHARGE. Now all Spectrum users can PLUG THE GAP.

Write for FREE leaflet on SP-DOS Spectrum Disc Operating System and Centronics/RS232 Printer Interface.

Mail Order and Retail Shop. Trade and Export inquiries welcome. Government and Educational Establishments Official orders accepted.
Prices subject to change without notice. All goods advertised subject to availability.
VAT: UK customers please add 15% VAT to total cost including any carriage charges.
Overseas customers—No VAT payable.
Access Orders: Phone (0923) 50234 (24 Hrs)

SP-DOS Disc Drive Prices

SPS2	200K Single formatted	£129.00
SPS4	400K Single formatted	£149.00
SPS8	800K Single formatted	£175.00
SPD1M6	1.6Mbyte Twin formatted	£339.00

(Carr. on Drives £7—Securicor)

Printer Prices

Seikosha GP100A	£125.00
QUEN-DATA DPW1120 Daisywheel	£175.00
Epson RX80	£229.00
KAGA/TAXAN KP810	£235.00
Epson RX80 F/T	£245.00
Epson FX80	£316.00
Brother HR15 Daisywheel	£339.00
Epson FX100	£435.00
KAGA/TAXAN KP910	£435.00
Centronics or RS232 Printer cable (Please specify which is required)	£8.00

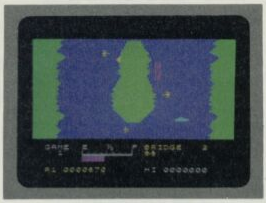
Carr. on Printers £7—Securicor

Watford Electronics

Shop Hours: 9am to 6pm
Monday to Saturday

Cardiff Road, Watford, Herts Telephone: (0923) 40588/37774 Telex 8956095 WAELEC

JOYSTICK JURY



RIVER RAID

Activision/£7.99

David: The idea of this game's pretty similar to a number of others I've seen over the last year, most notably *Blue Max* for the Atari.

You have to guide a jet plane up a river, banked on both sides by steep cliffs, shooting enemy planes, helicopters, ships and missiles that get in your way. Refuelling posts appear every now and then but these get fewer and further apart as you progress through the levels.

The graphics are quite smooth, but their quality's not so wonderful when you really push your foot down (or whatever you do in planes) — migraine sufferers watch out. Having said that though, you hardly need the graphics quality of *Sabre Wulf* to produce a good game, and *River Raid*'s certainly a good, addictive game. The game's both colourful and attractive to look at, and includes a good selection of start-up options .

I must admit I was expecting something a little better from a company like Activision — but then again, the game's addictiveness is certainly a strong point in its favour. It's just a shame it's a little let down by the quality of the sound and graphics. *3/5*

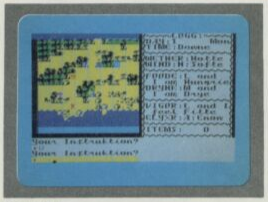
MISS

Ron: *River Raid* is a pretty basic game to be honest — I didn't think the graphics were up to much — but it was certainly addictive enough. *2/5*

HIT

Roger: Once I've played this game 23 times in a row, I'd got a list of criticisms as long as my arm. But then again, who cares if the game turns out to be that addictive? *3/5*

HIT



CRUSOE

Automata/£6.00

Roger: Like most well-written adventure programs, *Crusoe* gives the impression of literacy and intelligence to the humble ZX Speccy and, as someone who badly needs his severely flagging ego flattered by any means possible, I have to admit enjoying this desert island experience.

Screen format includes both a parchment logbook and one of a number of maps charting the castaway's position. The action involves shuffling the poor old soul round the island, feeding and watering him when required, and looking for all the available 'finds' to assist his survival. Apart from not letting him starve to death, the player also has to steer him around a selection of static and mobile hazards, as well as correctly answering his questions; he even responds in a like manner to unprintable abuse!

Gradually, his well-being improves and his lifestyle becomes more civilised — but how on earth do you get to find Man Friday? Well, he can stay in the undergrowth for all I care!

The complications, vaguely intellectual demands on the player and wittily detailed graphics, are at the core of *Crusoe*'s ability to amuse. *4/5*

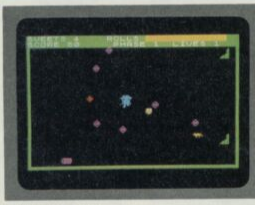
HIT

David: Jerky graphics and poor sound did not endear me to this desert island disaster — all the elements are there . . . it just doesn't quite work. *2/5*

MISS

Ron: Well, I'm not quite sure what the idea of the game really is, but I spent ages trying to find the mysterious Man Friday. Has anyone out there found him yet? *3/5*

HIT



MADHATTER

Gamma Software/£5.50

David: In this game, you play the part of the Mad Hatter from *Alice in Wonderland* who, you surely remember, is having a tea-party to celebrate his un-birthday ... but that's where the connection ends, I'm afraid.

Your task is to collect sweets and chocolate rolls from around the screen, which itself consists of very unexciting graphics; the vacuum cleaners are very shabbily defined and the mice, etc, are such grim programming specimens as to be almost unrecognisable. Moving your character square around the screen, you move into stationary and moving blobs, whilst avoiding others. The only difficult thing is getting out of the way of the baddies — difficult only because they go from side to side at silly speeds.

At first the game seems quite tricky, but soon becomes simplistic. I was looking forward to seeing some screen variations but I was disappointed. With graphics as poor as these, and no sound or variation to speak of, this game will be played once and once only. I remember games like this having trouble on the market when the Spectrum was released two years or so ago! *1/5*

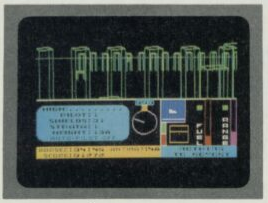
MISS

Roger: Preparations for parties that demand attention to sweets, chocolate rolls, mice and vacuum cleaners may be your cup of tea — but for me, it's not mad enough by half. It's got to be a miss. *1/5*

MISS

Ron: *Madhatter* lacks the professionalism we've come to expect from Spectrum software — it's too fast and block graphics just aren't on anymore. Pretty much a boring game, I'm afraid. It's a miss! *2/5*

MISS



TERRAHAWKS

CRL/£6.95

David: This is the game of the TV series — which should guarantee it being a chart-topper. I wonder if it's any good? Or even whether that'll matter . . .

The idea behind the game is to break out of a black hole by way of a vortex, which you must enter at a certain height, if and when you find it. To help in your quest, you've a radar screen, compass and range detector.

The start of the game is actually quite impressive, with lots of scrolling titles and tunes being played . . . but the myth soon evaporates. The screen fills with a number of 3D rectangles — which I seem to remember being impressively termed 'huge green monolliths' — which are dead easy to fly around, shoot up or whatever else you want to do to them. No problem! But of the vortex, I found no trace — so that's what makes this game so difficult!

I enjoyed the game for the first few moments, but when my fuel ran out after about 15 minutes, I wasn't that eager to start all over again. The instructions gave no indication of how to find the vortex and this is far from clear from the game itself. This might be a very good game — *if* you can work out what's going on before you get bored. *2/5*

HIT

Ron: The idea probably sounded great on paper . . . but CRL haven't pulled it off too well. The only part of the game worth seeing is the opening sequence of stars rushing past, over which the player has no control at all. The rest wasn't up to much either. *2/5*

MISS

Roger: I always did my jolly best to avoid that hideous TV puppet show — and it's a shame that I had to sit through the computer game! I guess it'll be a success, but who'd have thought the game could be even worse than the TV show? *2/5*

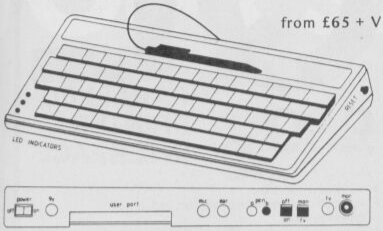
HIT

GETTING SERIOUS?

THEN LOOK NO FURTHER EIDERSOFT HAS THE ANSWER TO YOUR QUESTIONS

WHICH IS THE BEST REAL KEYBOARD FOR THE SPECTRUM?

from £65 + VAT



THE EIDER SYSTEMS PROFESSIONAL SERIES

The ultimate keyboard for the serious Spectrum user

STANDARD

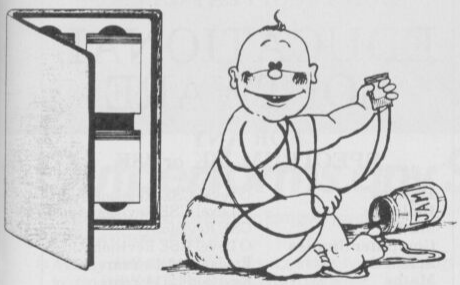
- ★ 67 keys with repeat shifts
- ★ On/off switch with LED indicator
- ★ Reset button
- ★ Fully built-in — no messy wires or holes
- ★ Fully compatible with interface/and all other addons

OPTIONAL EXTRAS

- ★ Built in composite video interface/TV switchable
- ★ Built in light pen interface with pen. LED indicator
- ★ Special interference filter no need to remove mic leads gives extra mic socket for backups + super reliable recordings. Save/load LED indicators

★ **NOTE** These are not addon keyboards but are fully fitted to your Spectrum at our specialized workshop in days

WHERE CAN I PUT MY MICRODRIVE CARTRIDGES TO KEEP THEM SAFE?



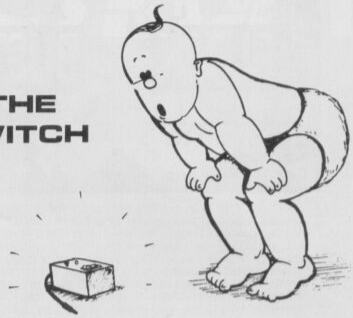
EIDERBOX

- ★ Holds 4 microdrive cartridges
- ★ Free standing
- ★ Comes with full index book
- ★ QL or Spectrum versions
- ★ Cover contains a useful list of the microdrive commands and applications

UNBELIEVABLE AT £1.49 INC.

HOW CAN I RE-SET MY SPECTRUM WITHOUT PULLING OUT THE LEAD?

THE SWITCH



- ★ Allows the Spectrum to be switched off or reset without removing the power supply lead
- ★ LED power indicator
- ★ Separate reset button
- ★ Compatible with *all* other addons including full size keyboards

AMAZING VALUE at £4.90 INC. VAT AND DELIVERY

CAN I CONNECT MY SPECTRUM TO A FULL SIZED PRINTER? WILL IT WORK WITH A MONITOR?

YES! EIDERSOFT ANNOUNCE A VERY SPECIAL DEAL FOR SPECTRUM AND QL OWNERS

Buy a discount printer from us and we will supply you with a centronics interface for only £20 (Spectrum) or £30 (QL) and give you a bumper starter pack of paper and labels as well!!!

KAGA/TAXAN

THE ULTIMATE K810

- ★ Near letter quality 80 col
- ★ 160 cps; friction and tractor feed
- ★ All standard fonts
- ★ Optional NLQ fonts in rom e.g. handwriting, bold etc.
- ★ Quiet with superb looks

Suits Spectrum/QL

INCREDIBLE AT £289 + VAT

EPSON

THE INDUSTRY STANDARD

- ★ RX80 F/T £265 + VAT
- ★ FX80 £355 + VAT

MONITORS

- ★ KAGA K12 RIX colour £199 + VAT
  Suits Spectrum
- ★ KAGA K12 N £99 + VAT
  Suits 85 col QL
- ★ PHILIPS V7001 £59 + VAT
  Suits both

STOP PRESS, KAGA QL Colour Monitors

HURRY! ONLY A FEW BLACK AND HIGH RES! £260

PLEASE ADD £5 P&P + VAT ON ALL LARGE ITEMS



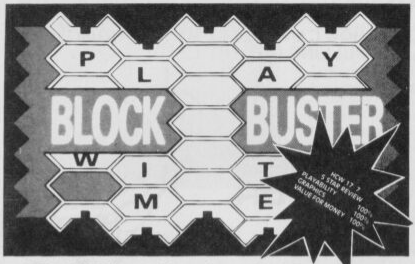
Eidersoft 01-478 1291
10AM - 8PM

FREEPOST, PO BOX 54, ILFORD, ESSEX IG1 1BR

THE FIRST 200 ORDERS RECEIVE A FREE C15 CASSETTE OR A FULL COLOUR PROGRAMMING CHART WORTH £1.25! NAME OUR BABY AND WIN A FREE CHRISTMAS BUNDLE YOURSELF! DETAILS WITH EVERY ORDER. HAVE YOU SEE OUR GAMES LIST?

HURRY, HURRY, HURRY, EIDERSOFT SILLY SERIOUS SOFTWARE SALE! ... MICRO PROLOG (24-95) £22 IS COMPILER (9-95) FP COMPILER (19-95) £17.95 LOGO (39-95) £35 MELBOURNE DRAW (8-95) £8 ABERSOFT FORTH (14-95) £13.00 CYRUS IS CHESS (9-95) £8.95 CHESS TUTOR (9-95) £8.95 ZEUS ASSEMBLER (12-95) £11.50 TASWORD TWO (13-90) £12.50 TRANS EXPRESS (MICRODRIVE VERSIONS) £15 MACHINE CODE FOR BEGINNERS (7-95) £7 MACHINE CODE TEST TOOL (9-95) £8.95 BEYOND BASIC (9-95) £8.95 H.U.R.G. (14-95) £13.00 MANY MORE PHONE FOR BEST PRICES IN TOWN. HAVE YOU SEEN OUR GAMES LIST?

ADAPTED FOR 16/48 SPECTRUM FROM THE POPULAR T.V. SERIES!!!



BLOCK—BUSTER is an exciting quiz game for ONE or TWO players and will appeal to a wide range of ages and skills with nine levels of play against the clock. The game tests speed of recall involving anticipation of the question as it 'unfolds' across the screen and speed of response dependant on the level of play.
BLOCK BUSTER is supplied with the FIRST ADDITIONAL QUESTION TAPE FREE to maintain the challenge of the game. Now available at good computer shops or direct with cheque/P.O. for £5.95 inclusive. ACCESS and VISA orders taken on our 24 Hour Hotline.

COMPUSOUND

DEPT SU10, 32-33 LANGLEY CLOSE, REDDITCH, WORCS B98 0ET
TELEPHONE (0527) 21429 (21439 24 Hr. HOTLINE)

QL

£39.95 INC

PARALLEL PRINTER INTERFACE

AVAILABLE NOW

- ★ 12 months guarantee
- ★ Fully self-contained with connectors and 3.0 metre cable
- ★ Plugs into Sinclair QL's RS232C port and
- ★ Drives any CENTRONICS compatible printer, eg, Epson Seikosha Juki OKI NEC Shinwa Star MCP-40 Canon, etc, etc.
- ★ 14 day, full money back "no satisfaction" guarantee.

To order send name & address with cheque to
(please note our new address)
MIRACLE SYSTEMS LTD
Unit 37a
Avondale Workshops
Kingswood
Bristol BS15
Tel 0272-603871 x210
Ask at your local computer shop.
Sinclair and QL are trademarks of Sinclair Research Ltd

TAPE COPIER 5
and now
MICRODRIVE 1

FULLY detailed instructions, and USER friendly programs.
TAPE COPIER 5 (TC5) makes essential BACK-UP copies of ANY tape (16/48K), including headerless, M/C, unstoppable.

- * CONTINUOUS LOADING of program parts, giving massive saving of time and trouble.
- * M/Drive — this extra option GENUINELY copies BASIC, M/CODE + arrays onto MICRODRIVE.
- * Verifies. Repeat copies. Program name plus HEADER data. Manages program occupying full 16/48K.
- * UPDATE service for old customers £2.00

TAPE COPIER £4.50 (WITH M/DRIVE OPTION £5.50)

MICRODRIVE ONE (MD1)

48K Spectrum owners with m/drive can NOW transfer the MAJORITY of their programs (inc. headerless, long programs, + those with LOW addresses ? say 16384).
TC5 transfers the bytes, but MD1 has 5 programs to HELP YOU get them running + 2 "CAT" housekeeping programs.
Including advanced header reader, program analysis, + other programs to produce the m/code you need. Manual has examples + exercises.
TC5 + MD1 offers an unrivalled opportunity for you to fully utilise your m/drive.

MD1 costs a mere £6.50.

OVERSEAS customers: add £1 Europe, £2 others for each product.
Please send SAE for enquiries.
WE OFFER ON ALL PRODUCTS A FULL MONEY BACK GUARANTEE.

LERM, DEPT YS,
10 BRUNSWICK GDNS, CORBY, NORTHANTS.
WE DO NOT CONDONE SOFTWARE PIRACY

MAXIMUM 5 * FROM:
HOME COMPUTING WEEKLY

See us at the
ZX MICROFAIR

DON'T JUST PLAY GAMES!

EDUCATIONAL SOFTWARE

FOR ANY SPECTRUM 16K or 48K

Physics	O level/CSE Revision Aid
Biology	O Level/CSE Revision Aid
Maths	CSE Revision
Computer Studies	O Level/CSE Revision Aid
Science	Revision 12/14 Years
Maths	Revision 12/14 Years
Mathematics	Revision 8/11 Years
Arithmetic	Revision 7/10 Years
Reasoning	11+ Revision
Knowledge	Quiz 9/99 Years

Exceptional value at just £4.95 each post free

IMMEDIATE DELIVERY BY FIRST CLASS POST

Cheques/PO to:

Micro-De-Bug Consultancy
Dept YS, 60 Sir John's Road
Selly Park, Birmingham, B29 7ER
Tel: 021 472 7610

DEALER ENQUIRIES WELCOME

TURBO CHARGE YOUR SPECTRUM



Outperforms any Spectrum interface

The unique Turbo interface from Ram gives you all these features – and more – in one unit:

- A variety of interfaces including: Rom cartridges, two 9-way D plugs for standard joysticks, PLUS full expansion bus at rear.
- Compatible with Kempston and Protek protocols.
- Works with latest Quickshot Mk II auto rapid-fire joysticks!
- Choice of Rom cartridge or tape cassette software.
- Instant program loading with cartridge software.
- Built-in power safety device – unique to Ram Turbo.
- Full one year guarantee.
- Immediate availability – 24 Hr despatch on receipt of P.O./ credit card details (cheques – seven days).
- Incredible value – only £22.95.

So don't wait around – simply complete the coupon and send it to us today.

Or call our credit card hot line on 02514 25252. (Access and Visa welcome).

Ram Electronics (Fleet) Ltd, 106 Fleet Road, Fleet, Hampshire GU13 8PA.

24 Hr despatch for credit cards and postal orders

Please send me:

_____ Spectrum Turbo Interface(s) at £22.95 + £1 p+p (overseas orders £3 p+p)

_____ Quickshot II Joystick(s) at £9.95 (Only when purchased with Turbo – normally £12.95 + £1 p+p)

I enclose cheque/postal order or charge my Access/Visa for: £_____

Name _____

Address _____

_____ Tel _____ YS 11

To: Ram Electronics (Fleet) Ltd, 106 Fleet Road, Fleet, Hampshire GU13 8PA.

RAM TURBO

Trade and export enquiries welcome.

SPECTRUM'S ADVANCED KEYBOARD

HI»QUALITY

■ The **LO>>PROFILE** professional keyboard is the ultimate upgrade for your Spectrum. By replacing its existing keyboard with a high quality **LO>>PROFILE**, you give this world-beating computer the keyboard it deserves.

■ The **LO>>PROFILE** is a full size QWERTY keyboard with full-travel positive-action keys for super-fast entry of programs and data. Presented in an ultra-modern and robust enclosure, the **LO>>PROFILE** is elegantly styled and is inclined forwards for convenient operation.

■ Featuring a full size space bar with dedicated numeric and curser keypad the **LO>>PROFILE** increases the number of keys from 40 to 53. A combination of clearly labelled, sculptured and height-adjusted keys aids the advance to fault-free touch-typing.

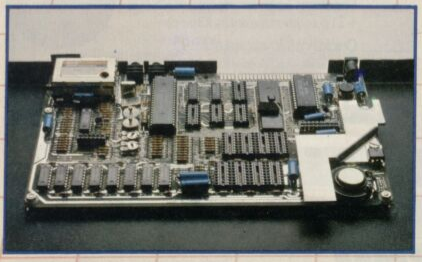
■ Advanced Memory Systems have established an excellent reputation for product reliability and prompt delivery. This product has been tested to an impressive 20,000,000 depressions per key and AMS offer a full one year guarantee.

LO»PROFILE



THE LO>>PROFILE PROFESSIONAL FROM ADVANCED MEMORY SYSTEMS LIMITED.

Fitting your Spectrum computer board into the **LO>>PROFILE** keyboard is easy. All you need is a screwdriver to secure the board onto the base of the keyboard enclosure using the mountings provided. The **LO>>PROFILE** is compatable with all Spectrum add-ons.



If not available from one of our 200+ dealers then fill in the coupon and we will send you a **LO>>PROFILE** with our full no-quibble money-back guarantee. Or phone 0925 602690/ 62907 for instant Access or Visa orders.

Please send No.____ **Lo>>Profile Keyboard** at £49.95 plus £2.50 p&p (VAT inclusive)
I enclose a cheque/PO for £..... or debit my credit card.
Card No
☐ Barclaycard
☐ Access card
Signature _____ Date _____
Name _____
Address _____
Postcode _____

To: Advanced Memory Systems Ltd.,
Woodside Technology Centre,
Green Lane, Appleton, Warrington WA4 5NG

YS.11.84

DOUBLE TROUBLE

If you're having problems with any aspect of Spectrum hardware/software, let* Ian Beardsmore *come to your rescue. Write to him c/o Spectrolysis, Your Spectrum, 14 Rathbone Place, London W1P 1DE.

Some interesting letters have been coming in this month. Here's one from **Martin Howell** of Euxton, Chorley in Lancashire on the subject of the Double Standards piece in *YS* issue 3.

'You appear to be having problems with full duplex working — though you don't quite say so in the article. I suggest you try the following (by the way I'm using an Issue 2 Spectrum, Interface 1 and EP44).

Ignore lines 9997-9, which are just for completeness. Line 30 is to get rid of the annoying flashing border, line 50 stops the Speccy running away with itself and line 60 uses STOP to get out. Line 70 stops invalid characters; (I'll deal with line 80 later) and line 90 allows upper case.

You may recognise bits and pieces of programs from Andy Pennell's book, *Mastering Your ZX Microdrive*, though they're now much modified. Back to line 80; this will in fact overcome a bug in Andy's

```
  1 REM INKEY$,INKEY$£, PRINT & LPRINT ? M.R.How
ell 5/84
 10 FORMAT "b";300
 20 OPEN £4;"b"
 30 POKE 23750,7
 40 LET a$=INKEY$
 50 IF INKEY$<>"" THEN  GO TO 50
 60 IF a$=CHR$ 226 THEN  CLOSE £4: STOP
 70 IF a$>CHR$ 127 THEN  GO TO 40
 80 IF a$=CHR$ 14 THEN  LET a$=CHR$ 32
 90 IF a$=CHR$ 6 THEN  POKE 23658,8-PEEK 23658:
GO TO 40
 100 PRINT £4;a$;: PRINT a$;
 110 LET b$=INKEY$£4
 120 IF b$="" THEN  GO TO 40
 130 PRINT b$;: PRINT £4;b$;
 140 GO TO 40
 9997 STOP : SAVE "INKEY$,INKEY$£4, PRINT &  LPRIN
T ": REM Tape recorder
 9998 STOP : SAVE *"m";1;"INKEY$,INKEY$£4, PRINT &
  LPRINT ": REM Tape recorder
 9999 STOP : FORMAT "t";300: OPEN £3;"t": POKE 237
 50,7: LLIST : CLOSE £3
```

Written by *YS* reader Martin Howell, this routine attempts to carry out duplexing ... strictly speaking, though, it's really only half-duplexing!

book, that is the BREAK inconsistency. To get a space you must use both shift keys, or the program halts at line 110.

I also seem to have found another bug, either in the Speccy itself, or the Interface 1 (I'm still awaiting a reply from Uncle Sir Clive). When sending to the Speccy from a terminal via the RS232, odd characters are corrupted, typically one in eight. It happens even when using Sinclair Research's own program on page 37 of the handbook; I've tried other devices besides the EP44 — not to mention another Interface 1 — all with the same result.'

I actually had three versions of duplexing, sent in by readers, but the one from Martin Howell was by far the neatest and the most adaptable which is why I've included it — even if it is wrong! Actually he answers the question about the 'bug' himself but the routine is not duplexing, it's half duplexing! Duplexing is the simultaneous transmission and reception of data. The most important word being simultaneous. As far as I know, the Speccy has only one processor and that's capable of doing only one thing at a time.

With Interface 1 connected, data is stored in an RS232 buffer, from where it can be moved either into the memory or out along the TX line into the wild blue yonder. However, if you're trying to do this at the same time as taking data into the buffer from the RX line, then you're bound to get into trouble. The same is true if you try and work things the other way round — as you've found with your one over the eight corruption. I suppose it might be an interesting way of writing secret code, but otherwise it's very annoying.

To get round this you'll have to look at lowering the CTS line and thus try to switch from RX to TX without corruption. While CTS is high the computer will send data. However, if you lower it, make sure that the equipment you're talking to recognises it for what it is. As for anyone thinking of being clever and using the DTR line, well, normally that could be a good idea. Unfortunately, there's an inherent assumption in this that the Speccy is in some way 'normal' — which it isn't. If the DTR line is lowered, the Speccy will chase its own tail in a loop, *ad infinitum*, or at least until you pull the plug. Well, it would be boring if things were too easy.

ALPHACOM LOCK-UP

Mr T Jennings of Ashton, Bristol uses an Interface 1 on his Speccy and since his ZX Printer died at the tender age of 13 months he's been hitching up to an Alphacom 32. Unfortunately he seems to be getting Issue 3 type problems. Besides the keyboard locking up when Tasword or Spectext is used with the Interface 1 and printer, the IN command fails to return a uniform value under apparently identical conditions. The automatic answer to this is the Issue 3 IN command problem. The only flaw in this fine theory is that the machine in question is an issue 2!

The most likely cause is that a decoding chip has gone haywire. Of course, there could be a bug at the Alphacom end of things, but it would be the only example of this I've come across to date. I'm also assuming that you haven't sent your Spectrum back to Sinclair Research to have a fault repaired at some time, and if you have that you've checked that it's still an Issue 2. It's by no means unknown for someone to get a different computer back from the merry men at Camberley.

Certainly with the demise of the ZX Printer the Alphacom becomes a credible alternative. If the machine is a genuine unadulterated Issue 2, then the first move is to take steps to have the various chips in the system checked to see if they're all up to scratch. For that I would suggest contacting TV Services of Cambridge on (0223) 358366.

THE RIGHT TYPE

David Lester is another to have discovered the power of the Speccy/Interface 1/*Tasword*/EP44 system. He makes the point that it's all very well for Sinclair Research to say that most printers are RS232 (and thus Interface 1) compatible but many of them don't have an RS232 on-board; that comes as a usually rather expensive extra. On the EP44 however, the RS232 port is standard.

David reckons the print quality is as good as most daisywheels (I'm not sure about that), but he's correct to say that the Brother is well up to general correspondence standard. Where the Brother falls down in comparison to proper daisywheel devices is speed. The baud rate must be 75 or 110. The Brother works at about 16cps — anything faster and it simply cannot print the incoming data fast enough.

Of course another of the Brother's great advantages is that you can use it as just an electronic typewriter. Another plus is its on-board modem which allows the downloading of typed text into the Speccy. You can even dump text from the Brother's memory into *Tasword*. One disadvantage is the absence of dot graphics — so you can forget screen dumps. Also be careful about mode selection — there's the recurring problem of the '£' sign being in the font as a replacement for the hash. This might hinder printing out programs where the pound sign is used anywhere.

Tasword is a superb program and the foresight of the company to make it accessible to the user has only widened its range.

Several people have written eulogies on this system and others have written in for more details, particularly regarding wiring it up. Fortunately, two people have supplied the necessary info ... and here it is... YS

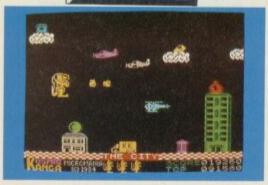
PIN NUMBER CONNECTIONS

ZX INTERFACE 1	EP44
9	25
2	2
3	3
4	20
5	5
7	7

KOSMIC KANGA

NEW
AT YOUR LOCAL SOFTWARE STOCKIST NOW!

At John Menzies now



KOSMIC KANGA, a multi-screen, amazing, arcade standard original action game. Featuring superbly animated graphics and packed full of arcade features. Help KANGA find his space ship so he can return home to his planet. Leap about buildings, trees, clouds etc., pick up bonuses and throw boxing gloves at the enemies.

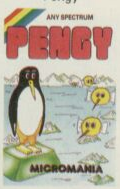
Keyboard or most joystick. 48K SPECTRUM & COMMODORE 64

Tutankhamun



48K Spectrum

Pengy



16K/48K Spectrum

Invasion Force



48K Spectrum plus stack SLR

ONLY £5.95 EACH

Available from most good software retailers, If your local software retailer is out of stock, send cheque/P.O. to Micromania, 14 Lower Hill Rd., Epsom, Surrey, KT19 8LT., and we will send your order by first class post free.

MICROMANIA

DEALERS—AVAILABLE FROM ALL LEADING DISTRIBUTORS OR MICROMANIA (03727) 20152

THE FREE YS CLASSIFIED AD SERVICE

INPUT OUTPUT

Something you want to sell or swop? Book yourself a free classified ad in Your Spectrum . . . you know it makes sense.

HARDWARE

■ For sale. Kempston Pro 5000 Joystick (Interface not included). Only £8. Only two months old, (ten months guarantee left). Contact Newcastle (0632) 285243 after 4.30 pm for further details.

■ Tandy DMP100 Printer — high-resolution graphics, Centronics and RS232 Interface (ideal for Interface 1) with free RS232 lead + m/c copy software. New £300 — accept £140. Tel. Bristol 684615.

■ Input/Output port for Spectrum (Multitron, 16 line). For robotics and control. Very versatile. Through bus. Reset. Never used. Issues 3 & 4 only. £12.50. JAW McCowan, Hawthorn Farmhouse, Stowe-by-Chartley, Staffs.

■ 48K Spectrum, Interface 1, Microdrive, nine cartridges, Alphacom 32 printer, Kempston Joystick Interface, sound amplifier and software. Quick sell, £280 ono. Tel. 0823 75615. Ask for Mr Kwong. After 6 pm.

■ ZX Printer + 4 rolls printer paper. £30 phone 0702 79737.

■ Currah MicroSpeech £20. ZX Printer plus power supply £30. Three-channel sound generator and joystick board £15. Tel. 01-769 0588 (Glyn).

■ Swop my Currah MicroSpeech, as new, for a Sinclair printer. Also swop *Circus Adventure* for Level 9's *Snowball Adventure*. Andrew Hedges, 17 Parkwall Crescent, Warmley Tower, Bristol BS15 5HP.

■ Rotronics Travel case for Spectrum. 35cm x 70cm, lock and key. Cost £40, sell for £22. Will swop for an RD digital plotter. Tel. Doncaster 883794 (Mike).

■ Swop Speccy 48K, cassette, software + mags worth £250 for CBM64 or sell for £180. Speccy still under guarantee. Tel. 01-801 8938. Will collect.

■ 48K Spectrum, 3 months old plus programmable joystick interface and £50 of original software, including *Pacman, Kong, Pool, Asteroids* and many others. Worth £230, sell for £170 ono. Tel. Newmarket 664557.

■ Swop Currah MicroSpeech for Fuller Sound Box or similar item. Otherwise will sell for £25. Mr CA Purcell, 14 Cathkin View, Carmyle, Glasgow G32 8AF.

■ Swop ZX Printer, Currah MicroSpeech and £70 worth of games for Interface 1. Games include: *Sabre Wulf, Moon Alert, Trashman*. Tel. (0272) 878966. 36 Highdale Avenue, Clevedon, Avon BS21 7LT.

■ Swop Atari VCS with 5 cartridges for Interface 1 and Microdrive. ZX Printer wanted for Downsway Programmable Joystick Interface and *The Chess Player*. Ring Andrew on 0253 733706 8pm-9pm.

■ Brand new Fuller FDS Keyboard, with extra function keys plus space bar. Unused and still boxed. Cost £49.95, will accept reasonable offer or exchange. Tel. 0203 594005.

■ 48K Spectrum, Interface 1, twin Microdrives, Interface 2, Currah MicroSpeech, Joystick, Alphacom printer, software, books, cassette, 12 Microdrive cartridges, Dk'Tronics Keyboard; total worth over £650. Sell for £350. Tel. John, 061-434 6251.

■ Two SweetTalkers. Excellent condition in original boxes for Spectrum. Never used. Send £23 (each) to 50 Elm Park Road, Havant, Hants PO9 2AD. They come with full instructions and tape.

■ ZX Printer paper. 4 rolls £6.00. Can be used with Speccy or ZX81 (excuse the language). Tel. 01-593 5056 for further details.

■ Protek Joystick Interface for sale, uses cursor keys, want £8. KH Lau, 1 Fielden Grove, Headington, Oxford OX3 0DU.

■ Kempston Joystick and Interface plus conversion tape one, £12. Tel. Mellis 350 evenings.

■ Havard 410T 40-channel, hand held, CB radio + ten re-chargeable batteries + re-charger (for CB). The lot for £30 or swop for Currah MicroSpeech. Tel. Cardiff (0222) 842817 after 6 pm.

■ Auto-fire fitted to Kempston Joystick. Save all that thumping of the fire button and phone (0222) 513216. Ask for Nicholas, also computer compatible cassette recorder, worth £20, sell for £8.

■ Swop Spectrum AGF Programmable Joystick Interface (unused) and three games tapes for Stack Light Rifle. Ring Clive 01-560 8792 after 6 pm.

SOFTWARE

■ Willing to swop *Ocean Kong* for Software Projects', *Jet Set Willy*. Very good condition. Stuart Smith (0555) 71911.

■ Will swop *Stonkers, Black Crystal, Apocalypse, 1984, Go To Jail, Spectapede, Zipper Flipper*. Phone Newcastle 617656 or write to 2b Kelvin Street, Maybank, Newcastle, Staffs, ST5 0JJ for details.

■ Spectrum tapes. *Hobbit* with book for *Quill* or *HURG*, originals only. 16/48 tape magazine, 3 issues for *Chuckie Egg*. Phone Worcester 29206.

■ *TLL, Codename Mat, Fighter Pilot, Chequered Flag, Scuba Dive, Ad Astra, Hunchback, Eskimo Eddie, Fred, PSSST, Android Two, Alchemist, Penetrator* and others. Swop for Interface 2. Tel. 0326 290459.

■ *E.T.X., Styx, PSSST* swop for *Automania* and *3D Tank Duel*. Phone Stuart on Danbury 3303.

■ Swop *HURG* for *Supercode*. Must be original. Steve Archer, 21 Chapter Road, Strood, Rochester, Kent ME2 3PX.

■ I have software to swop. Send SAE for my list. Chris Jenkins, 48 Gadlys Street, Aberdare, Mid Glam, South Wales CF44 8BH. Games include: *Jet Set Willy, Kosmik Kanga* and more.

■ Software to swop. *Jet Set Willy, Alchemist* and other games. Write to Geoff Critchell, 40 Birstow Crescent, Leicester LE4 2JR.

■ Currah MicroSpeech, *Melbourne Draw, Scrabble*, Dk'Tronics Lightpen, *Paintbox, Atic Atac, Address Manager, Aspect 4.2 Compiler*, 5 books for Interface 1 + Microdrive with cartridge. John McNeilly, 116 Culzean Avenue, Coatbridge, Scotland ML5 5LN.

■ Spectrum Software for swop. *Mugsy, Sabre Wulf, Bugaboo* plus more. Send your list for mine: Nigel Sylvian, 62 Reedham close, Ferry Lane, London N17 9PT.

■ Would like to swop *Jet Set Willy, Atic Atac, Cookie* for *Jack and the Beanstalk, TLL, Worse Things Happen At Sea*. Phone 0642 245739 (Stephen).

■ Swop *White Lightning* for *HURG*, also *Sabre Wulf* for *Lords of Midnight*. Write to Peter Van Allen, 11a Hampton, Portesham, Dorset DT3 4EX. Tel. Portland 820982 and leave number.

■ I have *Jet Pac, Cookie, PSSST, Splat, Carnival, Chuckie Egg, J.A.T.B., Robotics, Mr Wimpy, Dragonsbane* and *Jet Set Willy*. I am open to all offers of swops. Phone 0424 215864 (Warren).

■ Swop *Zaxxan, The Birds and The Bees, Tranz Am, Horace and the Spiders, Leapfrog, 3D Tunnel, Zzoom, Cavelon* and *Valhalla* for any interesting arcade or adventure games. Phone 0946 812659.

■ Would like to swop *Jet Pac, PSSST, Cookie, Scuba Dive, Golden Apple, The Hobbit, Valhalla, Zip Zap* and *Sinclair Chess* for any good games. Phone 0900 823604 after 6 pm ask for Piers.

■ Swap *Snowman, 3D Deathchase, Pyramid* and *UGH!* for Hisoft *Devpac 3* and *The Complete ROM Dissasembly* by Melbourne House. Phone 0482 836286 after 6 pm. Ask for Dave.

■ Swop *Scrabble, Niteflight, Vu-Calc, River Rescue, Speed Duel* and *French is Fun*. Offers. Tel. (John) 0869 38586.

■ I have software to swop including *Jumping Jack, Armageddon, Spookyman, Meteor Storm, Destroyer* and *Star Trek*, etc, Please send your list for mine to: Ian Carrol, 4 Trentbrooke Avenue, Hartlepool, Cleveland TS25 5JN.

■ Swop *Scope, Devils of the Deep, Flight Simulation*. I would like in return, *Trashman, Doomsday Castle, Codename Mat*. Also *Scuba Dive* for swop. Phone 0909 474448, ask for Andrew.

■ Swop *Knot in 3D* for Spectrum 48K games, preferably *Sabre Wulf, Jet Set Willy* or *Worse Things Happen At Sea*. Also swop *Beyond Horizons* and *Spectrum Computing 1-4*. Phone 037971 667 and ask for Jonathan.

■ Swop *Manic Miner, Blue Thunder, Combat Zone, Pool, Ant Attack, Flight Simulation* for *Full Throttle, Ad Astra, Olympics, Worse Things Happen At Sea, Automania* or *Night Gunner*. Tel. Little Chalfont 3553.

■ Will swop *Lunar Jetman, Black Crystal, Pool, Super Soccer* and *TimeGate* for *Sinclair Scrabble* only! Also have ten others to swop. Contact Keith, 11 Coniston Close, Danebank, Denton, Tameside M34 2EW.

■ Swop *Warlock of Firetop Mountain* arcade/adventure game for *Quest Adventure* or *Classic Adventure*. Phone 04946 4120 or write to Guy Walters, Egham's Farm, Knotty Green, Beaconsfield, Bucks. HP9 1XL.

■ I have *Mugsy* and *The Hobbit*, will swop for anything including interfaces or other software. Contact Craig Beckwith, 6 Row Street, Crosslandmoor, Huddersfield. W Yorks HD4 5BB stating offer.

■ I'll swop my *Atic Atac, Royal Birkdale, Arcadia* and *Space Raiders* (originals) for the Devpac assembler

BOOK YOUR FREE AD HERE

I'd like you to insert the following advertisement in the next available edition of INPUT/OUTPUT.

Please enter it under the following category:

☐ HARDWARE ☐ SOFTWARE ☐ WANTED

☐ MESSAGES ☐ CLUBS & EVENTS ☐ PEN PALS

Address this coupon to: INPUT/OUTPUT, Your Spectrum, 14 Rathbone Place, London W1P 1DE.

Name .....

Address .....

.....

.....

.....Postcode.....

If you don't want to mutilate your issue, send a photocopy instead!

INPUT OUTPUT

and monitor. Richard Ford, 10 Cumberland Avenue, Derby DE2 6FL or phone Derby 674463.

■ Swop *The Hobbit* with instructions and book for *Scrabble* plus instructions. Also *Blue Thunder* for any good fruit machine game. Contact Ian Clarke, 22 London Street, Andoover, Hants SP10 2PE.

■ Swop tapes. Required: *Apocalypse, Inca Curse, 3D Tank Duel, Plunder, Special Operations, Empires* (for 4). For: *Guardian, Lunattack, Road Racer, Olympics, Doomsday Castle*. Jon Rype, Box 184, 3420 Lierskogen, Norway.

■ Swop your Spectrum originals. My list includes *Sabre Wulf, Jet Set Willy, Match Point*. Send SAE for full list to Andrew Bolsover, 298 Hastilar Road, South Sheffield S13 8EJ.

■ Will swop brand new *Psytron* for *Decathlon* (Ocean), *Stop the Express* or *Match Point*. Phone Bob on 01-892 7363

■ Swop my *Complete Machine Code Tutor, Zeus Assembler/Monitor* for *Dynamic Graphics, Picturesque Assembler/Monitor*. Also 100+ games/utilities for swop with other good originals. Phone Dave 0632 2856185 (Newcastle).

■ Swop *Superchess 3.0* for *Beta Basic* and *Traxx* plus *The Pyramid* for *Antics*. Write to Alistair Scott, 30 Talbot Street, Grangemouth, Stirlingshire FK3 8HV.

■ I will swop *Golf, Black Hole* and *Spectral Panic* for *World Cup* or *Football Manager*. Phone 01-941 5849 after 6pm Mon-Fri. Ask for Alan.

■ PLEASE! Has anyone got *Trashman* and wants to swop it for *Pogo*. It's a very good game similar to *Q*bert*. Tel. 061-430 2495 and ask for Andrew.

■ Swop *Chuckie Egg, Pinball Wizard, Tai-Pan, Bomber Birds, Lunar Jetman, Paradroids, Death Star, Orbiter, Potty Painter, Paratrooper* for any games, assemblers or compilers. Phone Middleton-on-Sea 2128.

■ Wanted: *Valhalla, Alchemist, Trashman*, and *Death Chase* for 48K Speccy. Swop *3D Bat Attack, Alien Swarm, Bozy-Boa, Spectipede* and *3D Tunnel*. Tel. Cars Glen 713644 and ask for Mark.

WANTED

■ I need ZX81 utility programs: High Res graphics and quick save. Also ZX Printer instruction manual. D T Morrisey, 1a Ashcombe Road, Weston-Super-Mare, Avon BS23 3DS.

■ *Mastering Machine Code on Your ZX Spectrum* by Toni Baker (Interface), in good condition and cheap. Phone Matthew Ensore on Weston 772265.

■ Help please! Any hints, POKEs, etc, on playing, hacking any game. Please write to Mrs Potter, 78 Derby Street, Chadderton, Oldham, Lancs, OL9 7HJ.

■ Issue 2 of Your Spectrum (complete with Ant Attack chart). Must be in good condition. Phone Runcorn 09887 after 4.15 pm and before 6.30 pm. Ask for Ady.

■ Has anyone cracked *The Hobbit*? If so could they ring me and tell me the answers to the riddles that Gollum asks. Thanks. Tel. 061-430 2495.

■ Wanted for experiments. Spectrum 16K or 48K. Must be cheap. Leads, PSU not essential. Write to KR Woolley, 29 Belle Vue Road, Ashbourne, Derby DE6 1AT.

■ Any micro + Z80 assembler (or available), disc drive, RS232 m/c programmer to exchange ideas. M Roberts, 90 Hiltingbury Road, Chandlers Ford, Eastleigh, Hants. (04215 3083).

■ Help I need Issues 2 and 3 of *Your Spectrum*. Up to £1 per issue if in good condition and complete. Tel. Mr Smith 0323 897376 evenings only.

■ Wanted — Spectrum in any condition but internal parts must be alright. Must be cheap. Write to Mr Wing Lee, 5 Crown Street, Hebden Bridge, West Yorkshire HX7 8EH.

■ Wanted. 16K ZX81 with software and add-ons. Swop for over £150 of original Spectrum software including *Hobbit, Jet Set Willy, Manic Miner, Flag*, etc. Phone Dave on 0249 890139.

■ Wanted! Currah MicroSpeech. Will swop for the top Spectrum 48K games. Write to OR Shaw, 25 Redwood Avenue, Royston, Barnsley, South Yorkshire.

MESSAGES

■ Hi there Mad Milmps! Enjoyed ya article on your clapped out MX80. Very impressed by machine code. Perhaps we could get together sometime? Hilly.

■ Any books on m/c? If so, could I borrow them? Immediate return after use. Send to Tony, 9 Albany Drive, Bishops Waltham, Hampshire SO3 1GE.

CLUBS & EVENTS

■ National ZX Spectrum Club. Bi-monthly newsletter including hints (Basic & m/c), programs, software reviews and offers, plus all the latest news. Send SAE for details. Phone Meopham 812719.

■ Hackers Club: Exchange or recieve POKE codes, etc, and get in touch with other hackers. Send cheque, P/O to Martin McGlone, 62 Sillars Meadow, Irvine, Ayrshire, Scotland KA12 0LZ.

PEN PALS

■ Pen pal wanted to swop software information and lots of hints and tips. Please write to: John Parkes, 22 Chicester Close, Grantham, Lincs NS31 8AS.

■ Pen pal wanted. I am interested in computers. I am aged 14 and live at 5 Arno Street, Preston, Lancs PR1 3QR or phone Preston (0772) 22457 after 6 pm.

■ Experienced programmer (Basic) seeks a fellow programmer to write games/adventures for computer magazines — male or female. Must live in Mansfield/Worksop. Simon Dimaline, Dan-y-Coed, Rufford Park, Nr Ollerton, Newark, Notts.

■ Pen pal wanted aged 15-16. Preferably m/c programmer. I am a likeable (!) war games-type hacker minus the modem. Please contact Gareth Jones, 38 Croft Avenue, Burscough, Lancashire L40 ST13.

■ I'd like a pen pal to share hints and tips on programming and to swop software. Write to Alun Fairburn, 69 Pontammen Road, Ammanford, Dyfed, Wales SA18 2HX.

■ Pen pal wanted for swopping hints and tips on adventures, etc, and to swop programs. Write to Jeff, 26 Harry Price House, Oldbury, Warley B69 1EQ. Software swop lists welcome.

■ I would like a pen pal to help me write games. Mark Hutton, 22 Rannoch Avenue, Woodhill, Bishopbriggs, Glasgow GG4 1BU.

■ Lonely Spectrum basher would like pen pal. I like most music and computing. Write to Lee, 24 Edwards Road, Belvedere, Kent DA17 5AL.

■ Pen pal wanted to exchange ideas, software, etc, Spectrum user with Microdrive and/or Tandy CGP-115 printer preferred. I am male, about 37. Please write to Mr T D Parsons, 42 Park Leys, Harlington, Dunstable, Beds LU5 6LZ.

■ Pen pal wanted by 15 year old interested in Spectrum Basic and m/c programming, games playing and photography. Chris Sheldon, 8 Primrose Close, Wheaton Aston, Stafford, Staffs ST19 9PX.

■ My hobbies are swimming, computing. I have 66 games and am 12 years old with one dog called Huckleberry. I have one Kempston joystick with interface (48K). Write to Nicholas White, 14 The Hastings, Wickford, Essex SS11 7EQ. YS

★ NOW AVAILABLE FOR THE AMSTRAD CPC 464!!

WIN THE POOLS?

SPECTADRAW 3 – THE LATEST VERSION OF THE ORIGINAL AND BEST POOLS PREDICTION PROGRAM FOR THE 48K ZX SPECTRUM!!

AND NOW . . . AMSTRA-DRAW – THE FIRST POOLS PREDICTION PROGRAM FOR THE AMAZING NEW AMSTRAD CPC 464!!



- Supplied with Database containing data on over 10,000 matches since 1980!
- You update the Database each week – but no tedious typing, as team and division names already in program!
- Errors easily corrected – the program even checks your entries!
- Comprehensive instruction manual and menu driven program – easy to use, even for a newcomer to computing!
- Will forecast the least likely draws for those who prefer to bet on fixed odds!
- Built in perm generator – complete your coupon direct from the screen!
- Fully microdrive compatible! (Spectadraw only).
- Compatible with Currah Microspeech – the first pools program to read you its predictions! (Spectadraw only).

Spectadraw 3 for the 48K Spectrum .....£9.95 inclusive
Amstra-Draw for the Amstrad CPC 464 .....£9.95 inclusive
(Cheques/P.O.s payable to B. S. McALLEY)

We dispatch every Monday with the database made up to include all matches up to the date of dispatch.

SPECTADRAW (Dept YS), 1 Cowleaze, Chinnor, Oxford OX9 4TD. (Tel: 0844-52426)

BLANK CASSETTES

Rely on the professionals for guaranteed top quality computer / audio cassettes at great value budget prices. Packed in boxes of 10, complete with labels, inlay cards and library case.

Length	*Box Price (10)*	*Qty.*	*Value*
5 mins (c.5)	£4.55		
10 mins (c.10)	£4.40		
12 mins (c.12)	£4.45		
15 mins (c.15)	£4.50		
30 mins (c.30)	£4.70		
60 mins (c.60)	£5.30		
90 mins (c.90)	£7.00		

Prices include VAT, post & packaging
Cheque/Postal Order enclosed for £

Trade enquiries welcome. Get best terms, service & product. Buy direct from manufacturers of professional brand cassettes.

NAME _____

ADDRESS _____

PROFESSIONAL MAGNETICS LTD
Cassette House, 329 Hunslet Road, Leeds LS10 3YY
FREEPOST Tel: (0532) 706066

THE AGE OF THE R.A.T





Patent Pending

CONVENTIONAL JOYSTICKS ARE DEAD!

*The Cheetah **R**emote **A**ction **T**ransmitter is the most sophisticated computer controller available.*

It has these features:

- *Infra Red transmission – so there are no leads trailing across the living room. Just sit back in your chair up to 30 feet from your machine.*
- *Touch control – no moving parts, extremely fast, long life.*
- *No extra software required.*
- *Can be used with all Cheetah RAT/Kempston compatible software.*
- *Fits comfortably in your hand for long play periods.*
- *Comes complete with receiver/interface unit which simply plugs into the rear of your Spectrum.*
- *Compatible with all Sinclair/Cheetah peripherals via the rear edge connector.*

Simply incredible at £29.95 including VAT and p & p.

Dealer enquiries welcome. Export orders at no extra cost.

Send cheque/p.o now to:
Cheetah Marketing Ltd.** (Dept. YS), **24 Ray Street, London EC1R 3DJ. phone 01-833 4909

Cheetah products are also available from branches of
John Menzies Boots WHSMITH Rumbelows
and all good computer shops.

Cheetah Marketing

HATS OFF TO MEL



☐ Please send me your free catalogue.
Please send me:

SPECTRUM 48K BOOKS & SOFTWARE

SOFTWARE

- ☐ Spectrum Sherlock 48K £14.95
- ☐ Spectrum Hampstead 48K £9.95
- ☐ Spectrum Sports Hero 48K £6.95
- ☐ Spectrum Mugsy 48K £6.95
- ☐ Spectrum Penetrator 48K £6.95
- ☐ Spectrum The Hobbit 48K £14.95
- ☐ H.U.R.G. 48K £14.95
- ☐ Spectrum Classic Adventure 48K £6.95
- ☐ Melbourne Draw 48K £8.95
- ☐ Abersoft FORTH 48K £14.95

BOOKS

- ☐ Complete Spectrum BASIC Course £9.95
- ☐ Micronet Book £6.95
- ☐ Spectrum Software Projects £6.95
- ☐ Over The Spectrum £4.95
- ☐ Spectrum Machine Language for the Absolute Beginner £5.95
- ☐ Advanced Spectrum Machine Language £6.95
- ☐ The Complete Spectrum ROM Disassembly £9.95
- ☐ Super Charge Your Spectrum £5.95
- ☐ Understanding Your Spectrum £6.95
- ☐ Spectrum Microdrive Book £5.95

GENERAL BOOKS

- ☐ A Guide to Playing The Hobbit £3.95
- ☐ Computer and Video Games Book of Adventure £5.95
- ☐ Learning With Adventure Programs £5.95
- ☐ Z80 Reference Guide £9.95

I enclose my cheque/money order for £

Please debit my Access Card No. Expiry Date

Signature

Name

Address

Postcode YS11

Orders to:
Melbourne House Publishers
39 Milton Trading Estate
Abingdon, Oxon OX14 4TD

Correspondence to:
Church Yard
Tring
Hertfordshire HP23 5LU

All Melbourne House cassette software is unconditionally guaranteed against malfunction.

Trade enquiries welcome.

£

£ +p/p .80

Total

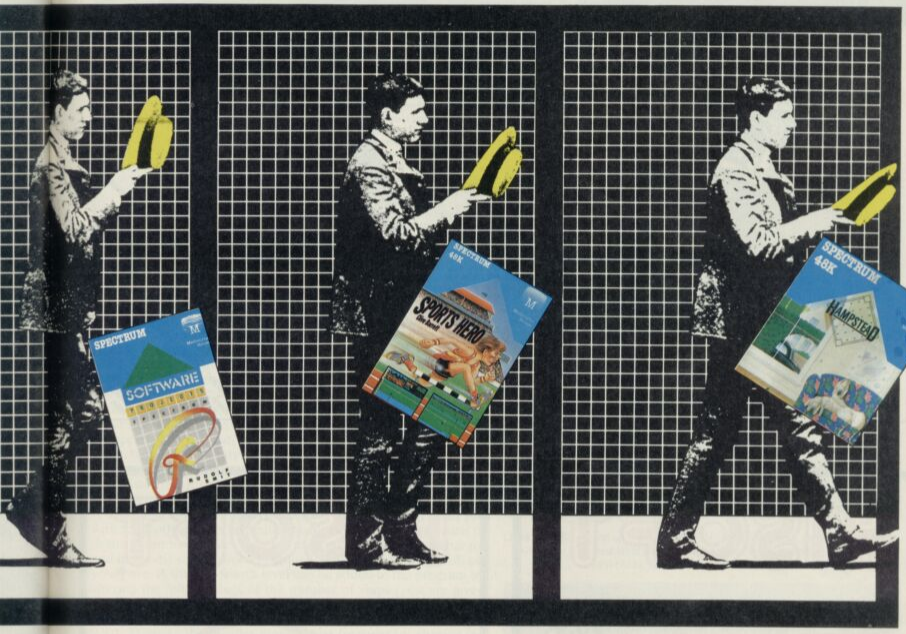
£

All prices include VAT where applicable. Please add 80p for post and pack.

Access orders can be telephoned through on our 24-hour ansafone (0235) 83 5001.

GSH

ELBOURNE HOUSE!



The Complete Spectrum BASIC Course is a comprehensive book which will immediately become an indispensible learning tool for all your Spectrum programming. All is revealed in our easy, step-by-step guide with programs and "test yourself" exercises. The appendices explains the major pitfalls that you may encounter in each problem. If you want to learn to program your Spectrum then The Complete Spectrum BASIC Course is the book for you.

Spectrum Micronet Book provides a wealth of detail about using a Sinclair Spectrum to access the pages of MICRONET and PRESTEL.

The PRISM VTX5000 interface allows a Spectrum user to convert his microcomputer into a PRESTEL terminal and thereby gain access to the quarter of a million pages that are currently available.

Includes: a description of the VTX5000 interface, an introduction to PRESTEL and the facilities offered to the MICRONET subscribers.

Spectrum Software Projects is a special book which will enable you to create useful programs and learn more about programming.

Software Projects gives you program ideas, discusses the overall set-up and an outline of the various procedures. You write the programs, and Software Projects tells you how to test it or offers hints and clues on how to do it. Create six useful programs, ranging from information management, to business programs and games.

Sports Hero Work your way through track and field events. As you gain experience and confidence you begin to excel in the four exciting events: 100 metre sprint, 110 metre hurdles, long jump and pole vault.

Here's your chance to be part of the winning team after having served your apprenticeship in the street team and then the University team. Can you surpass your personal best?

Sports Hero includes multi level competition, stunning graphics, smooth animation and sound.

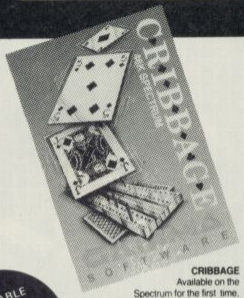
Hampstead is an adventure game for would-be social climbers. Speed of reaction isn't so important. What matters is your ability to solve complex problems, which get harder the further you proceed in the game.

It is a quest but not for gold. The aim is to reach the pinnacle of social status, and acquiring wealth is only part of the problem. You must also gain the admiration and respect of your fellow men, and there's more to that than a fat bank balance.

At the start of the game you are a nobody whose aim is to become a somebody. So lie, cheat, steal and defraud. You know it makes sense!

Hampstead – new type of adventure game!

Unbeatable value.
Almost unbeatable games.

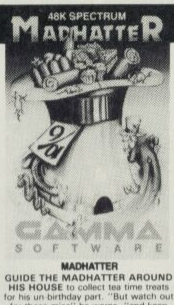


CRIBBAGE
Available on the Spectrum for the first time. **CRIBBAGE** is an excellent version of the popular card game. As well as superb graphics, the game includes full rules and playing instructions together with automatic scoring and score re-view.

Playing against the computer, the experienced player and novice will find **CRIBBAGE** an entertaining and challenging game.

AVAILABLE FROM LEISURESOFT, CENTRESOFT, P.C.S. & TWANG WHOLESALERS

Available from Leisure Soft, Center Soft and all good retailers



MADHATTER
GUIDE THE MADHATTER AROUND HIS HOUSE to collect tea time treats for his un-birthday part. "But watch out for those mice" he warns, "and keep away from those vacuum cleaners!"

Looks like the Madhatter will be in for a busy afternoon.

"An extremely addictive game" Personal Computer Games

GAMMA SOFTWARE



ORC SLAYER
In your search for Thorg, leader of the Death Moon Tribe of Orcs you must first find the Magic Runesword needed to destroy him and then seek out their underground stronghold somewhere in the Savage Lands.

Full of excitement, this adventure will push you to the limit of your wits and intelligence in achieving your goal.

Please send me the following games for the Spectrum:
MADHATTER 48K @ £5.50
ORC SLAYER 48K @ £5.50
CRIBBAGE 48K @ £5.50
Total including Postage: £
Name
Address

GAMMA SOFTWARE
12 Milverton Rd.
London
NW6 7AS

Written a top game? we will pay top prices if it matches our own products. Send a sample to us now for instnat evaluation.

HISOFT

ULTRAKIT £9·45

The most powerful toolkit yet for ZX BASIC. All the features you will ever need; AUTO insert, full RENUMBER, block DELETE, CLOCK, ALARM, error trapping, break trapping. Full TRACE with single-step and much, much more. Makes ZX BASIC easy-to-use and powerful.

DEVPAC £14

An excellent assembler, an advanced line-editor, a comprehensive disassembler and a superb 'front panel' debugger all in one package. Used by many leading software houses to write their games. "Buy it!" Adam Denning 1984.

PASCAL £25

A powerful and almost full implementation of Pascal - not a Tiny Pascal. A valuable educational and development tool, programs typically run 40 times faster than a BASIC equivalent. Spectrum version includes Turtle Graphics package. " I haven't seen any other compiler that could match Hisoft's Pascal"

HISOFT
180 High Street North
Dunstable, Beds. LU6 1AT
Tel: (0582) 696421

HISOFT

C

for the ZXSpectrum

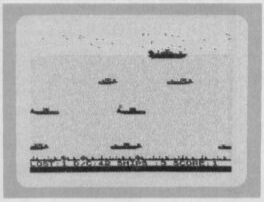
Hisoft is pleased to announce a new compiler for this popular and effective systems programming language. Not a tiny-C but an extensive, easy-to-use implementation of the language. Allows direct execution of compiled statements. Supplied with function library. Available direct from Hisoft for £25, or write for further details.

All prices, UK delivered, relate to 48K ZX Spectrum versions. Our software is available for many other Z80 machines e.g. Amstrad CPC 464, MSX, Memotech, SHARP MZ700, New-Brain, CF/M etc. Please write for details.

Get set to type in two great games for your Spectrum — Ocean Defence *by* Danny Sheehan *and* Turn-Up *by* Adrian George. *If you've written a program that's good enough for publication, send it to* Program Power, Your Spectrum, 14 Rathbone Place, London W1P 1DE.

OCEAN DEFENCE

BY DANNY SHEEHAN



Life on the ocean wave isn't all it's cracked up to be, especially with 21 enemy subs lurking around in the depths waiting to destroy your home base. Timing is the key to success — especially when trying to pick off the subs on the sea bed!

In time of war, it's not only those who rule the waves that come out on top it's also those who can rule beneath the waves as well! Mighty as your warship may look, it'll take all the skill you've got to hand to sort out the submarines skulking around underwater readying themselves to launch missiles against your home base.

The instructions for play are very simple, it's just difficult to get your timing right so that your depth charges actually hit home. Your ship moves across the top of the screen from left to right at a set speed, but you can double this speed using keys '6' to '0'. Launching a depth charge is done with keys '1' to '5'. Once you've dropped a depth charge, however, don't press the keys again until you're sure that it's a gonner as you can only have one depth charge on-screen at any one time.

The game as it stands has two levels — Cadet level provides you with 55 depth charges, and nine missiles are all that are needed to destroy your home base. Admiral level gives you 44 depth charges and here only six missiles let through your defences will finish off your base. A third or fourth level can be added to the program by altering the initial values of the number of ships (you are given three only in the game given here), depth charges (line 40), and the total number of missiles needed to destroy your home base (line 920). To make the missiles more or less frequent try altering the values in line 1615.

The program is in three parts — machine code, Basic and data for the user-defined graphics. First of all, you should enter the machine code loader program, RUN it and then delete all of the lines except for line 1. Now enter the Basic program, type RUN 7000 and enter the data given for the user-defined graphics. The program is now complete and can be SAVEd to tape by typing RUN 8000. You'll find that the finished program is saved in two parts: the Basic and machine code, followed by the data for the user-defined graphics.

```
  1 REM 01234567890123456789012345
6789 (40 characters)
  5 LET b=0: REM zero checksum
 10 FOR n=23760 TO 23799
 20 READ a
 40 LET b=b+a: NEXT n
 50 IF b=5302 THEN  PRINT "MC ACCEPTED"
 60 IF b<>5302 THEN  PRINT "MC INCORRECT"
 70 DATA 06,80,05,120,254,0,32,250,201,38,10
,62,255,211,254,205,208,92,62,01,211,254,205,
208,92,37,124,254,0,32,236,201,62,30,211,254,
61,32,251,201
```

The machine code loader should be typed in first of all and RUN. Now delete lines 5-70 and enter the Basic listing; the listing can be deleted simply by typing the line numbers, ie, '5' (Enter), '10' (Enter) and so on. A checksum is included for those who are a little nervous with machine code.

```
  1 REM                P?x RETURN ?  IF <>&?>
COPY  OPEN £ RETURN  STEP  FORMAT \>? OPEN £
RETURN  STEP  FORMAT \%! RETURN ?  GO TO <>>?
 OPEN £ RETURN =  CLS <>
```

Line 1 Once the machine code data has been entered successfully, when you LIST the program the first line should look like this.

```
 10 POKE 23658,8: GO SUB 4000
```

Line 10 Sets the Caps lock on the keyboard and GO SUBs to the routine that prints up the title page of the game's instructions on-screen.

```
  20 REM  NEW GAME SET UP
  30 LET ST=0: LET SU=0: LET MM=0: LET DC=0:
LET MD=0
  40 LET DD=44+(11 AND SK=2): LET SS=3: LET S
1=0: LET S=0
  50 REM  RESET 1
  60 DIM A$(3,32): LET ST=ST+1: LET PP=0: IF
RND>.5 THEN  LET PP=5
  70 LET A$(1)="     hij          hmij          hb
ij "
  80 LET A$(2)="          kmlmm          kmlmm
  "
  90 LET A$(3)="          hmlmj                hmbij
  "
 130 REM  RESET 2
 140 BRIGHT 1: PAPER 1: INK 7: BORDER 0: CLS
 150 FOR N=0 TO 3: PRINT AT N,0; PAPER PP;"
                                  ": NEXT N
 160 IF PP=0 THEN  FOR N=0 TO 40: LET Y=INT (
RND*24)+151: LET X=INT (RND*255): PLOT X,Y: N
EXT N
 170 LET X=5: LET Y=0: LET M=0: LET P=-1: LET
 D=0: LET B=1
 180 PRINT AT 21,0; INK 6;"aeddeqeepeeaddeeq
eddedaeeaedde"
 190 GO SUB 900: LET L=INT (RND*5)+15
 200 PRINT £1;AT 1,0; PAPER 2;D$
```

Lines 20-200 Set up the main variables for a new game (lines 20-40), for a new level (lines 60-90) and for when one of your ships is lost (lines 130-200).

```
 600 REM MAIN LOOP
 690 LET A$(1)=A$(1,2 TO )+A$(1,1)
 700 LET A$(2)=A$(2,32)+A$(2, TO 31)
 710 LET A$(3)=A$(3,2 TO )+A$(3,1)
 720 PRINT AT 8,0; INK 7;A$(1);AT 13,0; INK (
ST+1);A$(2);AT L,0; INK (ST+2);A$(3)
 730 GO SUB 800
 740 IF IN (63486)<>255 THEN  GO SUB 1000: RE
M change 255 to 191 if you have an issue 3 sp
eccy
 750 IF M=0 THEN  GO SUB 1600
 760 IF M=1 THEN  GO SUB 1700
 770 IF D=1 THEN  GO SUB 1100
 780 IF IN (61438)<>255 THEN  GO SUB 800: REM
 change 255 to 191 if you have an issue 3 spe
eccy
 790 GO TO 300
```

Lines 600-790 The main program loop. This prints the submarines and your ship on-screen and calls the necessary subroutines required from the rest of the program to move them. Lines 690-710 move the submarines left and right.

```
 800 REM PRINT SHIP
 810 PRINT AT 3,B; PAPER PP; INK 3;(" q" AND
DD<>0);(" " AND DD=0); INK 0+(7 AND PP=0);"a
bcde";AT 4,B; INK 2; PAPER 1;" f■■■■g"; LET B
=B+1
 820 IF B=26 THEN  PRINT AT 3,B; PAPER PP;"
   ";AT 4,B; PAPER 1;"       ": LET B=0
 830 RETURN
```

Lines 800-830 This subroutine prints the ship — if double speed is required, it's called twice.

```
 900 REM PRINT SCORES ETC
 910 PRINT £1;AT 0,0; INK 6; PAPER 0;"LOST:";
MM;" D/C:";DD;" SHIPS :";SS;" SCORE:";S;" "
```

CLASSIFIED INFORMATION

THE MICRO WORKSHOP
12 STATION APPROACH
EPSOM, SURREY

We stock software and hardware for a range of home computers, including BBC, Spectrum, CBM 64, Memotech, Amstrad, etc.

COMPUTER SPECIALISTS

Visit us or ring for friendly service. See and try before you buy. Export orders welcome

● REPAIRS UNDERTAKEN ●

SPECTRUM SOFT-ROM

Now you can change the Spectrum's operating system to suit yourself with this 16K RAM board taking the place of your ROM. You can add extra commands; correct known bugs; alter loading routines to stop programmes, etc., etc.
The SOFT-ROM plugs into the expansion port or a Mother Board and will even work with a slightly modified Interface 1.
A must for any serious programmer.

I/O LATCH CARD: 8-bit output or 8-bit input depending on which chips are inserted. Output status can be read back. Address selectable. Up to 8 cards can be used. Plugs into a mother board.
MOTHER BOARD: Supports four female connectors + male connection for printer, etc.
JOYSTICK INTERFACE: PCB or assembled. Kempston software compatible using Atari type joysticks.

For details write or phone:
P. Giblin, 99 Staley Hall Road, Stalybridge, Cheshire SK15 3DP.
Tel: 061-303 7646

Every computer needs
CHATTERBOX II
"Listen creep, I am the leader"

For **ZX81 SPECTRUM** BBC TRS 80 APPLE NASCOM VIC PET 64 (Please state)



NEW! EXCLUSIVE! PITCH CONTROL

CHATTERBOX II can say anything!

Genuine phoneme synthesis - not just recorded speech - hence unlimited vocabulary.
Programmable pitch for more natural intonation (exclusive to Wm Stuart Systems) - solid tone cabinet for quality sound - integral beep music amplifier. **PLUS** expansion socket for BIG EARS voice recognition system. Full instructions technical notes and software supplied with this outstanding educational unit.
DEALER ENQUIRIES WELCOME

SUPERIOR SPECTRUM TAPE COPIER

The NEW 007 SPY is the ONLY copier capable of copying even a full 48K Headerless program.

- Copies multipart programs all in one Loading, automatically.
- Copies programs from 1 to 65279 bytes long. (Can yours)?
- Copies Headerless files upto a full 48K. **(No other copier can)**
- Copies ALL types, Basic, Code, Screen, Arrays, Headerless.
- Guaranteed easiest to use.

007 SPY IS JUST £3.95
Europe + 50p Other areas + £1.50

(Please order as 007N)

ZX-GUARANTEED (Dept SPU)
29 Chadderton Drive, Unsworth,
Bury, Lancs. BL9 8NL
Tel: 061-766 5712

MICRODRIVE TRANSFER TAPE

At last MAJORITY of your software can be transferred to Microdrive, even auto-start commercially made games WILL run as intended.

● The **NEW 007 MD** cassette enables you to also transfer Headerless programs.
● Includes an intelligent Header Reader which tells **you** if any special actions required.
● Does **not** require an additional Help tape.
● Semi-Automatic. Fully automatic systems have proved limited.

How it works: Copies Code to the Microdrive using its push-button copier. **You** make a few very easy changes to the Basic loader part. Save it to Micro-drive, and magic, **instant success.**

007 MD is just £5.95
(Europe + 50p Other areas + £1.50)
Special Offer: Membership of the **Microdrive Exchange** Newsletter club plus 007 MD for just £10. (Or on cartridge for £15).

ZX-GUARANTEE (Dept SPU)
29 Chadderton Drive, Unsworth,
Bury, Lancs. BL9 8NL
Tel: 061-766 5712

PECTRUM 48K
MAKE HOME VIDEOS

on ordinary C10 cassettes, WITH YOUR OWN TUNES!
Post them to friends who have 48K Spectrum.
Full animation and editing of every sequence including tunes . . . you get it right.
Order cassette 'MCA' £7.00 incl.
Also morse-code reading progs for Spectrum and ZX81-1K. s.a.e. for details.

Pinehurst Data Studios, 69 Pinehurst Park, West Moors, WIMBORNE, Dorset BH22 0BP.

As seen on BBC TV "Computer Programme"

✻BIG EARS✻

SPEECH INPUT FOR ANY COMPUTER



Hugely successful Speech Recognition System complete with microphone software and full instructions.
ONLY £49
BUILT TESTED & GUARANTEED
PLEASE STATE COMPUTER. UK101, SPECTRUM, ATOM, NASCOM2 Vic 20, Micron, Z80 81 PET TRS80, M2800, APPLE II BBC MICRO, CBM 64

ZX81/SPECTRUM

NEW! VIBRATO CONTROL

MUSIC SYNTHESISER (Stereo) – 16 LINE CONTROL PORT

Play 3 part music, sound effects, drums etc. Full control of attack, decay and frequency.
Input Output lines provide control and monitor facility for Home Security, Robot Control, Model Railway etc. etc. Works with or without 16K RAM.

Full instructions software included.
Add keyboard to make a live performance polyphonic synthesiser.
Note up to 3 units can be used simultaneously, giving 9 music channels & 48 I/O lines.

AMAZING VALUE AT ONLY
£19.50 (KIT)
£25.50 (BUILT)

SOFTWARE

THE COMPOSER – Synthesiser Music Programming. Enter & play 3 part harmony. Includes demonstrations (Spectrum 2 K8 recommended) £7

TALKING HANGMAN – For Chatterbox. The classic game comes to visiting with a very vocal accompaniment. Spectrum/ £6

ZX ARP/DRUMSEQ – Fascinating synthesiser demonstrations. Generates automatic sequences and plays from keyboard. Some weird effects. Spectrum £6

CHROMACODE?????? – Can you deduce the tones by cracking the secret combination? Hours of fun! With Chatterbox voice Also Spectrum £6

COLOUR MODULATOR

RGB or PAL UHF out incl for ZX! **KIT £16** **BUILT £22**

Please add VAT at 15% to prices.
Barclay Access orders accepted by telephone

All enquiries S.A.E. please

WILLIAM STUART SYSTEMS Ltd

Quarley Down House
Chiddenton
Nr Sandbury
Wiltshire SP4 0DZ
Tel: 098 064 235



SPECTRUM KOPYKAT

Simply the best. Copying **any** of your 16/48K Spectrum programs is as easing as LOADing & SAVEing.
Only £4.95
It can even copy itself

NEW
MICRODRIVE KOPYKAT

Transfer your cassette based software onto the ZX Microdrive. **RELOCATES** programs. Stops and reveals programs. **ESSENTIAL** tool for Microdrive transfer.
Only £4.95.
Both with **FREE** Header Reader.
Despatched by Return of Post.

MEDSOFT
PO Box 84, Basingstoke, RG25 2LW

ZX-81 & SPECTRUM REPAIRS ADD ON SPECIALISTS MOST COMPUTER COMPONENTS SPECTREUM REPAIRS £15.

Why do Spectrum users from London, Devon, Essex and other places send their micros to us for repairs?

Average price £15.00

- **Only company in UK** offering while you wait service.
- **Or** 24 hour turn around. Every micro insured from return journey.
- Phone or send for free estimate Enclosing £1.60 UK, I.O.M. EIRE C.I.
- **No hidden handling charges**
- Special rates for schools

MANCOMP LTD (Dept YS)
Printworks Lane, Levenshulme
Manchester M19 3JP
Tel: 061-224 1888.

MICRO ARTS
MAGAZINE & SOFTWARE

A new independent forum for computers and the arts

Bi-monthly magazine: Issue 1, "Language", what is computer art? Language as virus; Electronic Beowulf; Micro Music; Film and Video; Photo pages; Glossary; more (out now).
Issue 2: "Sex"; Sensuality and technolgpy; Programming and onanism; Micro Music; Systems Music; The Random Soul; more (out November – order now).
Single issue: 90p; 2 £1.80; 4 issue subscription £3.50 incl post.
Software: Spectrum 48 + 16K (full menu control): "Abstract originals" (8 environmental graphics £2.50. Various unusual events (6 tantalising provocations incl. the money-work system, carry on computing, DATA) £1.90. BBC model "B" graphics (6 programs) by Martin Rootes £3.

Micro Arts welcomes contributions from people working in computer/art/literature areas.
Micro Arts (S), PO Box 587, London SW4 9PH.

"ESSENTIAL"

CLASSIFIED INFORMATION

TURN MACHINE-CODE INTO BASIC

Turn Machine-Code into Basic? Yes you **can**. Long machine-code progs are nearly all, all or part Basic.

My Stop-Reveal tape will:

- **Stop** virtually **any** Spectrum programs, Basic, Code and even Headerless programs, protected or not, & **List**.
- **Reveal** hidden Basic in machine code programs. (Could be clues in Adventure games)
- **Lists** actual machine-code on your video.

Now you can **Stop, List, Modify, Study** most Spectrum programs at your leisure. Even 48K programs.

Includes: a **dissassembler, header reader** and **secrets of trade** pages explaining how professionals hide programs, and How to reveal them.
All for the price of one game:

Post £5.95 free
(Europe + 50p Other areas + £1.50).

KERR, 24/25 High Street, King's Lynn, PE30 1BP

COMPUTAPE'S "SPECIAL OFFER"

WE OFFER A MINIMUM OF £1 OFF THE RSP ON ALL OUR GAMES eg:–

	rsp	Our Price
Adventures of Sir Bernard	Carnell	£7.95 £4.25
Amsoc (48K)	Bug Byte	£5.95 £3.95
Beach Head (48K)	U.S. Gold	£7.95 £5.50
Bear Bovver (48K)	Artic	£6.95 £5.95
Blue Max (48K)	Elite/Microsoft	£9.95 £7.50
Blade Alley (48K)	C.D.S.	£5.95 £4.15
Blue Thunder	S. Wilcox	£5.95 £4.50
Chequered Flag (48K)	Psion	£6.95 £5.25
Chuckie Egg	A&F Software	£6.90 £5.75
Cobra Thermoseve		
Decathlon (48K)	Ocean	£6.90 £5.50
Dimension Master in Double Trouble	Creative Sparks	£6.95 £5.95
Digger Dan	Ocean	£5.90 £3.50
Factory Breakout (48K)	Pappy Software	£5.50 £4.50
Fighter Pilot	Digital Integ	£7.95 £5.95
Football Manager (48K)	Addictive	£6.95 £5.25
Full Throttle (48K)	Microsnips	£6.95 £5.95
Games Designer	Quicksilva	£14.95 £13.50
Giants Revenge (48K)	Thor	£6.90 £5.50
Ging Ging (48K)	C.R.L.	£5.95 £4.95
Hunchback (48K)	Interceptor	£5.95 £4.50
Jack and Beanstalk (48K)	Thor	£5.95 £4.95
Jet Set Willy (48K)	Software Pro.	£5.95 £4.90

	rsp	Our Price
Kong	Ocean	£5.90 £4.80
Kosmic Kanga (48K)	Micromania	£5.95 £4.90
Lords of Midnight	Beyond Software	£9.95 £8.50
Lunar Jet Man	Ultimate	£5.50 £4.50
Manic Miner	Software Proj.	£5.95 £4.90
Match Point (48K)	Psion	£7.95 £6.95
Micromouse Goes Delivering	Lothlorien	£5.95 £4.95
Monty Mole (48K)	Gremlin	£5.95 £5.80
Night Gunner	Digital Integ	£7.95 £5.95
Night Shade	Digital Integ	£6.95 £5.95
Omnicalc	Automata	£9.90 £4.95
Psytron	Beyond Software	£7.95 £6.95
Sabre Wulf (48K)	Ultimate	£9.95 £8.90
Scuba Dive	Durell/Micron	£5.95 £4.75
Space Intruders	Quicksilva	£6.95 £5.95
Star Trek Strikes (48K)	Beyond	£7.95 £6.95
T.L.L. (48K)	Vortex	£5.95 £4.80
Trashman	New Generation	£5.95 £4.90
Valhalla	Legend	£14.95 £12.50
Wheelie	Microsphere	£5.95 £4.90
White Lightning (48K)	Oasis	£14.95 £12.50
World Cup Football (48K)	Arcs	£6.95 £5.90

All prices include VAT and Postage. Please make Cheques/P.O's payable to:–

COMPUTAPE
27, Coombe Road, Southminster, Essex CM0 7AH
Tel: Maldon 772589

Send SAE for details of other games available. We also have lists for the Comm. 64, Dragon 32, Vic 20, BBC, Atari, Oric and Tandy Computers.

TASCOMM & TASWORD +

Write text on your Spectrum with Tasword 2.
Squirt it into your office Apricot, Sirius, IBM or other computer using Interface 1, the RS232 link and the Sinclair cable with *Tascomm*.
Tascomm (approved by Tasman Software) includes *Tasword +* — advanced Microdrive file handling software — and was developed for journalists on a magazine.
£6.00 on cassette; £9.95 on Microdrive cartridge.

From:
Wimsoft (YS), 20 Brookside Road, Wimborne, Dorset BH21 2BL

Look: COMPUTER SOFTWARE ONLY £1.95

From: ALAN J. BEDDING COMPUTER SOFTWARE

Check this list:
BMX Racer
Psycho Shopper
Prostern
Fire Hawks
Dinky Digger
Snake Pit
Squerm
Revenge of the Killer Tomatoes
All only £1.95
Iso all other major titles: Aligator, Ultimate, Bug Byte, etc., at least £1 off.
Call Alan J. Bedding on 0206 851030. It could save you a lot of time and money.

★ SPECIAL OFFER
Quick Shot II
Only £9.50

ALAN J. BEDDING
37 Mile End Road, Colchester, Essex

CONTRACT BRIDGE

SPECTRUM 48K and COMMODORE 64

Complete Contract Bridge single-handed against your Spectrum or Commodore 64. Random hands. Unsurpassed bidding and play. Full scoring. Unlike others, this takes the game seriously. Did you know our major rival cannot even play as declarer?!! Here you play exactly as you would with friends.....if you want. Otherwise, choose amazing options not in lesser programs:

- Define your own hands
- Display everyone's cards
- Make computer bid or play for you
- Lay down a hand
- Re-bid or replay any hand
- Change sides
- Bid all four hands yourself
- Play all the cards yourself

It must be good to offer so much. Why settle for less? Send or phone today.
£9.95 (cheque or Barclaycard or Access) fully inclusive. Only available direct from us, by return.

CONTRACT BRIDGE – the definitive name on the definitive game.

VISA

HIGHLIGHT SOFTWARE
3 Nether Court, Halstead, Essex CO9 2HE. Tel. (0787) 475714

Access

LOAD CORRECTLY with the LOADMASTER

Set the volume control on your cassette recorder right EVERY time. Just plugs between recorder and computer. Price inc. p&p £11.49.

Probemaster Ltd
23 The Ridgeway
Cuffley, Potters Bar
Herts EN6 4BB

SINCLAIR SERVICE CENTRE

We have the spares for all repairs to: Spectrum, ZX81, rampack, printer etc. Also available Spectrum update 16K-48K. By post £27.00 inclusive (issue 2 & 3 boards). SAE enquiries to: Quantum, 33 City Arcade, Coventry, West Midlands or phone Coventry (0203) 24632.

MICRO WORK SHOP

- ★ JOYSTICKS
- ★ DISKS
- ★ KEYBOARDS
- ★ RAMPACKS
- ★ TAPES
- ★ LIGHTPENS

AND MANY OTHER ACCESSORIES FOR YOUR COMPUTER. WE STOCK MOST POPULAR BRANDS INCLUDING BBC, SPECTRUM, AMSTRAD, COMMODORE 64 ETC.

EXPORT ORDERS WELCOME
REPAIRS UNDERTAKEN

12 STATION APPROACH
EPSOM, SURREY
EPSOM 21533

REALISE YOUR FULL POTENTIAL

LIFE-LINE



SELF ANALYSIS
CAREER COUNSELLOR
FOR ANY SPECTRUM COMPUTER
(Owners of BBC running soon)

Understand yourself and others using this brilliant new programme!

LIFE-LINE will reveal:
- YOUR TRUE CHARACTER
- THE CHARACTER YOU TRY TO PROJECT
- YOUR SELF-IMAGE

LIFE-LINE can help you:
- CHOOSE THE RIGHT CAREER
- ACHIEVE MORE
- UNDERSTAND OTHERS
- IMPROVE YOUR RELATIONSHIPS

LIFE-LINE is simple to use, amazingly accurate, and comes complete with an instruction manual written by Dr. John A. R. Young B.A. (Psych.).

LIFE-LINE is designed for use in the home, school or college – anywhere that people matter.

Price £14.95 inclusive of VAT and Postage
All enquiries SAE please
Barclay-Access orders accepted by telephone

WILLIAM STILLMAN SYSTEMS Ltd

Quarley Down House Chickerton
by Sunbury Witshire SP4 0DU
Tel. 0980 864 235

HEARING IS BELIEVING

Tele Sound

SPECTRUM BEEP BOOSTER

TELESOUND is simply built and tested so that you can get the full sound of your Spectrum through any normal hi-fi amplifier, tape recorder or radio. Just plug in and use. No modifications are required and it operates without any permanent connections. All fitting instructions are provided.

TELESOUND has been designed using the very latest VLSI miniature components so it's easy to use and fits easily into the Spectrum. The connections are clearly shown in a diagram that makes even the most complex connections simple.

TELESOUND FEATURES

TELESOUND comes complete with easy to follow fitting instructions and costs £9.95 inclusive of post, packing etc. Please state issue computer when ordering.

COMPUSOUND

DEPT. SY10 32, 33 LANGLEY CLOSE, REDDITCH, WORCS. B98 0ET. TELEPHONE: (0527) 21439 (24 hr Answerphone)

CONTRACT BRIDGE

SPECTRUM 48K and COMMODORE 64

Complete Contract Bridge single-handed against your Spectrum or Commodore 64. Random hands. Unsurpassed bidding and play. Full scoring. Unlike others, this takes the game seriously. Did you know our major rival cannot even play as declarer?!! Here you play exactly as you would with friends.....if you want. Otherwise, choose amazing options not in lesser programs:

- Define your own hands
- Display everyone's cards
- Make computer bid or play for you
- Lay down a hand
- Re-bid or replay any hand
- Change sides
- Bid all four hands yourself
- Play all the cards yourself

It must be good to offer so much. Why settle for less? Send or phone today.
£9.95 (cheque or Barclaycard or Access) fully inclusive. Only available direct from us, by return.

CONTRACT BRIDGE – the definitive name on the definitive game.

VISA

HIGHLIGHT SOFTWARE
3 Nether Court, Halstead, Essex CO9 2HE. Tel. (0787) 475714

Access

```
 920 IF MM=(SK+1)*3 THEN  LET M$=" HOME BASE
DESTROYED ": GO TO 2140
 930 RETURN
```

Lines 900-930 Prints the necessary scoring information on-screen, such as the number of missiles exploded (lost) and how many depth charges you've left on-board.

```
1000 REM CHARGE SET UP
1010 IF DD=0 THEN  RETURN
1020 LET D=1: LET DD=DD-1: LET DC=DC+1: BEEP
.01,20: IF D=1 THEN  PRINT AT X,Y;" "
1030 PRINT AT 3,B; PAPER PP;" ";AT 2,B-1; INK
 3;"q": BEEP .01,25: PRINT AT 2,B-1; PAPER PP
;" ";AT 3,B-2; INK 3;"p";AT 3,B-2;" "
1040 GO SUB 900: LET X=4: LET Y=B-1: RETURN
```

Lines 1000-1040 Set up the position of each drop of a depth charge.

```
1100 REM PRINT CHARGE
1110 PRINT AT X,Y;" ": BEEP .009,-X: IF P=1 T
HEN  LET X=X+1
1120 IF X=20 THEN  BEEP .1,-40: LET D=0: RETU
RN
1130 IF SCREEN$ (X,Y)<>" " THEN  GO TO 1500
1150 PRINT AT X,Y; INK 3;("q" AND P=-1);("p"
AND P=1)
1160 LET P=-P: RETURN
```

Lines 1100-1160 Print the falling depth charge and check for contact (a hit) with a submarine using the SCREEN$ function.

```
1400 REM MISSILE DESTROYED
1420 LET MD=MD+1: LET S=S+3
1450 FOR N=7 TO 1 STEP -1: PRINT AT X1,Y1; PA
PER 1; INK N;"1";AT X1+1,Y1;"1";AT X1+2,Y1;"1
": BEEP .02,0: NEXT N
1460 PRINT AT X1,Y1;" ";AT X1+1,Y1;" ";AT X1+
2,Y1;" ": LET D=0: LET M=0
1470 GO SUB 900: RETURN
```

Lines 1400-1470 This routine is called when a depth charge has hit one of the missiles fired by a submarine.

```
1500 IF ATTR (X,Y)=78 THEN  GO TO 1400
1505 REM SUB DESTROYED
1510 LET OV=0: LET D=0: LET SU=SU+1: BEEP .1,
40:
1520 LET H=Y-5: LET J=Y+5: IF H<1 THEN  LET O
V=1: LET H=1
1530 LET XX=1+(1 AND X=13)+(2 AND X=L): LET A
$(XX,H TO J)="      ": IF OV=1 THEN  LET A$(X
X,30 TO 32)="   "
1540 PRINT AT X,Y-1; BRIGHT 1; FLASH 1; INK 2
; PAPER 6;"111"
1550 LET S=S+(1 AND X=B)+(2 AND X=13)+(3 AND
X=L)
1560 LET S1=S1+1: IF S1=ST*7 THEN  GO TO 2000
1570 GO SUB 900: RETURN
```

Lines 1500-1570 This routine is called when one of your depth charges has successfully hit one of the submarines. Line 1530 blanks out the submarine from the relevant string array.

```
1600 REM POSSIBLE LAUNCH ?
1610 LET T=INT (RND*2): LET X1=0+(13 AND T=0)
+(L AND T=1): LET Y1=INT (RND*24)+1
1615 LET R=RND: IF R<0+(.66 AND SK=1)+(.83 AN
D SK=2) THEN  RETURN
1620 IF SCREEN$ (X1,Y1)=" " OR X1=0 THEN  RET
URN
1630 LET C=1: LET X1=X1-2
1640 PRINT AT X1+1,Y1; INK 6;"n": BEEP .08,-2
0: PRINT AT X1,Y1; INK 6;"n";AT X1+1,Y1;"o"
1650 LET M=1: LET X1=X1-1
```

Lines 1600-1650 Check to see if a missile will be fired from one of the submarines.

```
1700 REM PRINT MISSILE
1705 PRINT AT X1+2,Y1; PAPER C;" ": LET X1=X1
-.5
1710 IF X1=3 THEN  GO TO 1800
1720 IF X1<=-1 THEN  GO TO 1900
1730 PRINT AT X1,Y1; INK 6; PAPER C;"n";AT X1
+1,Y1;"o";AT X1+2,Y1; INK 2;"1"
1740 RETURN
```

Lines 1700-1740 Print the missile being fired from a submarine on its upward path towards your ship.

```
1800 REM MISSILE BREAKS SURFACE
1810 IF Y1>=B-1 AND Y1<B+6 THEN  GO TO 2100
1820 PRINT AT X1,Y1; PAPER PP; INK 6;"n";AT X
1+1,Y1; INK 6; PAPER 1;"o";AT X1+2,Y1; INK 2;
"1"
1830 LET X1=X1-1: PRINT AT X1+3,Y1;" ";AT X1+
2,Y1;" ";AT X1,Y1; INK 6; PAPER PP;"n";AT X1+
1,Y1;"o"
1840 LET X1=X1-1: LET C=PP: RETURN
```

Lines 1800-1840 Alter the PAPER colour of the missile when it breaks the surface of the water.

```
1900 REM MISSILE ESCAPES
1910 LET MM=MM+1: GO SUB 900
1920 PRINT AT X1+1,Y1; PAPER PP;" ": LET M=0:
 RETURN
```

Lines 1900-1920 This routine checks to see if one of the missiles has escaped the ship's detection, and if so determines that it has hit your home base.

```
2000 REM STAGE COMPLETED
2010 FOR N=6 TO 1 STEP -1: FOR P=0 TO 20: RAN
DOMIZE USR 23769: POKE 23779,N: NEXT P: NEXT
N
2020 IF ST=3 THEN  LET M$="MISSION COMPLETED"
: LET S=S+50: GO TO 3000
2030 BORDER 0: CLS : GO TO 50
```

Lines 2000-2030 Should you complete your mission, you are told so on-screen and line 2010 uses machine code to produce a flashy screen display to emphasise your success.

```
2100 REM SHIP DESTROYED
2110 LET MD=MD+1: LET S=S+3
2120 POKE 23779,1: FOR N=1 TO 60: RANDOMIZE U
SR 23769: NEXT N: BORDER 0: LET SS=SS-1: IF S
S=0 THEN  GO TO 3000
2130 GO TO 130
2140 PRINT AT 1,5; FLASH 1;M$: FOR N=0 TO 250
: RANDOMIZE USR 23792: NEXT N
```

Lines 2100-2140 This routine determines what happens when one of your ships is destroyed by one of the submarine's missiles. Again, machine code is employed to liven things up a little.

```
3000 REM END OF GAME PRINT OUT
3040 BRIGHT 0: PAPER 1: INK 0: BORDER 0: CLS
: PRINT AT 0,0; INK 6; PAPER 2;D$
3050 PRINT AT 3,3; PAPER 6; INK 0;"  MISSION
OVER -";(" CADET " AND SK=2);(" ADMIRAL " AN
D SK=1)
3060 PRINT AT 5,1; PAPER 7; INK 0;"   SUBS
 DEST   LOST   D/C  "
3065 PAPER 7: FOR N=7 TO 17: PRINT AT N,1; PA
PER 7;"                              ": NEXT
N
3070 LET X=0: LET Y=1
3080 FOR N=7 TO 17: IF X=SU THEN  GO TO 3110
3090 PRINT AT N,Y; INK 2;"k";"m": LET X=X+1
3100 NEXT N: LET Y=Y+5: GO TO 3080
3110 LET X=0: LET Y=12
3120 FOR N=7 TO 15 STEP 2: IF X=MD THEN  GO T
O 3160
3130 PRINT AT N,Y; INK 2;"n";AT N+1,Y;"o": LE
T X=X+1
3140 NEXT N: LET Y=Y+1: GO TO 3120
3150 LET X=X+2: GO TO 3120
3160 LET X=0: LET Y=19
3170 FOR N=7 TO 15 STEP 2: IF X=MM THEN  GO T
O 3200
3180 PRINT AT N,Y; INK 4;"n";AT N+1,Y;"o": LE
T X=X+1
3190 NEXT N: LET Y=Y+1: GO TO 3170
3200 LET X=0: LET Y=26
3210 FOR N=7 TO 17: IF X=DC THEN  GO TO 3240
3220 PRINT AT N,Y; INK 3;"q": LET X=X+1
3230 NEXT N: LET Y=Y+1: GO TO 3210
3240 LET K1=S*0.267: LET O=(DC-(SU+MD))/(SU+M
D)^.5: LET K2=(20-(O*3)): LET K3=(20-MM): LET
 K4=(ST*6)
3250 LET K=INT (K1+K2+K3+K4)
```

cp software — Commodore 64 and Spectrum Programs

SUPERCHESS 3.0

ABSOLUTELY GUARANTEED ABLE TO CONSISTENTLY BEAT ALL OTHER SPECTRUM CHESS PROGRAMS

★ *Declared 'Champion of Champions' by Computer Choice Magazine Chess Championship (May 1984)*

★ *Achieved overall 50% against graded human players at its local Chess Club!*

Superchess 3.0 has been developed to bring you the strongest chess program yet for the Spectrum computer.

At the tournament level Superchess 3.0 has a look-ahead of five to seven ply (moves) in the middle game, and ten to twelve ply in the end game. This gives Superchess 3.0 a substantial advantage against other chess programs and promises the experienced player an interesting and challenging game of chess.

Unlike other chess programs, Superchess 3.0 is not just a brute-force calculator, but employs artificial intelligence techniques to allow deeper searching along the main lines of play.

FEATURES:

- 10 levels—all play within tournament time limits.
- First level made especially easy for beginners.
- Easy to use—help menus provided.
- Recommended move option.
- Change sides and level during game.
- Self play mode.
- Set up/change position.
- Technical information—how the program 'thinks'.
- Program's internal score for position displayed.
- Number of evaluated positions displayed.
- Library of opening moves.
- Select your own colour scheme for graphic board display.
- Solve mating problems—up to mate in four.



48K SPECTRUM — Price £9.95

BRIDGE PLAYER 2

PLAY AN ENTIRE GAME OF BRIDGE AGAINST YOUR SPECTRUM —WITHOUT GETTING IN THREE FRIENDS FOR THE PURPOSE FINAL IMPROVED VERSION NOW AVAILABLE

Dealing—the program shuffles, deals and sorts the cards to produce randomly dealt hands. An almost infinite number of hands are therefore possible, with all kinds of distributions.

Bidding—is in the familiar ACOL system, including Stayman and Blackwood conventions. You bid your hand while the Spectrum bids the other three hands.

Card Play—you play from your own and dummy's hands, which are displayed as they would be at the bridge table, with the program playing the other two hands.

Scoring—at the end of each hand the score is calculated, including honours, slam and rubber points. Both the old and new scores are displayed in the usual manner.

Replay—at the end of each hand, all four hands can be displayed and, if desired, the hand replayed.

PLAYS AS DECLARER!

48K SPECTRUM

BRIDGE PLAYER 2 — £9.95

An ideal complement to the Bridge Player Program:

Bridge Tutor (Beginners)—**£5.95**
Bridge Tutor (Advanced)—**£5.95**

Also:
Amstrad Bridge Player — £9.95

SPECIAL OFFER:

Bridge Player and both Bridge Tutors — £19.95



Available at most good computer stores.

DELIVERY: Send SAE for Catalogue.
UK—prices include VAT and postage & packing.
EUROPE—add 80p per program
ALL OTHER PLACES—for air mail add £2 for the first program and 50p for each subsequent program. Surface delivery add 80p per program.

cp software — *DEALER ENQUIRIES* 0532-694504

Send Cheque, Postal Order or Access No. to:
CP SOFTWARE, Dept YS8
2 Hawthorne Road,
Leeds, LS7 4PH.

Buy it with Access

PINBALL WIZARD

Available for any SPECTRUM or COMMODORE 64

Superb, colourful fast-action graphics and sound give this game the feel of a real arcade pin-table. Realistic launch, flippers, bumpers, high-score, bonus scores and freeball features. Be a Wizard!

"...I thought that a few minutes would suffice, and then found that a couple of hours had passed and I was still at it. Excellent... Pinball Wizard has it made." **CRASH MAGAZINE**

"A brilliant idea that's totally absorbing and so addictive..." **YOUR SPECTRUM**

"The display is well-designed and colourful and ball movement is very realistic." **PERSONAL COMPUTER GAMES**



SUPERCODE II —for 16K and 48K Spectrum

NEW!!

120 ROUTINES—MICRODRIVE COMPATIBLE 100%

This is the Ultimate Spectrum Toolkit, with 120 State of the Art Machine Code Routines for use in, or with, your own BASIC programs! Supercode II needs no prior knowledge of Machine Code to operate. If you have a ZX Microdrive, you can transfer Supercode II to Microdrive as easy as 1-2-3...if you do not, all the other features of Supercode II still work.

★ Unique Access Program lets you Index, List, Test, Tailor, Relocate and Save (to Tape or Microdrive, with original or new name) + Verify routines, all under software control. ★ Options include Example/Repeat/Jump/Again/Cont/Demo/Diagnosis/Tfr. ★ See each routine work—all details onscreen. ★ Supplied boxed with Comprehensive User Manual. ★ Guaranteed fastest and shortest routines for every application!

Routines Include: TRACE (with Variable Program Speed)·ON ERROR GOTO·ON BREAK GOTO·FULL RENUMBER (Does everything!)·VARIABLE LIST·STRING SEARCH·STRING REPLACE·PAINT FILL·5 SUPERB PROGRAMMABLE SOUND EFFECTS·RECORD + REPLAY SOUND/MUSIC·CONFUSE + UNCONFUSE LISTING·REMKILL·PROGRAM CONTRACT/EXPAND·PROGRAM ANALYSE·NUMBER→VAL $COMPRESS·CHARACTER SWOP/SCRAMBLE/INVERT/REVERSE/ROTATE·WHOLE NEW CHARACTER SET (Sci-Fi)·FLASH + BRIGHT ON/OFF/SWOP·MEMORY FREE·PROGRAM LENGTH·BLOCK LINE + MEMORY ERASE/FILL/COPY·APPEND CURSOR·SCREEN SAVE/LOAD/SWOP/MERGE/FILL/SEARCH·HEX →DEC + DEC→HEX CONVERTERS·REMFILL·DATAFILL·GRID·INK + PAPER CHANGE·ATTRIBUTE SWOP/FILL/INVERT/RESET·TAPE HEAD READER·PROGRAM PROTECT·PROGRAM BREAK-IN·HEADERLESS FILE CREATE·AUTORUN CODE·PROGRAM AS CODE·TAPE COPIER DEFEAT·MICRODRIVE DIAGNOSIS·FAST LOAD MICRODRIVE·SURE SAVE MICRODRIVE·ADAPT TO MICRODRIVE·SURE CLOSE★STRINGS + PROGRAM CASE CHANGE/SWOP·HEX LOADER·ANALYSE MEMORY·LINE ADDRESS·STARDRAW·FREE SCROLLER·24 LINE PRINTING·LOWER SCREEN CLS·NEW UDG·PROGRAMMABLE BORDER EFFECTS·REMOVE COLOUR·RIPPLE + SHUTTER SCROLL(S)·+ R) SCROLL PIXEL/CHARACTER/ATTRIBUTES, SINGLY OR JOINTLY, UP/DOWN/LEFT/RIGHT, WITH OR WITHOUT WRAP-AROUND, IN A USER DEFINED WINDOW OF ANY SIZE POSITIONED ANYWHERE ON THE SCREEN ...**and much, much more besides. It's incredible.**

Supercode II has many many imitators—but no equals!

SUPERCODE II — £9.95

Plus for 48K Spectrum unless otherwise stated:

FLOATING POINT FORTH with EDITOR	**£13.95**
INTEGER FORTH	**£9.95**
SUPERCHESS II	**£4.95**
SUPERCHESS I (16K ZX81)	**£4.95**
16K SUPERCHESS (16K Spectrum)	**£6.95**
REVERSI	**£6.95**
SPECIAL OFFER:	
LOGO and FLOATING POINT FORTH	**£20.95**
SUPERCODE and EXTENDED BASIC	**£17.95**
DRAUGHTS and BACKGAMMON	**£9.95**
YAHTZEE	**£4.95**
SUPERCHESS II (Lynx)	**£8.95**
SUPERCHESS II (Jupiter Ace)	**£8.95**
PINBALL WIZARD (48K Spectrum)	**£5.95**
PINBALL WIZARD (Commodore 64)	**£6.95**
DRAUGHTS	**£5.95**
BACKGAMMON	**£5.95**
SNAIL LOGO (Turtle Graphics)	**£9.95**
GOLFING WORLD	**£5.95**
SPECTRUM EXTENDED BASIC	**£9.95**
BRIDGE PLAYER	**£9.95**

WANTED:

Interesting programs for Spectrum, Commodore 64 and QL

French translations available from:
SEMAPHORE
CH, 1283 LA PLAINE, Geneve, Switzerland

```
3260 PRINT AT 19,0; PAPER 6;"    SCORE :
RATING :    %    "
3270 PRINT AT 19,11; FLASH 1;S;AT 19,25;K
3290 PRINT £1;"      MISSION :"; PAPER 2; FLAS
H 1;("UN" AND SK<=20);"SUCCESSFUL"
3300 PAUSE 0: RUN
```

Lines 3000-3300 This routine prints the 'end of game' table giving the player full details of the mission. The actual percentage score is calculated from several factors: score (40%), hit/miss ratio (20%), how many missiles hit your home base (20%) and how far you progressed with the game (20%). Line 3290 prints up whether the mission was successful overall or not.

```
4000 REM  TITLE SCREEN
4010 BRIGHT 0: PAPER 0: BORDER 1: INK 5: CLS
4020 LET D$="          OCEAN DEFENCE
"
4030 PRINT AT 0,0; PAPER 0; INK 7; FLASH 1;D$
4040 PRINT AT 3,3;"Destroy the marauding subs
     with Depth Charges, while      defendi
ng your Home Base          from the Missiles th
ey          launch...!"
4050 PRINT AT 10,2;"D/Charges.......Top Row/L
eft"
4060 PRINT AT 12,2;"Extra Knots....Top Row/Ri
ght"
4070 PRINT AT 21,0; PAPER 7; INK 0;"     Writ
ten by D.Sheehan          "
4080 PRINT AT 16,3;"  Select Difficulty...  "
4090 PRINT : PRINT "    1)  Admiral of the Fle
et"
4100 PRINT "    2)          Sea Cadet    "
4110 BEEP .1,35: PAUSE 55
4120 LET SK=0+(1 AND INKEY$="1")+(2 AND INKEY
$="2")
4130 IF SK<>0 THEN  RETURN
4140 FOR N=35 TO 34.45 STEP -.02: BEEP .02,N:
 NEXT N
4150 PAUSE 35: GO TO 4110
```

Lines 4000-4150 This routine prints up the title page on-screen and asks you to select which of the two skill levels you require. You'll also be treated to a tune of sorts while the Spectrum awaits your decision.

```
7000 REM GRAPHICS ENTRY
7005 LET B=65:   REM CODE "A"
7010 LET N=(B*8)+64848
7020 PRINT  INVERSE 1;"GRAPHIC ";CHR$ B: PRIN
T
7030 FOR M=0 TO 7
7040 INPUT A: PRINT A
7050 POKE N+M,A
7060 NEXT M: BEEP .1,10: PRINT : LET B=B+1
7070 LET N=N+8: GO TO 7020
```

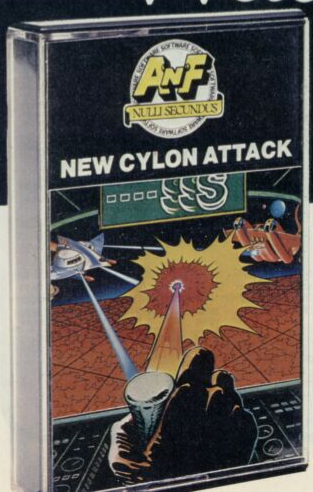
Lines 7000-7070 This routine allows the data for the user-defined graphics to be entered. Change the value of B in line 7005 if you want to edit the machine code given in any way.

```
8000 REM SAVE ROUTINE
8010 SAVE "OCEAN DEF" LINE 8040
8020 SAVE "GRAPHICS"CODE USR "A",17*8
8030 VERIFY "": VERIFY ""CODE
8035 STOP
8040 LOAD ""CODE : RUN
```

Lines 8000-8040 This routine is given to allow the user-defined graphics data to be loaded in after the Basic program.

```
A  0   8   8   8   8   60  255 255
B  7   3   3   63  255 255 255 255
C  224 128 192 252 214 255 255 255
D  0   0   1   1   0   49  255 255
E  0   0   0   192 128 224 255 255
F  255 127 31  5   12  0   0   0
G  254 252 248 192 0   0   0   0
H  0   0   7   2   127 227 255 127
```


Watch out! The
Now in ne



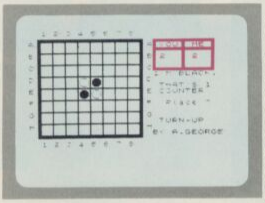


```
I  127  93  93  93  227 255 255 255
J  0    28  28  28  255 255 240 0
K  0    112 112 112 255 255 15  0
L  0    74  44  116 46  52  82  0
M  0    0   0   0   240 24  248 240
N  0    0   0   8   28  28  28  62
O  28   28  28  28  119 20  28  42
P  0    12  22  59  93  110 52  24
Q  0    48  104 220 186 118 44  24
```

Once the machine code loader and the full Basic program have been entered successfully, type RUN 7000. You must now enter the user-defined graphics data as given. Once done, type RUN 8000 and the whole program will be SAVEd to tape in two parts: the Basic and machine code, and the data for the user-defined graphics.

TURN UP

BY ADRIAN GEORGE



The playing grid is displayed on the left-hand side of the screen, with the letters and numbers along the sides to allow you to identify each square by its co-ordinates. The box in the top right-hand corner shows how many black and white counters are currently on-screen, giving you some idea of how you're doing.

Similar to the famous board game Othello ©, this program allows you to indulge in an amazing battle of wits with your Spectrum — and an extremely worthy opponent it makes too!

If you don't know the rules of the game don't panic, a brief resumé of the instructions for play follow. However, the only way you'll pick up the tactics of the game is by playing it ... and don't worry too much about making invalid moves because your opponent won't let you, as the program is very well error-trapped.

The game is played on an eight-by-eight grid with each square allotted a co-ordinate defined by a letter (A to H) and a number (1 to 8); these are displayed at the sides of the grid. Play starts with two counters from each side (black counters belong to your opponent, the white ones are yours) placed diagonally in the centre of the grid. You can choose to go first if you want, and play begins by selecting a square's co-ordinates (letter first, then number) and if valid, you will be told how many of the Spectrum's counters you have 'captured' and asked if you still want to make the move. Answer 'Y' if it's OK; entering 'N' will give you the chance of making another move.

The only valid moves are those that allow you to 'capture' a number of your opponent's counters. This is done by trapping one of your opponent's counters between two of your's in a straight line, be it horizontal, vertical or diagonal. Once you've trapped some counters, these are automatically converted to white pieces and it's the turn of the computer to try and capture some of your pieces. The game continues until every space on the grid has been taken or neither side can make a valid move. The winner is the one with the most counters still remaining on the board.

Tactics are both complicated and difficult to explain; the best way of finding these out are to play a few games, lose gracefully and then get down to business. However, try and place your white pieces in the corners of the grid (which gives you control over the diagonals) and on the sides.

At the start of the game, the grid is printed up on-screen and a prompt will come up when it's your turn to make a move. Type up the co-ordinates of the square you wish to move to and press Enter.

e Cylons are here!
erve-jangling 3D.



Alien Spaceships (O.K, so what's new!) A'n'F have updated Cylon Attack (a very sought after game) so popular that A'n'F had great difficulties to improve the game, but they have done it. Cylon Attack is now in isometric perspective. Imagine playing new Cylon Attack in isometric perspective (3D). **£5.75**

NEW FOR SPECTRUM

ANOTHER RIVETING GAME FROM A'n'F

SPECTRUM 48k—Other games available: Chuckie Egg—£6.90, Alpha-Beth £5.75

Interested?

A'n'F SOFTWARE SOFTWARE SOFTWARE SOFTWARE SOFTWARE SOFTWARE

NULLI SECUNDUS

A&F Software, Unit 8, Canal Side Industrial Estate, Woodbine Street East, Rochdale OL16 5LB Telephone: Rochdale 341111

HERE WE GO AGAIN

48K Spectrum £6.95 **CBM 64 £7.95**

Sequel to No 1 Game Jack and The Beanstalk



by CHRIS KERRY



(Spectrum)

ACTUAL SCREEN DISPLAYS

The Most Graphical Arcade Simulation Ever Produced (Jack and The Beanstalk)

AVAILABLE FROM SELECTED BRANCHES OF:

John Menzies
WHSMITH
Boots
makro
Dixons
Greenchip
ALDERMANS
LASKYS

ALSO AVAILABLE AT ALL USUAL SOFTWARE OUTLETS.

RETAILERS CONTACT:

MICRO DEALER UK Ltd
Tiger trader
Lightning
R&R Computer Games
CentreSoft
PCS DISTRIBUTION
Bulldog

DISTRIBUTORS AND OVERSEAS ENQUIRIES CONTACT PAUL 051-263 8521/2

If you have difficulty in obtaining your copy, just fill in the Coupon below.

Tick Spectrum ☐ CBM64 ☐

Post coupon now to: **Thor (Computer Software) Co. Ltd., Erskine Industrial Estate, Liverpool, Merseyside L6 1AF Tel: 051-263 8521/2**

I enclose Cheque/PO for £ _____

Name _____

Address _____

_____

If you enter an invalid move, you will be asked to have another go. Once a valid move is made, the computer will tell you how you stand to gain from the move and ask if you still want to go through with your decision. If you press 'Y', your move is made and the relevant counters are altered. The Spectrum will now think out which is the best move to make and once done, tells you its your go again. If at any time you can't make a valid move, press the 'M' key and your turn will be missed out.

Check out lines 160-320 if you want to see how I've made the computer think for itself — I'm not sure it's the best way to do this, but you'll find the program's certainly hard to beat. However, I've only made the program check for one move ahead — so seasoned games players (and anyone else keen to exploit the program) are welcome to allow the Spectrum to look a few more moves ahead and thus make the program much harder to beat. It should be possible to make the Spectrum so good at the game that it never loses, but that doesn't seem all that much fun!

```
 10 REM TURN-UP
 11 PAPER 7: INK 0: BORDER 7: CLS
 15 INK 0: CLS
 20 GO SUB 9500
```

Lines 10-20 Set the black INK and jump to subroutine which draws the screen display.

```
 30 PRINT AT 21,3; INK 1;"You go first"
 35 INK 2: LET k=21: LET m$=""
 40 PRINT AT 9,k; FLASH 1;"■"
 50 IF INKEY$="" THEN  BEEP 0.01,20: GO TO 5
0
 52 PRINT AT 21,3;"                "
 55 IF INKEY$="m" THEN  GO TO 160
 60 LET i$=INKEY$: IF CODE i$>96 AND CODE i$
<105 AND k=21 THEN  PRINT AT 9,k;CHR$ (CODE i
$-32): LET k=22: LET m$=m$+i$: BEEP 0.05,0: G
O TO 40
 70 LET i$=INKEY$: IF CODE i$>48 AND CODE i$
<57 AND k=22 THEN  PRINT AT 9,22;i$: LET k=23
: LET m$=m$+i$: BEEP 0.05,0: GO TO 40
 80 LET i$=INKEY$: IF CODE i$=12 AND k>21 TH
EN  LET k=k-1: PRINT AT 9,k+1;" ": LET m$=m$(
1 TO (LEN m$-1)): BEEP 0.05,0: GO TO 40
 90 IF CODE INKEY$=13 AND k=23 THEN  PRINT A
T 9,23;" ": BEEP 0.05,0: GO TO 110
 100 GO TO 40
 110 INK 0: BEEP .4,20: PRINT AT 9,21;"   ":
IF LEN m$<>2 THEN  GO TO 35
 120 LET x=CODE m$(1)-96: LET y=VAL m$(2): LE
T p$="w"
```

Lines 30-120 This routine allows the player to input a move on-screen. Line 50 produces a BEEP — a noisy reminder that it's still your turn to input a move. Checks are made so that the first character you enter can only be a letter between 'A' and 'H' or an 'M' for a missed go. A check is also made to make sure the second character you enter is a number between one and eight.

```
 130 GO SUB 9000: IF v$="nok" THEN  PRINT AT
10,21;"INVALID";AT 11,22;"MOVE": BEEP 1,0: PR
INT AT 10,21;"                ";AT 11,22;"
  ": GO TO
 35
 131 GO SUB 6000: PRINT AT 9,21;"THAT'S ";np;
AT 10,21;"COUNTER": IF np>1 THEN  PRINT AT 10
,28;"S"
 132 PRINT AT 12,22;"Place ?"
 133 IF INKEY$="y" THEN  PRINT AT 9,21;"
   ";AT 10,21;"                ";AT 12,21;"
  ": GO TO 140
 134 IF INKEY$="n" THEN  PRINT AT 9,21;"
   ";AT 10,21;"                ";AT 12,21;"
  ": GO TO 35
 135 BEEP 0.01,0: GO TO 133
 140 IF v$="ok" THEN  PRINT AT x*2,y*2;"ef";A
T x*2+1,y*2;"gh"
 150 GO SUB 8000: PRINT AT 4,21; INK 4;"  ■
  ": PRINT AT 4,21; INK 4;you;AT 4,26;me: IF
you+me=64 THEN  GO TO 7000
```

Lines 130-150 This area of the program GO SUBs to line 9000 — the routine to check that the move is valid; if the move is invalid, you will be told so on-screen. If the move turns out to be OK, the program GO SUBs to line 6000 to a routine which counts how many counters will be taken if the move is made. You are then asked if you still want to make the move. Pressing the 'N' key will give you the chance of another choice, and the 'Y' key moves the program on to line 8000 — the routine to flip over the required counters and update the score.

```
 160 INK 0
 198 LET point=32000
 199 LET np=0
 200 FOR x=1 TO 8: FOR y=1 TO 8: LET p$="b":
BEEP 0.001,x*8+y-8
 210 GO SUB 9000: IF v$="nok" THEN  GO TO 260
 215 BEEP 0.004,65
 220 GO SUB 6000: IF (x=1 OR x=8) AND (y=1 OR
 y=8) THEN  LET np=np+4: GO TO 230
```

Lines 160-220 The first of the routines that allow the Spectrum to make its move. To begin with, it looks at each square to check whether it's a valid move or not (line 9000) and then counts how many counters would be taken (line 6000).

```
 224 IF (x=2 OR x=7) AND (y=2 OR y=7) THEN  L
ET np=np-1
 225 IF x=1 OR x=8 OR y=1 OR y=8 THEN  LET np
=np+2
 226 IF (x=1 OR x=8) AND (y=2 OR y=7) THEN  L
ET np=np-3
 227 IF (y=1 OR y=8) AND (x=2 OR x=7) THEN  L
ET np=np-3
```

Lines 224-227 Once the valid moves have been checked out, the program here decides which is the most strategic position for its next move; corner and side squares are obviously worth more than those elsewhere.

```
 230 IF np<no THEN  GO TO 260
 240 IF np=no THEN  POKE point,x: POKE point+
1,y: LET point=point+2: GO TO 260
 250 FOR n=32000 TO point: POKE n,0: NEXT n:
LET point=32000
 251 LET no=np: POKE point,x: POKE point+1,y:
 LET point=point+2
 260 NEXT y: NEXT x
```

Lines 230-260 This routine examines each square, and if the 'position' value is more than or equal to the number of counters that can be taken, its co-ordinates are added to a list of possible moves.

```
 270 LET rn=(point-32000)/2: LET r=INT (RND*r
n)
 280 LET r=r*2+32000: IF rn=0 THEN  PRINT AT
8,21;"I CAN'T GO": BEEP 1,0: PRINT AT 8,21;"
              ": GO TO 35
 290 LET x=PEEK r: LET y=PEEK (r+1)
 300 GO SUB 8000: BEEP 0.05,20
 310 PRINT AT 4,21; INK 4;"  ■  ": PRINT A
T 4,21; INK 4;you;AT 4,26;me: IF you+me=64 TH
EN  GO TO 7000
 320 GO TO 35
```

Lines 270-320 A square is chosen at random from the list of the best possible moves. If the routine hasn't found any suitable moves, the Spectrum announces the fact that it can't go.

```
6000 LET np=0
6010 FOR f=-1 TO 1: FOR g=-1 TO 1: IF f=0 AND
 g=0 THEN  GO TO 6090
6020 LET np1=0
6030 IF b$(x+f+1,y+g+1)=" " THEN  GO TO 6090
6040 IF b$(x+f+1,y+g+1)=p$ THEN  GO TO 6090
6050 LET h1=x+f+1: LET h2=y+g+1
6060 IF b$(h1,h2)=" " THEN  GO TO 6090
6070 IF b$(h1,h2)=p$ THEN  LET np=np+np1: GO
TO 6090
6080 LET h1=h1+f: LET h2=h2+g: LET np1=np1+1:
 GO TO 6060
6090 NEXT g: NEXT f
6100 RETURN
```

Lines 6000-6100 This routine works out the number of counters which will be taken if a certain move is made. The array, b$, stores the board positions.

```
7000 INK 3: REM END
7010 FOR n=-10 TO 20 STEP 5
7020 FOR s=0 TO 10 STEP 2
7030 BORDER INT (RND*8): BEEP 0.01,n+s
7040 NEXT s: NEXT n
7050 IF you=me THEN  PRINT AT 21,1; FLASH 1;"
A DRAW"
7060 IF you>me THEN  PRINT AT 21,1; FLASH 1;"
YOU WIN"
7070 IF me>you THEN  PRINT AT 21,1; FLASH 1;"
I WIN!!!!!!!"
```

!NEW VERSION!

TAPE TO MICRODRIVE

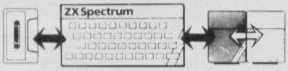
MICRODRIVE TO TAPE

Would you like to transfer your Spectrum programs from

① MICRODRIVE TO MICRODRIVE ③ TAPE TO TAPE
② TAPE TO MICRODRIVE ④ MICRODRIVE TO TAPE

Then do it with

TRANS-EXPRESS



TRANS-EXPRESS is the most comprehensive package of four m/c utilities for transferring Spectrum programs. They are user-friendly simple to use, reliable & very efficient. They will enable you to transfer any kind of programs up to the full 48.0k length TAPE TO MICRODRIVE will also automatically if necessary, modify re-structure & relocate both BASIC and m/c to RUN from microdrives.

TRANS-EXPRESS is an essential microdrive companion and an invaluable software back-up utility.

You can buy each of the four programs separately for £ 5.50 or TAPE TO MICRODRIVE & MICRODRIVE TO MICRODRIVE for £ 7.50 or an entire package of all four programs on one tape for £ 9.95 or on a microdrive cartridge for £ 14.95 only.

M'DRIVE TO M'DRIVE

Please send me a copy of **TRANS-EXPRESS** ①②③④ Please tick where applicable Y.S.

I enclose cheque/PO for ..... (European orders please add £1 overseas £2)

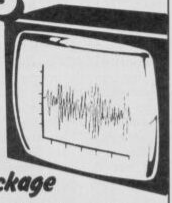
Name / Address .....

.....

.....

ROMANTIC ROBOT 113 Melrose Ave, London NW2

SPECTRUM OWNERS



Turn your SPECTRUM into a synthesiser for just £7.95 with the 'SPECTRUM SOUND EFFECTS' software package

"Spectrum Sound Effects" is a user friendly, synthesised sound effect package for the 48K Spectrum. Over 2000 professional MACHINE CODE effects are readily available, and you can go on producing your own new effects 'to your hearts content'.

All sounds can (a) be played through the Spectrum's keyboard, (b) be easily saved to enhance your own programs with sounds never before heard from the Spectrum and (c) be plotted 'on screen'.

Effects vary from alien craft, lazer zap., U.F.O. to telephone, horse galloping, old jallopy and penny whistle, to name just a few.

Compatible with sound boosters etc. Full instruction manual included.

Totally microdrive compatible (instructions for transferring to microdrive included).

Available by mail order. Price of £7.95 includes UK carriage and VAT. (Overseas add 55p p&p per tape). Send cheque or postal order to:

M F M DATA SERVICES

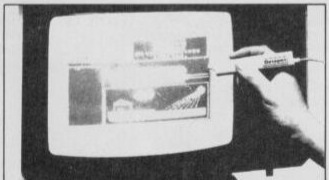
M.F.M. DATA SERVICES LIMITED
(Dept. SA1) 141a CAMDEN ROAD, TUNBRIDGE WELLS, KENT TN1 2RA. Tel: Tunbridge Wells (0892) 48832
Credit Card Hotline (0892) 48832

All tapes guaranteed against malfunction. 24 hour despatch.

Datapen

A QUALITY LIGHTPEN
for use with the SPECTRUM computer

The DATAPEN lightpen enables you to create high resolution pictures and technical layouts directly on your T.V. screen. The accompanying software allows you to draw any shape or *filled area* you wish, to *pixel accuracy*, in full colour and the results may be utilised within your own programs, e.g. for animation, or to illustrate your title pages. At just £29 inclusive, the Datapen lightpen package represents superb value – just look at the actual screen photographs and you will agree that this must be the best value for money on the market



PLUS: 3 SOFTWARE PROGRAMS

- Routines and ideas for your own programs. (Menus, games, music, etc.).
- User-defined graphics creation program.
- Superb full colour drawing program as illustrated in these actual screen photographs.



- Incorporates features not provided with other pens.
- Push button operation on pen – no need to use keyboard.
- Works under any lighting conditions.
- Plots to pixel accuracy.
- 20 pre-defined commands allow plotting of geometric shapes, including triangle, lines, circles, etc., text, or user-defined characters
- Uses all paper and ink colours.
- A screen grid may be turned on and off, at will, to assist drawing.
- Flexible erase capability.
- All drawings can be saved to tape for further use.
- Plugs in direct – no batteries, additional components, or adjustments needed.
- Handbook, plus printout of routines for use in your own programs.

Send cheque or P.O. for £29.00 to: Dept. SU1 - DATAPEN MICROTECHNOLOGY LIMITED, Kingsclere Road, OVERTON, Hants. RG25 3JB 0256 770488
or ask at your local computer shop. Send S.A.E. for details. Lightpens and software are also available for BBC B, Dragon, CBM-64 and VIC-20.

Lines 7000-7070 This part of the program produces a flashy border to the screen, and prints the result of the game — either a win for the player, a draw or, in the case of the Spectrum winning, a typically arrogant announcement guaranteed to get you demanding another game.

```
7080 INPUT "ANOTHER GAME ? "; LINE j$
7090 IF j$(1)="y" OR j$(1)="Y" THEN  PRINT AT
 2,1;"                ": INK 0: GO TO 10
7100 GO TO 9999
```

Lines 7080-7100 Ask if you would like to have another game.

```
8000 LET x$="ef": LET y$="gh": LET q=you: LET
 q1=me: IF p$="b" THEN  LET q=me: LET q1=you
8010 IF p$="b" THEN  LET x$="ij": LET y$="kl"
8020 PRINT AT x*2,y*2;x$;AT x*2+1,y*2;y$: LET
 b$(x+1,y+1)=p$
8030 LET q=q+1
8040 FOR f=-1 TO 1: FOR g=-1 TO 1: BEEP 0.005
,60
8050 IF f=0 AND g=0 THEN  GO TO 8180
8060 IF b$(x+f+1,y+g+1)=" " THEN  GO TO 8180
8070 IF b$(x+f+1,y+g+1)=p$ THEN  GO TO 8180
8080 LET h1=x+f+1: LET h2=y+g+1
8090 IF b$(h1,h2)=" " THEN  GO TO 8180
8100 IF b$(h1,h2)<>p$ THEN  LET h1=h1+f: LET
h2=h2+g: GO TO 8090
8110 REM CHANGE
8120 LET h1=x+f+1: LET h2=y+g+1
8130 IF b$(h1,h2)=p$ THEN  GO TO 8180
8140 LET q=q+1: LET q1=q1-1
8150 LET b$(h1,h2)=p$
8160 BEEP 0.01,20: PRINT AT (h1-1)*2,(h2-1)*2
;x$;AT h1*2-1,(h2-1)*2;y$
8170 LET h1=h1+f: LET h2=h2+g: GO TO 8130
8180 NEXT g: NEXT f
8190 LET me=q: LET you=q1
8200 IF p$="w" THEN  LET me=q1: LET you=q
8210 RETURN
```

Lines 8000-8210 Make the moves happen on-screen, ie, the relevant counters are flipped over when required. Lines 8190 and 8200 update the score once a move has been completed.

```
9000 IF b$(x+1,y+1)<>" " THEN  LET v$="nok":
RETURN
9010 FOR f=-1 TO 1: FOR g=-1 TO 1: IF f=0 AND
 g=0 THEN  GO TO 9090
9020 IF b$(x+f+1,y+g+1)=" " THEN  GO TO 9090
9030 IF b$(x+f+1,y+g+1)=p$ THEN  GO TO 9090
9040 LET h1=x+1+f: LET h2=y+1+g
9050 LET h1=h1+f: LET h2=h2+g
9060 IF b$(h1,h2)=" " THEN  GO TO 9090
9070 IF b$(h1,h2)<>p$ THEN  GO TO 9050
9080 LET v$="ok": RETURN
9090 NEXT g: NEXT f
9100 LET v$="nok": RETURN
```

Lines 9000-9100 This routine checks if the square you wish to move to is valid within the rules of the game. Line 9000 checks to see if the square is already occupied, and lines 9010-9070 check that at least one of the opposition's counters is taken in the move.

```
9500 RESTORE : PRINT AT 0,2;"1 2 3 4 5 6 7 8"
;AT 1,1;"▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪": INK 4;" ▪▪▪▪▪▪▪
▪▪▪▪"
9504 GO SUB 9590
9505 INK 4: PRINT AT 2,20;"▌YOU▐ ME ▌";AT 3,2
0;"▌▪▪▪▪▪▪▪▪▪▐";AT 4,20;"▌2  ▌2  ▌";AT 5,20;"
▌   ▌   ▌";AT 6,20;"▌▪▪▪▪▪▪▪▪▪▐"
9510 INK 0: PRINT AT 1,0
9520 FOR n=65 TO 72: BEEP 0.01,n-40: PRINT CH
R$ n;" ▌▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▐";CHR$ n: PRINT " ▌cd
cdcdcdcdcdcd▐": NEXT n
9530 PRINT AT 18,1;"▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪";AT 19
,2;"1 2 3 4 5 6 7 8"
9540 PRINT AT 8,8;"efij";AT 9,8;"ghkl";AT 10,
8;"ijef";AT 11,8;"klgh"
9550 DIM b$(10,10): FOR n=1 TO 10: LET b$(n)=
"          ": NEXT n
9560 LET b$(5,5)="w": LET b$(6,5)="b": LET b$
(5,6)="b": LET b$(6,6)="w"
9570 LET you=2: LET me=2
9580 PRINT AT 7,20;"I'M BLACK."
9585 RETURN
```

Lines 9500-9585 Print up the playing area on-screen.

```
9590 INK 5: FOR n=USR "a" TO USR "l"+7: READ
a: POKE n,a: NEXT n: PRINT AT 15,21;"TURN-UP"
;AT 17,20;"BY A.GEORGE"
9600 INK 0: RETURN
```

Lines 9590-9600 Set up the user-defined graphics used in the program.

```
9610 DATA 255,128,a,a,a,a,a,a,255,1,1,1,1,1,1
,1
9620 DATA 128,a,a,a,a,a,a,255,1,1,1,1,1,1,2
55
9630 DATA 255,128,135,136,144,160,a,a,255,1,2
25,17,9,5,5,5
9640 DATA 160,a,a,a,144,136,135,128,255,5,5,5,9
,17,225,1,255
9650 DATA 255,128,135,143,159,191,a,a,255,1,2
25,241,249,253,a,a
9660 DATA 191,a,a,159,143,135,128,255,253,a,a
,249,241,225,1,255
```

Lines 9610-9660 Contain the data for the user-defined graphics. YS

PROGRAMMING ON SPEC

Programs submitted for publication in *Your Spectrum* have a tendency to suffer a number of common faults — simple little quirks which can be rectified easily.

Our major gripe is that the display is often messy and untidy. A screen can be made so much more legible if it is well-formatted — if spaces are left between lines of text and words are not split from line to line. And while we're on about screens, if you display something like the current score or whatever, do remember that labelling it makes all the difference — the whole effect becomes more user-friendly (to use a rather hackneyed phrase). Other suggestions for improvements are:

1. Use the 'PRINT #1;' statement to allow you to print on the bottom two lines of the screen.
2. Use INKEY$ for simple inputs which only require a single key response.
3. Check that answers to any questions within a program are valid.
4. If long calculations are carried out within the program's operation don't let the user sit there idly twiddling thumbs, print a message such as 'please wait — I'm thinking'. Or even better, give the user something to read, such as the instructions for playing the game, while the calculation is being undertaken.
5. Write major sections of your program as subroutines, and label them with REM statements explaining what they all do. It is always useful to place a REM statement after a GO SUB call, for instance.
6. If your program is written in machine code, or contains a machine code routine, then provide a checksum for the data so that the unwary typist will realise their mistake before it's too late. An Assembly listing accompanying the code would also be useful.
7. Write your listings in as structured a form as you can manage, as this will help other programmers to improve and/or modify them.

Above all, think of all the annoying aspects of listings you've experienced in your programming career — and make sure they don't happen in your programs. That said, the standard of contributions to *Your Spectrum* have been extremely high. So, if you want to see your name *YS*, then we want to see your programs — remember, we pay better than most, but they've got to be good!

Please send any programming contributions to:
Gavin Monk, Your Spectrum, 14 Rathbone Place, London W1P 1DE.

HELP IS AT HAND

from Softeach

Well known for quality and value with our accessory products–you can be sure of something special when we apply our 20+ years experience in business systems to home computer software . . . coming soon!



EARLY LEARNERS KEYPANEL KIT

NEW for Beginners

These flexible printed overlays are mounted on individual locating frames and produce clear and simple keyboards for young users.

The kit comes in a clear plastic storage wallet and contains a complete range of keyboards, printed in a large clear typeface. (Lower case, upper case, upper + lower, blank key outlines and a blank panel for you to draw on). That's a total of six Keypanels in each kit.

PRICE £2.95

AVAILABLE FROM **WHSMITH**

CUSTOM KEYPANEL KITS

You can assemble a CUSTOM KEYPANEL for all of your programs and create an instant and individual reference to every one.

The ONLY keyboard overlay KIT and with these unique advantages:

- Precision die-cut PLASTIC panels.
- —Matt-black matches your Spectrum.
- —Stays flat and flush to the keyboard.

Pre-printed and write-on labels for a professional finish.

Each Kit contains:

- 10 Matt-black KEYPANELS.
- 140 Pre-printed Command labels.
- 140 Blank write-on labels.
- Clear plastic storage wallet.
- EXTRA white wipe-clean Keypanel FREE with every kit.

PRICE £3.95

These SOFTEACH products are available from W H Smith or by return of post from:
SOFTEACH LIMITED 25 College Road Reading Berks
Please send me:
.....Custom Keypanel Kits @ £3.95 plus 35p p&p each.
.....Early Learners Kits @ £2.95 plus 35p p&p each.
(Overseas please add 25% for additional surface mail.)
I enclose a total remittance of £.....cheque/P.O. payable to Softeach Limited.
Name . . . . . .
Address . . . . . .
. . . . . .

TRADE ENQUIRIES to 0734-64261

EDUCATIONAL ORDERS to MICRO EXPRESS 0533-375757

S O F T E A C H

Keypanel Kits-the first add on for your Spectrum



BACK ISSUES BLITZ

You can now obtain any back issue of *Your Spectrum* simply by filling in the coupon below and enclosing £1.10 for each issue you require. A complete selection of back issues of *Your Spectrum* is available from our shop in London's West End, two minutes' walk from Tottenham Court Road tube station. As well as saving you the postage and packing charge, a visit to the shop will allow you to see the extensive range of computer books we carry.

The shop is open Monday to Friday 10am to 6pm. The address is 14 Rathbone Place, London W1P 1DE.



VOL 1/1 (DEC/JAN 1984)

REVIEWS
Currah's MicroSpeech, general computing books, joysticks.
FEATURES
Speech synthesis, Toni Baker's machine code break-out, Spectrum communications, DIY keyboard buffer, machine code scrolling.
GAMES
Chess packages.



VOL 1/4 (JUNE 1984)

REVIEWS
Spectrum disk drives, QL roadtest, adventure programming books.
FEATURES
DIY joystick interface, synthesiser control, *ZIP* compiler [pt. 2], colour simulation screendumps.
GAMES
Hacker's review plus full map of *Jet Set Willy*.



VOL 1/5 (JULY 1984)

REVIEWS
British Micro's Grafpad, DIY computing books.
FEATURES
Computerised bulletin boards and modems, software for printer interfaces, *ZIP* compiler [pt. 3], DIY joystick interface.
GAMES
Gilsoft's *The Quill*.



VOL 1/6 [AUGUST 1984]

REVIEWS
Spectrum toolkits, games programming books.
FEATURES
Hacking into *Jet Set Willy*, explosion routines, *ZIP* compiler [pt. 4], files on Microdrive, DIY Centronics interface [pt. 1].
GAMES
Ultimate's *Sabre Wulf*.



VOL 1/8 (OCTOBER 1984)

REVIEWS
Graphics toolkits, programming languages books.
FEATURES
Microdrive recovery, Project 3 revisited, multi-tasking your Spectrum, *YS MegaBasic* (pt.1).
GAMES
Vortex's TLL.

ORDER YOUR BACK ISSUES NOW!

Please send me the following back issues of *Your Spectrum* (£1.10 each including postage and packing).

☐ Issue 1/1 ☐ Issue 1/6 ☐ Issue 1/8
☐ Issue 1/4 ☐ Issue 1/5

Issue 2,3 and 7 are now sold out, so don't waste your time ordering them!

I enclose a cheque/Postal Order for £_____made payable to Sportscene Specialist Press Ltd.

Name_____

Address_____

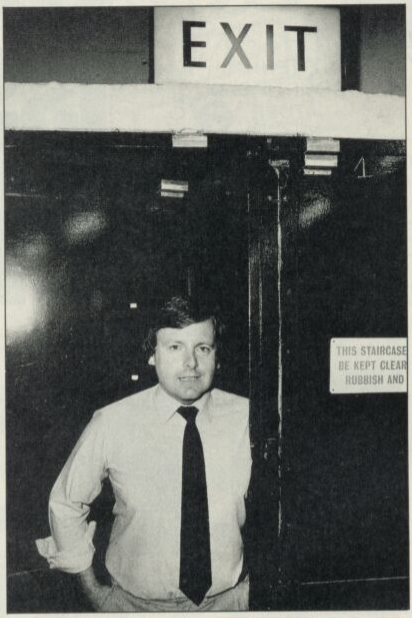
_____Postcode_____

Date_____

Please fill in this form and mail it immediately to:
Your Spectrum, Back Issues, 14 Rathbone Place, London W1P 1DE.
You can use a photocopy of this form if you don't want to deface your issue.

CIRCE

Surviving the software market is no easy ride . . . even if you do have Matthew Smith in tow. **Sue Denham *tackles* Colin Stokes *of Software Projects on topics past, present and future.***



TONY SLEEP

JET SETTING

Though not actually exhibiting at the PCW Show this year, Software Projects made its presence felt through the persistence of its self-confessed sales supremo, Colin Stokes. Seemingly at the centre of many 'hold the front page' stories over the last nine months or so, he seemed eager to talk about the exploits of SP, the trials and tribulations of his last company Imagine and, of course, their director and 'ace in the hole' Matthew Smith.

"Matthew left Bug-Byte because he became disenchanted with the company — whatever programmers feel they're worth, they rarely get it, so he decided to join us. The guy's a genius, although he doesn't think he's a megastar or anything — he's not into flashy cars or big holidays, he's just a down-to-earth bloke. Matthew's also a profit-maker and at the end of the day, that's what we're talking about.

"I'll always remember March 9th of this year — the day we released *Jet Set Willy* — we had virtually every distributor in the country waiting outside our offices in an assortment of taxis, cars and vans; they were so eager to ship the product to the shops. It was very exciting."

So how has Matthew's fame and fortune helped Software Projects? "Of course, it's been great — to the point that we must be considered one of the biggest software houses in the UK. I couldn't give you a definite figure for our sales of *JSW*, but I reckon it must be in the region of 200,000 — and we're not finished with it yet, especially as we've now cracked the Japanese market, the first UK company to do so I might add.

"There have been disadvantages as well. Programmers with a good piece of code are always phoning us up announcing that they've got the next *Manic Miner* and so on, and expecting us to give them money and fame instantly. The software business just isn't like that! There are many misconceptions about the software market, and the cost of producing the right kind of product is increasing all the time — for programmers it's getting very tough to barter their way against so much opposition. Also, because they're talking to Software Projects, they want lots more money than usual — and we just don't work that way. Just look at the way the big chains are selecting the games they choose to sell — if there are five games all purporting to be flight simulators, only two will ever get the high street exposure they'll need to become successful. Twelve months ago, the industry would be quite happy with middle-of-the-road product, but now the whole situation has been rationalised. From what I can gather, the mean average shelf life of a software package is around four weeks — and wholesalers are demanding new products all the time, backed up by a wealth of good back product. It's pretty tough out there."

Moving on to SP's brush with the Guild of Software Houses (GOSH) and their unsuccessful attempts to become part of it, Colin was most adamant on his criticism of the group. "GOSH is an achievement which has decided not to encompass the whole of the software industry. SP decided not to take advantage of GOSH, especially as they seem to hold a personal vendetta with us since a few of its members decided that we 'stole' Matthew from Bug-Byte. Anyway, the aims of GOSH seem to be totally wrong — what they should be doing is talking about reducing the discounts offered by the wholesale industry, discussing sale or return deals and *really* talking about the industry as a whole, especially the aspects of protection that we've pioneered and are striving to achieve."

Moving back in time nine months to Colin's swift departure from Imagine, where he was in charge of the sales force for over a year, it's obvious that the bitterness has not yet died down. "They bugged my phone, took conversations I'd had out of context and used them to discredit my reputation. I was even wrongly accused of stealing some of the company's tapes and had my house searched by the Fraud Squad when my wife was pregnant. As a company, Imagine was inept, unprofessional and immature. I know certain members of Imagine are setting up a new software house — they even had the nerve to ask me whether I'd like to help them — but if things work out for them, then that's fine.

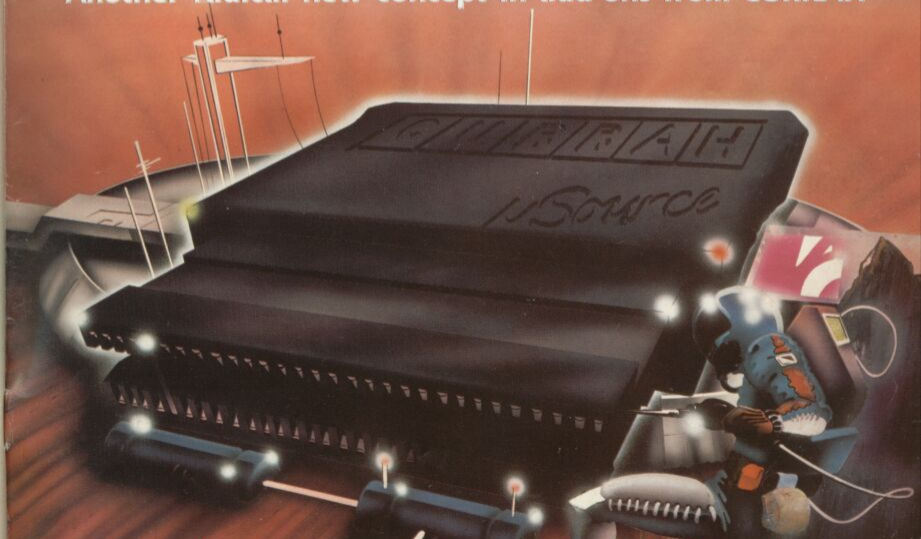
"I'm happy at Software Projects — it's a good, professional outfit and, while the rest of the industry goes into decline, I see our company growing. That's not to say that I can give any guarantees of success — but then no-one can say thay have with the market in the state it's in at the moment. Although *Manic Miner* and *Jet Set Willy* were both superb and original programs, I think you have to look at Europe and the USA to see good quality programming."

As to the future of Software Projects, what will you be doing over the next few months? "Well, obviously *Manic Miner* and *Jet Set Willy* will be converted for virtually every home computer you can think of. This has been imposed on us in many ways; every software house gets lots of mail, but we get thousands of letters just asking us to put either of Matthew's 'Willy' games on to their particular machine — the object of the exercise after all is to give customers what they want."

And, of course, the inevitable question — what's Matthew up to at the moment and when is the next Jet Setting program going to be unleashed on the public. Refusing to be drawn, Colin settled for a simple reply ... "Soon". On being reminded that Christmas will soon be with is, Colin merely smiled and came back with, "*Very* soon!" YS

Integrated Forth, Assembler and Debug for ZX Spectrum

Another radical new concept in add-ons from CURRAH



Next month CURRAH launch µSOURCE, their most advanced product yet. µSOURCE lets you write and use Assembler or FORTH in BASIC lines, so you can run these advanced languages by themselves or even 'integrate' them into BASIC programs.

µSOURCE gives you the ability to write ultra-fast, highly compact programs which use the powers of all three languages, yet is so user-friendly that even a novice will be using it in minutes! Add advanced features like a full Debug, so you can easily correct your programs, and at £44.50 you can give your Spectrum on-board programming power only found on more expensive machines.

Send in now for an advance information pack to: CURRAH, Hollymount, Hartlepool TS26 0HA.

CURRAH

TONY SLEEP

LOAD OF FUN



SPECTRUM 48K



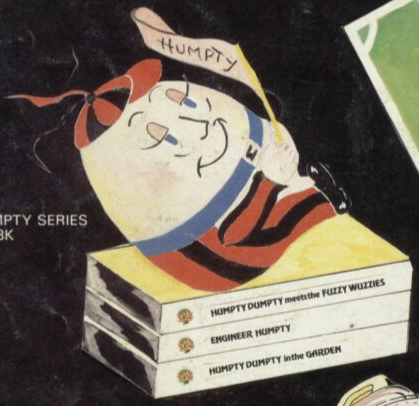
SPECTRUM 48K
CMB 64



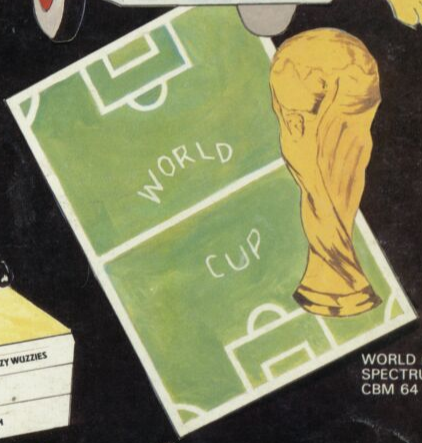
SPECTRUM 48K
CBM 64



BEAR BOVVER
SPECTRUM 48K
CBM 64



HUMPTY DUMPTY SERIES
SPECTRUM 48K
CBM 64



WORLD CUP
SPECTRUM 48K
CBM 64



artic computing ltd.
. . . other games just aren't the same!

Main Street — Brandesburton
Driffield YO25 8RL
Telephone (0401) 43553
Telex 52215

artic Computing Ltd

ALL GAMES
£6.95