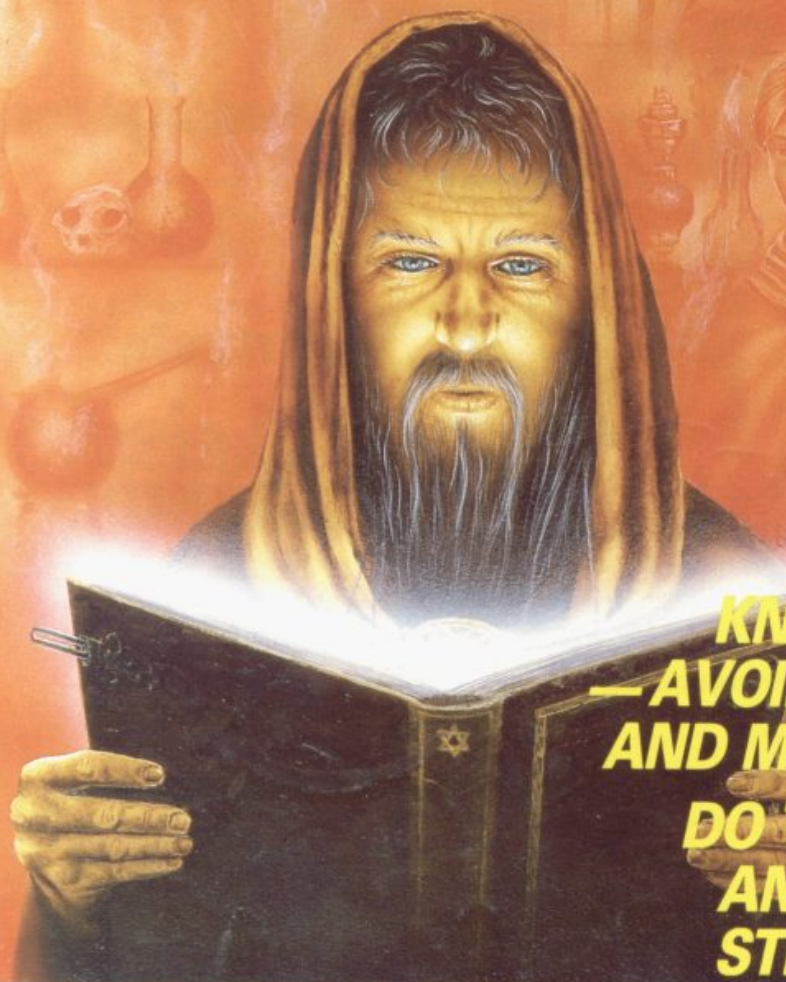


sinclair user

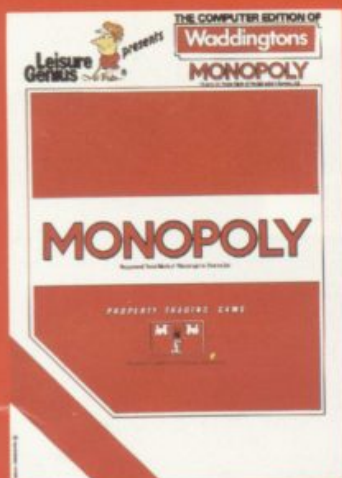
BRITAIN'S BEST SELLING COMPUTER MAGAZINE

FAIRLIGHT
A NEW WORLD
OF 3D ADVENTURE

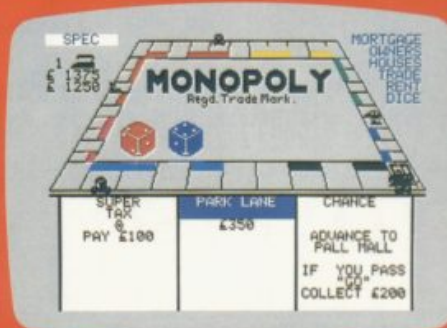
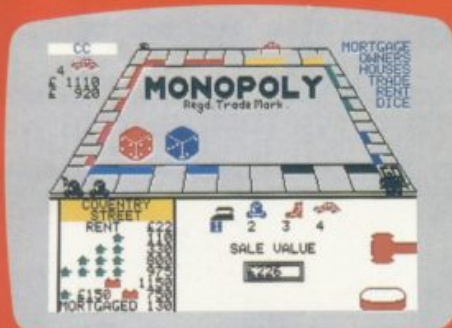


KNOW YOUR RIGHTS
— AVOID RETAIL RIP-OFFS
AND MAIL ORDER BLUES
DO THE LOCOMOTION
AND WIN HEWSON'S
STEAM TRAIN GAME

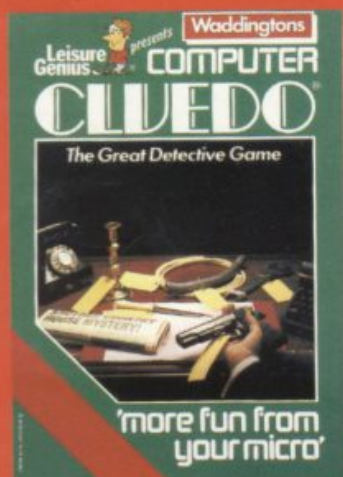
Ingenious...



MONOPOLY®



Cat. No. 040 £9.95



CLUEDO®



Cat. No. 050 £9.95

...computer games for people who hate computer games.

Give your joystick a rest,
and your brain a chance with
these family favourites.

Software by...

Leisure Genius

3 Montagu Row, London W1H 1AB.



NOW AVAILABLE FROM SELECTED



**& WHSMITH
STORES**

AND
AT OTHER
GOOD
STORES.

MAIL ORDER: Cheque or postal order to:

LEISURE GENIUS, 3 Montagu Row, London W1H 1AB.

Please send me

CAT. NO(s) _____

CASH

NAME _____

ADDRESS _____

POST CODE _____

SU

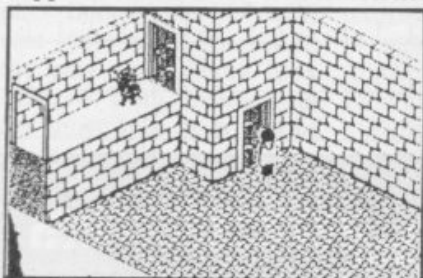
CLUEDO® trade mark and copyright licensed by Waddingtons Games Ltd.
MONOPOLY® is produced under license from Parker Brothers and Waddingtons Games Ltd.
All copyrights reserved. LEISURE GENIUS® is a registered trade mark of Winchester Holdings Ltd.



EDITORIAL Editor Bill Scolding Deputy editor John Gilbert Staff writers Chris Bourne, Clare Edgeley Designer Craig Kennedy Editorial secretary Norisah Fenn Publisher Neil Wood
ADVERTISING Advertising manager Louise Fanthorpe Deputy advertisement manager Shahid Nizam Advertisement sales executive Kathy McLennan Production assistant Jim McClure Advertisement secretary Linda Everest
MAGAZINE SERVICES Subscriptions manager Carl Dunne
TELEPHONE All departments 01-251 6222
Sinclair User is published monthly by EMAP Business & Computer Publications
 Cover illustration Stuart Hughes, used by permission of Softek International.

SOFTWARE

TOP 30 9
 Summer launches jockey for position
SPECTRUM SOFTWARE 17
 An exclusive peek at the 3D world of *Fairlight*, Frank Bruno floors all contenders, *Action Biker* comes a cropper and we review a classic *Artist*



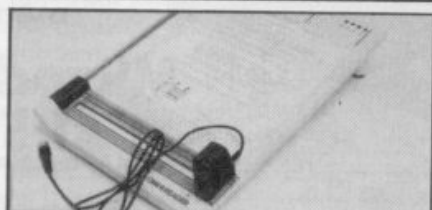
Graphics magic from the Edge, page 17

QL SOFTWARE 31
 English Software goes into *Hyperdrive*, while *Hopper* and *QL Reversi* simulate ZX-81 arcade oldies
HIT SQUAD 58
 Gyron programmers Torus don't exactly suffer from an excess of modesty. Chris Bourne bends an ear
BUSINESS SOFTWARE 69
 Mike Wright dips into some QL business programs, and becomes an *Entrepreneur* with Collins Soft
ADVENTURE 92
 See Richard Price's holiday snaps of *Terrormolinos*, dabble with *Magik* in *Red Moon*, do battle in *Warlord*



All aboard for the Costa Packet, page 92

HARDWARE



Omni-Reader; essential or superfluous? Page 37

HARDWARE WORLD 37
 Typing text made easy with the Omni-Reader, interface your QL with Kempston, get to grips with the Stick. John Lambert is your guide

ENTRY POINT 47
 In the concluding part of his beginners' series, John Gilbert takes a random look at the number generator

MACHINE CODE 62
 Marcus Jeffrey develops picture routines which can be copied, merged or exchanged with the power of logic
HELPLINE 101
 Print and beep with Andrew Hewson as he rummages about in the ROM

PROGRAMMING



Dicing with Death, page 83

PROGRAM PRINTOUT 77
 Peddle your wares in *Space Trader*, or negotiate the levels of tricky *Dead-eyed Dick*. The die is cast in *Top Notch*, arcade action comes to the QL in *Stuffed Mushrooms* and the Spectrum gets a *High Score* utility

FEATURES

KNOW YOUR RIGHTS 52
 Essential reading for all Sinclair users. Wendie Pearson's guide tells you how to avoid buying a blown Spectrum or being ripped off by the crooks of the classified ad.



Let the buyer beware, page 52

REGULARS

NEWS	5
SINCLAIR SIMON	6
ZX WORD	8
QL NEWS	10
LETTERS	11
ZAP CHAT	14
SINCLAIR SURGERY	45
ADVENTURE HELPLINE	89
COMPETITION	97
100 steam train games to be won	



On the right track with the Southern Belle, page 97

SOFTWARE DIRECTORY	105
SOFTWARE PUBLISHERS	109
NEXT MONTH	113
GREMLIN	114

If you would like to contribute to *Sinclair User* please send programs or articles to:
Sinclair User, EMAP Business & Computer Publications, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU
 Original programs should be on cassette and articles should be typed. We cannot undertake to return them unless a stamped-addressed envelope is included.

We pay £20 for each program printed and £50 for star programs.

Typeset by Saffron Graphics Ltd, London EC1. Printed by Peterboro' Web, Woodstone, Peterborough.
 Distributed by EMAP Publications Ltd. © Copyright 1985 *Sinclair User* ISSN No 0262-5458



102,023
 Jan-Jun 1985



- Holds 32 Microdrive Cartridges
- Interlocking Horizontal and Vertical Stacking — Space Saver

CARTRIDGES ARE AVAILABLE at a new low price of £1.50 incl VAT

NOW, buy a CARTRIDGE TIDY and you're a free! member of CARTRIDGE CADDY SYSTEM

What Cartridge Caddy membership offers you

Microdrive cartridges at £1.50 delivered to your door within 24 hrs!

Ministry of Defence Suppliers

Please send me D. Decker (Qty) Cartridge Tidy's, ☐ ZX ☐ QL, AT £7.90 each, inclusive, and blank microdrive cartridges I enclose a cheque for £ Make cheques payable to: 4 Systems, 4QL House, 68 Foxwood Close, Feltham, Middlesex TW13 7DL Telephone 01-844 1399 Overseas orders at £5 airmail

Mr/Mrs/Miss _____
Address _____

4

Systems

68 FOXWOOD CLOSE, FELTHAM, MIDDLESEX TW13 7DL TEL: 01-844 1399

AN IMPORTANT ANNOUNCEMENT TO ALL QL OWNERS

bad or changed medium

Your data is worth a lot to you. Source programs, text, scientific information, records, all represent hours of your time and effort. Losing a file could at worst cost you money – and it's **always** infuriating!

No storage medium is 100% reliable. That's why TALENT has developed the CARTRIDGE DOCTOR. It's a sophisticated machine code program which will, in most cases, enable you to:

- recover files from a bad medium
- recover files which have been accidentally deleted
- recover files with lost or damaged blocks using the 'block patch' utility.

It's very easy to operate and no knowledge of BASIC or machine code is required.

Can YOU afford to be without the CARTRIDGE DOCTOR?

Available only from:

£14.95

+ 50p postage & packing

QL is a Registered Trade Mark of Sinclair Research

TALENT
COMPUTER SYSTEMS

Curran Building,
101 St. James Road, Glasgow G4 0NS
Tel: 041-552 2128 (ACCESS & VISA accepted)
SOFTWARE FROM SCOTLAND

Plus returns

RETURN LEVELS for the Spectrum Plus are still high, according to a Boots spokesman.

"It seems to take one person to sell a computer and three to deal with the complaints. The acceptable returns level is five to six per cent. Returns are running at four or five times that amount and 90 per cent of those faults are genuine."

The biggest problem occurs with the power supplies. Boots has had 14 different types from Sinclair in the past year. Many have suffered from overheating but most have been caught before distribution by rigid soak testing. "Timex does

random spot checks but not enough. We hope that the quality control gets better as Sinclair switches from Timex to AB Electronics."

Simon Treasure of RAM/C, a company which distributes the Spectrum Plus to independent retailers, has been meeting executives at Sinclair Research to try and resolve the problem of quality control. "We are trying to set up an independent organisation which will monitor returns. We hope to be able to tighten quality control, which is certainly not as good as it should be."

Despite the heavy burden of returns which the industry is shouldering, news on sales of the Spectrum Plus is good, although gloom and a contraction of the market is being forecast.

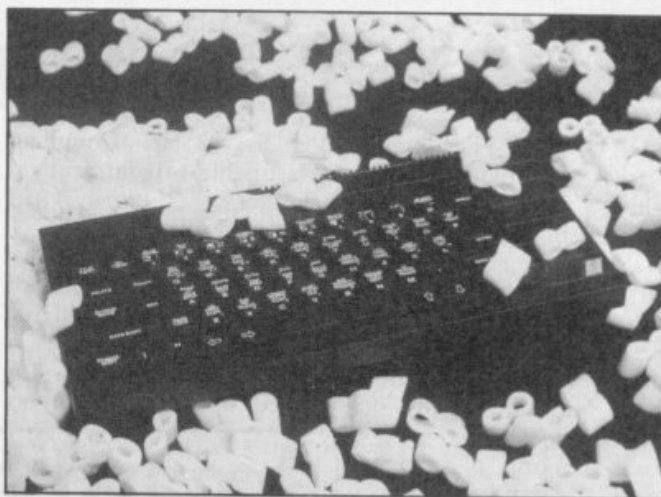
Sinclair warning

A WARNING to retailers has been given by Sinclair Research as machines targeted for markets abroad find their way back into Britain.

The Spectrum Plus machines were released by Timex to Zeta Services in a deal to pay off some of the debts owed to the company by Sinclair. The units have an overseas power supply and distributors, such as Terry Blood, will refuse to repair any returns from the stock.

A spokesman from Boots says he is confident that none of the products could get into the stores. "Our rigorous standards of testing and approval are well known. We test every batch we sell and any product which does not come up to scratch does not go to the shops."

The overseas Spectrum Plus carries a label which says: 'Export sale only — not guaranteed in the UK'. Potential Plus customers be warned.



Treasure believes that prices are going to come down and that the Spectrum Plus could be £99.00 before Christmas. "Machines will be priced at under £100.00 and there will be more of them. It will be hard for users to justify upgrading to a £400 machine such as the QL when there are so many cheap ones on the market. As a result computers will

move into the consumer electronics field and be treated like washing machines or hi-fi systems."

He also believes that on current trends three quarters of a million computers will be sold this year, a drop of about 50 per cent on last year.

Sales will still be high but the market will contract considerably.

Messing about in MUD

THE CULT adventure, **Multi-User Dungeon**, will soon be available to Spectrum owners via an enhanced version from British Telecom.

The original MUD was written by Richard Bartle and Roy Trubshaw for the Essex University DEC computer. They have formed a company, MUSE, in conjunction with Simon Dally, to market the game.

"It will have everything the original MUD had plus about twice as much again," says Dally. Players buy an

initial starter-pack for £20.00 mail order, and credits for 20p each in batches of 50. A credit lasts six minutes, so to play the game will cost £2.00 an hour plus the cost of the phone-call.

The game consists of a vast dungeon, in which players, using a modem, interact with each other and attempt to gain power and experience by solving problems or killing monsters.

To make sure the system is not abused BT MUD will have arch-wizards, experienced and dedicated players

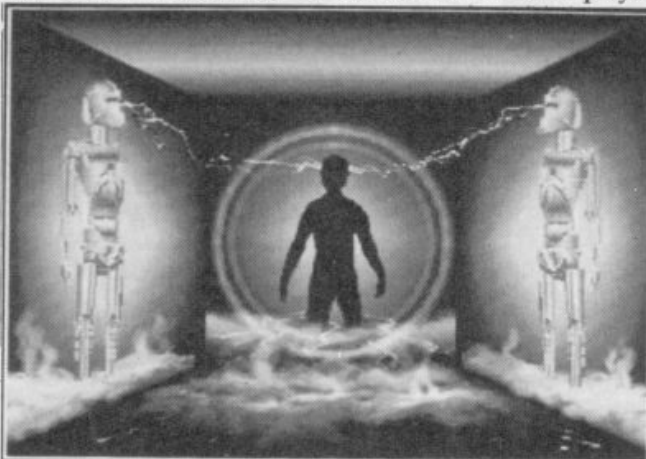
who play free of charge and in return make sure players behave properly.

Spectrum owners will need a modem with software to make the screen scroll, which Modem House says it is able to provide, according to Dally. The popular VTX5000 modem does not do that by itself.

Those brave enough to get involved in what can be an expensive hobby will get the first month's play free if they join before November 5. It will be launched at the PCW show on September 4.

Dally is also involved with a book, *Introduction to MUD*, written by Duncan Howard and published by Century-Hutchinson at £4.95. It is aimed at people who want to know what MUD is, as well as providing practical advice for novice players and will be available in October.

more news on page 6



Hoover to sue Sinclair?

THE C5 may be heading for further trouble. Hoover, which manufactures the electric tricycle at its South Wales washing machine factory, has obtained a writ against Sir Clive Sinclair for a little more than £1.5m, supposedly for work done from November 1984 onwards.

At the time of going to press, the writ had not been served, and Hoover has not gone so far as to cease production of the C5, still running at the minimal 100 a week level. A spokeswoman for Sinclair Vehicles, Eileen Counihan, says "The writ would be vigorously contested if issued against Sir Clive personally". That presumably implies that it is Sir Clive's personal liability which is at stake, and that matters might be different if the writ was against Sinclair

Vehicles itself. Counihan was unable to comment on whether the money had been paid or not.

Sinclair Vehicles is also awaiting the publication of the Advertising Standards Authority report on the C5 advertising campaign. A leaked draft of the report

suggested that serious criticisms would be made of the campaign. "We would comply with any ASA rulings," says Counihan, "Although all ad claims were based on extensive research."

On another front, Bill Nichols, long-running PR man for Sinclair Research

and later Sinclair Vehicles, has resigned the C5 account from the agency he now runs. The account returns to Kinnear, which handles Sinclair Research and Psion as well.



A card blow for pirates

CREDIT CARD software is on the way. It could help retailers and curb piracy.

The device used to program the cards is a PROM blower from Electric Software. The company sells the package to shops together with a stock of master cards on which are the latest software titles.

When a customer requests a piece of software its master card is placed in the

black box PROM blower together with a blank PROM. The software is then copied to the blank card. The process takes less than a minute.

Using the system, retailers can dispose of the long racks of software and the difficult decision of which titles to stock. The benefits are also passed onto customers, although they will have to purchase an adaptor for

their machines, priced at £7.00. The software is more robust and the device provides instantaneous LOAD. The main stumbling block is, however, that titles will cost £15.00. Electric Software is confident that it will soon be able to get the price down to £9.95.

The PROM cards should pose problems for pirates. They are almost impossible to copy.



New chief at Sinclair



A NEW chief executive has been appointed to Sinclair Research. Bill Jeffrey has been appointed following a confused period during which a number of candidates were inspected.

Maxwell — thumbs up for Jeffrey?

Jeffrey's is an internal appointment. He joined the company in March of this year with responsibility for the flat-screen pocket TV, and appears to have had some success with it, obtaining a deal with chain-store Dixons and increasing the retail base generally.

Previously Jeffrey worked for Mars Electronics, with particular responsibility for marine systems. He speaks fluent German, which is seen as an asset in terms of Sinclair's plans for expansion in Europe.

The appointment may surprise some, who thought Sinclair Research required

financial expertise as a priority at the top. Robert Maxwell, who is buying the company — a deal which should be finalised by October — is said to have been fully consulted over the appointment. Since Maxwell must surely have had a veto over any prospective chief executive, it looks as though Bill Jeffrey will be around for some time.

Sir Clive Sinclair praised Jeffrey's management and marketing skills, and says they "have already made an enormous contribution to the company." Since Nigel Searle, the former managing director, had already been put in charge of the American QL launch as early as January, it seems that Sinclair Research may have been grooming Jeffrey for the top job ever since his arrival in March.

Jeffrey has already announced his intention to increase Sinclair's involvement in overseas markets, which should mesh well with Maxwell's known plans to deal with surplus stock by obtaining contracts in Eastern Europe. Those plans have already been somewhat disappointed by the Soviet Union's decision to go for the Japanese MSX standard, but there remain markets in Poland and Bulgaria.

FAST piracy bill becomes law

SOFTWARE PIRATES face a bleak winter now that the amendment to the Copyright Act has been passed through Parliament.

What the new law does is simply to add the words 'computer software' after 'literary acts' and 'video works'. Lawyers have tended to believe that programs were covered anyway, but since there has been no test case to prove it, software houses have in the past been reluctant to prosecute.

The Federation Against Software Theft has therefore been lobbying for a clarification of the law, and now that has been achieved FAST has appointed an enforcement co-ordinator. The man in the hot seat is Bob Hay, a former chief superintendent of police. His previous experience includes the notorious Grunwick dispute in North London and the Iranian Embassy siege. On the piracy front he was active in breaking a large operation pirating Indian films.

A spokesman for FAST says Hay will be involved primarily in sorting out the

evidence gathered by FAST members and organising some sort of central monitoring system.

FAST will not actually initiate prosecutions, but seeks to ensure that members, which range from IBM to Virgin Games, can bring successful prosecutions.

"We are interested in commercial pirates in particular," says the spokesman, "which means anybody who is pirating software for commercial gain."

The new penalties in the legislation, with unlimited

fines and up to two years imprisonment for serious offences, come into force on September 16, so prosecutions will be delayed until then. "But I have no doubt that Trading Standards officers are aware of a number of operations in being at the moment," says Bob Hay. "I talked to one police force, north of the border, where counterfeit software was being sold blatantly in street markets."

"I hope it will be a long cold winter indeed for the pirates. Very cold."

Complete business package

IF YOUR business is in chaos, SMT, in conjunction with Rotronics, may have just the package to sort out the mess.

The package comprises a Spectrum Plus, Rotronics wafadrive, Rotronics DX85 printer, four wafers, a Centronics lead and three pieces of software — **Finance Manager**, **Address Manager** and **Stock Manager** from Oxford Computer

Publishing. The package would cost £540 if items were bought individually, but is currently available at £485 inclusive.

Contact SMT, Bengal Lane, Greens Norton, Towcester, Northamptonshire NN12 8BE.

The DX85 is a high speed dot-matrix printer combining a number of features.

The printer costs £199.95 from Rotronics Ltd, San-

tosh House, Marlborough Trading Estate, West Wycombe Road, High Wycombe, Buckinghamshire HP11 2LB.



more news on page 8

The winning Protocol

THE *Sinclair User* offices were snowed under with entries to the **Fourth Protocol** competition, which appeared in the July issue.

The first 10 winners, who each win a package of the novel and the game, are:

M P Fahey, RAF Akrotiri, Cyprus; Thomas Cohen, London N2; V Macdonald, Leeds 11; N M Robinson, Romford, Essex; M J Ablott, Scunthorpe, South Humberside; Steve Palmer, Selsdon, Surrey; C Hanvey, Co Antrim, Northern Ireland; Peter Tong, Paris, France; Neil Murray, Musselburgh, Scotland; K Richards, Lyme Regis, Dorset.

The 40 runners-up, who win copies of the game only, are: Alex MacKenzie, Ellon, Grampian; L Lucas, Birmingham B37; Jorgen Jacobsen, Glostrup, Denmark; G Thomas, Gleaston, Cumbria; David Hayter, Stanford-Le-Hope, Essex; Nicholas Percival, Sawston, Cambridge; G Church, Witney, Oxfordshire; Dave Friend, Etchingham, East Sussex; Daniel Chester, Dartford, Kent; M G Baker, Borehamwood, Hertfordshire; Andrew Norton, High Wycombe, Buckinghamshire; T A Garcia,

Shrewsbury, Shropshire; L Huiswood, Amsterdam, the Netherlands; Andrew Milne, London N18; M J Cannar, Bradford, West Yorkshire; Andrew Palmer, Llanfairfechan, Gwynedd; Anthony Gregson, Poynton, Cheshire; Jenny Tyack, Wallingford, Oxfordshire; Angus Phillips, Wimbourne, Dorset; James Williams, Nantwich, Cheshire; Stephen Owen, Norwich, Norfolk; J S Rix, Hitchin, Hertfordshire; Mats Lindgren, Sjalvad, Sweden; Harry Moscrop, Harrow, Middlesex; Justin Llewellyn-Jones, Newport, Gwent;

P Birschel, Whitehaven, Cumbria; T M King, Godolphin House, Windsor, Berkshire; A J Newell, Deeside, Clwyd; R Brass, Bishop Auckland, Co Durham; D Oulton, Edinburgh; R Maidment, Sutton, Surrey; Adam Lee, Llandaf, Cardiff; G J Ball, Wolverhampton, West Midlands; K Orr, Bradford, West Midlands; Christopher Haines, Barnwood, Gloucester; Jan-Juan Tangen, Vestnes, Norway; Scott Macfarlane, Edinburgh; Andy Riddick, Gravesend, Kent; Daniel Hall, London N3; M Fletcher, Gloucester.

The message, when decoded, reads: THE OPPOSITION HAS BROUGHT FORWARD THE EVENT. THE PLAN IS TO DETONATE THE BOMB AT MIDNIGHT TONIGHT. BY THE TIME YOU GET THIS MESSAGE THE BOMB WILL ALREADY BE IN PLACE AT THE BASE. DO NOT ATTEMPT TO REMOVE IT UNTIL IT HAS BEEN DISARMED. THE COMBINATION IS FOUR SEVEN ZERO THREE. GOOD LUCK. The code was of the simple substitution type, with the key word CENTURY, followed by the remaining letters of the alphabet, replacing the usual alphabetical sequence.

Pimania is solved

THE GOLDEN SUN-DIAL of Pi, subject of **Pimania**, the longest unsolved adventure quest, has finally been found.

On July 22, Sue Cooper and Lizi Newman of Ilkley, Yorkshire, unearthed the sundial which was buried in the mouth of the chalk horse at Hindover Hill in Sussex. "Sue and Lizi bought **Pimania** in 1982," says Auto-

mata's Christian Penfold. "They've travelled thousands of miles and toured like mad."

The all important clue was the letters CAGG — CA, the chemical symbol of calcium and therefore chalk and GG, a gee gee or horse. Many players worked out the day on which the quest would be solved — the twenty-second day of the

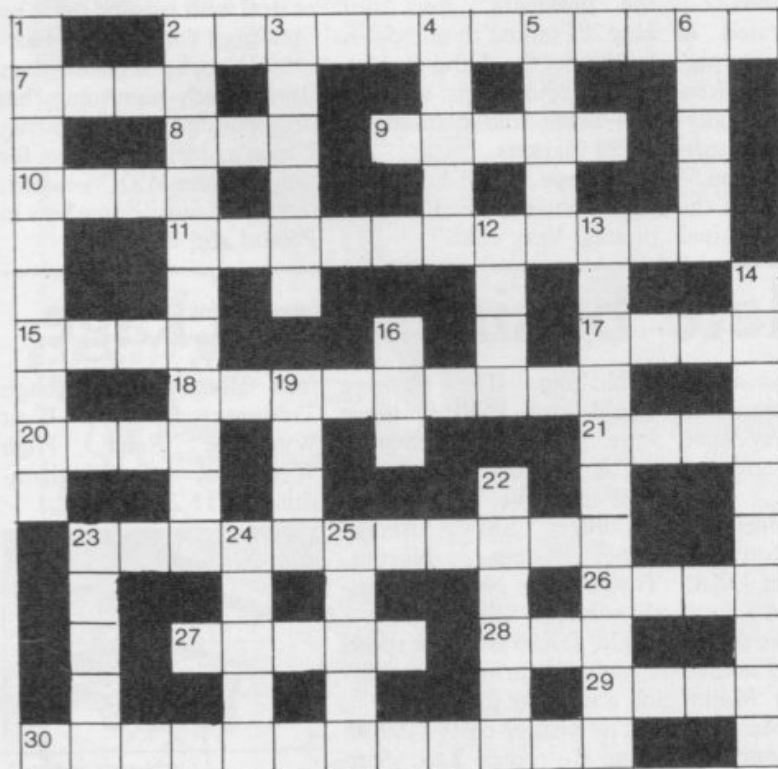


seventh month — but not where to look for it.

A printed book of the solution is available from Automata, PO Box 78, Southsea, Hampshire for £1.00.

ZXWORD

by Henry Howarth



Across

2. Doing more than one thing at a time, like the QL (12)
7. Office computer that followed the Mona? (4)
8. Note Thatcher's operating system (2/1)
9. CIA is confused by coding system (5)
10. Shove onto the stack (4)
11. Mostly in term, active use made of this sort of software (11)
15. Wally, perhaps, introduced to semiconductors (4)
17. Output from a wordprocessor (4)
18. Silicon Fen (9)
20. Stand-alone musical performance (4)
21. To put it squarely, four's is two and nine's is three (4)
23. One hoping to mate with Novag, Constellation or the White Knight? (5,6)
26. Sort of connector on board the mother? (4)
27. George who invented an algebraic system of logic (5)
28. Got one's teeth into binary, perhaps (3)
29. Amend the listing in bed, it would appear (4)
30. REM is less bad clue for decoder (12)

Down

1. Flexible record of micro storage (6,4)
2. The object of an assembler (7,4)
3. List I'm compiling of the highest and the lowest (6)
4. Strange tales of magnetic flux density (5)
5. Move a bit to the left or the right (5)
6. Negative sort of semiconductor (1-4)
12. Wot! — no hole in punched card? (4)
13. It may perform some fairly basic translation (11)
14. Elements of a language may be sent from the bank (10)
16. A bandit would have one in the amusement arcade (3)
19. Memory diagrams (4)
22. Least significant Bit O my clue for a sign (6)
23. Tenth grade temperature scale? (5)
24. Prevents full CHR\$(56)'s (5)
25. Electrical signal felt after an accident (5)

Solution on page 110

New releases

TAKE PART in Activision's **Ballblazer**, the ball game of the universe, played simultaneously with a friend or against droids. **Ballblazer** will be up and running in September at £7.99.

Also from Activision is the **Great European Cross Country Roadrace** in which you take the wheel of a rally car and do Europe the hair-raising way. Keep an eye on your car's performance as it won't run on air and bald tyres won't get you far.

Defeat the evil being which has turned the villagers of **Nightshade** into the walking dead. Ghastly skeletons, demons and plagues await anyone brave enough to cross the village's boundary. Ultimate's latest is out now for £9.95.

Following the theft of your report in **Skooldaze**, Microsphere is giving you the chance to replace it. Life is not easy for a grubby skoolboy and distractions include a girls' school on the other side of the playing field. Ahem! **Back to Skool** will be out in early November at £6.95.

Robin Hood, that legendary figure of Sherwood Forest is now performing great deeds on your Spectrum. In this adventure, from Adventure International, help Robin restore the Touchstones of Rhannon to their rightful owner. **Robin of Sherwood** is out now for £9.95.

Following hot on the heels of **Komplex** is **Komplex City**, from Legend. Collect the target letters of **Komplex City** while scoring maximum points. It's on the streets now at £9.95.

A further effort to help the starving in Ethiopia is being masterminded by Gremlin Graphics, which is bringing out **Tinderbox** with all profits donated to the Ethiopia Appeal. **Tin-**

derbox is an adventure featuring a soldier who has been put under an evil curse. To break the spell he must find and marry a beautiful princess, although the road to her castle is not easy. It is priced at £4.99.

In September Kempston releases **Chicane**, a racing simulation based on the Formula Ford 2000. You will have to qualify first and then take part in the race itself. **Chicane** will cost around £6.50.

Chartwatch

IT'S ALL CHANGE this month, as the new summer games overtake the charts with a vengeance. Fastest risers include **Hypersports**, **Cauldron**, **Jet Set Willy 2**, **Rocco**, **Spy vs Spy** and **A View to a Kill**.

The other new entries are **Nodes of Yesod**, the dreadful **Action Biker**, **Empire Fights Back**, **Glass**, **Knockout**, and **Battle for Midway** — nice to see a strategy game selling well. That old favourite, **Jet Set Willy**, has re-entered — presumably on the back of the new version.

After a brief flirtation with success, **Minder** has disappeared, as has **Chuckie Egg 2** and **Grand National**. Best sellers **Raid Over Moscow**, **Everyone's a Wally**, **Death Star Interceptor**, **Booty and Dragontorc** have also, at last, been deposed, though **Daley Thompson's Decathlon** and **Alien 8** are still hanging on in.

Noticeable by their absence are **Sinclair User Classics** **The Fourth Protocol** and **Frankie Goes to Hollywood**, both of which had delayed release dates.

And where is **Elite's Frank Bruno's Boxing**? Has it already been floored by its inferior rivals **Rocco** and **Knockout**?

GALLUP TOP 30

This chart is compiled by Gallup by sampling sales at 250 retail outlets, including high street chain stores and independent home computer shops

MONTH ENDING JULY 19

1	SOFT AID	QUICKSILVA/VARIOUS
2	♣ HYPERSPORTS	IMAGINE
3	♣ CAULDRON	PALACE
4	◇ SPYHUNTER	US GOLD
5	♣ JET SET WILLY 2	SOFTWARE PROJECTS
6	♣ ROCCO	GREMLIN GRAPHICS
7	♣ DUN DARACH	GARGOYLE GAMES
8	♣ SPY VS SPY	BEYOND
9	♣ VIEW TO A KILL	DOMARK
10	◇ SHADOWFIRE	BEYOND
11	◇ WORLD SERIES BASEBALL	IMAGINE
12	◇ STARION	MELBOURNE HOUSE
13	◇ ROCKY HORROR SHOW	CRL
14	◇ BRUCE LEE	US GOLD
15	♣ NODES OF YESOD	ODIN
16	♣ TAPPER	US GOLD
17	♣ ACTION BIKER	MASTERTRONIC
18	♣ ALIEN 8	ULTIMATE
19	♣ EMPIRE FIGHTS BACK	MASTERTRONIC
20	◇ FINDERS KEEPERS	MASTERTRONIC
21	DALEY THOMPSON'S DECATHLON	OCEAN
22	◇ HERBERT'S DUMMY RUN	MIKRO-GEN
23	◇ MATCH DAY	OCEAN
24	♣ GLASS	QUICKSILVA
25	◇ GYRON	FIREBIRD
26	♣ KNOCKOUT	ALLIGATA
27	♣ BATTLE FOR MIDWAY	PSS
28	♣ JET SET WILLY	SOFTWARE PROJECTS
29	◇ GREMLINS	ADVENTURE INTERNATIONAL
30	◇ FORMULA ONE SIMULATOR	MASTERTRONIC

Support dies for QL

THERE IS no future in the QL market.

That is the view of a number of companies, including Adder, CP Software and Computamate, which have decided not to release any new QL products.

Each company has made the decision independently, but the reasons behind the moves are almost the same.

CP Software has had its fingers burned with the launch of its only QL title. **Bridge** has been selling well by mail order and many retailers have taken it. Chris Whittington of CP is finding it costly to support even the

one product: "The QL is a bit of a catastrophe. We have had a good response from distributors. The problems occur with the returns. We get more microdrives back than cassettes because of unreliability. It costs us more to replace a microdrive cartridge than a cassette."

Adder Publishing is suffering the same trouble. Spokesman Adrian Dickens says: "The market is very depressed and there is not much future in it. Sinclair is showing no encouragement or help with duplication and it is largely left up to the

individual companies to make arrangements.

"We will continue to support our current range but are moving into the IBM compatible market."

Computamate, manufacturer of a QL disc interface, has also decided to pull out of what it sees as a tricky market.

No launch in the US?

THE SPECTACULAR launch of the QL in the US has not materialised.

Nigel Searle, former managing director of Sinclair Research, went over to the States in May to organise the bonanza for which, he said, the American people were ready. Although Searle encountered 'immense interest' from the market little of that turned into hard cash.

A spokeswoman for the company comments: "Nigel Searle did not want to jump into a new and different market straight away."

So, any Americans wanting a QL will have to buy it from Sinclair Research at \$499.00.

Snowsoft's maze game

CHAMBER CAPERS is the first arcade adventure from Snowsoft, a new company dealing exclusively in QL software.

Richard Snowdon, author of the program says: "the ultimate goal is to find a key. On the way through the maze you can pick up various objects which will aid you in your battle."

Snowsoft sees education as a more lucrative market than games, so **Chamber Capers** may be your first and last chance to see a game from Snowsoft.

U-turn on disc policy

IN A DRAMATIC turnaround of policy, Sinclair Research has adopted a disc drive and interface package.

When the QL was launched, Sinclair stressed that it would leave floppy disc technology to others. Now the company has admitted that discs are important and chosen the package from Micro Peripherals.

Surprisingly, quality and performance are not the main factors used to decide which peripherals Sinclair adopts. A spokeswoman says: "We do not claim that the peripherals which we badge are the fastest or even the best. They are the ones which are most compatible with our other peripherals."

"The Micro Peripherals package does seem to be a strange choice. All other QL interfaces use the device name FLP. Sinclair has chosen to use the only package which uses FDV — for reasons of compatibility with MDV for microdrive."

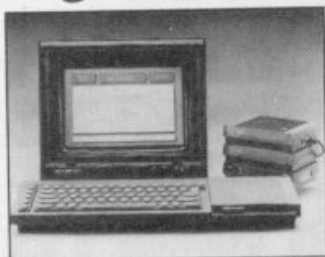
A single drive coupled with interface and utility software costs £258.00, with additional drives available for £139.00 each.

Comms given go-ahead

QL COMMS, the communications package from Tandata, has received British Telecom approval. The modem can now be linked direct to any BT appliance.

According to Tandata, orders for QL Comms have been coming in at 'a very healthy rate'. A spokeswoman for the company says: "It is still early days but we are seeking distributors so we can get the product out to retailers."

The package comprises:



an intelligent serial port, full RS232 output and modem. More information can be obtained from Tandata Marketing, Albert Road North, Malvern, Worcestershire WR14 2TL.

Shop lacks software

RETAILERS have been complaining about the lack of good QL software — in particular, games.

WH Smith is the leader in terms of size of range. It has three Sinclair Research products, including **QL Chess**. It also carries the two adventure games from Talent, a home accounts package from Dialog and **Sprite Generator** from Digital Precision.

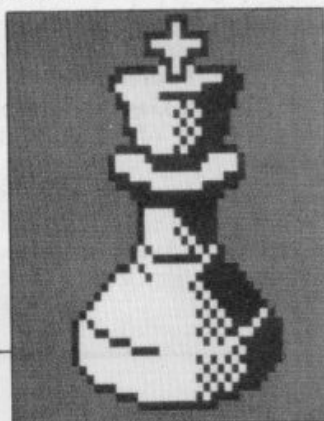
Dixons, Currys and Laskys are not so lucky. You will be hard pushed to find a copy of **QL Chess** or Ta-

lent's West in those stores.

Boots is lagging way behind the rest of the retail chains. A spokeswoman announced that the company has just started to stock the QL but had to admit that "we only stock the package that we got with the QL order and a package from Talent". If you had not guessed, the package from Sinclair Research is **QL Chess** and Talent has supplied **GraphiQL**.

Despite the gloomy news, and even gloomier forecasts, Sinclair Research is confi-

dent that the QL will survive. Asked about sales of the machine a spokeswoman would not give any figures. Worldwide sales still amount to only 60,000 units.



Load of hassle

WHY IS IT that software houses charge £15.00 for products and then present them on sub-standard cassettes?

Take **The Hobbit**. I've heard it's very good and I'm already on my second copy. I've one tip for adventurers; type LOAD etc and then press play — a message will appear on the screen, no prizes for guessing what it is. I'd like to progress further than 'Tape loading error' but it is not to be.

It is possible to present programs on reliable tape — I've bought numerous cheapies and never experienced difficulty. The above fact also points away from unreliable equipment.

I must say here that I've had no trouble exchanging tapes but why should I have to put up with the hassle? If other people experience difficulty they should boycott the companies involved. You'll never catch me purchasing another Melbourne House product.

Until the bigger companies pull their fingers out perhaps we should support only the 'small boys' in the industry — after all, they can't afford to alienate the consumer.

Andy Whitlam, Retford, Nottinghamshire

● I bet the lads and lasses at Melbourne House are having sleepless nights already.

Despite what you say, your problems are much more likely to stem from a particularly cantankerous tape recorder than inferior cassettes. The odd half-dozen users have been able to load and play **The Hobbit**, so we've heard. John Gilbert did, anyway.

You'll never believe this

I BOUGHT a 48K Spectrum a few months ago and at the same time ordered

another Spectrum magazine regularly.

I tried programming from this mag to no avail, and on asking a fellow owner I found out that the mag does not cater for us amateur users when it comes to programming UDGs.

I bought a couple of issues of *Sinclair User* and found some graphics instructions for the listings. I typed in **Bomber Boris** — May, 1985 — and it loaded first time!

P Hall, Scole, Norfolk

● Hold the front page! Someone has actually got one of our listings to work. Chris Bourne must be slipping.

Jumbo-lovers fly off handle

MAY I SUGGEST you submit some of your reviewers to bench-test and service. The May review of **747 Flight Simulator** was an insult to those readers who, like me, bought a copy of 747, read the manual with attention and proceeded to an enjoyable piece of computer-assisted learning.

C R Oswin, Christchurch, Dorset

● For accuracy and entertainment most consumers would get better value from Psion's **Flight Simulator** or Digital Integration's **Fighter Pilot**. Those who want to get into a pedestrian jumbo will enjoy 747, but I fear they're in the minority. Chris Bourne.

Extra feature with Easyedit

WITH reference to my utility program **Easyedit** in the June Issue. One useful feature omitted from the article is that the routine can be switched off by typing #X. Provided that **RAMTOP** has not been changed and that data has not been **POKEd** or **LOADed** into

the space occupied by the program then **Easyedit** can be restarted by typing **RANDOMIZE USR 60702**.

David Wright, Egremont, Cumbria

Where to put your POKEs

AS A recent buyer of a Spectrum Plus I have noticed that **POKEs** are mentioned in letters about games.

Could you please explain what these **POKEs** are?

I R Carpenter, Birmingham

● Most of the **POKEs** given in our Zap Chat column must be added to the Basic loader programs which are used to load in the machine code. To gain access to a loader type **MERGE ""** instead of **LOAD""**. The program will stop, at which point you should stop the tape recorder and list the program.

POKEs should be put at the beginning of the Basic listing, before the **RAND USR** commands which invoke the game. When the amendment has been made, run the loader again and restart the tape.

Another crop of rhubarb . . .

HAVING just purchased the August issue of *Sinclair User*, I am disappointed and concerned to see yet more letters concerning C5s and politics appearing in your pages. I refer to those from Dietmar Osman and Michael J King.

As a serious and enthusiastic Spectrum user, I do not consider the pages of a quality publication of *SU*'s standard to be a fitting place for the discussion of political issues and other non-computer related subjects.

Congratulations must go to all

SU software reviewers for their accurate and unbiased reports, despite being under fire from people such as Mr King. While I understand that some software is certain to upset some people, those people have no right to force their opinions upon the rest of us. So please, please, please, let us see an end to this senseless bickering.

R A Smith, Boston, Lincolnshire

● Now, now, boys. It'll end in tears . . .

Bone of fishy contention . . .

I'VE GOT some bones to pick with you.

While reading a review of **Nodes of Yesod** in the August issue, by whatsername, Clare Edgeley, I read that 'fish swim quite happily in zero gravity.'

OK, so maybe there isn't much gravity on the moon, but it's not zero.

The real clanger occurs in the Letters page of the same issue. You seem to have got two headlines mixed up. What has **Bored of the Rings** got to do with C5s?

N Dempsey, Glenrothes, Fife

● There probably aren't too many fish on the moon either.

As for the headlines mixed up, we do these things deliberately just to check that you're still awake after reading the *QL* news page.



Incorruptible

I AM WRITING to congratulate you on your policy with regard to reviewing your advertisers' software.

I used to hold the cynical view that the wrath of advertisers would not be risked by publishing an adverse report on their products. This was proved to be wrong by the thumbs down you gave to the disgraceful **Car Cure** program in the July edition, which also carried their advertisement.

Integrity is hard to find these days, so keep up the good work.

**J H Godfrey,
Handsworth,
Birmingham**

Double-density Dutch club . . .

FOR SOME TIME past I have been the owner of an Opus Discovery disc drive for my Spectrum, and I am trying to start a Discovery users club in the Netherlands.

We would like to come into contact with Discovery users in the United Kingdom or abroad to exchange experiences, software and so on.

**D C Kruithof,
Boeierkade 6,
2725 CH Zoetermeer,
The Netherlands**

Polyprint the tower of Babel

WE WERE pleased to see the good coverage of Polyprint, the multilingual Centronics interface for the Spectrum, in your July '85 issue. You may find these additional comments appropriate.

The 'preliminary' user notes supplied did not sufficiently emphasise that multiple languages can in fact be used in the same text, both on the printer as well as on the screen. That feature,

together with the adaptation to **Tasword**, we feel gives it a very powerful potential in the European context.

Thanks to the downloadable fount capability of the Epson FX80 and the availability of EPROM programmers, it also becomes possible to implement languages such as Turkish or Icelandic which do not on their own provide sufficiently large markets for manufacturers to bother with.

Finally, the EPROM in Polyprint is a handy place for storage of general utility programs quite unrelated to the printer. Over 7K of space is available for utilities.

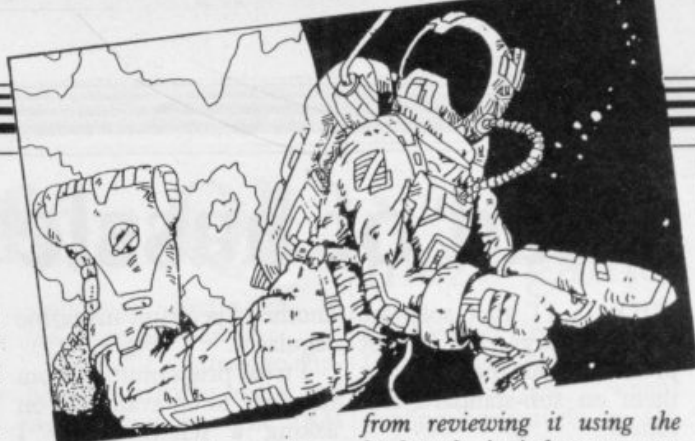
**K Pandey,
managing director,
Cambridge
Microelectronics, Cambridge**

Inappropriate screen shots

I AM fed up with the way US Gold, and other software houses, are starting to show Commodore screens on Spectrum cassette inlays.

Surely this should not be allowed as everyone knows that Commodore graphics are better.

**Douglas Downie,
Airdrie, Lancashire**



John Gilbert's teleport trials

WE WERE bemused by John Gilbert's 'review' of our game **EVA** for the QL in the July issue. This was so full of inaccuracies we wonder if he loaded the program.

Any game which uses the cursor keys is compatible with a joystick. Since Mr Gilbert owns a joystick why didn't he use one?

We don't believe Mr Gilbert finished the first screen as the object assembled is obviously a Giant Robot not a teleport booth.

Mr Gilbert's reaction differs from that of *Popular Computer Weekly* who said, "it really is great fun . . . very enjoyable and entertaining . . . Easily the best game for the QL to date". Perhaps they actually played the game.

**Andrew F Greenwood,
Westway,
Lytham, Lancashire**
● Oh, sorry. We didn't realise that if a game was joystick compatible we were forbidden

from reviewing it using the keyboard. As it happens, our QL joystick didn't appear to work with **EVA**.

John Gilbert failed to recognise the unit as being a giant robot. Perhaps he was confused by your playing instructions, which refer throughout to a 'teleport module'.

Easily the best game for the QL to date? Considering the current dearth of even halfway decent QL arcade games, that would hardly be difficult.

Starion fans fight back

I AM WRITING to set the record straight on **Starion** after J W Ewart's misleading letter — July issue. The game is good value and not impossible to complete. It certainly wouldn't appeal to the blast-anything-that-moves brigade but anyone with a penchant for word games as well as an itchy trigger finger will find it a challenge.

The password to the first time block is **Aerospace** — you'll need to work out 90 anagrams to get that far.

Jim Grimwood, London E16

Lonely ROMs

I WOULD like a foreign penfriend to swap tips, games, ideas and hints for my 48K Spectrum.

**Richard Sharp,
83 Almsford Road, Acomb,
York YO2 5ML**

HI! I'm an Italian boy owning a 48K Spectrum, soon with a VTX 5000 modem. I would be glad if any British kid, with a Spectrum, would like to write to me to exchange programs, ideas and anecdotes about our every-

day life. I am 18.

**Fabio Fachin-Sacchelli,
Via Piaggio 6/8 Sc B
16136, Genova, Italy**

I AM a 13-year old boy from Israel. I own a 48K Spectrum and would like to have a penpal from the UK.

**Kobi Gal,
PO Box 7209,
52171 Ramat Gan,
Israel**

I WOULD like to have some penpals to swap games, hints and tips for the

Spectrum 48K.

**Helgi Sigurdsson,
Heidmork 1A,
800 Selfoss, Iceland**

I WOULD like some 48K Spectrum penfriends. I am 16.

**Finnur Hardarson,
Reynivollum 10,
700 Egilsstodum,
Iceland**

I AM Portuguese and would like to exchange software with Spectrum users.

**Paulo Farinha,
Av D Nuno Alvares
Pereira, L-3 5ESQ,
2800 Almada, Portugal**



DOMARK

presents

YOU as ...



007 

A VIEW TO A KILL

THE COMPUTER GAME

**YOU will become
James Bond
his first arcade/adventure
AVAILABLE NOW ON
Spectrum 48K, Commodore 64,
and watch out for
Enterprise, Amstrad,
MSX and others**

ORDER YOUR COPY NOW!

CALL 01-947 5624/5/6

OFFICE HOURS ONLY



DOMARK

To: Domark Ltd., 204 Worple Road,
London SW20 8PN
Telex: 894475 G

NAME: (BLOCK LETTERS)

ADDRESS

COUNTY POSTCODE

Please send me copies of "A View to a Kill - The Computer Game"
at £10.99 (includes postage and packing).

I enclose a cheque/P.O. for £

My computer is:

You may order by Access ☐ Visa ☐ American Express ☐ by post or
telephone (01-947 5624/5/6) office hours only

Please debit my CREDIT CARD ☐ Signature:

Account No:

Expiry Date: **SU3**

RAM MAKE MORE OF YOUR SPECTRUM...

Two great new add-ons to boost the power of your Spectrum (and Spectrum Plus).

The Ram Interface Mk.II is Kempston compatible. It lets you get the best out of your action games, with all the best joysticks around – even the Quickshot II rapid fire joystick. Electrify your enemies, with real power and lightning-fast reactions at your fingertips.



JOYSTICK
INTERFACE MK II

£9.95

Then there's our Spectrum Upgrade Kit. Boost your 16K memory to a fantastic 48K and run all the latest superb action software.

£21.95

SPECTRUM
UPGRADE KIT

...FOR LESS.

(Both Ram products are made to last. And fully guaranteed.)
Get some real action into your Spectrum Games today!
Simply return the coupon below to Ram Electronics (Fleet)
Ltd., Dept. SU, 106 Fleet Road, Fleet, Hampshire GU13 8PA.
Or call our credit card hot line on
02514 25252.

Please send me
..... Spectrum Joystick Mk.II Interface(s) at £9.95.

..... Quickshot II rapid fire joystick(s) at £9.95.
(only when purchased with interface. Normally £12.95)

..... Spectrum Upgrade Kit(s) at £21.95.

Please state issue 2 ☐ or 3 ☐

(Please add £1 p+p for UK orders. £3 p+p for Europe)
I enclose cheque/postal order, or charge my Access/Visa for £.....



Expiry date

Name

Address

Postcode

Telephone

To: Dept. SU9, Ram Electronics (Fleet) Ltd.,
106 Fleet Road, Fleet, Hampshire GU13 8PA.

Trade and export enquiries welcome



Hypersports

I HAVE just achieved, on Imagine's **Hypersports**, a total score of 149068, taking 20 minutes. Here are the individual events:

Swimming — 27 secs;
long horse — 8.69 marks;
skeet shoot — 9100 points;
archery — 3320 points
(wind 7); triple jump —
13m 40; weightlifting —
middleweight (210).

Other high scores include: **Tapper** — 83775 on Easy; **Spyhunter** — 230500 on Expert; **Death Star Interceptor** — 9600 on Lieutenant.

Stephen France,
London SE26.

Monty is Innocent

TO PUT the record straight, Tony Winterbottom — Zap Chat, August — is not world champion at **Monty is Innocent**. I completed it in 58 seconds. Luck is more important than skill for a fast time.

Matthew Phillips, Bristol

Travel with Trashman

I WROTE to Rod Evans, of New Generation, claiming to be the first person to complete **Travel with Trashman** and he told me that I am the first person who has sent positive proof of completion.

At the New Gen office the hi-score is 23400 which I beat with a magnificent 25914. My route around the world is: London-Madrid-Paris-Munich-Moscow-Jerusalem-Benares-Hong Kong-Alice Springs-Samoa-Chichen Itza-New Orleans-Sao Paulo-Kanyu.

At the end the message appears: "Time machine found in

Kanyu. That is because the new game from New Gen may be **Trashman in Time**".

JC Lockwood,
Lowestoft,
Suffolk

Dummy Run

I HAVE finished **Herbert's Dummy Run** with 89 jelly babies at 1:30 on June 12.

Sean Kelly,
Woodthorpe, Nottingham

Rocky Horror Show

I SUCCESSFULLY completed **The Rocky Horror Show** on June 19.

After collecting all the pieces and placing them behind the curtain, you must turn the freezer off and return to the curtain again. Touching the machine displays a message of congratulations and the castle then takes off.

Matt, Tiptree

Spy Hunter

IN **Spyhunter**, when the helicopter comes along, go up behind and stop level with it. The copter fires bombs which blow up just before they reach you. While that is happening your score slowly ticks on.

Andrew Graham,
Lancaster

Boxing clever with Frank Bruno

A FEW hints from the boys at Elite to help you fight your way to the Heavyweight Championship of the world, in **Frank Bruno's Boxing**:

Canadian Crusher reacts to your punches; deliver a body blow and the big dumb-o will drop his guard to protect his body, switch now to the head and up will come his hands.

Watch out for his right uppercut — with practice it's easy to avoid. Each time you knock him down, Crusher will attempt the bear hug, and to avoid him you must duck. Target KO Time — 35 secs.

Fling Long Chop can dodge your head punches, he can also block head and body blows. The best tactic is to fight like fury and throw as many punches as you can.

Each time he delivers a head kick he will drop to his left knee. You must duck and providing you do this he is not likely to hurt you. Target KO Time — 70 secs.

Andra Punche-redov is fast and dangerous. Throw a string of right jabs and he will dodge about 70 per cent; keep them going, and you will notice that he dodges to his right. Time to throw a left head punch.

Watch out for dirty tricks; Andra will headbutt if he gets the chance, and if his head goes back, duck. Target KO Time — 1 min 45 secs.

With **Tribal Trouble** each punch you throw will bring instant retaliation. So wait, with your guard down, and as he raises his fists to strike, deliver a body blow. You won't be able to hit him twice, so block his body blows and wait until once more he raises his guard.

You will notice that Tribal Trouble goes into an Ali shuffle; don't under any circumstances hit him when he is in the down position as this will trigger his two-handed punch. Target KO Time — 2 mins.

Frenchie is difficult to hit and not terribly exciting. One aspect of Frenchie's style worth noting is his tendency to repeat blows. Give him an opportunity to deliver a head blow and he will repeat and repeat until you're on the floor.

Watch out for Frenchie's windmill; from time to time he will wind himself up, pause momentarily and then punch. Target KO Time — 2 mins 15 secs.

Fighting **Ravioli Mafiosi** is

a battle of wits. His only weakness is a tendency to drop his right hand; at that point punch with your right. Ravioli will at first block with his left but after some blows his left will fall away and you're through. Don't fall for the come on, or the ending will be instantaneous. Target KO Time — 2 mins 30 secs.

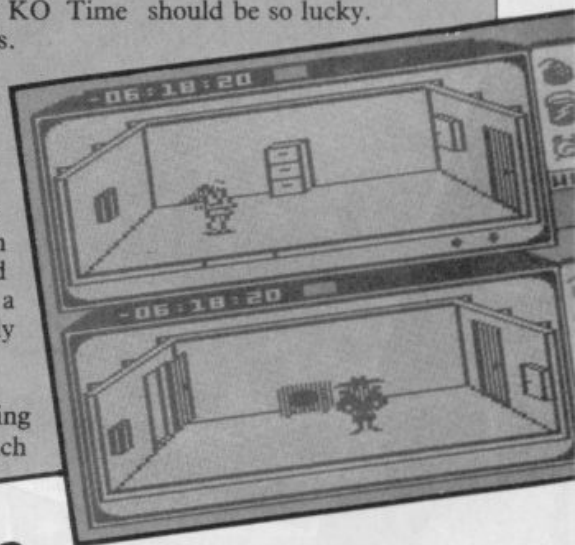
Antipodean

Andy has one chink in his armour — when he leans to the left you can catch him with either a righthand head blow or a lefthand body blow.

Immediately prior to unleashing a double fist punch

Andy will raise both hands over his face. Target KO Time — 2 mins 45 secs.

Peter Perfect is almost impossible to beat. You cannot land the, by now all too familiar, righthand knock-out drop; Peter sees it coming and dodges, every time. Target KO Time — you should be so lucky.



Even the odds in Spy vs Spy

STILL can't beat the computer in **Spy vs Spy**? Here are some tactics for reducing the odds.

Delaying tactics

If you stand before a door through which your computer opponent is trying to gain entry he will struggle fruitlessly, and eventually he may trundle off in the opposite direction.

You can make this more dramatic if, as soon as your opponent tries to enter, you produce a time bomb. Count to ten, then rush for an exit door. Take up station just beyond the threshold. The computer spy will probably pursue you into the time-bombed room. As he tries to enter your room the bomb will explode. Run back and gather any items he has dropped.

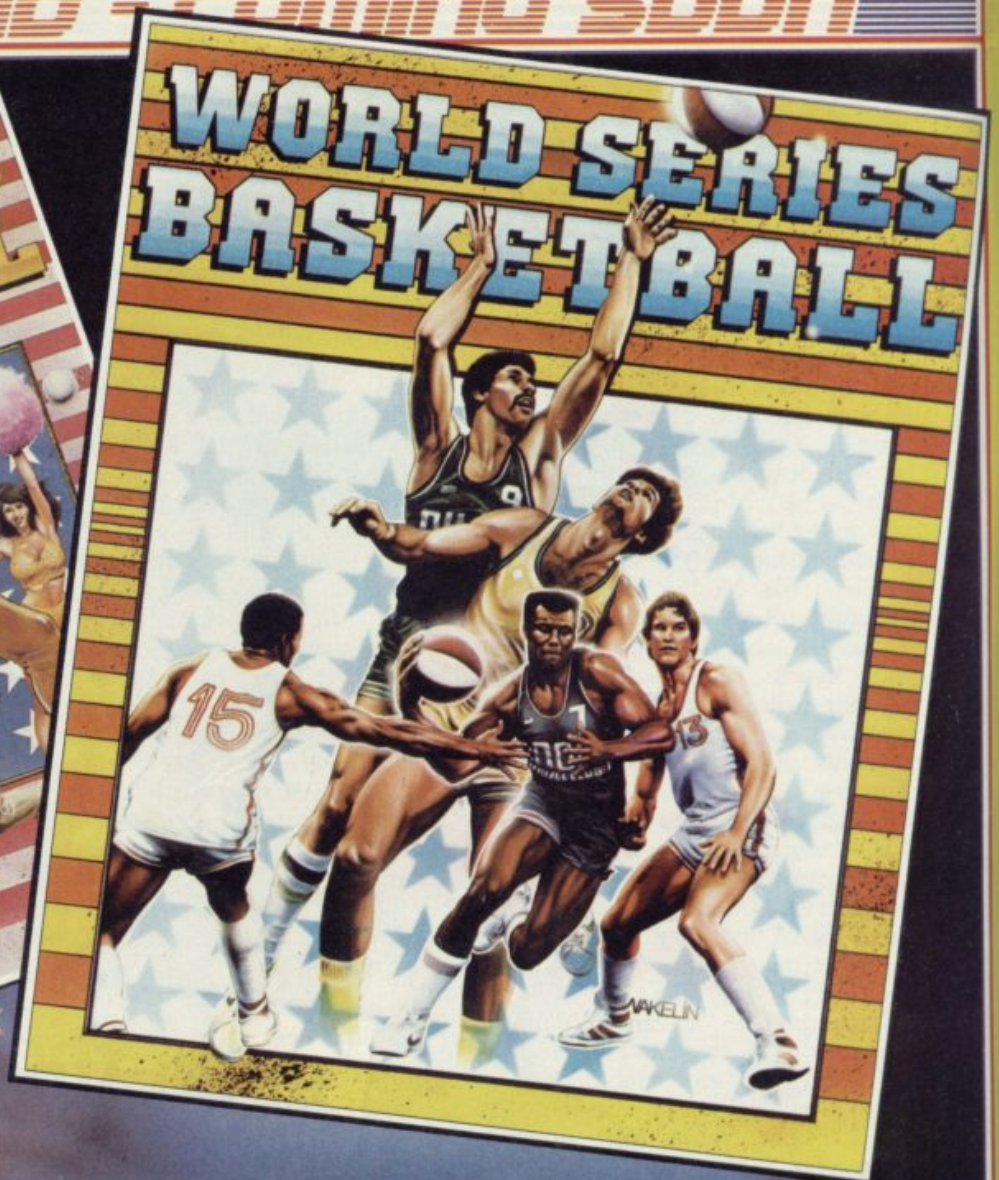
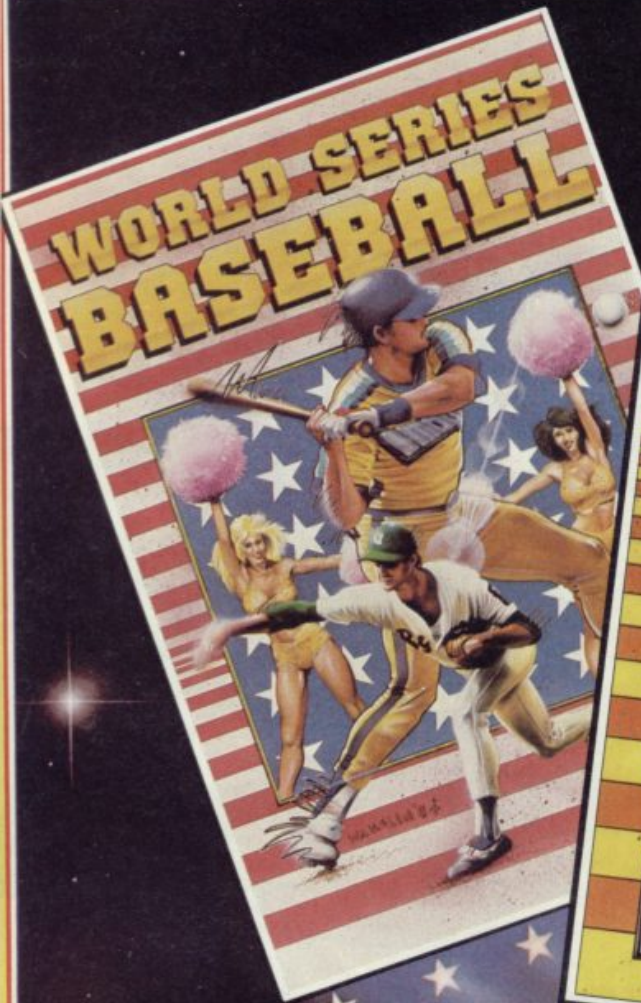
The airport gambit

As soon as the game opens rush out of the start room and search for the door to the airport. Take up station here and booby-trap all the doors. The computer spy will diligently search the embassy for all the items he requires.

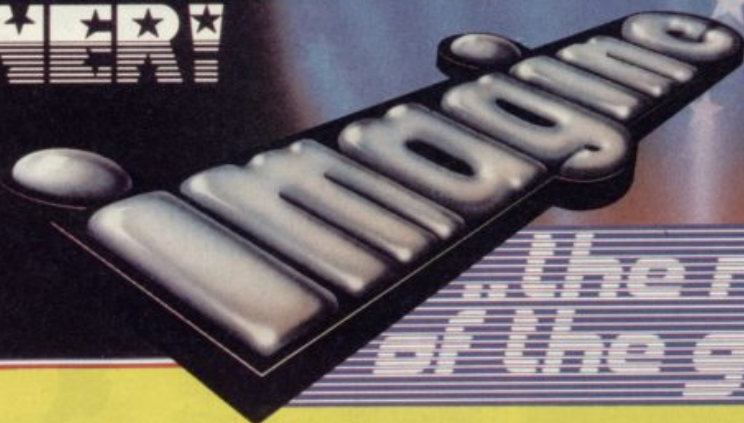
When, at last, he tries to leave for the airport he will be zapped. You have only to stroll next door to recover the items then hightail it to the plane.



ZX SPECTRUM £6.95
AMSTRAD - COMING SOON



**SCORE
ANOTHER
WORLD SERIES
WINNER!**



*...the name
of the game*

Imagine Software is available from:  WHSMITH,  John Menzies, **WOOLWORTH**, LASKYS, Rumbelows, Greens
Spectrum Shops and all good dealers.

Imagine Software (1984) Limited • 6 Central Street • Manchester M2 5NS • Tel: 061 834 3939 • Telex: 669977

SINCLAIR USER Classics are programs which, in our biased and eccentric opinion, set new standards in software. They are the programs by which the others should be measured. If you buy no

other software, buy these. No self-respecting Sinclair user should be without them.

Software reviews carry a star rating, the basis of which will be value for money. Programming, graphics, speed, presentation, addictive qualities and the rest are taken into account.

Guide to ratings

- ★★★★★ 24 carat. Buy it
- ★★★★ Value for money
- ★★★ Nothing special
- ★★ Over-priced
- ★ A rip-off

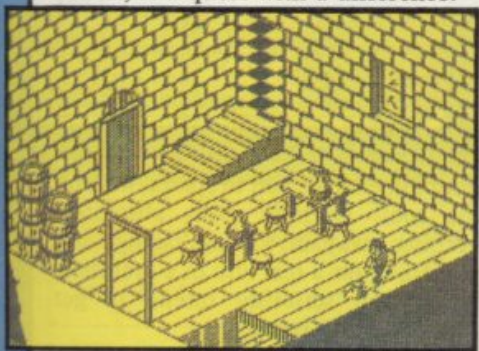
EXCLUSIVE

Fairlight

ACROSS THE Incredibly Flat and Featureless Plain, on the other side of the Impenetrably Thick Forest, just beside the Stream that Dries Up In The Corner of The Map sits the Enchanted Castle.

Haven't we had enough of them, after *Avalon*, *Knight Lore*, *Dragon-torc*, and *Tir na Nog*? OK, so the setting of *Fairlight* is not promising. There's a wizard locked up in the castle and you have to find a magic book to release him and save the great gizmo from going ape with the wotsit.

Don't worry. When you actually get inside the castle you'll forget about how bored you are with fantasy. *Fairlight*, from The Edge, a division of Softek, is a quest with a difference.



The difference is largely in the graphics. They are the best we have seen of the two-colour 3D variety, streets ahead of *Knight Lore* and *Alien 8* for variety and elegance of design. There are stairways and catwalks, corridors and chambers, trapdoors and courtyards in the castle; mapping *Fairlight* is going to be a problem, as the castle is designed like a castle, not a chessboard with a lot of walls between the squares.

Your character is an adventurer, cloaked and armed with a suitably workmanlike orc-sticker for those embarrassing social encounters. The

figure moves in four directions and can jump, pick up objects and fight. It does those things a lot faster than *Sabreman*, whose antics are beginning to look decidedly creaky against this new wave of arcade-adventures.

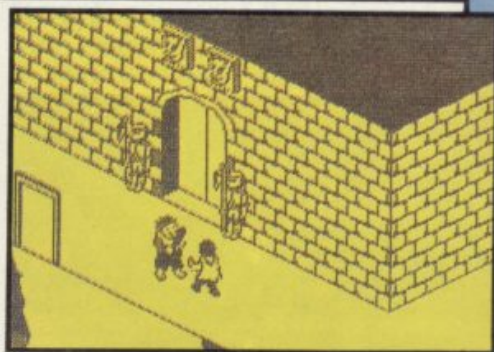
You can push objects around as well, stack chairs on tables to get at high doors or windows, and generally derange the furniture at your pleasure. But the problems have a more naturalistic quality than usual. Keys tend to fit doors — somewhere — and performing various sequences of action will reveal further depths to the castle



as secret doors are opened.

Monsters include guards and trolls, club-wielding heavies who can be fought or outwitted. Realism in the fight sequences includes comparisons of strength.

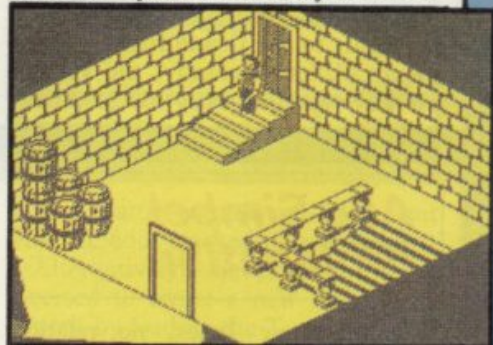
In fact, every object and character in the game has a weight. Objects carried are displayed on a small scroll tucked away in the corner of the screen, one at a time — the one you have selected to hold. You can carry up to five objects altogether, but the weight is important, and you may only have strength enough for less. Similar-



ly, 300 pounds of gibbering green trollflesh packs a bigger punch than one wimpish little prison guard.

Fairlight is to be the first of a trilogy of games set in the land of *Fairlight* and future games will take the player into the surrounding countryside.

The secret of the stunning graphics is Grax, a high-powered low-level graphics language developed by Softek. Bo Jangeborg, who is currently putting the finishing touches to *Fairlight*, uses Grax to develop complex screens which occupy only one or two hundred bytes of memory at most.



Softek originally thought in terms of a 35 screen game but the finished product could contain up to 100, depending on Bo's stamina.

Tim Langdell, manager director of Softek, says Grax uses adapted core routines from *The Artist*, a graphics package reviewed elsewhere in this issue. But he's thinking about releasing Grax in the shape of an arcade-adventure design package.

Meanwhile, watch out for *Fairlight*. it's got to be one of the best arcade-adventure quests of the year.

Chris Bourne

more software on page 18

Dynamite Dan

EVERY platform game released compares itself, and is compared to, **Jet Set Willy**. Most, of course, come nowhere near. **Dynamite Dan**, however, surpasses it.

The plot, as usual, is disposable. For what it's worth, Dan is a secret agent sent to steal the top secret plans of Dr Blitzen's mega ray from a

mountain top hideaway.

The house is infested with lethal mobile thingies, and Dan must avoid those as best he can while all the time collecting sticks of dynamite and consuming the scattered munchies. Points are scored for food eaten and objects amassed; test tubes score highly as well as giving extra lives.

A lift will take you to various levels before depositing you above the waters which run below the house. Those can be navigated with a raft, though once on it you must keep walking to stop falling off, and strategic hops are necessary to avoid flying birds and insects.

Dotted around the building are trampolines, useful for reaching inaccessible ledges but decidedly dodgy to negotiate, and teleporters which transport you to other rooms.

Such a straightforward description does little to convey the horrifically



addictive nature of the game, but only a few minutes play will have you beyond redemption. The graphics are all they should be; large, colourful and free of flicker. The obligatory irritating music is present too.

Scoring virtually no brownie points for originality, the game is nevertheless well set to be the platform game of the summer. Forget **Jet Set Willy II** and fork out the folding stuff instead for **Dynamite Dan**.

Bill Scolding

Publisher Mirrorsoft Price £6.95
Memory 48K Joystick Kempston,
Sinclair, cursor
★★★★★

Paws

IN THE June issue of *Sinclair User* we reviewed **Cats** from Artic, a super little maze game based on the alleged musical by Andrew Lloyd Webber.

There were in fact problems we didn't notice. In the first place, the game wasn't going to be called **Cats** after all because Artic failed to obtain the rights to the theme from Andrew Lloyd Webber. Secondly, the version we saw was an early development



version, and very much easier than the final game was ever intended to be.

You have to travel a giant **Sabre Wulf**-style maze searching for your 10 lost kittens, and hunting down or avoiding the bully dogs who prowl the

midnight streets.

You're armed with fur-balls and stun powder which knocks out the dogs for a short time. Food and ammunition for the fur balls is dotted all around the maze.

The game is certainly a challenge in the final version, and very difficult to beat, even on the easiest of five levels. The graphics are colourful and the theme effective.

Chris Bourne

Publisher Artic Price £6.95
Memory 48K Joystick Kempston,
Cursor, Sinclair
★★★★

Abu Simbel Profanation

MEET Johnny Jones, no relation whatsoever to Indiana. It is clearly coincidence that Johnny also spends his time leaping through the death traps of a forbidden Egyptian temple.

Spanish software house Dinamic has licensed its successful game to Gremlin Graphics so we too can thrill to purple blob Johnny's attempts to

reach the mortuary and free himself from the curse of Ramses II.

We are not told whether he's a purple blob because of the curse or because he was born that way, but who cares? **Profanation** is a viciously difficult jump-and-dodge game, programmed in vivid graphics which lift it above the usual run of **Manic Miner** bandwagon passengers.

You will have to be pixel-perfect to surmount some problems. The acidic drops which abound in the cavern complex can usually be jumped if you judge the timing correctly.

If you still can't get past them try getting Johnny right on the edge of the platforms, just out of range of the splash, before you jump.

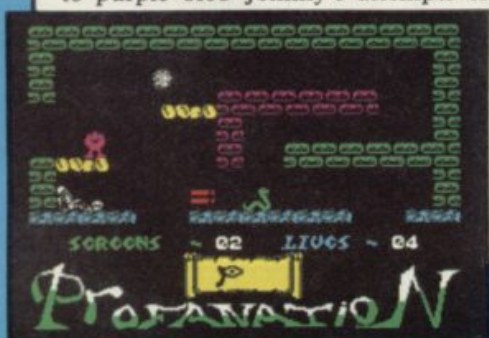
Later you will discover some really filthy tricks — there are sections of ceiling, two on screen three, where

jumping enables you to spider-walk on the roof. Gremlin gives absolutely nothing away in the packaging, and you are in for a real lulu of a brainbuster if you seriously intend to get through all 45 screens.

While there is nothing particularly original about **Profanation**, it is one of the best we have seen.

Chris Bourne

Publisher Gremlin Graphics
Price £7.95
Memory 48K Joystick Kempston
★★★★



The Artist

GRAPHIC design will never be the same with the arrival of **The Artist**, a Picasso of utilities.

Its comprehensive and exceptionally powerful design capabilities provide all you need to produce full colour high resolution screen pictures.

The package is rigidly structured using three main, and a number of subsidiary, menus.

When first loaded two cursors, a dot and a cross, are shown on the screen. Using the keyboard, or joystick, the dot cursor can be moved around in relation to the cross. If the CAPS SHIFT key is pressed the cross moves to a position over the dot which can then be moved around again. The cross, therefore, acts as a static reference point for any drawing that the dot cursor may do.

The dot cursor represents the brush and its size and drawing texture can be altered using Brush and Brush Pattern options respectively. Text can also be produced by the cursor from eight different fonts.



The second major menu provides basic drawing commands and operations. Unlike other packages on the market, it does all your work for you.

Lines, boxes, arcs, circles and ellipses can be produced with the



minimum of fuss using the cross cursor as the first reference point and the dot as the second. Shapes can be filled with a Spectrum designed texture or one created using UDGs.

The shapes must, however, be made up using a complete border. There must be no holes in it or the fill texture will leak out.

Overlay is one of the most powerful, and unique, features of The Artist. It has four functions. The first allows the user to trace a section of a picture, cut it out of that section and transport it to another part of the display. Parts of the picture can also be scaled up and down on the x or y axes.

The author has also included an advanced UDG generator and animator. It uses the eight character sets available through the utility.

Images can also be mirrored and

rotated. Once a sequence of frames has been created it can be animated in a four or six step sequence.

The generator is easy to use and it took me just 10 minutes to produce a four frame animation of a walking figure.

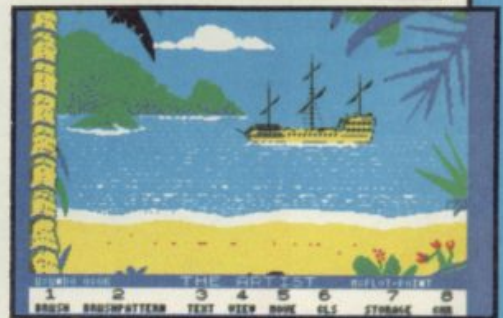
Full screen pictures can take up a lot of RAM memory so the author has included a routine which will hack down the amount of RAM required. The Compressor is a separate routine on the tape. All you have to do is load your picture into it. The program will then optimise storage needs.

The Compressor works at its best and most visibly with complex pictures using colour to the full. It is an intelligent utility and, of course, affects only the memory requirement and not the picture on the screen.

The power of the line generation and pixel commands, coupled with the cut and paste facilities, and not forgetting the UDG generator, makes **The Artist** one of the most powerful graphics aids.

John Gilbert

Publisher Softek Price £12.95
Memory 48K Joystick Kempston
★★★★★



Shadowfire Tuner

BEYOND has come up with a cheap package which will prolong the life of the icon-driven adventure **Shadowfire** by allowing you an infinite variety of changes in the conditions of each game.

There are two ways to use the Tuner — one for cheating and the

other to create a totally new game.

To cheat, play **Shadowfire** as far as you are able, then save your last position on a blank tape. Load in the Tuner and the save position — that only takes a few minutes and is very simple. Now start experimenting. You can give the Enigma team extra strength, agility and anything else you care to bestow on them.

You may want to move them to different positions in Zoff V — the enemy space ship — lock some doors and open others. Kill off some members and make others prisoners. You can even outline the routes the General's troops must patrol and in that way know which areas to avoid.

Once the changes have been made, save them and load up both **Shadowfire** and the alterations made with the

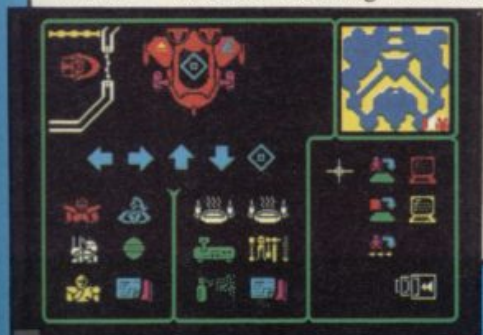
Tuner. Battle commences again, but with the odds stacked in your favour.

Alternatively, the process can be reversed to create a new game from scratch by loading the Tuner, making the desired changes which should be saved and then loaded once **Shadowfire** is on screen.

The beauty of the Tuner is that any game can be made as complicated or simple as you please. It has been well laid out and is icon driven in the same style as **Shadowfire**. Once you've got the hang of the instructions it is easy to implement.

Clare Edgely

Publisher Beyond Price £3.50 mail order
Memory 48K Joystick Kempston,
Sinclair, Protek
★★★★

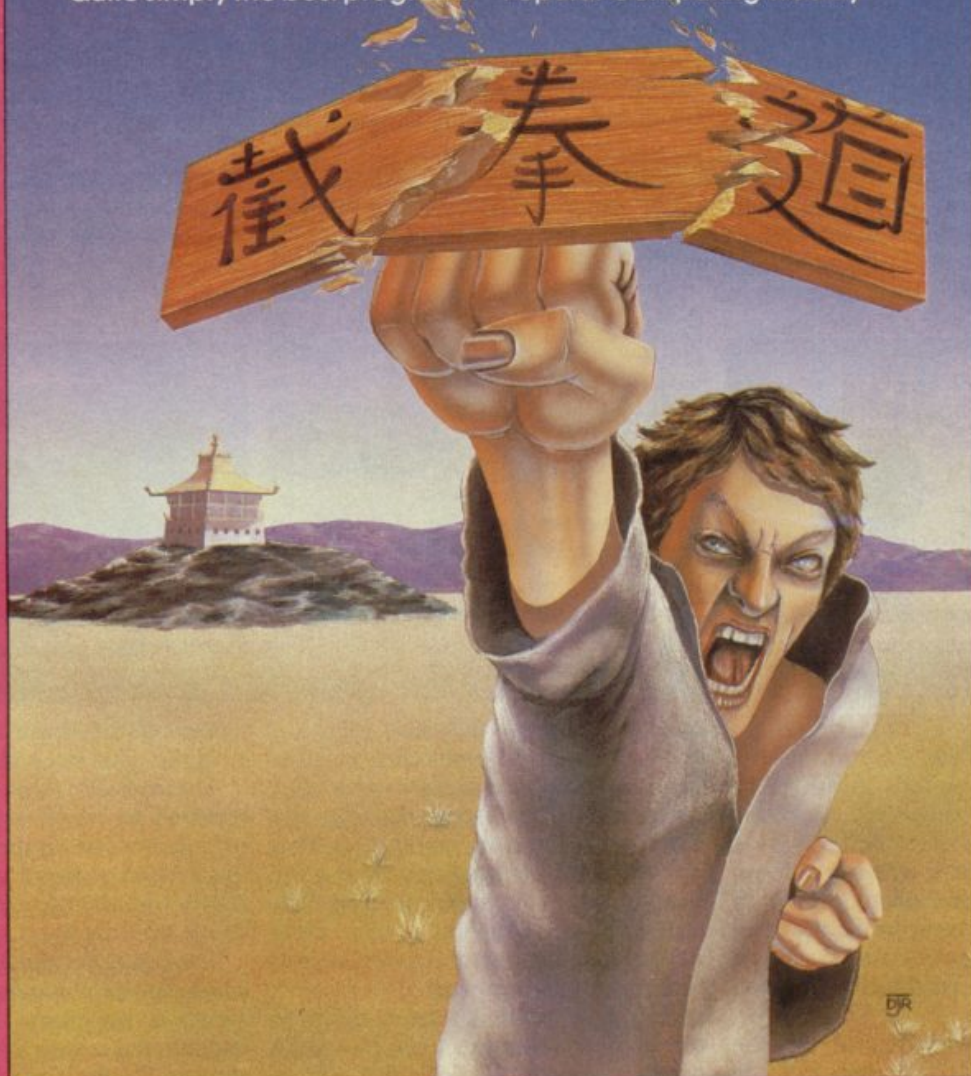


more software on page 22

THE WAY OF THE *exploding fist*

Become a master of this mysterious ancient art: progress from novice to Tenth Dan and test your strength and discipline. You can control your character with either joystick or keyboard - 18 different manoeuvres including blocks, flying kicks, leg sweeps, roundhouse and even somersaults!

Challenge the computer, facing opponents of progressively greater skill, or compete with a friend. THE WAY OF THE EXPLODING FIST has it all - addictive competitive action, dazzling graphic animation and sound. The wait is over - you are about to face the challenge of a lifetime! "Spectacular, startlingly original epic, most televisual game I have encountered." - Daily Mail.
"Quite simply the best program." - Popular Computing Weekly



from **MELBOURNE HOUSE**



Available from selected branches of
GREENS, COMET, LASKYS, Rumbelows

WOOLWORTH, WHSMITH, John Menzies

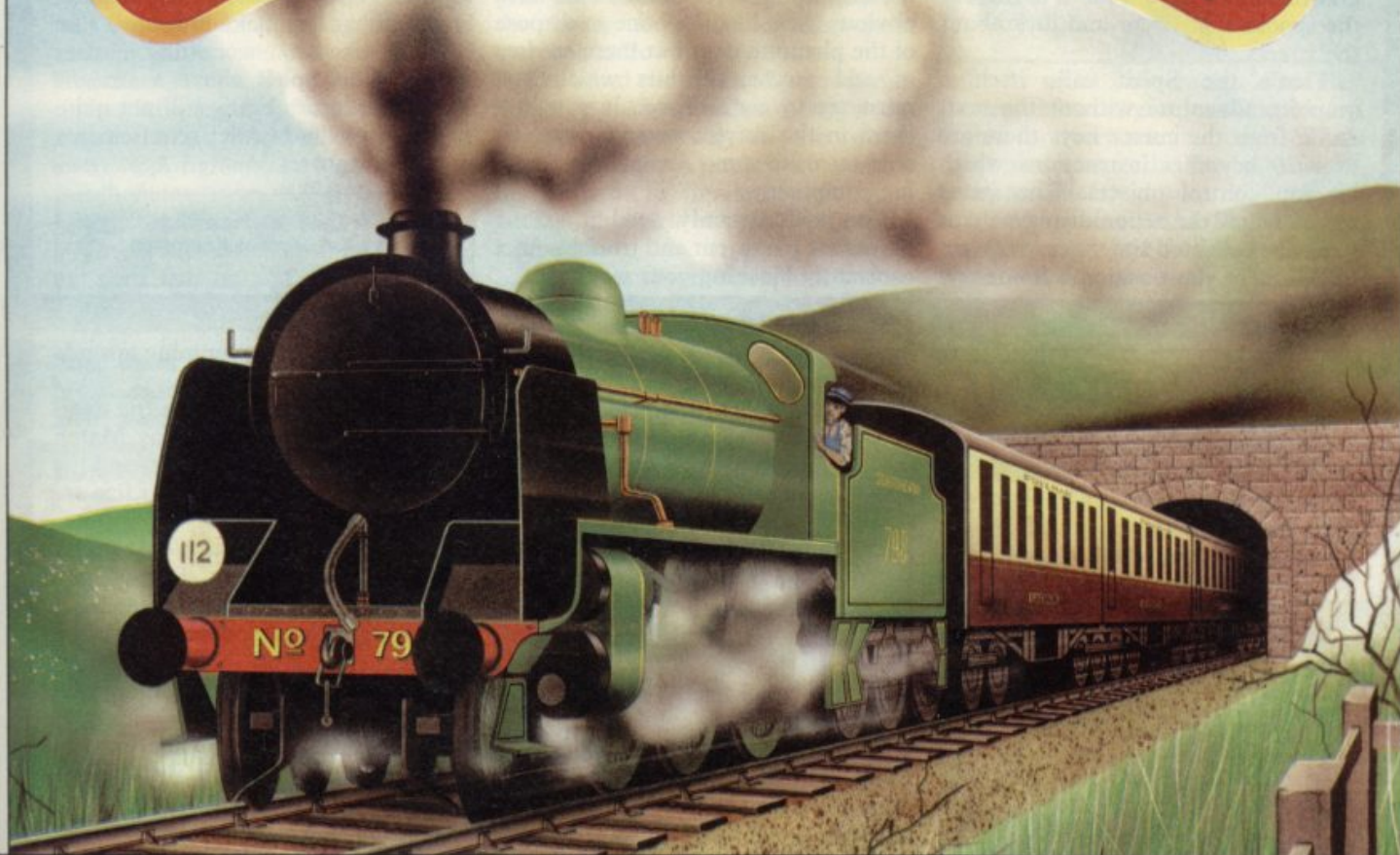
Available now for Spectrum £ 8.95.

Spectrum Shops and all good software dealers

LIVE OUT YOUR DREAMS

ON THE

SOUTHERN BELLE



Journey back to the 1930's and the glorious days of steam aboard the footplate of the powerful King Arthur Class 4-6-0.

You can almost feel the heat from the firebox and smell the billowing smoke when you thunder along the famous London to Brighton run.

Using the footplate controls and gauges you will tow the Pullman carriages from Victoria to Brighton in 60 minutes. Any delays will ruin your timetable, so keep an eye on your stocks of water and coal – you can check the efficiency of your coal burn by the density of the smoke. Your present speed, time and the position of the next signal for guidance are also displayed.

Wipe the soot from your eyes and peer out of the cab to pick out the 24 stations as they rush by. Look out for other well known landmarks such as Battersea Power

Station and the Clayton Tunnel.

Take the option as the driver with your Spectrum guiding you along the right track, or try harder levels where you are the driver *and* the fireman, perhaps facing adverse conditions that could make you disastrously late!

Realistic controls such as the regulator controlling the flow of steam to the cylinders, the damper controlling air flow to the fire, vacuum brakes and the fire doors, plus authentic moving graphics and sound, make Southern Belle second only to the real experience. You have steam up, there's a strict timetable, the Southern Belle is all yours.

Now that was the age of the train!

For all 48K ZX Spectrums. Price £7.95



Avalon
Graphic Adventure Movie
For all 48K Spectrums **£7.95**



Technician Ted
Arcade Adventure
For all 48K Spectrums **£5.95**
and Amstrad CPC 464 **£7.95**



HEWSON CONSULTANTS

56b Milton Trading Estate, Milton, Abingdon, Oxon, OX14 4RX.

For mail order send cheque/postal order made payable to Hewson Consultants. For credit card sales state your Access/Barclaycard number and enclose a specimen signature. Don't forget to include your own name and address.



Dragonfire
Living Adventure Movie
For all 48K Spectrums **£7.95**
and Amstrad CPC 464 **£7.95**



Heathrow International
Simulation
For all 48K Spectrums **£7.95**
and Amstrad CPC 464 **£7.95**

That's the Spirit

IT'S 1996 in downtown New York — which could be anywhere since the World Government renamed every city New York. They've also banned spirits. All the cops have become ghostbusters and your job is to rub out the spooks that flitter and lurk about the streets.

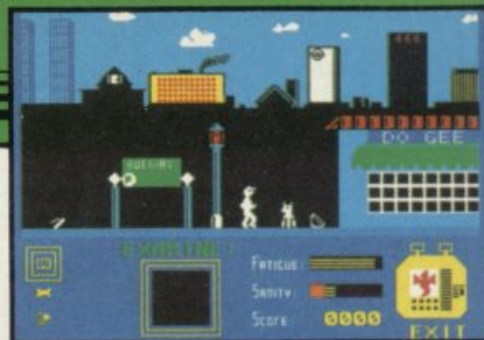
That's the Spirit calls itself a graphics adventure without the text. Aside from the cursor keys there are over 20 keypress instructions which let you control objects. The status screen below the action displays items you have collected and when you want to use them you position a frame and

key in the required action.

Other indicators show your strength and sanity. Any prolonged contact with a ghost will drive you totally bananas and end the game.

You will find a lot of things strewn around the city. The subway seems a fairly safe place to store them and you can transport yourself to other parts of the city from there. Some items have obvious uses, like the bone to dispose of the phantom dog, but there are lots of odd mechanical bits which you must try to connect up. If you link them in the correct way you may be able to make some decent ghostbusting equipment.

You will certainly need it as the ghosts are persistent and troublesome, constantly blocking your way.



Ghostbusting is no doddle — despite having about 15 items stashed away I wasn't able to connect anything up and you will have to experiment long and hard to make link-ups.

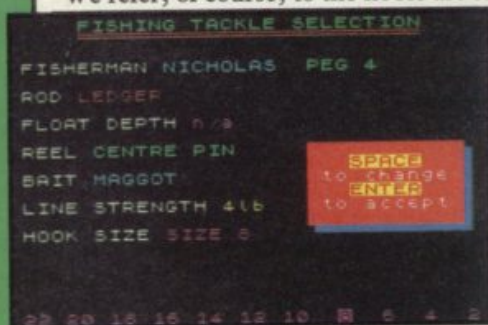
That mental worritting raises **That's The Spirit** above a straight arcade adventure but is still not quite the same as the broader requirements of text adventure.

Richard Price

Publisher The Edge Price £7.95
Memory 48K Joystick Kempston
★★★★

Jack Charlton's Match Fishing

IT HAD to happen. It was about the only sport hitherto unsullied by the attentions of computer programmers. We refer, of course, to the noble art of



the angler, or, to give its title in full spin-off rent-a-celebrity glory, **Jack Charlton's Match Fishing**.

Any computer version should reflect the numbing boredom so beloved by anglers, and to an extent **Match Fishing** succeeds. You play with up to eight fishermen, or on your own. You are allocated a 'peg' — a section of water to fish — and must choose the appropriate tackle, rod and bait for the spot and the species you reckon might live there. You also choose how far to cast.

Having chosen your tackle you watch an idyllic screen of lake, mountains and green banks. When a bite is registered, you lunge forward to press the number of your peg, to 'strike' the fish. If in time, a cartoon-like sequ-

ence involves a fish swimming towards the line.

As a solitaire game, only the dedicated angler is likely to enjoy **Match Fishing**. With several players, and the inevitable scramble for keys if fish are biting, the game becomes more fun.

The problem is that if you don't know anything about fishing you won't get much out of the game. And the dedicated angler, who might enjoy the game greatly, is going to be spending his spare time out there with the midges and the stinky maggots and the dead swans and the crate of Newcastle Brown.

Chris Bourne

Publisher Alligata Price £7.95
Memory 48K
★★★

Nick Faldo's Open

WITH remarkable originality Argus has produced a golf game. Not just any golf game, you understand, but Nick Faldo's absolutely faithful Open with stunning 900 screen map.

The screens show the Royal St George's golf course, venue for the 1985 British Open. A close-up of your position is given, with controls for selection of club, direction of shot and strength. There's a picture of the golfer and a portly caddy who hands him the clubs and makes sarcastic comments on your lack of prowess.

All these selections are icon-driven, with a little hand which you move

round the screen until it points at the option you want.

The map shows the familiar mil-dewed carpet of golf simulations, with black fairways and smooth greens.

Approach shots are OK, but when you reach the green, even the magnified view cannot show what is happening. The closer you get to the hole the more difficult it is to judge direction, which is ridiculous.

All your brilliance at gauging wind



and whatnot to reach the green in two on a par five hole goes for nothing as you miss five two-foot putts on the trot. It also seems weird that a full-strength putt may not carry to the hole.

It is certainly one of the prettiest and friendly Golf games we have seen, though a real test of player and programmer would be the inclusion of contours and sloping greens.

If you must buy a Golf simulation for ten quid then Argus has a very pleasant game it would love to flog you.

Chris Bourne

Publisher Argus Price £9.99
Memory 48K Joystick Kempston,
cursor, Sinclair, Fuller
★★★

Frank Bruno's Boxing

THREE boxing games have been released simultaneously — all based loosely on **Punch Out!!** which is doing so well in the arcades.

Coming out on top is **Frank Bruno's Boxing** from Elite, more realistic and enjoyable than both **Rocco** and **Knockout**.

You have eight fights, before you are proclaimed world champ, against many top fighters including Andra Punchedov from USSR and Fling Long Chop from Japan.

The two boxers step into the ring, put their fists up and the fight is on. Ducking, slugging and dodging you have to knock out your opponent three times in a three minute round, before moving onto the next bout. A high score championship table adds

excitement to the game and is a feature lacking in the other boxing software contenders.

Rather unfairly, your opponent can throw right hooks and uppercuts at will, whereas you can only throw those when the knockout bell is ringing. When you do deliver a KO the result is spectacular — your opponent staggers then keels over. In comparison, the boxer in Alligata's **Knockout** merely sits down.

Keyboard control in all three games is more satisfactory than using a joystick, and especially in this game. There are eight separate moves which are difficult to simulate with a joystick, though simple with the keyboard.

The monochrome graphics are inferior to those in **Rocco**, but are reasonably defined. Of the three, **Frank Bruno's Boxing** is the most faithful version of the original arcade game, including the same scoring sys-



tem. As usual your energy decreases for each blow received and marks are scored for every correct punch. When those marks reach the KO bell you can go in for the kill.

It's a pity that Frank Bruno isn't a two player game but if you are into vicarious violence — buy it. *Clare Edgeley*

Publisher Elite Price £6.95
Memory 48K Joystick Kempston,
Sinclair
★★★★

Rocco

FROM Gremlin comes your second sparring partner, **Rocco**. Your boxer has his back to the screen and his opponent facing outwards. Blood, sweat or teeth fly — you can't be sure which — every time a punch goes home.

In the first fight, Cimbel-Lin must be knocked out three times before you can move onto Ted Mature. The first bout is easy, but Ted poses a few problems. Next, bludgeon your way past Jansen Sino to take on Fighting



Bull — a Mr T lookalike with fists like sledgehammers.

More care has been taken over the graphics in **Rocco** than in its rivals. They are clearly defined and even the faces are expressive. However, the perspective makes your player look

like a dwarf compared with the massive bulk of the contender. That gives you a clearer view, but it does appear to be an unbalanced fight.

It is almost impossible to defend yourself properly using the joystick and not much easier with the keyboard. You can neither dodge from side to side nor duck.

Rocco is not wildly addictive and once you have mastered the controls, it soon loses its initial impact. Very much an also-ran. *Clare Edgeley*

Publisher Gremlin Price £7.95
Memory 48K Joystick Kempston
★★★

Knockout

ALLIGATA'S fighter, **Knockout**, shouldn't even be in the same ring as **Frank Bruno's Boxing** and **Rocco**.

It is the only game in which the two players fight in profile and in colour; possibly to give a better view of what

each is doing to the other. If that is so, it fails miserably.

You play the overweight Italian Stallion versus Slugger Sam. Standing motionless in the middle of the ring, they try for knockout. Your strength decreases every time you are hit and after a few taps the Italian Stallion sits down while four stars flash above his head. Even a KO isn't realistic.

Knock down Sluggish Sam three times and you can load up the Bald Bull. If the punishment is too severe you can at least stroll away but you cannot dodge or duck. To make matters worse, Italian Stallion seems to be one handed. His left arm hardly twitches — not much help.

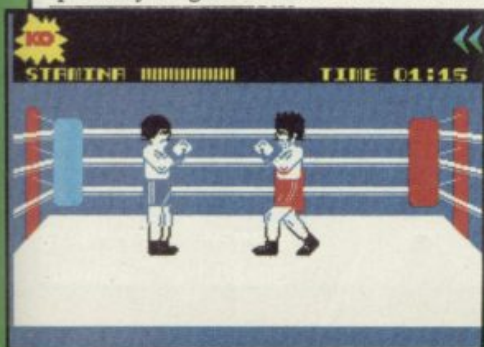
With the joystick there is another

disadvantage. It is easy to throw a head punch but body punches are more difficult. The scoring system seems unnecessarily complex — a simpler system would be more in keeping with the limitations of the game.

If **Knockout** had been released a few months ago it might have done well; as it is it will scarcely go one round with its muscular opposition. Described on the cassette inlay as 'the fight of the century', it might be better termed 'the worst fight of the century'.

Clare Edgeley

Publisher Alligata Price £6.95
Memory 48K Joystick Kempston
★★



more software on page 24

Spectrum Software Scene

On the Run

THIS is a hybrid game combining features from **Sabre Wulf** and the more recent **Nodes of Yesod**.

Mushrooms are a prominent feature and crop up all over the place — magic mushrooms, deadly mushrooms and energy mushrooms. In fact, those fungi are most important when it comes down to finding six cannisters of a deadly chemical from the depths of a jungle maze.

You have only one hour in which to complete your mission and retrieve the chemicals — no easy task as there

are a variety of mutants, gnashing teeth and star fish out to kill.

Various indescribable objects will help or hinder your task. The cassette inlay suggests shooting anything which moves.

Much of the maze involves descending and ascending tunnels — here you are at your most vulnerable, falling between two narrow walls with little room to shoot the mutants. It is frustrating that you can only fire forwards and at varying angles but not up and down or behind you. That does make the game harder.

On the Run will take longer than an hour to complete at first and at the same time it is fun though unoriginal.



You have probably seen and played it all before, but if you like this type of challenge and want another variation on an Ultimate theme, then buy it.

Clare Edgeley

Publisher Design Design Price £6.90
Memory 48K
Joystick Kempston, Protek, Sinclair
★★★

Nonterraqueous

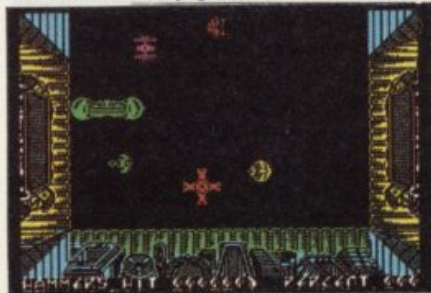
SEND a robot seeker into an underground maze, find a computer console, blow it up and you've saved the planet.

The theme of Mastertronic's **Nonterraqueous** is all too familiar and bears some resemblance to all other maze games of the same ilk.

Once you've got your magnifying glass out to read the instructions, you will see that the game is all about keeping your psyche levels up. Some objects will give you psyche, others decay psyche — when you have no psyche left, you are dead.

Start off point seems to be around level 40. The robot, a little metal blob, whisks into the air and the search is on. Blast away at a few flying aliens and find a bomb.

When detonated, that blasts a hole through one of the electric fences which bar your passage. Photon thrusters block many paths and are fatal if



touched. They also tend to come in twos and are the most frustrating aspect of the whole game.

Some objects carry the word Swop, which means you can go into defenceless mode. The robot turns into a helicopter which cannot fire and though that apparently has its uses, it is not needed in the early stages.

For all that, **Nonterraqueous** is fast with smooth graphics. Though not the most exciting game around, it is good value and should take some time to complete.

Clare Edgeley

Publisher Mastertronic Price £1.99
Memory 48K Joystick Kempston, Protek, Sinclair
★★★

Monopoly

MUCH OF MY misspent youth was devoted to playing **Monopoly**. It was never long before the board was awash with beer and property cards littered the floor. When the banker got bottled we all went to bed.

Leisure Genius, in its official version, has done its best to depict board, dice and deed cards. Up to six people can play, or the computer can control as many players as you wish.

The top two-thirds of the screen depict the board in 3D perspective over which the crudely drawn pieces move, often resulting in frightening colour clashes. Names are absent too, so you have to know the board by heart.

Much better is the scrolling bird's eye view which takes place below. As the pieces move the relevant squares march from left to right.

As you can't see what cards you or the other players hold, you have to call up the property menu to remind yourself that you really were foolish enough to buy the Electric Co. The same applies for finding how little money you have left.

Trading is a farce. You must pinpoint the property you want to exchange, and the one you wish to gain, using a cursor which moves across the board. Again, as the squares are not named, you must remember exactly

where your properties are, otherwise you will attempt to trade a property you might not even hold.

Trading between two computer controlled players is virtually never successful, as the computer will offer ludicrously small cash incentives — £141 for Mayfair, in one instance.

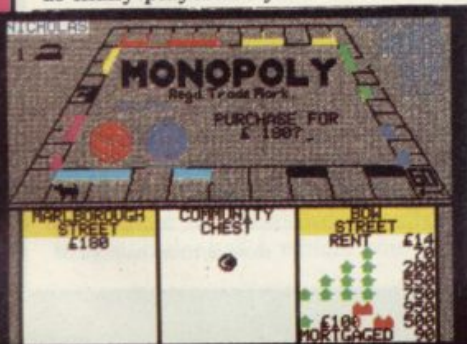
Buying houses and hotels is disappointing. As they do not appear on the board, you can't gloat over your row of terraced slum dwellings crowded on the Old Kent Road.

Just about the only reason for playing computer **Monopoly** is if you are a lonely addict adrift amongst inveterate Trivial Pursuers. Beating the Spectrum offers little solace, however. And it's very boring.

Bill Scolding

Publisher Leisure Genius
Price £9.95 Memory 48K
★★

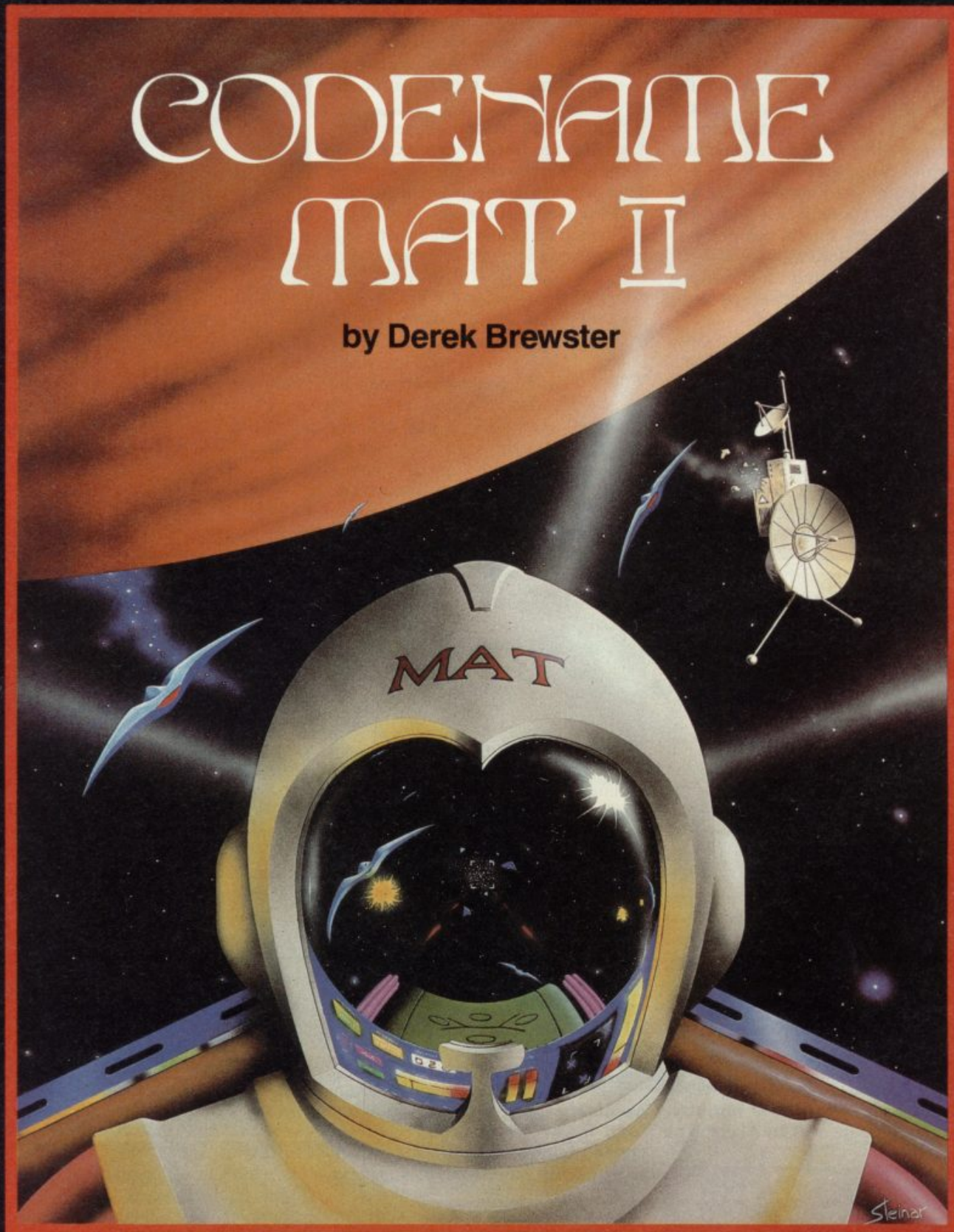
more software on page 26



DM
DOMARK

CODENAME MAT II

by Derek Brewster



GAME TYPE : YOU'LL NEED A KEEN SENSE
OF STRATEGY AND AN ACCURATE
FIRE BUTTON FINGER

HOOKABILITY : COMPULSIVE

LASTABILITY : INFINITE

GRAPHICS : COSMIC

RESPONSE : LIGHTNING

COMPETITION : HI-SCORE PRIZES

NOW ON : SPECTRUM 48K
AMSTRAD

AVAILABLE AT ALL GOOD SOFTWARE RETAILERS
AT **£8.95**

OR SEND A CHEQUE/PO TO
DOMARK LTD, FREEPOST, LONDON SW20 8BR
OR ORDER BY CREDIT CARD ON 01-947 5624

Spectrum Software Scene

Cylu

ACCEPT the challenge. Dive into the bowels of a Spectrum and enter a purple world strongly reminiscent of Ultimate's **Alien 8**. In fact, game play is just the same too.

The Ostans need a new leader and to show your cunning, wit and logic, you are dumped into a computer to prove yourself. Twenty-four objects, including books and microdrives, must be collected and deposited at the I/O unit — the starting point.

Many objects are hidden behind walls and approach from different angles is necessary to collect them. Only five objects can be carried at a time resulting in many trips back to the start.

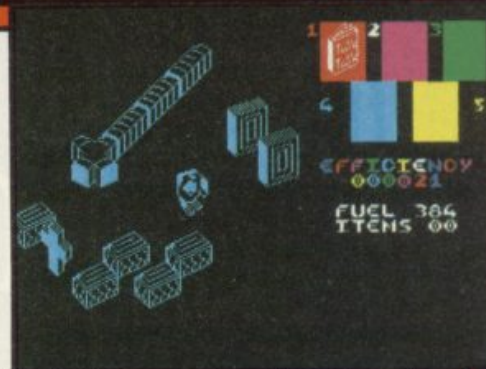
A map is essential if you are to conserve fuel which quickly runs dry. Fuel containers are scattered in the

early stages of the game — cunningly hidden amongst the debris. In later stages you will have to find the RFL — master refuel unit — which can be carried around and used when necessary.

Pick up all silicon chips. They neutralise the forcefields which block many paths through the maze. The fields are also numbered which helps with the map-making.

Further aid comes in the shape of a teleport network, which when accessed, will jump you to different sections. The only difficulty lies in finding the key to it. Return to base — RTB — takes you straight back to the I/O unit. However, if you carry the RTB and RFL, you will only be able to pick up three other objects.

The graphics, though well defined, are not as highly polished nor as detailed as those in Ultimate's masterpiece. You control a walking turtle shell — a many faceted blob — which



is difficult to recognise when first playing the game.

Firebird says **Cylu** was a borderline case for its Gold range and if the similarities to **Alien 8** were not so apparent it would have made it. However, it is an excellent copy, enjoyable and great value, and probably the best and most playable game in the Silver range.

Clare Edgeley

Publisher Firebird Price £2.50
Memory 48K
★★★★

Phineas Frogg

DESPITE being a *Toad of Toad Hall* lookalike, Phineas Frogg is a great deal more likeable. As the great detective he has to solve the mystery of scientist Mole's whereabouts in SLOTH — the Secret Lair of the Terrible Hamsters.

Adventure games have great appeal, but younger members of the family may not be able to spell well enough and tend to get stuck.

You have to guide Phineas around SLOTH, choosing from a selection of moves. That means that the keyboard



input is limited to numbers. The adventure can only be solved if the arcade sections are played.

Phineas needs a disguise and has to go fishing to get his fishmonger outfit. Fishing involves playing a **Frogger** type game. To get his scientist's white coat he has to solve the mystery of the cellars.

To help there is a story book, and a Top Secret envelope with a map and more clues.

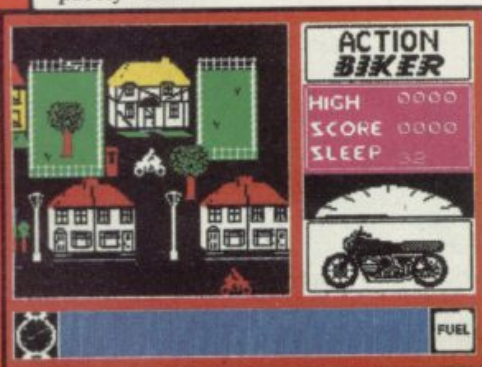
The adventure is text with graphics and great fun to play, one of the very few games which have held the attention of the child testers for a number of sessions. We still have not solved the mystery, but have decided Mole is hidden down the mysterious locked corridor. The final mystery must be whether our boss Badger is really involved with the hamsters, and is a double agent.

Theo Wood

Publisher Mirrorsoft Price £7.95
Memory 48K
★★★★

Action Biker

WHEN A budget software house gets into bed with a snack food manufacturer the consequences are likely to be pretty vile.



Mastertronic and KP have teamed up to promote a stunningly boring little number featuring Clumsy Colin, star of KP Skips packets.

The mindless storyline has somnambulist biker Colin scouring the town for his lost mate Marti. There are 150 houses; some he can't enter, some he can. Some have useful items, others don't.

The streets are liberally sprinkled with oil slicks and packets of KP Skips — the latter to be eaten, not avoided. Off the map is a dark region which Colin can only enter with a headlamp.

Why Colin is asleep is a mystery. The programmer was, too, by the looks of things. Too many collisions

and Colin wakes up. You might wake up, too, and wonder why you're playing this jerky, flickery mess.

Following hot on the heels of Elite's dreadful Dunlop promotion, **911TS**, **Action Biker** signifies a depressing trend to link grotty software with expensive advertising campaigns. Let's kill this off instantly by refusing to buy such garbage.

Software like this gives junk food a bad name.

Bill Scolding

Publisher Mastertronic Price £1.99
Memory 48K Joystick Kempston,
Sinclair, cursor, Fuller
★

more software on page 28

Play THE GAME everyone's talking about:



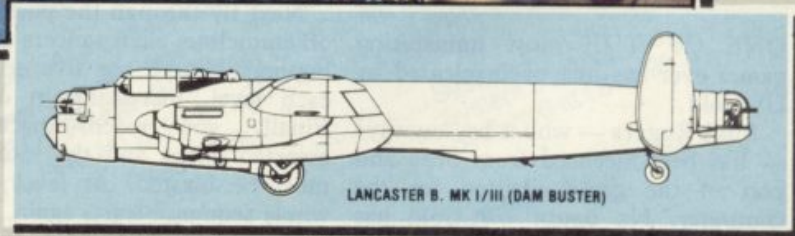
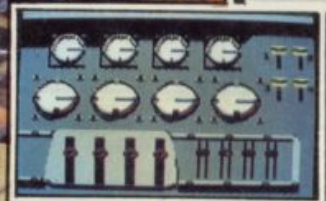
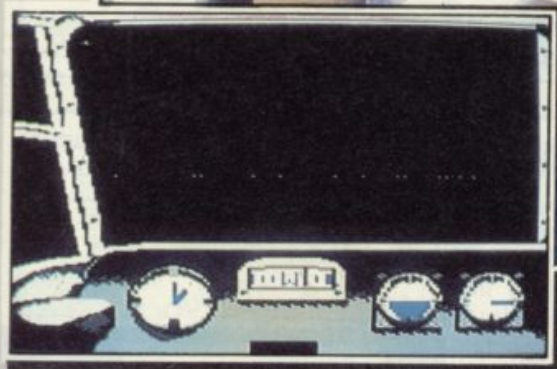
THE DAM BUSTERS



OFFICIALLY ENDORSED BY
R.A.F. No. 617 SQUADRON



Available for
SPECTRUM
48k £9.95



LANCASTER B. MK I/III (DAM BUSTER)

It's 21.15 hours on the evening of May 16th, 1943. A flight of specially prepared Lancaster bombers is leaving R.A.F. Scampton for Germany.

After months of planning No. 617 Squadron are at last embarking on an operation destined to change the course of World War II.

Your objective is to destroy the Mohne, Eder and Sorpe dams, thus crippling Germany's industrial heartland.

This detailed and authentic simulation allows you to play the part of **PILOT, NAVIGATOR, FRONT GUNNER, REAR GUNNER, BOMB AIMER and FLIGHT ENGINEER.**

You fly at low altitude over Europe, on the lookout for deadly ME110 night fighters, dodging barrage balloons, searchlights and flak. At the target you'll need all your nerve and skill to control the aircraft and release your deadly payload whilst under enemy attack.

Game features include: **SUPERB GRAPHICS & SOUND · REALISTIC JOYSTICK CONTROL · PILOT'S SCREEN & INDICATORS · MULTIPLE SCREEN NAVIGATOR'S MAPS · FRONT & REAR GUNNER'S SCREEN · BOMB SIGHT SCREEN · ENGINEER'S INDICATORS.**

Game Package includes: Comprehensive flight instructions, maps and confidential documents including authentic material by Barnes Wallis and Wing Commander Guy Gibson.

Designed and Developed by Sydney Development Corporation. Licensed in conjunction with International Computer Group. Manufactured in the U.K. by U.S. Gold Limited, Unit 10, Parkway Industrial Centre, Heneage Street, Birmingham B7 4LY. Telephone: 021-359 8881. Telex: 337268.



want number between your 64. also have the choice in (starting near the action), Flight Lieutenant the English Channel (taking off from a substantial accomplishment reading if you where. In addition to instructions, it includes documents, in craft and other additional information.

Graphics add to the below, search light and splashes if you. It is a very complex constantly be on the linking ahead to plan, steer you clear of enemy maintaining the course and speed of your aircraft. It will take a while what and the speed required for various perservere you will satisfying game.

Graphics: ****
Sound: ****
Playability: ****
CCI Rating: ****
Company: US Gold
Industrial Estate,
Birmingham. Te

Ancient Quests

MIRRORSOFT produced a number of games which help with basic skills, but if you have not already bought one of those then **Ancient Quests** is a must.

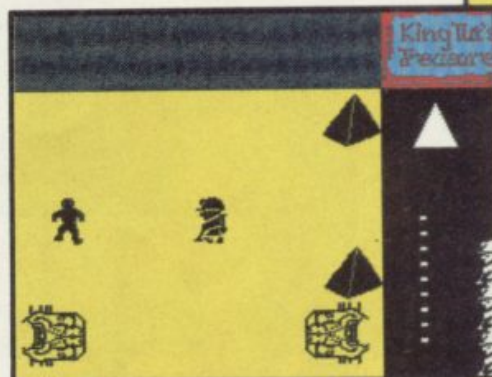
King Tut's Treasure is a game concerning matching shapes, matching fractions with names and decimals. This bald statement makes it sound like one big yawn, but the game is so cleverly designed as to overcome that problem, inherent in many educational games.

As Professor Diggins you have to search for the treasure over several screens. Having only a metal detector

you must depend on the screen indicators as to the position of the treasure. When you are very 'hot' you can dig, and may find the matching shape or name. However there are hazards to avoid and played at the top speed the game can be very exciting.

In The Count you are in a castle and have to answer a number of questions on counting, or a choice of any mathematical operation. When that is done you go to the library, answer some more questions and, if correct, sunlight will pour in.

Both games are smooth in operation and have good graphics, and a choice of keyboard or joystick control. As a variety of skill levels is offered it will appeal to the 5-10 age group. It represents good value and the mixture



of arcade action with content is just about right.

Theo Wood

Publisher Mirrorsoft **Price** £7.95
Memory 48K **Joystick** Kempston,
Sinclair
★★★★

Metabolis

YOU HAVE the body of a bird but the brain of a human.

Well, none of us are perfect, and in **Metabolis** your feathered wimpiness can nevertheless bring about the downfall of the evil macho Kremins



by destroying their nuclear reactor.

Metabolis is a maze adventure with the usual dose of objects to collect and mutants to avoid. You control the Tweety character — a far cry from the fearsome fowl depicted on the cassette cover — in its quest to locate the four pieces of nuclear fuel necessary to blow up the reactor. Before you succeed in that, however, you must find the reversal serum which will transform you into a man.

Apples, fish, cake and other edibles must be consumed to prolong your life, and pills must be popped to prevent heart attacks. Other objects provide temporary defence against the maze's booby traps — picking up a 15 symbol, for instance, gets you past the boxing gloves, which otherwise send you hurtling backwards.

The slapstick cartoon humour is also evident when you get stomped on

by the ton weights and hop around suffering from graphics compression.

The maze is large — 150 screens — and requires methodical mapping. Movement is fast and the Kremins plentiful. You can't zap them until you've chanced upon the magic boomerang, randomly hidden. Somewhere lurks a wizard, but I've yet to catch sight of him. And I still can't work out what the syringes are for.

Sufficiently addictive and tortuous, **Metabolis** isn't exactly going to set the software industry afire but it is considerably better than many others on the market. Good for a rainy summer's day.

Bill Scolding

Publisher Gremlin Graphics
Price £6.95 **Memory** 48K
Joystick Kempston, Sinclair
★★★

Buck Rogers

ONE OF THE most uninspiring games ever has just been released by US Gold.

Buck Rogers — who is he, anyway? — has been licensed from Sega and part of the game adapted for the computer. No doubt US Gold has tried to be faithful to the arcade version, but surely the graphics could be more detailed. After all, the original is a couple of years old with graphics of the **Space Invaders** era.

You start by skimming forward across the surface of Planet Zoom. In

the first tedious screen electrified portals appear. Just fly through 11 of those and onto section two.

Next fly through the posts and kill off numerous alien saucers and space hoppers. There are five sections in each level, increasing in difficulty. Finally you reach space where assorted aliens and the mother ship must be blasted. At level two, the whole sequence starts again.

Planet Zoom consists of lines of colours receding to the horizon. Those with mono sets may count themselves lucky. In colour a revolting pink and crimson form the lines and in level two, a brilliant blue and red. No doubt level three is as horrible.

In short, there are better things to spend your money on.

Clare Edgeley

Publisher US Gold **Price** £7.95
Memory 48K **Joystick** Kempston,
Sinclair, cursor
★★



CUMANA Special Price Offers!

DOUBLE DENSITY DISK INTERFACE FOR THE SPECTRUM AND SPECTRUM PLUS FROM CUMANA

At last Spectrum owners can take full advantage of the speed, convenience and reliability of Cumana's 5¼" floppy disk drive systems with storage capacities of up to 1.4MB available using the Beta double density disk controller.

It comes complete with utility diskette and manual – and uses only 128 bytes of Spectrum memory! –

Cumana are offering the following upgrade systems:–

SYSTEM OFFER 1:

Double density interface with Cumana's 5¼" slim line CSS 250 (40 track single sided drive) **£205.95**

SYSTEM OFFER 2:

Double density interface with Cumana's 5¼" slim line CSS 500 (40 track double sided) **£224.95**

SYSTEM OFFER 3:

Double density interface with Cumana's 5¼" slim line CSS 1000 (80 track double sided drive) **£245.95**

SYSTEM OFFER 4:

Double density interface with Cumana's 5¼" slim line dual CDS 500 (2 × 40 track single sided drive) **£309.95**

SYSTEM OFFER 5:

Double density interface with Cumana's 5¼" slim line dual CDS 1000 (2 × 40 track single sided drive) **£349.95**

SYSTEM OFFER 6:

Double density interface with Cumana's 5¼" slim line dual CDS 2000 (2 × 80 track double sided drive) **£374.95**

All the above include Disk Controller, instruction guide and all connecting cables. Drives include integral power supply. Limited offer, all products are subject to availability. All prices are inclusive of VAT. Delivery extra E&OE.

ORDER FORM (SPECTRUM OFFER) SINCLAIR USER SEPTEMBER

TO: CUMANA LIMITED, THE PINES TRADING ESTATE, BROAD STREET, GUILDFORD, SURREY GU3 3BH. TEL: 0483 503121.

To: CUMANA LIMITED, THE PINES TRADING ESTATE, BROAD STREET, GUILDFORD, SURREY GU3 3BH. TEL: 0483 503121.

I wish to order.....

I enclose cheque/PO* for.....

NAME.....
ADDRESS.....
Tel:

System 1 at £205.95 ☐
System 2 at £224.95 ☐
System 3 at £245.95 ☐
D/D interface only at £99.95 ☐
or debit my access/visa* card no.....
which includes £9.14 postage and packing *Delete as applicable

System 4 at £309.95 ☐
System 5 at £349.95 ☐
System 6 at £374.95 ☐

CUMANA®
The best name in memory

TOP QUALITY CUT PRICE HARDWARE FAST



For Immediate Delivery

Stock No Item All Inc Price

G120 QUICKSHOT II Joystick 8.90
KP150 Kempston Formula 1 Joystick 14.95
BU205 Bud Pilot Joystick I'face 7.95

An Industry standard joystick interface using the IN31 or 'Kempston' system.

DK290 DKTronics Dual Port Joystick I'face 11.65
Allows connection of two joysticks, one using IN31, and the other the cursor keys.

DA230 Datel Games Ace Joystick I'face 12.95
An IN31 system with sound amplification through the TV speaker.

PR240 Protek Switchable Joystick I'face 15.45
Switchable between IN31, Cursor keys and Sinclair Interface 2 standards.

DA250 Datel Turbo Ace Joystick I'face 15.95
Switchable as PR240 with sound amplification through the TV speaker

BU280 Bud Programmable I'face 14.95

SA330 Saga 1 'Emperor' Keyboard 44.95

DK340 DKTronics Keyboard 33.00

KP550 Kempston Centronics 'E' Printer I'face 34.95

Plug-in-and-go with software held on EPROM. Connects Spectrum to standard Centronics printers.

DK530 DKTronics Centronics Printer I'face 29.95
As KP150 with relocatable software supplied on tape.

CU620 Currah Microspeech 18.75
Plug-in-and-go system putting speech through the TV speaker.

DN810 Alphacom 32 printer 49.95

DN820 Paper for Alphacom 32 (Box of 5 rolls) 9.85



BARGAIN OF THE MONTH

£225 inc VAT RRP. £333

UCHIDA DWX-305 PROFESSIONAL
DAISY WHEEL PARALLEL PRINTER

20 characters per second. Up to 144 chs per line. Takes up to 13" wide paper. A professional printer at a home-computing price, ideal for high quality word-processing and fast enough for any home or small office printing task.

- Free delivery
- Tractor and sheet-feeder available as extras
- 90 day warranty and full technical support
- £5 off listed Spectrum Centronics interfaces if bought with a printer

EL930 SP48 32k RAM upgrade for 16k Spectrum 19.00

No-solder kit for upgrading 16k Spectrums from Issue 2 onwards.

TF920 Transform Microdrive cartridge storage box 5.95

DK950 DKTronics 56-way Extension cable 9.95

DK940 DKTronics Light Pen 16.95

RB910 On/Off switch 4.95

SC1020 48k Spectrum computer 95.95

SC1030 Spectrum Plus computer 125.95

SC1040 ZX Microdrive 45.95

SC1050 ZX Interface 1 45.95



PHONE

GUILDFORD
(0483) 505605



MasterCard



with your credit card number or fill in the coupon with a cheque or postal order payable to ELR International.
OVERSEAS ORDERS ARE WELCOME. PLEASE ADD 10% OUTSIDE EUROPE.
WE ALSO SPECIALISE IN VOLUME EXPORT SALES. PLEASE ENQUIRE.

PLEASE SEND ME THE FOLLOWING: STOCK NO. PRICE

I enclose cheque/P.O. made payable to
ELR INTERNATIONAL LIMITED for:

Name

Address

For A First Class Service

ELR International Ltd, St Nicholas House, The Mount, Guildford,
Surrey GU2 5HN, England. Telex 859428 CONSOL G.

Parcel No. A0055389

ELR INTERNATIONAL

Hyperdrive

AS SOFTWARE houses plough through all the old favourites, English Software, hitherto known mainly for Atari games, has produced the first car racing game for the QL. **Hyperdrive**, looking remarkably like the arcade favourite **Pole Position**, pits you against a large field of drivers in a gruelling four-stage race.

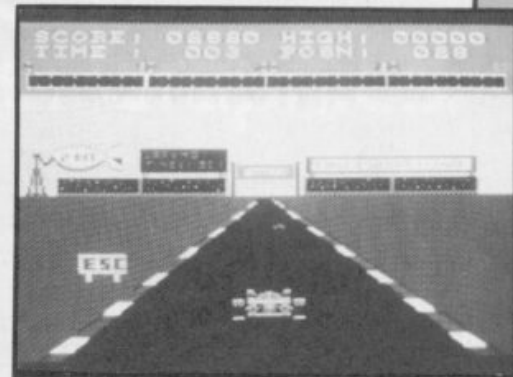
The idea is simple enough. You have 40 seconds to complete each

stage, at the end of which you must be in the first five to qualify for the next level. If you crash, you are wonderfully reconstituted in the twinkling of a sprite and put back on the track — at the cost of several race positions.

The cars themselves are very prettily programmed, well up to arcade quality. The customary globular blue oil slicks are hazards to be avoided, and the action is fast. The background scenery is pleasant enough but hardly inspired, and the tracks are either a continuous straight or a continuous curve. That is something of a pity, as the best Spectrum race games take a varied track with hairpins, chicanes and the like for granted.

English software tells us that the code occupies about 75K of RAM, not including the graphics screen. If that is the case then, maybe there wasn't room to vary the tracks. Maybe the programmer should be writing better code.

The sound effects are OK although, inevitably, unpleasant after a few



hours' play, and the game itself is a step in the right direction for QL software. Prices still seem to hold more threats than promises, but at least **Hyperdrive** is a competent, if simple, arcade game. The company hopes to release further QL arcade games, and we look forward to the results with some interest.

Chris Bourne

Publisher English Software
Price £14.95

QL Reversi

ANOTHER stunningly original QL game belly-flops onto the market in the shape of **Reversi**, that ancient board game which nobody had ever heard of until it was recognised as one of the very few games you could fit into a 1K ZX-80.

Reversi, otherwise known as **Othello**, is the one where you put white and black pieces in turn on an 8x8 board. A valid move must make a capture, and to capture you must have two of your pieces at each end of a row of your opponent's pieces. Then the enemy men turn into your own colour — hence the name **Reversi**. Good

stuff, eh?

A minute to learn, a lifetime to master, says the blurb. But you're unlikely to spend a lifetime with the game, unfortunately. Softschool's version is pedestrian, with eight levels of skill. The eight levels are produced by knocking a minute off the time limit for completing the game. Don't be fooled by the Analysis mode, either. It doesn't show you what the QL is thinking, as you might expect. Instead it allows you to set up a position on the board.

The computer does not make a particularly good player. **Othello** is one of those games where machines tend, on the best versions, to be almost impossible to beat. Not so with this version. Written entirely in Su-

perBasic, it looks like the sort of thing which would be rejected as a magazine listing.

It is quite ridiculous to expect people to pay for a game which they could obtain in listing form from any number of books or magazines at a fraction of the cost. A game, moreover, which was never very exciting at best, and whose interest lies mainly in the opportunity it allowed programmers to experiment with simple artificial intelligence routines.

Quite simply, it's an insult to the QL and the intelligence of those who bought one.

Chris Bourne

Publisher Softschool,
471 Hornsey Road, London N19 3QL
★

Hopper

WHY ARE 90 per cent of QL arcade games like early VIC 20 rubbish? What possesses people in this Great Industry of Ours to attempt to flog the stuff they sometimes do?

We're talking about **Frogger**, folks. That's right, **Frogger**, renamed **Hopper** by Microdeal, presumably misled into believing the name sounded catchier.

Guide the bouncing frog through six lanes of traffic to the river. The fast lanes are fast and the slow lanes are slow. Then you have to cross the river. Jump on the logs and the sinking lilies. Which are lilies and which are logs? The lilies look like logs, except their yellow. The logs don't look much like logs but they're red. That's how you know they're not lilies.

On later levels you get the highly original crocodiles and the breath-takingly novel snakes. They chug along happily, and if you throw a

teacloth over the keyboard you can even convince yourself you still own that old Dragon 32.

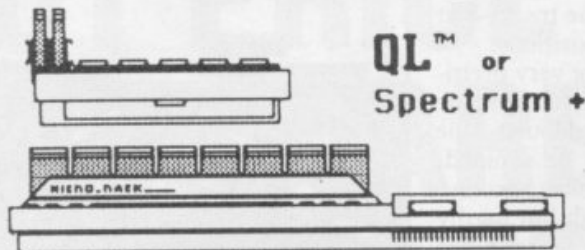
Please, please, vote with your wallets and avoid this game. You might just save the QL games industry from premature extinction — because if **Hopper** makes money, why should anyone write anything better?

Chris Bourne

Publisher Microdeal Price £14.95
Joystick compatible
★

MICRO_RACK

A New Storage System for Microdrive Cartridges



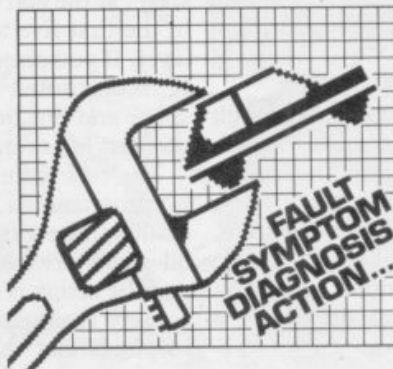
Made in black PVC with brushed silver trim, the **MICRO_RACK** fits on the back edge of your QL or Spectrum+ in seconds, using the self adhesive tape supplied. The rack takes up to 16 Microdrive cartridges, and additional racks can be clipped on to add more cartridges. Your files are always visible and ready for instant use. Throw away those old plastic wallets — you'll never want them again!

£4.95 each post free from

DRK PRODUCTS LTD.

Bar One, Pipers Lane, Markyate, St Albans
Herts. AL3 8QF

CAR CURE



- ★ **COMPREHENSIVE**
 - + 900 faults
 - + 300 symptoms
- ★ **POWERFUL**
 - + List faulty parts for every symptom
 - + Display faults for each part
 - + Find how to cure the fault
 - + Trace symptoms of any fault
 - + Identify faults causing 2 symptoms
 - + Mark items for easy reference
 - + Eliminate faults checked OK
 - + Review progress on summary screen
 - + Call help if in difficulty
 - + Save diagnosis on tape

CAR CURE will transform your micro into an expert mechanic to help you find faults on your car and cure them. The program will equally well help you learn about the faults cars can suffer, their symptoms and cures.

"works extremely well, a great deal of effort has gone into making it user friendly as well as functional... a very worthwhile package" CRASH

"incredibly easy to use" Popular Computing Weekly

"the best I've yet seen" Personal Computer News

"one of the most useful programs I have used. Makes 'XYZ' look very childish and useless. A software company to keep an eye on" ZX Appeal (Canada)

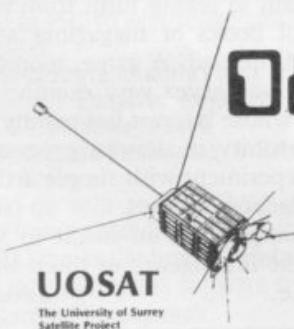
Car Cure comes complete with a comprehensive 5000 word User Guide and is packaged in a long-life plastic wallet. Order direct from us for only £9.95, or send for further information. Delivery by return. Available on cassette for 48K Spectrum. Microdrive transfer instructions included free, on request.

DEPT SU
4 CLARENCE DRIVE
EAST GRINSTEAD
WEST SUSSEX
RH19 4RZ
Tel: 0342 28188



SIMTRON
PROGRAMS TO HELP YOU

DATA FROM SPACE!



Don't just play games
on your computer — use REAL
DATA from SPACE!



- ASTRID receives from UOSAT satellites:-
- ★ News Bulletins on spacecraft matters.
 - ★ Operating schedule of UOSAT.
 - ★ Satellite Status.
 - ★ Experimental Data.
 - ★ Messages on the Electronic Mailbox System
 - ★ Orbit Information.
 - ★ Digitalk Speech Telemetry.
 - ★ CCD Television Camera Signals.

ASTRID

Automatic Satellite Telemetry Receiver & Information Decoder

ASTRID is a COMPLETE Satellite receiving and decoding package that allows data from UOSAT Satellites to be displayed on home computers via a serial interface, (ASCII format 1 start 7 data 1 even parity & 2 stop bits). The system is fully tested and ready to operate and comprises: Receiver/Decoder/Power Supply Unit/Aerial/Feeder/Test Tape/Connecting Leads/Instruction Manual.

ASTRID operates FULLY AUTOMATICALLY — using the remote control on your tape recorder — for those night time passes!

ASTRID is only available from the manufacturers. Please send cheque or postal order (or use your Barclaycard or Access number) for £144.00 + £5.00 carriage to MM Microwave Ltd., Thornton Road Industrial Estate, Pickering, N. Yorks. YO18 7JB. Tel: 0751 75455.



UOSAT Satellites are designed and built by the University of Surrey to encourage a deeper understanding of the rapidly expanding industries of space technology, electronics and computing.

Now you can create new dimensions in Computer Graphics.



Create superb colour pictures on your QL with TALENT's outstanding new graphics package. It's supplied on two microdrives — the first holds the master program and a printer dump utility, the second, three demonstration pictures. Backup copies can be made. GRAPHIQL comes with a detailed, clearly-written 60 page instruction manual, outlining the program's many facilities.

- Freehand drawing, 8 colours, optional flash
- Rubber banding, rubber boxes, even rubber circles and ellipses
- Variable size texture definition
- Doodle pad
- Colour and texture fill of any shaped area

- User definable paint brush — any colour or width
- Colour list for full control
- Re-colour facility
- Magnification with panning
- Mirroring and rotation of blocks of screen
- Air-brush effect
- On-line 'help' facility
- Full file-store access
- Printer dump utility.

Text can be included in pictures. The characters can be single or double height with flash and underline. GRAPHIQL pictures can be put into BASIC or assembler programs with the sample routines provided.

Available from selected branches of
Boots & WH Smiths.
£34.95 + 50p
postage & packing

TALENT
COMPUTER SYSTEMS

Curran Building, 101 St James Road, Glasgow G4 0HS. Tel: 041-552 2128 (24 hour credit card hot-line) Software from Scotland
QL and Microdrive are registered trade marks of Sinclair Research Ltd.

FOR THE LARGEST RANGE OF PERIPHERALS FOR THE SPECTRUM

DISC DRIVES

Cumana CS100.....	£129.95
Cumana CS200D.....	£159.95
Cumana CS400S.....	£179.95
Cumana CD800S.....	£329.95
Sinclair Microdrive.....	£44.95

DISK INTERFACES

Cumana Disk Interface	
40 or 80 Track.....	£99.95
(For use with standard BBC drives)	
Sinclair Interface 1.....	£49.95
(For Microdrive)	

DISKS & ACCESSORIES

3M SSDD (10 Pack).....	£28.52
3M DSDD (10 Pack).....	£41.40
3M SSDD 80 Track	
(10 Pack).....	£43.70
3M DSDD 80 Track	
(10 Pack).....	£50.60
Memorex 3½" SSDD	
(Single).....	£6.95
Memorex SSDD	
(Twin Pack).....	£5.95
Memorex SSDD	
(Twin Pack).....	£4.95
Memorex SSDD	
(10 Pack).....	£22.95
Memorex SSDD	
(10 Pack).....	£24.95
Memorex DSDD	
(Twin Pack).....	£6.95
Memorex DSDD	
(10 Pack).....	£29.95
Memorex SSQD 96 tpi	
(10 Pack).....	£32.95
Memorex DSQD 96 tpi	
(10 Pack).....	£35.95
Elephant - List Range	
Cumana DSDD 80 Track.....	£24.95
Sony 3½" DS Diskette	
(10 Pack).....	£69.00
Maintenance Disk	
Cleaning Kit.....	£22.94
DG 5¼" Disk	
Cleaning Kit.....	£22.94
Microdrive Single	
Cartridge.....	£1.99
Microdrive (4 pack).....	£7.95
Microdrive Storage Case.....	£5.95
Waferdrive Cartridges.....	£3.50
64K Waferdrive Cartridges.....	£3.65
128K Waferdrive	
Cartridges.....	£3.95
Microdrive Extension	
Lead.....	£9.95

REPLACEMENT DATA RECORDERS

Omega D/R with	
Free Azimuth Tape.....	£24.95
Sanyo Slim II.....	£29.95
Sanyo DR101.....	£34.95

RAM PACKS & EXPANSIONS

Cheetah 32K RAM.....	£39.95
Currah Microslot.....	£6.95

Not all stores carry every advertised item, please phone before making a journey.

Rotronics Wafadrive

Reg. Price £129.95

Sale Price
£79.95

**SAVE
£50**

Timex 2040 Printer

Reg. Price £77.50

Sale Price **£37.50**

**SAVE
£40**

Cheetah Infrared Remote Joystick

Reg. Price £29.95

Sale Price
£24.95

**SAVE
£5**

Champ Freedom Fighter R/C Joystick

Reg. Price £39.95

Sale Price **£19.95**

**SAVE
£20**

RD Digital Tracer

Reg. Price £69.95

Sale Price
£39.95

**SAVE
£30**

**VISIT YOUR LOCAL
spectrum
DEALER NOW!**

LIGHT PENS

DK Tronics Light Pen.....	£19.95
---------------------------	--------

SOUND & SPEECH UNITS

Cheetah Megasound.....	£10.95
DK Tronics 3 Channel	
Sound Synthesiser.....	£29.95
Currah Microspeech	
Synthesiser.....	£19.95

KEYBOARDS

DK Tronics plus FREE	
4 Games Cassette.....	£29.95
Saga 1.....	£49.95
Timex Hardkey Overlay.....	£14.95

JOYSTICKS

Cheetah Rat.....	£24.95
Quickshot II.....	P.O.A.
Kempston Formula 1.....	£16.95
Joycard.....	£8.95

JOYSTICK INTERFACES

DK Tronics Single Port I/F.....	£9.95
DK Tronics Dual Port I/F.....	£13.00
DK Tronics	
Programmable J/S I/F.....	£22.95
DK Tronics Games Player	
Single Port I/F.....	£12.95
(with switch to slow down games)	
Kempston Single	
Port J/S I/F.....	£9.95
Kempston Professional	
Triple Port J/S I/F.....	£18.95
RAM Turbo Dual Port	
J/S I/F with Rom Port.....	£22.95
RAM Single Port J/S I/F.....	£9.95
Datal Single Port J/S I/F.....	£9.95
Datal 3 Port J/S I/F.....	£12.95
Protek Switchable J/S I/F.....	£19.95

PRINTER INTERFACES/LEADS

Kempston Centronics I/F	
(E Prom driven).....	£39.95
DK Tronics Centronics I/F	
(Software driven).....	£39.95
Sinclair I/F 1 to	
RS232 Lead.....	£9.95
Rotronics RS232	
Printer Cable.....	£9.95
Rotronics Centronics	
Printer Cable.....	£9.95
RAM QL Centronics	
Printer I/F.....	£29.95

MONITORS/TV'S

Sinclair Flat Screen TV.....	£99.95
Sanyo CTP 3132	
Colour TV.....	£199.95
Tatung 14" Col TV/	
RGB Monitor.....	£234.95

COMPUTER DESKS

Shinecrest 450.....	£59.85
Shinecrest 500.....	£54.95
Shinecrest 600.....	£65.00

Prices correct at time of going to press E&OE.

PRINTERS: Timex Alphacom AVT Brother Juki Quendata Panther

Product	Regular Price	Sale Price	SAVE
Timex 2040	£77.50	£37.50	£40.00
Alphacom 32 Printer	£79.95	£59.95	£20.00
AVT 100 cps Beta (requires I/F)	£265.00	£199.00	£66.00
Brother HR5 (requires I/F)	£149.00	£99.00	£50.00
Brother HR15 (requires I/F)	£458.85	£399.00	£59.00
Brother M1009 (requires I/F)	£235.75	£199.99	over £35.00
Juki 2200 (requires I/F)	£343.85	£329.85	£14.00
Juki 6100 (requires I/F)	£399.00	£369.00	£30.00
Quendata DMP1100 (requires I/F)	£269.99	£229.99	£40.00
Quendata DWP1200 (requires I/F)	£324.99	£269.99	£55.00
Brother EP44 (requires I/F)	£261.05		
Panther 1 (requires I/F)	£319.70		
Panther 2 (requires I/F)		£366.63	

Alphacom 32

Reg. Price Sale Price

£79.95 £59.95

SAVE £20

Currah Micro

Reg. Price Sale Price

£21.95

SAVE £2 £19.95

Shado Azimuth

Reg. Price Sale Price

£5.95

SAVE £10

DK Tronics

Reg. Price Sale Price

£24.95

SAVE £7

Opus Model 10

Reg. Price Sale Price

£230.00 £149.95

SAVE £80 +

Sinclair

Reg. Price Sale Price

£99.95

SAVE £10

DK Tronics

Reg. Price Sale Price

£39.95

SAVE £10

DK Tronics

Reg. Price Sale Price

£26.95

SAVE £7

Your Computer Specialist Nationwide

AVON

BATH Software Plus, 12 York St
Tel: (0225) 61676
WESTON-S-MADE & Computers
32 Adm St Tel: (02464) 19304

BEDFORDSHIRE

BUCKLEBURY HGS Ltd, 22 Market Sq.
Tel: (0767) 318844
BUCKLEBURY Domains 7-11 Broad Walk
Tel: (0582) 65515
LINGTON BUCKLEBURY Computers & Cameras
117 Bridge St Tel: (0525) 383929
LITTON Terry-More, 40 George St
Tel: (0582) 239102

BERKSHIRE

BRACKNELL Computer Centre, 44 The Broadway
Tel: (0344) 427517
READING Reading Video Centre, 73 Whitley St
Tel: (0734) 751690
SLINGER Hill Games and Computers 245 High St
Tel: (0753) 21594

BUCKINGHAMSHIRE

CHENNA Reed Photography & Computers, 113
High St Tel: (0494) 783373

CAMBRIDGESHIRE

NOTTINGHAM TSC Electronics, 3 All Saints
Passage, High St Tel: (0480) 411579
PETERBOROUGH Logic Sales, 6 Midgate
Tel: (0733) 49896

CHANNEL ISLANDS

GUERNSEY Gools, 3-5 The Pallet, St Peter Port
Tel: (0481) 24682
JERSEY Audio & Computer Centre
7 Peter St, St Helier Tel: (0534) 74000

CHESHIRE

ALTRICHAM Mr. Micro 28 High St
Tel: (061) 941 6213
CHESTER Computer Link, 21 St Werburgh St
Tel: (0224) 316516
WARRINGTON Pyramid Micros, Carr St
Tel: (0925) 35713

CLEVELAND

BESCAR McKenna & Brown, 139 High St
Tel: (06423) 480578

CORNWALL

ST ARBELL A & C Computers, Duchy House, 5
Lower Rymer Sq Tel: (0726) 67337

CUMBRIA

BARNBY IN FURNESS Cumbria Audio Visual &
Electrical (CAVE), 48 Greenish Street
Tel: (0229) 29109
PETERHEAD Perin Communications
14 Castlegate Tel: (0760) 67146
Open Mon-Fri 9.30-5pm
WHITBREAD P D Henden 15 King St
Tel: (0946) 2063

DERBYSHIRE

ALFINGTON Gordon Harwood 69-71 High St
Tel: (0773) 632078

DEVON

BRISMAN Discus Computers, Beach Approach
Tel: (08045) 55532
EXETER Seven Counties (Computers) Ltd
7 Park Street Tel: (0392) 211211
PLYMOUTH Surtis Ltd, 16 Cornwell St
Tel: (0752) 28705
TIVERTON Action Micro Computers
37 Barnston St Tel: (0884) 252854

DORSET

BOURNEMOUTH Lansdowne Computer Centre, 1
Lansdowne Crescent Tel: (0202) 290165
BRISTOL Seven Counties (Computers) Ltd
37 Street East Tel: (0245) 46022
POOLE Lansdowne Ctr Centre 14 Ardsale Centre
Tel: (0202) 670901

ESSEX

BASILDON Godfrey's 28-32 East Walk
Tel: (0268) 289379
BASILDON Godfrey's Computer Centre, 5 Lambton
Main Centre London Tel: (0268) 416747
CHELMSFORD Maxton Hayman Ltd
5 Broadfield Rd Tel: (0245) 354959
GRAYS H Reynolds, 79 Orsett Rd
Tel: (0375) 5848
SOUTHEND Computer Centre 332 London Rd
Tel: (0707) 337161

HAMPSHIRE

PORTSMOUTH (Waterlooville) G B Microland
London Rd, (Opp. Car-pel Tel: (0703) 259911
SOUTHAMPTON L.T.C. Ltd, 112 East St
Tel: (0703) 333958/24763

HERTFORDSHIRE

STERNADE D J Computers, 11 Town Square
Tel: (0438) 85561
WATFORD SRS Microsystems Ltd, 94 The Parade
High St Tel: (0923) 26602
WELWYN GARDEN CITY D J Computers, 40
Fiddleham Rd Tel: (07673) 28435/28444

HUMBERSIDE

BEVERLEY Computing World, 10 Swaby's Yard
Over Lane Tel: (0482) 881831
BRIMLEY RC Johnson Ltd, 22 Frangate
Road Centre Tel: (0472) 42031
HULL The Computer Centre, 26 Anlaby Rd
Tel: (0482) 26257

ISLE OF MAN

DOUGLAS T H Cobsoun Ltd
57-61 Victoria St Tel: (0624) 3482

KENT

BECKENHAM Super Computers Ltd, 425 Croydon
Rd Tel: (011) 658 8800
CANTERBURY Canterbury Computer Centre, 56-57
Palace Street Tel: (0227) 63101
DORSET Kent Photos & Computers, 4 King St
Tel: (0204) 202020
BAHAM Macromedia Computers Ltd, 39 High St
Medway Towns Tel: (0634) 376702
SITTINGBOURNE Computers Plus, 65 High St
Tel: (0755) 25617
TUNBRIDGE WELLS Modula Computers Ltd, 26-30
St Johns Rd Tel: (0892) 41555

LANCASHIRE

PRESTON 4-Mat Computing Ltd
67 Frongate Tel: (0772) 561952
WIGAN Widing Ltd, 11 Messers St
Tel: (0942) 44382

LONDON

88 Perovskis, 85 High St North, East Ham
Tel: (01) 472 8941
E17 Teal Computers Ltd, 125 High Street
Warminster Tel: (01) 520 7763
E22 Devon Computer Centre, 155 Moorgate
Tel: (01) 638 3339/1830
N25 Castlehurst Ltd, 1281 High Rd
Tel: (01) 446 2280
N17 Comp-Link Inc, 86 Gowers Green Rd
Tel: (01) 208 0404/0279
N14 Logic Sales, 19 Broadway, The Bourne
Southgate Tel: (01) 882 4942
E11 Vic Osborn's 6 London Bridge Walk
Tel: (01) 403 1986
S28 Square Deal, 37-37F Finsbury Park, New
Orleans Tel: (01) 869 1516
N11 Micro-Foto 14-16 Quadrant Arcade, Regent
Street Tel: (01) 437 5336/5471
N11 Sonic Foto & Micro Centre, 256
Tottenham Court Rd Tel: (01) 585 5826
N1 Ramsons 4 Edgeware Road
Tel: 01 724 2733

GREATER MANCHESTER

BLURMAN Home & Business Computers Ltd, 54
Yorkshire St Tel: (061) 6331608
DUNSTON Mr. Micro Ltd, 69 Portington Lane
Tel: (061) 728 2282 Late Night Friday

MERSEYSIDE

LIVERPOOL (NORTH) Hargreaves, 31-37
Warrack Moor Tel: (051) 525 1782

NORFOLK

KING'S LYNN Computer Plus, 40 Condon St
Tel: (0553) 774550
NORWICH Norwich Camera Centre 20 White Lion
St Tel: (0603) 612537
NORWICH Spectrum, 11A Castle Meadow
Tel: (0603) 663796
THETFORD C & A Micros, 21 Guildhall Street
Tel: (0642) 61645

NORTHAMPTONSHIRE

NORTHAMPTON Domains, 22 Prince's Walk
Greensboro Centre Tel: (0604) 37031

NOTTINGHAMSHIRE

WORKSOP Computagraph, 132 Bridge St
Tel: (0908) 472248

NORTHERN IRELAND

NEWRY Newry Computer Centre, 34
Managh St Tel: (0963) 66545

NORTHUMBERLAND

WARPETH Teletronics 31 Newgate St
Tel: (0665) 513 537

SCOTLAND

AREENDEE Dee Micro 278 George Street
Tel: (0224) 644350
CUMBERNAULD Softwarehouse, 12 Elrick
Square, Cumbernauld, Lanarkshire
Tel: (02367) 38396
DUNDEE Macromedia 60 Gray St, Boughty Ferry
Tel: (0252) 77130
HAMILTON Tom Dickson Computers, 8-12
Cathode St Tel: (0694) 283193

SHROPSHIRE

SHREWSBURY Computers, 13 Castlegate Tel: (0743) 60508

SOMERSET

TANTON Grays, 1 St James St
Tel: (0232) 72986

SUFFOLK

BURY ST EDMUNDS Guildhall, Ctr. Ch. 11
Guildhall St Tel: (0284) 705772

SURREY

CROYDON Vision Technology Ltd, 53/59 High
Street Tel: (011) 681 3022
EPM The Micro Workshop, 12 Station Approach
Tel: (03777) 21532
WALLINGTON Surrey Micro Systems Ltd, 53
Woodside Rd Tel: (011) 647 5636
WINDING HAYES, 71-73 Commercial Way
Tel: (04862) 25557

SUSSEX

REARILL-ON-SEA Computech, 27 St
Leonards Rd Tel: (0424) 223342
ROGERS REIGIS Sits & Bytes High St
Tel: (0243) 867143
WINDLETON Lander, 71 East St
Tel: (0273) 726861

WALES

CARDIFF Randall Cam, 18-22 High St Arcade
Tel: (0222) 31960
WELSHMAN Wrexham Computer Centre, 24 Abbot
St, Ciyed Tel: (0978) 358832

WARWICKSHIRE

WURLETON Micro City 1A Queens Road
Tel: (0525) 382949

WEST MIDLANDS

COVENTRY Greens, 22 Market Way
Tel: (0203) 28342
DUDLEY Central Computers, 35 Church Hill
Phoenix Tel: (0284) 238153
WALSLEY New Horizon Computer Centres, 1
Goswell St Tel: (0922) 24821
WEST BROMWICH Bels & Jones, 39 Queens
Square Tel: (021) 553 0820

WORCESTER

KIDDERMINSTER Central Computers, 20-21
Blackwell Street Tel: (0562) 746841
WORCESTER David Waring Ltd, 1 Mainline House
High St Tel: (09505) 27551

YORKSHIRE

BRADFORD Empire Electro Centres Ltd, Victoria
Shopping Centre, 441 Thomson Rd
Tel: (0274) 490190
BRADFORD Locks, Farnsworth House
Riverton Square Tel: (0274) 309268
LEEDS Micro Power Ltd, Northwood House, North
St Tel: (0532) 458800
ROTTERHAM GT Leisureworld
Cascade Centre Tel: (0709) 67391
SHEFFIELD 308 Computers Ltd, 202
Whitman Rd, Bramhall Tel: (0742) 468251
SHEFFIELD HVI, Computers 812 Ecclesall Rd
Tel: (0742) 661326
YORK York Computer Centre 7 Stonegate Arcade
Tel: (0904) 641862



**Up to £1000
Instant Credit**

*There's up to £1,000 worth of Instant Credit
available on a Spectrum Chargecard. See your
local SPECTRUM for written details (UK
mainland only). Typical APR 29.8%.



Spectrum Computer Centres have no connection whatsoever with the ZX-Spectrum Computer manufactured by Sinclair Research Ltd.



SPECTRUM + SAGA

Simply Superior

The SAGA 1 EMPEROR has 67 keys which enable easy access to every function. The SAGA 1 EMPEROR makes obsolete the "stretch requirement" of other keyboards and enhances the ability to touch type. For Business or pleasure the Emperor will make your computing time more productive and enjoyable. Now available for the Spectrum + **ONLY £49.95**

FOR GREAT GRAPHICS...



UTILITY MENU



COLOUR MENU



MAIN
MENU

YOU'VE GOT TO HAVE STYLE!

Whether you are 5 or 95, using joystick or GP, full colour STYLE puts you in direct command of your graphics. Already in use in software houses and educational establishments, uses range from screen design to Business to pure fun. Our unique design eliminates endless reading of manuals. STYLE displays all options on screen, enabling you to start designing and flip from menu to menu fast, with some very useful built in routines. STYLE offers exceptional value for money, containing both Software and full Kempston compatible hardware for GP or Joystick operation.

STYLE £29.95 SAGA GP £79.95 (Graphics tablet for Style)

SOUNDBOOST

Connect and go system puts adjustable sound through your TV Speaker **ONLY £9.95**

FLEXICABLE

Now with two connector ports, exceptional value, a must for add-ons **ONLY £12.95**

DUSTCOVER

Keep your equipment clean and smart, our popular dustcover does this and more **ONLY £4.95**

PERSONAL CARRIER

Or how to store your equipment, our PC! is capable of holding computer, peripherals, magazines and software, and makes everything neat and portable. **A MUST at ONLY £26.95**



Available across the UK and from retailers in the following countries:

AUSTRALIA — BELGIUM — DENMARK —
FINLAND — FRANCE — HOLLAND —
GERMANY — ITALY — SPAIN — SWEDEN
NEW ZEALAND — SWITZERLAND

Tel: (04862) 22977

Telex: 8813487

Please send me the following products:

- ☐ *SAGA 1 EMPEROR at £49.95 (48K or +?)
- ☐ *SAGA GP at £79.95
- ☐ STYLE at £29.95 (inc P&P)
- ☐ DUSTCOVER at £4.95 (inc P&P)
- ☐ SOUNDBOOST at £9.95 (inc P&P)
- ☐ FLEXICABLE at £12.95 (inc P&P)
- ☐ *PERSONAL CARRIER at £26.95

*Please add £1.50 UK or £4.50 overseas Post and Packing
DEPT SAGA SYSTEMS LIMITED, 2 EVE
ROAD, WOKING, SURREY GU21 4JT
Name ADDRESS

AMOUNT ENCLOSED £

My Access Card No. is

SIGNATURE

DATE

Delivery promised within 28 Days

Reading between the lines

THE OMNI-READER from Oberon International is the first OCR — Optical Character Reader — for less than £1,000. Not only does it fit on a desk top but it will work with both the Spectrum — with Interface One — and the QL. For the price you cannot expect it to be all singing and dancing, but, within its design limitations, it is a remarkable piece of hardware. It even won a Sunday Times award for the best innovation of the year.

It consists of a plastic tablet, a little wider and a little taller than a sheet of A4 paper. On one side is a slide which holds a ruler at right angles across the tablet. On the ruler is the read head. The ruler is lined up with a piece of text and the head moved by hand from side to side to read into the computer. A series of LEDs along the top of the tablet are used to show its status.

The Omni-Reader connects to the computer via an RS232 port. On the QL you can use a standard Sinclair lead — supplied by CLPS it is cheaper — plugged into SER2. On the Spectrum some of the wires have to be

swapped. It can be set to send information at a number of different baud rates from 300 to 9600.

In order to keep the price at a realistic level a number of limitations have been put on the Omni-Reader. The main one is that in its standard form it can only recognise four different type styles. Courier 10, Courier 12, Letter Gothic 12 and

or dot matrix printouts.

To get around that limitation it is possible to download different styles but at the moment, and for the foreseeable future, it is unlikely that the facility will be available to Sinclair users'. That is because the Omni-Reader is aimed at the business user and is supplied with software for those machines. As a humble

cent accurate input. Using some sample text supplied with the Omni-Reader I managed to get 100 per cent but that was by being excessively careful — and slow.

Speed is another important consideration. It takes roughly two to three minutes to input a page of A4 text, longer if you have to re-read lines due to errors. That is approximately the same speed as a good copy typist, who would be possibly less prone to errors.

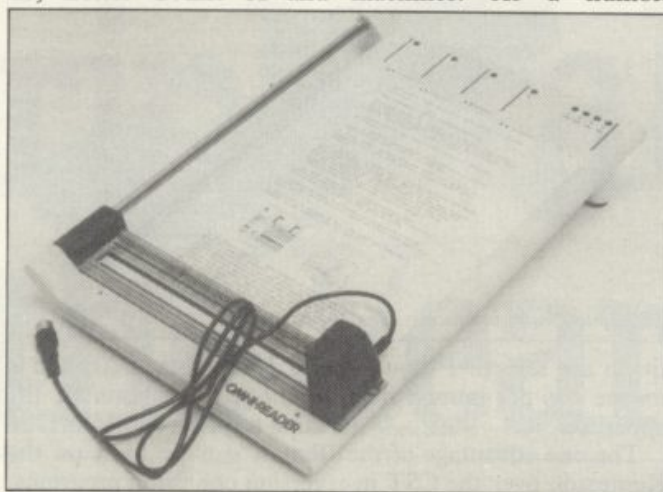
So that, in theory, you do not have to use the keyboard to change type styles or send control codes there are some options printed on the top of the tablet, with more in the manual. If, for example, the text you want to input is only made up of numbers and pound signs you just run the read head over the word Numeric, which is preceded by two special black blobs, on the top of the tablet. That works quite well although reading from the manual requires you to hold both the manual and ruler while moving the read head, all at the same time.

Overall the Omni-Reader is the sort of peripheral which you cannot do without or is completely superfluous. It works well, but you might find it frustrating as you cannot use it on everything. It even has problems reading the QL manual which, although clearly written, uses the wrong type-style. It shows what can be done at a realistic price, but soon makes you want more features.

The basic Omni-Reader is priced at £399.00 plus VAT (£458.85).

Oberon International, 2 Hall Road, Marylands Wood Estate, Hemel Hempstead, Hertfordshire, HP2 7BH. Tel: 0442-3803.

more hardware on page 38



Prestige Elite 12. Those represent 80 percent of the most commonly used type faces in business. It does, however, mean that for the home user you can not use it to enter listings from magazines — which tend to be the wrong size and style —

home computer user you have to write your own input routines and, as a matter of policy, Oberon will not tell you how to program your own styles.

Using one of the four type styles you can, with practice, get better than 95 per

Mouse attacks the ZX BEEPer

THE FEEBLE Beeper is under attack again, this time from the Multitron Megamouse, a combined BEEP amplifier and on/off switch.

The Megamouse takes its power from the Spectrum power supply, and has a lead which then plugs into the back of the Spectrum. Another lead plugs into the EAR socket, to provide the BEEP signal, and there is a socket on the Megamouse to take the lead from the cassette deck.

The volume is controlled

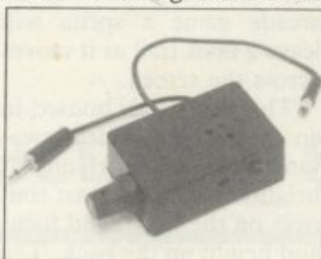
by a knob on the side of the box. When first turned on it is at full volume, which can lead to perforated ear drums if you forget to turn it down.

Although it works well as a BEEP amplifier it picks up a lot of background noise

and emits a continuous buzz. A hand placed over the speaker will mask it sufficiently but that makes using the Spectrum rather difficult.

The combined features make the price of £11.99 plus £1.00 p&p reasonable, but the buzz is so annoying that after a while you might unplug it and settle for peace and quiet.

Multitron, 5 Milton Close, Headless Cross, Redditch, Worcestershire, B97 5BQ. Tel: 0527 44785.



QL link for Kempston

KEMPSTON has been holding its fire while the QL market sorts itself out but now the company has jumped in with both feet and released both disc and printer interfaces.

The disc interface is reminiscent of the GST unit in performance and physically similar to the Silicon Express. Now that CST has dropped its price all three are about the same, Kempston's being £115.00 inclusive. With the CST and Kempston being so close in terms of performance — Silicon Express lags far behind — it will be interesting to see which comes out on top.

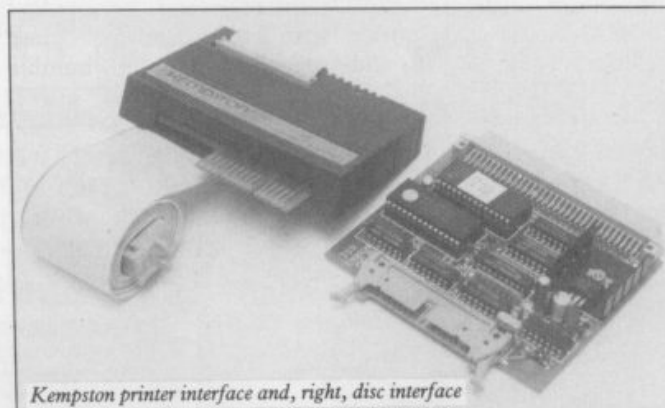
The interface board is uncased and fits into the port on the left hand end of the QL, with just the drive cable connector sticking out.

Once fitted it responds to the device name FLP, the same as Silicon Express, CST and Technology Research, and you can use discs from those interfaces freely. All the normal microdrive commands can be used, using FLP in place of MDV, and it can access up to four separate drives. As with CST and TR, on power-up it examines the disc for a BOOT program and then looks for a microdrive cartridge, turning off the disc if it does not find one.

The extra built-in commands have to be initialised using FLP_EXT before use.

Once initialised the extra commands can be listed by the command EXTRAS. That only works if you have a drive plugged into the interface. As with CST there are new commands to open files, use wild cards, and use random access on files and control jobs. The only differences are that the Kempston has AJOB and SPJOB

to activate, or set, the priority of a job — those have been dropped by CST in its latest release — and CST has PROG_USE and HEX and BIN conversion commands which are missing from the Kempston. VIEW, which is unique to Kempston, lists a file to a stream with each line truncated to



Kempston printer interface and, right, disc interface

fit on the screen. I thought its use was not immediately apparent.

The one advantage of the Kempston over the CST interface is the manual. While the CST manual is woefully lacking, not even detailing some of the commands, the Kempston manual is clear and concise.

The printer interface is unusual in many respects. Unlike any other it fits into the ROM slot on the back of

the QL and is capable of both normal — text — printing and shaded screen dumps. In addition there is the facility to use part of the QL memory as a printer buffer, with printing being carried out as a multitasking job, only stopping when a drive is accessed.

The printer port is given

the device name PAR and is opened to a stream in the same way as a serial port. So that it can be used on the version one Psion programs, or any others which expect you to use the serial port, the command PAR_USE is used, as in PAR_USE SER.

For screen dumps two extra commands have been added. SDUMP sets the channel to which a dump goes and the window to which it dumps, and

SDSET determines the type of printer, size and type of shading. Nine different printers are catered for, normal Epson types plus FX80 and JX80, Seikosha GP-100A, GP-250X and GP-700A, Canon PJ1080A, Brother HR5 and Olivetti JP101.

The printer buffer is associated with the port, as opposed to the stream. That useful feature means that you can repeatedly OPEN and CLOSE a stream to the port. Any printing that needs to be done will be put in a queue, being printed when the port is free, rather than waiting for the port to be free before a stream can be opened.

Kempston should do well in the QL market. Its disc interface will give CST a run for its money while the printer interface, priced at £39.95, as the only one offering shaded screen dumps, will find its own niche. The only clouds on the horizon are the Technology Research disc and printer interface, at £129.95 some £25 cheaper but offering fewer features, and the Medic interface when it becomes readily available.

Kempston Micro Electronics Ltd, Unit 30, Singer Way, Woburn Road Industrial Estate, Kempston, Bedfordshire, MK42 7AF. Tel: 0234 856633.

Slow glow and flicker free

THE BENEFITS of adding a monitor to the QL are many but the price tends to put people off. The Ferguson MMO2 is a 12in. green — or amber — screen monitor which is capable of handling the QL's 85 characters and has been advertised at as low as £75.00

The display is clear — it makes a change to be able to actually read all of the 85 characters — and steady. That is achieved by using a slow decay phosphor. When

a pixel is lit it will still glow for a fraction of a second after being turned off. When using the Psion suite, where the display tends to be fairly static, that removes any flickering but on an arcade game a sprite will leave a faint trail as it moves across the screen.

The monitor is housed in an attractively-styled two-tone brown case with on/off, brightness and contrast controls on the front, and focus and height on the back. The

screen is anti-glare, but the surround clips the corners of the display. As the monitor does not have any means of angling the screen you will have to put it on a stand, or prop up the front.

For the price it is as good as most and better than many. The only problem is trying to get a suitable lead to fit it. As no details are given in the manual you have to go to Ferguson for one.

more hardware on page 40

The Rotronics Wafadrive 'Peripheral of the Year'*

The Computer Trade Association/Leisure Electronics Trader Peripheral of the Year Award. Personal Computer News Best Buy. And nominated for the British Micro Awards. All these successes are a result of Wafadrive's transformation of Spectrum data storage.

Now, the power and convenience of floppy disk can be yours, but at a fraction of the cost – only £129.95!

Wafadrive houses five major components – micro interface, two 128K drives, RS232 serial and Centronics parallel ports – all within one compact unit. We've also included Spectral Writer – a superb word processing program – and a blank wafer. So you can start operating straight away.

Wafers are available in three sizes – 128K, 64K and 16K. All load well over ten times as fast as cassette, and their data integrity is on a par with floppy disk!

You'll find a rapidly growing range of software from games to business applications.

Find out more about the Wafadrive revolution. Ring us on High Wycombe 452757 or write to Rotronics Limited, Santosh House, Marlborough Trading Estate, West Wycombe Road, High Wycombe, Bucks HP11 2LB. We'll send you our full colour brochure by return.

ROTRONICS



* Computer Trade Association 1984 Product of the Year (Peripheral)

the Spectrum storage system

Quick Disc makes a change

CONSIDERING the price of disc drives, the new Triton Quick Disc from Radofin — anyone remember the Aquarius? — Electronics Ltd looks like a good deal. For only £119.95 you get a disc drive and an interface for the Spectrum. First impressions can be deceptive but, and it is a big but, it does offer disc drive speed at a very reasonable price.

As with other fast storage devices in its price range, the microdrive and wafer drive, it is dedicated to the Spectrum. Therefore, if you decide to change computer you will have to throw it away.

The Spectrum interface is hard wired to the drive using just over 1/2 metre of

cable. That is 5cm too short if you want to put the drive on the left of the Spectrum. On the side of the interface is a two position switch to denote first and second drive — the interface for the second drive plugs into the back of the first. The instructions say that only the second drive or a ZX Printer should be plugged into the interface, which is a problem if you want to add a printer or joystick interface.

Unlike all other disc drives the 2.8in does not use concentric tracks but a spiral, as on a record. Despite that it is still quick, although not as fast as a normal drive, with most timings taking just a few seconds. Formatting takes eight seconds, CAT three seconds, saving roughly 10 to 15 seconds and loading well under 10 seconds.

The instructions, which admittedly are provisional, say "... after 3 accessments (?), a few seconds rest is recommended.". Presumably they refer to the drive, not the user, but the instructions suggest that the drive



is not up to heavy use.

Each disc can hold 100K, 50K on one side, arranged in 2.5K sectors. The drive is single sided so the discs must be taken out and turned over to reach the other side.

The commands used to access the disc are a re-hash of the microdrive commands. You can SAVE and LOAD Basic, code and data, FORMAT the disc, obtain a CAT, ERASE files or COPY them from one drive to another. They also contain some interesting anomalies.

The command to save is SAVE *d;t; "filename" where 'd' is the drive and 't' is the type of file — Basic, code, data. To load any file

you use LOAD *d; "filename."

Despite scouring the manual — and not exactly being a stranger to disc drives — I could not find a way to save a Basic program so that it auto ran.

The one good feature of the drive is that it only uses the printer buffer. That means you can clear down to as low as 24000 and still use the drive. Transferring your programs to disc is, therefore, made easier.

For the price, and the ease of use, it is well worth considering but the commands are basic and not well thought out.

Radofin Electronics (UK) Ltd, Hyde House, The Hyde, London, NW9 6LG.

The joystick connection

NOW that arcade games are appearing for the QL the problem of adding joysticks is rearing its head. Rather than buy a joystick with a special plug the best idea is to buy an adaptor for your old joystick, which you can use on another computer, and an adaptor.

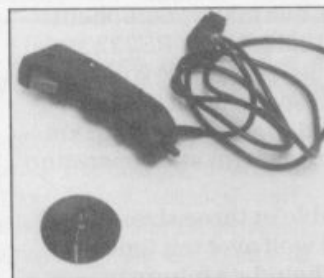
Eidersoft, has produced a suitable adaptor for £5.49, or only £3.49 if purchased at the same time as one of its programs.

Eidersoft, The Office, Hall Farm, Near Ockenden, Upminster, Essex RM14 3QH. Tel: 01-478 1291.



MOST JOYSTICKS suffer one major drawback — you need two hands to work them successfully, one to hold the base and the other to move the stick. The little suckers never seem to stick to the desk.

The Stick from Lightwave Leisure could be the answer for those of you who need to use a one-handed joystick so that you can still reach the keyboard without dropping it. It is a joystick handle with four tilt switches inside and all you have to do is tilt the stick to register movement. If you prefer to use it on a desk it is supplied



with a single, large, sucker which keeps it in place.

The Stick takes a while to get used to. It is not as sensitive as normal joysticks and difficult to use accurately. You cannot tell exactly when the switches are going to register. Where it comes into its own, is on athletics

games, where you need very rapid left and right movement.

The main problem is that the sucker does not keep the stick absolutely upright, so when not in use it still registers. On QL games, for instance, you might find it plays the game all by itself.

Although a good idea the Stick could have been better implemented. At £12.99 it is reasonably priced but you might prefer your tried and trusted sticks a while yet.

Lightwave Leisure Ltd, 2 Maldwyn Road, Liscard, Wirral, Merseyside, L44 1AL. Tel: 051-639-5050.

A stick in the hand . . .

We'll take you beyond the Spectrum.

QUICKSHOT II AUTO RAPID-FIRE JOYSTICK

SPECTRUM INTERFACE

SPECTRUM UPGRADE KIT

TURBO INTERFACE

Four great new add-ons from Ram, Number One in everything for the Spectrum...

TURBO INTERFACE

Outperforms any other Spectrum interface. Supports Kempston, Protek, Interface 2 and ROM cartridge software, with a full expansion bus at the rear. The Turbo works with two standard joysticks, making the most of the Quickshot II's rapid-fire action. Features a unique built-in power safety device. Amazing value at £22.95.

QUICKSHOT II AUTO RAPID-FIRE JOYSTICK

The top games joystick with its sleek trigger fire button and an auto-fire switch for continuous shooting – a snip at only £9.95.

SPECTRUM INTERFACE

This Kempston-compatible interface adds real games power to your Spectrum. Costs just £9.95.

SPECTRUM UPGRADE KIT

Boost your 16K Spectrum to a full 48K, allowing you to run all the latest and greatest software. Only £21.95

Where can you get your hands on Ram's amazing Spectrum add-ons? You can see them at branches of Boots, Menzies, Greens, Spectrum Group computer centres, and good computer stores everywhere.

Ram Electronics (Fleet) Ltd (Dept SU), 106 Fleet Road, Fleet, Hampshire GU13 8PA.
Credit Card hot line: 02514 25252. (Access & Visa).

Please send me _____ Spectrum Turbo Interface(s) at £22.95.

_____ Quickshot II Joystick(s) at £9.95.

_____ Spectrum Interface(s) at £9.95.

_____ Spectrum Upgrade Kit(s) at £21.95.
(Please state issue 2 ☐ or 3 ☐)

+£1 per order P+P (£3 Overseas) TOTAL £

☐ I enclose cheque/postal order ☐ charge my Access/Visa

Expiry Date ____/____/____

Name _____

Address _____

Postcode _____

Telephone _____

24 Hour despatch for credit cards and postal orders (7 days for cheques.)
All products are fully compatible with the Spectrum, Spectrum + and Sinclair Microdrives.

Ram Electronics (Fleet) Ltd
(Dept SU), 106 Fleet Road,
Fleet, Hampshire GU13 8PA.



Trade and Export enquiries welcome.

DISCOVERY

THE NEW DISC DRIVE SENSATION

At last Spectrum owners can choose a TRUE disc drive system for their computer, backed by REAL software support and available with the most comprehensive specification yet developed.

For just £199.95 Discovery offers a new level of performance and a combination of advanced features which make other fast storage systems for the Spectrum and Spectrum + look obsolete.

No wonder one leading computer magazine, Sinclair User, recommended Discovery in its latest guide to fast storage systems for the Spectrum.

Discovery has been designed to take no USER RAM from the Spectrum during the use of tape-based programs, it accepts the same commands as

'Interface I' allowing you to use many of the cassette programs designed for microdrive and we've even provided you with the firmware to use a super fast RAM DISC when you choose. Random Access Files are fully supported and formatting and back-up routines are included in ROM.

Add to all this a range of great software titles on the latest 3½" disc cartridges commissioned by Boots and you begin to see why we named it Discovery.

Discovery is available from larger branches of Boots and selected computer stores nationwide. For further details call us on 0737 65080 or post the coupon now.



THE VERY LATEST 250K JAPANESE 3½" DISC DRIVE



VIDEO MONITOR PORT



JOYSTICK INTERFACE

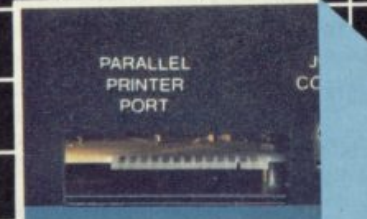


PERIPHERAL THROUGH CONNECTOR



£199^{.95}

NO OTHER SYSTEM HAS SO MUCH TO OFFER AND ALL FOR ONLY £199.95



PARALLEL PRINTER PORT

Please rush me the following (ALL PRICES INCLUDE VAT & CARRIAGE)

☐ Discovery 1 unit(s) at £199.95 each

☐ Discovery 2 unit(s) at £329.95 each

I enclose a cheque for £ _____ or please debit my credit card account with the amount of £ _____

My Access ☐ Barclaycard ☐ (tick) no. is _____

Name _____

Address _____

Telephone _____

Opus.
Opus Supplies Ltd.

To: Opus Supplies Ltd, 55 Ormside Way, Holmesthorpe Industrial Estate, Redhill, Surrey. 0737 65080



“These days, my favourite things are in bits...”

WITCH'S CAULDRON

Hilarious Graphic adventure in which you must regain your human form.
“General rating: An excellent and original adventure. Overall value: 10/10” - *Crash*

48K SPECTRUM & COMMODORE 64
£9.95

EVERYONE'S A WALLY

1st ever multi role arcade adventure. Help Wally and his gang to stop the town falling apart.
“The graphics are excellent - GRAPHICS 10 - PLAYABILITY 10” - *Computer & Video Games*.

48K SPECTRUM, COMMODORE 64 &
AMSTRAD CPC 464
£9.95

HERBERT'S DUMMY RUN

Baby Herbert has lost his mum and dad in the department store. Can you find them for him? There's a pile of jelly babies in it if you can.
“General rating: more of the same excellent stuff”. Overall rating: 90% - *Crash*.

48K SPECTRUM & COMMODORE 64
£9.95

Future Releases include: GLADIATOR, SHADOW OF THE UNICORN and BATTLE OF THE PLANETS. Watch Press for details.

MIKRO-GEN

44 The Broadway
Bracknell, Berks.
0344 427317

At last, the big performance printer at the lowest ever price



You only have to shop around to see that the Seikosha GP50S offers a totally new concept in value for money.

Designed specifically to be compatible with the Sinclair Spectrum and the ZX81, its compact body, unique uni-hammer printing system, wide range of features and surprisingly low cost, make the Seikosha GP50S a printer not to be missed.

The Seikosha GP50S features:

- Total Sinclair Spectrum and ZX81 compatibility
- Compact body, ideal for home use
- A print speed of 40 cps

- 46 column width
- Dot addressable graphics
- Printing of graphics image can be repeated
- Friction feed for roll or cut-sheet paper
- Takes plain paper up to 5" wide

You'll find the Seikosha GP50S at your local computer dealer.



THE FORCE IN DISTRIBUTION

5 King's Ride Park,
Ascot, Berks SL5 8BP
Tel: 0990 28921
Telex: 846303 DD LTD G

**Acute add-on allergy?
Chronic hardware headaches?
Don't suffer in silence —
write to Sinclair Surgery.**

Sinclair Surgery

Wafadrive may cause problem

I HAVE had my Spectrum 48K in for repair four times and the fault still hasn't been cured, although various chips have been replaced.

I am using it with a wafadrive and a Taxan/Kaga printer. After an hour or two it will suddenly crash, especially if I have a long program like *Tasword Two* running. It can crash when no keys are being touched and the printer switched off. Have you any suggestions?

**William Smears,
Liverpool**

● The problem probably lies with the Wafadrive. Try it out on a friend's machine, if it crashes then it is definitely the Wafadrive, if not it might be the Spectrum. Get the Spectrum's power supply and regulator checked.

Feedback on double plugs

A FEW months ago I forgot to pull one of the plugs when SAVEing a program and to my surprise found it had been recorded.

I have since been LOAD-ing and SAVEing with both EAR and MIC plugs connected, though the manual says that is not possible. Can I damage my Spectrum by doing this?

**C Rout,
Hastings, East Sussex**

● The reason you normally have to pull the EAR plug when SAVEing is that the EAR and MIC sockets are connected in the Spectrum. If the tape deck puts out the signal it is receiving, the feedback can damage the deck's amplifier. The signal keeps looping round, getting louder.

Even if the deck does not do that the earth loop may pick up unwanted noise.

A few decks overcome those problems. If it works you are unlikely to cause any damage by not unplugging the lead.

Wanted-Timex software

IS THERE any Spectrum software compatible with the Timex Sinclair 2068? I would be interested in a word processing program, such as *Tasword*. Would a disc drive designed for Spectrum, or interfaces for Centronics or RS232 printers also work with the T/S 2068?

**Vlad Trcka,
Ontario,
Canada**

● The 2068 is not compatible with the Spectrum in anything other than typed-in Basic programs. Timex (Portugal) is re-releasing it in Portugal with, as far as I know, a plug in ROM which turns it into a Spectrum. Your best bet would be to contact them.

Crash out of Underwulde

I HAVE a Spectrum 48K. When I entered one of the caverns in *Underwulde* my computer looked as if it was going to reset. I pulled out the plug and put it back again but it did not reset.

All that shows now is a lot of coloured lines which remain whether I switch the computer off and on.

**Anthony Hetherington,
St Ives, Cornwall**

● If you cannot get the copy-write message and just get flashing coloured squares your Spectrum is in urgent need of repair. Send it to one of the specialist repairers as they are

more likely to be able to fix it.

TV twitch on microdrives

ARE MICRODRIVE functions affected by emissions from a TV? I find that all the functions — load, save — fail to complete when the microdrive is in certain positions, but work perfectly when the TV is more remote.

**W J Ling,
Gerrards Cross,
Buckinghamshire**

● Yes, the TV can affect equipment. Ensure the microdrive is away from the TV and that the connectors are clean. If the problem persists, get the TV checked.

Alphacom and QL printing

I AM thinking of buying a QL and would like to know if the Alphacom 32 printer can be used with it. Sinclair says the printer must be Centronic but cannot tell me if the Alphacom is Centronic.

Dave Wesley, Canterbury
● The Alphacom 32 will only work with the ZX81 and Spectrum, not the QL. It is not a Centronics printer but dedicated to those machines.

Kempston E compatibility

I AM experiencing a problem with my Spectrum Plus Interface 1, Kempston E centronics and Texan/Kaga printer.

I have a copy of Masterfile on microdrive. Since I obtained my printer and interface I have had continuous loading problems.

I have written to Campbell Systems who claim that

it is my Kempston E causing this hook code error.

**Karl Chinnappa,
Croydon, Surrey**

● Kempston had a problem with early versions of its E printer interface, which only affected the microdrive version of *Masterfile*. Contact Kempston at 32, Singer Way, Woburn Road Industrial Estate, Kempston, Bedfordshire MK42 7AF. Tel: 0234 856633.

Transfer tape for Beta discs

I HAVE recently bought a Double Density Beta Disc interface and am having difficulty in converting commercial software to my 5.25 inch Cumana disc drive.

Can you tell me who makes an automatic tape to disc transfer program for the interface.

**D C Osborne,
New Barnet, Hertfordshire**

● Bearing in mind you should only make backup copies of software for your own use, contact LERM, 10, Brunswick Gardens, Corby, Northants NN18 9ER. Tel: 0536 743845. They sell WD1B at £6.99, and TC7 at £15.50 which has details on specific programs.

Dual purpose QL monitor

I HAVE recently bought a Microvitec monitor for my QL and wonder if my 48K Spectrum can be converted to accept it.

**T J Flowers,
Rochford, Essex**

● Contact Adapt Electronics, 20, Starling Close, Buckhurst Hill, Essex IG9 5TN. Tel: 01-504 2840. They produce an interface for £34.95 plus £1.00 p&p.

"YOU MUST BE THE BEST SOFTWARE FIRM IN THE WORLD"

(L. Hallard, London)

FOREIGN ORDERS WELCOME, satisfied customers in 63 countries over 3 years. UK prices include VAT: export prices are the same, plus p&p, because of the extra work and risk involved. Pay by sterling cheque, bank draft or postal order. All orders must be prepaid: we send your programs as soon as we get your money! It's faster to order by phone from any country with your VISA, EUROCARD, MASTERCARD or ACCESS. Call 01-846 9353, 24hrs, 7 days a week. (This is a new number!). WE ALWAYS TRY TO SEND YOUR PROGRAMS ON THE DAY WE GET YOUR ORDER, that's why it's called Speedysoft! All programs normally in stock. Faulty tapes replaced immediately. ALL PROGRAMS FOR SPECTRUM AND SPECTRUM+. BIG FREE ILLUSTRATED CATALOGUE WITH EVERY ORDER: DETAILED REVIEWS, LOAD TIMES, WHAT THE CRITICS SAID, ETC.. Send £1.00 (refundable) for catalogue only.

BORED OF THE RINGS "An excellent and vast parody ... I would rather spend months unravelling 'Bored' than days on a self-important 'serious' epic ... Challenging and atmospherically written." (PCW) Huge, funny, beautifully graphical adventure spoof loads in 4 parts. No Stick. (Delta 4) 2 CASSETTES £5.95 M'DRIVE CARTS £8.95

MICRODRIVER A PERFECT TAPE/MICRODRIVE TRANSFER AT THE PRESS OF A SINGLE BUTTON! "Menu-driven, very easy to use and well error-trapped ... I much preferred the Microdriver." (YrSp) Dumps the whole of memory to microdrive. Save and reload any program. No use to pirates as Microdriver must be present to run Saved programs. Specially designed ROM fits onto the back of your Interface 1 or 2. Through connector for add-ons. (Mirage) £44.95

MICRODRIVE CARTRIDGES

20 Sinclair cartridges in a stylish black plastic box (by Transform) with 20 individual compartments and room for index in the lid. Counts as one item for p&p. £49.95.

THE BULGE "Highly addictive ... the best strategy game I've seen, it's also incredibly fast and very user-friendly." (Crash) "One of the best wargames I have ever tried." (HCW) 1 or 2 players fight the Battle for Antwerp at the end of 1944. Full-scrolling battlefield maps in this realtime simulation. Sticks OK. (Lothlorien) CASSETTE £10.00

HYPER SPORTS "A challenging experience ... certainly superior to the current crop of sports simulations." (SUsr) 6 events, good sound, great graphics in this classic from Konami. Swimming: Skeet shooting: Long Horse: Archery: Triple Jump: Weight Lifting. Progressive difficulty. Sticks OK. (Imagine/Konami) CASSETTE £7.95

The FOURTH PROTOCOL

"The icon graphics are excellent and the speed is incredible ... one of the most enjoyable, complex but easy-to-operate games which I have played in a long time." (SUsr) There are three separate episodes to complete against a deadline in this exciting icon-driven adventure based on Frederick Forsyth's book. the state-of-the art for adventurers! (Hutchinson.) CASSETTE £12.95

NODES OF YESOD "A SUPER GAME ... superbly drawn ... jumping is accomplished using a series of back-flips, which are beautifully animated ... great music at the beginning and some tolerable speech ... a real challenge ... somebody at Odin really took a pride in their work." (HCW) "The best music on the Spectrum ... the animation is up to Ultimate ... the action is fast and furious ... this one gets a resounding yesod from me!" (YrSp) 256 beautiful and intriguing screens to conquer. Sticks OK. (Odin) CASSETTE £9.95

MINI OFFICE "QUITE EXCEPTIONAL VALUE ... the first affordable program suite I have seen ... I strongly recommend beginners get this first." (PCN) 4 programs on one tape, all working with EPSON-compatible printers. WORDPROCESSOR: DATABASE: SPREADSHEET: GRAPHICS. An amazing collection at an unbelievable price, no wonder we've sold so many! NO STICK. (Database) CASSETTE £5.95

Nick Faldo's OPEN "I loved it ... this is definitely the golfing simulation to buy ... all the trappings of animation, scrolling screens and icons. It's great." (PCW) "The graphics are nicely done and the icon system is very simple to handle. Once you've started, it's hard to stop." (HCW) 900-screen scrolling map as you play in the Open at Royal St George's. 16-page manual with hole-by-hole guide. (Mind Games.) CASSETTE £9.95

OPERATION CARETAKER

"I WAS ABSOLUTELY STUNNED by the improvement it produced ... almost all the blasted turbo loaders I could not get to work went in first time ... an essential purchase." (PCW) 2 tapes. 1. Head cleaner/demagnetizer. Use every 4 hrs. 2. Azimuth alignment check tape. Watch the display, adjust your recorder accordingly, (tool provided.) Use every 10 hours. It works. (Global) 2 CASSETTES £9.95

SPY v SPY "At last there is an arcade-type game where skill is more important than good reactions." (PCG) FOR 1 OR 2 PLAYERS. 2 CAN PLAY AT ONCE! Both the Black Spy and the White Spy appear at once on the split-screen and search the rooms, occasionally meeting, fighting, planting booby traps. Choose your own skill level and the computer's. Realtime. A modern classic. Most Sticks except Kempston. (Beyond) CASSETTE £9.95

ARNHEM "ONE OF THE FINEST COMPUTER WARGAMES WE HAVE SEEN, a blend of complex strategy, historical authenticity and simple, swift operation which will have fans returning for more." (SUsr) "Probably the best wargame on the Spectrum to date." (YrSp) 1 to 3 players: 5 different scenarios last from under 1 hour to over 8! Good clear graphics help. No Stick. (CCS) CASSETTE £8.95

CAULDRON "There's an awful lot to this game and the graphics and action are superb, a compulsive, graphically tasty little number." (PCN) "Superb pictorial game ... the graphics are brilliant and colourful ... You will be getting two excellent games for the price of one." (SUsr) The staggeringly beautiful Cauldron on one side of the tape and a FREE game 'The EVIL DEAD' on the flipside. Can't be beat. Sticks OK. (Palace) DOUBLE CASSETTE £8.00

The ROCKY HORROR SHOW

"Looks good, sounds good and is very addictive ... just like the show itself." (C&VG) "The mansion is an accurate reproduction of the film sets and its inhabitants are easily recognisable and behave in character, even speaking lines that every Rocky fan will know by heart." (PCW) If you love it, you'll love it. Sticks OK. (CRL) CASSETTE £8.95

FORMULA ONE "Really good strategy game ... it's one of the best." (PCW) "A rare example of a simulation which combines attractive displays, good game structure and an exciting theme." (SUsr) 1 to 6 players. Full simulation of a Grand Prix Racing Season. 16 races. Invest your sponsors' money in drivers, pit-crews, cars: guess the weather forecast's accuracy, choose your tyres. Then watch the races run in good, big graphics. STICKS Most. (CRL) CASSETTE £7.95

VISA
ACCESS

SPEEDYSOFT

01-846 9353 (24 HRS)

EUROCARD
MASTERCARD

POST TO: SPEEDYSOFT (SU34)
37 CHURCH ROAD, LONDON SW13 9HQ, ENGLAND.
For CATALOGUE ONLY, send £1 cash. Refunded with your first order.
I own a SPECTRUM. I enclose a cheque/PO payable to SpeedySoft
OR charge my VISA/ACCESS/EUROCARD/MASTERCARD

No.

Signature: _____ Expiry Date: _____

Please write clearly. If we can't read it, you won't get it.

Name: _____

Address: _____

Postcode: _____

PHONE NO: if any, in case of query _____

Program Name	Price
Postage & Packing	UK add 75p per order
	Europe ADD £1.00 per program
	Outside Europe ADD £1.50 per program
	Total Order

RANDOM number generation can be a complex business but the basics are simple enough.

Last month I briefly introduced the RaNDom number function and used it to control the BORDER colour output for a random explosion effect. This month, in the final part of the series, I am taking a closer look at the way in which the generator goes about its work, how you can call it into operation and how to use it as a work horse in complex programs.

First, a shock. The generator does not produce truly random numbers. To be random it would need to pick values out of thin air and, by definition, a computer cannot perform that sort of operation. It needs to be programmed to pick numbers and, for that reason, the generator can only pick pseudo-random values.

The operating system uses a mathematical formula which produces a sequence of values between zero and one. Such a sequence could, for instance, be 0.302167889, 0.322167889, 0.332167889. That list of numbers is useless to anyone interested in producing results. For one thing the numbers are too long. Can you imagine using an IF... THEN statement such as

IF A=0.303198267 THEN GOTO 20

to make a simple random decision? The best numbers to handle are integers and, in the above state, the integer part of the random number can only be zero.

We can take a leaf out of the operating system's book and use a formula of our own to turn the values into something more usable.

If you have an understanding of decimal arithmetic you will know that by multiplying a number by a multiple of 10 you can move its decimal point backwards, thus increasing its value. For instance, 0.123*100 would become 12.3 as the point has been moved back two places.

The number of places that the point moves backwards corresponds to the number of zeros at the end of the multiplier. If 10 had been used to multiply 0.123 in the example above,

the result would have been 1.23.

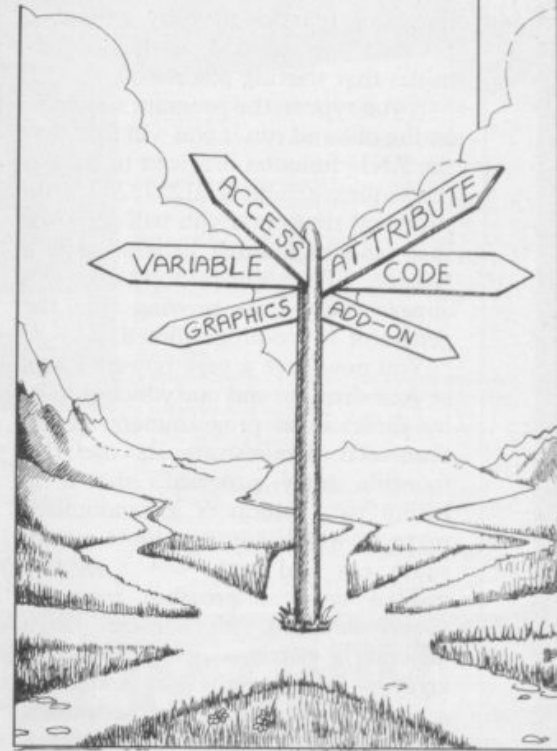
So, we have part of our formula. In Basic it can be written as $A=(RND*10)$. The result is stored in the variable A and that part of the formula is stored within brackets because of the way in which the Spectrum does its mathematics. The reason for the brackets becomes clear as we move on to the next part of the formula.

We still have a problem because, although we now have figures on the lefthand side of the decimal point we still have figures on the right which confuse the issue. The number in variable A is still not an integer.

As you saw last month, the solution is simply to use the INT function. It is put into the formula before the opening bracket of the expression

$A=INT(RND*10)$.

The reason for those brackets is now apparent. We want the computer to examine and perform the expression within the brackets before INT-eger comes into effect.



In the final part of his series, John Gilbert looks at the number generator and the ways in which it works

Alternative generations

The Spectrum does mathematical calculations in order of operator, such as +, -, * rather than in sequence from left to right. It gives each type of sign a priority number. High priority operations are done first, the lowest priority executed last. The * and / operations have a priority of eight while + and - are only worth six. So the Spectrum would perform all multiply/divide operations before addition or subtraction.

There is an exception to the rule — the brackets. Any calculation enclosed within brackets will be performed first, regardless of priority. So, in the example above, $RND*10$ would be calculated first.

You may be wondering what would happen if there was more than one pair of brackets within an expression. The answer is simple. The expression

containing the highest bracketed priority operation would be done first.

The random number generation formula above will produce a two digit number between zero and 10. If you do not want to include zero within the range then just add the number one onto the end of the formula,

$LET A=INT (RND*10)+1$ which will produce values within the range of one to 11.

The programmer has little control over the RND sequence using just that one function. It is, however, possible to influence the generator with the keyword function RANDOMIZE.

The RANDOMIZE function, shown as RAND on the keyboard, makes the RND function begin reading at a specific place in its sequence of

continued on page 48

```

5 REM set start of sequence
10 RANDOMIZE 10
20 FOR k=1 TO 10
25 REM take next random number
30 LET a=RND
35 REM multiply by 100
40 LET b=INT (a*100)
50 PRINT a,b
60 NEXT k

```

Listing One

continued from page 47

numbers. It is followed by a number between one and 65535 which determines that starting place.

If you type in the program shown in listing one and run it you will find that the RND function is forced to start at the sequence value 0.012573242. Run it several times and you will soon see that random number generation is a fantasy. The same numbers will appear every time proving that the generator is pre-programmed.

You now have a very powerful tool at your disposal and one which is used by professional programmers all the time. To demonstrate its use this month's entry program, shown in listing two, produces a randomised maze in which you can move north, south, east and west.

That type of program may not sound new but most maze games generate a matrix — using a table or array — of a specific size and fill it randomly with location descriptions. The program in listing two, however, holds only one location at a time within the memory. It is, therefore, possible to create an infinite maze with a large number of randomly generated location descriptions, within only a few kilobytes of code.

Before you can start coding you must decide how many room descriptions you want within your maze. Those descriptions may take up most of the memory and they can be as complex as you please.

Listing one has only four types of description for the maze and those are for empty rooms, fountains, monster locations and treasure. There are two ways in which you can store the location descriptions. The first, as shown in listing two, can be used if you have only a few location types. You can use IF... THEN statements such as those between lines 1000 and 1040 to specify the ranges of numbers within which the room types fall. For instance, if the random numbers fall between one and five, players might find themselves in corridors, but if the range was between five and 10 they might find a monster.

The other way in which you can represent situations or locations is to put them within a two dimensional array by reading them in through DATA statements.

Once you have decided which location descriptions you are going to use you can get down to coding, most of which consists of number crunching.

```

5 REM set co-ordinates at 20
20
10 LET b=20: LET c=20
15 REM set random number base
(1-11)
20 LET a=INT (RND*10)+1
25 REM accept input
30 PAUSE 0: LET b$=INKEY$
32 REM check to see if maze boundary, imposed by programmer
35 IF b$="s" AND b<1 THEN GO TO 30
40 IF b$="e" AND c<1 THEN GO TO 30
45 REM check direction, north south, east or west
50 IF b$="n" THEN GO TO 100
55 IF b$="e" THEN GO TO 300
60 IF b$="s" THEN GO TO 200
65 IF b$="w" THEN GO TO 400
67 REM if no compass direction found go for input again
70 GO TO 30
80 REM move north
100 LET b=b+a
120 GO TO 1000
130 REM move south
200 LET b=b-a
210 GO TO 1000
220 REM move east
300 LET c=c-a
320 GO TO 1000
330 REM move west
400 LET c=c+a
500 REM short room descriptions
. Can be substituted for longer
descriptions if required
1000 IF b<10 AND b>1 THEN PRINT
"Empty room"
1010 IF b<20 AND b>10 THEN PRINT
"fountain"
1020 IF b<30 AND b>20 THEN PRINT
"monster"
1030 IF b<40 AND b>30 THEN PRINT
"Treasure"
1035 REM return to input routine
1040 GO TO 30

```

Listing Two

The first part of listing two sets up a co-ordinate system which starts at a base location of zero, zero. Variable B represents latitude and takes care of locations between north and south. The C variable represents longitude and references locations between east and west on the random map.

A third variable, A, is then brought into play. It is used to store a random number, between one and 11, which will eventually act as the key to the whole routine.

The next section of the listing accepts a one-key input from the keyboard. First, it decides whether the input should be allowed — whether it is a direction key — and if so, which direction is being requested.

Movement is accomplished between lines 100 and 400. Variable A, which contains the number between one and 11, is used as an index which steps the b, c, co-ordinate ranges up or down. In that way it is possible for players to move forward into a new location and then backward into the location from which they have just come. Movement left and right, east and south, is accomplished in just the same way.

So far we have only looked at the way of producing pseudo-random numbers and that was in the way which the computer does it. There is another, more ingenious method which we can use with a little forethought.

First we must look for an alternative system which generates numbers of great length, even if those values have only one digit before the decimal point. To do that we should look at the mathematical functions. For most of us, not initiated into the great depths of mathematical science, the results of functions such as PRINT SIN(1) or PRINT SIN(5) seem random — although we know that they are not. What better way than to use a SINE or COSINE to generate our own home brew random numbers?

We are in the same position with SIN numbers as we were when we had raw numeric output from the RaN-Dom number generator. Most SIN numbers have one digit before the decimal point and nine digits after it. All we have to do is to find a SIN by using an instruction such as

LET A=SIN(1)

and then perform our mathematical magic on it. First we shift the decimal point one or two places to the right, as we did previously with the random numbers. That operation is performed using

(SIN(1)*100)

Next we want to make the converted number into an integer. Of course, the instruction is

INT(SIN(1)*100)

That is it and all you have to do now is put the result into a variable ready for use.

Any number of random values can be generated in that way, you can even use the SINES generated to generate yet more SINES to turn into random numbers. You now have your own, alternative, random number generator.

We have come now to the end of this series. Hopefully it has provided you with more to think about. At most you should be very competent in writing in what can be a tricky language at times. At least you should have a more positive attitude when you approach the tasks of writing your own programs.

If you still have specific problems which I have not covered in this series then let me know. It is just possible that I might be back with a new series — ed willing.

SUPERCHESS 3-5

GUARANTEED TO CONSISTENTLY BEAT ANY SPECTRUM OR COMMODORE 64 CHESS PROGRAM WHATSOEVER



STRONG—100 times faster, 1500 times more intelligent
FAST—from 5 secs to the highest levels, all within tournament times
PENETRATING—at tournament levels it searches at least 7 moves deep, trying tens of thousands of lines of play
FRIENDLY—keeps you informed, ideal for the expert or as a tutor for beginners
SAVES TO MICRODRIVE TO SAVE YOU TIME

£9.95 48K SPECTRUM

- ★ Save Game & Program to Microdrive
- ★ On-screen clocks for tournament realism
- ★ Unique new way of setting hundreds of levels
- ★ All play within tournament time limits

FEATURES

- ★ Unique new way of setting levels by time gives you total control with three different options: tell the computer to match your response times, give it a time limit to play to, or give it an average time to make its moves. And you can force it to play its best move found so far...
- ★ Change sides and levels during play if required
- ★ Stop the game and change positions at any time
- ★ Set up particular games you want to try at any stage
- ★ Will recommend your best move when asked
- ★ Can be set to solve problems up to mate in four
- ★ Extensive library of opening moves
- ★ Option to determine your own display and piece colours
- ★ You can play blindfold chess
- ★ Absolutely suitable for beginners: just set the minimum move time
- ★ Fascinating self-play mode for you to study the game
- ★ TOTAL INFORMATION about the computer's thought processes, including: best line of play found so far, number of positions evaluated, depth of search, internal scoring system, display of previous moves if required, help menu if you should ever get stuck

DEDICATED TO EXCELLENCE IN THE GAME OF CHESS

NEW

BRIDGE PLAYER 2

THE STRONGEST BRIDGE PLAYER YET



BRIDGE TUTOR with full manual & set hands to teach you the game
Beginners £5.95 Advanced £5.95
SPECIAL OFFER
Bridge Player 2 & both tutors £19.95

£9.95 48K SPECTRUM WITH EXTENSIVE MANUAL

- ★ Play a realistic game of bridge against the computer
- ★ Computer can play as defender or declarer
- At last, here is a program with everything the solo Bridge Player ever needed: The computer generates random hands, allows proper bidding in the ACOL system including the Stayman and Blackwood conventions, and then IT TAKES YOU ON, playing both your opponents' hands. Every feature that can be packed into the Spectrum has been included in this program to give you a really satisfying and enjoyable game of computer Bridge.

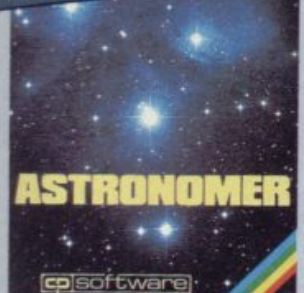
FEATURES

- ★ Versatile bidding routines give you a worthy opponent
- ★ Study your game: post-mortem facility allows rebidding and replaying of any hand
- ★ You can review the bidding or play to previous tricks while playing a hand
- ★ Or input a hand or contract of your choice to test yourself
- ★ **COMPREHENSIVE ON-SCREEN INFORMATION**
DISPLAYS: contract, tricks won so far, cards played in current and last trick, score
- ★ Option to **BIAS THE DEAL** to give you and your "partner" more high card points if you prefer to play as declarer

A REALLY STRONG OPPONENT FOR A REALLY GOOD GAME OF BRIDGE

ASTRONOMER

THE UNIVERSE OF STARS IN YOUR OWN PLANETARIUM



THRILLING command over the night sky from any time or place on earth
SERIOUS tool for the amateur astronomer — with excellent manual

"For those interested in the night sky it should prove fascinating"
 "User friendly"
 "Very good value"

CRASH Oct 1984

£9.95 48K SPECTRUM

Astronomer has everything in one powerful program... See the night sky of more than 1000 stars from any time or place on earth. Watch it plot the planets or draw in the constellations for you. See close-ups from the Star Atlas of 362 charts. Watch animated detail of our Solar System in motion and see how it changes with the months. Calculate everything needed for serious astronomy to a high standard of accuracy and produce your own tables to save having to buy them. Anything can be transferred to a ZX Printer.

FEATURES

- ★ Comprehensive Manual with reference sections
- ★ Suitable for serious astronomical study
- ★ Night Sky views from anywhere on earth
- ★ Works for past, present and future times
- ★ Displays over 1000 stars
- ★ Draws the constellations on your command
- ★ Plots the solar system on the night sky
- ★ Huge Star Atlas for detailed study
- ★ Shows the motion of the solar system
- ★ Calculates position for the Sun, Moon, Planets, Comets and Asteroids
- ★ Then plots them on the Night Sky or Star Chart
- ★ Displays the phases of the moon
- ★ The distance from earth of any object
- ★ Sidereal time and rising and setting times
- ★ Ephemeris section: generate and print your own tables
- ★ Fully-compatible with ZX Printer

NEW

PINBALL WIZARD

FOR COMMODORE 64 AND ANY SPECTRUM



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

ANY SPECTRUM—£5.95
COMMODORE 64—£6.95

NEW FOR OTHER COMPUTERS

AMSTRAD — Bridge Player £9.95
Pinball £8.95
Draughts £8.95
Backgammon £8.95

COMMODORE — Bridge Player £9.95
SINCLAIR QL — Bridge Player £18.95

NEW

SUPERCODE III

FOR 48K SPECTRUM & SPECTRUM+

150 ROUTINES
 100% MICRODRIVE COMPATIBLE

With 150 ROUTINES and 100% MICRODRIVE COMPATIBILITY this has to be the ultimate Spectrum toolkit. It gives you the power to do everything you always dreamed of with your Spectrum in your own BASIC or M/C programs. Born of the earlier Supercodes (which themselves received 5 star reviews) we can claim confidence that we have packed absolutely everything into this State of The Art development. With Interface 1 it transfers easily to microdrive and is recognised by Sinclair as fully compatible. Needs no special knowledge to operate and comes with a comprehensive manual.

FEATURES

- ★ Unique Access Program lets you INDEX/ LIST/TEST/TAILORED/RUN/RELOCATE/SAVE (to tape or microdrive with new or default name)/VERIFY automatically
- ★ Options include EXAMPLE/REPEAT/JUMP/AGAIN/CONT/TIR/DEMO/DIAGNOSIS/MOVE
- ★ 100% menu-driven with on-screen training
- ★ Brilliant user manual
- ★ Routines guaranteed SHORTEST AND FASTEST for all applications



ROUTINES INCLUDE

SUPER MICRODRIVE CATALOGUE-TRACE (with 256 preset program speeds)-SCREEN COMPRESS FOR ADVENTURES
 -ON ERROR GOTO-DOZENS OF RS32 AND MICRODRIVE ROUTINES-ON BREAK GOTO-THE SUPER-RENUMBER
 (Does everything)-VARIABLE LIST-STRING SEARCH-STRING REPLACE-PAINT FILL-5 SUPER PROGRAMMABLE
 SOUND EFFECTS-RECORD+REPLAY SOUND/MUSIC-CONFUSE+UNCONFUSE LISTING-REKILL PROGRAM
 CONTRACT/EXPAND-PROGRAM ANALYSE-NUMBER-VAL SCOMPRESS-CHARACTER SWOPS/SCRAMBLE/INVERT/
 REVERSE/ROTATE-WHOLE NEW CHARACTER SET (SG-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-REKILL-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
 -STANDARD-FREE SCROLLER-24 LINE PRINTING-LOWER SCREEN CLS-NEW LUG-PROGRAMMABLE BORDER
 EFFECTS-REMOVE COLOUR-RIPPLE+SHUTTER SCROLLS/L+R-SCROLL PIXELS/CHARACTERS/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-SPLITE EFFECTS...and many more besides.

£12.95 48K SPECTRUM WITH EXTENSIVE MANUAL

Watch this space for Brand new Programs coming this Autumn

WANTED: Strong and original programs of an intelligent nature for any of the above computers. Top royalties paid by this reliable company.

OTHER PROGRAMS for 48k Spectrum

Toolkit/Utility — (ALL AT £9.95)
SUPERCODE II
FLOATING POINT FORTH (with editor)

EXTENDED BASIC
SNAIL LOGO (Turtle graphics)

SPECIAL OFFER Any two of these invaluable programming aids for **£17.95**.
 Any three for **£23.95** OR **£1 OFF** any if you also buy SUPERCODE III at £12.95.

JUPITER ACE SUPERCHESS

£8.95

Classic Games

Othello (powerful) **£6.95**
Airbase Invader (Arcade) **£5.95**
Golfing World (better than the ones you see heavily advertised) **£5.95**
Draughts (very strong program) **£5.95**
Backgammon (excellent) **£5.95**
Yatzee **£4.95** **Bridge Player** **£9.95**
Supercass 3.0 **£9.95**

SPECIAL OFFER Any two classic games **£1.50 OFF** OR **£1 OFF** if you buy with one of our new featured programs at £9.95. (Astronomer, Bridge 2 or Supercass 3.5)

MAIL ORDER

Simply state which programs and send cheque, postal order or Access number (with expiry date). Telephone for instant credit-card orders. Send SAE for catalogue and return postage for submitted programs.

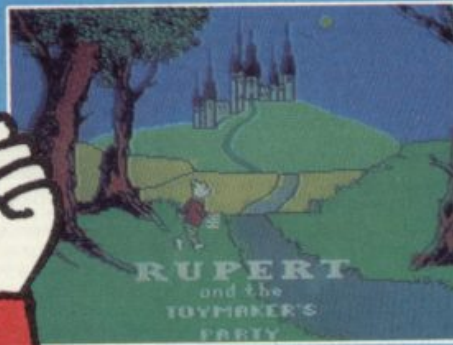


Harrogate, North Yorks HG1 5JS
Tel: (0423) 57089

DELIVERY by soonest post. Post free in UK. Europe add 80p per program. All other places add £1 per program for surface mail or for Airmail add £2 for first program and £1 for each additional.

RUPERT

and the TOYMAKER'S PARTY



Jolly old Rupert can walk, jump, leap, climb stairs – and even fly – but can you get him to the party?

32 challenging screens of animation and fun.

QUICKSILVA

The most powerful games in the Universe

Quicksilva Ltd, Liberty House,
222 Regent Street, London W1R 7DB.
Telephone 01-439 0666



Rupert Bear © Express Newspapers PLC

Spectrum 48K
CBM64

GET THE PICTURE GET THE PICTURE

ROCKFORD'S RIOT & BOULDER DASH ON ONE TAPE!

BOULDERS, JEWELS, FIREFLIES, PUNISHING PUZZLES



**NEW LABEL
NEW TITLE**

ANNOUNCING
Rockfords
RIOT!
& Boulder Dash
• Two great games for the price of one!
• For one or two players

MONOLITH
Losing Edge Software

SPECTRUM VERSION
AVAILABLE LATE AUGUST

Mail Order: MONOLITH,
3rd Floor, Lector Court, 151 Farringdon Road,
London EC1R 3AD.

Price £9.95 inc. P&P.
Cheques/POs payable to Monolith.
Credit cards call 01-837 2899.

CBM 64



Getting the best from a bad deal

WHEN DELVING into the muddy area of consumers' rights it is best to heed Julie Andrews' words of wisdom: "Let's start at the very beginning. It's a very good place to start."

Mind you, waving huge bags and umbrellas and singing at the top of your voice is unlikely to get you very far when faced with the sharks' teeth bared at you by the World of Retailing.

Another fine mess you've gotten into? Wendie Pearson can help you out

How to Put Things Right, a leaflet issued by the Office of Fair Trading, tells you how to safeguard your interests in advance. It tells you to keep receipts, stop using faulty goods at

once and tell the shop immediately if something is wrong. Jim Spinks, of the Trading Standards Authority at Croydon, says: "The length of time you wait is important and the longer you wait to do something, the more the law says it's your fault. But if you have a problem, it's the retailer who's responsible for putting things right, not the manufacturer — unless it's a manufacturing defect."

Basic to the law is the Sale of Goods

Act, which says that if the goods do not work properly or break down within a few months you are entitled, in most cases, to your money back.

"Most shops want to do a repair or offer you something else, but it's up to you. If it's not as described, for instance, you're entitled to your money back," says Spinks.

The law has three rules. Goods must be of merchantable quality, not broken or damaged. However, if goods are very cheap, secondhand or 'seconds', you cannot expect top quality.

Secondly, goods must be as described, and that applies to descriptions given on the package or by the retailer when you buy. Thirdly, goods must be fit for their particular purpose.

What happens if you buy a cassette recorder which was unable to load software properly but was more suited to playing music? "Awkward one," Spinks says. "If the purchaser went to a specialist computer shop, it would be taken that they had implied use of computer tapes. But if they had bought it at an ordinary department store, generally the purchaser would have difficulty in taking any action because not all tape recorders would be fit for computer programs."

Spinks advises that you should say what you want the recorder for when you buy it — that at least would give you some protection.

All goods are covered by law including those bought in sales, and that applies whether you buy goods from a shop, street market, mail order catalogue or from door-to-door sellers. That means that if you buy computer games from a market trader you do, in effect, have the same rights as if you had bought from a shop. The problem here, of course, is finding the trader if he's upped and gone.

If any of the three rules have been broken, you should be able to get a cash payment to make up the difference between what you paid and the reduced value of the faulty item, or reject it and get your money back. If you both agree, you may get a replacement or a free repair. But remember — under those circumstances you are fully entitled to your money back and should not be talked into any other option unless it is what you want.

What you are entitled to depends on how serious the fault is and how soon you tell the seller. You forfeit your entitlement to anything if you ex-

amined the item when you bought it and should have seen the faults, were told about the faults, changed your mind about wanting something, did the damage yourself or got it as a present. In that last instance, the person who bought the gift must make the claim.

If you take a faulty peripheral back to the shop, you should ask for the manager, and keep cool, reasonable and calm. Explain your case. If you have no luck and the staff are rude, or unhelpful and won't let you get a word in edgeways, you should refrain from telling them where to go. Instead, contact the managing director at head office and check to see if the firm belongs to a trade association. If they do, the association may intervene in any dispute.

If you write any letters in connection with your complaint, send them by recorded delivery and keep copies of both your correspondence and theirs. The Office of Fair Trading also advises that you do not send the company any receipts or other proof of purchase, but only photocopies of those or reference numbers.

Whether you complain in person or on the phone, get the name of the person you speak to. If they refuse, which unfortunately some people do these days, get the name of their boss. If they refuse that, too, make a note of that along with anything else that is said or done as you may well need it at a later date. Always keep notes of what is said and done at each stage.

If things start looking rather grim and everyone in sight is giving you a hard time, soldier on and visit the Citizens Advice Bureau — CAB — or local Consumer Advice Centre, both of which are there to help you, and are listed in local phone books. They will take up the matter for you, but at the end of the day you may have to drag the offending trader to the County Court and sue them under the Sale of Goods Act, using the small claims procedure. A booklet called *Small Claims in the County Court* is available from the County Court or your local consumer advisor.

If you decide to go for that, CAB will help you fill in the forms. The fee

is about 10 per cent of the value of your claim, with a £500 limit. If your claim is above £500, it means you can no longer use the small claims procedure although you can obviously still sue in the County Court, using legal aid if you can get it — details available from CAB.

By now, you may be wondering what the Trading Standards Authority gets up to. They enforce the Trade Descriptions Act and investigate false or misleading descriptions or prices. For instance, an advert quoting a micro's price at £399.99 is classified as misleading if it does not include VAT. That would only apply to consumer ads such as those found in *Sinclair User*. If a publication has a business readership instead, adding VAT onto advertised prices is not obligatory.

Watch out for retailers who try to lump on additional costs when you buy a computer. You might be told that you need a special interface or peripheral to make something work, which costs extra.

Many users are also unclear on the warranty situation, although readers of last month's *Sinclair User* should be more than clued up by now! Surprisingly, there is no legal warranty on repairs, according to the TSA, although in practice most repairers will provide one lasting about 90 days.

"If there's no guarantee on the goods, you can insist on repair or replacement up to about four months after purchase, but there's nothing laid down in law, as every case is different,"

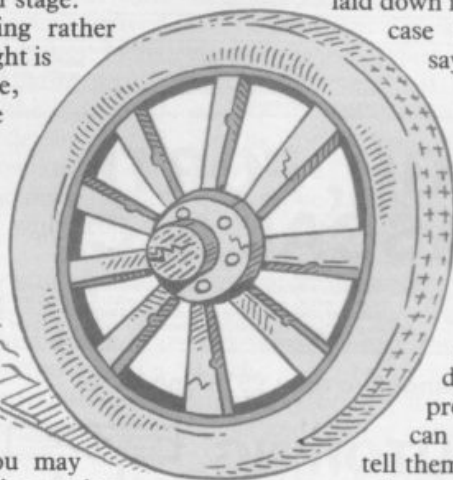
says Jim Spinks.

"The rules on warranty are that it must be done in a workman-like manner and at a reasonable price. If they don't do it properly, you can go back and tell them to do it again — otherwise, you can get

it repaired elsewhere and sue them for the expense." If you are unlucky enough not to get your goods back, you can sue for the value of equipment at the time it was sent to them.

If a company has gone bust, Spinks advises that you get onto the list of

continued on page 55



O'LEVELS

not just revision but also tuition
for the Spectrum 48K

Mathematics

8 programs TOTAL 150K

Fractions, square roots, decimals, logarithms, areas, sets, accuracy, bases, interest, volumes, indices, standard form, modulo, number set, pie charts, histograms, simultaneous equations, bar charts, averages, probability, algebraic laws, quadratics, matrices, vectors, transformational geometry, trigonometry, differentiation, integration, factors, angles.

Physics

7 programs TOTAL 140K

Reflection, wavelength and frequency, refraction, lenses, the eye and its defects, diffraction, colour, magnetism, motors, Ohm's law, amps, volts, series, parallel, electronics, heat, gas laws, energy forms, specific heat, kinetic energy, half-lives, atomic structure, radiation, isotopes, Newton's laws.

Biology

6 programs TOTAL 120K

Plant and animal cells, genetics, inheritance, reproduction in man, asexual and sexual reproduction, flowering plants, photosynthesis, osmosis, transpiration, transport, bacteria food classes, diet, alimentary canal, respiration, excretion, eye, skin, nervous system, ecosystem, food cycles, fungi, earthworm, amphibians, birds, mammals, response.

Computer Studies

7 programs TOTAL 140K

Data collection, coding, storage, processing, presentation, validation, d.p. systems, privacy, security, hardware, I/O devices, software, low and high level languages, machine-code, assemblers, interpreters, compilers, errors in programming, aids to debugging, microcode, machine organisation.

Chemistry

8 programs TOTAL 150K

Matter states, action of heat and electricity, reaction with air, water, acids, alkalis, halogens, oxygen, sulphur, nitrogen, phosphorus, carbon, hydrogen, alkali metals, alkaline earth metals, transition metals, organic chemistry, atoms, formulae, molar mass, equations, ions, periodic table, bonding, gases, metal extraction, polymers, fertilizers.

French

8 programs TOTAL 160K

Regular and irregular verbs, reflexives, indicative, subjunctive, passive, infinitive, agreement, pronouns, definite, indefinite and partitive articles, single and compound nouns, adjectives and their forms, adverb phrases, comparatives and superlatives, conjunctions, prepositions, idioms, measurements.

Electronics

8 programs TOTAL 150K

Energy and its sources, power distribution, e.m.f. p.d., charge, current power, r.m.s. values, resistors, series and parallel, capacitors, time constants, inductors, transformers, resonance, microphones, loudspeakers, heat and light sensitive devices, diodes, transistors, logic circuits, multivibrators, meters, CRO, amplifiers, feedback.

Each subject ONLY £5.00 inc. p/p.

Available soon

English Language

8 programs TOTAL 160K

Composition, Narration, description, discussion, letterform, transaction, expression, emphasis, sentence construction, paragraph, punctuation, argument, awareness of context, idioms, inference, summarising.

German

8 programs TOTAL 160K

Strong, weak, reflexive and mixed verbs, singular and plural, indicative active and passive, subjunctives, imperatives, infinitives, accusative and dative, articles, nouns, pronouns, adjectives, adverbs, conjunctions, prepositions, numbers, time, quantity, idioms, word order.

Economics

8 programs TOTAL 180K

Price level forces, changes in output, employment and growth, revenue and expenditure, financial institutions, international trading, population and its structure, market forces, supply and demand, price formation, industrial location, scale and forms of enterprise, mixed economy.

LOGO, FORTH PASCAL & C

1 program Each 30K

Teaching versions of these languages, including a full text editor (screen editor) and a 48 page tutorial manual. Saving and loading of programs is a screen editor function. Trace facilities are provided for easy tuition and debugging. Availability: Pascal now, C now, Logo soon, Forth soon.

Each language only £5.00 inc. p/p.

GCE TUTORING

quality educational software

40 BRIMMER HILL, WIDMER END, HIGH WYCOMBE, BUCKS HP15 6NP

Please send me:.....

My name and address:.....

My computer is a:.....

I enclose a cheque/PO for £.....
Made payable to GCE Tutoring

SU9

Want to keep in touch? Use databases, electronic mail, bulletin boards, viewtext? Download the latest super software from Prestel? Now you can, with your 48K Spectrum*, a suitable modem and the DATASPECTRUM modem interface and software package from Miracle Technology.

DATASPECTRUM fits straight into the Spectrum edge connector and handles baud rates of 300/300, 1200/75 and 75/1200. Software features include Mailbox Editor, Frame Processor, Save, Print and Telesoftware Downloader.

The Dataspectrum Package, including interface, cable, cassette and full User Guide costs only £39.95 exc (£47.09 inc VAT & UK P/P). It's available now - so get in touch!

Please send me

☐ DATASPECTRUM packages @ £47.09 inc VAT + UK P/P.

☐ I enclose cheque/postal order

☐ charge my Access/Visa card no:.....

expiry date/...../.....

Name

Address

Postcode SU9

send to:

Spectrum Support 1, Miracle Technology (UK) Ltd,
St Peters Street, Ipswich IP1 1XB
Tel 0473-216141.

*reg'd trade marks of the companies concerned

DATA- SPECTRUM PUTS YOU IN TOUCH!

MIRACLE
TECHNOLOGY

ROTRONICS DX-85 DOT MATRIX PRINTER

- 100 cps, 80 column
- Italics, condensed, expanded
- Centronics

ONLY
£199.95
(Serial add £16.00)

ONLY
£24.95

STONECHIP BARGAIN BASEMENT

- Spectrum Keyboard £24.95
- Prog joystick i/face £12.95
- Prog plus Kempston joystick i/face £16.95
- 16K expansion for ZX81 £9.95
- Echo amplifier £9.95
- Lucky Dip 6 Spectrum programs £2.95

Rotronics DR2301 Data Recorder

- Audio and data
- Suits all home micros
- Mains/battery

Rotronics Portable Case

- 23" x 15" cubed foam
- Holds Spectrum and peripherals
- Components work in situ

ONLY
£27.95
(26" x 15" £31.95)

All prices include VAT and p + p. Please make your cheque/PO payable to SMT. Or quote Access/Barclaycard number. Write your name and address clearly. Please allow 28 days for delivery. SMT, FREEPOST, Greens Norton, Towcester Northants, NN12 8BR



SMT

continued from page 53

creditors kept by the receiver, who is in the local phone book under Official Receiver. Alternatively, try the local consumer advice centre.

With so many hardware and software companies going down over recent months, it is important to know where you stand if you have ordered goods from a company which has cashed your cheque, not sent you the goods, and gone bust. The companies concerned are too numerous to mention, but if you have ordered through a magazine, you should contact the advertising manager first, who can often do a lot to help.

Postal contracts, the kind you enter when you buy through mail order, are known to be a real pain, as you become an unprotected creditor when a company goes into receivership. Long words apart, that means you are the last category of person to get your money back — and even that depends on whether the company has any money left to give you.

Protected creditors are mainly businesses, such as banks or building societies, which will have asked for security before giving loans to a company. They are always paid first, and other businesses to whom a firm owes money tend to get what is left over, followed by Joe Public who often gets only an unwelcome overdraft for his trouble.

Lawyer James Campbell, of London firm Wilde Sapte, says: "Small creditors don't usually get much as there isn't usually a lot left and there's no recourse to the directors, either. There is a law going through parliament which makes the directors liable if they didn't act in a normal, prudent way. The new law will protect against negligence and provide a duty of care to people concerned with the company."

"The man in the street does have recourse in law, but if the company has no money, there's nothing he can do."

So what about companies which go into liquidation, leaving masses of people without goods and without their money back, only to spring up under another name often with the same staff and often selling the same kinds of goods?

The current situation, says Campbell, is that "you can sue one company, but unless you can prove a connection between the two companies, you can't sue successfully."

You must prove the directors have taken assets or information into the second company from the first."

That said, anyone who has fallen victim to such a situation may as well hold their breath until October when the new Insolvency Act, should come into force. That, at last, will hold directors responsible — to an extent — for debts incurred by their companies.



"Joe Public often gets only an unwelcome overdraft for his trouble"

The Mail Order Protection Scheme is also there to help you. You are covered by this if you have ordered goods through a publication which is a member of the Newspaper Publishers Association — NPA — or Periodical Publishers Association — PPA.

Caroline Fruin, advice worker with CAB, says: "If goods haven't arrived within 28 days of the money being sent, the client should write to the advertising manager of the individual publication giving full details. If the advertiser has gone bankrupt, the client will be notified and must submit a formal claim together with proof of payment."

"If the advert was in a newspaper, the final claim must be made within three months of the advert appearing or within two months, in the case of a magazine. With a postal contract, a contract is made when the firm accepts your offer — in other words, when they write to confirm the order or when they send the goods to you. Cashing a cheque is acknowledgement of that order."

The Association which covers mainstream publications such as *Sinclair User* is the PPA, and members of this must operate a mail order protection scheme. "We have an undertaking

with the Office of Fair Trading which says that PPA members must compensate readers who lose money when they send off in response to a mail order advert," says PPA deputy secretary Gordon Hurst.

This covers people who do not get their goods or their money back if a mail order advertiser goes into liquidation. In comparison, the scheme run by the NPA also covers people who lose out if a company simply ceases to trade. The Department of Fair Trading is considering whether to apply this to the PPA too.

For those confused by the terminology, ceasing to trade and going into liquidation are two different things entirely. Currently, you cannot get your money back via a magazine, unless it is very good hearted, if a company has ceased trading — it must have gone into liquidation.

The message from Hurst is loud and clear. "If a mail advertiser goes into liquidation and you don't get your goods or your money back, then the publisher must pay the reader whatever money the reader has lost," he says.

A publisher at a major London publishing house confirms that a complaint must be sent to a magazine not earlier than one month and not later than two months from when the advert appeared, in order to be considered for compensation when a company goes into liquidation. "But if a company is still trading, we'll still do all we can to get the company to fulfil their orders," he says.

The publisher also says that readers should ask themselves a few questions before they send off for mail order goods. "If you can buy a product in Smiths, for example, at least you can view it first." The word on mail order seems to be caution.

The sort of proof you have to send a magazine when claiming compensation would be a copy of the coupon response — if you have one — photostats of cheques from your bank, which your bank manager should supply, relevant parts of bank statements and cheque stubs.

And now for the good bit! Credit card holders should be delighted to hear that if they pay for their goods using their piece of plastic, and the purchase is £100 or over, they are protected by the credit card company.

Under the Consumer Credit Act, which deals with any credit agreement where money is paid by the customer

continued on page 56

Know Your Rights

continued from page 55

at a later date, the credit card company is liable for sorting out problems of that kind.

A Barclays Bank spokeswoman explains that the £100 rule applies to faulty goods and services as well as to companies which had gone into liquidation. In fact, you can claim even if the company has not gone down. "The customer should send us the claim and we take it over for them, investigating each case on its merits before we reimburse them," she says.

Finally, how long should you wait for mail order goods to arrive? Jim Spinks says: "There is normally a time limit on the order form, but it can take months. If there is no period quoted, you should write to them after 28 days asking them to state when the goods will arrive. If this isn't forthcoming, ask for your money back."

All advertisements are supposed to abide by the British Code of Advertising Practice which requires adverts to be legal, decent, honest and truthful.

The Advertising Standards Authority — ASA — publishes a case report, each month detailing complaints received from the public over advertisements, and Sinclair's name has come

up quite a lot, although ASA's spokeswoman Rosemary Goodchild is quick to point out that Sinclair has now sorted out its affairs.

In Case Report 106, dated February 1984, it was stated that five previous complaints had been upheld against Sinclair over the 12 months prior to the report. That report mentioned the case of a £39.95 ZX printer which had been reduced from £59.95. A complaint from four members of the public was upheld in that the reduced price didn't include a transformer included in the old price.

In case report 109 dated May 1984, 20 members of the public had their complaint against Sinclair upheld. That applied to the famous QL delivery saga. The Authority concluded that the initial production targets "were not sufficiently high to warrant the campaign which had been undertaken."

More recently, in case report 121 dated May 1985, the ASA upheld a complaint over the wording of an advert for the Sinclair QL. The advert described its advanced SuperBasic language as "the most powerful Basic ever devised." Other forms of Basic were considered more powerful than

SuperBasic in certain respects.

Last of all, don't bother approaching the Consumer Association if you have a problem, as they will tell you in no uncertain terms that you have got the wrong place. In fact unless you're a real masochist keep as far away as possible.

Despite the fact that the Association publishes the excellent magazine *Which?*, two separate spokeswomen, who both refuse to give their names, say they have never even heard of the Consumer Credit Act.

One says: "We don't answer questions from the public. People pay to join us. I'm not a lawyer, I can't answer legal queries, I can't give you any details and if people want advice they should contact the Citizens Advice Bureau."

A full copy of the British Code of Advertising Practice is available from the ASA at £1.80 including postage and packing and is also available from libraries, Citizens Bureaux and so on. The code does not apply to broadcast commercials, though, as television and radio advertisers are subject to a separate, closely related code administered by the Independent Broadcasting Authority.

The Spectrum storage system



ROTRONICS WAFADRIVE

- Dual 128K storage
- Fast, reliable access
- Centronics and RS232 ports
- FREE Spectral Writer wp package
- FREE blank wafer

Blank wafers: 16K (£2.49)
64K (£2.79) 128K (£2.99)
Heathrow/Nightlife II £14.95 Space Wars/
Seiddab Attack/Luna Attack £14.95 Bear
Bovver/Wong's Loopy Laundry/World Cup
£9.95 Melbourne Draw £9.95 Starbike £7.95
ZAPP (Assembler/Disassembler/Monitor)
£19.95 Sherlock £14.95 RS232 lead £10.95
Centronics lead £12.95 Mugsy £9.95 Stock
Manager* £19.95 Finance Manager* £19.95
Address Manager* £19.95 VAT Manager* £19.95
* 80 column version

**ONLY
£99.95
INCL. P&P**

All prices include VAT and p + p. Please make your cheque/PO payable to SMT. Or quote Access/Barclaycard number. Write your name and address clearly. Please allow 28 days for delivery. SMT, FREEPOST, Greens Norton, Towcester, Northants, NN12 8BR.



SMT

HIRE SPECTRUM SOFTWARE

- * **OVER 500** different titles available for hire including **ARCADE, ADVENTURE, BUSINESS, EDUCATIONAL** etc.
- * **OVER 10,000** tapes in stock. All publisher's originals.
- * **LOWEST HIRE CHARGES** — hire up to 3 tapes at a time, from only 63p (plus P&P and VAT) for 2 weeks hire.
- * **FREE** printed **CATALOGUE**.
- * **FREE** newsletter with hints, tips, reviews, etc.
- * **TAPES** for sale at **DISCOUNT** prices, (eg **MANIC MINER** £2.00).
- * **FAST, FAST SERVICE**. All tapes sent by 1st class postage.
- * **HALF-PRICE OFFER** — **LIFE** membership **ONLY £3.00** (normally £6.00).
- * **FREE** first hire tape. (For limited period).
- * **EUROPEAN MEMBERS WELCOME**. (Payment in Sterling).

Have you ever been disappointed with software you've purchased? Now you can hire it first. If you like it, buy it at £1.00 off our already discounted prices. If you don't, send it back and it will only cost you the hire fee.

NSL is the best **SPECTRUM** library, with over 8,000 delighted members, the largest range of tapes and controlled by our computer with 22 mb hard disc. **JOIN TODAY**, or, if you don't believe our claims write or 'phone 01-661 9240 for a catalogue, and check our competitors. We're confident you'll join **NSL**.

NATIONAL SOFTWARE LIBRARY

42 Harefield Avenue, Cheam, Surrey SM2 7NE.

I enclose £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

SU9

48K SINCLAIR ZX SPECTRUM



"NIGHTSHADE" recommended retail price £9.95 inc VAT.
Available from W.H.SMITHS, BOOTS, J.MENZIES, WOOLWORTHS
and all good software retail outlets. Also available from
ULTIMATE PLAY THE GAME, The Green, Ashby-de-la-Zouch, Leicestershire LE6 5JU
(P&P are included) Tel: 0530 411485

Gyron was not just a load of spheres. Chris Bourne visits the elite programmers who raise software to a classic art form

QUESTION: Who takes over a year to write a hit game these days? Answer: Torus does.

Torus is one of those creative teams, like Denton Designs, which writes programs for other companies, either on spec or according to commission. The advantage is security — you don't get involved with advertising rates and all the overheads of a marketing operation. The disadvantage is you don't see anything like as much loot if your game hits big.

The game which took more than a year was **Gyron**, a *Sinclair User Classic*, and one of the most original and baffling productions of 1985. You have to travel through the mazes of the Atrium and Necropolis, avoiding huge blue balls that roll along the corridors. Towers overhang your progress, and impede it — shoot them and they turn, producing new complex patterns in the maze, and affecting your strategy for success.

The programming is extraordinarily fine — too good, if anything, as you don't necessarily appreciate it all when you play. This is the tale of Ricardo and his gigantic rolling balls.

Ricardo Pinto and Dominic Prior began it together. They were both mathematicians with degrees from Dundee and Oxford respectively. Ricardo is also something of an artist. The Torus office has his pen and ink drawings on the wall, a heady cross between Japanese art and the sensual, obscene caricatures of Aubrey Beardsley. Ricardo sees games as a potential art form. Dominic, he says "is fixated on the equipment."

What seems to have spurred Ricardo and Dominic to the first steps was simple hatred of the games they saw on the market. Ricardo is particularly venomous about *Ultimate* and *Imagine*. "We saw *Pssst*, and *Ah Diddums*. I said, that is absolute rubbish, I can do better." In London they met the shadowy figure of John Dixon. Dixon wanted to make money.

Dixon was a 50-year-old semi-American of distinct bohemian tastes, who claimed to have managed various pop groups in the past. He reckoned he could take Ricardo and Dominic to the top in software.

"We started working in January of last year," says Ricardo, "in a flat in Chelsea. Lots of things we asked the machine to do were ridiculous. 'Why can't we do this?' I cried, shouting and stamping my foot in a tantrum." Theatrical lad, our Ricardo.

The group expanded to include two other programmers, Philip Machan, the games freak, and Mark Whigton. Philip studies computer design at Edinburgh University, and Mark studies artificial intelligence.

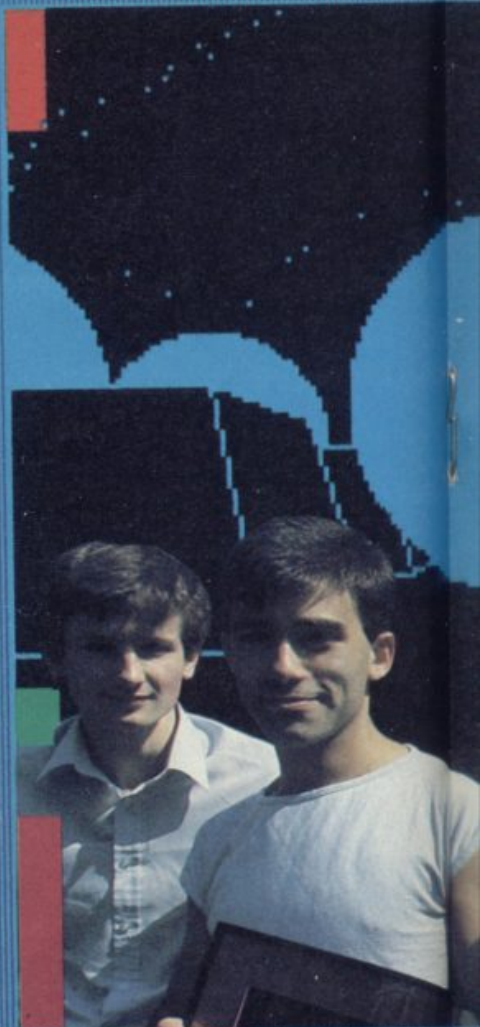
"Complicated abstract networks and rotating objects," is what Dominic says was the concept behind **Gyron**. "The potential for graphics on the Spectrum is amazing."

If you rewrite the ROM, that is. Torus did. The ROM draw routine in the Spectrum is ten times slower than that used in **Gyron**. "We are totally disgusted by sprites," says Ricardo. "The balls in the trenches range from two pixels to 512 in diameter. There's no way you could do that with sprites. We modelled a 3D world and then created two windows onto it. There are billions of possible views, even without the spheres."

Once they're off on the glories of their programming there's no stopping them. Oddly enough, they don't sound immodest about it. They speak with such impatient joy in the elegance of programming that it's more like listening to a charismatic preacher than a self-important bore.

"There are eight different line draw routines," says Dominic. Ricardo clarifies. "We removed as much superfluous coding as we could. The Spectrum draws a circle in 1040 milliseconds. We do it in 14. A solid sphere takes 20 milliseconds."

It appears that Sinclair Research uses SIN and COS functions to work out the circle. Impressive? Not on your life. "Our circles are rounder than theirs," says Ricardo, proudly. "You never use Trig. Our most complicated function is a division. There is a division somewhere, isn't there,



The balls in their courts: Dominic, Ricardo, Mark and Phil.

GYRANT



Dominic?"

As if speeding up the drawing routines wasn't enough, the **Gyron** team decided they needed a spare screen. One wasn't enough. "Using a spare screen takes only 23 milliseconds to redraw the frame," says Dominic, who thinks in such units.

What you see, therefore, are intermittent frames, one from the normal display file and the other from an alternative display. The objects might be on one frame and the maze on another. That enables Torus to use more than two colours on the screen without getting the attributes in a mess.

The spheres are drawn using the machine stack, thus disabling all interrupts. Interrupt two is used for the icosahedron, which spins impressively in the corner. Don't ask me how. Ricardo says it's a fossil from an earlier age, and Dominic reckons it's

all to do with block dumps.

That was all done with a few Spectrums and televisions and tape decks. "With batteries," says Ricardo. "We spent whole days getting the tape decks to work. John was continually hassling us. We were really enjoying it but it was very hard work. It took three months to write the program to do the spheres."

Originally the game was to be set in a straight trench, but then the lads had the idea of getting it to turn round corners. Ricardo wasn't too keen on the idea of a standard trench game with trap doors and monsters. The spheres were Ricardo's idea of an impervious chunk of wall which moved around. He wanted a game with balls. "All this time John kept coming along and sabotaging our thoughts. I was hysterically keen on the balls. I came in one morning to find John had persuaded everybody otherwise."

The towers took a long time coming. Originally they dangled from the walls of the maze and shot at you.

Eventually the towers became blocks in the maze which could be turned. They affect each other, and the system becomes 'closed' as Ricardo puts it. In spite of all the industrious programming, the maze was only finally designed in January of this year and the towers were not even certain then. Some months earlier Mark and Phil had joined.

"Phil was manic. It was good for us," says Ricardo. "We tended to be too aesthetic and esoteric."

By now Dixon was hot on the track of a deal, but his protégés were becoming increasingly disenchanted with their fairy godfather. "Thorn EMI offered us a derisory deal," says Ricardo. "We went to Firebird and showed it to Tony Rainbird who loved it."

Finally, and fortunately, the deal was struck. "Twelve months to write the game and another two of litigation to get rid of John," says Ricardo. "We haven't made any money out of it. We work incredibly hard and we're very thorough and conscientious and all that sort of rubbish . . ."

The project currently occupying the fevered brains of Torus is the long-awaited Spectrum conversion of **Elite**, the best-selling BBC space game. It's a massive space trading game, with wireframe graphics and shoot-em-up sequences, docking manoeuvres and the like. It bears a superficial resemblance to Melbourne House's **Starion**, via the graphics, but its obvious ancestor is the science fiction answer to *Dungeons and Dragons*, the role-playing game *Traveller*.

Firebird bought the rights, against stiff competition, for Commodore and Spectrum versions, and the game should be released in September.

"Originally we decided to take it on for the money," says Ricardo. "It's an interesting experience," says Phil, finally getting in on the act as Ricardo pauses to wonder what has changed about his motives for doing the job. "We'd prefer to be doing our own design," he says, eventually. "But in spite of that we're doing the best job we can on **Elite**. We want to make the previous one look silly."

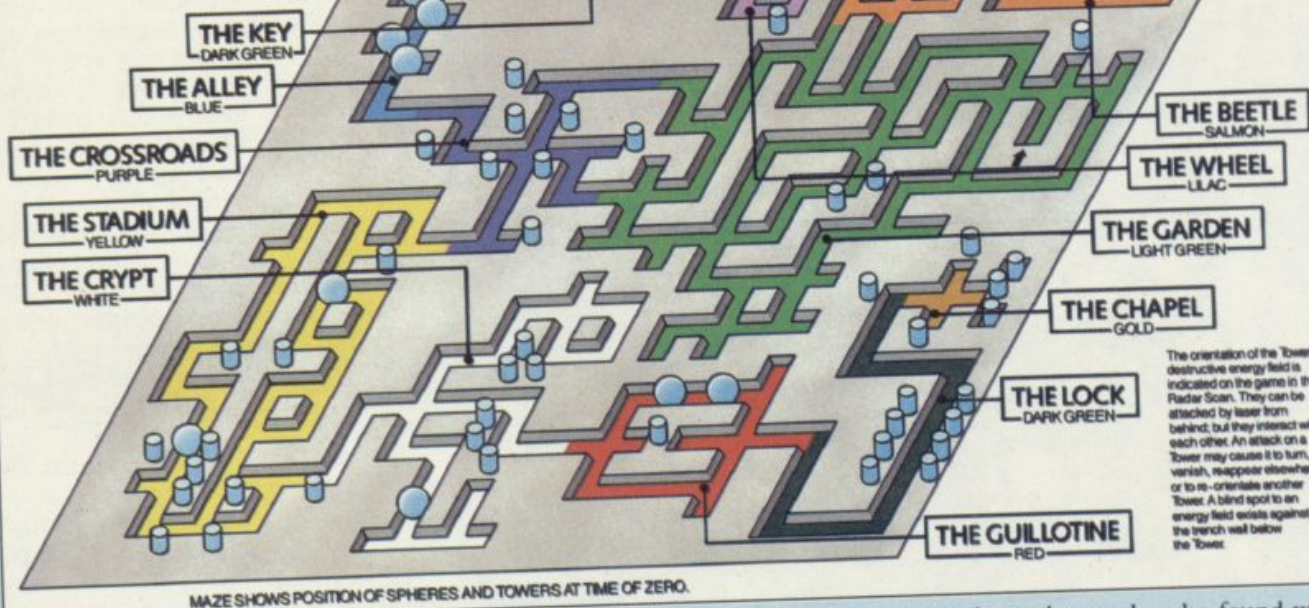
"There's plenty of room to do that," says Phil, ironically.

Later, Ricardo is more enthusiastic. "We've put a lot of careful thought

continued page 60

GYRON

ATRIUM LABYRINTH



continued from page 59

into it," he says. "I suppose we'd always want to do our own designs, but we have made a few little improvements to it. It will be much better than the Commodore version, anyway, with smoother graphics. As good, if not better, than the original BBC game."

Ricardo and Phil's hesitancy is because *Elite* wasn't their concept, and they themselves are not generally impressed by games based on earlier concepts. Their own ideas hover somewhere in the stratosphere of raw imagination.

Dominic finally hustles the interview towards a Spectrum as the conversation turns to the future. He has been twitching to get at it all afternoon. "Look," he says, showing a screen from *Gyron*, "that's what you get by pointing your camera out of the front end of a car." It's a standard, 3-D perspective image. "We'd like to do different things, *Alice through the Looking Glass* type things."

"Graphics through a fish-eye lens," interjects Ricardo. "*Gyron* is rather like a sculpture, a mobile thing. What annoys us is the market does not seem to have responded to it. British Telecom — who own Firebird — tell us it's the time of the year."

It is difficult to get into *Gyron*, for sure — it takes a good hour of play before the game begins to open up. "It was geared to an older audience," says Ricardo. "Not 6-11 year olds. The Necropolis is too difficult, some play-testers were not able to play it all."

And it is complex, there's no doubt about it. The routes the balls take are

predetermined, but at six frames a second it would take 15 billion years to work through all the possible permutations. "You could measure the history of the universe with it," says Ricardo, dreamily. "You could use it as a tool for divination. All sorts of ridiculous ideas..."

What if people don't want games

'We didn't write Gyron to make money. It was a very sincere thing'

which measure the history of the universe? What if they just want to fall off Clumsy Colin's *Action Bike* all day long?

"We should cultivate them," says Dominic. "Get the public to appreciate a decent game." They all look — or is it paranoia — as if they expect *Sinclair User* to do something about it.

"We didn't write *Gyron* to make money," says Ricardo. "It was a very sincere thing." He laughs, sincerely. "It's not like distributors saying 'we want three green things bouncing around the screen'. When we see that sort of game we reach for the paper sick bags."

They really want to believe in the future of computer-art-game-theory. You can see them psyching each other up to it.

"As more people come along who are not sprite cowboys... you'll get people who found writing books

wasn't good enough, who found writing music wasn't good enough. Opera is supposed to be the ultimate in art — drama and music together. With computers, instead of sitting there with 2000 people watching a woman screaming, you could actually do things. You could be the king for real.

"There is no way this is going to stay the province of 12 year olds."

Are there no games that win the approval of Torus? Nothing at all?

"3D Ant Attack," says Phil. "We thought that was amazing. After that nothing happened. *Jet Set Willy*? TLL was hysterical. I suppose *Shadowfire* is interesting."

"Most games are loathsome," says Ricardo. "*Jet Set Willy* was amusing, but there's nothing much I can think of. *Elite* is quite impressive — we have heard people say there's no point in buying *Elite* because of other games around. We've looked at other programs, and found their claims quite stupid."

It all boils down to originality and imagination. "That's why *Starion* is junk and *Elite* is bearable."

You know, if Ricardo and Dominic and Phil and Mark do succeed in transforming games into grand opera, and take us all to the stars, they will be on a level with the guy who invented chess. And if they fail, we will snigger, and say, 'what a bunch of prats.' That's the way it goes with genius.

They all live in Edinburgh now, in much quieter and prettier surroundings to that flat in Chelsea. Whatever you think of their theories, keep an eye out for their next game. And polish up your singing voice...

**24hr CREDIT CARD
ORDERS TEL:
(0924) 409753**

	Company	Price	HARDWARE
Speakers	Singular	3.00	SPECTRUM PLUS CS300 free Software
Splicing	Singular	3.00	SINCLAIR GL
Staking	Singular	3.50	CANON PW1070A PRINTER
	Singular	3.50	MANNESTAM TALLY M780
	Singular	3.50	PRINTER (Centronics)
ated 1	Singular	5.00	SHINWA CP80 PRINTER (Ce
ated 2	Singular	5.00	SHINWA CP80 PRINTER
ated 3	Singular	5.00	(Centronics)
ated 5	Singular	5.00	MICROVITEC MZ1431 (SI
	Singular	7.15	MONITOR
	Singular	5.00	MICROVITEC MQ1451 (LO
ath	Singular	5.00	MONITOR
	Singular	5.00	PHILIPS GREENSCREEN MO
	Singular	3.00	3 CHANNEL SOUND
	Singular	8.00	CURPHX MICRO/SPEECH
	Singular	3.50	VOX BOX
ems	Singular	6.50	VTX 5000 MODEM
	Singular	5.00	KEMPSON INTERFACE
press	Singular	6.25	TECHNICS DUAL PORT IN
	Singular	4.50	BUD INTERFACE + rest of
	Singular	4.50	DATAL ELECTRONICS INTER
	Singular	6.50	CAMBRIDGE PROGRAMMA
omputer	Singular	4.50	JOYSTICK + INTERFACE +
	Singular	5.50	PROGRAM
	Software Projects	5.35	DK TECHNICS PROGRAMMA
	Software Projects	5.35	INTERFACE
	Software Projects	7.15	QUICKSHOT II JOYSTICK
Interceptor/Type 3	System 3	7.15	FORMULA 1 JOYSTICK
	Tasman	8.95	JOYSTICK SA-5 JOYSTICK
	Tasman	8.95	SPECTRUM PVC COVER
	Tasman	8.95	SPECTRUM PLUS PVC COVER
	Tasman	8.95	SAGA EMPLOY PVC COVER
	Tasman	8.95	CURPHX MICRO/
	The Edge	7.15	EXTENSION TO KEYWAY (R
ax	The Edge	7.15	MICRODRIVE EXTENSION L
	The Edge	7.15	12MB 4-BOARD
	Ultimate	8.95	SLOMO (Game speed contr
	Ultimate	2.75	ON/OFF SWITCH
	Ultimate	4.95	SPECTRADOS to CENTRONI
	Ultimate	4.95	lead
	Ultimate	4.95	WAFADIVE to CENTRONICS
	Ultimate	4.95	lead
	Ultimate	8.95	1/RECOVERY 1
	Ultimate	8.95	ZK EXPANSION SYSTEM (I
	Ultimate	8.95	Microdrive/Interface 1/7a
	Ultimate	8.95	Two Master/II Anti Attack
	Ultimate	8.95	Designer
	US Gold	7.15	ZK INTERFACE 1
	US Gold	7.15	ZK MICRODRIVE
	US Gold	7.15	SPECTRADOS DDOS
oscow	US Gold	7.95	
	US Gold	7.15	PARRIT, 3M DISKET
	US Gold	7.15	SS DD 101 40 for
	US Gold	7.15	SS DD 101 40 for
ager	US Gold	7.15	SS DD 101 40 for
	Virgin	5.35	Parrit diskettes include free
	Virgin	5.35	CENTRONICS PRINTER IN
	Virgin	7.15	KEMPSON INTERFACE 5 (C
	Virgin	5.35	Spectrum/Amstrad/Printer
	Visions	3.50	SPECTRUM PLUS CS300
	Visions	3.50	KEMPSON INTERFACE 5 (C
	Visions	4.50	
	Vortex	3.50	TASMAN Interface (Cassett
	Vortex	3.50	Interface as above)
	Vortex	6.25	ZK KEYWAY
	Vortex	6.25	SAGA 1 MPB FOR KEYBOARD
	Wyvern	5.35	SS DD 101 40 for
	Wyvern	4.95	LIGHT WRITER
	Wyvern	4.95	MICRODRIVE CARTRIDGE

HARDWARE
SPECTRUM PLUS (350 free Software)
SINCLAIR QL
CANON PW1080A PRINTER
MANNESSMAN TALLY MT80 PLUS PRINTER (Centronics)
SHINKA 5080 PRINTER (Centronics)
SHINKA CP80 PRINTER (Centronics)
MICROVITEC M21431 (SPECTRUM) MONITOR
MICROVITEC MQ1451 (QL) MONITOR
PHILLIPS GREENSCREEN MONITOR
3 CHANNEL SOUND
CURRAM MICRO-SPEECH VOX BOX
VTX 5000 MODEM
KEMPSTON INTERFACE
CENTRONICS DUAL PORT INTERFACE
RUO INTERFACE (+ nest switch)
DATAL ELECTRONICS INTERFACE
CARTRIDGE PROGRAMMABLE JOYSTICK
+ INTERFACE + PROGRAM
DK TRONICS PROGRAMMABLE INTERFACE
QUICKSHOT II JOYSTICK
FORMULA 1 JOYSTICK
3X 8000 SAGOT JOYSTICK
SPECTRUM P/C COVER
SPECTRUM PLUS P/C COVER
SAGA EMPEROR P/C COVER
CARMICHAEL MICRO-EXTENSION TO KEYWAY (Ribbon)
MICROVITEC EXTENSION LEAD
SAGA EMPEROR (Game speed controller)
ON/OFF SWITCH
SPECTRADOS to CENTRONICS PRINT LEAD
WAFADORE to CENTRONICS PRINT LEAD
DISCOVERY 1
ZX SPECTRAN SYSTEM (includes Microvitec/Interface 1/4word Two Master/slave Att/Attack/Games Discs)
ZX INTERFACE 1
ZX INTERFACE 2
SPECTRADOS DODDS
PARROT .3M DISKETTES
SUS 020 40T for 10
SUS 020 40T for 10
SUS 020 40T for 10
Parrot diskettes include free plastic Centronics Printer Interface 1 (from for Spectrum-Centronics Printer)
KEMPSTON INTERFACE-S (Cassette Interface)
TASMAN INTERFACE (Cassette Base Interface as above)
SAGA EMPEROR KEYBOARD
SAGA EMPEROR PRINTER
LIGHT WRITER
MICROVITEC CARTRIDGE JOYSTICK

This offer applies only while stocks last.



Accumulating logic in the heart of the machine

ONE SET of extremely useful instructions in Z80 machine code is known as 'logic' instructions. Those are similar to the logic instructions available in Basic, such as AND and OR.

We will look at those, and then develop a set of picture routines which will allow you to hold more than one screen in memory, copy from one to another, exchange them and merge them together.

When writing programs using Basic, most people have used instructions such as

IF key = "Z" OR key = "X" THEN ...

in their programs. If you have read the section in the User Manual, then you'll also know that all those instructions return TRUE and FALSE values, where

TRUE = 1

and FALSE = 0

That means that if we write the following code:

```
LET a = 1
LET b = 0
PRINT a AND b
PRINT a OR b
PRINT NOT a
```

it will print '0', '1' and '0'. Also, typing

```
PRINT a>b
PRINT b>a
```

will print '1' and '0', because 'a' is greater than 'b' is true, but not vice versa. In fact, you'll find that any non-zero value is true. Try changing the value of 'a' to a different number in the above code. You may be surprised by some of the results, but if you try something like

IF 15 THEN PRINT "The number 15 can also represent TRUE" you will see what we mean.

What is the point of all this? Well, try

```
PRINT 99 AND 77
```

on the Spectrum, and you will get the answer 99. On most computers such as the BBC micro and Commodore 64 — that would give the result 65! The computer came up with that unexpected result by testing the individual bits of the numbers, with each bit representing its own true/false value.

We can see that better by consider-

Marcus Jeffery introduces more marvels of machine code programming

ing the logic in binary:

1100011 (99)

AND 1001101 (77)

gives 1000001 (65)

Even on the Spectrum, when you're working in Z80 machine code. ANDs and ORs work in the same way. So if we had the assembly code

LD A,15 (00001111 in binary)

OR 60 (00111100)

then the value remaining in the accumulator would be 63 (binary

00111111). If we then had

AND 170 (10101010)

we would end up with 42 (101010) in the accumulator — I wonder if that is the way Deep Thought found the ultimate answer in the *Hitchhiker's Guide to the Galaxy*!

The AND and OR instructions always return a result in the accumulator, so there is no need to specify that in the assembly language instruction. All those instructions are shown in figure one. For each bit in the two bytes which are being logically ANDed or ORed, the following apply:

bit 1	bit 2	b1 AND b2
0	0	0
0	1	0
1	0	0
1	1	1

Figure 2.

		ORG	60000	
		LOAD	60000	
EA60	210040	MERGE	LD	HL,16384
EA63	ED5BB05C		LD	DE,(23728)
EA67	010018		LD	BC,6144
EA6A	1A	MNEXT	LD	A,(DE)
EA6B	B6		OR	(HL)
EA6C	77		LD	(HL),A
EA6D	23		HL	
EA6E	13		INC	DE
EA6F	0B		DEC	BC
EA70	78		LD	A,B
EA71	B1		OR	C
EA72	20F6	JR	NZ,MNEXT	
EA74	C9		RET	
				:Repeat for complete screen
EA75	210040	COPY1	LD	HL,16384
EA78	ED5BB05C		LD	DE,(23728)
EA7C	010018		LD	BC,6144
EA7F	EDB0		LDIR	
EA81	C9		RET	
				:Perform copy (HL) to (DE)
EA82	2AB05C	COPY2	LD	HL,(23728)
EA85	110040		LD	DE,16384
EA88	010018		LD	BC,6144
EA8B	EDB0		LDIR	
EA8D	C9		RET	
				:Perform copy (HL) to (DE)
EA8E	210040	EXCH	LD	HL,16384
EA91	ED5BB05C		LD	DE,(23728)
EA95	010018		LD	BC,6144
EA98	1A	EBYTE	LD	A,(DE)
EA99	08		EX	AF,AF
EA9A	7E		LD	A,(HL)
EA9B	12		LD	(DE),A
EA9C	08		EX	AF,AF
EA9D	77		LD	(HL),A
EA9E	23		INC	HL
EA9F	13		INC	DE
EAA0	0B		DEC	BC
EAA1	78		LD	A,B
EAA2	B1		OR	C
EAA3	20F3	JR	NZ,EBYTE	
EAA5	C9		RET	
				:Loop for complete screen
			END	

Workarea - A50C to A66D
ORG end - EAA6
LOAD end - EAA6

bit 1	bit 2	b1 OR b2
0	0	0
0	1	1
1	0	1
1	1	1

There is another instruction available in Z80. That is an exclusive-or instruction, and is represented by XOR. This can be thought of as 'if bit one is true or bit two is true, but not both'. The logic table is as follows:

bit 1	bit 2	b1 XOR b2
0	0	0
0	1	1
1	0	1
1	1	0

One special use of the XOR instruc-

Figure 3.

```

10 CLEAR 53849
20 POKE 23728,90: POKE 23729,2
10
30 GO SUB 1000
40 CLS : PRINT AT 7,9:"Let's
call this"
50 PRINT AT 8,9:"<<<SCREEN ONE
>>>"
60 PAUSE 100
70 RANDOMIZE USR 60021
80 CLS : PRINT AT 7,11:"This i
s then"
90 PRINT AT 8,9:"<<<SCREEN TWO
>>>"
100 PAUSE 100
110 RANDOMIZE USR 60046: PAUSE
20
120 IF INKEY$="" THEN GO TO 11 0
130 RANDOMIZE USR 60000
140 PRINT AT 13,4:"Now we've go
t both at once!"
150 STOP
1000 REM HEX LOAD ROUTINE
1010 DEF FN p(x)=CODE h$(x)-48-7
*(CODE h$(x))=65)
1020 LET byte=0
1030 RESTORE 2000
1040 READ start
1050 READ h$
1060 IF h$="" THEN GO TO 1160
1070 IF LEN h$<>2*INT (LEN h$/2)
THEN PRINT "Odd number of hex
digits in: ";h$: STOP
1080 FOR i=1 TO LEN h$
1090 IF NOT ((h$(i)>="0" AND h$(
i)<="9") OR (h$(i)>="A" AND h$(i
)<="F")) THEN PRINT "Illegal h
ex digit: ";h$(i): STOP
1100 NEXT i
1110 FOR i=1 TO LEN h$ STEP 2
1120 POKE start+byte,16*FN p(i)+
FN p(i+1)
1130 LET byte=byte+1
1140 NEXT i
1150 GO TO 1050
1160 PRINT "Code entered"
1170 PAUSE 150
1180 RETURN
2000 DATA 60000,"210040"
2010 DATA "ED5BB05C","010018"
2020 DATA "1A","B6","77","23"
2030 DATA "13","0B","78","B1"
2040 DATA "20F6","C9"
2050 DATA "210040","ED5BB05C"
2060 DATA "010018","EDB0","C9"
2070 DATA "2AB05C","110040"
2080 DATA "010018","EDB0","C9"
2090 DATA "210040","ED5BB05C"
2100 DATA "010018","1A","08"
2110 DATA "7E","12","08","77"
2120 DATA "23","13","0B","78"
2130 DATA "B1","20F3","C9","*"

```

Figure 1 New Z80 instruction codes

AND byte — AND the contents of the A register with the byte value.
AND reg — AND the contents of the specified register with the accumulator.
AND (HL) — AND the contents of the memory location addressed by the HL register pair with the accumulator.
OR byte — OR the contents of the A register with the byte value.
OR reg — OR the contents of the specified register with the accumulator.
OR (HL) — OR the contents of the memory location addressed by the HL register pair with the accumulator.
XOR byte — Exclusive — OR the contents of the A register with the specified byte.
XOR reg — Exclusive — OR the contents of the specified register with the accumulator.
XOR (HL) — Exclusive — OR the contents of the memory location addressed by the HL register pair with the accumulator.
CPL — Complement the accumulator.

tion which you may come across is

XOR A

What's the use of exclusive-ORing the A register with itself? Let us say the accumulator contained the value 19 (00010011 in binary). If we execute the instruction 'XOR A', the following operation is executed:

```

00010011
XOR 00010011

```

gives 00000000

In other words, it clears the accumulator, whatever it contains.

That might, for instance, be used before some addition or subtraction instructions. You could, of course, use the instruction 'LD A,0', but that requires an extra byte and takes seven clock cycles rather than four for the XOR instruction.

Finally, the NOT operation is known in machine code as CPL which stands for 'complement'. That reverses all the bits in the accumulator, so '1's become '0' and vice versa.

Now to the picture routines. There are four routines, altogether, and you could easily add your own. They all operate on a principle which uses an

area of memory as though it were screen memory. Though we cannot see that area of memory, as we do with the real screen, we can still put it to all sorts of uses.

The assembly code is given in figure two, with the Basic loader and application code in figure three. Before typing them in, let us look at one or two ways in which the logic instructions have been used.

The first routine, MERGE — use RANDOMIZE USR 60000 — will combine the present screen picture with another presently in memory. Each screen pixel is either lit or unlit, which is a '1' or '0' respectively in screen memory. So, to combine them, we just need to OR all the bits. Doing that for a couple of diagonal lines in one character is shown in figure four. The logic instruction that does this is

OR (HL)

which ORs the accumulator — containing a byte from the additional screen in memory — with the corresponding byte from the real, visible screen.

You might like to try changing that instruction to 'XOR (HL)'; change

continued on page 64

Figure 4.

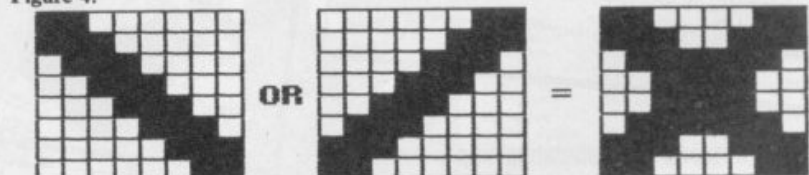


Figure 5.

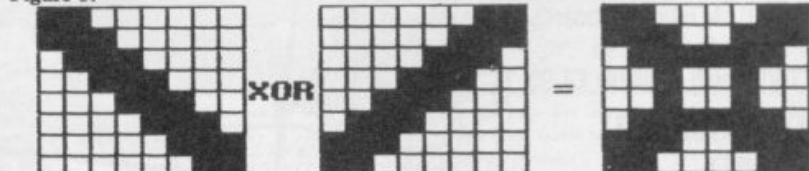
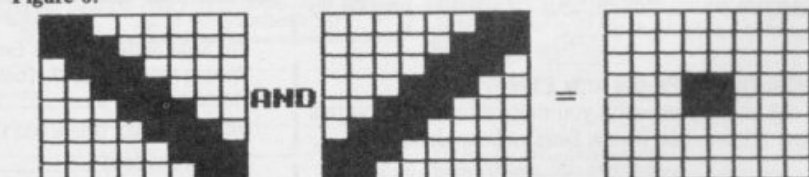


Figure 6.



Machine Code

continued from page 63

"B6" to "AE" in line 2020 of the Basic loader to get more unusual effects, as shown in figure five. You could also change it to 'AND (HL)' "B6" to "A6", as in figure six.

The other way we have used logic in this routine is the OR C which is used to check for the end of the loop. We are effectively counting down the BC register pair until it reaches zero. Unfortunately, we cannot check a register pair. What we are really doing is jumping to MNEXT if either of B or C is not zero. That could be done by checking B, and jumping if not zero (JR NZ), then checking C and jumping if not zero. However, we can get the same effect by ORing the register values and jumping. That is a fairly standard and accepted method of completing loops where the loop counter exceeds one byte, that is, 255.

We have used the same looping technique in EXCH — use RANDOMIZE USR 60046 — which will exchange the picture in memory with the real screen. Do not worry about the meaning of the 'EX AF, AF' instructions. They are only used to save and restore the accumulator, and you could just as easily use 'PUSH

Figure 7.

User Defined Graphics	65535
Unused	65367
Machine Code Program	60070
Unused	60000
Alternate Screen	59994
	53850

AF', for the first, and 'POP AF', for the second, but the instruction used works faster.

The other two routines are COPY1 (RANDOMIZE USR 60021) which will copy the visible screen to memory, and COPY2 (RANDOMIZE USR 60034) which does the opposite. The LDIR instruction effectively replaces the series of instructions:

```

LOOP LD A, (HL)
      LD (DE), A
      INC HL
      INC DE
      LD A,B
      OR C
      JR NZ,LOOP
  
```

— a very useful instruction which we

will be considering at a future date.

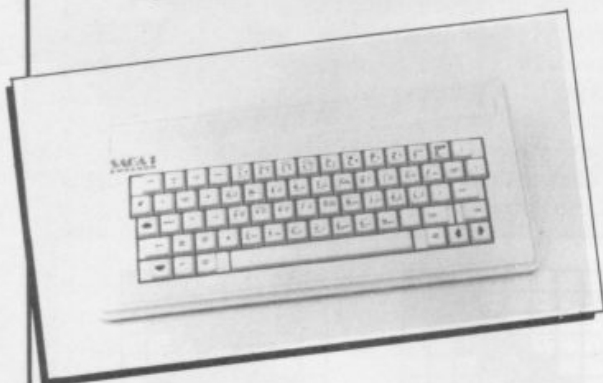
To use the routines, you have to initially CLEAR room for the invisible screen. In the Basic example, that screen has been placed in the 6144 bytes from location 53850. That is the reason for the CLEAR 53849 instruction. To specify that this is the screen for the routines to use, the first screen location has to be POKed into the two locations 23728 and 23729. Those are two unused locations in the area used for Spectrum system variables — see pages 127-130 of the *Spectrum User Guide*. Those locations are very useful, keeping the screen location safely out of the way of any machine code application programs.

The numbers which should be poked into these locations are

POKE 23728, screen — 256 * INT (screen / 256)

and POKE 23729, screen / 256
The way the memory has been used in the example program is shown in figure seven. Of course, there's no reason why, by changing the values in locations 23728 and 23729, you should not hold a number of hidden screens, using the routines to carry out operations on all of them.

YOU'VE GOT TO HAVE STYLE



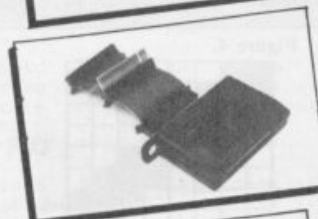
The Saga 1 Emperor is a substantial improvement for the Spectrum making obsolete the "Stretch requirement" of other keyboards and is easy to use with 27 extra keys. £49.95
DUSTCOVER also available £4.95

HUNTERS CORNER! SOUNDBOOST

For adjustable sound through your TV speaker, only £9.95



The Lo Profile contoured keyboard incorporates a number pad and is colour matched. A great improvement for the Spectrum with 13 extra keys. £49.95



Outperforming all Spectrum interfaces, the TURBO interface from RAM Electronics incorporates two Joystick ports, ROM cartridge slot and an expansion bus at rear. Excellent value £22.95

FLEXICABLE: With two Expansion Bus Ports only £12.95



FOR GREAT GRAPHICS — YOU'VE GOT TO HAVE STYLE

Style is a multifunction device comprising Interface and graphics Software. The software is easy to use and fast. The Interface is fully kempston compatible, has built in kempston joystick port and an A-D converter. Excellent value at £29.95

IBICO Letter Quality Printer only £120

Write or call and we will send you more information on this exceptional printer. See review *Sinclair User* June 1985.

Stop Press: Saga 3 elite available September 15th. Price £79.95. For further details write or call

To: Saga Systems Ltd, 2 Eve Road, Woking, Surrey GU21 4JT

Woking (04862) 22977. Telex: 8813487

Please send me

VAT is included; please add £1 for post and packing.

Amount enclosed £

Access Card No.

Signature

Address

Telephone your Access order on: Woking (04862) 22977. Telex: 8813487

COMPUTERS	
Sinclair Spectrum+	£125.95
Sinclair QL	£395.00
QL Centronics Interface	£29.95

SOFTWARE
Full range of games and educational software,
catalogue available on request
for most leading machines
(Please send SAE Normal Postage)

ACCESSORIES	
Power Packs	£8.95
Sanyo DR101 Data Recorders	£34.95
Sanyo DR202 Data Recorders	£41.95
Spectrum on/off Switches	£5.95
Datex DR6	£24.95
Dk'tronics Lightpen	£19.95
Currah Speech	£29.95
Currah Slot	£14.95
Dk'tronics 3 Channel Sound Synthesiser	£29.95
Rotronics Carrying Case	£34.95
Ferguson 3T31 Digital Data Rec	£29.95

PRINTERS	
Alphacom 32	£69.95
Timex Thermal	£79.95
Brother EP22 Printer/Typewriter	£159.95
Brother EP44 Printer/Typewriter	£229.95
Brother HR5 Thermal	£119.95
Brother M1009	£199.95
Tractor Feed for Brother M1009	£17.50
Mannesmann Tally MT80+	£242.95*
Canon PW1080A	£375.95*
*Inc Free Lead	

NEW HORIZON

COMPUTER CENTRES LTD.

Mail Order Service
Sinclair Flat Screen TV £97.95

KEYBOARDS	
Saga Emperor	£49.95
Dk'tronics	£32.95

MICRODRIVES	
Micro-drive Expansion pack	£99.95
ZX — Microdrive	£49.95
Microdrive Cartridges	£1.99
Microdrive Storage Box (holds 20)	£5.95

SPECTRUM REPAIRS
£21.00 Including all parts and labour
(fast reliable service)

JOYSTICKS	
Quickshot II	£8.75
Gunshot II	£9.95
Arcade (Steel Shaft)	£17.95
Arcade Turbo	£22.95
Competition Pro	£19.95
Quickshot II with Interface	£16.95

INTERFACES	
RAM Turbo	£22.95
Dk'tronics Programmable	£22.95
Dk'tronics Dual Port	£13.00
RAM MkII	£9.95
AGF Protocol Programmable	£29.95
Com Com	£19.95
Dk'tronics Centronics Printer Interface	£39.95
Kempston Centronics Printer Interface	£39.95
Dk'tronics 56-way ext cable	£9.95

WAFADRIVE	
Rotronics Wafadrive	£128.95
Wafadrive Cartridges	
16K	£3.50
64K	£3.65

All prices include VAT, post and packing
Cheques + PO's made payable to:
NEW HORIZON COMPUTER CENTRES LTD

ACCESS AND BARCLAYCARD BY TELEPHONE WITH PLEASURE



DOMALEX HOUSE, 50-52 GEORGE STREET, WALSALL WS1 1RS
TELEPHONE 0922 30701 24HRS SERVICE



THE FABULOUS
CASSETTE

50

FROM
cascade

YEAH.
PLUS A FREE
CALCULATOR
WATCH

VALUE
THAT'S OUT
OF THIS
WORLD.

YOURS
FOR ONLY
£9.95
POSTAGE FREE

FREE with every order
for a cassette 50

20 Key, Multifunction
Calculator Watch

- Normal 12 and 24 hour time mode
- Calendar mode
- Calculator mode
- Alarm mode



Worth
over
£10.00

CASSETTE 50 IS AVAILABLE ON
BBC AIB ATARI DRAGON ELECTRON
VIC-20 ORIC-1 ZX81 Apple Atmos
Spectrum commodore 64 AMSTRAD

**EXPRESS DELIVERY-
ORDER NOW!**
and get your **FREE calculator watch**
with every **Cassette 50**

Name _____
Address _____
Post Code _____
Country _____ SU 9/85

Spectrum 16k/48k or +

'Incredibly frustrating!' - that's the verdict on
Cassette-50's FROGGER. Satisfied users tell
us it's one of the most challenging you'll find
- it's almost as good as the arcade version!
CARGO has you trying desperately to
complete your helicopter mission under
attack. Plus 48 other tactical, logical and
adventure games featuring multi-coloured and
user-defined graphics, scrolling and full use of
the Spectrum sound capabilities.

- | | | |
|-------------------|----------------|---------------------|
| 1. Muncher | 18. Ski Run | 36. Draggold |
| 2. Ski Jump | 19. Tanks | 37. Space Search |
| 3. Basketball | 20. Solar Ship | 38. Inferno |
| 4. Frogger | 21. Ten Pins | 39. Nim |
| 5. Breakout | 22. Cars | 40. Voyager |
| 6. Crusher | 23. Stomper | 41. Sketch Pad |
| 7. Startrek | 24. Pinball | 42. Blitz |
| 8. Martian | 25. Cavern | 43. Fishing Mission |
| 9. Knockout | 26. Laser | 44. Mystical |
| 10. Boggles | 27. Alien | 45. Diamonds |
| 11. Alien Attack | 28. Cargo | 46. Galaxy Defence |
| 12. Lunar Landing | 29. The Race | 47. Cypher |
| 13. Maze Eater | 30. The Skull | 48. Jetmobile |
| 14. Microtrap | 31. Orbit | 49. Barrel Jump |
| 15. Motorway | 32. Munch | 50. Attacker |
| 16. Labyrinth | 33. Bowls | |
| 17. Skittles | 34. Raiders | |
| | 35. Field | |

Names and games may vary for each type of computer.

Postage FREE. Goods will be despatched within 7 days.

I enclose a cheque/ _____ made payable to
postal order for £ _____ Cascade Games Ltd.

or through any Post Office by TRANSASH (Giro No. 655 6655)
For even faster ordering when charging to Access, Barclaycard and
Trustcard Visa use our 24 hour service. (0423) 504663

_____ No. _____

COMMODORE 64 ☐ VIC 20 ☐ ORIC-1 ☐ BBC AIB ☐
AMSTRAD ☐ ELECTRON ☐ ZX 81 ☐ APPLE ☐
ATARI ☐ ATMOS ☐ DRAGON ☐

Cascade Games Ltd.,
1-3 Haywa Crescent, Harrogate,
North Yorkshire, HG1 5BG, England.
Telephone: (0423) 504663 Registered Number 1755554



Nice Password. Shame about the Identity.

It's a unique combination.

Your Special Identity Number and Personal Password. The valuable key to huge databases teeming with activity, set on our Mainframes across the nation.

On Micronet 800, you're a valued individual, adding your own special flavour and personality to the database.

Take our exciting new "Gallery". You control your personal screens for all to see. The intriguing "Chatline" public conversation service gives you freedom to express your views and meet some remarkable people.

All part of a tremendous Communications section that networks you to 60,000 Micronet and Prestel users across the country. Try Tele-shopping, or interview celebrities live on "Celebrity Chatline" every Wednesday night.

And there's FREE (& instant) National Electronic Mail, plus International Telex, and the Contact and SwapShop bulletin boards.

Get computer news first on Micronet's daily (and controversial)

"Newsflashes" and read up on the latest reviews and courses. Feast from our regularly changing menu of programs to download straight into your micro - absolutely free.

You also get access to Educational Computing's "School Link" and Prestel's huge 300,000 page database, including world news, business & share bulletins and optional homebanking. For only £16.50 per quarter, that's less than the price of a daily paper!

Micronet is unique amongst networks and bulletin boards as it keeps your phone costs very low with

special local* rate calls whenever you connect up - that's around 40p for a whole hours entertainment each evening.

The only accessory you need is a Modem, to get the best value for money around in micro communications.

Fill in the coupon for the full facts and send to Micronet 800, 8 Herbal Hill, London EC1R 5EJ. But be warned, Micronet 800 is a 'living' service with ever-expanding features. So maybe you'd be better to call in at your local Micronet 800 Action Station. There are thousands of Micronetters waiting to meet you!



To: MICRONET 800, Durrant, House, 8 Herbal Hill,
London EC1R 5EJ. Telephone 01-278 3143.
Please send me the full facts about Micronet 800.

Name _____

Make/Model of Micro _____

Address _____

Telephone _____ SU9

* For 98% of telephone users.
Prestel is a trademark of British Telecommunications plc.
On Prestel

See dealer list page 90

THE PROFESSIONAL TOUCH

The NEW Transform Keyboard transforms your Spectrum into a fully operational professional machine.

- Will incorporate both microdrive and power supply.
- 65 keys including fullsize space bar.
- Large ENTER key.
- Full stop, comma, semicolon, colon, single delete, edit and cursor keys.
- ON/OFF switch with LED.
- Easy installation — no soldering.
- Black metal case.
- EMODE key.

"Its price reflects the kind of use to which it will be put, but it's certainly the top keyboard at the moment."
SINCLAIR USER, JUNE 1984



£79.95p
INCLUSIVE

SPECTRUM 48K BUSINESS SOFTWARE

BUSINESS PACK.

£14.95p

This suite of programs includes Sales Day Book, Purchase Day Book and Business Bank Account. These programs are being used by over 1000 companies to produce VAT and annual accounts; the Purchase and Bank Account programs allow for analyses under 17 subheadings. The Sales programs produce statements of outstanding invoices. Both Sales and Purchase programs calculate VAT.

INVOICING.

£15.00p

This program will print out invoices, calculates discounts and VAT. The program will calculate totals from unit prices. Up to 50 accounts with 250 outstanding invoices.

SALES/PURCHASE LEDGER INVOICING £25.00p

This program is for use on microdrive or Opus Disc only. The program will print an invoice using a built-in price list and post the invoice to your customer's account. Will also print price list, statements, labels, etc.

WORDPROCESSING

TASWORD TWO by Tasman

£24.95p

Tasword Two is a powerful word processing program that will perform all the functions available on large processors. The program will give you 64 characters per line on screen.

TASPRINT by Tasman Software

£9.90p

Use this program with Tasword Two to produce 5 different fonts on a dot matrix printer.

PAYROLL

PAYROLL by Byte One

£19.95p

This payroll program will handle up to 40 employees and will calculate NIC, PAYE, superannuation and many other deductions. This is a very user friendly program and extremely good value.

STOCK CONTROL

STOCK CONTROL.

£10.95p

Handles 900 lines, including details of supplier. Program has full search facilities enabling you to search and update all lines from one supplier.

DATABASES

MASTERFILE by Campbell Systems

£14.95p

This is one of the best database programs available for the ZX Spectrum. This program has many uses in a small business.

SUPERFILE.

£14.95p

This is a new database program that stores pages of text 64 columns x 22 rows. The program includes word processing and full search facilities.

V-NOTCH.

£12.95p

Index and Catalogue System, for collections of photographs, recipes, books, knitting patterns, stamps, etc. Up to 3500 items per file full search facilities.

SPREAD SHEET

OMNICALC by Microsphere

£14.95p

This is the long-awaited micro-drive version of omnicalc complete with histograms and many other features.

BUSINESS GRAPHICS

HISTO-GRAPH.

£10.95p

This program will enable you to present figures in histograms or pie charts. Displays 3 years as a direct comparison or 5 years to show a trend. A unique feature of this program is that all the figures can be printed with the histogram.

UTILITIES

DLAN by Campbell Systems

£7.95p

Use your Spectrum to sell your products. Dlan will display messages in up to 11 different typefaces. Will scroll text in any direction.

TASWIDE by Tasman Software

£5.50p

You can use this program within your other programs to display 64 columns on screen.

MF-PRINT by Campbell Systems

£6.95p

Enables you to set a print format for your full-size printer within masterfile. Supplied complete with masterfile for £19.95.

TASMERGE by Tasman Software

£10.95p

Allows you to transfer data from Masterfile into Tasword enabling you to use Tasword for mail merge. The program allows you to specify line and column of each field. For use on micro-drive only.

TRANSEXRESS by Romantic Robot

£9.95p

Micro-drive utility program which will enable you to back-up all your micro-drive cartridges.

TASCOPY by Tasman Software

£9.90p

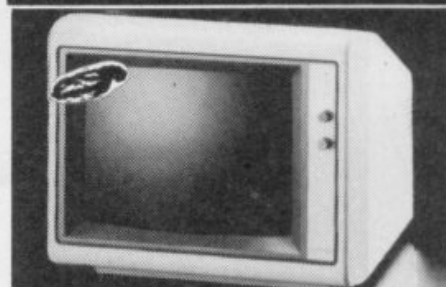
This program allows you to produce 3 sizes of screen copy using Interface 1.

All software is supplied on cassette; if you require any of the business pack or invoicing programs supplied on disc please add £4.00p to the above price.

ACCESSORIES

Blank microdrive cartridges	£1.99p
Microdrive storage boxes	£5.95p
RS 232 lead	£11.50p
Monochrome monitor connector	£11.50p
RGB monitor connector	£45.00p
Centronics interface	£44.90p
3½" floppy discs	£4.81p
Continuous Paper 2000 sheets	£12.98p
Continuous labels 1000	£6.65p

MONITORS



Phillips Black and Green	£75.00p
Kaga/Taxan Black and Green	£99.95p
Sinclair QL Vision	£299.00p

PRINTERS

Centronics/RS 232 interface	£44.90p
-----------------------------	---------

DOT MATRIX PRINTERS.

Brother M1009	£163.00p
Epson LX80	£199.00p
Epson FX80	£324.00p
Taxan Kaga KP810	£280.00p

DAISYWHEEL PRINTERS.

Smith Corona TP1	£189.00p
Brother HR15	£349.00p

Telephone for prices on other printers. Please add £5.00 delivery and VAT to both printers and monitors.

DISC-DRIVES

Discovery 1 by Opus 178k	£199.95p
Discovery 2 by Opus 360k	£329.95p

QL

MAILING LIST.

£14.95p

This program will allow you to quickly store and retrieve names and addresses from within ARCHIVE. Features include single key functions, prints address labels, exports files to Quill for mailing list; also compatible with our stockcontrol file.

STOCK CONTROL.

£14.95p

Keeps a complete record of all your stock items including retail price, trade price, minimum order level, items on order and many other features.

INTEGRATED ACCOUNTS.

£89.95p

This new program from Sinclair will allow you to produce full profit and loss account.

PAYROLL.

£63.25p

Calculates weekly, monthly or 4 weekly payroll full tax calculations, coin analysis and payment rounding.

CENTRONICS INTERFACE

£29.95p

RS 232 LEAD	£10.00p
MONICHROME MONITOR LEAD	£5.00p



TRANSFORM LTD (Dept. SU) 01-658 6350
24, West Oak, Beckenham, Kent BR3 2EZ



QSpell

QL QUILL has always been a favourite word processor of mine. However, without mailmerge and spelling checker facilities it falls behind programs like **Wordstar** for business use.

Eidersoft has started to fill this void with the release of **QSpell**. In addition to checking spellings **QSpell** can be used to help solve crosswords.

Before it can be used a copy and a specially adapted version of **Quill** must be made. Creating the copy, including formatting once, takes about 11 minutes and adding the multi-tasking routine to **Quill** about a minute. Fortunately, that is done just the once. The routine makes **Quill** reminiscent of earlier versions, constantly accessing the microdrives. It is best to have two copies of **Quill**, a **QSpell** version for editing checked text and a working copy for writing the text initially.

The copy of **QSpell** is placed in drive 1 while the master is used as a key in drive 2. Once loaded, the main menu offers the options of proof reading to the screen or printer, proof reading to an edit file, accessing the dictionary, editing the dictionary, loading or saving the dictionary and exiting **QSpell**.

The proof reading options allow a **Quill** file to be read into **QSpell** from either microdrive or disc, and checked for mis-spelt words — that is, words not in the **QSpell** dictionary. The

output can be to the screen — misspellings are highlighted in red — to the printer — highlighted in bold — or to a file which can be loaded into the adapted **Quill** for editing.

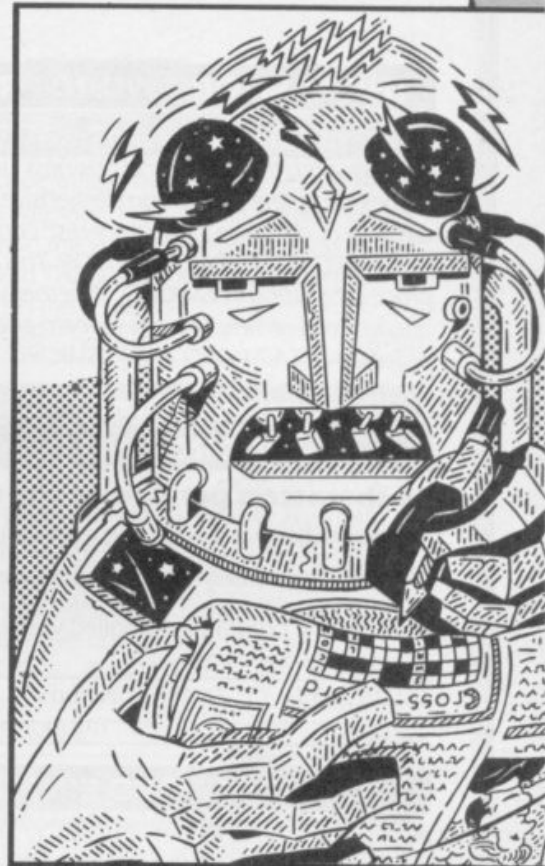
Further options allow the file to be checked without supervision — misspellings are highlighted automatically — and with supervision — you are given the choice of adding unknown words to the dictionary, marking or ignoring them.

The **QSpell** adaption of **Quill** has three extra commands which are accessed by pressing CTRL F3. Those are Load — which loads **QSpell** files into **Quill**; Find — which moves the cursor to the next mis-spelt word; and Characters.

Without an expansion board, and using microdrives, Find is almost redundant. It is quicker and easier to use the cursor keys. However, Find will remember what corrections have been made to text, while this is impossible using cursor keys.

The Edit option allows words to be added or deleted from the dictionary. About 1000 extra words can be added to the 25000 already there. You can create your own specialist dictionaries using the Clear option, and those can be reloaded as and when needed.

The Access option is a bonus for crossword enthusiasts. Its three options allow you to enter a word using question marks for unknown letters and find all possible matches for it. Or you can enter a string of letters and find the anagrams. You can even enter a string of letters and find all the words which can be made using the



letters of that string. That produced an impressive 88 words from 'terminate' even if it did include 'I'm' as a three letter word.

QSpell is a delight, being both fast and easy to use. It will become an important piece of software to everyone who uses **Quill**.

Mike Wright

Publisher Eidersoft
Price £19.95
★★★★

QL Bank Account System

IN THE first piece of QL applications software aimed mainly at the home user, Kim Gouldstone has introduced a version of his **Spectrum Bank Account System**.

QL Bank Account System is designed to provide all the information you need about the state of your bank account.

The system is built round the transaction, which consists of a computer defined number, a transaction type code — cashcard, cheque etc — the date, a six figure reference number, a 15-character description, the amount, and an analysis code.

The amount is entered in pence, and while that is acceptable on the Spectrum where the point is badly situated, it is not so with the QL. Up to 10 analysis codes with descriptions can be used and, via the transaction analysis option, show the total and average expenditure for each group.

New details are held temporarily until the Update option is used, when they are added to any in the system file and all transactions are sorted by date. The sort routine is very slow.

An Enquiry option offers a range of details which can be displayed on the screen or printed. The Print Statement option produces a neat printout which shows the date, type, reference number, description, amount and balance for transactions from a given date. Debits are denoted with a minus

sign. With the printout only using 60 of a possible 80 columns it would have been preferable to have separate debit and credit columns.

The manual is held on microdrive cartridge and loaded separately. Unfortunately, to check any details the manual must be reloaded. A built-in Help option would be a great improvement.

While it is comparatively easy to use and the printout is clear and easily readable, **QL Bank Account System** still looks like a Spectrum program. Better use could be made of the QL memory and power.

Mike Wright

Publisher K J Gouldstone,
45 Burleigh Avenue, Wallington,
Surrey SM6 7JG Price £8.00
★★

more business software on page 72

Thinking software?

THE TASWORD WORD PROCESSORS

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

TASWORD TWO (Spectrum)

64 characters per line on the screen!

"Without doubt, the best utility I have reviewed for the Spectrum."
HOME COMPUTING WEEKLY APRIL 1984
"If you have been looking for a word processor, then look no further."
CRASH JUNE 1984

The cassette program is supplied with instructions for microdrive conversion.

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

TASWORD EINSTEIN

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

TASWORD EINSTEIN Tatung Einstein disc **£19.95**

TASWORD MSX

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

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

TASWORD 464

"There is no better justification for buying a 464 than this program."
POPULAR COMPUTING WEEKLY NOVEMBER 1984

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

TASWORD 464* Amstrad CPC 464 & 664 cassette **£19.95**
disc **£22.95**

TASWORD 464-D

This is the new Tasword especially developed to utilise the capabilities of the CPC 464 and 664 disc drives. A major new feature is a powerful mail merge facility. Tasword 464-D will only run on, and is only supplied on, disc. ▶

TASWORD 464-D Amstrad CPC 464 & 664 disc **£24.95**

THE TASPRTINT STYLE WRITERS

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

EPSON FX-80	NEC PC-8023B-N	BROTHER HR5
EPSON RX-80	MANNESMANN TALLY MT-80	SHINWA CP-80
EPSON MX-80 TYPE III	STAR DMP 501/515	DATAC PANTHER
	COSMOS-80	DATAC PANTHER II

Five impressive print styles for your use:

COMPACTA - bold and heavy, good for emphasis

DATA-RUN - A FUTURISTIC SCRIPT

LECTURA LIGHT - clean and pleasing to read

MEDIAN - a serious business-like script

PALACE SCRIPT - a distinctive flowing font

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

TASPRTINT (Spectrum)

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

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

TASPRTINT EINSTEIN

Print TASWORD EINSTEIN text files in one or more of the TASPRTINT fonts.

TASPRTINT EINSTEIN disc **£14.95**

TASPRTINT QL

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

TASPRTINT QL Sinclair QL microdrive cartridge **£19.95**

TASPRTINT 464

Can be used to print AMSWORD/TASWORD 464 text files in addition to output from your own Basic programs.

Drives the **Amstrad DMP-1** in addition to the printers listed above.

TASPRTINT 464 Amstrad CPC 464 & 664 cassette **£9.90**
disc **£12.90**

TASWORD UPGRADES

Tasword 464 and Amsword owners: send your original cassette or disc (not the packaging) as proof of purchase. Your original will be returned together with Tasword 464-D on disc. **£13.90**

... think Tasman

THE TASCOPY SCREEN COPIERS

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

TASCOPY (Spectrum & Interface 1)

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

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

TASCOPY QL

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

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

TASCOPY 464

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

TASCOPY 464 Amstrad CPC 464 & 664 cassette **£9.90**
disc **£12.90**



Available from good software stockists and direct from:

TASMAN SOFTWARE

Springfield House, Hyde Terrace,
Leeds LS2 9LN · tel (0532) 438301

Telephone Access/Visa orders: Leeds (0532) 438301

PLUS ...

TASWIDE The Screen Stretcher

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

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

TASMERGE The Mail Merger

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

TASMERGE ZX 48K Spectrum **£10.90**

TASMAN PRINTER INTERFACE

Plug into your Spectrum and drive any printer fitted with the Centronics standard parallel interface. Supplied complete with ribbon cable and driving software. The user changeable interface software makes it easy to send control codes to your printer using the method so successfully pioneered with TASWORD TWO. The cassette contains fast machine code high resolution full width SCREEN COPY SOFTWARE for Epson, Mannesmann Tally, Shinwa, Star, and Tandy Colour Graphic (in colour!) printers. TASCOPY, shaded screen copy software for this interface (value £9.90 — see description on left) is included in this package.

CENTRONICS INTERFACE ZX Spectrum **£39.90**

COMPUTER PRINTER CABLES

RS232 for ZX INTERFACE 1 **£14.50**

MSX CENTRONICS **£8.00**

AMSTRAD CPC 464 CENTRONICS **£9.90**

If you do not want to cut this magazine, simply write out your order and post to:
TASMAN SOFTWARE · DEPT SU · Springfield House · Hyde Terrace · Leeds LS2 9LN

I enclose a cheque/PO made payable to TASMAN SOFTWARE Ltd OR charge my

ACCESS/VISA number: _____

NAME	ITEM	PRICE
ADDRESS		£ _____
		£ _____
		£ _____
		£ _____
	Outside Europe add £1 airmail per item	£ _____
	TOTAL	£ _____

Send me the free Tasman brochure describing your products: ☐ Tick here

I would like to know more about your programs for (please tick): **SU9**

OL ☐ Tatung Einstein ☐ ZX Spectrum ☐ MSX ☐ Amstrad CPC 464 & 664 ☐

All prices include VAT and packaging.

Entrepreneur

A FRIGHTENING number of new businesses fail during their first year of operation. In many cases that can be traced to inadequate preparation before the company is set up.

Entrepreneur from Collins Soft, in the Brainpower series, is designed to provide a useful business tool together with programmed learning course for the skills necessary to understand and use it. **Decision Maker**, another in the series, was reviewed last month.

The teaching program aims to introduce the prospective businessman or woman to double entry book-keeping and through that to make him aware of the different aspects of setting up and running a business, including possible sources of finance, cash flow, and likely costs. It consists of a series of six small programs, Using numbers, The balance sheet, Making a profit, Having enough cash, Value Added Tax and Balance sheet display.

Loading a program from cassette each time it is used is a nuisance,

especially when you need to refer back. Unfortunately no provision for converting to microdrives has been made, although the packaging is designed to store up to three cartridges.

The programs are easy to use with each new stage often requiring only single key input. They are highly informative and presented in a way which makes you consider aspects you might otherwise miss.

The manual contains addresses of organisations which will give advice and help. Several of the addresses are out of date.

The applications program is designed to be used to formulate a business plan showing a company's expected performance in its first year. The plan is extensive enough to be presented to possible investors. Two versions, one for a single and one for a multi-product company, are provided on the one cassette.

Analyses showing the projected end of year inventory, costs, break even point, and monthly cash flows are produced. Information on the proposed initial methods of finance is added after which the cash flows are

recalculated. Calculation of the cash flows is slow. The profit and loss account and balance sheet can then be displayed.

Finally, **Entrepreneur** produces a sensitivity analysis that shows the effects of a 10 per cent change on the major factors affecting profits; a ratio analysis which shows the average credit turnover; and a percentage for the profitability of the business.

Data can be edited when entered and at the end, so that modifications can be made to the business plan.

The teaching module is well set out and instructive but deals with a different subject to the applications program. Entering the data into the applications program is tedious, but having to re-enter all data in a section if one item is incorrect is painful.

Regardless of those deficiencies, this is a package which should prove useful to those looking to start a business and to those wishing to expand.

Mike Wright

Publisher Collins Soft
Price £14.95 Memory 48K

TRANSFORM LTD. Computer Accessories

ZX Spectrum and QL Microdrive Storage Box

- Designed to match QL and Spectrum
- Holds 20 cartridges and index cards
- Fully interlocking

Spectrum and QL

QL Centronics Interface	£29.95
QL Dust Cover	£5.00
QL RS 232 Lead	£10.00
QL Monitor	£299.00
Spectrum monochrome monitor connector	£11.50
Spectrum '+' Dust Cover	£4.00
Microdrive Cartridges	£1.99
Spectrum R.G.B. Connector	£45.00
Spectrum repairs	£18.95

- We also supply printers, monitors, labels, ribbon and listing paper.

£5.95

Available from selected
W H Smith's and leading
computer shops



TRANSFORM LTD. (Dept. SU)

089 283 4783



'Swatlands', Lucks Lane, Paddock Wood, Kent TN12 6QL.

Disk Option for the Spectrum as well as Microdrive Compatible Cassettes

A selection of our business software has been available on 5¼" SP-DOS floppy disk for some time giving your Spectrum vast storage potential and speeding up access and loading to a few seconds.

But now a programming and hardware breakthrough means we can offer our programs on cassette for downloading on to 5¼", 3½" and 3" floppy disks through the Spectrum with the new K-DOS and SP-DOS Compatible Kempston Disk Interface which embodies a tape to disk utility.



In addition to all our programs being microdrive compatible – except Video Pool – all business programs are available in 32 column format driving ZX or Alphacom printers, or plus 80 versions printing through most Centronics and RS 232 Interfaces.

See your local dealer or order direct by indicating the items required, by ticking boxes, complete the coupon and return the advertisement. Alternatively, phone the OCP Hotline on (0753) 888866, stating your Access or Barclaycard Number.

BUSINESS PROGRAMS

ADDRESS MANAGER

A professional address, filing and retrieval system, with full screen editing. Stores up to 350 addresses on cassette and up to 6000 addresses on floppy disk. (In separate files) 32 column format – £8.95 ☐ 80 column format – £19.95 ☐ **NEW** K-DOS tape/disk cassette – £29.95 ☐ SP-DOS floppy disk – £29.95 ☐

FINANCE MANAGER

Stores and reviews practically all business and domestic accounts. Completely menu driven for ease of use. Stores up to 250 names on cassette and up to 6000 on floppy disk. (In separate files) 32 column format – £8.95 ☐ 80 column format – £19.95 ☐ **NEW** K-DOS tape/disk cassette – £29.95 ☐ SP-DOS floppy disk – £29.95 ☐

STOCK MANAGER

Features full invoicing, sales totals, price lists and re-order requirements and comprehensive Master File with full breakdown of stock and VAT. Stores up to 600 product lines on cassette and up to 6000 on floppy disk. 80 column format – £19.95 ☐ **NEW** K-DOS tape/disk cassette – £29.95 ☐ SP-DOS floppy disk – £29.95 ☐

VAT MANAGER

Will check gross and nett values of a period's sales plus exempt totals and up to 8 classes of transaction e.g. standard rate, import/export etc. Calculates VAT paid and received and hence the nett tax payable/receivable. 32 column format – £8.95 ☐ 80 column format – £19.95 ☐ **NEW** K-DOS tape/disk cassette – £29.95 ☐ SP-DOS floppy disk – £29.95 ☐

UTILITIES

NEW!! ART STUDIO (NOT ILLUSTRATED)

An exciting graphics design program. Features pull down menus, icons and windows – you choose brush, spray, pen, etc. plus host of other features. Also drives most dot matrix printers with suitable interface. Operates with the Spectrum mouse control – a first! (Enquire for further details).

Art Studio – £12.95 ☐ SP-DOS floppy disk – £29.95 ☐ **NEW** K-DOS tape/disk cassette – £29.95 ☐

MASTER TOOL KIT

This versatile program gives you a re-number feature, string – search, a real time clock, a graphics generator and alarm plus many other features that'll change your Spectrum into a 'full spec. machine'. Master Tool Kit – £9.95 ☐

FULL SCREEN EDITOR/ASSEMBLER

An essential tool for writing Machine Code whether you're a beginner or an expert. Includes full screen input, comprehensive documentation, sophisticated expression evaluator, SNAKE demonstration mode, extra microdrive facility etc. It also drives 32 and 80 column printer interfaces from the same cassette. Full Screen Editor/Assembler – £12.95 ☐ **NEW** K-DOS tape/disk cassette – £29.95 ☐ SP-DOS floppy disk – £29.95 ☐

MACHINE CODE TEST TOOL

Test and Display Machine Code instructions as they're written. This versatile

program can co-reside in your Spectrum with the Full Screen Editor/Assembler to provide a complete Machine Code environment. Features Hex: Decimal conversion routine, character generator, etc. etc. Machine Code Test Tool – £9.95 ☐

GAMES

CHESS-THE-TURK

The ultimate chess challenge. 6 levels of play, 'Blitz' chess, printer output, plus real time clock and alarm. Chess-the-Turk – £5.95 ☐

CASINO ROYAL

Two way program featuring Roulette and Pontoon. You're allocated money to win – or lose – a fortune. Plug in Microspeech adds realism and both games are fully explained through a comprehensive on-screen menu. Casino Royal – £5.95 ☐

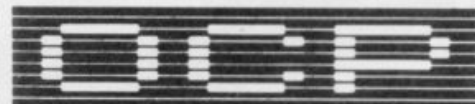
VIDEO POOL

All the fun and challenge of pool at your fingertips. 1 or 2 people play using joysticks or keyboard. Excellent graphics, sound and colour add to the game's reality. Video Pool – £5.95 (Not Microdrive compatible) ☐

Unless otherwise stated, software is supplied on cassette. All software is compatible with ZX Spectrum and ZX Spectrum +

Please send your order to:

Oxford Computer Publishing Limited
77a Packhorse Road
Gerards Cross
Buck. SL9 8PQ



Simply The Best

If you would like a copy of our full colour detailed catalogue – please tick box. ☐

Name

Address

Amount payable £

Please make cheques/postal orders payable to OCP Ltd

Cheque/PO Number

Access/Barclaycard number (please delete)

Signature

SU9

Wafadrive, Opus and other media versions of our programs will be available in the near future. Contact us for further information on 0753 888866.

HISOFT



for the ZX Spectrum

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, CP/M etc. Please write for details.

HISOFT

ULTRAKIT £9.45

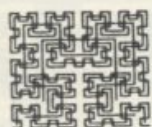
The most powerful toolkit yet for ZX BASIC. All the features you will ever need; AUTO insert, full RENUMBER, block DELETE, CLOCK, ALARM, error trapping, break trapping. Full TRACE with single-step and much, much more. Makes ZX BASIC easy-to-use and powerful.

DEV PAC £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.

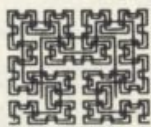
PASCAL £25

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



ZX SPECTRUM PRINTER INTERFACE

"One of the most comprehensive printer interfaces available for the Spectrum. With a choice of both Centronics and RS232 in the one interface it will satisfy most." (SINCLAIR USER MAGAZINE).

"A remarkable device which packs considerable ingenuity into a small box. Should be almost irresistible." (COMPUTING TODAY)

"I will keep looking for the perfect interface but in the meantime I'll use the next best thing - ZXlprint III." (ZX COMPUTING)

£34.95
cable £9.95
inc. VAT



ZXlprint III interface enables your Spectrum computer (16 or 48K) to print on almost any dot matrix or daisy wheel printer with RS232 or Centronics input. Just plug in ZXlprint III and LPRINT and LIST commands will work. COPY works without any software on Epson, Star Delta, Brother HR5 & 1009, Gemini, Walters WM80, Mannesman MT80, Kaga Taxan, Cannon, Shinwa, Seikosha 100, 250 & 500. Plus Seikosha GP700 in FULL COLOUR. Also available is optional COPY in 4 colours on CGP115, MCP40 & 80 and SCP80.

No additional software needed - RAM is free to take Tasword 2, Masterfile, OCP +80 software, Kemp Business Accounts etc.

- WORD PROCESSING • PLUG IN FOR LLIST, LPRINT & COPY
- PRINTS SPECTRUM GRAPHICS & UDG's • HIGH RESOLUTION SCREEN DUMPS • TWO COPY SIZES ON EPSON & COMPATIBLES
- PRINTS PRESTEL FRAMES WITH SUITABLE MODEM
- COMPATIBLE WITH MICRODRIVES & INTERFACE 1

EUROELECTRONICS

TRADE SALES: (0684) 292448

AVAILABLE FROM TRANSFORM LTD,

24 WEST OAK, BECKENHAM, KENT, BR3 2EZ TEL: 01-658 6350

From: Name _____

Address _____

This order is for:	(Qty)	(Qty)
ZXlprint III at £34.95	_____	Centronics Cable at £9.95
RS 232 Cable at £9.95	_____	4 Colour Option at £5.00
Tasword 2 at £13.90	_____	

Cheques/PO payable to

Amount enclosed _____

TRANSFORM LTD

Please specify make of your printer _____

ZX Spectrum is a registered trade mark of Sinclair Research Ltd.



01-658 6350



**Become the hunter
and the
hunted
in**

**STREET
HAWK**

and burn tread on the streets

SPECTRUM48k

6.95

COMMODORE64

7.95

AMSTRAD

8.95

Ocean Software is available from selected branches of:

WOOLWORTH, WHSMITH, 

John Menzies, LASKYS, Rumbelows, COMET,
Spectrum Shops and all good software dealers.

ocean

Ocean Software
Ocean House · 6 Central Street
Manchester · M2 5NS
Telephone 061 832 6633 · Telex 669977 Oceans G

AT LAST!

Watson on Assembly. The complete course for beginners.



£12.50
The complete
Z80 Assembler
includes:

- *SYMBOLIC LABELS
- *HARD COPY
- *ASSEMBLER DIRECTIONS
- *INSERT/DELETE
- *TUTOR TO ASSIST HEXADECIMAL NOTATION
- *TAPE

The latest of the much acclaimed 'Dr Watson' books is the long awaited introduction to Z80 programming for the complete beginner.

By the end of this step by step course every Z80 class of instruction has been explained in detail. There are also numerous examples and practical exercises throughout the book which ends by showing how to integrate BASIC.

The 'Dr Watson' Assembly Course Series has been singled out by many reviewers for its clarity and comprehensive coverage of the subject and this, the 9th book in the series is no exception with its complete 250 page course, as usual, accompanied by an assembler with tutorials for hexadecimal and BCD on tape.

Available from Boots, Smiths, Spectrum Group, computer shops and most bookshops, or in case of difficulty, phone 01-441 4130.



**SEE THE DOCTOR
ON STAND No. 1622**

Glentop Publishers Ltd.,
Freepost, Barnet, Herts.
Telephone: 01-441 4130

BETA BASIC 3.0

SINCLAIR USER, JAN. 85 (ABOUT RELEASE 1.8): "HAS ESTABLISHED ITSELF AS THE STANDARD EXTENDED BASIC FOR THE SPECTRUM...TURNS SINCLAIR BASIC FROM A GOOD VERSION OF THE LANGUAGE TO A FANTASTIC ONE..." NOW, WITH RELEASE 3.0, BETA BASIC BECOMES PROBABLY THE MOST POWERFUL BASIC AVAILABLE ON ANY 8-BIT MICRO.

- * PROCEDURES - a very full implementation that lets you extend Basic easily. With parameter passing by value or by reference (including arrays), LOCAL variables, recursion, DEFAULT parameter values, and the ability to handle parameter LISTS of any length. No PROC keyword is needed; e.g. you can use things like: swap a,b or draw_box 10,20,5 or addup b,sum.
- * GRAPHICS - up to 128 WINDOWS, each with its own character size (giving 1-64 chars/line) and attributes. ROLL and SCROLL any part of the screen by any number of pixels in any direction. Use GET to store parts of the screen, then put them back anywhere at different magnifications. Fast FILL, ALTER attributes, PLOT strings, DRAW TO a point, change scale and origin.
- * TOOLKIT features: Renummer with block move or copy; block DELETE, search and/or change (e.g. ALTER applies TO all 36 User-defined keys. List the variables, list a procedure, list DEF KEYS.
- * EDITOR - lets you move the cursor around the screen 10 times faster! And you can move the cursor up and down within edited lines. AUTO, EDIT, JOIN and SPLIT commands.
- * LISTINGS with optional automatic indentation of loops, IF, procedures etc. Works on existing programs e.g. you can choose to list:
10 FOR n=1 TO 10: PRINT n: NEXT n
as: 10 FOR n=1 TO 10
PRINT n
NEXT n
- * KEYWORDS can all be entered by typing them in full, or by the "single entry" method, or both in the same line; e.g. the line: 10print"hello";if a=1 THEN goto 100 will be recognised and listed normally.
- * Upgrades to Release 1.8 customers: If you bought direct from us, there is no need to return your cassette - just quote the (approximate) original purchase date with your order, otherwise return your cassette and name your supplier. The upgrade price of £6.95 (£7.50 overseas) includes a new manual.
- * ARRAY and string handling features include fast INSTRING (100,000 chars/sec) and INARRAY search functions. You can JOIN arrays together, delete, transfer and insert sections, change dimensions without data loss. LEFT function gives dimensions. Ultra-fast array SORT - e.g. a\$500,300 will sort in about 3 seconds!
- * MICRODRIVE commands let you use simple forms, or exactly the same commands you normally use for tape - just enter DEFAULT *m1 or m2. Some possible Microdrive commands: SAVE "name", ERASE "name", LOAD 1, "name", SAVE 10 TO 100; "part prog", SAVE a "slicer" or just the variables. MOVE programs, CODE, arrays. MERGE auto-running programs. End-Of-File function.
- * OTHER FEATURES, new or improved, are too many to describe: DO - LOOP structure with WHILE, UNTIL and EXIT IF; BREAK, CLEAR, CLOCK, CONTROL CODES, EDIT variables, ELSE, GET, KEYIN (programs can write themselves!) multi-LET, (LIST a "slicer", ON (works with line nos, procs, etc.) ON ERROR, OVER 2, POKE strings, POP, READ LINE, TRACE, USING, DPOKE, Faster GOTOs, GOSUBs and FOR-NEXT loops.
- * 26 FUNCTIONS: AND, OR, XOR, DEC, HEX\$, BIN\$, fast SINE, COS, RND%, CHARS, NUMBER, DPEEK, EOF, FILLED, INARRAY, INSTRING, ITEM LENGTH, MEMORY\$, MEM, MOD, SCRN\$, SHIFTS, STRINGS, TIMES, USING.
- * Spectrum Basic compatible - you can run existing programs. Transferable to Microdrive. Syntax check on entry. Extra error messages. Compatible with most printer interfaces (please specify). Waft-drive version available.
- * Comprehensive A5-size manual. More than 80 pages, with many examples.
- * To show you the power of Beta Basic's procedures, we include a FREE TURTLE GRAPHICS package!
- * Release 1.8 remains available, at a lower price of £2.95 (£3.50 overseas). You can upgrade later to Release 3.0 for £6.95 (£7.50 overseas).
- * TRANSFORM your Spectrum with BETA BASIC 3.0 for just £14.95 inclusive! (£15.50 overseas).

(TICK AS APPROPRIATE) PLEASE SEND ME:
☐ BETA BASIC 3.0. PAYMENT OF £14.95 (OR £15.50 OVERSEAS) IS ENCLOSED.
☐ BETA BASIC 3.0 UPGRADE. PAYMENT OF £6.95 (£7.50) IS ENCLOSED.
☐ BETA BASIC 1.8. PAYMENT OF £6.95 (£7.50) IS ENCLOSED.
☐ MORE INFORMATION ON . I HAVE/DO NOT HAVE RELEASE 1.8 ALREADY.
 A STAMPED ADDRESSED ENVELOPE IS ENCLOSED.

**BETA
SOFT**

92 OXFORD RD.
MOSELEY
BIRMINGHAM
B13 9SQ

SUPER-LEAGUE® For use on 48K SPECTRUM

Acclaimed the best football simulation game....

- "...after using it for several days I had to write and congratulate you on a really excellent program." - A.M. (Middlesex)
- "The program is addictive. Last night I spent from 11.00a.m. to 11.30p.m. taking Leeds to win the championship by 1 point." - I.B. (Shropshire)
- "I must congratulate you on an outstanding game well worth every penny. Thank you." - S.S. (Essex)
- "My son and grandson in Australia are delighted...a gem...neither of them have stopped playing it. Thanks for a great game." - N.G. (West Sussex)
- "I thought I should write because of your excellent game." - Mr. McD. (W. Middle)

Note the following true-to-life features....

- Full 11-a-side match action
- On-screen commentary showing current score, name of player in possession, time played
- Scale 90-minute game
- Individual player skills
- Full 22-team League
- 42-match season
- League table and results on screen and printer
- Save season to date on tape
- Also form any league of 22 teams and pick your own players!

£6.50
(inc. p. & p.)

direct from
CROSS SOFTWARE
72 Swanshope,
Burney Drive,
Loughton, Essex, IG10 2NB

S
CROSS
F
T
W
A
R
E

Also available from selected stores in the London area (including VIRGIN GAMES CENTRE, Oxford Street.W.1)

PROGRAM PRINTOUT

SPACE TRADER



MAKE A MILLION riding the spaceways as a carefree merchant in *Space Trader* by Steve Greaves of Hull.

Carefree? You'll be lucky to stay in business more than a few rounds as you peddle goods around the six planets. Work out who needs what, and you might stay ahead — but there's always pirates and maniacs in flying saucers to put a spanner in the works at the wrong moment. The game runs on a 48K Spectrum or Spectrum Plus.

Space trader uses our special abbreviations for graphics characters, so please read the instructions on the first page of Program Printout.

```

1 BORDER 0: PAPER 0: INK 6: C
LS
5 GO SUB 9000
130 REM **INSTRUCTIONS**
140 PRINT AT 0,13;"TRADER
*****"
150 PRINT AT 3,0;"YOU ARE A SPA
CE TRADER IN A FAR OFF GALAXY.YO
U MAKE MONEY BY TRAVELLING AR
OUND THE PLANETS INTHE GALAXY,BU
YING AND SELLING GOODS FOR A P
ROFIT.YOU START OFFWITH 10000 @
(@ IS THE CURRENCY)AND ONE SHIP.
IT COSTS 500 @ TO FLY EACH SHIP
FROM ONE PLANET TOANOTHER.ON YO
UR WAY TO ANOTHER PLANET YOU MA
Y GET ROBBED OF YOUR MONEY OR
YOUR CARGO,BET ATTACKED OR R
UN INTO A FLYING SAUCER.THE GA
ME ENDS WHEN YOU MAKE 1,000,00
0 @ OR RUN OUT OF MONEY.
GO 0 0
D L U C K . ."
160 PRINT AT 21,4;"PRESS ANY KE
Y TO PLAY"
170 PAUSE 0: CLS

```

```

171 LET A$="COROLETH"
172 LET B$="FRIDGIA"
173 LET C$="WRITHULA"
174 LET D$="XAGORIA"
175 LET E$="GLATHORIN"
176 LET F$="ASORTHIA"
180 INPUT "ENTER YOUR NAME ";N$
: BEEP .1,0
181 IF LEN N$>15 THEN GO TO 18
0
182 LET FO=0: LET GO=0: LET DI=
0: LET CL=0: LET AL=0
183 LET SP=100: LET SH=1
184 LET RO=0
185 LET L$="COROLETH"
190 LET MO=10000
200 REM **Main game**
202 IF MO>=1000000 THEN GO TO
7000
205 IF MO<0 THEN GO TO 8000
210 IF L$=A$ THEN BORDER 1: PA
PER 1: INK 7
211 IF L$=B$ THEN BORDER 7: PA
PER 7: INK 1
212 IF L$=C$ THEN BORDER 3: PA
PER 3: INK 0

```

GRAPHICS INSTRUCTIONS

IN GENERAL, graphics abbreviations are enclosed in brackets, which should not be entered. A string of the same graphics character is represented in the form (3*A) which would be entered as AAA, where A is the graphics character. A space, where it is important to have the correct number of spaces, is indicated by (sp). Spaces in text will not normally be indicated. Where several graphics characters are used, they are separated by commas, which should not be entered. With Spectrum and QL listings the letter l has a flat top and the numeral 1 has a sloping top.

The above applies to all Sinclair machines. The following instructions are for specific machines.

ZX-81: ZX-81 listings are generally reproduced as they appear when you enter them, spaces and all. Where extensive graphics are used, REM statements will be inserted to provide a guide to the position of each character.

Spectrum: User-defined graphics are represented by underlined letters, without brackets. Type the appropriate letter while in graphics mode. The underline does not appear on the screen. Inverse characters have the letter i before them, e.g. iZ, iA, iP. Block graphic characters are indicated by g followed by the number of the appropriate key: g4 would mean the block graphics on key 4, ig4 the inverse of that graphic.

Control codes are indicated by cc before the character, and are obtained by pressing CAPS SHIFT while in extended mode. They do not appear on the screen but may change the colour of the cursor and will affect what is printed after them: cc3,i* would thus have the effect of printing an inverse asterisk in red.

QL: User-defined graphics on the QL are indicated by a description of the keys pressed to obtain them, underlined and in brackets. Thus (CTRL + 9) means press CTRL and 9 together. The same applies for unusual characters within the QL character set, which our printer is unable to reproduce.

```

213 IF L$=D$ THEN BORDER 2: PA
PER 2: INK 6
214 IF L$=E$ THEN BORDER 6: PA
PER 6: INK 0
215 IF L$=F$ THEN BORDER 0: PA
PER 0: INK 4
220 CLS
225 PRINT AT 0,0;"(32*sp)";AT 6
,0;"(32*sp)";AT 21,0;"(32*sp)";A
T 14,0;"(32*sp)"
226 FOR A=0 TO 21: PRINT AT A,0
;"(ig8)";AT A,31;"(ig8)": NEXT A
227 FOR A=6 TO 13: PRINT AT A,1
5;"(ig8)": NEXT A
230 PRINT AT 1,1;"SPACE TRADER
":N$
240 PRINT AT 2,1;"LOCATION : ";
L$
250 PRINT AT 3,1;"MONEY : ";MO;
"@ "
260 PRINT AT 4,1;"SHIPS : ";SH
270 PRINT AT 5,1;"CARGO SPACE :
";SP
280 PRINT AT 7,5;"CARGO"
290 PRINT AT 9,1;"FOOD:";FO
300 PRINT AT 10,1;"CLOTH:";CL
310 PRINT AT 11,1;"ALCOHOL:";AL
320 PRINT AT 12,1;"GOLD:";GO
330 PRINT AT 13,1;"DIAMONDS:";D
I
335 IF RO=1 THEN GO TO 395
340 IF L$=A$ THEN GO SUB 1000
350 IF L$=B$ THEN GO SUB 1100
360 IF L$=C$ THEN GO SUB 1200
370 IF L$=D$ THEN GO SUB 1300
380 IF L$=E$ THEN GO SUB 1400
390 IF L$=F$ THEN GO SUB 1500
400 PRINT AT 7,16;"LOCAL PRICES
"
410 PRINT AT 9,16;"FOOD:";FOO
420 PRINT AT 10,16;"CLOTH:";CLO
430 PRINT AT 11,16;"ALCOHOL:";A
LC
440 PRINT AT 12,16;"GOLD:";GOL
450 PRINT AT 13,16;"DIAMONDS:";
DIA
460 PRINT AT 15,12;"CHOICES"
470 PRINT AT 17,2;"1 . BUY SOME
GOODS";AT 18,2;"2 . SELL SOME G
OODS";AT 19,2;"3 . BUY ANOTHER S
HIP";AT 20,2;"4 . TAKE-OFF FROM
";L$
480 INPUT "ENTER CHOICE (1 TO 4
) ";CH: BEEP .1,0
490 IF CH<>1 AND CH<>2 AND CH<>
3 AND CH<>4 THEN GO TO 480
continued on page 78

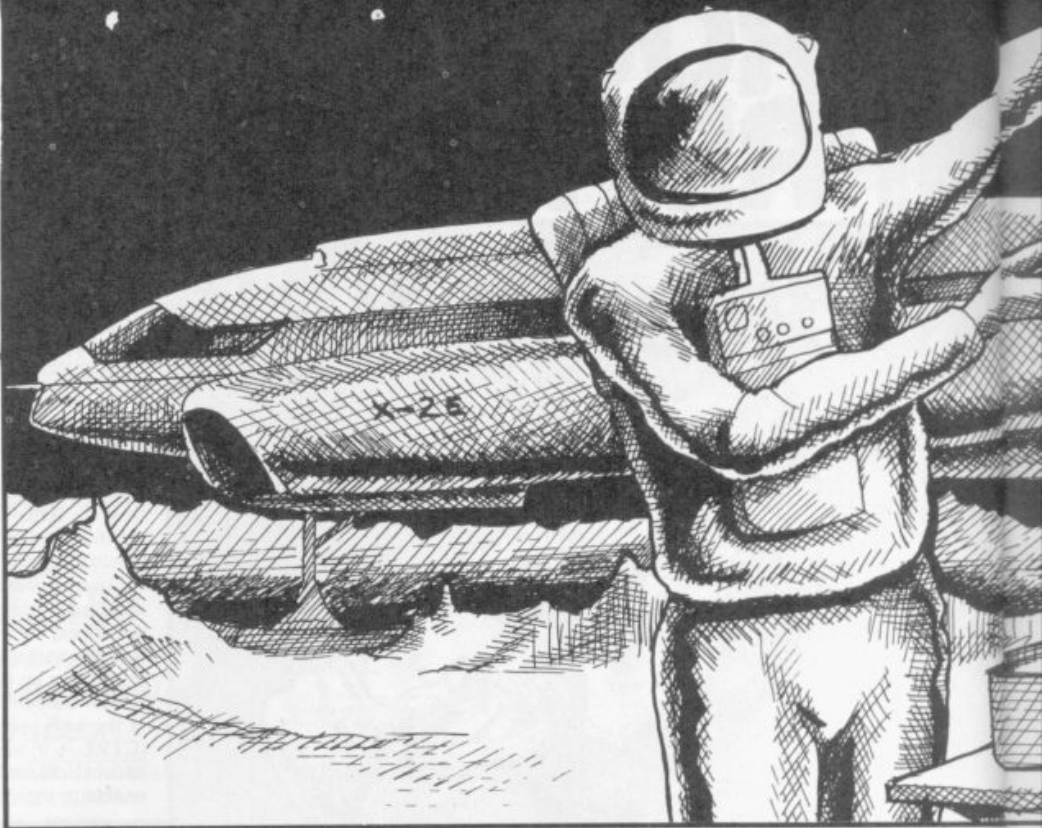
```


continued from page 77

```

500 IF CH=1 THEN LET RO=1: GO
TO 2000
510 IF CH=2 THEN LET RO=1: GO
TO 2500
520 IF CH=3 THEN LET RO=1: GO
TO 3000
530 BORDER 0: PAPER 0: INK 7: C
LS
535 LET RO=0
540 PRINT AT 3,0;"1 . ";A$
550 PRINT AT 5,0;"2 . ";B$
560 PRINT AT 7,0;"3 . ";C$
570 PRINT AT 9,0;"4 . ";D$
580 PRINT AT 11,0;"5 . ";E$
590 PRINT AT 13,0;"6 . ";F$
600 PRINT AT 15,0;"WHERE DO YOU
WANT TO GO ?"
610 INPUT I$: BEEP .1,0
620 IF I$<>A$ AND I$<>B$ AND I$
<>C$ AND I$<>D$ AND I$<>E$ AND I
$<>F$ THEN GO TO 610
630 IF I$=L$ THEN PRINT AT 20,
0;"YOU'RE ALREADY AT ";L$: PAUSE
100: PRINT AT 20,0;"(32*sp)": G
O TO 610
640 LET L$=I$
650 LET MO=MO-(500*SH)
660 GO TO 3500
1000 LET FOO=INT (RND*30)+30
1010 LET CLO=INT (RND*100)+200
1020 LET ALC=INT (RND*100)+200
1030 LET GOL=INT (RND*2000)+1000
1040 LET DIA=INT (RND*1000)+5000
1050 RETURN
1100 LET FOO=INT (RND*70)+30
1110 LET CLO=INT (RND*100)+500
1120 LET ALC=INT (RND*50)+300
1130 LET GOL=INT (RND*750)+1250
1140 LET DIA=INT (RND*1500)+2500
1150 RETURN
1200 LET FOO=INT (RND*30)+120
1210 LET CLO=INT (RND*200)+400
1220 LET ALC=INT (RND*350)+400
1230 LET GOL=INT (RND*250)+2250
1240 LET DIA=INT (RND*500)+3000
1250 RETURN
1300 LET FOO=INT (RND*50)+100
1310 LET CLO=INT (RND*50)+200
1320 LET ALC=INT (RND*400)+200
1330 LET GOL=INT (RND*1250)+1250
1340 LET DIA=INT (RND*1000)+4500
1350 RETURN
1400 LET FOO=INT (RND*60)+60
1410 LET CLO=INT (RND*150)+300
1420 LET ALC=INT (RND*500)+500
1430 LET GOL=INT (RND*1000)+2000
1440 LET DIA=INT (RND*3000)+3000
1450 RETURN
1500 LET FOO=INT (RND*90)+40
1510 LET CLO=INT (RND*200)+200
1520 LET ALC=INT (RND*125)+675
1530 LET GOL=INT (RND*2000)+750
1540 LET DIA=INT (RND*2000)+2500
1550 RETURN
2000 REM **BUYING**
2010 BORDER 2: PAPER 2: INK 6: C
LS
2020 PRINT AT 0,13;"BUYING
*****"
2030 PRINT AT 3,0;"LOCAL PRICES"
2040 PRINT AT 5,0;"1 . FOOD : ";
FOO; " @"
2050 PRINT AT 7,0;"2 . CLOTH : ";
CLO; " @"
2060 PRINT AT 9,0;"3 . ALCOHOL :
";ALC; " @"
2070 PRINT AT 11,0;"4 . GOLD : ";
GOL; " @"
2080 PRINT AT 13,0;"5 . DIAMONDS
":DIA; " @"
2090 PRINT AT 15,0;"MONEY : ";MO
; " @"
2100 PRINT AT 18,0;"CARGO SPACE
":SP
2110 PRINT AT 21,0;"WHICH PRODUC
T DO YOU WISH TO BUY"
2120 INPUT "1 TO 5 ";CH: BEEP .
1,0
2130 IF CH>1 AND CH>2 AND CH>
3 AND CH>4 AND CH>5 THEN GO T
O 2120
2131 IF CH=1 THEN LET LO=FOO
2132 IF CH=2 THEN LET LO=CLO
2133 IF CH=3 THEN LET LO=ALC
2134 IF CH=4 THEN LET LO=GOL
2135 IF CH=5 THEN LET LO=DIA
2140 INPUT "HOW MUCH ? ";AM: BEE
P .1,0
2145 IF AM*LO THEN GO TO 2140
2150 IF AM*LO>MO THEN GO TO 214
0

```



```

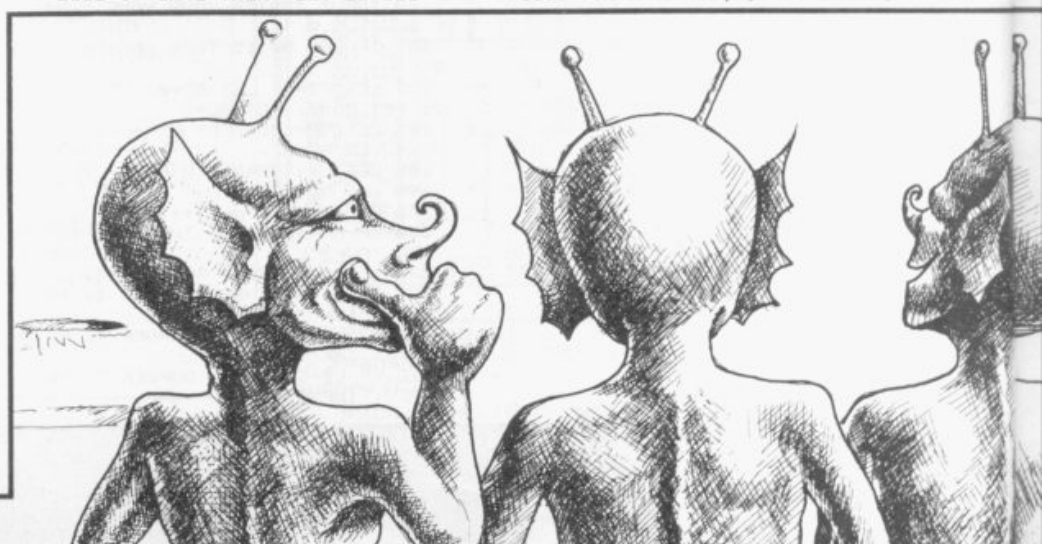
2160 LET MO=MO-(AM*LO)
2170 IF CH=1 THEN LET FO=FO+AM
2171 IF CH=2 THEN LET CL=CL+AM
2172 IF CH=3 THEN LET AL=AL+AM
2173 IF CH=4 THEN LET GO=GO+AM
2174 IF CH=5 THEN LET DI=DI+AM
2180 LET SP=SP-AM
2190 INPUT "ANYTHING ELSE ( Y/N
) ? ";Y$: BEEP .1,0
2200 IF Y$="Y" THEN GO TO 2000
2210 GO TO 200
2500 REM **SELLING**
2510 BORDER 5: PAPER 5: INK 1: C
LS
2520 PRINT AT 0,13;"SELLING
*****"
2530 PRINT AT 3,0;"(IC,IA,IR,IG,
IO)";AT 3,16;"(IL,IO,IC,IA,IL,IG
O,IR,IR,IL,IC,IE,IS)"
2540 PRINT AT 5,0;"FOOD : ";FO;A
T 5,16;FOO; " @"
2550 PRINT AT 7,0;"CLOTH : ";CL;
AT 7,16;CLO; " @"
2560 PRINT AT 9,0;"ALCOHOL : ";A
L;AT 9,16;ALC; " @"
2570 PRINT AT 11,0;"GOLD : ";GO;
AT 11,16;GOL; " @"
2580 PRINT AT 13,0;"DIAMONDS : "
;DI;AT 13,16;DIA; " @"
2590 INPUT "WHAT DO YOU WISH TO
SELL(1 TO 5)";CH: BEEP .1,0
2600 IF CH>1 AND CH>2 AND CH>
3 AND CH>4 AND CH>5 THEN GO T
O 2590
2601 IF CH=1 THEN LET LO=FOO
2602 IF CH=2 THEN LET LO=CLO

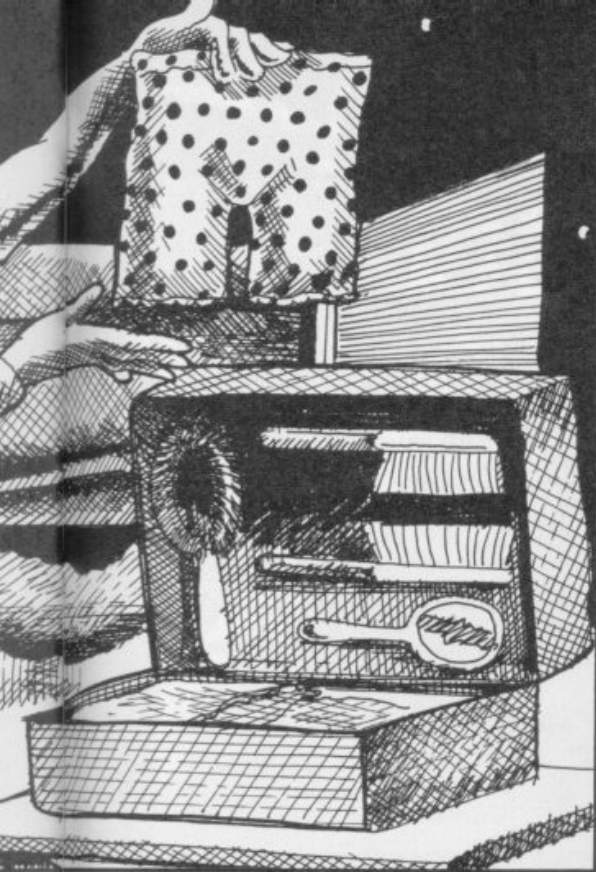
```

```

2603 IF CH=3 THEN LET LO=ALC
2604 IF CH=4 THEN LET LO=GOL
2605 IF CH=5 THEN LET LO=DIA
2620 INPUT "HOW MUCH DO YOU WANT
TO SELL ? ";AM: BEEP .1,0
2630 IF CH=1 AND AM>FO OR CH=2 A
ND AM>CL OR CH=3 AND AM>AL OR CH
=4 AND AM>GO OR CH=5 AND AM>DI T
HEN GO TO 2620
2640 LET MO=MO+(AM*LO)
2650 IF CH=1 THEN LET FO=FO-AM
2660 IF CH=2 THEN LET CL=CL-AM
2670 IF CH=3 THEN LET AL=AL-AM
2680 IF CH=4 THEN LET GO=GO-AM
2690 IF CH=5 THEN LET DI=DI-AM
2700 LET SP=SP+AM
2710 INPUT "ANYTHING ELSE (Y/N)
? ";Y$: BEEP .1,0
2720 IF Y$="Y" THEN GO TO 2500
2730 GO TO 200
3000 REM **BUYING A NEW SHIP**
3010 BORDER 4: PAPER 4: INK 0: C
LS
3020 PRINT AT 0,7;"USED SPACESHIP
LOT *****"
3030 PRINT AT 4,0;"(IS,IH,II,IP)
";AT 3,15;"(IS,IT,IO,IR,IA,IG,IE
)";AT 4,16;"(IS,IP,IA,IC,IE)";AT
4,25;"IP,IR,II,IC,IE)"
3040 PRINT AT 6,0;"S.S.ENTERPRIS
E";AT 6,17;"125";AT 6,25;"12500
@"
3050 PRINT AT 8,0;"COLUMBIA";AT
8,17;"75";AT 8,25;"7500 @"
3060 PRINT AT 10,0;"APOLLO 9";AT

```

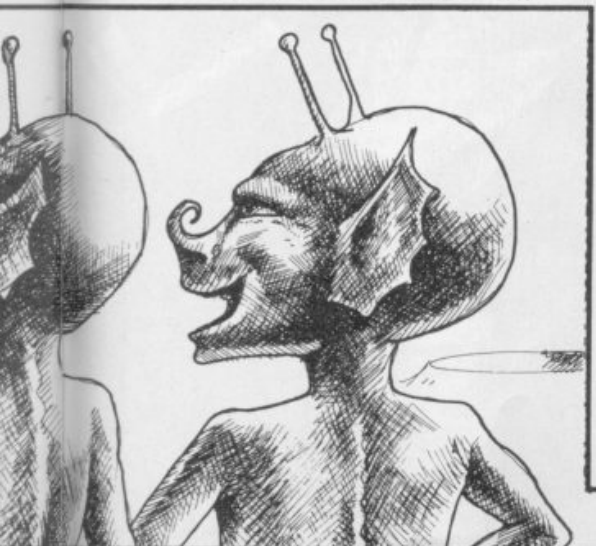




```

10,17;"50";AT 10,25;"5000 e"
3070 PRINT AT 12,0;"MILLENNIUM FA
LCON";AT 12,17;"200";AT 12,25;"2
0000 e"
3080 PRINT AT 14,0;"SPUTNIK";AT
14,17;"30";AT 14,25;"3000 e"
3100 PRINT AT 21,0;"ENTER YOUR C
HOICE ( 1 TO 5 )"
3110 INPUT CH: BEEP .1,0
3120 IF CH<>1 AND CH<>2 AND CH<>
3 AND CH<>4 AND CH<>5 THEN GO T
O 3110
3125 IF CH=1 AND MO<12000 OR CH=
2 AND MO<7500 OR CH=3 AND MO<500
0 OR CH=4 AND MO<20000 OR CH=5 A
ND MO<3000 THEN PRINT AT 21,0;"
YOU CAN'T AFFORD IT
": PAUSE 100: GO TO 3100
3130 IF CH=1 THEN LET SP=SP+125
: LET MO=MO-12500: LET SH=SH+1:
LET S$="S.S.ENTERPRISE"
3140 IF CH=2 THEN LET SP=SP+75:
LET MO=MO-7500: LET SH=SH+1: LE
T S$="COLUMBIA"
3150 IF CH=3 THEN LET SP=SP+50:
LET MO=MO-5000: LET SH=SH+1: LE
T S$="APOLLO 9"
3160 IF CH=4 THEN LET SP=SP+200
: LET MO=MO-20000: LET SH=SH+1:
LET S$="MILLENNIUM FALCON"
3170 IF CH=5 THEN LET SP=SP+30:
LET MO=MO-3000: LET SH=SH+1: LE
T S$="SPUTNIK"
3180 PRINT AT 21,0;"(32*sp)";AT
20,0;"YOU HAVE BOUGHT THE";AT 21
,10;S$
3190 INPUT "ANYTHING ELSE ( Y/N

```



```

) ? "Y$: BEEP .1,0
3200 IF Y$="Y" THEN GO TO 3000
3210 GO TO 200
3500 REM **TAKING OFF**
3510 BORDER 2: PAPER 0: INK 7: C
LS
3515 FOR C=0 TO 15
3520 LET A=INT (RND*9): LET B=IN
T (RND*32)
3525 PRINT AT A,B;" ": NEXT C
3530 PLOT 0,76: DRAW 35,-76
3540 PLOT 10,40: DRAW 10,50: DRA
W 4,-20: DRAW 3,7: DRAW 20,-46:
DRAW 100,0: DRAW 9,71: DRAW 40,0
: DRAW 9,-71: DRAW 42,10
3550 PRINT AT 16,10;"(ig8)";AT 1
7,10;"(ig8,ig3,ig1)"
3560 PRINT AT 14,8;"(ig8)";AT 15
,8;"(ig8)";AT 16,8;"(ig8)";AT 17
,7;"ig3,ig8,ig5)"
3570 PRINT AT 17,17;"(2*ig8)";AT
16,10;" "
3580 PRINT AT 8,22; INK 2;"A"
3582 IF MO<0 THEN GO TO 4000
3590 LET Z=INT (RND*20)
3595 IF Z=0 OR Z=1 OR Z=2 OR Z=3
OR Z=4 OR Z=5 OR Z=6 THEN GO T
O 4000
3600 IF Z=7 OR Z=8 THEN GO TO 4
200
3610 IF Z=9 OR Z=10 THEN GO TO
4400
3615 IF Z=11 OR Z=12 OR Z=13 THE
N GO TO 4600
3620 IF Z=14 OR Z=15 OR Z=16 THE
N GO TO 4800
3630 LET Y=INT (RND*5)
3631 IF Y=0 THEN LET X$="FOOD":
LET SP=SP+FO: LET FO=0
3632 IF Y=1 THEN LET X$="CLOTH"
: LET SP=SP+CL: LET CL=0
3633 IF Y=2 THEN LET X$="ALCOHO
L": LET SP=SP+AL: LET AL=0
3634 IF Y=3 THEN LET X$="GOLD":
LET SP=SP+GO: LET GO=0
3635 IF Y=4 THEN LET X$="DIAMON
DS": LET SP=SP+DI: LET DI=0
3640 PRINT AT 0,0;"TWO IMPERIAL
GUARDS SEARCHED YOUR SHIPS AN
D STOLE ALL YOUR CARGO OF "X$
3650 GO TO 4000
3999 STOP
4000 PRINT AT 17,14; INK 6;"FE"
4010 FOR Z=-60 TO 60: BEEP .007,
Z: NEXT Z
4020 FOR Z=17 TO 8 STEP -1: PRIN
T AT Z,14; INK 6;"FE": BEEP .01,
Z: PAUSE 4: PRINT AT Z,14;"(2*sp
)": NEXT Z
4025 PRINT AT 8,14; INK 6;"FE":
PAUSE 20: PRINT AT 8,16; INK 2;"
H": BEEP .1,30
4030 FOR Z=14 TO 0 STEP -1
4040 PRINT AT 8,Z; INK 6;"FE "
: PAUSE 3: NEXT Z
4050 PRINT AT 8,0;"(2*sp)"
4060 PAUSE 100: GO TO 200
4200 LET X=INT (RND*4)
4201 IF X=0 THEN LET Y=2
4202 IF X=1 THEN LET Y=4
4203 IF X=2 THEN LET Y=10
4204 IF X=3 THEN LET Y=5
4210 PRINT AT 0,0;"YOU WE'RE ROB
BED BY TWO THIEFS BEFORE YOU TO
OK OFF.THEY MADE OFF WITH "MO
/Y;" @"
4220 LET MO=MO-(MO/Y)
4230 GO TO 4000
4400 LET A=INT (RND*3)
4401 IF A=0 THEN LET Y=2
4402 IF A=1 THEN LET Y=4
4403 IF A=2 THEN LET Y=10
4410 PRINT AT 0,0;"YOU WE'RE HI-
JACKED IN SPACE BY PIRATES WHO S
TOLE 1/"Y;" OF YOUR CARGO"
4415 LET SP=SP+(FO/Y)+(CL/Y)+(AL
/Y)+(GO/Y)+(DI/Y)
4420 LET FO=FO-(FO/Y)
4430 LET CL=CL-(CL/Y)
4440 LET AL=AL-(AL/Y)
4450 LET GO=GO-(GO/Y)
4460 LET DI=DI-(DI/Y)
4480 GO TO 4000
4600 PRINT AT 17,14; INK 6;"FE"
4610 FOR W=30 TO 14 STEP -1: PRI
NT AT 3,W; INK 7;"CD ": BEEP .07
,30: PAUSE 4: NEXT W: PAUSE 30
4620 FOR W=4 TO 16: PRINT AT W,1
4;"**": BEEP .07,-W-10: PAUSE 1:
PRINT AT W,14;"(2*sp)": NEXT W
4630 PRINT AT 17,14; INK 2;"GG"
4640 BEEP 2,-40

```

```

4645 LET X=INT (RND*3000)+1000
4650 PRINT AT 0,0;"AN IMPERIAL S
AUCER BLEW UP YOUR SHIP AND IT C
OST "X;" @ TO REPAIR IT"
4660 LET MO=MO-X
4670 PAUSE 200: GO TO 200
4800 PRINT AT 17,14; INK 6;"FE"
4810 FOR Z=-60 TO 60: BEEP .007,
Z: NEXT Z
4820 FOR Z=17 TO 8 STEP -1
4830 PRINT AT Z,14; INK 6;"FE":
BEEP .01,z: PAUSE 3: PRINT AT z,
14;"(2*sp)": NEXT z
4835 PRINT AT 8,14; INK 6;"FE":
PAUSE 20: PRINT AT 8,16; INK 2;"
H": BEEP .1,30
4840 PRINT AT 8,14; INK 6;"FE"
4845 LET z=1: LET x=0
4850 FOR q=14 TO 7 STEP -1
4860 PRINT AT 8,q; INK 6;"FE "
: AT z,x; INK 4;"E": BEEP .07,0: P
AUSE 3: PRINT AT Z,X;"(sp)": LET
z=z+1: LET x=x+1: NEXT q
4870 PRINT AT 8,q+1; INK 2;"GG":
BEEP 2,-40
4875 LET X=INT (RND*4000)
4880 PRINT AT 0,0;"YOU RAN INTO
A FLYING SAUCER IN THE AIR.IT CO
ST "X;" @ TO REPAIR"
4890 LET MO=MO-X
4900 PAUSE 200: GO TO 200
7000 BORDER 2: PAPER 0: INK 7: C
LS
7005 PRINT AT 10,7;"(ic,i0,iN,ig
,iR,iA,iT,iU,iL,iA,iT,iI,i0,iN,i
S)";AT 13,5;"(iY,i0,iU,i,iR,iE,
ig8,iA,ig8,iM,iI,iL,iI,i0,iN,
iA,iI,iR,iE)"
7010 FOR A=0 TO 50: LET B=INT (R
ND*8)
7020 BORDER B: NEXT A
7030 BORDER 2
7040 BEEP .3,0: BEEP .2,2: BEEP
.2,4: BEEP .4,5: BEEP .3,0: BEEP
.2,5: BEEP .2,4: BEEP .2,5: BEE
P .2,7: BEEP .2,2: BEEP .2,2: BE
EP .3,4: BEEP .3,5: BEEP .4,9: B
EEP .2,7: BEEP .2,7: BEEP .2,5:
BEEP .2,5: BEEP .2,4: BEEP .2,2:
BEEP .2,4: BEEP .5,5
7050 CLS
7060 PRINT AT 1,1;"WELL DONE "N
$
7070 PRINT AT 3,1;"YOU'VE ACHIEV
ED YOUR AIM AND BECOME A MILL
IONAIRE.NOW YOU CAN RETIRE TO
A PEACEFUL PLANET FOR THE REST
OF YOUR LIFE."
7080 GO TO 8500
8000 BORDER 0: PAPER 0: INK 7: C
LS
8010 PRINT AT 0,0;"YOU'RE SKINT
"N$
8020 PRINT AT 2,1;"YOU'VE LOST E
VERYTHING.YOU'RE SHIP,MONEY AN
D HOME.THE PEOPLE YOU OWE MONEY
TO HAVE BANISHED YOU TO A PRIS
ON SHIP IN THE FROZEN WASTES
..FOREVER...."
8500 PRINT AT 10,1;"1 . SAVE 'SP
ACE TRADER';AT 12,1;"2 . LOAD T
HE NEXT PROGRAM";AT 14,1;"3 . NE
W 'SPACE TRADER';AT 16,1;"4 . P
LAY ANOTHER GAME"
8510 INPUT "ENTER YOUR CHOICE (
1 TO 4 ) ? "CH: BEEP .1,0
8520 IF CH<>1 AND CH<>2 AND CH<>
3 AND CH<>4 THEN GO TO 8510
8530 IF CH=1 THEN SAVE "SP.TRAD
ER" LINE 1: PRINT AT 20,1;"VERYI
FYING 'SP.TRADER': VERIFY 'SP.T
RADER"
8540 IF CH=2 THEN LOAD ""
8550 IF CH=3 THEN NEW
8560 RUN
8999 STOP
9000 FOR A=USR "A" TO USR "H"+7:
READ AA: POKE A,AA: NEXT A
9001 DATA 60,255,60,0,126,255,21
9,195
9002 DATA 0,0,0,24,36,255,36,0
9003 DATA 0,0,2,7,9,255,9,2
9004 DATA 0,0,32,224,144,255,144
,64
9005 DATA 4,12,255,255,255,96,48
,255
9006 DATA 0,0,31,63,255,48,24,25
5
9007 DATA 34,56,83,29,12,240,32,
50
9008 DATA 2,28,0,127,0,28,2,0
9009 RETURN

```


MASOCHISTS will love **Dead Eyed Dick**, a horrendously difficult levels and ladders game by David Fryett of Abbey Wood, London.

Guide Dick around five screens of ovoid bricks, flashing footholds, ramps and poles to collect 30 pieces of the secret code. You will have to be accurate to a single pixel if you are going to win. This one is absolutely vile, and runs on the 48K Spectrum or Spectrum Plus. **Jet Set Willy**, eat your heart out.

There are two listings. Type in the first and save it with SAVE "name" LINE 1. Then type in the second listing and RUN it. The machine code will be POKEd into memory and automatically saved onto the tape. Then the first listing will run and load the code automatically.

The program uses our special abbreviations for graphics characters, so please read the instructions on the first page of Program Print-out before typing in the listings.

Listing 1

```

1 REM DEAD EYED
2 CLEAR 64499
3 LOAD ""CODE 64500
4 LET h$="D.FRYETT": LET hi=5
50: LET sc=0: LET pp=0: DIM m$(5)
: LET m$(1)="o": LET m$(2)="p":
LET m$(3)="w": LET m$(4)="q": L
ET m$(5)="e"
5 BORDER 2: PAPER 0: INK 6: B
RIGHT 1: PRINT #1: CLS
6 LET m=0: LET d=0
7 LET sh=1: LET qe=5
8 LET co=0: LET jj=0
9 LET me=3: GO SUB 9500
10 DEF FN a(x)=x/8-.4
11 DEF FN p(y)=y/8-21.4
12 CLS : PRINT TAB 9: INK 7;"D
EAD EYED DICK": PRINT AT 9,0: IN
K 7:"KEYS"
13 LET a$="": RESTORE 3650: FO
R f=1 TO 5: INK RND*6+1: READ a$
: PRINT AT f+10,0;a$;"(sp)";m$(
f): NEXT f: PRINT AT 0,0:""
14 LET fi=0: GO SUB 270: PRINT
AT 2,0:
15 PRINT "D TO DEFINE KEYS""S
TO START""I TO PRINT INSTRUCTI
ONS"
16 IF INKEY$="s" THEN GO TO 2
0
17 IF INKEY$="d" THEN GO TO 3
500
18 IF INKEY$="i" THEN GO TO 5
50
19 GO TO 16
20 IF pp=0 THEN CLS : PRINT A
T 11,10: PAPER 2: FLASH 1:"PLEAS
E WAIT": GO SUB 500: GO SUB 7800
45 REM ***SETUP SCREEN*****
50 CLS : RESTORE 4999+sh: FOR
f=1 TO 28: READ a,b: PRINT AT a,
b: INK RND*6+1:CHR$ 145:CHR$ 146
51 NEXT f: FOR f=154 TO 159: R

```

```

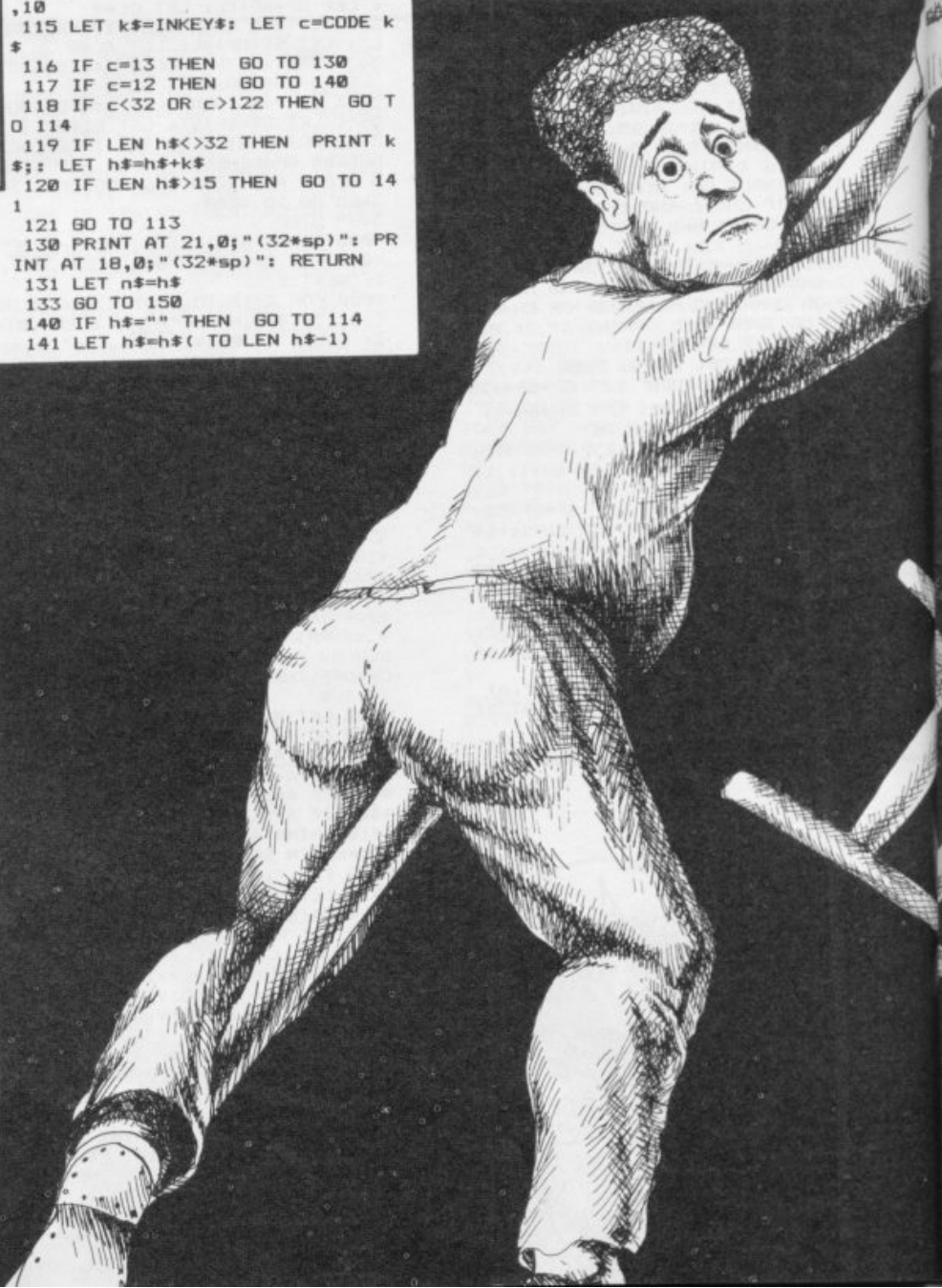
EAD g,h: PRINT AT g,h: INK RND*6
+1: FLASH 1:CHR$ f: NEXT f: READ
b,n,z: LET x=b: LET y=n: LET am
=z-INT (RND*10)
52 LET x1=x: LET y1=y
53 GO SUB 799+sh
54 PRINT #1: INK 7: PAPER 2;"A
MOUNT OF MOVES ALLOWED ARE ";am;
"(sp)"
55 PRINT AT 0,21: INK 4;"SCREE
N:- 00"
56 IF sh<10 THEN PRINT AT 0,3
1: INK 4;sh
57 IF sh>9 THEN PRINT AT 0,30
: INK 4;sh
59 REM *****PRINT CODES*****
99 GO TO 350
100 STOP
104 IF sc<hi THEN RETURN
105 PRINT INK 2: PAPER 6: BRIG
HT 1: FLASH 1:"NEW HIGH SCORE"
106 FOR f=1 TO 3: GO SUB 200: N
EXT f
107 LET hi=sc
108 PRINT AT 18,0:"PLEASE ENTER
YOUR NAME."
110 PRINT AT 21,0;"(32*sp)"
111 LET h$=""
112 PRINT AT 21,0:
113 PRINT FLASH 1;"(sp)";CHR$
B;
114 PAUSE 1: PAUSE 0: BEEP 0.01
,10
115 LET k$=INKEY$: LET c=CODE k
$
116 IF c=13 THEN GO TO 130
117 IF c=12 THEN GO TO 140
118 IF c<32 OR c>122 THEN GO T
O 114
119 IF LEN h$<>32 THEN PRINT k
$: LET h$=h$+k$
120 IF LEN h$>15 THEN GO TO 14
1
121 GO TO 113
130 PRINT AT 21,0;"(32*sp)": PR
INT AT 18,0;"(32*sp)": RETURN
131 LET n$=h$
133 GO TO 150
140 IF h$="" THEN GO TO 114
141 LET h$=h$( TO LEN h$-1)

```

```

142 IF LEN h$<>31 THEN PRINT "
(sp)";CHR$ B;
143 PRINT CHR$ 8;"(sp)";CHR$ 8;
144 GO TO 113
199 RETURN
200 RESTORE 210
201 FOR f=1 TO 8: READ t,n
202 BEEP t,n: NEXT f
205 RETURN
210 DATA 0.1,11,0.1,11,0.8,16,0
.05,11,0.05,16,0.05,11,0.05,16,1
,20
270 INK 5: PRINT AT 6,0;"HI SCO
RE:- ";hi
271 PRINT AT 7,0;"BY: ";h$: INK
6
275 RETURN
349 STOP
398 PRINT AT 0,13: INK 5;"MEN:
";me;AT 0,0: INK 3;"MOVES:- "
399 REM *****START OF GAME****
400 PRINT AT 0,8: INK 3;m
401 IF POINT (x+5,y-8)<>1 AND P
OINT (x+1,y-8)<>1 THEN GO TO 70
00
403 LET d=0
405 IF INKEY$=m$(1) AND x>1 THE
N LET x=x-1: LET m=m+1
406 IF INKEY$=m$(2) AND x<249 T
HEN LET x=x+1: LET m=m+1
407 IF INKEY$=m$(4) THEN GO TO
1000

```



DEADEYED DICK

Program Printout

```

408 IF INKEY$=M$(3) THEN GO TO 1500
409 IF INKEY$=M$(5) THEN GO TO 2000
480 RANDOMIZE X AND Y=SHAPE+USR
64500
481 BEEP .04,0
483 RANDOMIZE X AND Y=SHAPE+USR
64500
484 IF ATTR (FN P(Y),FN O(X))>1
92 AND FI=0 THEN GO SUB 900
490 GO TO 400
499 REM *****GRAPHICS*****
500 RESTORE 600: FOR I=USR "A"
TO USR "P"+7
501 READ D
502 POKE I,D
503 NEXT I
504 LET SHAPE=144
505 RETURN
509 REM **ALL SCREENS FINSHED**
510 CLS : PRINT TAB 10; BRIGHT
1; INK 6; PAPER 2; FLASH 1;"WELL
DONE": INK 5
511 PRINT "FANTASTIC.....
.....BRILLIANT.....
.....UNBELIEVABLE.....
.....""THE IMPOSSIBLE H
AS BEEN DONE YOU HAVE COMPLET
ED ALL THE SCREENS I SUPPOS
E THE BEST THING I CAN DO N
OW IS GIVE YOU 2000 POINTS AND
PUT YOU BACK ON SCREEN 1"
512 GO SUB 200: PAUSE 50: FOR F
=0 TO 50: BEEP .01,RND*60: NEXT
F: PRINT ""PRESS ANY KEY TO ST
ART SCREEN 1"
513 INK 6: LET SC=SC+2000: LET
SH=1: LET SHAPE=144: LET FI=0: L
ET D=0: LET PP=0: FOR F=0 TO 10:
NEXT F
514 IF INKEY$<>"" THEN GO TO 4
5
515 GO TO 514
539 REM *****
540 REM *****
541 REM *****INSTRUCTIONS*****
550 CLS
551 PRINT TAB 10; INK 5; PAPER
1; BRIGHT 1; FLASH 1;"INSTRUCTIO
NS"
552 LET I$="HI MY NAME IS DICK
I FEEL THAT I SHOUL
D WARN YOU THAT THIS GAME IS A
CCURATE TO 1 PIXEL SO YOU WILL N

```

```

EED TO BE DEAD EYED DICK TO C
OMLETE JUST ONE OF THE MANY SCR
EENS. I'M NOT GOING TO TE
LL YOU TOO MUCH BUT I WILL TEL
L YOU THAT YOU HAVE TO COLLECT
SIX PARTS OF A SECRET CODE TO
COMPLETE A SCREEN THE REST IS
FOR YOU TO FIND OUT.THIS GAME
COULD KEEP YOU AMUSED FOR WEEK
S MONTHS WHO KNOWS MAYBE EVEN YE
ARS. GOOD LUCK....."
553 LET C=1: LET T=3: LET H=0:
LET W=LEN I$: LET K=32
554 REM *****
555 FOR F=H+1 TO W
557 IF F=K THEN GO SUB 561
558 BEEP .01,40: PRINT AT T,F-C
;I$(F)
559 NEXT F: REM *****
560 GO TO 569
561 LET K=K+32: LET T=T+1: LET
C=C+32: RETURN
569 PRINT "EXTRA MAN AWARDED A
T 1000 POINTS""PRESS ANY KEY T
O RETURN TO MENU"
570 FOR F=0 TO 60: NEXT F
571 IF INKEY$="" THEN GO TO 57
1
572 GO TO 12
600 DATA 56,56,56,254,56,68,68,
68
601 DATA 63,104,208,168,192,224
,124,63
602 DATA 252,22,47,21,11,55,254
,252
603 DATA 24,24,10,60,8,21,34,19
2,24,24,80,60,16,168,68,3,24,24,
8,28,8,53,194,0
604 DATA 24,24,16,56,16,188,67,
0,24,24,16,56,82,28,32,192,24,24
,8,28,74,56,4,3
605 DATA 16,56,124,16,16,16,16,
16,0,0,238,136,238,40,238,0,0,0,
238,138,142,140,234,0,0,0,238,13
2,196,132,228,0
606 DATA 0,0,224,128,238,128,22
4,0,0,0,238,138,138,138,238,0,0,
0,206,168,174,168,206,0
700 REM *****FINISHED SCREEN*****
701 FOR F=0 TO 31: RANDOMIZE US
R 64300: RANDOMIZE USR 64350: NE
XT F: BEEP 0.1,60: LET SEC=0: CLS
: PRINT AT 5,11; INK 4; PAPER 1
: FLASH 1;"KLHNP": FOR F=0
TO 7
702 LET SEC=INT (RND*90): IF SE
C<48 OR SEC>27 AND SEC<65 THEN
GO TO 702
703 BEEP .01,10: PRINT AT 7,11+
F; INK 5;CHR$ SEC: NEXT F: PRINT
: PRINT
704 IF M>AM THEN GO TO 750
705 LET SHAPE=144: PRINT "SCREE
N ";SH;" COMPLETED"
706 LET SC=SC+100*SH: LET SC=SC
-INT (M/15): PRINT 100*SH;"POIN
TS AWARDED": PRINT "YOU HAVE SCO
RED ";SC;" POINTS": LET SH=SH+1:
IF SC>1000 AND JJ=0 THEN GO SU
B 720
707 FOR F=0 TO 400: NEXT F: IF
SH-1=QE THEN GO TO 510
708 PRINT "PRESS ANY KEY TO TRA
NSPORT TO SCREEN ";SH;" PLEASE
": LET M=0: LET FI=0: LET CO=0:

```

```

FOR F=0 TO 50: NEXT F
709 IF INKEY$="" THEN GO TO 70
9
710 GO TO 45
711 STOP
720 GO SUB 200: LET JJ=1
721 PRINT "EXTRA MAN AWARDED YO
U HAVE SCORED OVER 1000 POI
NTS"
722 LET ME=ME+1
725 RETURN
750 PRINT
755 LET M=0: LET FI=0: LET CO=0
756 LET X=245: LET Y=15
795 PRINT "YOU HAVE TAKEN MORE
MOVES THEN ALLOWED YOU,WILL HAV
E TO ATTEMPTSCREEN ";SH;" AGAIN.
": LET M=0: LET PP=0: LET FI=0
796 LET SHAPE=144: FOR F=0 TO 4
00: NEXT F: CLS : GO TO 45
797 REM *****
798 REM *****
799 REM *****
800 PLOT 245,16: PLOT 40,120: D
RAW 40,3: PRINT AT 21,30;"(IG2,I
G7)":AT 9,13; FLASH 1; BRIGHT 0;
"(G3,IG3)": PRINT AT 12,7;"_(IG
6)":AT 13,6;"-": PLOT 165,110: D
RAW -50,17: PLOT 155,2: DRAW -80
,20: DRAW -10,13: RETURN
801 PRINT AT 20,30;"(IG8)": PLO
T 80,23: PLOT 79,39: DRAW 0,23:
PLOT 205,0: DRAW 50,30: PLOT 5,2
0: DRAW 0,88: PLOT 150,100: DRAW
18,0: PLOT 190,100: PLOT 200,10
0: DRAW 47,-8: PRINT AT 12,31;"E
": PRINT AT 16,31; BRIGHT 0;"E";
AT 14,30;"(G4,G1)": PLOT 253,100
: RETURN
802 PLOT 126,50: DRAW -30,10: P
LOT 130,50: DRAW 30,10: PRINT AT
19,30; BRIGHT 0; FLASH 1;"(IG6,
G6)": PRINT AT 7,15; BRIGHT 0; F
LASH 1;"(IG3,G3)":AT 5,15; FLASH
1; BRIGHT 0;"(G3,IG3)": PLOT 12
6,25: DRAW 0,80: DRAW -85,20: PL
OT 130,25: DRAW 0,80: DRAW 85,20
: RETURN
803 FOR F=3 TO 9: PRINT AT F,20
+F;"+": NEXT F: LET B=15: FOR F=
13 TO 130 STEP 25: PLOT 245+RND*
9,F: NEXT F: PLOT 50,140: DRAW 1
0,-5: PLOT 60,40: DRAW 10,5: FOR
F=80 TO 45 STEP -5: PLOT B,F: L
ET B=B-1: NEXT F: RETURN
804 PLOT 230,50: DRAW 2,0: PLOT
225,5: DRAW 13,0: PLOT 78,48: D
RAW 5,0: PLOT 52+RND*7,83: DRAW
4,0: PLOT 1+RND*8,30: DRAW 0,40:
PLOT 1+RND*10,100: DRAW 0,40: R
ETURN
899 STOP
900 LET CO=CO+1
901 BEEP 0.1/2,-10
902 FOR F=0 TO 40: BORDER RND*6
+1: BORDER 0: NEXT F
903 BORDER 2
904 GO SUB 200
908 PRINT AT FN P(Y),FN O(X); P
APER 0; INK 6;"(SP)"
909 IF CO=6 THEN GO TO 9900
910 RETURN
999 REM *****JUMP LEFT*****
1000 FOR F=0 TO 29: IF FI=1 AND
Y>170 THEN GO TO 700
1001 IF F<15 THEN LET X=X-1: LE
T Y=Y+1: LET SHAPE=152
1002 IF F>14 AND F<20 THEN LET
X=X-1: LET SHAPE=149
1003 IF F>19 AND F<27 THEN LET
X=X-1: LET Y=Y-1: LET SHAPE=147
1004 IF X<1 THEN LET X=X+1
1005 RANDOMIZE X AND Y=SHAPE+USR
64500
1006 BEEP .01,60
1009 RANDOMIZE X AND Y=SHAPE+USR
64500
1050 NEXT F
1051 LET SHAPE=144
1060 LET M=M+1
1100 GO TO 480

```

continued on page 82


```

1499 REM *****JUMP UP*****
1500 FOR y=y TO y+15
1501 IF fi=1 AND y>170 THEN GO
TO 700
1504 RANDOMIZE x AND y=shape+USR
64500
1505 BEEP .01,10
1506 RANDOMIZE x AND y=shape+USR
64500
1507 NEXT y
1508 LET m=m+1
1510 GO TO 400
1999 REM *****JUMP RIGHT*****
2000 FOR f=0 TO 29
2001 IF fi=1 AND y>170 THEN GO
TO 700
2002 IF f<15 THEN LET x=x+1: LE
T y=y+1: LET shape=151
2003 IF f>14 AND f<20 THEN LET
x=x+1: LET shape=150
2004 IF f>19 AND f<27 THEN LET
x=x+1: LET y=y-1: LET shape=148
2005 IF x>248 THEN LET x=x-1
2006 RANDOMIZE x AND y=shape+USR
64500
2008 BEEP .01,60
2010 RANDOMIZE x AND y=shape+USR
64500
2050 NEXT f
2051 LET shape=144
2052 LET m=m+1
2053 GO TO 400
3500 REM **DEFINE KEYS*****
3501 CLS : RESTORE 3600: READ nk
3502 PRINT "USER DEFINED KEYS";
"SELECT NOW": LET m$=""
3503 LET f=4: FOR i=1 TO nk
3504 LET m$=m$+CHR$ 0
3505 READ d$
3507 PRINT AT f,0;d$
3508 PRINT AT f,LEN d$+1: FLASH
1;"?";CHR$ 0;
3509 LET f=f+2
3511 PAUSE 1: PAUSE 0
3512 LET k$=INKEY$
3513 LET sel=0
3514 FOR j=1 TO LEN m$
3515 IF m$(j)=k$ THEN LET sel=1
3516 NEXT j
3517 IF sel THEN GO TO 3700
3518 LET m$(i)=k$
3519 PRINT k$
3520 NEXT i
3521 PRINT #1:"PRESS ANY KEY TO
RETURN TO MENU"
3522 PAUSE 0
3523 GO TO 12
3600 DATA 5,"LEFT","RIGHT","JUMP
UP","JUMP LEFT","JUMP RIGHT"
3650 DATA "LEFT","RIGHT","JUMP U
P","JUMP LEFT","JUMP RIGHT"
3699 STOP
3700 PRINT AT 21,0;"KEY ALREADY
DEFIND"
3701 FOR f=0 TO 100: NEXT f: CLS
: GO TO 3500
4999 REM *****SCREEN DATA*****
5000 DATA 17,5,15,22,6,24,7,28,8
,23,10,2,9,4,18,30,16,30,3,5,3,2
,21,0,21,4,20,6,10,10,10,20,11,2
,12,24,14,25,9,17,8,15,14,30,3,
10,4,13,15,5,10,2,17,20,15,17,13
,25,20,0,20,18,14,18,6,29,2,2,24
5,16,405
5001 DATA 17,10,13,3,15,4,17,4,1
9,5,8,3,6,0,6,3,6,6,9,5,14,7,1
2,21,0,3,30,5,30,7,30,10,5,11,7,
12,9,13,11,14,13,15,16,19,16,17,
21,15,25,17,24,13,25,8,16,20,1,2
0,26,13,17,15,11,5,7,16,21,120,1
46,485
5002 DATA 11,2,11,28,13,30,13,26
,13,22,13,0,13,4,13,8,21,0,21,3,
21,6,21,9,21,12,20,15,21,18,21,2
1,21,24,21,27,21,30,4,0,4,4,4,8,
4,30,4,26,4,22,6,2,6,28,3,15,17,
30,2,15,4,15,2,22,9,2,9,29,8,15,
350
5003 DATA 10,0,10,4,8,7,3,0,3,4,
5,9,7,12,9,15,11,15,13,12,15,9,1
7,4,17,0,19,0,21,0,21,4,21,8,21,
12,21,16,21,20,21,24,21,27,21,30
,18,30,15,30,12,30,9,30,6,30,9,0
,9,5,7,8,7,29,14,10,1,22,5,160,3
65
5004 DATA 3,0,4,4,5,8,6,12,7,16,
8,20,9,24,10,28,11,30,19,28,13,2

```

```

4,14,20,15,16,16,12,17,8,18,4,19
,0,21,0,21,5,21,10,21,15,21,20,2
1,25,21,30,10,10,12,10,11,0,11,4
,10,0,14,9,8,11,8,29,17,28,14,28
,8,165,290
6998 REM *****
6999 REM *****DROPPING*****
7000 LET y=y-1: LET d=d+1: IF d>
15 OR y<7 THEN GO TO 8000
7001 RANDOMIZE x AND y=shape+USR
64500
7002 BEEP .01,45
7003 RANDOMIZE x AND y=shape+USR
64500
7004 IF ATTR (FN p(y),FN o(x))>1
92 AND fi=0 THEN LET d=-4: GO S
UB 900
7005 GO TO 400
7799 REM *****
***MACHINE CODE FOR SCROLLING***
***SCREEN LEFT*****
7800 RESTORE 7900: FOR f=64300 T
O 64320
7802 READ a: POKE f,a
7850 NEXT f
7861 RESTORE 7901: FOR f=64350 T
O 64372
7862 READ a: POKE f,a
7865 NEXT f: RETURN
7900 DATA 33,0,64,85,62,192,6,31
,35,94,43,115,35,16,249,114,35,6
1,32,242,201
7901 DATA 33,0,88,58,0,91,14,24,
6,31,35,94,43,115,35,16,249,119,
35,13,32,242,201
7999 REM ***HIGH DROP*****
8000 FOR f=0 TO 100: LET y=y-1
8001 IF POINT (x+5,y-8)=1 OR POI
NT (x+1,y-8)=1 OR y<7 THEN GO T
O 8100
8003 RANDOMIZE x AND y=shape+USR
64500
8004 BEEP .01,10
8005 RANDOMIZE x AND y=shape+USR
64500
8010 IF ATTR (FN p(y),FN o(x))>1
92 THEN GO SUB 900
8050 NEXT f
8099 REM ****LOSE A MAN*****
8100 LET me=me-1: LET y=y1: LET
x=x1: LET d=0
8101 BEEP .525/3,3: BEEP .525/3,
3: BEEP .1125/3,3: BEEP .373/3,3
: BEEP .1125/3,3: BEEP .375/3,3:
BEEP .3/3,6: BEEP .3/3,5: BEEP
.3/3,3: BEEP .375/3,3: BEEP .112
5/3,3: BEEP .375/3,3
8103 IF me<1 THEN BEEP 1,1: FOR
f=0 TO 23: INK 0: RANDOMIZE USR
3582: NEXT f: INK 6: CLS : GO T
O 8450
8105 GO TO 350
8200 REM *****GAME-OVER*****
8450 LET sc=sh*250+co*100-m/11:
LET sc=INT sc
8498 BEEP 01,10: LET d$="NOT A B
AD SCORE"
8499 IF sc>499 AND sc<1000 THEN
LET d$="AVERAGE"
8500 IF sc>0 AND sc<499 THEN LE
T d$="POOR"
8501 IF sc>999 THEN LET d$="OUT
STANDING"
8502 LET f$="PARTS": IF co=1 THE
N LET f$="PART"
8503 PRINT INK 6;"GAME OVER": I
NK 4;"YOU HAVE MANAGED TO COLL
ECT ";co;"(3*sp)";f$;" OF THE SE
CRET CODE IN SCREEN ";sh
8504 PRINT "YOU HAVE A SCORE OF
";sc: PRINT "OVERALL RATING "; I
NK 7;d$: PRINT : GO SUB 104
8506 LET pp=1: LET m=0
8507 FOR f=0 TO 50: NEXT f
8508 PRINT AT 21,0: INK 5;"PRESS
ANY KEY TO PLAY AGAIN"

```

```

8509 FOR f=0 TO 20: NEXT f
8510 IF INKEY$="" THEN GO TO 85
10
8598 GO TO 5
8599 STOP
9500 PRINT "DO YOU WISH TO CARRY
ON FROM A PREVIOUS GAME Y/N."
9501 IF INKEY$="y" THEN GO TO 9
600
9502 IF INKEY$="n" THEN CLS : R
ETURN
9503 GO TO 9501
9600 CLS : LET u=0
9601 PRINT AT 20,0;"PLEASE ENTER
SCREEN NUMBER"
9602 INPUT "SCREEN NUMBER :";s$
9603 LET u=CODE s$
9604 IF u<49 OR u>57 OR LEN s$>2
OR VAL s$>qe THEN GO TO 9601
9605 LET s=VAL s$: LET sh=s
9606 CLS
9607 PRINT AT 20,0;"PLEASE ENTER
SCORE"
9608 INPUT "SCORE :";r$
9610 LET ma=CODE r$
9611 IF ma<49 OR ma>57 OR LEN r$
>5 THEN GO TO 9607
9612 LET r=VAL r$: LET sc=r
9614 CLS
9616 PRINT AT 20,0;"PLEASE ENTER
AMOUNT OF MEN"
9617 INPUT "ENTER AMOUNT OF MEN
:";v$: IF VAL v$=4 AND sc<1000 T
HEN GO TO 9616
9618 LET j=CODE v$: IF j<49 OR j
>52 THEN GO TO 9616
9619 LET me=VAL v$
9620 CLS : RETURN
9700 STOP
9989 REM *ALL CODES COLLECTED**
9990 PRINT AT 0,21: INK 6; PAPER
2; FLASH 1;"جول جول OUT جول"
9995 BEEP .5,-10
9997 LET fi=1
9999 GO TO 400

```

Listing 2

```

10 REM code loader
20 CLEAR 64499
30 FOR x=64500 TO 64619
40 READ a: POKE x,a
50 NEXT x
60 PRINT "Prepare tape to save
code. The code should be saved
just after the main listing."
70 SAVE "dcode"CODE 64500,119
80 STOP
100 DATA 42,101,92,229,235,42,9
9,92,1,15,0,9,237,82,40,2,207,25
110 DATA 205,162,45,254,128,56,
11,71,214,144,56,19,237,91,123
120 DATA 92,24,4,237,91,54,92,3
8,0,111,41,41,41,25,24,6,205,56
130 DATA 11,33,146,92,229,221,2
25,205,162,45,103,229,205,162,45
140 DATA 225,111,229,14,8,225,3
7,229,36,197,68,77,205,170,34
150 DATA 193,71,175,176,221,126
,0,40,17,235,38,0,111,62,8,144
160 DATA 71,41,16,253,235,126,1
70,119,35,123,174,119,221,35,13
170 DATA 32,213,225,225,34,101,
92,201

```

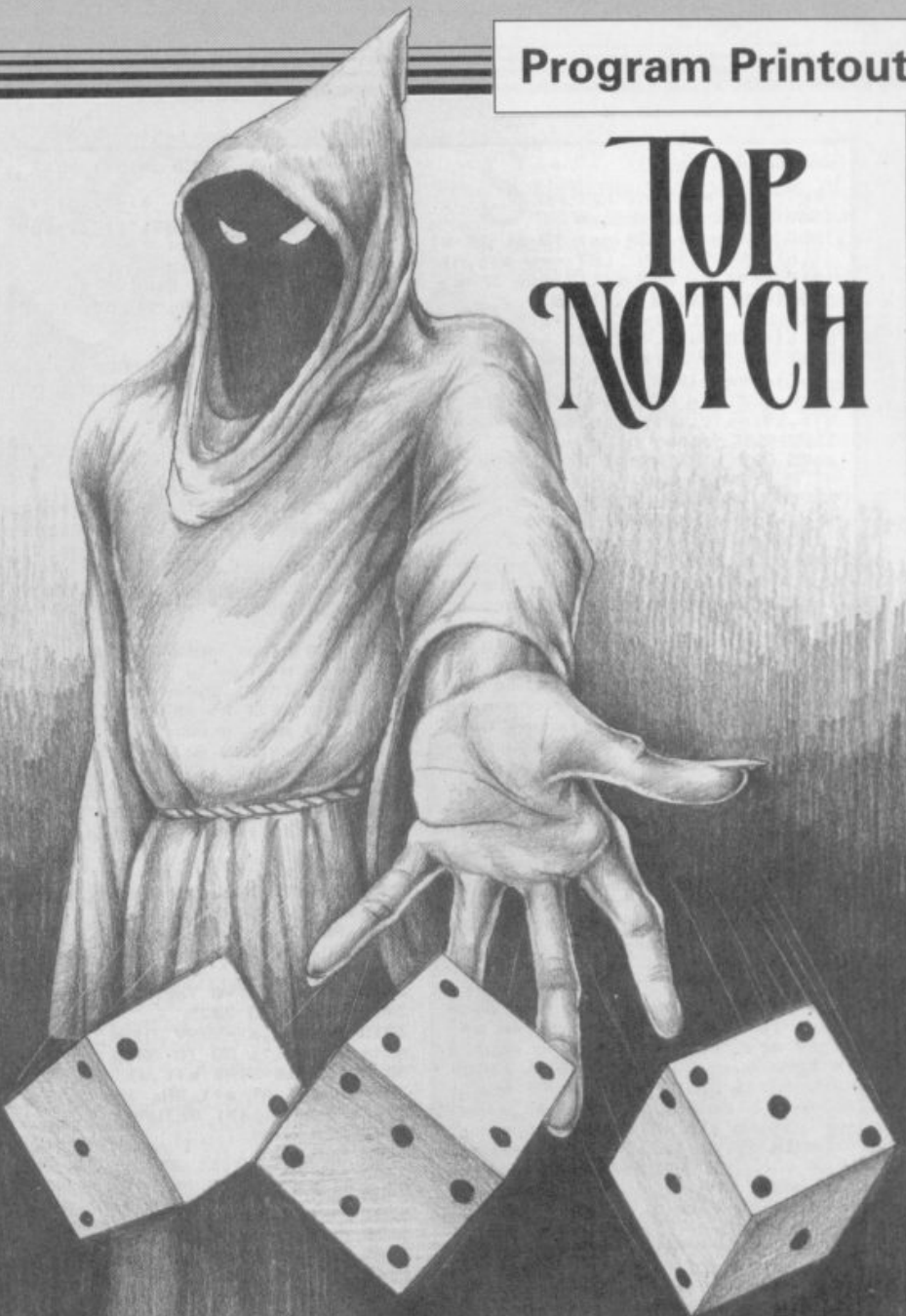


ROLL 'DEM BONES, stranger, in a crisp version of the traditional dice game Yahtzee. Written for the 48K Spectrum by Steve Movatt of Leigh-on-Sea, Essex, **Top Notch** can be played by 1-6 players.

16K Spectrum owners will find the game fits their machine if they leave out the instructions and REM statements. Remember to put a RETURN command in place of the instructions.

Top Notch uses our special abbreviations for graphics characters, so please read the instructions on the first page of Program Printout before typing in the program.

```
10 RANDOMIZE : POKE 23658,8: P
APER 4: BORDER 1: CLS : GO SUB 2
200: GO SUB 2000: GO SUB 1700: G
O SUB 1900: GO SUB 1950: GO SUB
2300
20 GO SUB 1600
30 GO SUB 1800: GO SUB 2700
35 GO SUB 1000
39 REM main loop
40 FOR g=1 TO 13: FOR t=1 TO p
: GO SUB 2800: GO SUB 2100: GO S
UB 1400: FOR c=1 TO 3: GO SUB 26
00: GO SUB 2450: GO SUB 2500
45 IF c=3 THEN GO TO 110
50 GO SUB 1300: IF a=6 THEN G
O TO 50
60 IF a=32 THEN GO TO 100
70 IF a=13 THEN LET c=3: GO T
O 110
80 GO SUB 2400: GO TO 50
100 GO SUB 2460: NEXT c
110 GO SUB 2500: GO SUB 2460: G
O SUB 2470: INPUT a: GO SUB 2460
: IF a>13 OR a<1 OR s(t,a+(3*(a>
6)))<>0 THEN GO TO 110
120 GO SUB 3000: GO SUB 2480: P
AUSE 0: GO SUB 2460: NEXT t: NEX
T g: FOR t=1 TO p: GO SUB 1500:
GO SUB 2800: GO SUB 2100: GO SUB
1400: PAUSE 300: NEXT t
125 FOR n=1 TO p: PRINT n$(n),s
(n,19): NEXT n
130 IF p=1 THEN LET s=1: GO TO
150
140 LET s=1: FOR n=1 TO p-1: IF
s(n,19)<s(n+1,19) THEN LET s=n
+1
145 NEXT n: PRINT "THE WINNER I
S ";n$(s)
150 IF s(s,19)>VAL h$(1) THEN
LET h$(1)=STR$ s(s,19): LET h$(2
)=n$(s)
160 PRINT "THE HIGH SCORE OF ";
h$(1): PRINT "IS HELD BY ";h$(2)
: PRINT "ANOTHER GAME"
170 IF INKEY$="N" THEN GO TO 9
999
180 IF INKEY$<>"Y" THEN GO TO
170
190 GO SUB 1800: GO TO 35
1000 REM print card
1005 CLS : RESTORE 1050: FOR n=2
TO 20: READ z$: PRINT PAPER 7:
AT n,14;z$: NEXT n: RESTORE 1060
: FOR n=2 TO 20: READ z$: PRINT
PAPER 5:AT n,26;z$: NEXT n: RES
TORE 1070: FOR n=2 TO 20: READ z
$: PRINT PAPER 6:AT n,12;z$: NE
XT n: FOR n=2 TO 20: PRINT PAPE
R 7:AT n,28:;(3*sp)": NEXT n: RE
STORE 1080: FOR n=1 TO 5: READ w
,x,y,z: PLOT w,x: DRAW y,z: NEXT
n: FOR n=160 TO 8 STEP -8: PLOT
96,n: DRAW 152,0: NEXT n: RETUR
```



TOP NOTCH

```
N
1050 DATA "(sp)ONES(7*sp)","(sp)
TWOS(7*sp)","(sp)THREES(5*sp)","
(sp)FOURS(6*sp)","(sp)FIVES(6*sp)
","(sp)SIXES(6*sp)","(sp)SUB TO
TAL(2*sp)","(sp)BONUS(6*sp)","(s
p)TOTAL(6*sp)","(sp)TRIO(4*sp)","
(sp)QUAD(7*sp)","(sp)FULL HOUSE(
sp)","(sp)MINOR RUN(2*sp)","(sp)
MAJOR RUN(2*sp)","(sp)POT LUCK(3
*sp)","(sp)TOP NOTCH(2*sp)","(sp)
SUB TOTAL(2*sp)","(sp)TOP TOTAL
(2*sp)","(sp)GRAND TOTAL"
1060 DATA "1","2","3","4","5",
"6","(2*sp)","50","(2*sp)","
FV","FV","25","35","45","FV","50
","(2*sp)","(2*sp)","(2*sp)"
1070 DATA "(sp)1","(sp)2","(sp)3
","(sp)4","(sp)5","(sp)6","(2*sp)
","(2*sp)","(2*sp)","(sp)7","(s
p)8","(sp)9","10","11","12","13"
","(2*sp)","(2*sp)","(2*sp)"
1080 DATA 96,160,0,-152,112,160,
0,-152,208,160,0,-152,224,160,0,
-152,248,160,0,-152
1100 REM print dice
1105 FOR n=1 TO 5: RESTORE 1110+
d(n,2): READ x,y,z: PRINT BRIGH
T 1: PAPER 7: INK 2:AT n*5-(n+3)
,1;g$(x):AT n*5-(n+2),1;g$(y):AT
n*5-(n+1),1;g$(z): NEXT n: RETU
RN
```

```
1111 DATA 1,4,1
1112 DATA 2,1,5
1113 DATA 2,4,5
1114 DATA 3,1,3
1115 DATA 3,4,3
1116 DATA 3,3,3
1200 REM choose dice
1205 FOR n=1 TO 5: IF d(n,1)=0 T
HEN NEXT n: RETURN
1210 LET d(n,2)=ABS (-1*(INT ((R
ND+.55)*5.5)-2)): NEXT n: RETURN
1300 REM keypress
1305 IF INKEY$<>" " THEN GO TO 1
305
1310 LET a=CODE INKEY$: IF (a<49
AND a<>32 AND a<>13) OR a>54 TH
EN GO TO 1310
1315 IF a<>13 AND a<>32 THEN LE
T a=a-48: BEEP .05,25: RETURN
1320 BEEP .05,25: BEEP .05,25: R
ETURN
1400 REM print score
1405 FOR n=1 TO 19: IF s(t,n)=0
THEN LET a$="(3*sp)": GO TO 142
0
1410 IF s(t,n)=9999 THEN LET a$
="(sp)-(sp)": GO TO 1420
1415 LET a$=STR$ s(t,n)
1420 PRINT OVER 1:AT n+1,28: PA
```

continued on page 84

continued from page 83

```

PER 7; a$: NEXT n: RETURN
1500 REM total scores
1505 LET s=0: FOR n=1 TO 6: IF s
(t,n)<>9999 THEN LET s=s+(t,n)
1510 NEXT n: LET s(t,7)=s: IF s>
=62 THEN LET s(t,8)=50
1515 LET s(t,9)=s(t,7)+s(t,8): L
ET s(t,10)=s(t,9): LET s=0: FOR
n=10 TO 16: IF s(t,n)<>9999 THEN
LET s=s+(t,n)
1520 NEXT n: LET s(t,17)=s: LET
s(t,19)=s(t,17)+s(t,18): RETURN
1600 REM number of players
1605 CLS: PRINT AT 21,0;"HOW MA
NY PLAYERS? (max 6)": GO SUB 130
0: IF a>6 THEN GO TO 1600
1610 CLS: LET p=a: RETURN
1700 REM print rules
1705 CLS: PRINT " This a game
for 1 to six players. The ob
ject is to obtain the highest sc
ore you can from three throws o
f one or all of the dice. To ho
ld a die press its corresponding
number and to throw them pre
ss space. The score card
shows a number of different ways
in which you can score and when
prompted you enter the numb
er corresponding with the metho
d desired."
1710 PRINT " You do not have to
take all three throws and if
you wish to score before your th
ird throw press enter.": PRINT
"PRESS ANY KEY TO CONTINUE "
1715 PAUSE 0: CLS: PRINT " One
s, twos etc score number of dice
correctly thrown by the value
of it.": PRINT " A trio scores
the face value of all the dice
providing at least three of
them are the same. The same applie
s to a quad but four must be th
e same.": PRINT " A minor run i
s four dice in order and a maj
or run is all five in order.":
PRINT " A full house consists
of two of a kind and three of
a kind.": PRINT " Pot luck is s
imply the face value of all th
e dice."
1720 PRINT "PRESS ANY KEY TO CON
TINUE": PAUSE 0: CLS: PRINT "
A top notch is all five dice th
e same. You get 50 points for th
e first one of these but a 100 po
ints for any other ones you ge
t. As well as the normal score yo
u would receive, if any, from wh
ere you place this score on yo
ur score card.": PRINT "PRESS AN
Y KEY TO START": PAUSE 0: RETURN

1800 REM define player arrays
1805 DIM s(p,19): DIM n$(p,10):
RETURN
1900 REM define dice array
1905 DIM d(5,2): RETURN
1950 REM set dice
1955 FOR n=1 TO 5: LET d(n,1)=1:
LET d(n,2)=n: NEXT n: RETURN
2000 REM define high score array
2005 DIM h$(2,10): LET h$(1)="0"
: RETURN
2100 REM clear score panels
2105 FOR n=2 TO 20: PRINT AT n,2
0; PAPER 7;"A_": NEXT n: RETURN

2200 REM define udgs
2205 RESTORE 2210: FOR n=0 TO 23
: READ z: POKE USR CHR$ 144+n,z:
NEXT n: RETURN
2210 DATA 128,128,128,128,128,12
8,128,255,1,1,1,1,1,1,255,255,
231,195,129,129,195,231,255
2300 REM define dice graphis
2310 DIM g$(5,3): RESTORE 2320:

```

```

FOR n=1 TO 5: READ g$(n): NEXT n
: RETURN
2320 DATA "(3*ig8)","(2*ig8)C","
C(ig8)C","(ig8)C(ig8)","C(2*ig8)
"
2400 REM print hold
2405 PRINT PAPER 0; INK 7; FLAS
H 1; AT a*5-(a+2),5;"HELD": LET d
(a,1)=0: RETURN
2450 REM choose dice
2455 PRINT AT 21,0; PAPER 7; INK
0;"CHOOSE DICE TO BE HELD": RET
URN
2460 REM print out line 21
2465 PRINT AT 21,0;"(32*sp)": RE
TURN
2470 REM choose score
2475 PRINT AT 21,0; INK 0; PAPER
7;"CHOOSE SCORE (1-13)": RETURN

2480 REM print next player
2485 PRINT AT 21,0; INK 0; PAPER
7;"NEXT PLAYER PRESS ANY KEY":
RETURN
2500 REM clear hold
2505 FOR n=1 TO 5: PRINT PAPER
4; AT n*5-(n+2),5;"(4*sp)": LET d
(n,1)=1: NEXT n: RETURN
2600 REM spin dice
2605 FOR a=1 TO 8: GO SUB 1200:
GO SUB 1100: NEXT a: RETURN
2700 REM state players names
2705 FOR n=1 TO p: INPUT "ENTER
PLAYER "; (n); n$(n): NEXT n: RETU
RN
2800 REM print in name
2805 PRINT AT 0,12; PAPER 3; INK
7;n$(t): RETURN
3000 REM calculate scores
3005 GO SUB 3000+(a*100): GO SUB
3010: RETURN
3010 IF s(t,a)=0 THEN LET a$="(
3*sp)": GO TO 3025
3015 IF s(t,a)=9999 THEN LET a$
="(sp)-(sp)": GO TO 3025
3020 LET a$=STR$ s(t,a)
3025 PRINT AT a+1,20; INK 0; PAP
ER 7; OVER 1;a$: RETURN
3100 REM ones
3200 REM twos
3300 REM threes
3400 REM fours
3500 REM fives
3600 REM sixes
3605 GO SUB 5000: IF co=5 AND s(
t,16)=50 AND d(1,2)=a THEN LET
s(t,a)=co*a+100: RETURN
3610 IF co=5 AND s(t,16)=50 AND
d(1,2)<>a THEN LET s(t,a)=100:
RETURN
3615 LET co=0: FOR n=1 TO 5: IF
d(n,2)=a THEN LET co=co+a
3620 NEXT n: IF co=0 THEN LET c
o=9999
3625 LET s(t,a)=co: RETURN
3700 REM trio
3800 REM quad
3805 LET a=a+3: LET s=0: FOR n=1
TO 5: LET s=d(n,2)+s: NEXT n: G
O SUB 5000: IF co=5 AND s(t,16)=
50 THEN LET s(t,a)=s+100: RETUR
N
3810 FOR n=1 TO 3-(a=11): LET co
=1: FOR m=n+1 TO 5: IF d(n,2)=d(
m,2) THEN LET co=co+1
3815 NEXT m: IF co>3+(a=8) THEN
LET s(t,a)=s: RETURN
3820 NEXT n: LET s(t,a)=9999: RE
TURN
3900 REM full house
3905 LET a=a+3: GO SUB 5000: IF
co=5 AND s(t,16)=50 THEN LET s(
t,a)=125: RETURN
3910 IF co=5 THEN LET s(t,a)=25
: RETURN
3915 IF co<2 OR co>3 THEN LET s(
t,a)=9999: RETURN
3920 FOR n=2 TO 5: IF d(1,2)=d(n
,2) THEN NEXT n
3925 LET s=1: FOR m=n+1 TO 5: IF
d(n,2)=d(m,2) THEN LET s=s+1

```



```

3930 NEXT m: IF s+co<>5 THEN LE
T s(t,a)=9999: RETURN
3935 LET s(t,a)=25: RETURN
4000 REM minor run
4005 GO SUB 4100: IF (s(t,a)=999
9 AND co>3) OR s(t,a)=100 THEN
RETURN
4010 FOR n=3 TO 4: FOR m=1 TO 5:
IF d(m,2)<>n THEN NEXT m: LET
s(t,a)=9999: RETURN
4015 NEXT n
4020 FOR n=1 TO 2: FOR m=1 TO 5:
IF d(m,2)<>n THEN NEXT m: GO T
O 4030
4025 NEXT n: LET s(t,a)=35: RETU
RN
4030 FOR n=5 TO 6: FOR m=1 TO 5:
IF d(m,2)<>n THEN NEXT m: GO T
O 4040
4035 NEXT n: LET s(t,a)=35: RETU
RN
4040 FOR n=2 TO 5 STEP 3: FOR m=
1 TO 5: IF d(m,2)<>n THEN NEXT
m: LET s(t,a)=9999: RETURN
4045 NEXT n: LET s(t,a)=35: RETU
RN
4100 REM major run
4105 LET a=a+3: GO SUB 5000: IF
co=5 AND s(t,16)=50 THEN LET s(
t,a)=100: RETURN
4110 IF co>2 THEN LET s(t,a)=9
999: RETURN
4115 LET s=0: FOR n=2 TO 5: FOR
m=1 TO 5: LET s=s+(d(m,2)=1 OR
d(m,2)=6): IF d(m,2)<>n THEN N
EXT m: LET s(t,a)=9999
4120 NEXT n: IF s<>0 THEN LET s
(t,a)=45: RETURN
4125 LET s(t,a)=9999: RETURN
4200 REM pot luck
4205 LET a=a+3: LET s=0: FOR n=1
TO 5: LET s=s+d(n,2): NEXT n: G
O SUB 5000: IF co=5 AND s(t,16)=
50 THEN LET s(t,a)=100+s: RETUR
N
4210 LET s(t,a)=s: RETURN
4300 REM top notch
4305 LET a=a+3: GO SUB 5000: IF
co=5 AND s(t,a)=0 THEN LET s(t,
a)=50: RETURN
4310 LET s(t,a)=9999: RETURN
5005 LET co=1: FOR n=2 TO 5: IF
d(n,2)=d(1,2) THEN LET co=co+1
5010 NEXT n: RETURN

```


stuffed

mushrooms

STUFF YOUR FACE with the mysterious mushrooms of the snake woods. Graham Calladine of Maidstone, Kent has written a version of the popular Snake game for the QL. Eat the mushrooms but watch out - as you gobble you grow, and you mustn't cross your own tail. At higher levels you have to eat the mushroom spores instead.

Stuffed Mushrooms uses our special abbreviations for graphics characters, so please read the instructions on the first page of Program Printout before entering the program.

```

100 MODE 8
110 OPEN#3,con_468x192a23x42_0
120 OPEN#4,con_474x40a23x2_0
130 REPEAT start
140 INSt
150 initial
160 play
170 ended
180 END REPEAT start
190 DEFine PROCedure initial
200 FLASH#4,0
210 CLS
220 PAPER#4,0
230 CLS#4
240 CSIZE#4,2,0
250 CURSOR #4,2,3
260 INK #4,7:PRINT #4,"Score = 0
"
270 INK #3,7
280 PAPER #3,0
290 CLS#3
300 BORDER #3,1,6
310 h=18:w=37
320 q=RESPR(0):IF q>262000 THEN
q=RESPR(700)
330 FOR a=q TO q+700 STEP 4
340 POKE_L a,0
350 END FOR a
360 AT#4,2,0:INPUT#4,"SKILL LEVE
L 1-5?";LE
370 IF LE<1 OR LE>5 THEN GO TO 3
60
380 AT#4,2,0:PRINT#4,"Press any
key to start"
390 PAUSE
400 sc=0
410 f=0
420 CC=190
430 SElect ON LE
440 =1: n=50
450 =2:n=80
460 =3:n=110
470 =4:n=130
480 =5:n=155:CC=46
490 END SElect
500 IF CC>46 THEN CC=190
510 FOR a=1 TO n
520 REPEAT d
530 b=RND(0 TO h):c=RND(0 TO w)
540 IF b=10 AND c=21 THEN NEXT d
550 IF NOT PEEK(q+b*(w+1)+c) TH
EN EXIT d
560 END REPEAT d
570 POKE q+b*(w+1)+c,1
580 AT #3,b,c:PRINT #3,CHR$(CC)
590 INK#3, RND(1 TO 7)
600 END FOR a
610 BEEP 15000,4,12,40,1
620 INK #3,6,2
630 l=8:r=16:lc=1:rc=0:d=191
640 AT #3,1,r:PRINT #3,CHR$(d)
650 POKE q+l*(w+1)+r,2
660 DIM p$(220)
670 p$=CHR$(1)&CHR$(r)
680 END DEFine
690 DEFine PROCedure snake(i)
700 INK #3,6,2
710 IF KEYROW(3)&8 THEN f=1:RET
urn
720 SElect ON i
730 =2:IF d<>189 THEN lc=0:rc=-1
:d=188
740 =16:IF d<>188 THEN lc=0:rc=1
:d=189
750 =4:IF d<>191 THEN lc=-1:rc=0
:d=190
760 =128:IF d<>190 THEN lc=1:rc=
0:d=191
770 END SElect
780 lf=l:r=r:p=p:LEN(p$)
790 l=1+lc:r=r+rc
800 IF l>h OR r>w OR l<0 OR r<0
THEN
810 f=1:AT #3,lf,rf:PRINT #3,CHR
$(d):RETURN
820 END IF
830 IF p=2 THEN

```

```

840 AT #3,lf,rf:PRINT #3,CHR$(32
)
850 ELSE
860 AT #3,lf,rf:PRINT #3,CHR$(79
)
870 END IF
880 AT#3,1,r:PRINT #3,CHR$(d)
890 v=PEEK(q+l*(w+1)+r)
900 POKE q+l*(w+1)+r,2
910 p$=p$&CHR$(1)&CHR$(r)
920 SElect ON v
930 =0:la=CODE(p$(1))
940 ra=CODE(p$(2))
950 AT #3,la,ra:PRINT #3,CHR$(32
)
960 POKE q+la*(w+1)+ra,0
970 p$=p$(3 TO LEN(p$))
980 =1:sc=sc+1
990 BEEP 1000,10,40,100,10
1000 CURSOR #4,98,3:PRINT #4,sc
1010 IF sc=n THEN f=1
1020 =2:f=1
1030 END SElect
1040 END DEFine
1050 DEFine PROCedure play
1060 CURSOR #4,0,20
1080 PRINT #4,"Use keys(2*sp,CTR
L,2*sp,CTRL,2*sp,CTRL+SHIFT,2
*sp,CTRL+SHIFT-):Press ESC to st
op."
1090 REPEAT g
1100 i=KEYROW(1)
1110 snake i:IF f THEN EXIT g
1120 IF i&8 THEN end_1
1130 END REPEAT g
1140 END DEFine
1150 DEFine PROCedure ended
1160 CURSOR #4,0,20
1170 CLS#4
1180 FLASH #4,1
1190 CSIZE#4,3,1
1200 BEEP 15000,12,40,4,1
1210 IF sc=n THEN
1220 INK#4,3
1230 AT#4,0,8:INK #4,2,6:PRINT #
4,"You WON ";
1240 ELSE
1250 AT#4,0,9:INK #4,6,2:PRINT #
4,"Your DEAD"
1260 END IF
1270 end_1
1280 END DEFine
1290 DEFine PROCedure end_1
1300 CLS#3
1310 CSIZE #4,0,0:CSIZE#3 ,0,0
1320 INK #3,2
1330 INK #3,5:AT#3,8,5:PRINT #3,
"Press Enter to play again "
1340 INK#3,6:FLASH#3,1:AT#3,2,13
:PRINT#3, "Score ";sc

```

```

1350 REPEAT s
1360 k=CODE (INKEY$(1000))
1370 IF k=10 THEN CLS #3:CLS #4:
FLASH#3,0:GO TO 150
1380 END REPEAT s
1390 END DEFine
1400 DEFine PROCedure INSt
1410 WINDOW 512,256,0,0
1420 CLS#3:PAPER 0:CLS
1430 PAPER#2,0:BORDER#2,1,0:INK#
2,7:CLS#2
1440 INK#3,6:UNDER#3, 1:AT#3,1,1
0:PRINT #3,"THE SNAKE":UNDER#3,0
1450 INK#3,5
1460 PRINT#3
1470 PRINT#3,"Your objective in
this game is"
1480 PRINT#3,"to eat all of the
";:INK#3, 2:PRINT#3, "'.' or '(C
TRL+SHIFT6)";:INK#3, 5:PRINT#3,
" without "
1490 PRINT#3,"hitting the walls
or your"
1500 PRINT#3,"growing tail.":IN
K#3,6,2:PRINT#3, " '0':INK#3,5:P
RINT#3,\"You must all so becaref
ul on level\"4 or 5 because you
r tail can break up orleave invi
sible mines.\"\\\"Use the cursor k
eys to move.\"\\\"Press any key to
play."
1510 PAUSE
1520 v=0
1530 FOR v=1 TO 18
1540 SCROLL -10
1550 END FOR v
1560 END DEFine

```


Program Printout

```

9000 FOR n=0 TO 7
9010 READ a: POKE USR "b"+n,a
9020 NEXT n
9030 DATA 255,129,129,129,129,129,12
9,129,255
9040 PAPER 0: BORDER 0: INK 7: C
LS
9050 LET c=18: LET d=15: LET x=1
0: LET y=2: LET e=0
9051 PRINT INK 2;AT 18,9;"NAME:
"
9052 PLOT 119,32: DRAW 81,0: PLO
T 200,32: DRAW 0,-9: PLOT 200,23
: DRAW -81,0: PLOT 119,23: DRAW
0,9
9060 PRINT INK 2;AT 1,5;"PLEASE
ENTER YOUR NAME"
9070 PRINT AT 2,0;"Press '8' to
move colour cursor right, '5' for
left, The 'break' key to enter a ch
aracter and '0' to delete a charac
ter (10 characters max)"
9080 FOR i=65 TO 73
9090 PRINT AT 10,y;CHR$ i
9100 LET y=y+3
9110 NEXT i
9120 LET y=2
9130 FOR i=74 TO 82
9140 PRINT AT 12,y;CHR$ i
9150 LET y=y+3
9160 NEXT i
9170 LET y=2
9180 FOR i=83 TO 90
9190 PRINT AT 14,y;CHR$ i
9200 LET y=y+3
9210 NEXT i
9215 LET a=10: LET b=2: LET i=65
9220 PRINT AT 14,26;CHR$ 46
9230 PRINT AT 16,2;CHR$ 145
9235 FOR t=1 TO 30: NEXT t
9240 IF INKEY$="8" THEN GO TO
9300
9250 IF INKEY$="5" THEN GO TO 9
510
9260 IF INKEY$="0" THEN GO TO 9
630
9270 IF INKEY$="(sp)" THEN GO T
O 9650
9280 PRINT INK 2;AT a,b;CHR$ i
9290 GO TO 9235
9300 IF b=26 AND a=10 THEN GO T
O 9340
9310 IF b=26 AND a=12 THEN GO T
O 9380
9320 IF b=23 AND a=14 THEN GO T
O 9420
9321 IF b=26 AND a=14 THEN GO T
O 9450
9323 IF a=16 AND b=2 THEN GO TO
9480
9324 PRINT INK 7;AT a,b;CHR$ i
9325 PRINT INK 2;AT a,b+3;CHR$
(i+1)
9330 LET b=b+3: LET i=i+1
9337 GO TO 9290
9340 LET b=2: LET a=12: LET i=i+
1
9350 PRINT INK 7;AT 10,26;CHR$
(i-1)
9360 PRINT INK 2;AT a,b;CHR$ i
9370 GO TO 9290
9380 LET b=2: LET a=14: LET i=i+
1
9390 PRINT INK 7;AT 12,26;CHR$
(i-1)
9400 PRINT INK 2;AT a,b;CHR$ i
9410 GO TO 9290
9420 LET b=26: LET a=14: LET i=4
6
9430 PRINT INK 7;AT 14,23;CHR$
90
9440 PRINT INK 2;AT a,b;CHR$ 46
: GO TO 9290
9450 LET b=2: LET a=16: LET i=14
5
9460 PRINT INK 7;AT 14,26;CHR$
46
9470 PRINT INK 2;AT a,b;CHR$ i
9475 GO TO 9290
9480 LET b=2: LET a=10: LET i=65
9490 PRINT INK 7;AT 16,2;CHR$ 1

```

HIGH SCORE

PUT A professional-style high score table into your arcade games with this routine by David Ward of Leicester, which can be used with any Spectrum. The display shows a grid of letters, and you move the cursor around them to select the letters for your name.

The program uses one UDG, character number 145, so you must avoid that in your main program, as well as the variables used. The STOP commands in lines 9657 and 9998 should be changed to RETURN if you want to use the program as a subroutine, and you will have to experiment a little to find out the most suitable place to print the actual score, depending on the requirements of your game.

The program uses our special abbreviations for graphics characters, do please read the instructions on the first page of Program Printout before entering listing.

```

45
9495 PRINT INK 2;AT a,b;CHR$ i
9500 GO TO 9290
9510 IF b=2 AND a=10 THEN GO TO
9550
9520 IF b=2 AND a=12 THEN GO TO
9560
9530 IF b=2 AND a=14 THEN GO TO
9590
9540 IF b=2 AND a=16 THEN GO TO
9600
9542 IF b=26 AND a=14 THEN GO T
O 9610
9543 IF b=2 AND a=16 THEN GO TO
9690
9545 PRINT INK 7;AT a,b;CHR$ (i
)
9547 PRINT INK 2;AT a,b-3;CHR$
(i-1)
9548 LET b=b-3: LET i=i-1:
9549 GO TO 9290
9550 LET a=16: LET b=2: LET i=14
5
9552 PRINT INK 7;AT 10,2;CHR$ 6
5
9554 PRINT INK 2;AT a,b;CHR$ i
9556 GO TO 9290
9560 LET b=26: LET a=10: LET i=i
-1
9570 PRINT INK 7;AT 12,2;CHR$ (i
+1)
9575 PRINT INK 2;AT a,b;CHR$ i
9580 GO TO 9290
9590 LET b=26: LET a=12: LET i=i
-1

```

```

9591 PRINT INK 7;AT 14,2;CHR$ (i
+1)
9595 PRINT INK 2;AT a,b;CHR$ i
9597 GO TO 9290
9600 LET a=14: LET b=26: LET i=4
6
9602 PRINT INK 7;AT 16,2;CHR$ 1
45
9603 PRINT INK 2;AT 14,26;CHR$
i
9605 GO TO 9290
9610 LET a=14: LET b=23: LET i=9
0
9620 PRINT INK 7;AT 14,26;CHR$
46
9623 PRINT INK 2;AT 14,23;CHR$
i
9625 GO TO 9290
9630 LET d=d-1
9632 LET e=e-1
9634 IF d=14 THEN LET d=15
9635 IF e=-1 THEN LET e=0
9637 FOR t=1 TO 15: NEXT t
9639 PRINT AT c,d;"(sp)"
9640 GO TO 9290
9650 FOR t=1 TO 15: NEXT t
9654 IF i=145 THEN PRINT AT c,d
;CHR$ 32 : IF i=145 THEN GO TO
9657
9655 PRINT AT c,d;CHR$ i
9657 IF e=9 THEN STOP
9660 LET e=e+1
9670 LET d=d+1
9680 GO TO 9290
9998 PAUSE 20: CLS : STOP

```


POOLSWINNER

THE ULTIMATE POOLS PREDICTION PROGRAM

- **MASSIVE DATABASE** Poolswinner is a sophisticated Pools prediction aid. It comes complete with the largest database available - 22000 matches over 10 years. The database updates automatically as results come in.
- **PREDICTS** Not just SCOREDRAWS, but ALWAYS, HOMES and NO SCORES.
- **SUCCESSFUL** SELEC guarantee that Poolswinner performs significantly better than chance.
- **ADAPTABLE** Probabilities are given on every fixture - choose as many selections as you need for your bet. The precise prediction formula can be set by the user - you can develop and test your own unique method.
- **SIMPLE DATA ENTRY** All team names are in the program. Simply type in the reference numbers from the screen. Or use FIXGEN to produce fixture list automatically (see below).
- **DISC/MICRODRIVE COMPATIBLE** Tapes supplied with conversion instructions.
- **PRINTER SUPPORT** Full hard copy printout of data if you have a printer.

AVAILABLE FOR Spectrum (48K), Commodore 64, VIC 20 (+16K), AMSTRAD, BBC B, Atari (48K), ZX81 (16K), Dragon, Apple II, ELECTRON

PRICE £15.00 (all inclusive)

Boxed, with detailed instruction booklet



NOW AVAILABLE

FIXGEN 85/6

AT LAST! No more struggling for hours to get the fixture list into the computer. FIXGEN has been programmed with all English and Scottish fixtures for 1985/6. Simply type in the date, and the full fixture list is generated in seconds. Fully compatible with Poolswinner.

POOLSWINNER with FIXGEN £16.50 (all inclusive)

COURSEWINNER V3

THE PUNTERS COMPUTER PROGRAM

NOT JUST A TIPSTER PROGRAM, Coursewinner V3 can be used by experts and occasional punters alike.

You can develop and test your own unique winning system by adjusting the analysis formula, or use the program in simple mode. Coursewinner V3 uses statistical analysis of major factors including past form, speed ratings, course statistics, prize money, weight, going, trainer and jockey form etc. etc. It outputs most likely winners, good long odds bets, forecasts, tricast etc. The database includes vital course statistics for all British courses. You can update the database - never goes out of date.

AVAILABLE FOR Spectrum (48K), Commodore 64, BBC (B), AMSTRAD, Atari (48K), Apple II

PRICE £15.00 (all inclusive) includes Flat AND National Hunt versions.

Send Cheques/POs for return of post service to...



phone 24 hrs



phone 24 hrs



phone 24 hrs

37 COUNCILLOR LANE, CHEADLE, CHESHIRE. ☎ 061-428 7425
(Send for full list of our software)

RSD Connections Ltd

MONITOR LEADS		RIBBON CABLE (Price per ft)		SPECTRUM EXTENSION LEADS	
BBC to Microvitec	£2.20	Grey Rainbow		6 inch extension cable	£10.50
TV to Computer	£1.25	9-way	.13	M to F	£14.75
Green Screen	£2.95	10-way	.15	6 inch F to 2M's	
BBC to Fidelity etc.	£4.95	14-way	.18	12 inch extension cable	£10.75
QL to Fidelity etc.	£4.95	15-way	.20	M to F	
Commodore to Fidelity	£4.95	16-way	.22	IDC SHROUDED HEADERS WITH EJECTING LOCKING ARMS	
Phone to Phone	£1.25	20-way	.30		
BBC to Fergusson	£2.50	24-way	.36		
QL to Microvitec	£2.50	25-way	.40		
QL to mono monitor	£1.50	26-way	.45		
BBC to Sony/Kaga	£5.95	34-way	.60		
BNC to BNC	£2.95	37-way	.65		
Commodore to Fergusson	£2.50	50-way	.70		
BBC to Hitachi	£2.50	50-way	.95		
SONY to Fidelity etc.	£6.50	60-way	£1.10		
MSX to Fergusson	£2.50	64-way	£1.15		
QL to Fergusson	£2.50				
IDC AMPHENOL		EDGE CONNECTORS		BBC MONITOR STAND	
36-way plug	£4.95	2 x 23-way (ZX-81)	£1.85		
36-way socket	£5.95	2 x 28-way (Spectrum)	£2.10		
36-way plug (solder type)	£4.95	DOUBLE SIDED PLUG BOARDS			
DISK DRIVE LEADS		ZX-81 23-way	£1.25		
DD drive power lead	£4.50	Spectrum 28-way	£1.50		
DD drive lead 1m.	£10.25	56-way Card Edge for			
SD drive power lead	£2.75	Extension lead	£4.25		
SD drive lead 1m.	£7.25	D CONNECTORS			
Disk drive extn. lead 1m.	£7.25	Solder Bucket Male Female			
Amstrad 2nd drive	£6.95	9-way	.75		
CASSETTE LEADS		15-way	.95		
BBC to cassette	£2.25	25-way	£1.50		
Dragon to cassette	£2.20	37-way	£2.40		
Spectrum to cassette	£1.25	HXCDS 95			
BBC to Acorn cassette	£2.25	TELEPHONE CONNS			
Amstrad to cassette	£2.20	Surface master	£3.75		
PRINTER LEADS		jack socket	£2.50		
ALL 1 METRE LENGTH		Surface extn socket	£2.50		
BBC	£9.95	Dual outlet adaptor	£4.25		
BBC serial	£8.95	Line jack cord 3 mtr	£1.85		
AMSTRAD	£16.75	4 core cable per metre	48p		
MEMOTECH	£12.75	All surface units shuttered BT			
EINSTEIN	£12.75	approved.			
IBM PC	£15.75	CONNECTORS IDC			
SPECTRUM interface		Card	Trans 2 Row		
to RS 232	£9.75	Edge	PCB Socket		
ATARI	£15.25	10-way	£1.20		
MSX	£13.95	14-way	£1.60		
APRICOT	£15.20	15-way	£1.20		
DRAGON	£9.95	20-way	£1.90		
QL	£10.75	26-way	£2.40		
ANY COMBINATION OF LEADS MADE TO ORDER		34-way	£3.10		
		40-way	£3.40		
		50-way	£3.85		
		60-way	£4.80		

TRADE ENQUIRIES WELCOME

75p P&P. Access & Visa accepted. Add 15% VAT to all orders

Cheques made payable to

RSD Connections Ltd, Dept SU9

PO Box 1, Ware, Herts.

Tel: 0920 5285

CLASSIC BOOK-KEEPING

By A. G. Clough FCA

A fully flexible, complete Book-keeping system for the 48K SPECTRUM, microdrives and an 80 column printer, suitable for any type of business or organisation.

Follows traditional double entry routines from prime entry to Trial Balance. All records printed as created, tangible and verifiable. Comprehensive backup. Once only entries.

Written by an experienced Chartered Accountant to help those with less experience to achieve top grade work, but equally good for the professional book-keeper.

THE RECORDS

GENERAL LEDGER	Traditional open A/C format	
SALES LEDGER		
BOUGHT LEDGER		
CASH RECEIVED	Classic cash book. Running balance.	
BANK PAYMENTS		
PETTY CASH	Gross, net, analysis	
SALES DAY BOOK	Date, ref, a/c, code, gross, VAT, net, SR, ZR, separate columns	
PURCHASE DAY BOOK	Ref, debit, credit, analysis, narrative	
JOURNAL ENTRIES		

CAPACITY

SERIES 500	SERIES 250
250 A/c's	250 A/c's
500 A/c's	250 A/c's
500 A/c's	250 A/c's
550 items	300 items
550 p.m.	300 p.m.
No practical limit	
700 invoices	400 p.m.
per	
700 month	400 p.m.
No practical limit	

OTHER FEATURES

Interim listing of all prime entries — Multiple coding — Error prevention and control — Self balancing ledgers — Management auto run program governs all syntax — STATEMENTS WITH AGED BALANCES — Journal entries — Manual with demonstration printout.

PRICE (Supplied on three m/d cartridges)

Postage Paid

Series 500 £69
Series 250 £46

Supplied in three parts (250 Series only)		
Part 1	Sales Ledger package	£19.90
2	Bought Ledger package	£13.90
3	General Ledger package	£13.90

Postage paid

The manual, control and service programs are supplied ONLY with part 1. To be effective, parts must be purchased in number order.

CASH BASIS ACCOUNTS

Based on and closely resembling the 250 Series above but excluding Sales and Purchase Ledgers, Day Books and Statements. Suitable for cash based businesses, Personal accounts, incomplete records. £29 Postage Paid

MANX TAPES. GAREY VEG. GLEN AULDYN. RAMSEY
ISLE OF MAN. PHONE: (0624) 813071

£

SPECTRUM SOFTWARE EXCHANGE GROUP

£

If you're bored with your games and you have solved your adventures, then read on because we can SAVE YOU MONEY by swapping them for games you really want.

Don't waste time and money on small clubs who do it all for fun, deal with us! We have made it into a business, so we have to give customer satisfaction.

As we are a business, we can offer our services to you at a low cost and still afford to give you FREE life membership.

We only charge 85p for the first exchange and 75p for each additional exchange completed at the same time. We also have other special offers to cut the price even lower.

For full details on how to join us just write to:

(Sorry U.K. Mainland Only)

Spectrum Software Exchange Group
44, Ingsfield Lane, Bolton on Dearne
Rotherham, S. Yorkshire. S63 8EQ

NEW**TAPE TO DRIVE TRANSFER
OF RECENT PROGRAMS**

Yes SPECTRUM OWNERS now have a **LOW COST** way of transferring many of even the **LATEST** high speed/jerky programs to their drives. You will be amazed! Other methods are expensive or very limited.

Firstly you will need our MD1b (for m/drive) or WD1b (for Wafa or disc drive) programs that give you the tools to convert programs. Includes the ability to chop/split bytes in one go, bytes mover, "VAL" creator and REMkill, make visible etc. **FULL** manual (highly rated by CRASH) with example transfers. **MD1b or WD1b cost £6.99 on tape**. "MD1b manages more programs" — Your SPECTRUM.

To manage the latest programs you will also need our TC7 program to convert fast/jerky loaders to "normal". ★ Features baud rate measurer. ★ Has jerky detector and MANY other backup features.

TC7 on tape £6.50. On M/drive cartridge £9.99 (incl MT6, an extra M/drive utility)

NEW**TERM
INFORMATION SHEETS**

Each sheet gives you the **DETAILED** instructions (using our software) required to transfer to your drive 8 of the more **POPULAR** programs. They cost **£2 EACH plus SAE**. Up to sheet 5 available.

SPECIAL DISCOUNT: TRANSFER PACK. Buy our MD1b + TC7 on M-/Drive cartridge + **INFORMATION SHEETS 1-3 for £15.50** (other drive owners get WD1b + TC7 on tape + sheets at same price).

UPDATE SERVICE: Send old tape + large SAE to get a **£2 REDUCTION**. **OVERSEAS:** add £1 Europe, £2 others for each product. **SAE** for enquiries.

ALL OUR PROGRAMS CARRY A MONEY BACK GUARANTEE (not updates)

**TERM, DEPT SU, 10 BRUNSWICK GDNS,
CORBY, NORTHANTS NN18 9ER**

INCREDIBLE!**TRANSFER ANY PROGRAM TO MICRODRIVE CARTRIDGE**

The full potential of your microdrive can be realised with the

**MIRAGE
MICRODRIVER**

The most revolutionary and exciting peripheral yet for the Spectrum
48K and the Spectrum+

NOW ONLY £39.95 inc P&P

Features:

- ★ Consists of hardware only, no additional software required.
- ★ Transfers any program to Microdrive in one simple operation.
- ★ Extremely easy to use.
- ★ Freeze any game at any point, save it, and restore it later.
- ★ Compacts program for efficient use of cartridge.
- ★ Through connector for other peripherals.
- ★ "Poke" facility or infinite lives etc.
- ★ Also saves to cassette.

"If you have a microdrive the Microdriver is the most important piece of hardware you could buy."

John Lambert — Sinclair User

"... an essential buy for the Spectrum owner who has converted to microdrive..."

Ian Sinclair — Author

"I much preferred the Microdriver for speed and ease of use."

Iolo Davidson — Your Spectrum

"I preferred the Microdriver because of its ease of use."

Andrew Pennell — Popular Computing Weekly

Note: This unit is intended for software owners to transfer programs onto microdrive cartridges for speed and ease of access. Programs saved using the Mirage Microdriver are unreadable unless the Microdriver is present.

Trade and overseas enquiries welcome.



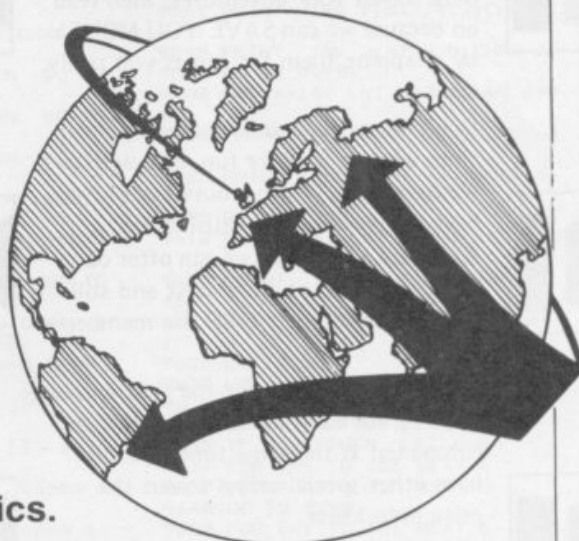
**24 Bank Street
Braintree
Essex CM7 7UL
Tel: (0376) 48321**

**EXPORT ONLY**

**THE LOWEST PRICES.
QUANTITY DISCOUNTS.**

**UK exporters
of microcomputers, monitors,
printers and
all other peripherals, software.**

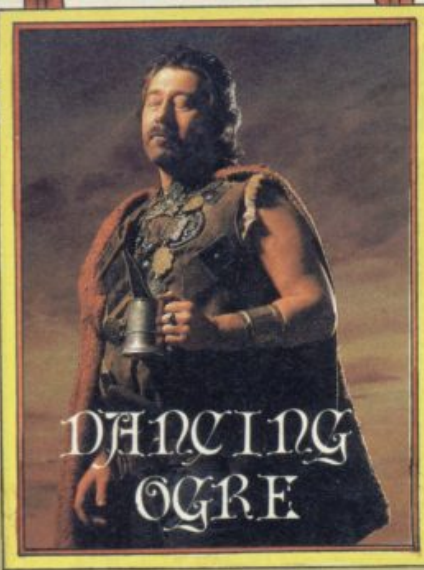
**Worldwide sales
of Sinclair, Commodore, Amstrad,
Acorn, IBM, ACT, SANYO,
ADVANCE, etc.,
and any other type of home electronics.**



WRITE FOR OUR PRICE LIST OR CALL TODAY

MICRO INTERFACE

84 TALBOT ROAD, LONDON N6 4RA TEL: 01-340 0310 TELEX: 295441 Busy B (Ref: MIKRO)



DANCING OGRE

A DANK and fetid mist hung over the swamps as we left Urdnal's road-fort. We rode warily southwards with a small group of other travellers, amongst them a fat merchant, his beard plaited with gold wire, and his daughter clad in ring-mail and red cloak.

Our uneasiness grew as we proceeded. Zul and Zel snuffed at the air with suspicion and jabbered excitedly to each other in their halfling tongue. We rounded a reed-shrouded bend in the road . . . and out from the ditches sprang 10 or 12 scaly green creatures, hissing and snarling. Snake men! And one of them dragged a human on a leash.

The merchant howled in terror and covered his head — but his daughter reached behind her and drew forth a glittering scimitar. Straight at them she rode and they swarmed around her, flint knives hacking. This was enough for me. "Gnaa-Ithukk", roared I and flung my club. Three bog-dwellers fell. The lady with a dainty sword took two as fast as a blink. Zul and Zel grinned wickedly and cast their throwing knives. Four more. The rest fled, gibbering and clicking.

I seized the captive on the leash and hauled him up behind me. The horses were half-dead when we reached the cavalry fort at Uusuun-An, set on the only firm ground for leagues. The names is Maruvian for High Point . . . all of twenty feet at best.

There we were told the road to Urtuun was in turmoil. So we camped early within the walls along with other unfortunate travellers.

Few could sleep and there was much talk around the fires. Old Thumb of West Byfleet told a tale of shrinking when, as the **Microman** in **Project X** he had combat with a massive maddened mole in an underground tunnel. Though armed with a needle as rapier he could not defeat it. Many of us told Thumb he was on the right track — but he needs a shield as well as sword. When so small, a button would serve well for that purpose.

Examine fields and foliage well.

A hard drinking group, most oddly garbed in false beards, bemoaned their failures down in Ketland — **The Final Mission** had been their downfall. Trekker Topham of Huddersfield pressed me for aid. She had encountered a slime thing in the halls of Vran and fought long and uselessly. She should ignore this demon — it serves nothing to stay. But that was not enough for Trekker. What of the cubby hole near the High Ceiled room? What use for the garlic?

Borrowing her haunch of lamb I told her that the cubby hole is useful as a hiding place. If any of you should encounter a 'splating' noise in the High room than head west and up to the hole. Wait here six times and you should hear a splintering. You may then find a closed door open. The garlic . . . well, all travellers know that to be a specific against the bloodsuckers and flesheaters. The Lady Delphia has just such noise-some eating habits. Garlic in a place of death will stave off her attacks.

Baz Bateman of 66 Foster Drive, Bodmin, Cornwall sought help with **The Hulk**, **Spiderman** and the many trea-

Gordo's war cry brings comfort to travellers in the bogs of Urunnar

tures of **Eureka**. He knows Middle Earth well and would help others with that in return.

Eureka baffles many. Ironman Johnston of 4, Ingleby Terrace, Maryport, Cumbria confessed his failure to find the Golden Eagle standard in this quest — indeed he could not even enter the legions' camp. Let me know, friends, where this Aquila may be for many others seek this knowledge.

Witchmaster Wood of 22, Denham Way, Denham, Uxbridge UB9 5AX had been badly stumped by the **Lords of Time**. A skeleton assailed him — invincible or so it seemed. Now, his joints may be loose so hurl a well-aimed rock. That may discourage the abomination.

Others then with Witchmaster pleaded for advice on the same adventure. Elf-strangler Edwards of Bury found his silver coin would not pay for ale in the Roman town. Think of a landlord's overheads, youngster, for ale is not cheap. A golden nugget should be the asking price — had from a cavewoman in another time. And no, there is no other

source of light besides the candle.

Hendrik von Braun of Carson Road, London, stepped up to offer help with **Dragon Torc** . . . slightly foxed he was and incanted thus. "At henges use a Ley Rod all around and blue cubes to make the spirits bound. If snakes you fear then light a torch and be at peace." With that he vanished into the night, muttering to himself.

For those who travel wearily in **Tir Na Nog**, Steve the Sidhe Slayer offered all his help — so long as they pay the courier's fee for him. He had united the four parts of Calum's Seal and activated it with his hammer. Whip your horses on to 13 Porter Close, Clifton Estate, Nottingham, NG11 8QU.

So we came to the serious matter of **Sherlock's** murder hunt. Wraithbane Ben of Southwick and many others had found that their time runs out at 1.02 am on Tuesday morning.

Know this, all of you . . . that time is when the miserable and erroneous Les-trade arrests that opium-eater Major Ffoulkes. So then 'officially' the murder has been solved! As I have said before it is best to prove the Major innocent before any other task. If you do so time will not stop in its tracks. Go to Sidmouth Street on Monday evening and follow the addict, suitably disguised of course. The quest should normally end between 6 and 8pm on the Wednesday but may go on for longer, now and then.

Two others, Gregory de Vaucslus of far Australia and 'Bishop' Colin of London also sought this murderer and looked in a stream for a gun which they are sure was there. They could see no purpose in the hedge. First the hedge — it has as much use as a certain crimson fish. The stream's a different matter . . .

First, as before, the major should be proved innocent. Once done, follow Les-trade back to Leatherhead where he too walks beside the stream. Examine all the places thereabouts with care.

As the dawn came up the snake men's captive came to his wits. Iubba of Mazra he said his name was, profession locksmith . . . minor thief more like. Farewell then, friends, 'til the next rising of Our Lady Ithukk, bless her pocks.

Greatbelly

Gordo Greatbelly, Landlord

If you have a tale to tell, or are in need of a helping hand, write to the Landlord of the Dancing Ogre c/o Sinclair User, Priory Court, 30-32 Farringdon Lane, London EC1R 5BH.

SEE MICRONET 800 IN ACTION

At selected Boots, Laskys, John Lewis & your local computer store

AVON
Bath. Boots, 1 Marchants Passage, Southgate. Tel: 0225 64402.
Bristol. Boots, 59 Broadmead. Tel: 0272 293631.
Weston Super Mare. Peter Castell Ltd, 28 Orchard Street. Tel: 0934 24778.

BEDFORDSHIRE
Bedford. Boots, The Harpur Centre, Harpur Street. Tel: 0234 56231.
Bedford. Software Centre, 52a Bromham Road. Tel: 0234 44733.
Leighton Buzzard. DJ Computers, 17 Bridge Street. Tel: 0525 383929.
Luton. Boots, 82-86 Armdale Centre, Tel: 0582 20592.

BERKSHIRE
Slough. Boots, 178-184 High Street. Tel: 0753 27267.
Maidenhead. Boots, 54-58 High Street. Tel: 0628 27892.

BUCKINGHAMSHIRE
Milton Keynes. Boots, 18 Crown Walk, Secklow Gate West. Tel: 0908 607327.
Milton Keynes. Depson Business Systems, 65 Aylesbury Street, Bleckley. Tel: 0908 367446.
Aylesbury. Boots, 69-70 Friars Square. Tel: 0296 83661.
Chesham. Reed Photo & Computers, 113 High Street. Tel: 0494 783373.

CAMBRIDGESHIRE
Cambridge. Boots, 65-67 Sidney Street and 28 Petty Curry Street. Tel: 0223 350213.
Cambridge. Cambridge Computer Store, 4 Emmanuel Street. Tel: 0223 358264.
Peterborough. Boots, 40-42 Bridge Street. Tel: 0733 65352.
Peterborough. Logic Sales, Unit 6 Midgate Parade, Tel: 0733 49696.
St Neots. Compute, 3 Cross Keys. Tel: 0480 72013.

CHESHIRE
Chester. Boots, 47-55 Foregate Street. Tel: 0244 28421.
Chester. Computer Link, 21 St. Werburgh Street. Tel: 0244 316516.
Crewe. Midshires Computer Centre, 57 Earle Street. Tel: 0270 589191.
Macclesfield. Computer Centre, 68 Chestergate. Tel: 0625 618827.
Warrington. Boots, 39-45 Bridge Street. Tel: 0925 574825.

CLEVELAND
Middlesbrough. Boots, 88-90 Linthorpe Road, The Cleveland Centre. Tel: 0642 249616.
Darlington. Darlington Computer Shop, 75 Bondgate. Tel: 0325 487478.

CORNWALL
St Austell. AB&C Computers, Duchy House, 6 Lower Aylmer Square. Tel: 0726 64463.
Bodmin. Microtest, 18 Normandy Way. Tel: 0208 3171/3182.

CUMBRIA
Kendal. The Kendal Computer Centre, Stramogate. Tel: 0539 22559.
Whitehaven. PD Hendren, 15 King Street. Tel: 0946 2063.
Workington. Technology Store, 12 Finkle Street. Tel: 0900 66972.
Penrith. Penrith Communications, 14 Castlegate. Tel: 0768 67146.

DERBYSHIRE
Alfreton. Gordon Harwood, 69-71 High Street. Tel: 0773 836781.
Chesterfield. Boots, 35-37 Low Pavement, Market Place. Tel: 0246 203591.
Derby. Boots, 1 Devonshire Walk. Tel: 0332 45886.
Derby. First Byte Computers, 10 Main Centre, London Road. Tel: 0332 365280.

DEVON
Exeter. Boots, 251 High Street, Tel: 0392 32244.
Exeter. Open Channel, Central Station, Queen Street. Tel: 0392 218187.
Paignton. Computer Systems Ltd, 35 Hyde Road. Tel: 0803 524284.
Plymouth. Syntax, 76 Cornwall, Street. Tel: 0752 28705.
Plymouth. Computer Base, 21 Market Avenue. Tel: 0752 671218.
Plymouth. Boots, 2-6 New George Street. Tel: 0752 266271.
Seaton. Curtis Computer Services, Seaton Computer Shop, 51c Harbour Road. Tel: 0297 22347.
Tiverton. Actron Microcomputers, 37 Bampton Street. Tel: 0884 252854.

DORSET
Bournemouth. Lansdowne Computer Centre, 1 Lansdowne Crescent. Lansdowne. 0202 20165.

Dorchester. The Paper Shop, Kings Road. Tel: 0305 64564.
Poole. Lansdowne Computer Centre, 14 Armdale Centre. Tel: 0202 670901.

ESSEX
Basildon. Basildon Software Centre, 78-80 Liberty Shopping Hall, East Square. Tel: 0268 27922.
Braintree. Mirage Micros, 24 Bank Street. Tel: 0376 48321.
Chelmsford. Maxton Hayman, 5 Broomfield Road. Tel: 0245 354595.
Colchester. Boots, 5-6 Lion Walk. Tel: 0206 377303.
Colchester. Colchester Computer Centre, 3a Short Wye Street. Tel: 0206 47242.
Grays. H. Reynolds, 79 Orsett Road. Tel: 0375 5948.
Harlow. Harlow Computer Centre, 17 Staple Tye. Tel: 0279 22846.
Hornchurch. Compel Computer Systems, 112a North Street. Tel: 0402 466741.
Ilford. Boots, 177-185 High Road. Tel: 01-553 2116.
Romford. Software Plus, 72 North Street. Tel: 70 65271.
Southend-on-Sea. Computarama, 88 London Road. Tel: 0702 335443.
Southend-on-Sea. Computer Centre, 336 London Road. Tel: 0702 337161.
Southend-on-Sea. Estuary Personal Computers, 318 Chartwell North, Victoria Circus Shopping Centre. Tel: 0702 614131.

GLOUCESTER
Cheltenham. Screen Scene, 144 St. Georges Road. Tel: 0242 528979.
Gloucester. Boots, 38-46 Eastgate Street. Tel: 0452 423501.

HAMPSHIRE
Basingstoke. Boots, 15 Old Basing Mall. Tel: 0256 51611.
Bournemouth. Boots, 18-20 Commercial Road. Tel: 0202 21713.
Fareham. Electronequip, 36-38 West Street. Tel: 0329 230670.
Fareham. Boots, 21 Westbury Mall. Tel: 0329 232011.
Portsmouth. Micro Choice, 159 Havant Road, Drayton. Tel: 0705 327591.
Portsmouth. RDS Electrical (Portsmouth) Ltd, 157-161 Kingston Road. Tel: 0705 812478.
Portsmouth. Boots, 194/204 Commercial Road. Tel: 0705 825248.
Southampton. Boots, 23-29 Above Bar Street. Tel: 0703 333983.
Waterloo. GB Microland, 7 Queens Parade, London Rd. Tel: 0705 259911.

HERTFORDSHIRE
Potters Bar. The Computer Shop, 197 High Street. Tel: 0707 44417.
Stevenage. DJ Computers, 11 Town Square. Tel: 0438 65501.
Watford. SRS Microsystems, 94 The Parade, High Street. Tel: 0923 26602.
Welwyn Garden City. DJ Computers, 40 Frertherne Road. Tel: 96 28444.

HUMBERSIDE
Beverley. Computing World, 10 Swabys Yard, Dyer Lane. Tel: 0482 881831.
Grimsby. R.C. Johnson Ltd, 22 Friargate, River Head Centre. Tel: 0472 42031.
Hull. Boots, 48-58 Prospect Centre. Tel: 0482 22334.
Hull. Computer Centre, 26 Analby Road. Tel: 0482 26297.

ISLE OF MAN
Douglas. T.H. Colebourn, 57-61 Victoria Street. Tel: 0624 73482.

KENT
Ashford. DGH, 10 North Street. Tel: 0233 32597.
Beckenham. Supra Computers, 425 Croydon Road. Tel: 01-650 3569.
Bromley. Boots, 148-154 High Street. Tel: 01-460 6688.
Chatham. Boots, 30-34 Wilmott Square, Pentagon Centre. Tel: 0474 405471.
Gravesend. Gravesend Home Computers, 39 The Terrace. Tel: 0474 28871.
Folkestone. Boots, 24-26 Sandgate Road. Tel: 0303 54007.
Maidstone. Boots, 56-62 King Street. Tel: 0622 53912.
Maidstone. Kent Micros, 52 Union Street. Tel: 0622 52784.
Rainham. Microway Computers, 39 High Street. Tel: 0634 376702.
Sevenoaks. Ernest Fielder Computers, Dorset Street. Tel: 0732 456800.
Shortlands. The Village House of Computers, 87 Beckenham Lane. Tel: 01-460 7122.
Sittingbourne. Computer Plus, 65 High Street. Tel: 0795 25677.
Tunbridge Wells. Boots, 7-11 Calverley Road. Tel: 0892 26486.

LANCASHIRE
Blackpool. Boots, 28-38 Bank Hey St & Victoria St. Tel: 0253 22276.
Blackpool. Blackpool Computer Store, 179 Church Street. Tel: 0253 20239.
Bolton. Computer World UK, 208 Chorley Old Road. Tel: 0204 494304.
Burnley. LMO Computer Centre, 39-43 Standish Street. Tel: 0282 54299.
Lancaster. Northern Lights, 89 Scotforth Road. Tel: 0524 62634.
Preston. 4Mat Computing, 67 Friargate. Tel: 0772 561952.
Rochdale. Boots, 50 Market Way. Tel: 0706 53225.

LEICESTERSHIRE
Leicester. Boots, 30-36 Gallowtree Gate. Tel: 0533 21641.
Leicester. DA Computers, 104 London Road. Tel: 0533 549407.
Market Harborough. Harborough Home Computers, 7 Church Street. Tel: 0858 63056.

LONDON
W1. Computers of Wigmore Street, 104 Wigmore Street. Tel: 01-486 0373.
W1. Galaxy, 230 Tottenham Court Road. Tel: 01-636 6500.
W1. Sonic Foto Micro Center, 256 Tottenham Court Road. Tel: 01-580 5826.
W1. Tomorrow's World Today, 27 Oxford Street. Tel: 01-439 7799.
W1. Transam Micro Systems, 59-61 Theobalds Road. Tel: 01-405 5240.
W8. Boots, 127a Kensington High Street. Tel: 01-937 6882.
SE7. Vic Odds Micros, 6 London Bridge Walk. Tel: 01-403 1988.
SE15. Castlehurst Ltd, 152 Rye Lane, Peckham. Tel: 01-639 2205.
EC2. Devron Computer Centre, 155 Moorgate. Tel: 01-638 3339.
N14. Logic Sales, 19 The Bournie, The Broadway, Southgate. Tel: 01-882 4942.
N22. Boots, 38-40 High Road, Wood Green. Tel: 01-881 0101.
NW4. Davinci Computer Store, 112 Brent Street, Hendon. Tel: 01-202 2272.
NW4. Boots, Brent Cross Shopping Centre. Tel: 01-202 5256/7.
NW11. Computers Inc, 86 Golders Green. Tel: 01-209 0401.

GREATER MANCHESTER
Altrincham. Boots, 13-17 George Street. Tel: 061-928 4471.
Hyde. C Tech Computers, 184 Market Street. Tel: 061-366 8223.
Manchester. Boots, 32 Market Street. Tel: 061-832 6533.
Manchester. Mighty Micro, Sherwood Centre, 268 Wilmslow Road, Fallowfield. Tel: 061-224 8117.
Manchester. NSC Computer Shops, 29 Hanging Ditch. Tel: 061-832 2269.
Marple. Marple Computer Centre, 106 Church Lane. Tel: 061-449 9933.
Oldham. Home & Business Computers, 54 Yorkshire Street. Tel: 061-633 1608.
Oldham. Boots, 1 Town Square Shopping Centre. Tel: 061-624 2525.
Stockport. National Micro Centres, 36 St Peters Gate. Tel: 061-429 8080.

MERSEYSIDE
Liverpool. Hargreaves, 31-37 Warbeck Moor, Walton. Tel: 051-525 1782.
St Helens. Microman Computers, Rainford Industrial Estate, Mill Lane, Rainford. Tel: 0744 885242.
Southport. Boots, 31-39 Chapel Street. Tel: 0704 33907.
St Helens. Boots, 8 Church Street, 24 La Grange Arcade. Tel: 0744 25488.

MIDDLESEX
Harrow. Camera Arts, 42 St. Anns Road. Tel: 01-427 5469.
Hounslow. Boots, 193-199 High Street. Tel: 01-570 0156.
Southall. Twinstar Computers Ltd, 7 Regina Road. Tel: 01-574 5271.
Teddington. Andrews, Broad Street. Tel: 01-977 4716.
Twickenham. Productive Computers Ltd, 72 Heath Road. Tel: 01-891 4991.
Uxbridge. JKL Computers, 7 Windsor Street. Tel: 0895 51815.

NORFOLK
Norwich. Adams, 125-129 King Street. Tel: 0603 22129.
Thetford. Thetford CB & Micros, 21 Guildhall Street. Tel: 0842 61645.

NOTTINGHAMSHIRE
Mansfield. Boots, 39 Four Seasons Shopping Centre. Tel: 0623 23089.

Nottingham. Boots, 11-19 Victoria Centre. Tel: 0602 470676.
Nottingham. Telstar, 280 Huntingdon Street. Tel: 0602 505585.

NORTHAMPTONSHIRE
Kettering. Boots, 35 Gold Street. Tel: 0536 514675.
Northampton. Boots, 9 The Parade. Tel: 0604 22573.

NORTHUMBERLAND
Morpeth. Telerents (Northern) Ltd, 31 New Gate Street. Tel: 0607 513537.

OXFORDSHIRE
Abingdon. Ivor Fields Computers, 21 Stert Street. Tel: 0235 21207.
Banbury. Computer Plus, 2 Church Lane. Tel: 0295 55890.
Oxford. Science Studio, 7 Little, Clarendon Street. Tel: 0865 54022.
Oxford. Absolute Sound and Video, 19 Old High Street, Headington. Tel: 0865 65661.

SCOTLAND
Aberdeen. Boots, 133-141 Union Street. Tel: 0224 585349.
Dundee. Boots, 49-53 High Street. Tel: 0382 21756.
Edinburgh. Boots, 101-103 Princes Street. Tel: 031-225 8331.
Edinburgh. Microworld Computer Group, 12 Leven Street. Tel: 031 228 1111.
Edinburgh. Edinburgh Computers, 51-57 Lothian Road. Tel: 031 229 4418.
Edinburgh. Silicon Centre, 7 Antigua Street. Tel: 031 557 4546.
Glasgow. Boots, 200 Sauchiehall Street. Tel: 041 332 1925.
Glasgow. Microworld Computer Group, 11 Bath Street. Tel: 041 332 1116.
Glasgow. Boots, Union Street and Argyle Street. Tel: 041 248 7387.
Glasgow. Tom Dixon Cameras, 15-17 Queen Street. Tel: 041-204 0826.
Glasgow. Commscot Ltd, 30 Gordon Street. Tel: 041 226 4878.
East Kilbride. Boots, 33-37 The Plaza. Tel: 035 52 20629.
Falkirk. Boots, 79-91 High Street. Tel: 0324 20535.
Hamilton. Tom Dixon Cameras, 8 Cadzow Street. Tel: 0698 283193.
Peterhead. North East Computers, 1 Ellis Street. Tel: 0779 79900.

SHROPSHIRE
Shrewsbury. Computarama, 13 Castlegate. Tel: 0743 60528.
Telford. Computer Village, 2/3 Hazeldine House, Central Square. Tel: 0952 506771.
Telford. Telford Electronics, 38 Mall 4. Tel: 0952 504911.

SOMERSET
Taunton. Boots, 64-65 High Street. Tel: 0823 76061.

STAFFORDSHIRE
Newcastle-under-Lyme. Computer Cabin, 24 The Parade, Silverdale. Tel: 0782 636911.
Stoke on Trent. Town Computer Store, 30 Town Road, Hanley. Tel: 0782 287540.
Stoke on Trent. Boots, 3-5 Market Square, Hanley. Tel: 0782 23271.

SUFFOLK
Bury St. Edmunds. Boots, 11-13 Cornhill. Tel: 0284 701516.
Bury St. Edmunds. The Suffolk Computer Centre, 1-3 Garland Street. Tel: 0284 705503.
Ipswich. Computer Magic, 24 Crown Street. Tel: 0473 50965.

SURREY
South Croydon. Concise Computer Consultants, 1 Carlton Road. Tel: 01-681 6842.
Croydon. The Vision Store, 53-59 High Street. Tel: 01-686 6362.
Croydon. Boots, The Mall, 12-18 Whitgift Centre. Tel: 01-688 6021.
Epsom. The Micro Workshop, 12 Station Approach. Tel: 0372 721533.
Guildford. Guildford Computer Centre, 5 The Quadrant, Bridge Street. Tel: 0483 578848.
Wallington. Surrey Micro Systems, 53 Woodcote Road. Tel: 01-647 5636.
Woking. Harpers, 71-73 Commercial Way. Tel: 0486 225657.

SUSSEX
Brighton. Boots, 129 North Street. Tel: 0273 27088.
Brighton. Gomer, 71 East Street. Tel: 0273 728681.

Bognor Regis. Bits & Bytes, High Street. Tel: 0243 867143.
Eastbourne. Boots, 15 Eastbourne Armdale Centre. Tel: 0323 27742.
Horsham. Boots, 1 Swan Walk. Tel: 0403 53053.
Horsham. Orchard Computer Centre, 34 East Street. Tel: 0403 64884.
Worthing. Boots, 48-52 Montague Street. Tel: 0903 207106.

TYNE & WEAR
Newcastle-upon-Tyne. Boots, Eldon Square. Tel: 0632 329844.
Newcastle-upon-Tyne. RE Computing, Parkview House, Front Street, 4 Lane Ends. Tel: 091 2701740.
Sunderland. Business Micro Communications Ltd, Refuge Assurance Buildings, Saint Thomas Street, West Sunnyside. Tel: 0783 654916.

WALES
Aberdare. Inkey Computer Services, 70 Mill Street, The Square, Trecony. Tel: 0685 881828.
Aberystwyth. Aberdara at Gallows, 23 Pier Street. Tel: 0970 615522.
Cardiff. Boots, 36 Queens Street & 105 Frederick Street. Tel: 0222 31291.
Cardiff. The Computer Shop, 41 The Hayes. Tel: 0222 26666.
Cardiff. Cardiff Microcomputers, 46 Charles Street. Tel: 0222 373072.
Newport. Gwent Computers, 92 Chepstow Road. Tel: 0633 841760.
Newport. Boots, 155-156 Commercial Street. Tel: 0633 51212.
Swansea. Boots, 17 St. Marys Arcade, The Quadrant Shopping Centre. Tel: 0792 43461.
Swansea. The Micro Store, 35-36 Singleton Street. Tel: 0792 46980.

WARWICKSHIRE
Coventry. Boots, 38-42 Corporation Street. Tel: 0203 26561.
Leamington Spa. Boots, 31 Parade. Tel: 0926 24945.
Leamington Spa. Leamington Hobby Centre, 121 Regent Street. Tel: 0926 29211.
Nuneaton. Micro City, 1a Queens Road. Tel: 0203 382049.
Rugby. O.E.M., 9-11 Regent Street. Tel: 0788 70522.

WEST MIDLANDS
Birmingham. Boots, City Centre House, 16-17 New Street. Tel: 021-643 7582.
Dudley. Central Computers, 35 Churchhill Precinct. Tel: 0384 238169.
Stourbridge. Walters Computer Systems, 12 Hagley Road. Tel: 0384 370811.
Walsall. New Horizon, 1 Goodall Street. Tel: 0922 24821.

WILTSHIRE
Trowbridge. West Wiltshire Micros, Whiteheart Yard. Tel: 02214 67259.

YORKSHIRE
Bradford. Boots, 11 Darley Street. Tel: 0274 390891.
Doncaster. Boots, 13-15 French Gate. Tel: 0302 62238.
Barnsley. Boots, 34-40 Cheapside. Tel: 0226 82616.
Huddersfield. Micro World Computers, 1006-1010 Manchester Road, Linthwaite. Tel: 0484 846117.
Huddersfield. Boots, 22 King Street. Tel: 0484 21756.
Leeds. Boots, 19 Albion Arcade, Bond Street Centre. Tel: 0532 33551.
Leeds. Micro Power, Northwood House, North Street. Tel: 0532 458800.
Sheffield. PIP Micro Communications, 9 Taptown Crescent, Broomhill. Tel: 0742 661096.
Sheffield. Boots, 4-6 High Street. Tel: 0742 78333.
Wakefield. Boots, 26-28 Upper Kirkgate. Tel: 0924 376181.
York. York Computer Centre, 7 Stonegate Arcade. Tel: 0904 641862.

micronet 800

micronet 800

micronet 800

micronet 800

micronet 800

micronet 800

micronet 800

micronet 800

micronet 800

micronet 800

micronet 800

micronet 800

micronet 800

micronet 800

micronet 800

micronet 800

micronet 800

micronet 800

Phone 01-278 3143 for your free information pack now!

Micronet 800, 8 Herbal Hill, London EC1.

MASTERFILE

HOME & BUSINESS FILING SYSTEM

The most versatile database for the 48K Spectrum.

- Up to 36 User-Defined screen/print formats per file, and each can display different selection of fields, in different sequence.
- High efficiency data packing, no wasted filespace.
- Super fast, multi-level file search, record selection capability.
- Up to 51 columns, and 22 lines per record can be displayed.
- From 1 to 22 records at a time can be shown on screen.
- Up to 128 characters per field, 36 fields per record.
- Compatible with Tasman, Euroelectronics and Kempston printer interfaces, and adaptable for most disc systems.

"... the best database for the spectrum is now even better." Sinclair User, Jan '85.

Design your own print layout with MF-PRINT.

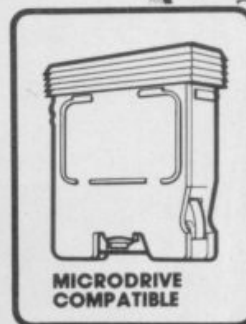
For Masterfile version 09; increases the number of columns to 136+, and has numeric editing and column totals. Almost no reduction in space available for data!

- Masterfile version 09 £14.95
- MF-Print £6.95
- Masterfile with MF-Print £19.95

All available for the 48k spectrum (+) Also available from leading computer stores.

- Enhanced version available for Amstrad at £24.95

The programs are sent on cassette by return post, 1st class, with detailed manual. Prices include VAT and P&P anywhere within Europe.



COMPATIBLE WITH
sinclair
ZX
Microdrives

35.
ne.
penditure.
Data. Addr
Customers.
Inventions.
Collection
Records.
lobbies
Sales. F
Stamps
Wine L
Catalog
Telep
Lists.
Gar
Cila

Campbell Systems



Campbell Systems (Dept. SU)
57 Trap's Hill, Loughton, Essex
IG10 1TD, England. Tel: 01 508 5058



University Software

UNISTAT

STATISTICAL PACKAGE

MULTIVARIATE REGRESSION: Main output consists of estimated coefficients, t-stats, standard errors, R^2 , corrected R^2 , standard error of regression, F stat, and Durbin-Watson stat. Further output options: multiple correlation matrix, var-covar matrix, ANOVA of regression, residuals, plot of residuals, interpolation. Data options: Log/ln option for each variable, no-constant regression, choice of dependent variable, selection of independent variables, auto-omission of linearly dependent variables.

ANALYSIS OF VARIANCE, SCATTER DIAGRAMS AND TIME SERIES PLOTS: One-way and two-way (without interaction) ANOVA tables, scatter diagrams of paired data and time series plots with auto-scaling.

STATISTICAL TESTS, CORRELATION COEFFICIENTS AND PROBABILITY DISTRIBUTIONS: Basic stats on each column of data (size, sum, mean, variance, std. dev.). Chi-square (contingency table), t (one sample, two sample, paired), F, Mann-Whitney U, and Wilcoxon signed rank tests. Pearson's, Spearman's rank and Kendall's rank corr. coeffs. Chi-square, t, F, binomial, Poisson and normal (std., non-std.) distributions. Results of tests and corr. coeffs are displayed with significance levels.

DESCRIPTIVE STATISTICS, FREQUENCY DISTRIBUTIONS AND HISTOGRAMS: Analysis of raw data or data with frequency counts. Raw data sorted and grouped. Choice of lower bounds and class intervals. Absolute, cumulative and relative frequencies. Histograms with up to 200 classes. Output displays sum, mean, mean deviation, median, variance, std. dev., 3rd and 4th moments, skewness, kurtosis, range, etc.

All programs are datafile compatible with Matrix Operations program in UNIMAX package. Data matrix capacity examples (columns by rows): **CBM-64:** 2x1250, 5x700, 10x380, **BBC-B:** 2x750, 5x400, 10x200, **48K Spectrum:** 2x1800, 5x900, 10x500. **CBM-64** (disk/cass): £85, **BBC-B** (disk/cass): £85, **48K Spectrum** (mdvcart/cass): £60

UNIMAX

LINEAR PROGRAMMING PACKAGE

LINEAR PROGRAMMING: A powerful and instructive optimisation program capable of handling all sorts of linear programming problems (min/max, any combination of $< =$, $=$, $> =$ constraints and $x_i \geq 0$, $x_i \leq 0$, $-\alpha < x_i < \alpha$ sign constraints). Primal, canonical, dual and their solutions are displayed in standard mathematical form. Unbounded problem and no feasible solution prompts. Edit option for all inputs. Capacity examples (variables by constraints): **CBM-64:** 10x35, 25x30, 40x25, **BBC-B:** 10x25, 20x20, **48K Spectrum:** 10x45, 25x35, 50x25.

MATRIX OPERATIONS: Inversion, transposition, determinant, pre- and post-multiplication, scalar multiplication, addition and subtraction of matrices and vectors. Any output can in turn be used as the input of the next operation without re-typing. Matrices can be saved or loaded at any stage. Datafile compatible with UNISTAT package. Capacities: **CBM-64:** 35x35, **BBC-B:** 25x25, **48K Spectrum:** 45x45.

CBM-64 (disk/cass): £60, **BBC-B** (disk/cass): £60, **48K Spectrum** (mdvcart/cass): £45.

ALSO AVAILABLE FOR 48K SPECTRUM

INTRODUCTION TO ECONOMICS SET: £25
ECONOMIC GEOGRAPHY: £9.95 • BIBLIOFILE: £9.95
POLYNOMIALS: £6.95 • INTEGRATION: £6.95

To: UNISOFT LIMITED

(Dept. B) 29 ST PETER'S STREET, LONDON N1 8JP.

TEL: 01-359 0978

Prices include VAT and delivery within the UK. For orders from Europe add £1.50, outside Europe £3.00 per item for airmail post. Dealers enquiries welcome.



COMMODORE 64, BBC-B, 48K SPECTRUM

- * Comprehensive user manual
- * Full data handling facilities (display, print, change, save, load)
- * All results can be printed out *



Programmers Peter Jones and Trevor Levor look forward to their hols

Terrormolinos

Don't drink the water

NOW YOUR SUNBURN has begun to fade you've probably started to get your holiday snaps back through the post. The nostalgia wells up as you share the happy memories with immensely bored relatives and friends.

There it all is — the glorious sunsets over the towering concrete hotels, the trendy beaches packed with tassled beach umbrellas, topless bathing belles and stout gentlemen in vests and knotted hankies.

By now you've begun to forget the blistered back and nose, the hours of agony pulling out sea-urchin spines or the two days you spent locked in the loo after indulging yourself in those tempting-looking prawns and several gallons of cheap hooch ("OK! I know it's a bit like turpentine but it's only

three pesetas a litre and anyway you don't notice the taste after a bit.")

Never fear, folks — all those memories can now be relived, recalled and resuffered solely with the aid of your trusty micro in **Terrormolinos**, a fearsome and harrowing saga of the average family on the average package tour. Many of those experiences can be photographed and reviewed during the game, courtesy of the miracle of glorious living Saucivision.

EXCLUSIVE

Terrormolinos

Terrormolinos is the creation of Peter Jones and Trevor Levor, co-authors of **Hampstead**. Published by Melbourne House, the game is a Quilled text

adventure, but this time features the addition of a graphics system.

Like all good holidays your trip begins with the panic-stricken rush to pack and be ready in time for the taxi to the airport. There you are in your



semi with Beryl upstairs getting ready, little Ken trailing around after you with his thumb in his mouth and Doreen the daughter immured in the bathroom, as permanent a feature as the avocado toilet suite.

The most essential item to remember is the camera, as winning the game is achieved by taking the correct 10



where's the camera?

Of course, there are hazards. Don't let the kids bury you in hot sand. Be careful of what you eat and of what may eat you. Avoid being gored by irate fighting bulls and take care in the sun — heatstroke could ruin your holiday.

Every holiday disaster you can imagine will come true in *Terrormolinos* and when the worst happens your embarrassment and suffering will be shown on screen in *Saucivision*. Each 'correct' snap or fatal error has been drawn in the form of a seaside postcard — you know, the sort with large ladies and double entendres galore. During the game you can review them at any time and also check how many exposures you have left. The screens illustrated here are taken from the Commodore versions, but give you an idea of what to expect!

If you enjoyed *Hampstead* I have no doubt at all that *Terrormolinos* will be equally if not more appealing. It is not numbingly difficult but its endless sick humour will draw you from disaster to disaster. Even people who hate the usual type of computer adventure will want to join in — it will make a welcome change from *Dallas* and *Coronation Street*. Immensely silly, immense fun!

Red Moon

If the tribulations of the Spanish seaside are just too much, you may decide to immerse yourself in the cool magic of *Red Moon*, Level 9's new graphic adventure.

Long ago, when the moon was red, Magik was powerful and all-embracing. Then the moon grew colder and greyer and the arts of darkness became more difficult and obscure. In time, Magik failed and the warlocks and sorcerers met to remedy their loss. They created the Red Moon Crystal and placed it in the Moon Tower in the land of Baskalos. Thus did Baskalos become the centre and heart of Magik and the other arts of civilisation.

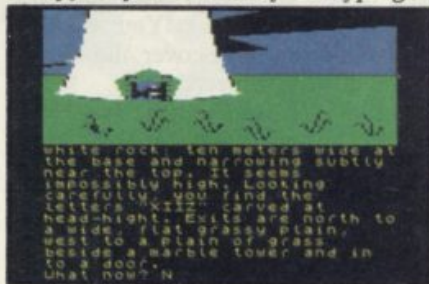
One day, though, the Crystal was stolen and Baskalos nearly collapsed into barbarism and chaos. Then a magician came who recovered it and saved his world from fear and eternal darkness...

Baskalos is a world of reclusive and dangerous sorcerers who dwell in

mist-shrouded castles, unscalable towers or endless networks of caverns beneath the volcano torn landscape. Here were once dragons and may be still and giants beat out runestrong swords in subterranean smithies.

As usual with Level 9 the game is big, with over 200 locations to explore. Many of those have graphic illustrations of the scenes and the descriptions are atmospheric.

The pictures appear relatively fast but will not interfere with your text entry, as you can carry on typing as



they draw. They are pretty enough in that impressionistic style Level 9 has adopted. If they do get in your way you can dispose of them simply by asking for 'Words'.

It's always debatable as to whether the sheer volume of graphics affects the text interpreter and there were occasions when I felt that the Examine function could have been more informative about objects or locations. The detail in the descriptions does balance that, though.

As befits a world where Magik is all, you have the opportunity of casting up to a dozen different spells to deal with many threatening situations. To cast a particular spell you must be in possession of an object which acts as its focussing point.

If, for instance, you own a certain pearl you can 'Cast Snoop North' to look into a room to your north. A dagger will allow you to 'Cast Zap' and magically attack an enemy, and a dulcimer will help you to teleport to and from the start point, thus escaping some fatal peril.

Combat, also can be undertaken — but make sure you have some sort of weapon and armour first. At the beginning you have 50 'hit points' which will be depleted by battle. Hit points are also used up when you cast spells, so be sparing with Magik and fight only when you really have to. Special objects, such as rune swords, appear to increase your ration of points but they may be costly to acquire.

continued on page 94

snap of the trip. You have only one film and every picture will count.

The taxi hoots outside. Ready or not you had better hurry or the driver will get fed up and leave you stranded. Where are the tickets? Have you got the red hanky? Can you remember the name of your hotel? Those and other things are essential for the journey.

Once you are past the initial time-limited section you can settle down in the plane, ignore little Ken who is using the sick bag as a hat and look forward to *Terrormolinos*, basking in the lethal Mediterranean sun like some ancient reptile ready to devour unwary innocents.

The Hotel Excrucio is a cool haven from the heat but the excitements of foreign climes beckon seductively. There are the gift shops, the beach with its picturesque little island — what are those black triangles nipping through the waves?

Perhaps, you'd like to take an excursion — very cheap — to the bullfight or the wine-tasting. Do your best to avoid Mr Snargsby, the life and soul of the tour group, and mind Beryl doesn't catch you staring at the wonderful Miss Peach... quick



continued from page 93

One other cautionary note — iron has always been known as a specific against magic and its presence in a location will reduce or totally nullify the effect of your spell-casting. When I was underground in the lair of Ziix the Magician I found it impossible to cast proper spells despite dropping every iron object I had collected. Are the caverns iron-ore bearing? Only time and yet more effort will tell.

Be sure of one thing; the solution to **Red Moon** is no easy linear progression from task to task. You will have to work hard to discover the significance of many objects.

Red Moon comes at the same price as the earlier **Emerald Isle** which Level 9 claimed was easier than their higher priced adventures. I suppose it all depends what you mean by easy!

Warlord

Continuing in the magical vein we come to **Warlord** a text and graphic game from Interceptor Micros.

The scene is the Celtic upland of Britain in the early Roman period of its history. The imperial legions of the Emperor Vespasian have cut and burned their way up through the land, destroying hillforts and settlements in their progress.

As the red-crested cohorts reach what is now the Scottish border their



advance is stopped by a powerful tribe led by a tough and resourceful warlord — that's you.

Even the gods join in to try and influence the struggle until finally the two sides agree on a form of single combat. By divine means, the warlord and a selected centurion are transported to a Celtic otherworld. The first to travel through time and space back to the 'real' world will be the victor. Strange puzzles and creatures will confront you and the gods themselves may intervene at times.

There are about a hundred locations for your £5.50 although most have very brief descriptions. There are excellent location graphics, some of

which show that the author or graphics designer had done some research into the history of the period. I was particularly impressed by the picture of the chieftain's hut in the hillfort. The pictures are few and far between, though, and the large number of one-line descriptions tend to reduce the atmosphere.

Examining things will bring little result except for important objects. I expected to be able to do more in locations than I was allowed to.

Nevertheless the game has a good feel of its period and the interpreter will allow more than the usual verb/noun combinations — 'throw meat to bear' is allowed, for instance. The vocabulary is rather bereft at times despite that, and it was very odd to find that the program would not understand 'tie' when you have a piece of rope in your hands — I expect a bit more verbal versatility than that.

Warlord, then, is pretty much in the middle ground of adventuring. More detail would have improved on a reasonably interesting plot and setting.

Timesearch

Timesearch from Millenium Software suffers from similar problems and a few more besides. It is a Quilled game, text only, and is set in a ruinous world locked in a 'time bubble' because of a fault in the ultimate weapon — a Time Stabilizer.

Whilst that powerful weapon was being tested a fault developed which hurled all the occupants of the bubble into a time void. You are cast as the sole survivor.

The aim is to locate and de-activate the Stabilizer. To assist you in this task you must locate a Crystal of Mirrors — an object which will allow you to use past events to influence the present and force Time to give away the secrets of the Stabilizer.

I found all this a little incomprehensible at first. Most of the many locations were briefly described as villages or road junctions and very little could be made to happen in them.

The first score or so of moves is governed by the need to find food quickly. Once you have sorted out the rations you will then naturally want to explore a bit. Big problem here: the game turns out to have a move limitation and any extra wandering means that you cannot win.

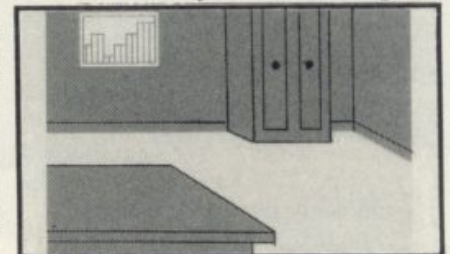
Operation Nightingale

Operation Nightingale from Softly Softly is yet another **Quill and Illustrator** package.

This is a spy story set in London. Jameson, your predecessor, has been rubbed out by the hit-men of a drugs syndicate and you are under orders to capture the head of the syndicate. Your *nom de guerre* is Nightingale.

The action covers London, the suburbs and other parts of the country. You must first raise cash to buy a travel pass to get around town.

Once mobile you can then begin to



hunt for the syndicate. There are secret safes, planes you can fly, odd little shops where you can buy things like vests and overalls, with a few location graphics.

The story-line is not particularly original but the program is competently put together. There are a good number of locations and enough detail and events to hold your interest.

I'd rate it above **Timesearch** and **Warlord** for that reason but none of them are a patch on **Terrormolinos** or **Red Moon**.

Terrormolinos
Publisher Melbourne House
Price £6.95 Memory 48K
★★★★★

Red Moon
Publisher Level 9
Price £6.95 Memory 48K
★★★★★

Warlord
Publisher Interceptor Software
Price £5.50 Memory 48K
★★★

Timesearch
Publisher Millenium Software, 17
Whitehouse Drive, Kingstone, nr Hereford.
Price £3.95 Memory 48K
★★★

Operation Nightingale
Publisher Softly Softly, 36 Broadlands
Road, Bromley, Kent
Price £6.95 Memory 48K
★★★

September 13th sees the launch of a new age in computing. A brand new magazine for the serious computer user...

COMPUTING

AGE

Issue one will include "The leap to 16 bits", how compact discs will revolutionise data storage, electronic mail, how and why? And much more.
If you take your computing seriously, order Computing Age now!



LOAD YOUR TAPES WITH EASE WITH THE AZIMATE 3000G GENERAL PURPOSE AZIMUTH ALIGNMENT & LEVEL INDICATOR ("THE WIDGET")

"One of the most frequent reasons for program tapes failing to load on non-dedicated tape-decks is due to incorrect volume setting and tape-deck head alignment. Adjustment is simplified with this easy to use indicator.



THE PROBLEM:

When I load programs into my computer quite often the tape fails to load.

THE ANSWER:

Fine tune your cassette deck to give the best volume, most accurate alignment, and consequently minimal crashing with:

"THE WIDGET" ONLY £4.99

Spectrum 16K/48K

PRIORITY ORDER FORM

Please rush me my Azimate 3000G

My Name is.....

Address.....

Postcode.....

I enclose cheque/PO for £4.99, payable to: S.I.D. (includes p&p).

Overseas orders welcome. Please add 75p (Euro cheques or sterling drafts).

Send to: S.I.D., UNITS 10/1 IMPERIAL STUDIOS,

IMPERIAL ROAD, LONDON SW6

SU

Self Adhesive Cassette & Disk Labels

★ 3" & 3½" COMPACT DISK LABELS

★ SINCLAIR MICRODRIVE LABELS
(ON TRACTOR FEED BACKING PAPER)

★ 24 HOUR SERVICE FROM STOCK

CASSETTE LABELS ON A4 SHEETS - White only, suitable for printing by offset litho or photocopying: 100 labels - £3.50; 200 - £6.00; 500 - £12.00; 1000 - £21.85

CASSETTE LABELS IN ROLLS - Complete with tractor feed backing paper for overprinting by computer printer. Available white or tinted blue, pink, green, orange, yellow, grey, peach, or cream. Minimum order 500 labels.
WHITE: 500 - £14.66; 1000 - £20.70; TINTED: 500 - £16.90; 1000 - £24.15

DISK LABELS - All labels are on tractor feed rolls with tints as above.
95 x 36 mm. WHITE: 500 - £12.75; 1000 - £17.75; TINTED: 500 - £15.20; 1000 - £24.65

3" & 3½" COMPACT DISK LABELS - 70 x 69 mm. white or tints as above.
WHITE: 500 - £15.55; 1000 - £22.05; TINTED: 500 - £21.35; 1000 - £31.05

SINCLAIR MICRODRIVE LABELS - Side label 28 x 19 mm., Spine label 31 x 5 mm. Labels laid out side by side on tractor feed backing paper.
WHITE: 1000 - £12.15; 2000 - £18.72; TINTED: 1000 - £16.64; 2000 - £32.52

PRICES INC. VAT & CARRIAGE. SEND STAMP FOR SAMPLES & PRICE LIST WITH DETAILS OF QUANTITY DISCOUNTS.

**Industrial
Process**

UNIT A4, SMEED-DEAN CENTRE
EUROLINK INDUSTRIAL ESTATE
SITTINGBOURNE, KENT ME10 3RN
Sittingbourne (0795) 28425 - 24 hrs

SELF ADHESIVE COMPUTER LABELS - *Superfast*

THE GREATEST SALE EVER

SOFTWARE

	Our Price
Chequered Flag	£0.95
Horace Goes Skiing	£0.95
Sinclair Chess	£1.20
Super Ted (Educ. game)	£1.20
Kentilla	£1.95
Braxx Bluff	£1.95
Subterranean Stryker	£2.45
Runes of Zandos (Crash Smash)	£2.45
Eureka!!	£2.45
Plummet	£2.45
Heroes of Karn	£2.45
Cyclone	£2.95
T.L.L.	£2.95
Hyper Sports	£5.75
The Artist	£11.75
Spy v Spy	£6.95
Stop the Express	£2.95
Frank Bruno's Boxing	£5.75
Frankie Goes To Hollywood	£8.75
Glass	£6.75
That's The Spirit	£6.75
Combat Lynx	£7.75
Dynamite Dan	£5.75
The Bulge	£8.75
Arnhem	£7.75
Highway Encounter	£5.75
Paint Plus	£8.75
Knight Shade	£8.75
Dam Busters	£8.75
1984	£1.95
Peytraix	£2.95

Timex 2090 Thermal Printer **£44.95**

COMPUTERS + PERIPHERALS

	Our Price
DK Light Pen	£17.95
DK Keyboard	£27.95
DK Joystick (Q8 II) +	
Interface (Kempston) Offer	£15.95
Single Port Interface	£7.95

P. & P. 50p Software Order Under £5.00 (over £5.00 Free)
£1.50 Keyboards, £2 Printer + Drive, 60p All Other Items. P.O. Cheques Payable to:



LOGIC SALES LTD.

Micro Computers, Software & Supplies,
6 Midgate, Peterborough, Cambs. PE1 1TN
Telephone: (0733) 49696

SINCLAIR SOFTWARE BONANZA

Pack 1 — Beyond Basic, Forth, Print Utilities,
Music Master, Zodes Assembler, Small business
accounts Cattel IQ test **£12.95**

Pack 2 — Set of 5 Sinclair Learn to read series **£5.95**

Pack 3 — VU Calc, VU File, VU 3D **£5.95**

Pack 4 — Ship of Doom, Espionage Island, Planet
of Death, Inca Curse, Embassy Assault,
Super Spy **£5.95**

Pack 5 — Alphabet Games, Speech Marks, Cas-
tle Spellerbus, Early Punctuation, Capital Letters,
The Apostrophe **£5.95**

Pack 6 — Back Gammon, 4D Time Data
Adventure, Biorhythm, Reversi, Driller Tanks,
Devils of the Deep, Manic Miner **£5.95**

New Pack 7 — Club Record Controller,
Collectors Pack, Small Business Accounts **£5.95**

New Pack 8 — Magnets, Glyder, Flipit, Chess,
Tutor, Cargo **£5.95**

New Pack 9 — Space Raiders, Traxx, Oracles
Caves Horace and the Spiders, Hungry
Horace, Planetoids **£5.95**

New Pack 10 — Romale Revenge, Dungeon
Master, Transalvanin Tower, Devils Of The Deep,
Lost, Racing Driver



Start of term! Make sure you have the future of the class in the bag.

Educational Computing is the definitive magazine
for educationalists. Whether it is at a primary,
secondary or higher education level,

Educational Computing ensures
you are totally up to date with the
applications for
computers in
teaching.

Find out for
yourself.
Return this
coupon stating
how you want
to pay. If after
reading
Educational
Computing

**EDUCATIONAL
COMPUTING**

I would like
to subscribe
to Educational
Computing, at £11
for one year's
subscription.
I enclose a cheque for £
Please invoice my school/LEA £
Please charge my credit card the sum of £

Card Name _____
Number _____
Date of expiry _____
Signed _____
(We accept VISA or Access)
Name _____
Organisation _____
Address _____
Telephone _____

you find it is not for you. Simply cancel your order,
and we will make a refund.

No obligation; just an
opportunity for you to find
out why Educational
Computing is so
highly respected.

Send your
completed coupon
to Educational
Computing,
Priory Court,
30-32 Farring-
don Lane,
London EC1R
3AU.

Full steam ahead

Competition

100 copies of Southern Belle up for grabs in our fantastic steam railway competition...

TO WIN a copy of **Southern Belle**, all you have to do is devise a train schedule based on the layout shown. There are three stations — Applewick, Bottlemaine and Castleford — A, B and C on the map. There are also a number of points, which are set to particular positions. Trains are not allowed to run against the points. Trains are also forbidden to change direction unless they are at a station.

Imagine you're back in the good old days of steam. Shovelling coal like the clappers, blowing the whistle, braking smoothly and getting there on schedule.

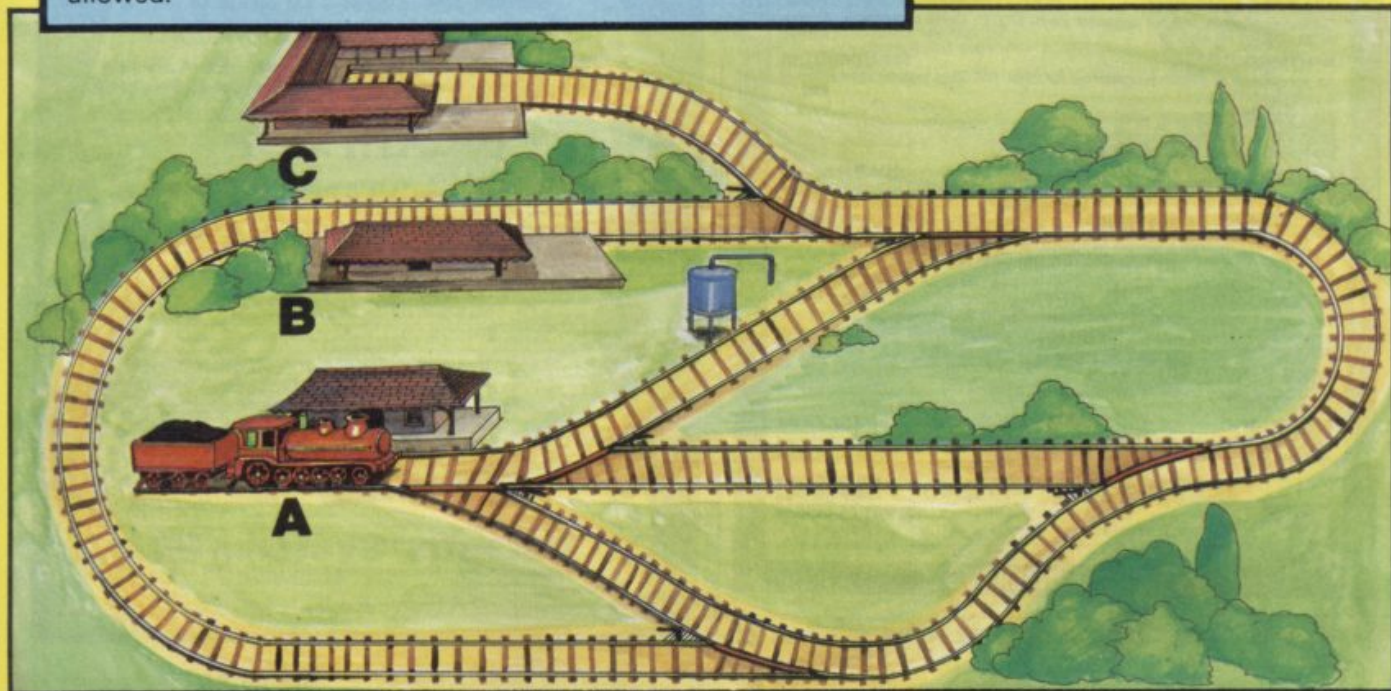
You can experience those thrills with the latest simulation from Hewson Consultants, **Southern Belle**, which offers the challenge of running the most romantic of the great steam engines.

Hewson is giving away 100 copies of the game but there's an extra special first prize — a trip for two to Didcot Railway Centre on September 29th, Enthusiasts' Day for the Great Western Society. You'll tour the engine sheds and have a slap-up lunch in a luxury 1930s saloon carriage before seeing the locomotives in action and riding on the footplate as you steam out of Didcot Halt.

All you have to do is solve the little railway problem below. Write the answers on a postcard, with your name and address, and send them to *Sinclair User*, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU by Friday, September 20th. Employees of EMAP or Hewson Consultants are not eligible. Only one entry per person is allowed.

You start at Applewick, and you must visit both Castleford and Bottlemaine, then return to Applewick. What is the smallest number of point changes you need to make?

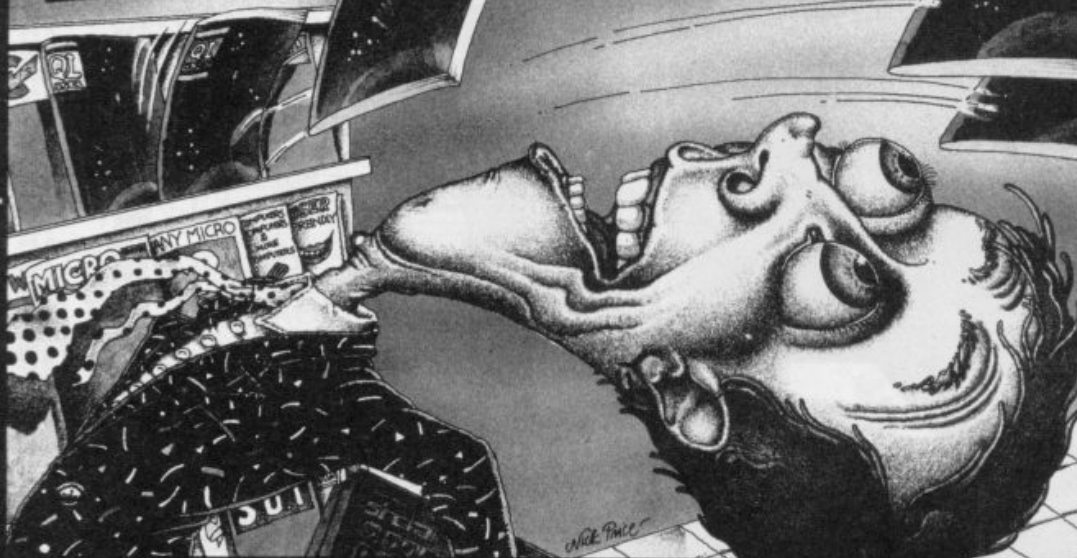
Secondly, starting again with the original point settings, what is the smallest number of point changes you have to make to visit both stations, and return to Applewick, if you have to fill up with water before you get to Castleford?



95p EVERY MONTH

Puzzle extravaganza
ON SALE 21ST AUGUST

95p EVERY MONTH



QL USER

QL USER — THE ONLY MAGAZINE FOR QL OWNERS AND ENTHUSIASTS

WAS
£59.95
NOW ONLY
£29.95
PLUS £2.00 P&P

Send now to:
Fox Electronics Ltd,
Fox House, 35 Martham Rd,
Hemsby, Gt Yarmouth,
Norfolk NR29 4NQ.
Tel: (0493) 732420

**COMPATIBLE
WITH
SPECTRUM
PLUS**



What the reviews said . . .
SINCLAIR USER FEBRUARY 1984
 "Provides the easiest interface
 on the market to use"
SINCLAIR USER ANNUAL 1985
 "At £28.95 the interface is
 excellent value"
ZX COMPUTING JANUARY 1985
 "One of the easiest to use, get my
 approval!"

- * Complete compatibility with all programs.
- * In-built memory slot up to 16 different game keys at one time.
- * Battery back-up so no loss of memory after power off. (Battery recharge during loss so no replacements are required).
- * One switch only for simplicity of use.
- * Full casing.
- * Through port for further expansion.
- * Proven compatibility with the microdrive.
- * Built-in pseudo Rom facility with Rom for personal tool kit.
- * Compatible with all Atari-type joysticks.
- * Compatible with Quicksort II rapid fire.

£28.95
INCL.

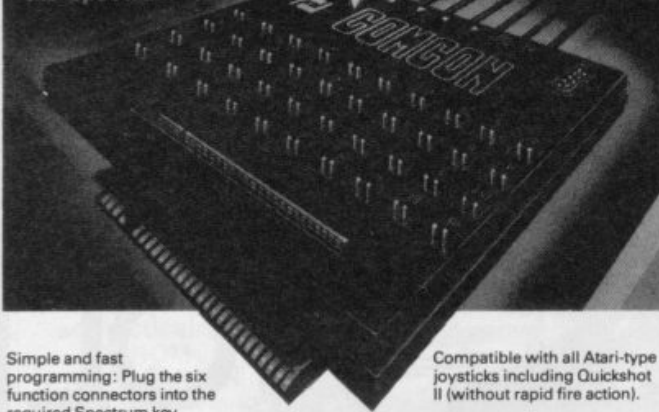
£34.95 INCL

Address

15

COMCON

Programmable
Joystick Interface for
the Spectrum



Simple and fast
programming: Plug the six
function connectors into the
required Spectrum key
positions - Ready!

Supports joysticks with two
independent fire actions:
Photon Blasters and Neutron
Bombs at the touch of your
fingertips.

Extension port for combined
use of peripherals.

Compatible with all Atari-type
joysticks including Quickshot
II (without rapid fire action).

Interface operates joystick
parallel to keyboard. Joystick
action compatible with any
add-ons including
microdrives.

Select key functions anytime -
even when the game is
already loaded.

£19.95

incl. VAT and P & P

NEW COMCON TWIN JOYSTICK INTERFACE

Two port version allows connection of two joysticks for
sequential two player games using same key positions
(non-independent!)

£22.95

incl. VAT and P&P

QUICKSHOT 2+2 JOYSTICK

modified to incorporate
2 independent fire actions
and no rapid fire option

£13.95

incl. VAT and P&P

FLIGHTLINK HOTSHOT JOYSTICK

with two independent fire actions

£10.50

incl. VAT and P&P

CURRAH USPEECH UNIT

fits into COMCON extension slot

£21.95

incl. VAT and P&P

ALSO AVAILABLE FROM SELECTED RETAIL OUTLETS

Send to:

FREL LTD.

1 Hockeys Mill, Temeside,
Ludlow, Shropshire SY8 1PD

Mr./Mrs./Miss:

Address:

Postcode:

Qty	Code	Item	Item Price	Total £
	01	Comcon Interface	£19.95	
	02	Comcon Twin Interface	£22.95	
	03	Quickshot 2+2 Joystick	£13.95	
	04	Flightlink Hotshot Joystick	£10.50	
	05	Currah uSpeech Unit	£21.95	
	06	Comcon with Quickshot 2-2	£31.90	
	07	Comcon with Hotshot	£28.45	

I enclose a cheque/postal order made payable to Frel Ltd. for: £

GOOD BYTE

SPECTRUM

GAME	RRP	OUR PRICE
Dun Darach	£9.95	£7.50
Mordens Quest	£6.95	£5.25
Wriggler	£5.95	£4.75
Salmazoom	£6.95	£2.99
Baba-Liba	£7.95	£3.99
Romper Room	£9.95	£4.99
Rocky Horror Show	£8.95	£6.50
Formula One	£6.95	£6.50
Confuzion	£6.95	£5.25
Archon	£9.95	£7.50
Falcon Patrol II	£7.95	£5.95
Moon Cresta	£6.95	£5.25
Mini-Office	£5.95	£4.75
Match Day	£7.95	£5.95
Softaid	£4.99	£4.99
Nick Faldo's Golf	£9.99	£7.50
Glass	£7.99	£5.99
Dambusters 'Coming Soon'	£9.95	£7.50
Metabolis	£6.95	£4.99
Red Moon	£6.95	£5.25
One on One	£6.95	£7.50
Ice Works	£6.99	£3.99
Flight Path 737	£6.99	£3.99
Lazy Jones	£6.95	£3.99
Highway Encounter	7.95	5.95
Nick Faldo	9.95	6.50
Talos	7.95	5.95
Frankie Goes To Hollywood	9.95	6.75
A View To A Kill	10.99	7.50
Spy Vs Spy	9.95	5.99
Everyone's A Wally	9.95	6.99
Starion	7.95	5.25
Hypersports	7.95	4.99
World Series Baseball	6.95	4.99
Battles For Midway	9.95	5.99
Deathstar Interceptor	7.95	4.99
Daley's Supertest	6.95	5.25
Streethawk	6.95	5.25
Cauldron	7.99	5.99
Shadowfire	9.95	5.99
Herberts Dummy Run	9.95	6.99
Twin Kingdom Valley	9.95	2.99
Syron	9.95	5.99
Jet Set Willy II	6.95	4.99
Nodes of Yesod	9.95	6.99
Frank Bruno Boxing	6.95	4.99
Dynamite Dan	6.95	4.99
Lords Of Midnight	9.95	5.99
Doomdark's Revenge	9.95	5.99
Rocky (Rocco)	7.95	5.95
Johna Barrington Squash	7.95	5.95
Ram Turbo Interface	22.95	10.99
Nightshade	9.95	7.50
Robin Of Sherwood	9.95	5.50
Profanation	7.95	5.95
Way of the Ex Fist	9.95	6.25
Rockford's Riot	9.95	6.99
Worm In Paradise	6.95	5.60
Johna Barrington	7.95	5.95
Go To Hell	6.95	5.25
Juggernaut	7.95	5.95
Faithful	9.95	7.50
That's The Spirit	7.95	5.95

ALL PRICES INCLUDE P&P — QUICKSHOT II ONLY £6.50

PLEASE NOTE IF YOUR ORDER EXCEEDS £50 YOU GET 10% FURTHER DISCOUNT

SENT CHEQUES/PO TO: GOODBYTE, 94 LEATHER LANE, LONDON EC1 TEL: 01-404 4245

GAMES AVAILABLE FOR MOST MICROS

EXPORT ORDERS: ADD 75P per tape — TRADE ENQUIRIES WELCOME

4 Games for the ZX Spectrum

FREE

Order this new BASIC programming course for an
introductory price of just £9.95 and you will
receive these 4 great games absolutely FREE.

This new concept in computer education will take you
beyond simple BASIC instructions, into the
world of the professionals where you will learn
their secret techniques. It comes on cassette,
so you simply relax in front
of your television and
watch and listen as
we show you how to
get the most
from your
micro.

For 16K or 48K RAM

ATTRIBUTES
PEEK & POKE
PLOT & DRAW
ANIMATED GRAPHICS
PROGRAM STRUCTURE
HIGH RES. GRAPHICS
FULL COLOUR & SOUND



SPECTRUM HOLDINGS LTD., P.O. BOX 104, CRAWLEY, RH10 4FU

Make Cheque or Postal Order for £9.95 payable to: SPECTRUM HOLDINGS LTD.
and send to: P.O. BOX 104, CRAWLEY, RH10 4FU

Name

Address

Postcode Tel:

Orders despatched within 7 days.

**PROFESSIONAL
SOFTWARE**

SU9

Routine work in words and music

Andrew Hewson explains how to use Spectrum ROM routines to PRINT to the screen or BEEP on the speaker

THIS MONTH I tackle a couple of perennial machine code topics — the sort that regularly turns up in my postbag. The first question comes from Alan Selby of Carlton-in-Lindrick, Nottinghamshire: Please could you tell me how to print letters on the screen in machine code?

Printing from machine code is straightforward as manufacturers have thoughtfully provided a routine in ROM to do all the hard work. The routine is called at address 16 decimal — 10 in hexadecimal — and should be accessed using the special Z80 machine code instruction

RST 16

That instruction is called a restart — hence the RST abbreviation — and is one of eight such special instructions. As far as you are concerned it has the same effect as a CALL instruction except that only one byte instead of three is required to hold it.

The routine is entered with the A register set to the code of the character to be PRINTed, and the appropriate character appears on the screen at the current PRINT position. All registers are preserved by the routine except



the AF register pair and in some circumstances it may be necessary to PUSH and POP AF before and after the RST instruction respectively.

The routine listed in table 1 demonstrates the use of RST 16 by PRINTing all characters with codes lying between 32 and 255 inclusive. Note that that includes all tokens so the routine demonstrates that command words like POKE, READ and DRAW can be PRINTed using RST 16 if required. The decimal codes for the routine can be loaded into the

printer buffer using the decimal loader listed in table 2.

The RST 16 facility can also be used to control the screen format and layout character codes. Care must be taken not to follow the INK, PAPER and other control codes by invalid numbers, otherwise error code K results. Some of those layout characters are extremely useful, for example

LD A, 13

RST 16

will PRINT an ENTER character so that the current PRINT position will move to the beginning of the next line.

The PRINT routine at address 16 was not provided by the manufacturers solely for the benefit of users. The Spectrum ROM itself makes extensive use of the facility and is littered with RST 16 instructions. Every time one is used, two bytes of memory are saved — the difference between the length of a CALL and RST instruc-

continued on page 102

Decimal	Assembly Code	Comment
62 32	ld a, 32	Load the register with 32
245	Again push af	Save a on the stack
215	rst 16	PRINT the character
241	pop af	Retrieve a from the stack
60	inc a	Increment the a register
32 250	jr nz, Again	Jump to PRINT next character
201	ret	Return when a reaches zero

Table 1. A Spectrum program to PRINT the characters with codes in the range 32 to 255 inclusive. Note that when the a register contains 255, the effect of the inc a instruction is the same as subtracting 255 — a subsequently contains zero.

continued from page 101

tion. More importantly, the Z80 does not waste time calculating the address which is being called because it is implicit in the instruction. Hence RST commands are very useful for calling routines which are used frequently.

The second topic was suggested by James Beacham of Lincoln: **Lots of Spectrum games have music with them. How do you produce music in machine code?**

The Spectrum BEEP command has two parameters which determine the duration and pitch of the note to be produced. The duration is measured in seconds and the pitch is in semitones relative to middle C. Thus the command

BEEP 0.5, 1

causes the computer to play C sharp — one semitone above middle C — for half a second.

Three separate ROM routines are used to play a note. The first is the command interpreter which determines that the BEEP command is to be executed as opposed to PRINT or DIM. It also places the two parameters in floating point form on the calculator stack and then passes control to the BEEP command routine itself, located at address 03F8. That routine converts the duration and pitch parameters to two new numbers. The new parameters are passed in the

```
10 FOR I = 23296 TO 23551
20 INPUT J
30 POKE I, J
40 PRINT I, J
50 NEXT I
```

Table 2. A simple decimal loader for POKEing decimal numbers into the Spectrum printer buffer. To halt the program enter STOP (Symbol Shift A).

DE and HL register pairs to a third routine, located at 03B5, which drives the loudspeaker causing the correct note to be produced.

The third routine drives the loudspeaker by toggling the low voltage supply to the loudspeaker's electromagnet. That causes the cone of the loudspeaker to vibrate thereby generating an audible sound. The two parameters passed to the routine control the total number of times that the toggling takes place and the rate of repetition.

So how do we relate the rate of repetition and the number of toggles to the frequency and duration of the note required? To answer, we need to know something about the mathema-

tics of music and the language used to describe it.

An octave is a natural separation between two notes. Raising a note by an octave is equivalent to doubling the note's frequency. For example, whilst the frequency of middle C is about 262 cycles per second, the frequency of the note an octave higher — upper C — is about 524 cycles per second. Similarly the frequency of the note an octave higher still is about 1048 cycles per second.

If all the notes ever played were octaves of middle C, music would be very boring and so to add variety each octave is divided into 12 semitones. Those are evenly spaced in the logarithmic scale of frequency — if you take several adjacent semitones and calculate the logarithms of their frequencies, then the difference between

'If all the notes ever played were octaves of middle C, music would be very boring'

the logarithms is the same for each adjacent pair.

It would be possible to create all notes from a single reference frequency, stepping up or down the required number of semitones by adding or subtracting the logarithmic increment. Sinclair has chosen not to do that. Instead the frequencies of all 12 semitones in a single reference octave are stored in floating point form in ROM at address 046E. Higher notes are obtained by doubling or quadrupling those frequencies, lower notes by halving or quartering.

The frequencies and the names of the notes are listed in table 3. The logarithm to base ten of each frequency is also listed and it is clear that the difference in each adjacent pair of logarithms is about 0.025.

The BEEP command routine uses this table to calculate the required frequency from the pitch parameter as follows:

The required semitone is determined from the result of the calculation

SEMITONE=INT (PITCH) MOD 12

That gives a value in the range 0.0 to 11.99. The integer part of the number

Note	Frequency	Log frequency (to base ten)
Middle C	261.63	2.418
C sharp	277.18	2.443
D	293.66	2.468
D sharp	311.13	2.493
E	329.63	2.518
F	349.23	2.543
F sharp	369.99	2.568
G	392.00	2.593
G sharp	415.30	2.618
A	440.00	2.643
A sharp	466.16	2.669
B	493.88	2.694

Table 3. The semitone table used by the Spectrum.

determines which semitone is selected. The frequency is then adjusted upwards using the approximate calculation to take account of any non-integer remainder.

The required octave is determined from the calculation

OCTAVE=INT (PITCH / 12)

The frequency obtained from the first part of the calculation is then doubled or halved the appropriate number of times. For example, it is doubled once if OCTAVE=1, twice if OCTAVE=2, halved once if OCTAVE=-1.

To complete the conversion of the first parameter the frequency obtained — measured in cycles per second — is multiplied by the duration parameter — in seconds — to give the total number of times the loudspeaker supply line must be toggled. The result is passed to the BEEPER routine at 03B5 in the DE register pair.

The second parameter passed to the BEEPER routine controls the interval of time between each toggling of the loudspeaker line. That interval is not measured in seconds but in the number T states divided by eight, for which the BEEPER routine is to remain in a delay loop before switching the loudspeaker line on or off again. A T state is the period of time that the Z80 microprocessor takes to execute the fastest instruction. In the Spectrum there are 3,500,000 T states per second.

The steps in the calculation are as follows:

Divide 3,500,000 by the frequency of the required note. Divide the result by eight. Subtract 30.125 to take account of overheads at the beginning and end of the delay loop.

The result is passed to the BEEPER routine in the HL register pair.

● Please address problems and queries to Andrew Hewson, Helpline, Graham Close, Blewbury, Oxfordshire.

SOFT AID

Feed The World

SINCLAIR SPECTRUM

SPELLBOUND
STARBIKE
KOKOTONI WOLF
THE PYRAMID
HORACE GOES SKIING
GILLIGANS GOLD
ANT ATTACK
3D TANK DUEL
JACK & THE BEANSTALK
SORCERY

— BEYOND
— THE EDGE
— ELITE
— FANTASY
— MELBOURNE HOUSE/PSION
— OCEAN
— QUICKSILVA
— REALTIME
— THOR
— VIRGIN

10 Top titles on one cassette! only

£4.99

Features
the Hit Single
'Do they know it's
Christmas?'
BAND-AID

COMMODORE 64

GUMSHOE — A & F
PITFALL — ACTIVISION
STARTRADER — BUG BYTE
KOKOTONI WOLF — ELITE
CHINA MINER — INTERCEPTOR
GILLIGANS GOLD — OCEAN
FRED — QUICKSILVA
GYROPOD — TASKSET
FALCON PATROL — VIRGIN
FLAK — U.S. GOLD

Available from multiple retailers and specialist computer stores

All proceeds to The Bob Geldof Band-Aid Ethiopian Appeal Fund.



DJR

A SAMURAI FOUGHT FOR WHAT HE WANTED



Kee... Aaargh... CRUNCH!

A special bone-snapping round up of the best martial arts games around. Plus a great 'Way of the Exploding Fist' competition.

Thwack... Nine Love.

Could be your score unless you win the top prize in our exclusive Squash competition. Personal coaching lessons from former world champion Jonah Barrington.

Swish...

Meet our new skateboard adventurer; the Psi Warrior in his own action strip.

Trample, trample...

You, as you rush to the newsagent to buy the brilliant NOISIEST September issue of Computer & Video Games. GO OUT AND FIGHT FOR IT ON AUGUST 16th.



COMPUTER & VIDEO GAMES EXPLOSIVE SEPTEMBER ISSUE— GO OUT AND FIGHT FOR IT!

THE Gilbert Factor has been replaced by a star rating, the basis of which is value for money. Programming, graphics, speed, presentation and addictive qualities are taken into account.

Guide to ratings:

- ★★★★★24 carat. Buy it
- ★★★★Value for money
- ★★★Nothing special
- ★★Over-priced
- ★A rip-off

SPECTRUM 16K

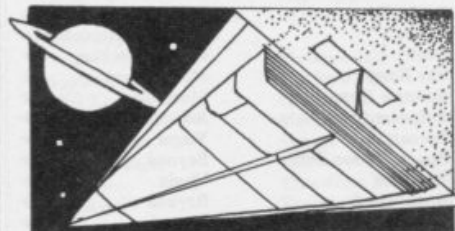
Adventure

Planet of Death Artie 3★



Arcade

Arcadia	Beau Jolly	3★
Arcadian	J K Greye	3★
Black Hole	Quest	3★
Blind Alley	Sunshine	4★
Cosmic Guerilla	Crystal	4★
Crazy Cranes	Voyager	3★
Crevasse and Hotfoot	Microsphere	4★
Cyber Rats	Silversoft	4★
Death Chase	Micromega	3★
Earth Defence	Artie	3★
Escape	New Generation	4★
Fireflash	Abacus	3★
Fruit Machine	DK'tronics	3★
Galaxians	Artie	3★
Gnasher	Mastertronic	2★
Godzilla and Martians	Temptation	4★
Ground Attack	Silversoft	3★
Horace and the Spiders	Sinclair	4★
Horace Goes Skiing	Sinclair	3★
Hungry Horace	Sinclair	4★
Invasion Force	Artie	4★
Jet Pac	Ultimate	5★
Luna Crabs	Micromega	4★
Maze Chase	Hewson	4★
Meteor Storm	Quicksilver	4★
Meteoroids	DK'tronics	4★
Micro Mouse	Lothlorien	3★
Millypede	Add-on	4★
Mined Out	Quicksilver	4★
Mr Wong's Loopy Laundry	Artie	3★
Muncher	Silversoft	3★
Orbiter	Silversoft	4★
Pengy	Micromania	2★
Planetoids	Sinclair	3★
Proteus	Abacus	3★
Rider	Virgin	3★
Road Toad	DK'tronics	4★
Sentinel	Abacus	4★
Sheer Panic	Visions	4★
Sir Lancelot	Melbourne House	4★
Space Intruders	Quicksilver	4★
Space Raiders	Sinclair	3★
Spec. Scramble	Work Force	4★
Spectipede	Mastertronic	3★
Spectral Invaders	Bug-Byte	4★
Spectral Panic	Hewson	3★



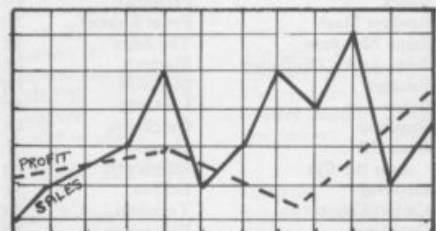
Strike Four
Tank Battle
Train Game
Winged Warlord
Yomp

Business

Finance Manager
Statistics II
Survey II

Spectresoft 2★
dk'tronics 4★
Microsphere 5★
CDS 3★
Virgin 4★

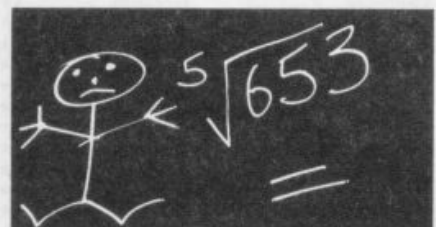
OCP 5★
Bridge 1★
Lobos 3★



Vu-Calcul 4★
Vu-File 4★
Sinclair 4★
Sinclair 4★

Education

Chess Tutor Artie 4★
Estimator Racer Psion 4★
Firework Music Soft Cottage 4★
Integration University 4★
Money Poppy 4★
Number Painter Psion 4★
Regression University 4★



Language

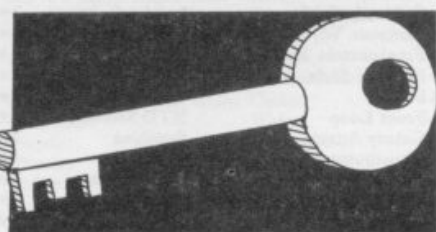
Beta Basic Betasoft 5★

Practical

Countries of the World Hewson 4★
Cycle Planner Medidata 2★
Map of the UK Kuma 4★

Puzzle

Flippit Sinclair 4★
Hanoi King Contrast 4★
Lojix Virgin 2★
Nowotnik Puzzle Phipps 4★



Simulation

Air Traffic Controller Hewson 3★
Airliner Protek 3★
Golf Virgin 4★
NightFlite Hewson 3★
Print Shop CCS 4★
Pro-Golf Hornby 4★

Strategy

Dallas CCS 3★
Dictator DK'tronics 4★
Heathrow Hewson 4★

Traditional

Bridge Tutor CP Software 4★
Bridgemaster Serin 5★
Las Vegas Temptation 3★
Pool Bug-Byte 4★
Reversi Sinclair 4★

Utility

Auto Sonics Buttercraft 3★
Basic Utilities Jaysoft 3★
Dietron Custom 3★
Disassembler DK'tronics 4★
Editor/Assembler Picturesque 4★
Extended Basic CP Software 4★
FP Compiler Softek 5★
Friendly Face Monitor 4★
Letterfont Allanson 4★
Machine Code Test Tool OCP 4★
Master Toolkit OCP 4★
MCoder PSS 4★
Print Utilities Sinclair 4★
Slow Loader ELR 5★
Sound FX DK'tronics 3★
Spec. Editor/Assembler Picturesque 4★
Spec. Monitor Picturesque 4★
Spectrum Super Toolkit Nectarine 4★
Supercode CP 4★
Trace Texgate 4★
TT-S Timedata 4★

SPECTRUM 48K

Adventure

Abyss CCS 3★
Adventure 1 Abersoft 3★
Alchemist Beau Jolly 4★
Amulet Sentient Software 2★
Ashkeron Mirrorsoft 3★
Assignment East Berlin Sterling Software 2★
Atlas Assignment Virgin 4★
Black Crystal Mastervision 4★
Black Planet Phipps 4★
Bored of the Rings Delta 4 5★
Caesar's Travels Mirrorsoft 2★
Castle Blackstar CDS 4★
Classic Adventure Melbourne House 4★
Colditz Phipps 4★
Colossal Caves CP Software 4★
Confidential Radar Games 4★
Crystal Frog Sentient Software 3★
Curse of the Seven Faces Imperial Software 3★
D. Mouse in Black Forest Creative Sparks 4★
Dead at the Controls Artie 2★
Demon Lord MCE 3★
Detective Arcade 4★
Diamond Quest CCS 2★
Diamond Trail Gilsoft 4★
Doomdark's Revenge Beyond 5★
Dun Darach Gargoyle 5★
Dungeon Master Crystal Comp. 4★
Dungeons of Doom Temptation 2★
El Dorado Atlantis 4★
Emerald Isle Level Nine 4★
Erik the Viking Level Nine 4★
Espionage Modular Resources 2★
Espionage Island Artie 3★
Eureka Domark 3★
Everest Ascent Shepherd 3★
Eye of Bain Artie 4★
Fantasia Diamond Hewson 4★
Flight from the Dark Hutchinson 4★
The Fourth Protocol Century/Hutchinson 5★
Frankie goes to Hollywood Ocean 5★
Frog Face Positive Image 4★
Ghoules IMS Software 4★
Golden Apple Artie 4★
Gremlins Adventure Int 3★
The Great Space Race Legend 2★
Halls of Things Crystal Comp. 5★
Hampstead Melbourne House 5★
Here comes the sun Alligata 4★
Heroes of Karn Interceptor 3★
Hobbit Melbourne House 5★
Ice Station Zero 8th Day 3★
Inca Curse Artie 3★
Inferno Shepherd 4★
Invincible Island Shepherd 4★
Island Crystal 2★
Jericho Road Shards 4★
The Jewel of Power Slogger Software 4★
Jewels of Babylon Interceptor 2★
Jungle Adventure CCS 2★
Kentilla Micromega 3★
Key of Hope Games Workshop 4★

continued on page 106

continued from page 105

King Arthur's Quest
Knight's Quest
Leopard Lord
Lords of Midnight
Lords of Time
Mad Martha
Malice in Wonderland
The Magic Sword
Mountains of Ket
Murder at Manor
Odyssey of Hope
Oracle's Cave
Orc Slayer
Paradox
Perseus and Andromeda
Pimania
The Prince
The Prisoner
Project X
Quest

Hill MacGibbon 2★
Phipps 3★
Add-on 2★
Beyond 5★
Level Nine 4★
Mikro-Gen 4★
Sentient Software 3★
Database Pubs 3★
Incentive 4★
Gemtime 4★
Martech 3★
Doric 4★
Gamma Software 3★
Runesoft 1★
Channel 8 4★
Automata 4★
CCS 4★
SpooF Software 3★
Compass Software 4★
Hewson 4★



Quetzalcoatl
Return of the Joystick
Return to Eden
Runestone
Runes of Zendo
The Sandman Cometh
Satan's Pendulum
Scoop
Se-Kaa of Assiah
Sherlock
Ship of Doom
Snowball
SpooF
Subsunk
Superspy
System 15000
Temple of Vran
The Final Mission
The Helm
The Talisman
The Wild Bunch
Tir Na Nog
Titanic
Tower of Despair
Transylvanian Tower
Twin Kingdom Valley
Underworld
Urban Upstart
Valhalla
Vampire Village
Velnor's Lair
Volcanic Dungeon
War of the Worlds
Waydor
Width of the World

Virgin 4★
Delta 4 3★
Level Nine 4★
Games Workshop 4★
Dorcas Software 3★
Star Dreams 4★
Minatron 4★
Sentient Software 3★
Mastervision 2★
Melbourne House 5★
Artic 4★
Level 9 5★
Runesoft 4★
Firebird 4★
Shepherd 3★
Craig Comm. 5★
Incentive 4★
Incentive 4★
Firebird 4★
Games Workshop 4★
Firebird 2★
Gargoyle 5★
R&R 3★
Games Workshop 3★
Shepherd 3★
Bug-Byte 4★
Orpheus 3★
Shepherd 4★
Legend 5★
Terminal 2★
Quicksilva 4★
Mastervision 3★
CRL 2★
IMS Software 2★
Mosaic 2★

Arcade

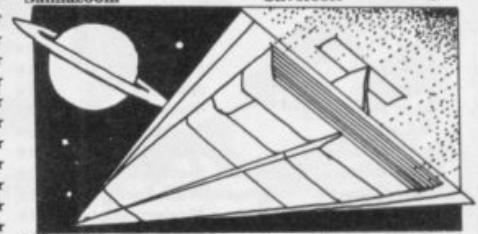
A Day in the Life
A View to a Kill
Ad Astra
Adven. of a St Bernard
Airwolf
Alcatraz Harry
Alien 8
Android Two
Ant Attack
Arabian Nights
Archon
Arena 3000
Armageddon
Astronaut
Atic Atac
Automania
Avalon
Base Invaders
Battle Zone

Micromega 4★
Domark 4★
Gargoyle Games 4★
Mastertronic 4★
Elite 2★
Mastertronic 2★
Ultimate 5★
Vortex 5★
Quicksilva 5★
Interceptor 4★
Ariolasoft 2★
Microdeal 3★
Silversoft 2★
Software Projects 4★
Ultimate 5★
Micro-Gen 3★
Hewson 5★
Work Force 3★
Quicksilva 3★

Bazam
Beach Head
Bear Bover
Birds and Bees
Black Hawk
Blade Alley
Blue Max
Blue Thunder
BMX Trials
Booty
Boulder Dash
Brian Bloodaxe
Brian Jack's Challenge
Bristles
Bruce Lee
Bugaboo
Buzz Off
Caesar the Cat
Carnival
Carpet Capers
Cauldron
Cavelon
Centipoid Plus 3
Chaos
The Chocolate Factory
Chequered Flag
Chinese Juggler
Chuckie Egg
Chuckie Egg II
Chuckman
Close-In
Codename Mat
Confuzion
Corridors of Genon
Crusoe
Cyclone
Daley's Decathlon
Dangermouse in D. Trouble
Death Chess 5000
Death Star Interceptor
Defusion
Defusion/Worms
Demon Chase
Deus Ex Machina
Devil Rides In
Dimension Destructors
Dodge City
Don't Buy This
Dr Franky and the Monster
Dragonfire
Dragontrac
Driller Tanks
Drive In
Energy 30,000
Eric and the Floaters
Everyone's a Wally
Exodus
Falcon Patrol II
Falklands Crisis
Fantastic Voyage
Frankenstein 2000
Frank N Stein
Fred
Froot Loop
Galaxy Attack
Ghostbusters
Ghost Rider
Giant's Revenge
Gift from the Gods
Gilligan's Gold
Glass
Glug Glug
Go To Hell
Havoc
Harry Goes Home
Helichopper
Hellfire
Herbert's Dummy Run
Hickstead
High Noon
Highway Encounter
Hunchback
Hunchback II
Hypersports
Icicle Works
Invasion Body Snatch.
Jack and the Beanstalk
Jasper
Jet Set Willy

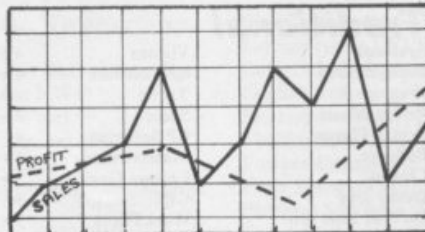
Alan Firminger 3★
US Gold 4★
Artic 4★
Bug-Byte 4★
Creative Sparks 4★
PSS 3★
US Gold 3★
Foundry Systems 3★
Lainlan Software 2★
Firebird 4★
Front Runner 3★
The Edge 4★
Martech 2★
Statesoft 3★
US Gold 4★
Quicksilva 4★
Electric 3★
Mirrorsoft 4★
Eclipse 3★
Terminal 3★
Palace 5★
Ocean 4★
Orwin 3★
Games Workshop 4★
Hill MacGibbon 3★
Sinclair 5★
Ocean 3★
A & F 5★
A & F 3★
CCI/Add-on 4★
Pulsonic 2★
Micromega 5★
Incentive 4★
New Generation 5★
Automata 3★
Vortex 4★
Ocean 5★
Creative Sparks 4★
Artic 1★
System 3 3★
Incentive 2★
K-Tel 2★
Mansfield 5★
Automata 4★
Mastertronic 4★
Artic 4★
Phoenix 4★
Firebird 2★
Virgin 3★
Cheetahsoft 3★
Hewson 4★
Sinclair 2★
Fantasy 2★
Elm 2★
Sinclair 3★
Mikro-Gen 4★
Firebird 2★
Virgin 3★
Lainlan Software 2★
Quicksilva 4★
Icon 2★
PSS 4★
Quicksilva 3★
NTD Software 3★
Sunshine 2★
Activision 4★
Positive Image 2★
Thor 2★
Ocean 3★
Ocean 3★
Quicksilva 4★
CRL 3★
666 3★
Dynavision 1★
Pulsonic 3★
Firebird 2★
Melbourne House 4★
Mikro-Gen 4★
CCS 2★
Work Force 5★
Vortex 5★
Ocean 4★
Ocean 3★
Imagine 4★
Statesoft 2★
Crystal 5★
Thor 3★
Micromega 3★
Software Projects 5★
Jet Set Willy II
Jump Challenge
Killer Knight
Knight Lore
Kokotoni Wilf
Komplex
Krakatoa
Kung-Fu
Laser Zone
Laserwarp
Lazy Jones
Les Flics
Locomotion
Lode Runner
Loony Zoo
Lunar Jetman
Magic Roundabout
Manic Miner
Matrix
Maziacs
Metagalactic Llamas
Mighty Magus
Minder
Mission Impossible
Mission Omega
Monkey Biznes
Moon Cresta
Moons of Tantalus
Monty is Innocent
Mr Wimpy
Mummy Mummy
Munnery's Mergatroids
Mutant Monty
New Cylon Attack
Nicotine Nightmare
Night Gunner
Nodes of Yesod
1994
911TS
Olympimania
Orion
Paws
Pedro
Penetrator
Pi-Balled
Pi-Eyed
Pitfall II
Potty Pigeon
Psi-Spy
Pssst
Psytron
Pyjamarama
Pyramid
Quackshot
Rapsallion
Reactor
Revenge of the K. Tomatoes
Rider
River Rescue
Robot Riot
Rocky Horror Show
Roland's Rat Race
Rommels Revenge
Sabre Wolf
Saimazoom

Software Projects 3★
Martech 3★
Phipps 3★
Ultimate 5★
Elite 3★
Legend 2★
AbbeX 4★
Bug-Byte 3★
Quicksilva 4★
Mikro-Gen 3★
Terminal Software 2★
PSS 3★
Mastertronic 4★
Software Projects 3★
Phipps 3★
Ultimate 5★
CRL 2★
Bug-Byte 5★
Salamander 4★
DK'tronics 4★
Salamander 4★
Quicksilva 2★
DK'tronics 4★
Silversoft 3★
Pulsonic 2★
Artic 4★
Incentive 3★
Cornhill 3★
Gremlin Graphics 4★
Ocean 4★
Lothlorien 3★
Abacus 3★
Artic 4★
A&F 3★
Atlantis 2★
Digital Integration 3★
Odin 4★
Visions 2★
Elite 1★
Automata 3★
Software Projects 3★
Artic 4★
Beau Jolly 4★
Melbourne House 5★
Automata 4★
Automata 3★
Activision 3★
Gremlin Graphics 3★
Postern 3★
Ultimate 4★
Beyond 5★
Mikro-Gen 4★
Fantasy 4★
Creative Sparks 3★
Bug-Byte 3★
Gemini 4★
Visions 3★
Virgin 3★
Creative Sparks 2★
Silversoft 3★
CRL 3★
Ocean 4★
Crystal 5★
Ultimate 5★
Silversoft 3★
Beyond 5★
Microsphere 5★
Durrell 5★
Computer Records 4★
Games Machine 3★
Microsphere 2★
Macmillan 3★
Addictive Games 2★
Virgin 4★
Beyond 3★
Virgin 3★
Beyond 4★
Incentive 4★



Sports Hero
Spy Hunter
Spy vs Spy
Stagecoach
Starbike
Starion
Stop the Express
Strangeloop
Submarine Strike
Super Pipeline II
Tachyon Command
Tank Trax
Tapper
Technician Ted
Terrahawks
The Covenant
The Guardian
The Pyramid
The Snowman
Therbo
3D Bat Attack
3D Lunattack
3D Seiddab Attack
3D Starstrike
3D Tank Duel
3D Tunnel
Tiler Tim
Time Gate
Timebomb
Tobor
Tornado Low Level
Toy Bizarre
Trashman
Travel with Trashman
Traxx
Tribble Trouble
Trom
Turtle Timewarp
Tutankhamun
Two-Gun Turtle
Underwilde
Wheelie
Witch's Cauldron
Wizard's Lair
Wizard's Warriors
World Series Baseball
Worm Attack
Worse Things Happen at Sea
Wrath of Magma
Wriggler
Xadom
Xavior
Zenji
Zig-Zag
Zombie Zombie

Melbourne House 3★
US Gold 4★
Beyond 5★
Creative Sparks 4★
The Edge 3★
Melbourne House 4★
Sinclair 4★
Virgin 5★
Pulsonic 3★
Taskset 3★
Century Software 1★
Mastertronic 2★
US Gold 5★
Hewson 4★
CRL 3★
PSS 2★
PSS 3★
Fantasy 4★
Quicksilva 4★
Arcade Software 2★
Cheetahsoft 3★
Hewson 3★
Hewson 3★
Realtime software 4★
Real Time 3★
New Generation 5★
Microwish 3★
Quicksilva 4★
CDS 4★
Add-on 4★
Vortex 5★
Activision 3★
New Generation 5★
New Generation 4★
Quicksilva 4★
Software Projects 4★
DK'tronics 2★
Softstone 2★
Micromania 4★
Lothlorien 4★
Ultimate 5★
Microsphere 4★
Mikro-Gen 4★
Bubble Bus 4★
Mastertronik 2★
Imagine 3★
Pulsonic 1★
Worse Things Happen at Sea 4★
Mastervision 4★
Romantic Robot 4★
Quicksilva 2★
PSS Software 3★
Activision 4★
DK'tronics 4★
Quicksilva 4★



Tasword
Tasword II
The Unitrust Program
UNISTAT
VaETrack
Word Processor

Tasman 4★
Tasman 5★
Michael Slatford 3★
University Software 3★
Morley Davies 4★
Quicksilva 1★

Education

Angle
Angle Turner
Antony and Cleopatra
Astro Maths
Biology
Blockbuster
Bodyworks
Castle
Castle of Dreams
Castle Spellous
Chess Tutor 1
Clown
Cortes
Dinosaurs
Disease Dodgers
Dyslexia Beater
Eiffel Tower
Electronic Learner's Guide
French
French is Fun
Friend or Foe
Viking Raiders
German is Fun
Highway Code
Highwire
Hotline
Humpty Dumpty
Inkosi
Learn to Read 1-5
Light and Heat
Linkword
Look Sharp
Macman in the T. Caves
Macman's Magic Mirror
Mansfield Park
Maths
Mathskills II
MDA-PCSS
Merchant of Venice
Mr T's Measuring Games
Mr T Meets His Match
Musicmaster
Nineteenth C. England
Oil Strike
Paddington's Garden Game
Pathfinder
Physics
Physics
Pirate
Postman Pat's Trail Game
Riddle of the Sphinx
Run, Rabbit, Run
Sequences
Snaffle
Speech Marks
Spelling Bee
Startrucker
Stuart Period
SuperTed

Chalksoft 3★
Arnold Wheaton 4★
Akadamias 4★
Scisoft 3★
Longman 4★
Compusound 4★
Genesis 2★
L'Ensoulelado 4★
Widget 4★
Sinclair 4★
Sinclair 4★
Englefield Software 2★
L'Ensoulelado 3★
Piper 3★
Sinclair Research 5★
Dunitz 4★
Chalksoft 3★
ETST 3★
Longman 4★
CDS 3★
Longman 3★
Firebird 3★
CDS 4★
Learning Systems 3★
Englefield Software 2★
Chalksoft 3★
Widget 4★
Chalksoft 3★
Sinclair 4★
Rose Software 4★
Silversoft 3★
Mirrorsoft 4★
Sinclair Research 3★
Sinclair Research 4★
Sussex 4★
GCE Tutoring 3★
Griffin 4★
MDA Assoc. 4★
Penguin Study 4★
Ebury 4★
Ebury Software 3★
Sinclair 3★
Sussex 4★
Sinclair Research 4★
Collins 4★
Widget 4★
Longman 4★
Scisoft 4★
Chalksoft 4★
Longman 4★
Longman 4★
Chalksoft 3★
Longman 4★
Sinclair 4★
Image Systems 3★
Widget 4★
Akadamias 4★
Longman 3★

Teacher Data
Tense French
Weathermaster
Weather Station
Words and Pictures
Wordsetter
Word Wizard
Worldwide
Zoo

B Farris 4★
Sullis 4★
Sinclair/Macmillan 4★
Arnold Wheaton 4★
Chalksoft 3★
Sinclair/Macmillan 4★
Longman 3★
Conflict & Peace 5★
L'Ensoulelado 3★

Language

Beta Basic
Forth
Forth
48/80 Forth
Hisoft C
Logo
Micro Prolog
Snail Logo
Spec. Forth
Spec. Forth
ZX Forth

Betasoft 5★
Melbourne House 5★
Sinclair 4★
ELR 4★
Hisoft 5★
Sinclair 5★
Sinclair 4★
CP 4★
Abersoft 5★
CP 4★
Artic 4★

Practical

Astrocalc
Astronomer
Beamscan
Car Cure
Computer Cookbook
Cricket Averages
Design your Garden
Diet Master
Dietician
First Aid
How Long have you got?
I Ching
Know Your Personality
Love Oracle
Microfitness
Psychodelia
Spacescan
Star Gazer
The Guide to Medicine
Vega-Table

Astrocalc 3★
CP Software 4★
Beamscan 5★
Simtron 1★
Bug Byte 3★
Spartan CC 4★
Blandford Press 1★
Diet Master 3★
Keysoft 2★
Eastmead 2★
Eastmead 3★
Salamander 4★
Mirrorsoft 3★
Solar Publishing 3★
V02 4★
Llamasoft 2★
Macmillan 2★
CRL 4★
Eastmead 2★
Vega 4★

Puzzle

Arcturus
Computaword
Flix
Hareraiser
Mazecube
Stuart Henry's Pop Quiz
3D Strategy

Visions 3★
Work Force 1★
Softicks 4★
Haresoft 2★
PAL 3★
Bellflower 4★
Quicksilva 4★

Simulation/Strategy

Airline
Alien
American Football
Angler
Arnhem
Ashes
Atram
Barrington's Squash
Battle for Midway
Battle 1917
Brewery
Caribbean Trader
Combat Lynx
Confrontation
Confrontation Scenarios
Conquest
Cricket Captain
Dix Mille
Fall of Rome
Fighter Pilot
Flight Simulation
Football Manager
Formula One
Full Throttle
Galaxy Conflict
Gangsters
Gatecrasher
Golf
Grand National
Grand Prix Manager
Great Britain Ltd
Gyron
Heathrow Int ATC

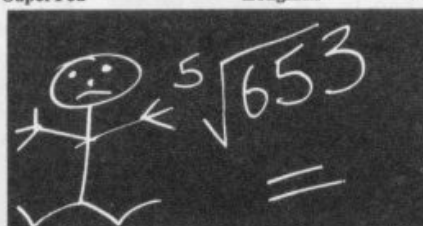
CCS 4★
Mind Games 4★
Mind Games 4★
Virgin 3★
CCS 5★
Pulsonic 4★
PD Visual
Marketing 3★
New Generation 3★
PSS 3★
CCS 4★
CCS 4★
East Midland 4★
Durrell 4★
Lothlorien 4★
Lothlorien 4★
Cheetasoft 3★
Allanson 3★
CCS 3★
ASP 3★
Digital Integration 5★
Sinclair 4★
Addictive Games 4★
CRL 5★
Micromega 4★
Martech 4★
CCS 4★
Quicksilva 4★
Virgin 4★
Elite 4★
Silicon Joy 1★
Hessel 4★
Firebird 5★
Hewson 4★

continued on page 108

Business

Address Manager
Banker
Bank Account System
Bizzicom
Cash Controller
Collector's Pack
Database
Decision Maker
Electric Office
Heathplanner
Home Budget
Investment, Insurance,
Information
Invoicing/Accounting
Keyfile
Lifeline
Masterfile
Micropen
Mini Office
Money Manager
Multi-File
Omnicalc
Personal Banking System
Personal Financ.
Profile 2
Projector 1
Sales Ledger
Spectext
Spreadsheet
Stock Manager
Superfile
Tasprint

OCP 4★
Andic Software 3★
K Gouldstone 4★
Merlin 1★
Shepherd 4★
Sinclair 4★
Microl 4★
Collins 3★
Fisher Software 2★
Heath Computing 4★
Kuma Computers 3★
Inform 3★
Transform 4★
Keysoft 4★
William Stuart 2★
Campbell 5★
Contrast 3★
Database Pubs 4★
Creative Sparks 3★
ISP 3★
Microsphere 5★
Hilton 4★
McGraw-Hill 3★
McGraw-Hill 4★
Hestacrest 4★
McGraw Hill 4★
Microl 4★
OCP 4★
Transform Ltd 3★
Tasman Software 4★



Software Directory

continued from page 107

Howzat
Hunter Killer
It's Only Rock 'n' Roll
Juggernaut
Match Day
Match Point
Millionaire
Mugsy
New Birkdale
New Venture
1984
Oligopoly
Olympics
Overlords
Plunder
Red Weed
Regards to Broadway
Reichswald
Royal Birkdale
Scatterbrain
747 Flight Simulator
Ski Star 2000
Southern Belle
Special Operations
Spectre
Star Trader
Steve Davis Snooker
Stonkers
Strike Attack
Super-League
Super Soccer
Test Match
The Biz
The Bulge
The Forest
Troon
United
Video Pool
Viking Raiders
War 70
Whodunnit
Wilfred the Hairy
World Cup Football

Wyvern
Protek
K-Tel
CRL
Ocean
Sinclair
Incentive
Melbourne House
Hornby
Falcon
Incentive
CCS
CRL
Lothlorien
CCS
Lothlorien
Argus
MW Gamesworld
Ocean
Manor
DACC
Richard Shepherd
Hewson
Lothlorien
Runesoft
Bug Byte
CDS
Beau Jolly
Micromart
Cross
Winters
Comp. Rentals
Virgin
Lothlorien
Phipps
Hornby
CCS
OCP
Firebird
CCS
CCS
Microbyte
Artic

4★ Arcturus
5★ Backgammon
3★ Brag
3★ Bridge Master
3★ Bridge Player
5★ Bullseye
4★ Cluedo
4★ Derby Day
4★ Do Not Pass Go
2★ Double Dealer
4★ Draughts
4★ Mind Games
3★ Pontoon
5★ Scrabble
4★ Super Bridge
4★ Superchess II
3★ Superchess III
2★ The Turk
4★ Voice Chess
2★ Yatzee
2★ ZX Draughts
2★ ZX Reversi

Utility

4★ Allsort S-1
3★ Assembler
4★ Assembler
5★ Beyond Basic
2★ Building Price
3★ Compiler
2★ Composer
3★ FP Compiler
4★ Games Designer
4★ HURG
4★ Keyword Extension
4★ Lightmagic
2★ Information Handling
3★ Make Music
3★ Melbourne Draw
4★ Monitor/Diss.
4★ Music Maker
1★ Paintbox
4★ Print Utilities

Traditional

Visions
CP Software
Turtle
Serin
CP Software
Mastertronic
Leisure Genius
CRL
Work Force
MFM Software
CP Software
Oasis
Contrast
Sinclair
Buffer Micro
CP Software
CP Software
OCP
Artic
CP Software
CP Software
CP Software

A Firminger
Artic
Roybot
Sinclair
J Redman
Softtek
Contrast
Softtek
Quicksilver
Melbourne House
Timedata
New Generation
McGraw Hill
Buffer Micro
Melbourne House
Sinclair
Bellflower
Print & Plotter
Sinclair

Quill
Screen Machine
Softalk 1-2
Spec. Compiler
Spectre Mac/Mon
Spectrosim
Spectrum Extended Basic
Spectrum Monitor
Spectrum Sprites
Spectrum Super Toolkit
Supercode II
The Comp. M. Code Tutor
The Illustrator
Varitalk
Vu3D
White Lightning
Zeus Assembler

QL

5★ Adder Assembler
3★ Area Radar Controller
4★ Assembler Dev. Package
4★ Blackjack
Cartridge Doctor
EVA
GraphiQL
GST Assembler
Land of Havoc
MicroAPL
MonQL
Pascal
Pascal
QC Compiler
QL Agenda
QL Cash Trader
QL Caverns
QL Chess
QL Gardener
QL Toolkit
Quilmerge
Super Backgammon
Super Sprite Generator
Typing Tutor
Zkul

Gilsoft 5★
ISP 4★
CP Software 4★
Softtek 4★
Oasis 4★
Shiva 2★
CP Software 4★
Picturesque 4★
ISP 4★
Nectarine 4★
CP Software 4★
New Generation 4★
Gilsoft 5★
ITS Software 3★
Sinclair 4★
Oasis 5★
Sinclair 5★

Adder Publishing 4★
Shadowsoft 1★
Metacomco 5★
Quest 1★
Talent 5★
Westway 2★
Talent 5★
Sinclair Research 4★
Microdeal 3★
MicroAPL 5★
HiSoft 4★
Computer One 4★
Metacomco 5★
GST 3★
Q-Soft 1★
Sinclair 5★
Sinclair 3★
Psion 5★
Sinclair 2★
Sinclair 5★
Pitch Associates 3★
Digital Precision 2★
Digital Precision 3★
Computer One 3★
Talent 4★

Explore the world of Sinclair

Sinclair User, the monthly magazine, will ensure that all ZX81, Spectrum and QL users get the most from their computers.

Every month we include exciting games programs, reviews on the latest software, bench tests on hardware and peripherals, as well as technical advice and development news on Sinclair products.

Sinclair User interviews key people within Sinclair Research, authors of top selling games plus regular features on the developments in the fast moving computer industry.

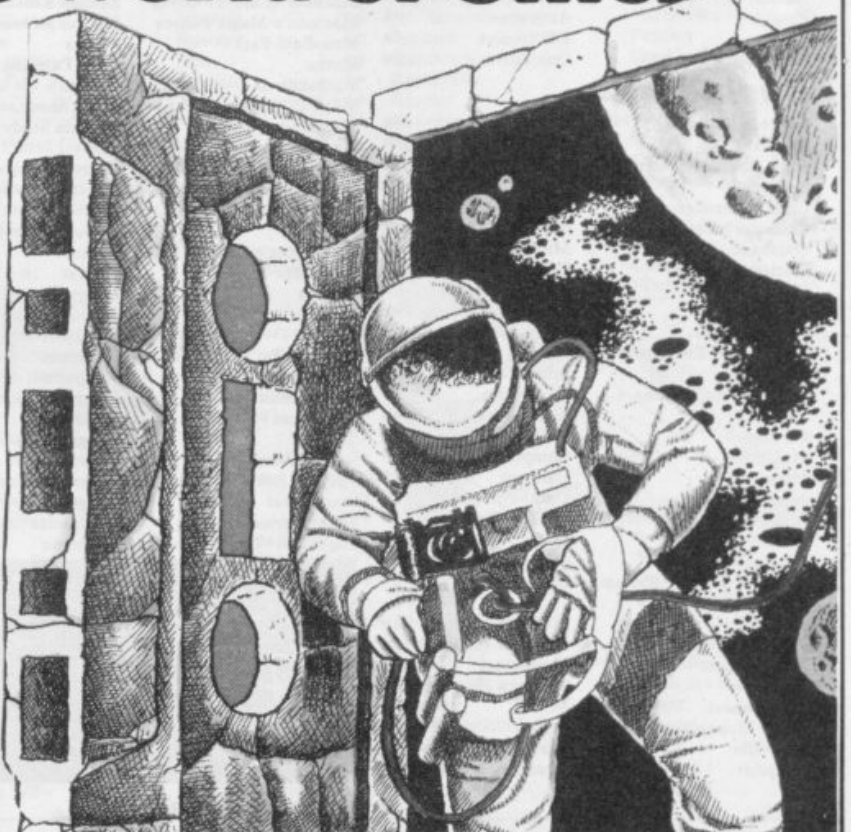
We cover all aspects of Sinclair, for beginners to enthusiasts right through to business users —

Sinclair User will keep you informed. So, don't miss out — place an order with your newsagent or complete and return the coupon below and we will ensure that your personal monthly issue is sent to you direct.

Please send me SINCLAIR USER each month for the next twelve months. I enclose a cheque/PO to the value of £12.00 (UK rate including p&g). For overseas rate please contact Subscriptions Department.

Name _____
Address _____
Signed _____
Date _____

Cheques should be made payable to Sinclair User Publications Ltd, PO Box 100, 30-32 Farnborough Lane, London EC9 3AU



A & F Software, Unit 8, Canalside Industrial Estate, Woodbine Street East, Rochdale, Lancashire OL16 5LB
Abacus Software, 21 Union Street, Ramsbottom, Nr Bury, Lancashire
Abbex, 20 Ashley Close, Manor Hall Drive, London NW4
Abersoft, 7 Maesfallen, Bow Street, Aberystwyth, Wales
Activision, 15 Harley House, Marylebone Road, London NW1
Adder Publishing Ltd, PO Box 148, Cambridge CB1 2EQ
Add-on Electronics, Units 2,3 & 4, Shire Hill Industrial Estate, Saffron Walden, Essex CB11 3AQ
Addictive Games, 7a Richmond Hill, Bournemouth BH2 6HE
ADS, 8 Bronchurch Street, Portsmouth, Hampshire PO4 8RY
Alan Firminger, 171 Herne Hill, London SE24 9LR
Allanson Computing, 77 Chorley Road, Adlington, Chorley, Lancashire PR6 9LH
Alligata Software, 1 Orange Street, Sheffield S1 4DW
Argus Press Software, Liberty House, 222 Regent Street, London W1
Arcade Software, Technology House, 32 Chislehurst Road, Orpington, Kent BR6 0DG
Ariolasoft, Asphalt House, Suite 105-106, Palace Street, London SW1E
Arnold Wheaton, Parkside Lane, Dewsbury Road, Leeds LS11 5TD
Artic Computing, Main Street, Brandesburton, Driffield YO25 8RG
Astrocalc, 67 Peascroft Road, Hemel Hempstead, Herts HP3 8ER
Atlantis Software, 19 Prebend Street, London N1
Automata UK, PO Box 78, Southsea, Hampshire
Axis, 71 Brookfield Avenue, Loughborough, Leicestershire LE11 3LN
Beau-Jolly, 19A New Broadway, Ealing, London W5
Bellflower Software, 6 Rosewood Avenue, Greenford, Middlesex UB6
Betasoft, 92 Oxford Road, Moseley, Birmingham B13 9SQ
Beyond Software, Lector Court, 151 Farringdon Road, London EC1
Bridge Software, 36 Fernwood, Marple Bridge, Stockport, Cheshire
Bridgemaster, Sandymouth, Beeches Road, Farnham Common, Buckinghamshire SL2 3PS
Bubble Bus Software, 87 High Street, Tonbridge, Kent TN9 1RX
Calpac Computer Software, 108 Hermitage Woods Crescent, St Johns, Woking, Surrey
Campbell Systems, 57 Trap's Hill, Loughton, Essex IG10 1TD
CCS, 14 Langton Way, Blackheath, London SE3 7TL
CDS Micro Systems, Silver House, Silver Street, Doncaster, South Yorkshire DN1 1HL
Century/Hutchinson, 17-21 Conway Street, London W1
Chalksoft, 17 Willowslea Road, Northwick, Worcester
Cheetahsoft, 24 Ray Street, London EC1R 3DJ
Clever Clogs, Liberty House, 222 Regent Street, London W1
Collins, 18/20 Stephenson Way, North Gower Street, London NW1 2DX
Collins Soft, 8 Grafton Street, London W1
Compusound, 32/33 Langley Close, Redditch, Worcester B98 0ET
Computatutor, 3 Thalia Close, Greenwich, London SE10 9NA
Computer One, 32 Science Park, Milton Road, Cambridge CB4 4DH
Contrast Software, Warren Road, Liss, Hampshire GU33 7DD
Cornhill Software, 2 Penrith Way, Aylesbury, Buckinghamshire HP21
CP Software, 1 Glebe Road, Uxbridge, Middlesex UB8 2RD
Craig Communications, PO Box 46, Basingstoke, Hampshire
Creative Sparks, Thomson House, 296 Farnborough Road, Farnborough, Hampshire
CRL, 9 King's Yard, Carpenters Road, London E15 2HD
Cross Software, 72 Swanshope, Burney Drive, Loughton, Essex
CSP Systems, 213 Stainbeck Road, Leeds
DACC Ltd, 23 Waverley Road, Hindley, Wigan, Lancashire WN2 3BN
Database Publications, Europa House, 68 Chester Road, Hazel Grove, Stockport, SK7 5NY
Delta 4, The Shielding, New Road, Swanmore, Hampshire SO3 9PE
Design Design, 2 Ashton Way, East Herrington, Sunderland SR3 3RS
Digital Integration, Watchmoor Trade Centre, Watchmoor Road, Camberley, Surrey GU15 3AJ
Digital Precision, 91 Manor Road, Higham Hill, London E17
DK'tronics, Unit 6, Shire Hill Ind Est, Saffron Walden, Essex CB11
Domark, 204 Worpole Road, London SW20
Dorcas Software, 3 The Oasis, Glenfield, Leicester
Dunitz, 154 Camden High Street, London NW1 0NE
Durrell Software, Castle Lodge, Castle Green, Taunton TA1 4AB
Dymond Software, 22 Hospital Road, Annan, Dumfriesshire DG12
Dynavision Production Studio, PO Box 96, Luton LU3 2JP
East London Robotics, St Nicholas House, The Mount, Guildford, Surrey GU2 5HN
Eastmead, Eastmead House, Lion Way, Camberley, Surrey GU16 5EZ
8th Day, 18 Flaxhill, Moreton, Wirral, Merseyside LU6 7UH
Electric Abacus, Oaklands House, Solartron Road, Farnborough, Hants
Elite Systems, Anchor House, Anchor Road, Aldridge, Walsall, West Midlands WS9 8PW

Elm Computers, 59 Bateman Road, East Leake, Loughborough, Leicestershire LE12 6NN
Englefield Software, High House, Mill Street, Buxton, Norfolk NR10
English Software, 1 North Parade, Parsonage Gardens, Manchester
Fantasy Software, Fauconberg Lodge, 27a St Georges Road, Cheltenham, Gloucestershire
Fawkes Computing, 41 Wolfridge Ride, Alveston, Bristol BS12 2RA
Felix Software, 19 Leighton Avenue, Pinner HA5 3BW
Firebird Software, Wellington House, St Martins Lane, London WC2
Fisher Software, 47 London Road, Buxton, Derbyshire
Fulwood, 20 Templestowe Hill, Whitkirk, Leeds LS15 7EJ
Games Machine, 40 Fretherne Road, Welwyn Garden City, Hertfordshire AL8 6NU
Gamma Software, 12 Milverton Road, London NW6 7AS
Gargoyle Games, 74 King Street, Dudley, West Midlands
Gavin Barker, 12 Fleming Field, Shotton Colliery, County Durham DH6 2JF
GCE Tutoring, 40 Brinners Hill, Widner End, High Wycombe, Buckinghamshire
Gemini Marketing, Unit 21, Dinan Way Trading Estate, Exmouth, Devon EX8 4RS
Gemtime Software, 16 Ben Ledi Road, Kirkcaldy, Fife KY2 5RP
Genesis Productions, 30 Great Portland Street, London W1N 5AD
Gilsoft, 30 Hawthorn Road, Barry, South Glamorgan, South Wales
Gouldstone, 45 Burleigh Avenue, Wallington, Surrey SM6 7UG
Granada Publishing, 8 Grafton Street, London W1X 3LA
Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS
Griffin & George, Frederick Street, Birmingham B1 3HT
GST, 91 High Street, Longstanton, Cambridge CB4 5BS
Haresoft, PO Box 365, London NW1
Harlequin Software, 43 Osprey Park, Thornbury, Bristol BS12 1LY
Harland Software, 32 Ivor Place, London NW1 6DA
Heinemann Computer Education, 22 Bedford Square, London WC1B
Hessel, 15 Lythan Court, Cadwell Crescent, Sunningdale, Berkshire
Hestacrest, PO Box 19, Leighton Buzzard, Bedfordshire LU7 0DG
Hewson Consultants, 56B Milton Trading Estate, Milton, Abingdon
Hilderbay, 8/10 Parkway, Regents Park, London NW1 7AA
Hilton Computer Services, 14 Avalon Road, Orpington, Kent
Hisoft, 180 High Street, Dunstable, Bedfordshire LU6 1AT
Hodder & Stoughton, PO Box 6, Dunton Green, Sevenoaks, Kent
Homestudy Ltd, Treleigh Woods Farm, Treleigh, Redruth, Cornwall TR16 4AW
Hornby Software, 21 Penfold Hill, Leeds LS15 0PW
Icon Software, 65 High Street, Gosforth, Tyne and Wear NE3 4AA
IMS Software, 143/145 Uxbridge Road, Ealing, London W13 9AV
Image Systems, 34 Lynwood Drive, Worcester Park, Surrey KT4 7AB
Imagine (84), 6 Central Street, Manchester M2 5NS
Impact Software, 2 New Street, Cullompton, Devon EX15 1HA
Imperial Software, Imperial House, 153 Churchill Road, Poole, Dorset
Incentive, 54 London Street, Reading, Berkshire RG1 4SQ
Inform Software, 3 Treesdale Close, Birkdale, Southport PR8 2EL
Interceptor Micros, Lindon House, The Green, Tadley, Hampshire
Interstella Software, 82 New Forest Drive, Brockenhurst, Kent
ITS Software, 33 Foscoate Road, London NW4 3SE
JK Greye Software, 16 Park Street, Bath, Avon BA1 2TE
JRS Software, 19 Wayside Avenue, Worthing, Sussex BN13 3JH
Kemp, 43 Muswell Hill, London N10 3PN
Keysoft, 6 Bruce Grove, Tottenham, London N17
Kosmos Software, 1 Pilgrims Close, Harlington, Dunstable, Bedfordshire LU5 6LX
Kuma Computers, 12 Horseshoe Park, Pangbourne, Berkshire RG8
Learning Systems, 11 Warwick Court, Princes Drive, Harrow, Middx HA1 4UB
Legend, PO Box 435, London E4 7LX
Leisure Genius, 3 Montague Row, London W1H 1AB
Lerm, 10 Brunswick Gardens, Corby, Northamptonshire
Level Nine, 229 Hugenden Road, High Wycombe, Buckinghamshire HP13 5PG
Llainlan Software, Pontyberem, Llanelli, Dyfed, Wales
Llamasoft, 49 Mount Pleasant, Tadley, Hampshire
Longman, Longman Group, Longman House, Harlow, Essex CM20
Lothlorien, 56a Park Lane, Poynton, Stockport, Cheshire SK12 1RE
Macmillan Software, 4 Little Essex Street, London WC2R 3LF
Manor Software, 24 Manor Gardens, London SW20
Manx Tapes, Garey Veg, Glen Audlyn, Ramsey, Isle of Man
Martech Games, 9 Billingham Road, Eastbourne, East Sussex BN20
Mastertronic, (as for Mastervision)
Mastervision, Park Lorne, 111 Park Road, London NW8 7JL
McGraw Hill, Shoppen Hangers Road, Maidenhead, Berkshire

continued on page 110

Software Publishers

continued from page 109

Medidata, PO Box 26, London NW9 9BW
 Melbourne House, Castle Yard House, Castle Yard, Richmond TW10
 Metacomco, 26 Portland Square, Bristol BS2 8RZ
 Michael Slatford, 3 Campden Road, South Croydon, Surrey CR2 7EQ
 Micro Dealer UK, Unit 6 Marlborough Road Trading Estate, Lattimore Road, St Albans, Hertfordshire
 Micro Wish, PO Box 15, Colne, Lancashire BB8 9DB
 MicroAPL, Unit 1F, Nine Elms Industrial Estate, 87 Kirtling Street, London SW8 5BP
 Microbyte, 19 Worcester Close, Lichfield, Staffordshire
 Microcosm, 68 The Glade, Clayhall, Ilford
 Microdeal, 41 Truro Road, St Austell, Cornwall PL25 5JE
 Micromania, 14 Lower Hill Road, Epsom, Surrey KT19 8LT
 Micromega, 230/236 Lavender Hill, London SW11
 Microsphere, 72 Rosebery Road, London N10 2LA
 Mikro-Gen, 44 The Broadway, Bracknell, Berkshire RG12 1AG
 Millennium Software, 17 Whitehouse Drive, Kingstone, near Hereford
 Minatron Computing, 34 Pinewood Close, Westbury-on-Trym, Bristol
 Mind Games, Liberty House, 222 Regent Street, London W1
 Mirrorsoft, PO Box 50, Bromley, Kent BR2 9TT
 Monitor Software, Suite 11, 526-8 Watford Way, London NW7
 Mosaic, 187 Upper Street, London N1 1RQ
 MW Gamesworld, 12 Lawnswood Avenue, Chasetown, Walsall WS7
 Myrmidon Software, PO Box 2, Tadworth, Surrey, KT20 7LU
 Naigram Software, c/o Soho Synth House, 18A Soho Square, London
 Nectarine, 837 Yeovil Road, Slough SL1 4JH
 New Generation Software, FREEPOST, Bath BA2 4TD
 Newsoft, 12 White Broom Road, Hemel Hempstead, Hertfordshire
 Oasis Software, 12 Walliscote Road, Weston-Super-Mare, Avon
 Ocean Software, 6 Central Street, Manchester M2 5NS
 OCP, 77a Packhorse Road, Gerrards Cross, Buckinghamshire SL9 8PQ
 Odin Software, The Podium, Steers House, Canning Place, Liverpool
 Orpheus Ltd, Unit 1, Church Farm, Hatley St George, Near Sandy, Bedfordshire SG19 3HP
 Orwin Software, 26 Brownlow Road, Willesden, London NW10 9QL
 Palace Software, The Scala, 2nd Floor, 275 Pentonville Road, London
 PD Visual Marketing, Thanet House, Craven Road, London W2
 Penguin, 536 King's Road, London SW10
 Phipps Associates, 172 Kingston Road, Ewell, Surrey
 Phoenix Publishing, 14 Vernon Road, Bushey, Hertfordshire WD2 2JL
 Picturesque, 6 Corkscrew Hill, West Wickham, Kent BR4 9BB
 Pitch Associates, 39 Rockleigh Avenue, Leigh-on-Sea, Essex
 Pooter Games, 24 Parsloes Avenue, Dagenham RM9 5NX
 Poppysoft, The Close, Common Road, Headley, Newbury, Berkshire
 Positive Image Software, 129 Dumbarton Road, Glasgow
 Print 'n' Plotter Products, 19 Borough High Street, London SE1 9SE
 Protek Computing, 1a Young Square, Brucefield Ind Park, Livingston, West Lothian
 Psion, 2 Huntsworth Mews, Gloucester Place, London NW1
 PSS, 452 Stoney Stanton Road, Coventry CV6 1JD
 Pulsonic, Warwick Distribution Ltd, 3 Standard Road, Park Royal, London NW10 6EX
 Q-Soft, PO Box 90, Barnet, Hertfordshire EN5 5RN
 Quest International Computer Systems, Gillingham House, 38-44 Gillingham Street, London SW1
 Quicksilver, Liberty House, 222 Regent Street, London W1
 Radar Games, 53 Flavel Street, Woodsetton, Dudley DY1 4NU
 RAM Writer, 3 Vumba House, 2 Cedar Gardens, Sutton, Surrey
 Ramtop Services, 5 Rue D'Artois, 75008, Paris, France
 Realtime Software, Prospect House, 32 Sovereign Street, Leeds LS1
 Red Shift, 12c Manor Road, Stoke Newington, London N16 5SA
 Richardson Institute for Conflict and Peace Research, Dept of Politics University of Lancaster LA1 4YF
 Romantic Robot, 77 Dyne Road, London NW6 7DS
 Rose Software, 148 Widney Lane, Solihull, West Midlands
 Runesoft, Charnwood House, Crossgate Drive, Nottingham NG2 7LW
 Sentient Software, Branch House, 18 Branch Road, Armley, Leeds
 Scisoft, 5 Minister Gardens, Newthorpe, Eastwood, Nottingham NE16
 SCR Adventures, 190 Shelbourne Road, Tottenham, London
 SD Microsystems, PO Box 24, Hitchin, Hertfordshire SG4 0AE
 Selec Software, 37 Councillor Lane, Cheddle, Cheshire
 Serim Software, Freepost, Dept SU7, PO Box 163, Slough, Berkshire
 Shadowsoft, 70 Gooseacre, Cheddington, Bedfordshire
 Shards, Suite G, Roycraft House, 15 Linton Road, Barking, Essex
 Shepherd Software, Elm House, 23-25 Elmshott Lane, Chippenham, Slough, Berkshire
 Silversoft, London House, 271/273 King Street, London W6 9LZ
 Sinclair Research, 25 Willis Road, Cambridge CB1 2AQ
 666, PO Box 190, Maidenhead, SL6 1YX

Slogger Software, 215 Beacon Road, Chatham, Kent
 Soft Tech, 31 Lampits, Hoddesdon, Hertfordshire
 Softel, 5 Durward Drive, Glenrothes, Fife KY6 2LB
 Software Cottage, 19 Westfield Drive, Loughborough, Leicestershire LE11 3QJ
 Software Farm, 3rd Floor, 16 Charlotte Street, London W1
 Software Projects, Bear Brand Complex, Allerton Road, Woolton, Liverpool, Merseyside L25 7SE
 Spartan CC, 29 Feltham Avenue, East Moseley, Surrey KT8 9BJ
 Spectadraw, 1 Cowleaze, Chinnor, Oxfordshire OX9 4TD
 Spectrasoft, Capital House, Market Place, London W3 6AL
 Spoof Software, 58 Railway Road, Urmston, Manchester M31 1XT
 Star Dreams, 17 Barn Close, Seaford, East Sussex, BN25 3EN
 Startersoft, 32 Parkfields, Chippenham, Wiltshire
 Statesoft, 29 Burrowfield, Welwyn Garden City, Hertfordshire
 Stell Software, 36 Limefield Avenue, Whalley, Lancashire BB6 9RJ
 Sterling Software, Garfield House, 86/88 Edgeware Road, London, W2
 Stratagem Cybernetics, 286 Corbin Place, 2E, Brooklyn, New York 11235
 Sulis Software, 4 Church Street, Abbey Green, Bath BA1 1FP
 Sunshine Books, 12/13 Newport Street, London WC2
 Sussex Publication, Townsend Poulshot, Devizes, Wiltshire SN10 1SD
 System 3, South Bank House, Black Prince Road, London SE11
 Talent Computer Systems Curran Building, 101 St James Road, Glasgow G4 0NS
 Taskset, 13 High Street, Bridlington, Yorkshire YO16 4PR
 Tasman Software, 17 Hartley Crescent, Leeds LS6 2LL
 Temptation Software, 27 Cinque Ports Street, Rye, East Sussex
 Terminal Software, Derby House, Derby Street, Bury BL9 0NW
 Texgate, 14 Brook Lane, Corfe Mullen, Wimbourne, Dorset
 The Edge, 31 Maiden Lane, Covent Garden, London, WC2E 8LH
 Think Tank, 35 Wellington Road, Wimbledon Park, London SW19
 Thor Computer Software, Erskine Industrial Estate, Liverpool L6 1AP
 Timedata, 16 Hemmells High Road, Laindon, Basildon, Essex SS15
 Transform, 41 Keats House, Porchester Mead, Beckenham, Kent
 Tutorial Software, 'Vilands', Glaslwlch Lane, Newport, Gwent NP1
 Ultimate Play the Game, The Green, Ashby de la Zouch, Leicestershire
 Unicorn Micro Systems, 312 Charminster Road, Bournemouth BH8
 University Software, 29 St Peters Street, London N1
 US Gold, Unit 10, The Parkway Industrial Centre, Heneage Street, Birmingham B7 4LY
 Vega Space Systems, 28 Watford Road, St Albans AL1 2AJ
 Virgin Games, 2-4 Vernon Yard, London W11
 V02, 9-10A The Bridge, Walsall, West Midlands
 Vortex Software, Vortex House, 24 Kansas Avenue, off South Langworthy Road, Salford, M5 2GL
 Westway, 24 Preston Road, Lytham, Lancashire FY8 5AA
 Widget Software, 48 Durham Road, London N2 9DT
 Winters, 24 Swannington Close, Cantley, Doncaster, South Yorkshire
 Woosoft, 5 Andrews Close, Robertsbridge, Sussex TN32 5PB
 Workforce, 140 Wilsden Avenue, Luton, Bedfordshire
 Wyvern Software, 2 Princes Building, George Street, Bath BA1 2ED

ZXWORD SOLUTION

Across

2. Multitasking
7. Lisa
8. CPM
9. ASCII
10. Push
11. Interactive
15. Dope
17. Text
18. Cambridge
20. Solo
21. Root
23. Chess Player
26. Edge
27. Boole
28. Bit
29. Edit
30. Disassembler

Down

1. Floppy disc
2. Machine code
3. Limits
4. Tesla
5. Shift
6. N-Type
12. Chad
13. Interpreter
14. Statements
16. Arm
19. Maps
22. Symbol
23. Centi
24. Stops
25. Pulse

Sinclair Supermart

TO ADVERTISE IN THE SUPERMART CALL SINCLAIR USER ON 01-251 6222

MANCOMP SPECTRUM MANCOMP BBC MANCOMP

EXPRESS SPECTRUM & BBC REPAIRS!!

First company in all U.K. to introduce while-u-wait service. Now first to offer an international repair service!

"I have come across a firm that will be more than willing to advise you as to how to remedy your problem. They are called MANCOMP, and as well as repairing faulty Spectrums, are also quite willing to discuss your problems with you, and offer reasonably cheap, and (MORE IMPORTANTLY) correct cures."

Phil Rogers 'Peek & Poke', 'Popular Computing Weekly' Jan. 1985 [Vol.IV, No.1]

"My Spectrum blew recently. I took it to MANCOMP, who fixed it in 8 minutes! And for less than £10. They are local, clued up, and blindingly efficient."

Computer column, "4 Heaters Digest" [Vol.I, No.11]

"One firm, at least, can usually effect any necessary repair over the counter in 45 minutes. Based in Manchester, MANCOMP can offer what is arguably the fastest turnaround in the business, to personal callers".

"Of all the repair companies 'Sinclair User' spoke to, MANCOMP seemed the most professional when it came to advice and a helpful attitude".

- Send Spectrum encl. £1.80 return postage (U.K.), £2.50 (Europe), £6.50 (Middle East, Africa).
- Or phone/bring Spectrum for free, no obligation estimate.
- We repair most Spectrums in minutes.
- Every Spectrum sent insured and by receipted parcel post (U.K.), registered air mail if overseas.
- No hidden costs.



MANCOMP LTD. (Dept. SU/9)
Printworks Lane, Manchester M19 3JP.

Phone **061-224 1888/9888**
Open 9a.m. till 7p.m. Mon. to Sat.

We also design hardware and software from idea through to manufacture.

MANCOMP SPECTRUM MANCOMP BBC MANCOMP

PACER Disk Interface for the Spectrum and Spectrum Plus

- ★ Compatible with 5¼", 3½" and 3" Disc Drives.
- ★ Simply plugs in between the Spectrum and Disc Drive.
- ★ Easy to use operating system.
- ★ Spare Spectrum connector provided for accessories.

Introductory Offer includes:

- ★ Free Cables.
 - ★ Free Demonstration Disc.
- For further information send SAE.
For prompt delivery send cheque or PO for £89.95 (inc. VAT and post & packing)

AMIRONIX

13 DARTFORD ROAD, LEICESTER LE2 7PD
Tel: (0533) 839713

PROFESSIONAL REPAIRS

The complete Sinclair service centre

ZX-81	£13.95
ZX 16K RAM	£13.95
ZX Interface 2	£13.95
ZX Interface 1	£17.95
ZX Microdrive	£17.95
ZX Spectrum	£17.95
ZX Printer	£17.95
Sinclair QL	P.O.A.
16K to 48K Upgrade	£26.95

RING 0234-213645 NOW

- ★ 48-hour turnaround
- ★ 6-month warranty
- ★ All inclusive
- ★ Free estimates

Also BBC, Commodore 64, Oric, Dragon, Atari and Amstrad

ZEDEM COMPUTERS LTD

2 Kimbolton Road, Bedford MK40 2NR
(Trade enquiries welcome)

NOW IN OUR THIRD YEAR

EDUCATION

Probably the largest range of SPECTRUM educational software available
OVER 50 DIFFERENT EDUCATIONAL CASSETTES IN STOCK
produced by the major software houses
SAE (9x4) for catalogue and SPECIAL OFFERS. GAMES TAPES (Spectrum & ZX) HALF PRICE
LOCATOR SU, 12 Fernhall Drive, Redbridge, Essex IG4 5BN. Tel: 01-550 5575

SEVEN STARS COVER THE SPECTRUM

C-DOC (NEW!) is a Microdrive cartridge sector editor which can often help you retrieve damaged files. £4.95.

GENER-80 is the ultrafast (3000 lines in 10 secs!) assembler with a superb full-screen editor. £7.95.

MODER-80 is a handy monitor/disassembler with a built-in mini-assembler. £5.95.

PROFILA (NEW!) is a Z80 activity profiler (48K or Plus). Bar-chart shows the bottlenecks in your BASIC and m/c programs. £4.95.

TASPRO enables Tasword Two to justify using equal spaces between words! Approved by Tasman Software. Please state your printer and interface. £4.95.

Fast mail order (Europe add £1, airmail add £2) with seven-day "money back if not entirely satisfied" option. Selected products also via Micronet 800. Dealers welcome. Leaflet on request.

SEVEN STARS PUBLISHING (Dept U),
34 Squirrel Rise, Marlow, Bucks SL7 3PN.

ASTROLOGY for beginners

A Starter Pack for the 48K Spectrum comprising a simple program to calculate a horoscope, an introductory booklet & 2 self-teaching programs (how to interpret the horoscope)

only £11.50

(+50p outside UK)

also Dutch & German versions

Many other programs for experienced astrologers

Payment by UK cheque/PO/Access or large SAE for free catalogue to

ASTROLCALC

(Dept SU)

67 Peascroft Road, Hemel Hempstead, Herts HP3 8ER Tel: 0442 51809

FAST COMPUTER REPAIRS

VIDEO VAULT INTERNATIONAL 10★ REPAIR SERVICE

Spectrums repaired for £19.95 inc. Parts, Insurance and P & P No Hidden Extras.

BBC, Commodore 64, Vic 20, Atari, Quoted for.

Are you fed up with waiting weeks for your Home Computer to be repaired!!!

Why not try the Experts, we offer a full repair service on any Home Computer.

All repairs carry a full 3 months guarantee, plus on every Spectrum repaired we

send you a free game worth £5.95 for your enjoyment and pleasure.

★ While you wait Service by Professional Computer Engineers.

★ 3 Months written guarantee on all repairs.

★ International repair company.

★ All computers sent by mail order turned around in 24 hrs.

★ Most Spectrums repaired within 45 minutes.

★ All Micros insured for return journey.

★ Open 7 days a week. Keyboard faults only £8.95

★ School repairs undertaken-discounts available.

★ Free software with each Spectrum repaired worth £5.95.

★ Over 8 years experience working with computers.

ONLY GENUINE SINCLAIR PARTS USED.

Phone today for your free estimate or send your computer to us with £1.75

(UK EIRE I.O.M. C.I.) or £2.40 (Europe/Scandinavia) we will contact you the

same day by phone or 1st class Mail should you require quotation first.

TRADE ENQUIRIES MOST WELCOME. ACCESS WELCOMED

VIDEO VAULT LTD Dept 92 THE LOGICAL CHOICE

VideoVault

VideoVault

Telephone: Glossop (STD 04574) 66555/67761

140 High St. West, Glossop, Derbyshire, England.

FREE GAME WORTH
£5.95 WITH
EACH SPECTRUM
REPAIR.

G.C.E. 'O' LEVEL SUCCESS GUARANTEED

Or the purchase price refunded in full 48K SPECTRUM ONLY

PHYSICS A.E.B. Syllabus 052 £26
CONTENTS: 8 Paper 1 : 14 Paper 2 : 8 Paper 3 : 8 Tuition Programmes
MATHEMATICS London Syllabus B (361) £30
MATHEMATICS Cambridge Syllabus D (2042) £30
CONTENTS: 8 Paper 1 : 8 Paper 2 : 12 Tuition Programmes

HOMESTUDY Ltd

60 Station Road, Pool, Redruth, Cornwall, TR15 3QG

Over 10,000 programmes sold since 1983 — only 4 failures claimed

POOLS PREDICTION

Outputs best draws, homes and aways. Features analytical draw finder. Prints team from comparison graphs. Analyses and graphs results every week. Takes full account of midweek games and "Cup" matches between main league teams. Promotion relegation option. (Can be used from season to season.) Easy to use, even for beginners. No fiddly database required. Gives paper printout of predictions if required.

Full back-up service. All customers letters answered promptly.

36 wins (230 dividends) received by author so far.

"This is the best and most scientific of any program I have seen" — Mr R.A.P. (Secretary, Orpington Computer Club).

"Once again, thank you for one of the best investments I have made" — Mr D.L.B. (Feltham).

"I would like to congratulate you on your excellent service — it is a rare thing these days" — Mr L.G.P. (Shrewsbury).

RACING PREDICTIONS

An easy to use predictor, by the same author, for the flat racing season. No knowledge of racing required.

Input information from any daily newspaper. Holds data on draw advantage and ground conditions for 37 British courses.

Self-teaching program is never out-of-date.

Ask for: British Pools @ £11.95
Australian Pool @ £11.95
Flat Racing @ £11.95

Allow 7 days for delivery. Cheques, P.O.'s payable to Rombest or quote Access, Eurocard or Mastercard.

Overseas customers please add £1 for P&P.

ROMBEST, Dept SU,
2 Welland Croft, Bicester,
Oxon., OX6 8GD.
Tel: (0869) 248002.

Available for 48K Spectrum.
Commodore 64 version available soon.

SALE

Special Offers for September

Spectrum Plus only £95, or with software worth over £50 (RRP, only) **£99.95**

Sinclair QL (few only — phone) **£315**
Pocket TV (few only — phone) **£75**

Spectrum 1400 Power Pack **£6.50**
T.V. Cassette leads, 75p ea, or £1 set
Sinclair BASIC Programming Manual
(not supplied with Spectrum Plus) **£2**

GENGUINE ROLEX WATCHES
to order (2-4 weeks).
Around 20% off.

LEGEND/MICROL SPECTRUM SOFTWARE

Valhalla (RRP £14.95) **£4.95**
The Great Space Race (£14.95) **£4.95**
The Database (£9.95) **£2.95**
The Word Processor (£9.95) **£2.95**

All offers subject to availability
Delivery normally by return post

Access/Visa orders tel: 0223 312453

Send UK cheques/Money orders to:

SILICON CITY Dept SU,
1, Milton Road, Cambridge, CB4 1UY.

THETFORD MICROS SPECIALIST IN SPECTRUM REPAIRS

We at THETFORD MICROS have just put into operation a new fully equipped workshop to allow us to keep up our 24hrs "Guaranteed" repair service on your Sinclair Spectrums. All work is fully warranted. First time repairs will be £16.00 + VAT + £2.00 P&P — £20.00 for any repair on your computer. (Delivery 5-6 days). We also specialise in repairs on the Spectrum Micro Drive Interface I, II & ZX printers.

Barclaycard, Access, AMEX & P.O. welcome.

Send to: Thetford Micros, Service Dept Unit 4,
Leyland Close, Thetford, Norfolk.

Tel: (0842) 85897

TRADE ENQUIRIES WELCOME

SINCLAIR COMPUTER REPAIRS

All machines dispatched within 72 hours of receipt

Spectrum: £16.00 — ZX-81: £12.00
Spectrum 16-48K Upgrade: £27.50
Microdrive ZX Printer

Interface 1 & 2 repaired also.
(includes parts, VAT, full warranty and return postage)

For a fast and reliable service, send machine, brief description of fault and cheque or postal order to the experts:

CAPITAL COMPUTER SERVICES
44 Rich's Road, Cardiff CF4 4AA.
Tel: (0222) 614401

SPECTRUM REPAIRS GUARANTEED SIX MONTHS

Expertly repaired and thoroughly overhauled by professional computer engineers using only top grade components. Manufacturers recommended modifications are fitted and all units are fully guaranteed for six months.

£20.00. All inclusive.

Send to:

MP ELECTRONIC SERVICES
The Laurels, Wendling, Dereham, Norfolk NR19 2LZ
TEL: 0362 87327

SPECTRUM SOFTWARE HIRE FREE MEMBERSHIP

We offer prompt personal service, all top titles. Send SAE for Hire Details to:

SSH (SU),
21 Chaceley Way, Wilford
Nottingham NG11 7EG

SPECTRUM GAMES AND UTILITIES. 40 in total including Gift from the Gods, Sherlock, Hobbit, Alien, Leonardo, The Quill. Only £4 each. School-daze £2 etc. All 40 for £75. Tel. 0977 683889.

PERSONALIZE YOUR PROGRAMS by designing your own text with the aid of the 48K Spectrum text generator £5.00 from P. Meek, 4, Exeter Crescent, North Wootton, Kings Lynn, Norfolk. PE30 3RA.

QL BARGAINS. Very little used and new machines. Complete with version 2 Pasion software, cartridge storage box and four cassettes. Access facility to callers. Tel. (0604) 890224 for details.

MICRODRIVE KIT. Full CAT including length, location, type. All sectors listed. LOAD, SAVE and REPAIR Individual sectors. Capacity and free space given. £4.95 (0274) 662374.

ZX 81 16K RAM, printer, power pack, leads and manual plus six games cassettes inc. Football Manager, Flight Simulation and 3D Defender. £45.00. R. H. Ellis, 25, Wheaton Road, Pokesdown, Bournemouth BH7 6LH.

SPECTRUM OWNERS. Machine code in easy to use guide, plus many ways to enhance your programs. Available from R. Gray, 53 Kings Rd., Beth Ayrshire. Cost £200.

SOFTWARE FOR SALE. Jetset Willy, Cookie, Jumping Jack, Mad Martha, Hungry Horace, Chemistry 'O' Level, £3.50 each, for Spectrum 48K, Physics 'O' Level £6.50. Write to Sara Greening, 7, Kennedy Road, Shrewsbury, Shropshire.

FREE MEMBERSHIP. Spectrum software hire, latest titles, originals only. Send a sae for your membership kit to, Spectrohire, 27 Colville Terrace, Nottingham, NG1 4HL.

SPECTRUM REPAIRS

All Spectrums repaired for £15+£1.50 p&p regardless of fault by our fully qualified staff. Memory upgrades to 48K carried out for £28.50 inclusive of VAT and return postage. So for a fast reliable service send your Spectrum with a brief description of fault to:

MICRO:MEN

The Old School, Main Street,
Farcot, Peterborough PE7 3DB
Tel: (0733) 241718

Other makes quoted on request

COMPUTER REPAIRS IN SOUTHEND

SPECTRUM BBC ELECTRON. CBM 64 VIC 20
£19.95 inc. parts VAT and p&p

MINNIE MICRO ELECTRONICS
12 Eastern Esplanade, Southend
Tel: 0702 62033/615809

Open 7 days a Week

PREMIER LEAGUE

A SUPERB NEW FOOTBALL MANAGEMENT STRATEGY GAME FOR THE 48K SPECTRUM

AT LAST! A football game for the serious enthusiast — Using the FULL memory of your Spectrum. FEATURES INCLUDE: Training, Team Selection, Substitutes, Half-time scores, Full squad details, Named Goal scorers, Team styles, Save Game, Financial problems, PLUS MANY, MANY MORE!

STOP SPECTATING — START MANAGING

Mail Order only — UNBEATABLE VALUE at £4.75
Or send SAE for full details to:

E & J SOFTWARE

59 Stainton Road, Enfield, Middx EN3 5JP

RACING LEAGUE

If you think that computer games are mostly variations on the same old themes then join the famous personalities in the RACING LEAGUE! This refreshing simulation game is for one to four players. Features include buying and selling of horses, betting, jockeys, loans, racing sequence etc. As in real life you will need skill and luck to succeed. Can you become Top Owner? A Save Option keeps the game going as long as you like. For 48K Spectrum and Spectrum Plus and only £3.50 post free from:

R. L. Software, 22 Lindale Garth, Kirkhamgate,
Wakefield, West Yorkshire WF2 0RW.

48K SPECTRUM with keyboard, cassette recorder, microdrive, interface 1, joystick, interface, I/pen, roboter unit, £400 worth of software, all in very good condition. All for £200 o.n.o. Phone: Troom (0292) 315275.

SOFTWARE EXCHANGE CLUB. Swap your used Spectrum programs. Huge program base. Many recent titles. Free membership, sae please for quick response and details. UK SEC (SU) 15 Tunwell Greave, Sheffield S5 9GB.

SPECTRUM ORIGINAL GAMES. Airwolf, Flag, Atic, Skooldaze, Manic Miner, all £3. Match Point, Fantastic Voyage £3.50. Valhalla, Hobbit £7. Knight Lore, Sabre Wulf £6. Phone Mark on 0625 877936 (Nr. Stockport).

Something Different for the ZX81

POOTER PUZZLER

4 Fast Programs containing 27 Puzzles!

Fun for all the Family. £2.95 post free.

MUSE OF POOTER — Computer generated prose on a ZX81! £1.95 post free.

GIRO:30 729 4609

G. ROWLAND, 24 PARLOES AVENUE,
DAGENHAM RM9 5NX

LEARN PROGRAMMING

We'll develop your skills more quickly and professionally with our home study Programming Course, based on Spectrum. Write today for:

FREE BROCHURE — NO OBLIGATION.
Ref. SU5.

IDEAL SCHOOLS
FREEPOST, Glasgow G1 4BR
Tel. 041-248 5200

SPECTRUM REPAIRS

Spectrum repairs £18.50 including parts insurance and P/P.

Send your computer with cheque or PO for £18.50 and description of fault to:

SUREDATA (SU)

45 Wychwood Avenue,
Edgware, Middlesex.
Tel: 01-951 0124

CRICKET FANS. All the thrills of a five match test series. Name your countries and players. "Scoreboard" for 48K Spectrum £5. From Byron Software, 57 Rangoon Road, Solihull, West Midlands.

MONITOR 12in. Hantarex high resolution black/green with transform monitor lead for Spectrum. Also DK'tronics keyboard all for £90 o.n.o. Richards 57A George Street, Taunton, Somerset TA2 7DF. Tel. 0823 82040.

IMPORTANT MESSAGE. 48K Spectrum and interface fitted in Fuller/Nordic keyboard for sale. Only £140 for the lot, worth over £200. Can you afford to miss this bargain? Ring 0977-43813.

Advertisement Index

ARGUS/QUICKSILVA	50	MANX TAPES	87
BETASOFT	76	MELBOURNE HOUSE	20
CAMBRIDGE MICRO ELECTRONICS ..	98	MICRONET	66, 67, 90
CAMPBELL	91	MICRO INTERFACE	88
CASCADE	65	MIKRO GEN	43
CP SOFTWARE	49	MIRACLE TECHNOLOGY	54
CROSS SOFTWARE	76	MIRAGE	88
CUMANA	29	M.M. MICROWAVE	32
DATA DISTRIBUTORS	44	MONOLITH	51
DATA STAR	98	MODERN HOUSE	61
DRK PRODUCTS	32	NATIONAL SOFTWARE LIBRARY	56
DOMARK	13, 25	NEW HORIZON	65
E.L.R. INTERNATIONAL	30	OCEAN	73, 08C
EURO ELECTRONICS	74	O.C.P.	73
4SYSTEMS	4	OPUS SUPPLIES	42
FOX ELECTRONICS	99	RAM ELECTRONICS	14, 41
FREL	100	ROTRONICS	39
GCE TUTORING	54	RSD CONNECTIONS	87
GLEN TOP PUBLISHING	76	SAGA SYSTEMS	36, 64
GOOD BYTE	96, 100	SELEC SOFTWARE	87
HEWSON CONSULTANTS	21	SIMTRON	32
HI SOFT	74	SMT	54, 56
IMAGINE 85	16	SPECTRUM GROUP	34, 35
INDUSTRIAL PROCESS	96	SPECTRUM HOLDINGS	100
IT'S	98	SPECTRUM SOFTWARE EXCHANGE ..	87
LERM	88	SPEEDY SOFT	46
LEISURE GENIUS	88	TASMAN SOFTWARE	70, 71
LOGIC SALES	96	TALENT	4, 33
		TRANSFORM	68, 72
		THOUGHTS & CROSSES	61
		US GOLD	27
		ULTIMATE	57
		UNIVERSITY SOFTWARE	91

COMING NEXT MONTH PIRATES



Haul up the Jolly Roger and be prepared to walk the gang plank as Sinclair User does an exposé on the software pirates.

We investigate the cut-throat world of illegal taping, and ask why attempts to prevent it have been so unsuccessful.

Plus that old salty seadog himself, Popeye: A swashbuckling games review.

And the man whose caused more cutlasses to be drawn in anger than Captain Blood;

Gremlin — with another intriguing insight into the spoils of the computer industry.

All in October's issue of

Sinclair User.

On sale **September 18th**.
At all good newsagents. You'll be washed up without it.

sinclair user

The Biggest Selling Sinclair magazine in the World

Reach an estimated readership of over 200,000 users per month for as little as £5.00* (inc VAT)

Or if you are starting your own small **business** advertise in the supermart for only £17.00 (inc VAT)

Yes, all you have to do is fill in the coupon below including your name, address and telephone number and sent to: Supermart, Sinclair User, EMAP, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU

Maximum 30 words.

Your advert will appear in the earliest possible edition.

Name

Address

Tel:

Have you included the fee of £5.00* or £17.00?

Make cheques payable to EMAP PUBLICATIONS LTD

*for second hand sales only

Conditions

The Advertisement Manager reserves the right to alter, reject or suspend an advertisement without assigning any reason. Advertisements are accepted subject to approval of copy and to the right of the Advertisement Manager to alter, reject or cancel any order without explanation. The Proprietors are not liable for any loss from any cause whatever, nor do they accept liability for printers' errors. The Advertisers shall indemnify the Publishers in respect of any claim, cost and expenses arising out of any libellous or malicious matter or untrue statement in any advertisement published for the advertisers, or any infringement of copyright, patent or design therein. The placing of any order will be deemed to be an acceptance of these conditions.

Two lovely black eyes . . .

THE GREAT boxing contest enters its second round as the youthful **Elite** claims victory for **Frank Bruno**. It seems a taxi was hired to convey 1,500 extra copies of the game to distributor Micro Dealer who had sold out. The kindergarten was so pleased about being able to afford a taxi that it wrote a press release to inform the world.

Milk prefect **Steve Wilcox** says **Bomber Bruno's** game is going to be "one of our best-selling games since **Airwolf**." Shouldn't be difficult to beat the sales of the appalling Dunlop commercial **911TS** . . .

Lightweight . . .

Meanwhile **Activision**, purveyor of American Junk Games to gullible Brits, has signed up world lightweight champion **Barry McGuigan** for **World Championship Boxing**. Barry must have

Spectrum users are unlikely to feel so enthusiastic after being battered into submission by **Elite**, **Alligata**, **Gremlin Graphics** and the other 734 software houses who reckon a black eye and a thick ear is where it's at this summer . . .

Just a load of bull

Gremlin was delighted to receive a large scroll through the post the other day entitled **Cow Boils Head**. The unusual missive tells the story of a cow which forced a woman to boil her head in a bucket.

Veteran Gremlin fans will immediately recognise the delicate touch of **Geoff Davis** and **Micro-Arts**, who have devised a program which churns out endless variations on the tale.

Micronetters may soon be compelled to stomach it, as the high priests of pretension have taken 200 teletext

describe **Peter Ellis**, instigator of the **Home Tutor** course in computers. Ellis used to work in the rag trade, but if you pay him the princely sum of £131 you get 12 monthly lessons on tape or disc designed to teach you how to write 'programmes'.

It is intriguing to see that the course is elsewhere said to teach pupils 'how to design their own computer systems'. Move over Sir Clive . . .

Turkeys on the rampage

Deal of the decade has been struck by **Mike Daniels** of **Global Software** with none other than **Mad Medven**, creator of the notorious Golden Turkey Film Awards. Devotees of Channel 4 may recall a series of the most dreadful films of all time. Now the rights to the series have been bought by Daniels, we can expect to see *Attack of the Mushroom People* appearing shortly.

Unfortunately there are no plans yet to computerise *The Creeping Terror*, in which a giant carpet consumes the entire Horlicks-crazed clientele of a small discotheque, but Gremlin reckons there's no sin in hoping . . .

Neverending . . .

Whatever became of **The Neverending Story**, **David Ward's** epic game of the film of the translation of the obscure German fairy story?

The Empire's reluctance to release the game is because court advisors reckon they'd better wait for the film to hit the provinces first. Considering how the movie bombed in London, perhaps they'd be better off going for the punters and to hell with the spin-off . . .

Just fancy that

"Products," says old Incurruptible Scolding. "Gremlin should write more about products." Gremlin obliges with a tremendously useless



Nick Faldo contemplates oblivion as his Argus spin-off seems set to follow his British Open hopes down the plughole.

Fact courtesy of **Scotch**, which makes sticky tape and cassettes and stuff. "The UK consumer spends more on videotape than on packet tea, overcoats, wholemeal bread, yogurt, flour, DIY tools, cinema visits or underpants," claims Scotch.

Incredible. A million unsold copies of any grotty game which the UK consumer buys less of than videotape, to anyone who can tell Gremlin why the tape merchants wanted to send *Sinclair User* the information in the first place . . .

The power behind the throne

Finally, it was nice to see young **Fergus McNeill** in the office the other day. Fergus is a bit of a cult, what with the Holy Joystick series of adventures and **Bored of the Rings** winning a *Sinclair User* classic.

Fans of Fergus and **Delta 4** may have heard of Judith, featured on **Skeptical**, a pastiche teletext magazine thrown in free with **Bored of the Rings**. Fergus freely admits that Judith has been one of the driving forces behind his career in software, and let Gremlin have a quick peek at the photo he carries close to his chest.

Gremlin now understands why Fergus spends 95 per cent of his time writing adventure games . . .



Clare 'ligger' Edgeley lets off steam after tanking up at Hewson's Southern Belle launch. As usual, nobody knows why she's giggling.

been feeling left out as positively the only major sporting figure with no computer game to his name.

Now he's got his big chance, and Activision win this month's **Brazen Backslapper's Award** for its proud claim that the game is a 'totally new concept'.

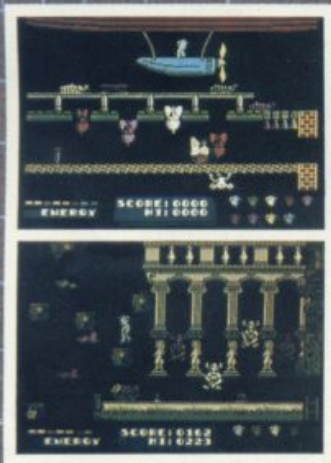
pages to purvey their manic drivel. "We don't want to totally freak people out at first," says the suspiciously mild-voiced Geoff . . .

Chips with everything

'A man who knows his chips' is how his publishers



WATCH OUT! IT'S



DYNAMITE DAN

94%
Crash
Smash

"What makes the game is the graphics – large, witty, bizarre and beautifully animated . . . each screen has something remarkable, and horribly difficult puzzles . . . Dynamite Dan is not just another Miner surrogate and is at least as essential to your collection."

Popular Computing Weekly.

**Popular
Computing
Weekly
Pick of the
Week**

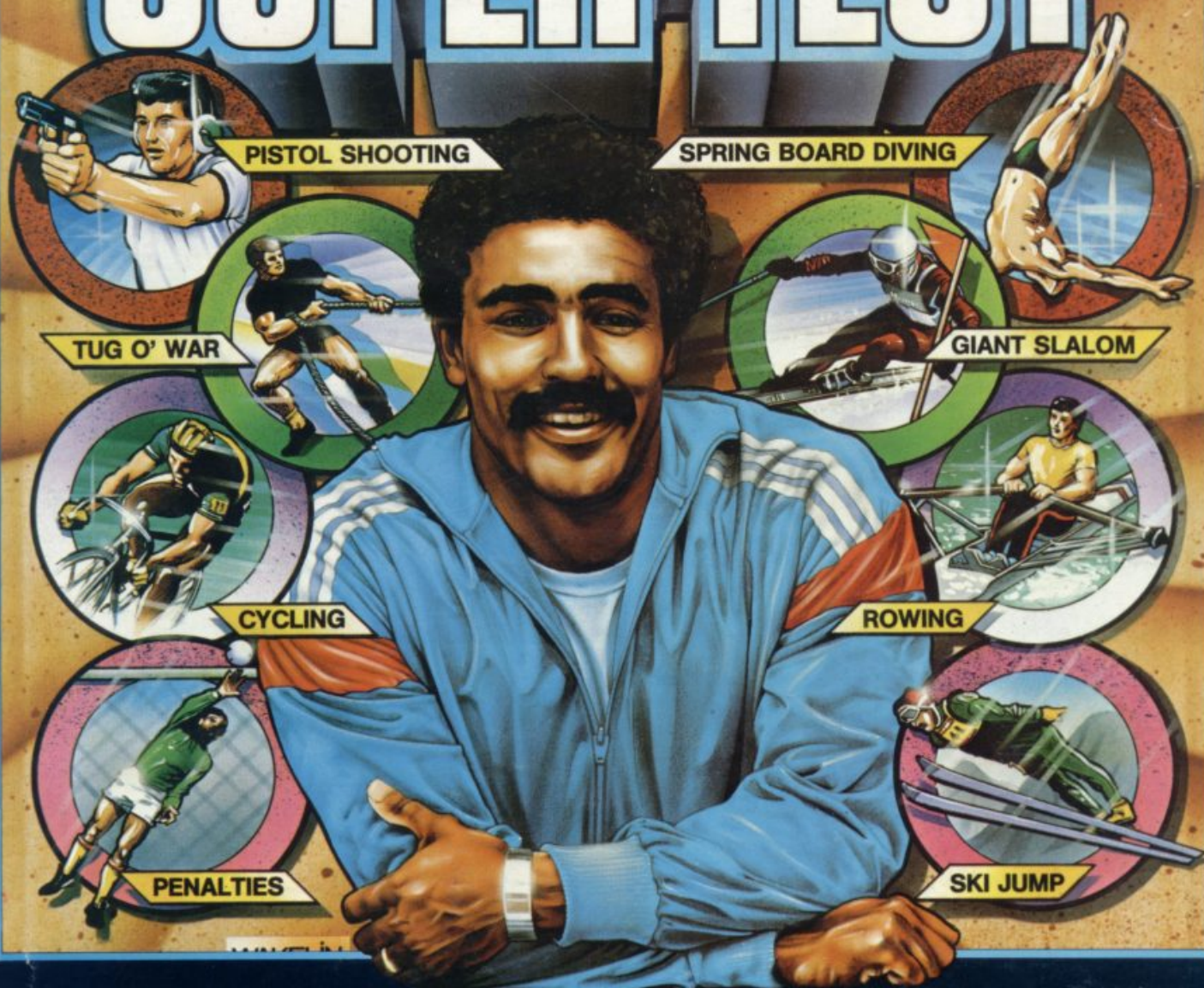
48K Spectrum/Spectrum+ £6.95

MIRRORSOFT

Maxwell House, Worship Street, London EC2A 2EN. Tel 01-377 4600
Trade orders to: Purnell Book Centre, Paulton, Bristol BS18 5LQ. Tel 0761 413301

Now after the glory of gold enter

Daley Thompson's SUPER-TEST



SPECTRUM 48k

COMMODORE 64

AMSTRAD

6-95

7-95

8-95

Ocean Software is available from selected branches of:

WOOLWORTH, WHSMITH, 

John Menzies, LASKYS, Rumbelows, COMET,
Spectrum Shops and all good software dealers.

ocean

Ocean Software
Ocean House · 6 Central Street
Manchester · M2 5NS
Telephone 061 832 6633 · Telex 669977 Oceans G