

SINCLAIR PROGRAMS

BIRTHDAY
3RD
ISSUE

ANNIVERSARY
COMPETITION



SPECIAL HOLIDAY OFFER

**TWENTY GREAT LISTINGS FOR
THE SPECTRUM AND ZX-81**

AVAILABLE FROM
High Street Computer Retailers
and branches of W. H. Smith, Boots,
John Lewis Partnership, Laskeys, Currys.

EVEN THE PRICE WILL KEEP YOU IN THE BLACK

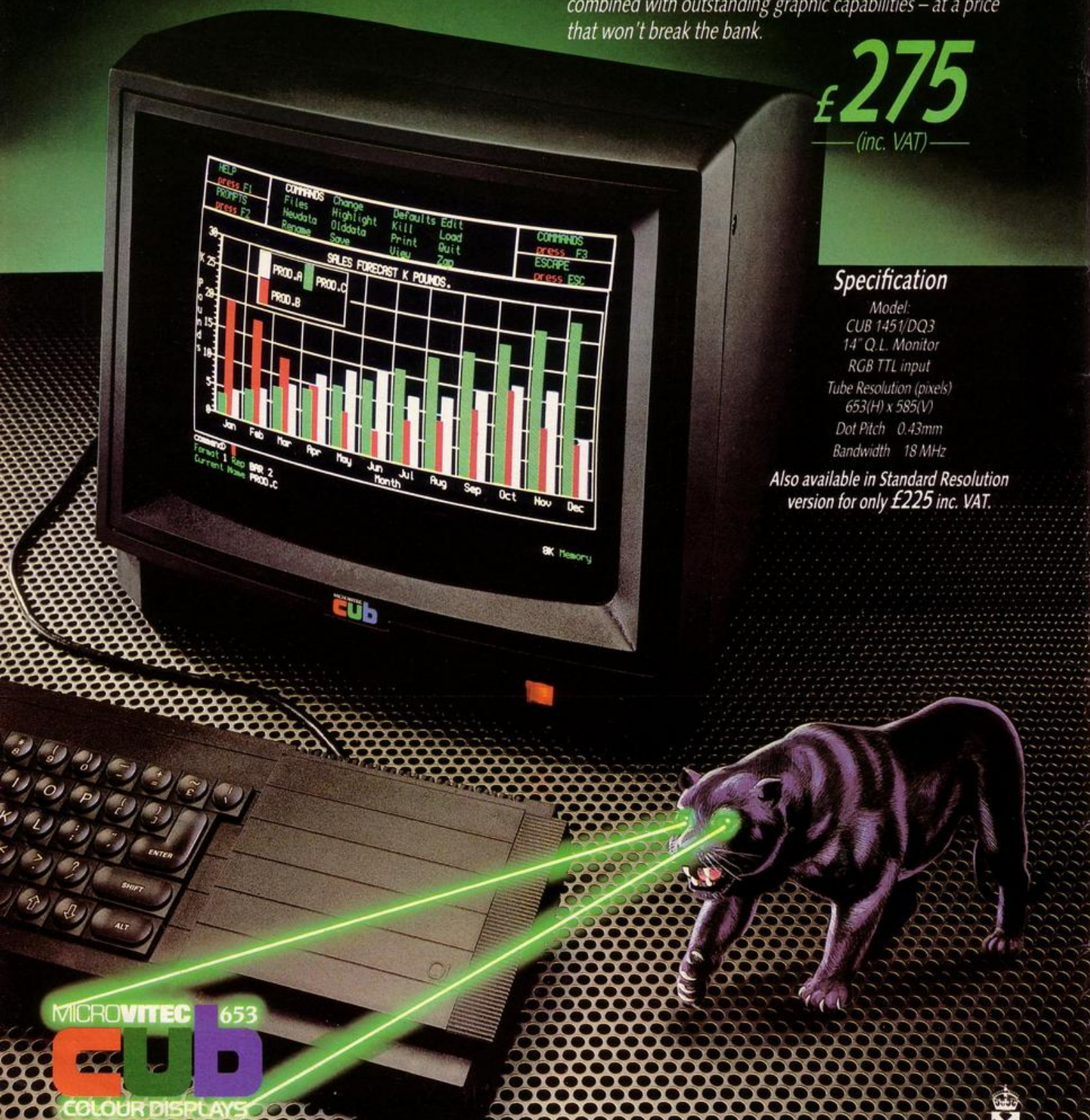
This sleek, black Microvitec CUB medium resolution colour monitor has been designed to be totally compatible with the Sinclair Q.L. An ability to display 85 column text is combined with outstanding graphic capabilities – at a price that won't break the bank.

£275
(inc. VAT)

Specification

Model:
CUB 1451/DQ3
14" Q.L. Monitor
RGB TTL input
Tube Resolution (pixels)
653(H) x 585(V)
Dot Pitch 0.43mm
Bandwidth 18 MHz

Also available in Standard Resolution
version for only £225 inc. VAT.



MICROVITEC 653
CUB
COLOUR DISPLAYS

Microvitec PLC, Futures Way, Bolling Road, Bradford BD4 7TU, West Yorkshire. Tel: (0274) 390011. Telex: 517717



CONTENTS

Graphics

5



Soft focus

Editorial 5

Letters 7

News 10

Soft focus 14

Listings 19

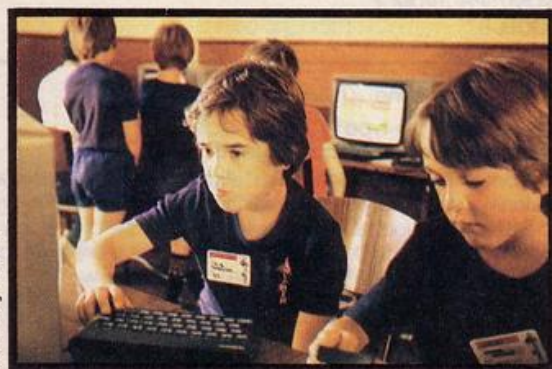
Notice board 28

Questline 30

32 Listings 38

36 Sprogs 39

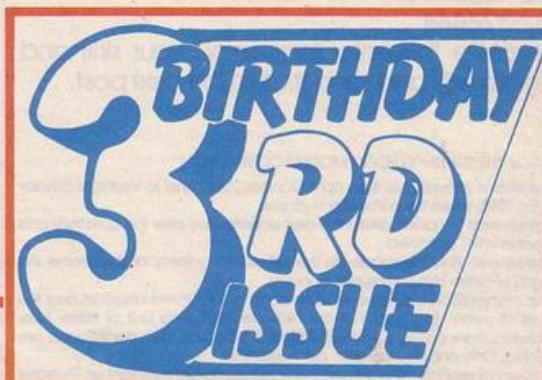
37 Listings 40



Holiday offer

Special holiday offer 42

Program tutor 44



Anniversary competition

49

Chart

50

Pro-printout 52

Haunted belltower

Listings 55

Link to Giant Mainframes and network to thousands of Micro users via your 'phone with free Modems and Comms software in the British Telecom Modem competition.

British Telecom is offering 1000 free gift packs to plug direct into your home 'phone line.

British
TELECOM

MODEM COMPETITION

1000 FREE MODEMS

500 for Spectrum/Spectrum +
350 for BBC Model B
150 for Commodore 64

And if you haven't got a square-type BT phone socket, British Telecom will arrange to alter your installation at no charge!

HOW TO ENTER

(Monday 22nd April to Sunday 5th May 6pm to midnight)

For the 5 questions 'phone

01-627 3000 or
021-449 9944 or
031-225 8999

To get the Tiebreaker Sentence 'phone

01-627 1199 or
0532 455030 or
0632 324444

Complete the entry form using your skill and judgement, and send it off in the next post.

RULES OF THE BRITISH TELECOM MODEM COMPETITION

- 1) The dial-in is available from 6pm Monday 22nd April to midnight Sunday 5th May 1985, when the competition closes.
- 2) Entries must be postmarked the next working day after the questions and tiebreaker were obtained.
- 3) Entries can only be made on the official entry forms and become the property of British Telecommunications plc.
- 4) The competition is open only to residents of the United Kingdom over the age of 18 years. Employees of the Network Marketing Unit of British Telecommunications plc and PARKER REDMILE LTD. and their dependants are excluded. Only one winning entry per household.
- 5) Entries not reaching the competition address before midnight on Thursday 9th May 1985 will not be considered.
- 6) A list of winners will be provided at the competition address. Please send an SAE if you wish to receive it.
- 7) The winners will be picked as follows from entries received on time and properly completed -
The entries for each type of prize pack with all correct answers to the 5 questions and with the tiebreaker sentences judged most apt and humorous by the competition organisers will be chosen, subject to the stock of appropriate prize packs.
- 8) The decision of the competition organisers is final and no correspondence will be entered into. Winners will be notified automatically.
- 9) British Telecommunications plc offers winners requesting BT 'phone socket conversion on entry forms to waive the charge normally made for such work.
- 10) Details of how to get on Prestel/Micronet 800/Telecom Gold will be sent to winners. Subscriptions not included in prize.

OFFICIAL ENTRY FORM

A. Your answers:

- Q 1
Q 2
Q 3
Q 4
Q 5

B. Tiebreaker Sentence complete (25 words or less in total):

"
.....
..... "

C. If I win, I would like the prize pack for the

- ☐ SPECTRUM/SPECTRUM +
☐ BBC MODEL B (Tick Choice)
☐ COMMODORE 64

D. My home telephone line (* Delete as appropriate)

- (a) already has a square-type BT 'phone socket * or
(b) would need converting to square-type BT 'phone socket *

If (b), the person renting the line from British Telecom must fill in this declaration -
If this is a winning entry, I agree to ask British Telecom to convert my line to square-type BT 'phone socket at a convenient date before 1st July 1985. My line is on Residential rental, is not a coinbox and is not shared service. I understand British Telecom will not charge for doing the work.

Name (Block Capitals)

Telephone number

Signature

Date 1985

E. I have read the rules of the British Telecom Modem competition and agree to abide by them. I am over 18 years old.

Signature of entrant

Date 1985

Name (Block Capitals)

Address

Postcode

POST IMMEDIATELY TO:-

British Telecom Modem Competition
PO BOX 73
MITCHAM
SURREY
CR4 2XU

SP

(Postage stamp required)

WINNERS WILL BE NOTIFIED AUTOMATICALLY

WELCOME to our third birthday issue. The first issue of *Sinclair Programs* went on sale in May 1982, and contained forty programs written for the ZX-81 and ZX-80.

A year later we became a monthly, rather than a bi-monthly magazine and, since then, we have gone from strength to strength, expanding our editorial, and constantly improving the quality of our listings.

This month we are pleased to be able to offer you the chance of attending the first ever **Sinclair Programs computer holiday**. We have linked up with **Dolphin holidays**, who are computer camp specialists, to produce a very special holiday for Sinclair Programs readers.

Instruction at the camps is by experts, everyone will be able to use either a ZX-81 or a Spectrum and will have access to an enormous collection of hardware ranging from speech recognition systems to robot buggies.

For those people unable to attend the special **Sinclair Program** we have negotiated cut price rates on other Dolphin Computer Holidays. There are special reductions on both Basic and Advanced courses. Turn to page 42 for more details on this great offer.



Editor
Rebecca Ferguson

ABC
MEMBER OF THE ADVERTISING
BUREAU OF CIRCULATIONS

Staff writer
Colette McDermott

Design/Illustration
Elaine Bishop

Advertisement manager
Shahid Nizam

Production co-ordinator
Serena Hadley

Advertisement secretary
Maria Keighley

Subscription manager
Carl Dunne

Publisher
Neil Wood

Sinclair Programs is published monthly by EMAP Business and Computer Publications.

Telephone 01-251 6222

If you would like your original programs to be published in Sinclair Programs, please send your contributions, which must not have appeared elsewhere, to:
Sinclair Programs,
EMAP,
Priory Court,
30-32 Farringdon Lane,
London EC1R 3AU

Programs should be on cassette. We cannot undertake to return them unless a stamped, addressed envelope is included. We pay £25 for the copyright of listings published and £10 for the copyright of listings published in the Beginners' section.

© Copyright 1985 Sinclair Programs
ISSN No 0263-0265
Printed and typeset by Cradley Print PLC,
Warley, West Midlands
Distributed by EMAP National
Publications Ltd.

All subscription enquiries:
Magazine Services,
EMAP,
Priory Court,
30-32 Farringdon Lane,
London EC1R 3AU
Telephone 01-251 6222

Cover Illustration—Craig Kennedy

Instructions for graphics characters are printed in lower-case letters in our listings. They are enclosed by brackets and separated by colons to distinguish them and the brackets and colons should not be entered.

Inverse characters are represented by the letter "i" and graphics characters by "g". Thus an inverse W would be represented by "iw", a graphics W by "gw", and an inverse graphics W by "igw".

Spaces are represented by "sp" and inverse spaces by "isp". Whenever any character is to be used more than once, the number of times it is to be used is shown before it, together with a multiplication sign. Thus "6★isp" means six inverse spaces and "(g4:4★i4:g3)" would be entered as a graphic four, followed by an inverse four repeated four times, followed by a graphics three.

Where whole words are to be written in inverse letters they appear in the listings as lower-case letters. Letters to be entered in graphics mode on the Spectrum are underlined.

Inverse characters may be entered on the ZX-81 by changing to graphics mode and then typing the appropriate characters and on the Spectrum by changing to inverse video and typing the appropriate letters. Graphics characters may be entered on the ZX-81 by changing to graphics mode and then pressing symbol shift while the appropriate characters are entered. On the Spectrum graphics characters may be obtained by changing to graphics mode and then pressing the appropriate character. User-defined graphics will appear as normal letters until the program has been RUN.

Interactive BASIC Programming for 48K ZX Spectrum & Spectrum + ATTENTION ALL SPECTRUM USERS!

LEARN BASIC WITH YOUR HANDS ON THE KEYBOARD, NOT WITH YOUR HEAD IN A BOOK! Now you can learn ZX BASIC programming with your Spectrum. 'Interactive BASIC Programming' is a unique package in twelve parts. Look at these features:

- * Plain English (yes, real English not jargonese).
- * Due to an amazing programming technique you will have **complete** control over Spectrum BASIC. So you can write, save and load programs while using 'Interactive BASIC Programming'.
- * All ZX BASIC is covered.
- * You'll learn about graphics (see some on this ad), colour, sound, motion, system variables, menus and much more, explained simply.
- * Problems are given with hints and answers in the form of programs that are put into BASIC for you to look at, run and alter.
- * You'll learn how to write your own games (by way of examples) and how to put your machine to serious use (e.g. graphs, problem solving, filing system).
- * More than 250K (yes, two hundred and fifty kilobytes).
- * After sales support at no additional cost: write or telephone if you have any questions about Spectrum BASIC.
- * "An educational program which shows real inventiveness - better still it teaches Sinclair Basic."

- Popular Computing Weekly 7/3/85

Britain is the Software Capital of the World - far superior to the U.S.A. The computer revolution is just beginning and as the emphasis shifts from hardware to software WE are best placed to shape the future. The writing's on the wall: get actively involved while the industry is young.

(Amstrad, MSX, Atari 800XL, CBM 64, BBC/Electron versions are in preparation.)

To receive the whole package by return of post send £9.95 (p & p free) to:
EIGEN SOFTWARE 45 Bancroft Road, Widnes, Cheshire. WA8 0LR
Tel. 051-423 6201

$$\hat{H}\psi = E\psi$$

EIGEN SOFTWARE create reality



**ONLY
£9.95**
(INC. P&P and VAT)

THE FABULOUS CASSETTE 50

FROM **cascade**

VALUE that's out of this world

SPECTRUM 16k/48k or +

'Incredibly frustrating!' - that's the verdict on Cascade 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.

50 GAMES ON ONE CASSETTE

NOW AVAILABLE FOR **Commodore 64** & **ELECTRON** Atmos
DRAGON BBC AIB Spectrum **Apple** ATARI ORIC-1 ZX81 VIC-20

No.	Game	No.	Game	No.	Game
1	MUNCHER	19	SKI RUN	36	DRAGGOLD
2	SKI JUMP	20	TANKS	37	SPACE SEARCH
3	BASKETBALL	21	SOLAR SHIP	38	INTERNO
4	FROGGER	22	TEN PINS	39	NIM
5	BREAKOUT	23	CARS	40	VOYAGER
6	CRUISER	24	STOMPER	41	SKETCH PAD
7	STARTRK	25	PINBALL	42	BUTZ
8	MARTIAN	26	CAVERN	43	FISHING MISSION
9	KNOCK OUT	27	LASER	44	MYSTICAL
10	BOGGLES	28	ALLEN	45	DIAMONDS
11	ALIEN ATTACK	29	CARGO	46	GALAXY DEFENCE
12	LUNAR LANDER	30	THE RACE	47	CYPHER
13	MAZE FASTER	31	THE SKULL	48	ETACIBLE
14	MICROTRAP	32	ORBIT	49	BARREL JUMP
15	MOTORWAY	33	MUNCH	50	SPACE MISSION
16	Labyrinth	34	BOWLS		
17	SKITTLES	35	HAUNTERS		
			FIELD		

EXPRESS DELIVERY - ORDER NOW

Name _____

Address _____

Post Code _____

Country _____ SP 5/85

Dealers & Stockists enquiries welcome.

Postage FREE. Goods will be despatched within 7 days.

I enclose a cheque/ ☐ made payable to Cascade Games Ltd.

or through any Post Office by **TRANSCASH** (Giro No. 655 6655)

For even faster ordering when charging to Access, Barclaycard and Trustcard Visa use our 24 hour service. (0423) 504526.

COMMODORE 64 ☐ VIC 20 ☐ ORIC-1 ☐ BBC AIB ☐

SPECTRUM ☐ ELECTRON ☐ ZX 81 ☐ APPLE ☐

ATARI ☐ ATMOS ☐ DRAGON ☒

Cascade Games Ltd.,
1-3 Haywra Crescent, Harrogate,
North Yorkshire, HG1 5BG, England.
Telephone: (0423) 504663. Registered Number 175554

50 GAMES ALSO AVAILABLE FOR ZX81

WE PAY TOP PRICES FOR TOP QUALITY GAMES

More than Sufficient

FOLLOWING the repeated failure of my ZX-81 keyboard I decided to try to get hold of a new keyboard and replace it myself. First of all I phoned Sinclair Research. They could not help me, but gave me the number of CPC in Preston, who supply many Sinclair computer parts. However, when I phoned them I was told that, due to the fact that they had a minimum order charge, it would cost me £9.60, for four keyboards!

As I have only one ZX-81 I want only one keyboard. I now have four options: buy four keyboards, buy another sort of keyboard for around £30, send my computer to a repair shop to do a job that I could do myself, or keep my broken keyboard.

Is there anything that anyone can do to help me to get this spare part which should only cost a little over £2?

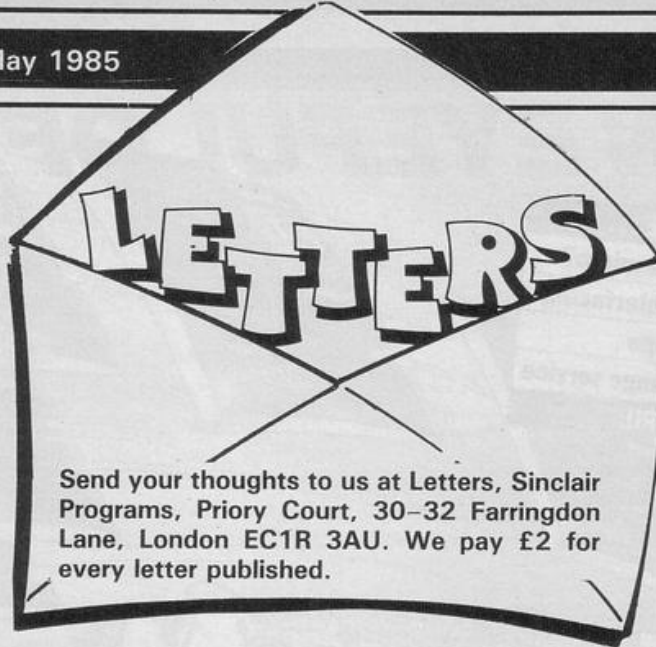
Peter Sanson,
Wisbech, Cambs.



Stuck on the roof

CAN ANYONE help me with **Jet Set Willy**?

My difficulty centres around the collection or, in my case, non-collection of the four bottles which are located on the Conservatory Roof. What I want to know is: what route do I have to take to gain access to the platform from which you



Send your thoughts to us at Letters, Sinclair Programs, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. We pay £2 for every letter published.

jump up to collect the four bottles? I have attempted what I feel to have been every conceivable route, and have got absolutely nowhere.

For example, any attempt to jump across from the sloping section of the conservatory roof invariably results in an undignified and remaining-life-removing plunge through the Orangery into the Swimming Pool.

Peter Lawrence,
Capel St Mary, Suffolk
• Can anyone out there help Peter? Let us know if you can reach those four bottles.

Beat that Ghostbusters

I AM dropping you a quick line to say that I have just scored my best amount of money on **Ghostbusters**. It is \$855,900, and I was wondering whether anyone has beaten this.

I have also found two bugs in the game. The first one is that, when you are driving your car

and a roamer is on the far left hand side, you cannot suck it up. The second one is that, after you have listened to the logo once, you don't get the words the next time.

Thank you for a brilliant magazine.

Andy Herrod,
Leatherhead, Surrey.

Total disagreement

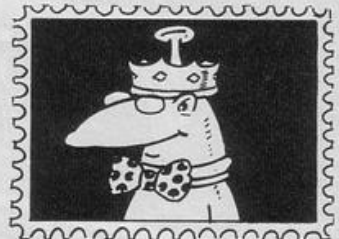
I TOTALLY disagree with your review on **Match Day**. I think that it is probably the best game on the market. You only rated it at 50%. I would have rated it at at least 90%.

Gavin Wilding,
Thorndon, Suffolk

YOUR review of **Match Day** in March 1985 is totally wrong, and might put off would-be buyers. It is worth at least 90%, and is one of the best Spectrum games out. There are many others who would agree with me. It is one of those games which take a lot

of mastering, but once this is done it becomes comparatively easy. The graphics for this game are brilliant, and the movement is authentic, especially the goalkeeper.

Stephen Luckin,
Littlehampton, Sussex



I AM writing to say just how annoyed I am about your review of **Match Day** by Ocean. How could you only give it 50%, the game is fantastic. My friends and I are always playing it. Looking through your magazine we see **Match Day** and read on in the hope of a good review, but we find nothing but comments on what is missing and not what is there. So, whoever reads this letter, **Match Day** is definitely value for money.

Bradley Swift,
Rochdale, Lancs.

Congrats all round

BRILL, fab, outstanding: what is it? The new-look **Sinclair Programs**, of course. The new magazine is absolutely incredible. Congrats to all, and keep up the good work.

Michael Meagher,
Rosecrea, Ireland.
• Obviously a man of taste.

Please complete this form and enclose it with any program which you send to us for possible publication.

To: Sinclair Programs, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.

I enclose.....Program(s) for thecomputer.

I guarantee that each program submitted is my original work.

Signed.....

Name.....

Address.....

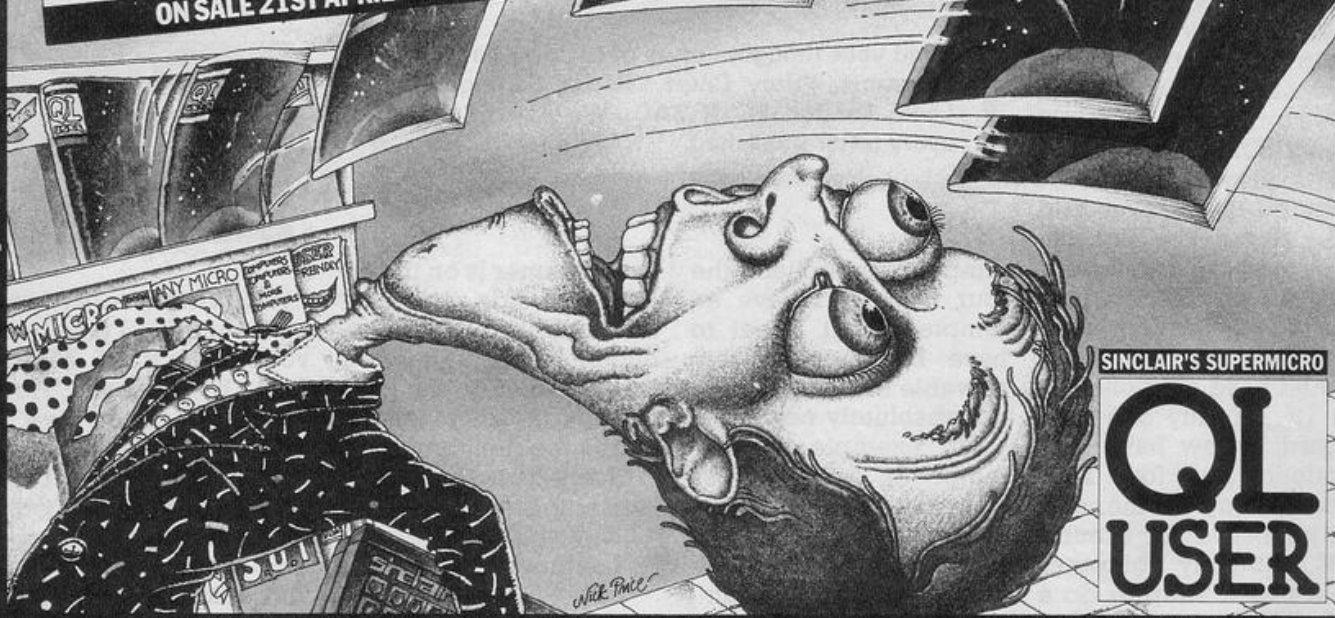
GET AN EYEFUL OF THIS!

INSIDE THE MAY ISSUE...

- QL's Dilemma: PC or home micro?
- Brother EP44 and TC600 interfacing
- Psion problems page
- Microdrive programs exchange service
- ON SALE 21ST APRIL

95p EVERY MONTH

95p EVERY MONTH



SINCLAIR'S SUPERMICRO
**QL
USER**

QL USER — THE ONLY MAGAZINE FOR QL OWNERS AND ENTHUSIASTS.

AN APPOINTMENT NOT TO BE MISSED EVERY MONTH!

1984
Tuesday
290-76 Week 42

16

Sinclair User magazine hits the street on the 16th of every month packed with enough material to keep both you and your Sinclair machine fully occupied until the same time next month.

Sinclair User magazine, is devoted entirely to the Sinclair ZX81 and Spectrum. Everything you need to know about the latest peripherals and software releases, as well as letters, book reviews, program listings and competitions. Plus special sections for beginners business and education. We even have a special telephone 'hotline' for those problems that just can't wait.

No wonder **Sinclair User** is the UK's top selling Sinclair magazine.

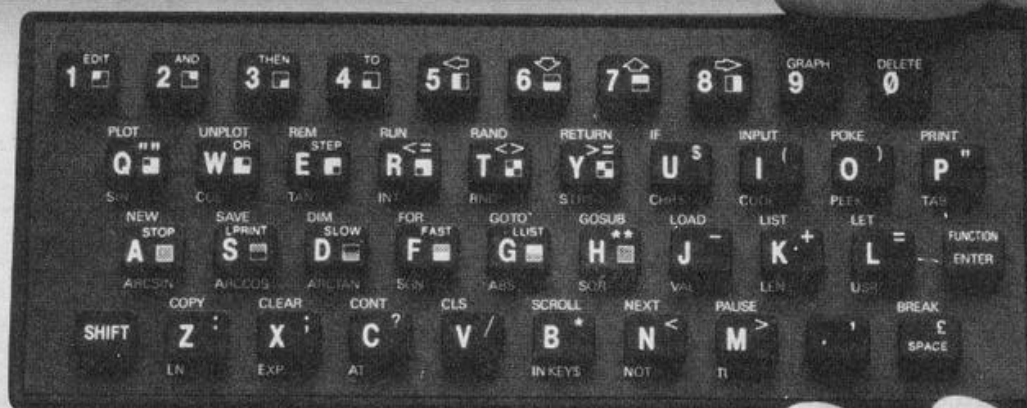
Available from your newsagents now, only 85p

September 1984

An independent magazine published by EMAP Pub



A NEW, IMPROVED ZX81 KEYBOARD AT THE SAME OLD PRICE. £9.95.



There's only one thing wrong with the ZX81. Its keyboard.

Or rather its lack of one.

Since it's flat your fingers don't feel as if there's any response to the pressure put on the keys.

ZX81 KEYS

FILESIXTY KEYS

In other words, you're not quite sure which keys you've pressed until the screen actually tells you.

Our new, improved push button keyboard changes all that.

It matches the ZX81 perfectly. And the keys give a real calculator-type feel.

To set it up all you have to do is peel off the adhesive backing and stick it on top of the ZX81 touchpad.

Because no tampering or soldering is involved the guarantee is not affected. And it will last for up to 3½ million operations.

But our keyboard doesn't just come loaded with features. With it comes a separate overlay and a set of coloured stick-on labels to make game playing easier.

It's yours for the original price of £9.95.

Whichever way you look at it, we think you'll agree that it's a keyboard that's quite outstanding.

Orders to Filesixty Ltd., FREEPOST, London W9 2BR.
Cheques/PO made payable to Filesixty Ltd.
Please send me _____ (qty.) Keyboards at £9.95 each
(including VAT and P&P).

Total £

Name

BLOCK CAPITALS

Address

FILESIXTY

Filesixty Ltd., 25 Chippenham Mews, London W9 2AN, England. Tel: 01-289 3059. Telex: 268 048 EXTLDN G 4087.

Name game

FEBRUARY'S competition was held to decide the most apt name for a creature from Fantasy Software's game, **Backpackers Parts 1 and 2**.

Vincent Burne, Richard Church, David Green, Nagesh Verma, Daher Patrick, Mr I. F. Watts, Andrew Hunt, James Hill, Philip Marston, Neil Gallichan, Jonathan Clark, Duncan McAdam, Paul Colledge,



Fifty winners were chosen, and while we cannot list all the wonderful and hilarious names we think that some deserve a mention:

Tartanpunkas, Multi coloured Skunk Punk, Punkaggis, or perhaps Punk-u-Pine.

The winners, who will receive parts 1 and 2 of the Backpackers game, are:

Craig Herriot, P. Carroll, R. G. Hawley, Nathan Merrills, Jonathan Brewster,

Adam Ledger, Ken Senaei, Mr C. J. Haylett, William Turner, Andrew Smellie, Kevin Bradley, Martin Greenaway, Darren Purcell, Richard Harrison, Neil Drew, Andrew Morton, A. Downs, Stephen Price, J. Gordon, N. Bygate, R. Bayle, Robert Ward, Paul Cox, John Kemp, Mark Thornton, Glenn Field, Philip Evans, Innes Ferguson, J. Downton, Mark Sorrell, H. R. Hawkins, Agustin Malave, David MacFarland, Ed Mansell, Gavin Peebles, Denise Jennians, Ross Morley.

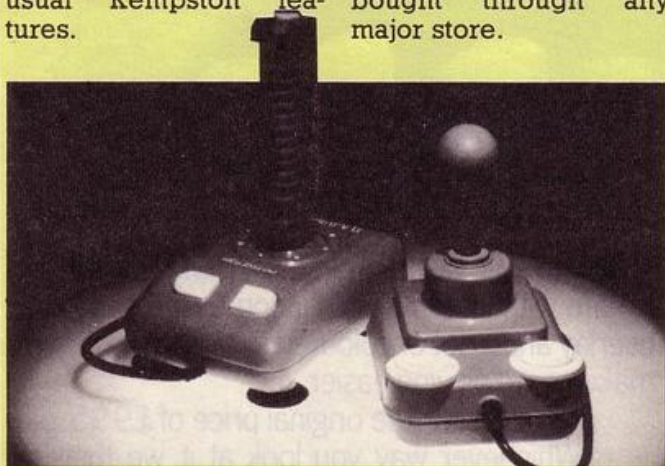
Good move

KEMPSTON Micro Products have launched their new range of joysticks and interfaces, which went on sale on March 1st.

For £11.95 the **Formula 2** joystick is the cheaper of the two, the **Formula 1** will cost £16.95. They will have self centering and improved positive action in addition to the usual Kempston features.

The new interfaces begin at £9.95 for the **Kempston Joystick**, £18.95 for the **Pro joystick** and £39.95 for the **Centronics 'E' interface**. They will have more robust mouldings for increased durability and all will be compatible with the Spectrum Plus.

The new range can be bought through any major store.



DISC-COVERY

OPUS Supplies launched a new range of disc drives in March which are compatible with both Spectrum and Spectrum Plus. They regard their new system as the first to seriously threaten the cassette loading systems.

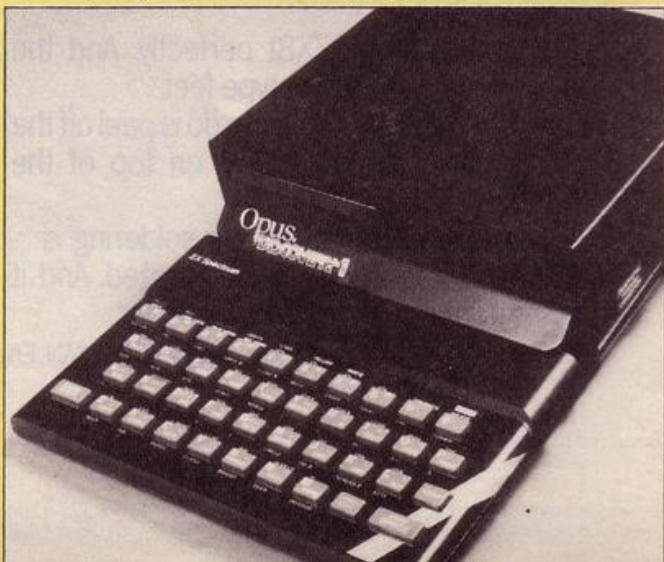
The Discovery 11, which has duel drive capabilities can be bought for £329.95, or you can start off with the Discovery 1 which, at £199.95, has a single disc drive and then upgrade it to a duel drive with the Discovery plus, which

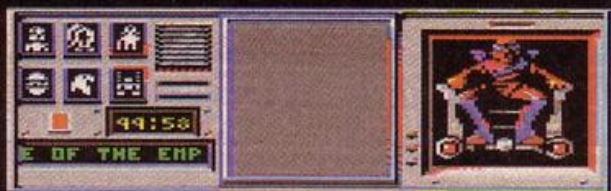
costs £139.95. The Discovery systems will only be available through Boots.

Boots have commissioned six top software houses to produce the first programs for the Discovery range. These will be on three and a half inch discs, costing £14.95 each. The programs and companies involved are: Activision, **Designer Pencil**, Micro-mega with three games on one disc, **Jasper**, **Code Name Mat** and **Kentilla**, Melbourne House with two games,

Sports Hero and **Mugsy**, Hewson Consultants with two, **Heathrow Air Traffic Control** and **Technician Ted**, Data Base Publications, **Mini Office**, a program with

word processing graphics and a data base; and Romantic Robot, **Advanced utility and file handling**. They are all now available, and more programs are promised.





- PRESS F1 FOR KEYBOARD
- PRESS F3 FOR DIGITAL JOY STICK
- PRESS F5 FOR ANALOG JOY STICK
- PRESS F7 FOR LIGHT PEN

PARTING COMPANY

BYOND Software have decided to split their publishing operation into two separate companies. Adventure and strategy games will continue to be produced under the old Beyond Software label, while arcade games will be under the new label. Their first game, which remains unnamed, will be released in June.

Shadow Fire, released

in March, has had a unique cassette tuner developed to enhance its playability. It enables you to change the parameters and characters within the game, thereby extending the games usage. The tuner will cost about £2 to £2.70 and is available through Beyond Software, Lector Court, 151 Farringdon Road, London EC1R 3AD.



ZX-81 reviver

SOFTWARE Farm will launch their new program **Spectrumiser** at the end of April. It is a high resolution graphic program which enables the ZX-81 graphics to ob-

tain the same quality and standard as those on the Spectrum. It also has the ability to convert basic into machine code. **Spectrumiser** will retail at £5.95.

A STAR IS BORN

MELBOURNE House are also launching a new game, **Starion**, which was due for release at the end of March.

It will cost around £7.95 and is described as "A space epic" by Paula Byrne from Melbourne House. "It has stunning graphics and involves a space pilot travelling through over 243 different scenes. The game also has exploding space ships which when disintegrated form letters which involve you in a puzzle running in conjunction with the main plot of the game."



Getting Hooked

OCEAN have a new game coming out at the end of April called **World Series Baseball**.

Imagine were originally going to market the game, but as Ocean have bought the title of the company they decided to launch it under their own title.

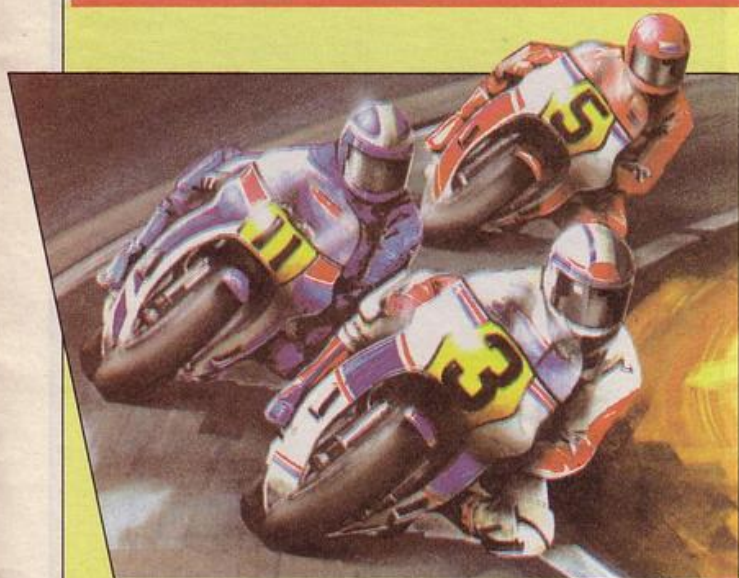
It is a sports simulation and will cost £6.95.

Digital decide on double release

DIGITAL Integration are launching two new games which are due out soon.

Tomahawk is a sequel to **Fighter Pilot** and it is

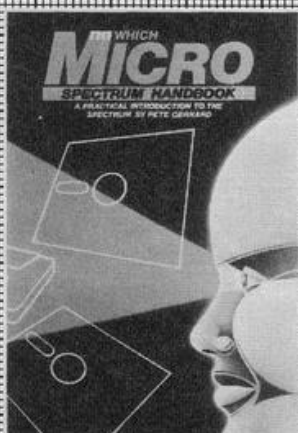
expected to be equally popular. The second new game is **T. T. Racer** which is a motorcycle simulation game. Prices have yet to be decided.



WHICH MICRO

COMMODORE 64 HANDBOOK

SPECTRUM HANDBOOK



Britain's two most popular personal computers, the Commodore 64 and Spectrum are covered from basic to semi-expert in **Which Micro Magazine's Handbooks**.

Author Pete Gerrard, a regular columnist for **Which Micro**, has put together an accurate and practical guide to both computers, at £4.99 per book.

Many programs are included and both 160-page books are spiral bound for easy use and are available in all good bookshops from November or direct through your letterbox by sending to EMAP Books, Bushfield House, Orton Centre, Peterborough PE2 0UW.

Commodore
Collection

COMPUTER
& VIDEO
GAMES

Spectrum
Collection



Computer and Video Games, Britain's most popular computer games monthly, bring you two exciting new books for the Spectrum and Commodore 64.

Each 100-page book contains up to 30 **brand new** games checked and prepared by **Computer and Video Game's** regular contributors.

At £4.99 - the best value on the market at all good bookshops from November or send to EMAP Books, Bushfield House, Orton Centre, Peterborough PE2 0UW.

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.
- ★ 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 £6.50 (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 R18 THE LOGICAL CHOICE

VideoVault

Telephone: Glossop (STD 04574) 66555.
140 High St. West, Glossop, Derbyshire, England.

FREE GAME WORTH
£5.95 WITH
EACH SPECTRUM
REPAIR.

OUT
OF THE
BLUE

**THE
RANDOM ADVENTURE
FOR THE 48K SPECTRUM**

Send £5.50 to INDIGO
51 Carmel Road South, Darlington
County Durham DL3 8DU

We can't show you all the views
of the Lords of Midnight,
there are 32,000!



We've invented a new programming technique called Landscaping, creating a completely new kind of game, the EPIC.

You'll get the chance to shape the characters into your own fantasy novel by playing out the different rôles in the ever changing world of Midnight.

BEYOND



To . . . Beyond Competition House,
Farndon Road, Market Harborough,
Leicestershire LE19 9NR.

Please send me . . .

QTY Total Price

THE LORDS OF MIDNIGHT £9.95

PSYTRON £7.95

SPELLBOUND £5.95

BEYOND ORDER HOTLINE 0858 34567 GRAND
BEYOND ENQUIRY HOTLINE 01-251 8496 TOTAL

all prices include p&tp

BEYOND
CHALLENGING SOFTWARE



I enclose a Postal Order/Cheque payable
to Beyond, or charge my credit card.

Card Number

Access/Visa (Delete as necessary)

NAME

ADDRESS

POST CODE

SIGNATURE

Please rush me details of the "ENTER the BEYOND"
Software Club . . .

☐

GET LOST!

EMERALD ISLE

LLEVEL 9 have done it again. Their new adventure, **Emerald Isle**, is superb. Jam-pack full of problems, pictures, clues and scenarios, Emerald Isle is a definite winner.

You begin the adventure hanging from a parachute, which is the first of a series of tricks played on the experienced adventurer. Surely you have been here before, some other time, some other game? Escape from the parachute leads to a maze. Again, experienced adventurers will cry "Easy", but a little too soon. You see, there is no way of mapping this maze, objects dropped within it are lost forever, and your compass is no use at all.

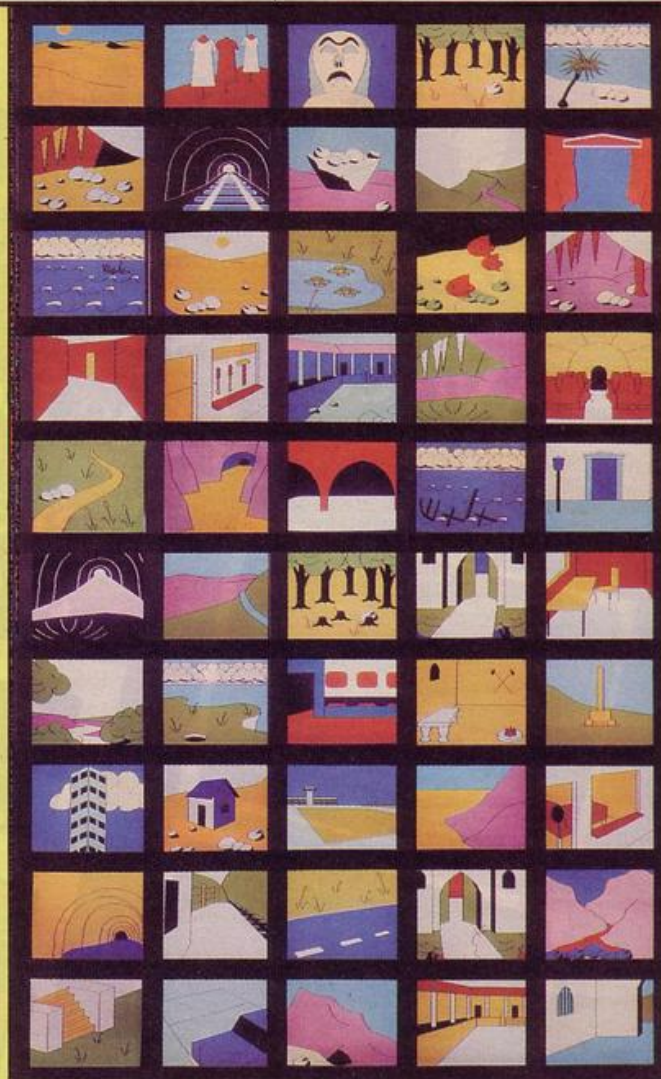
The game appears to adapt itself to your skill

level. For example, everyone who plays adventures frequently knows that you do not go into the dark without a light. Beginners will stumble blindly through, and find themselves on the right track again.

The scope of the game is enormous. Leave the jungle, cross the city, take a train journey and then venture through the mountain and you could still only have scored 30/1000.

Emerald Isle is a brilliant adventure, buy it at once. Produced for the 48K Spectrum by Level 9 Computing, 229 Hughenden Road, High Wycombe, Bucks.

Price: £9.95
Game type: Adventure
Rating: 90%



STAY KOOL

WHAT HAS happened to Bug Byte? There was a time when you could rely on them for excellent games. Their latest one, **Stay Kool**, is no fun at all. In the face of the excellent new releases on the market this month it is worse than no fun, it is pathetic.

In another lame take off of the **Jet Set Willy** theme you move from room to room collecting

objects. The problems are ingenious, the rooms are nicely named, the graphics are not bad, but the idea is stale, stale, stale.

Stay Kool is produced for the 48K Spectrum by Bug Byte, Mulberry House, Canning Place, Liverpool.

Price: £6.95
Game type: Arcade
Rating: 35%



WIZARD'S LAIR

ONCE UPON a time, well over a year ago, a company called Ultimate brought out two games called **Atic Atac** and **Sabre Wulf** for the Spectrum. Now Bubble Bus have produced **Wizard's Lair**, which bears a very very strong resemblance to both games. Atic Atac meets Sabre Wulf.

It is great fun. The graphics are excellent. Move from room to room on a variety of levels, cross the river which flows through the rooms and caverns, avoid the knight and the grim reaper, avoid or zap the energy sapping bad-dies, collect all objects you find, collect the four parts of the Great Lion, find the exit, and es-

cape. Phew.

Bubble Bus cannot claim originality. What they can claim is that



they have produced a very good game. It is fast-moving, it is difficult, there is lots to see and lots to do.

Produced for the 48K Spectrum by Bubble Bus.

Price: £6.99
Game type: Arcade
Rating: 72%

EVERYONE'S A WALLY

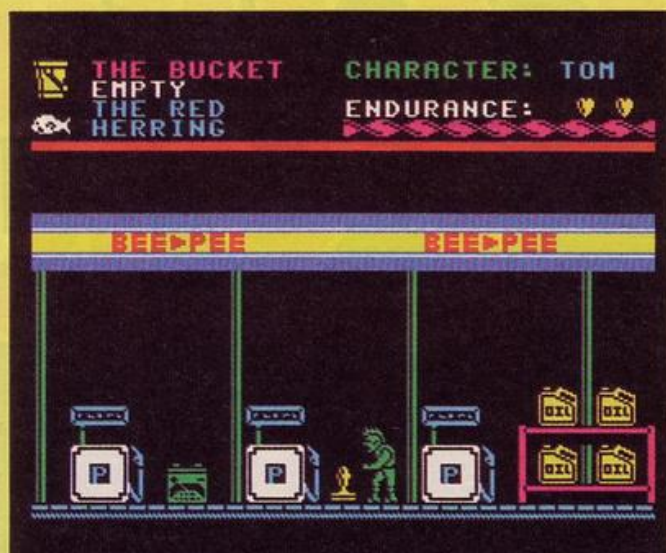
THE WALLY series goes from strength to strength. The follow up to the excellent **Pyjamarama**, **Everyone's a Wally** is even better, and even more difficult.

You move Wally, or Tom or Dick or Harry or Wilma around the screen, trying to complete their appointed tasks. There are roads and shops and houses and building sites, all drawn in wonderful detail, for you to visit. All these locations seem to be crammed full of objects, and doubtless the majority of these objects has a use, if you could only work out what it is.

The trouble is, the

other characters will not stay still. For example, you may decide that the patch beneath the docks is the one way to stop the leak in the fountain. So you make your way to the docks, avoid the shark, and find that the patch is gone, and a massive book is in its place. It strikes you that you just saw Wilma leaving, so you track down Wilma, swap from Wally to Wilma, and find that she is not carrying the patch. However, when, by chance you walk into the house, there is the patch, where Wilma left it, but Harry is now carrying it.

As usual in the Wally games, everything is



against you. Inanimate (or usually inanimate) objects, your friends, even the shuttle service across town is not what it used to be.

Everyone's a Wally is produced for the 48K

Spectrum by Mikrogen, 44 The Broadway, Bracknell, Berkshire.

Price: £6.95
Game type: Arcade adventure
Rating: 88%

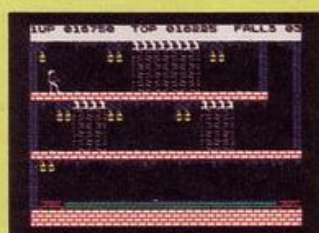
BRUCE LEE

FACE THE NINJA! Battle against the Green yamo! Avoid exploding t'sung-lin! Who are you? Why, **Bruce Lee**, of course.

The moves that you can make in this game are spectacular. Leap over your opponents' head. Take a running jump and crash both feet into their chin. Deliver a repeated series of punches and watch

them crumple to the floor and vanish.

Your aim is to claim infinite wealth and the secret of immortality from the wizard who dwells within a fortress. On each screen you must hit either all, or a select few of the lanterns you can see, to reveal the exit. Each screen is a little harder than the previous one, and you must be prepared for bushes to explode beneath your feet, particle lifts to carry you into the air, or force



fields to blast you to ashes.

The good news is that these problems are likely to affect your slow moving enemies even more than they do you. The bad news is that, on some of the later screens, this makes next

to no difference.

Bruce Lee is a very polished version of the ladders-and-levels type of game. The movements, although not the sound effects, do manage to capture, to some extent, the excitement of Lee's films. Great.

Bruce Lee is distributed by US Gold, Unit 24, Tipton Trading Est, Tipton, West Mids.

Price: £7.95
Game type: Arcade
Rating: 75%

SOFT AID

THERE ARE some excellent games available on the **Soft Aid** cassette, and it is worth paying £4.99 for any of

the ten games on offer when you know that your money will go to help Ethiopia.

The ten games included in the spectrum Soft-Aid cassette are: **Spellbound**, **Starbike**, **Kokotini Wilf**, **The Pyramid**, **Horace goes Skiing**, **Gilligan's Gold**, **Ant Attack**, **3D Tank Duel**, **Jack & The Beanstalk** and **Sorcery**.



One or two dud games in that list, but they are more than counterbalanced by the good games. **The Pyramid** from Fantasy, for example, is a first-class arcade game which is no longer on sale.

But it is wrong to single out any of these games out for particular praise. They have all been top games, each one of them successful in their own right. Whether you have seen them before and want to

replay them, or whether you have only just bought a computer and have so far missed these games it is worth buying Soft Aid.

This cassette probably represents the best value in the market at the moment. It deserves to go straight into the charts at number one.

All money raised by Soft Aid will go to the Bob Geldof Band-Aid Ethiopian Appeal Fund.

Price: £4.99

COMBAT LYNX

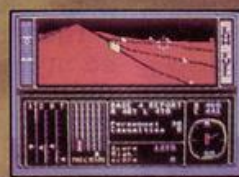
From DURELL
(Technical Support from
Westland Helicopters)



SPECTRUM 48k – COMMODORE 64 – BBC – AMSTRAD (soon)



SPECTRUM



COMMODORE 64

DURELL sales dept.,
Castle Lodge, Castle Green, Taunton, Somerset, TA1 4AB

SAM STOAT

GREMLIN Graphics' games. You either love them or you hate them. Nobody at *Sinclair Programs* loves them, but we may be unusual.

Sam Stoat Safe Breaker resembles **Monty in Innocent** in many ways and, if you liked one, you are likely to enjoy the other.

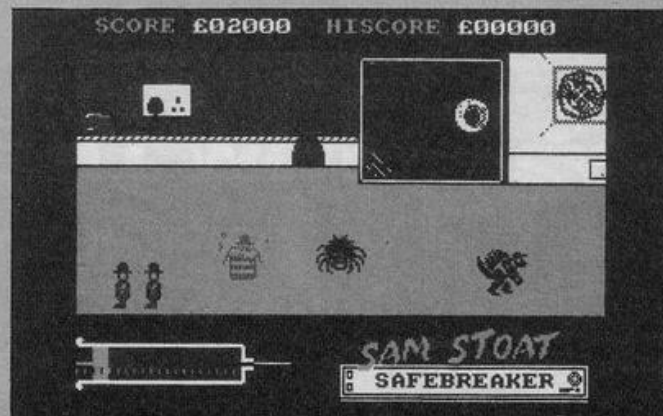
Sam Stoat is trying to break into a series of houses, to rob the owners of all their valuables. To do so, he must find the bomb in each house and take it to the safe, find the match in each house and take it to the safe, break into the safe,

steal the diamond which it contains and then escape.

Each of the screens is littered with the bizarre wandering enemies in which Gremlin specialises. Contact with any of these enemies will sap your energy.

The graphics for each screen are well drawn. In one room Sam must creep past the owner of the house or, at least, past his big toe, which is sticking out of the bath. Movement between series of rooms is done through mouseholes.

As usual, though, it is the flickering graphics



which make this game an eye-straining problem to play. As the enemies move around, the background behind them takes on their colours. With six characters zooming around a room at once, you have to have good eye sight, a well-adjusted TV set,

and a strong stomach to be able to watch the game.

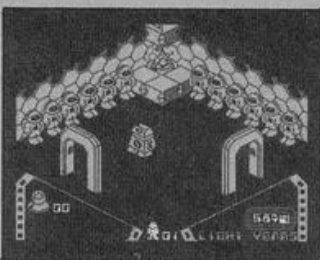
Sam Stoat is produced for the 48K Spectrum by Gremlin Graphics, 10 Carver Street, Sheffield.

Price: £6.95
Game type: Arcade
Rating: 35%

ALIEN 8

ALIEN 8 is, in every way, the follow up to **Knight Lore**. If you have played Knight Lore, you will know, almost immediately, exactly what is happening in **Alien 8**, and what to do.

The story line is complex, and well-explained. Your main aim is to move your robot around a space ship, col-



lect various objects which have been stored in a variety of inaccessible places, and carry them to cauldrons which are waiting to receive them.

The graphics are like those in Knight Lore, perfectly drawn, fully three-dimensional rooms although, in Alien 8, they seem to have been constructed from egg boxes, and broken egg

shells.

Movement is tricky, for moving three-dimensionally on a two-dimensional screen is a little difficult to grasp. Still, Ultimate make it as easy for you as they can, with a variety of movement options.

If you have never played Knight Lore, buy that before you buy Alien 8, for it is slightly easier. Alien 8 requires absolute precision and split second timing. As the clockwork mice chase you, you cannot afford to stop to think half way across a room as the ground gives way underneath your feet.

Although Alien 8 has obvious similarities with Knight Lore, it is a completely different and much more difficult game.

Alien 8 is produced by Ultimate, The Green, Ashby de la Zouch, Leicestershire.

Price: £9.95
Game type: Arcade
adventure
Rating: 93%

DRAGONTORC

AT LAST! The sequel to **Avalon**, the adventure movie, is on sale, and it is better, far better than Avalon.

Dragontorc sets you, as Maroc the wizard, to defeat Morag, the witch queen of the north. You must move your astral projection through a series of three dimensional rooms, find and employ a series of spells, map a route, utilise objects which you find on the way, defeat enemies and make friends.

Make friends? Yes, because each of the characters in the game reacts to you depending on their original characteristics and how you act towards them or others of their race. Skeletons are empty headed, and what brain remains to them tends to be full of death, so it probably saves time to kill them, rather than attempt friendship.

Elves, though, are friendly little chaps, if a trifle shy. If you avoid killing any of them, either on purpose or by mistake, and if you

try out a spot of trading with them, they will become friendly, and willing to help you in any way that they can.

A number of nice touches add to the computer movie effect of Dragon torc. The sound effects let you know what is happening, as far as is possible with the Spectrum. You can hear skeletons thudding around the room, or the elves skipping in. There are some surprises waiting for you too. Wait until you try unlocking one of the boxes. Yeeuch. Or, until you search the wrong skeleton. Aaagh.

Dragontorc is an excellent game. It makes a good film as well. Catch it on your local Spectrum. Produced by Hewson Consultants 60a St Mary's Street, Wallingford, Oxon.

Price: £7.95
Game type: Arcade
adventure
Rating: 85%



LOOK!

NOW THERE ARE HI-RES PROGRAMS FOR THE 16K ZX-81

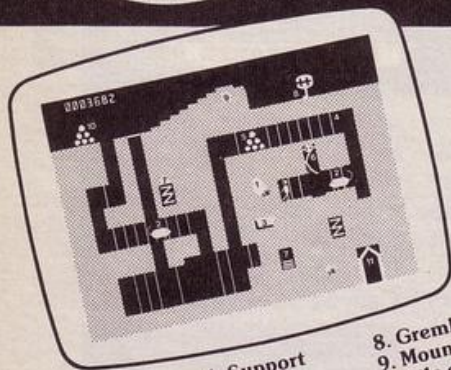
3

FORTY NINER

In 1849 the Great American Gold Rush started. Almost everyone who could sold up everything and dashed to the west coast to look for this precious metal – including you!

You must excavate this precious metal – but can you survive the giant rats and that vicious Gremlin which will come to infest your mine? Can you trick the snakes into leaving their comfortable nests and destroy the rats for you? Can you keep the Gremlin at bay?

Riches await you – but so do the hazards!



1. Nuggets
2. Giant Rats
3. Burrowing Rat
4. Support
5. Cave In
6. Snake
7. Snake Nest
8. Gremlin
9. Mound
10. Pile of Earth
11. Cave

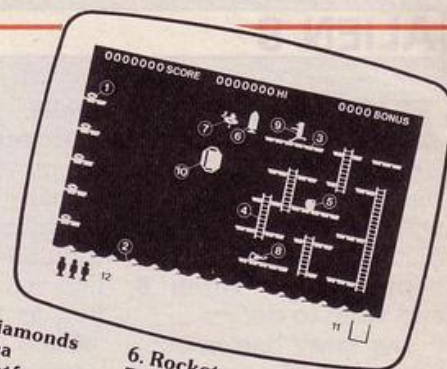
ROCKET MAN

Get rich quick by collecting Diamonds that are simply lying there waiting for you! Oh... I forgot to mention that there are one or two problems!

There is an expanse of shark infested water between you and the Diamonds and a strange breed of Bubble that seems hell bent on getting you in it! Somehow you must cross it....

You have a Rocket Pack to help you (a Vulture on higher levels) but you must rush around the platforms and ladders collecting cans of fuel (legs of lamb with the Vulture) and cursing that weird Bubble. Once you have enough fuel then it's Chocks Away!

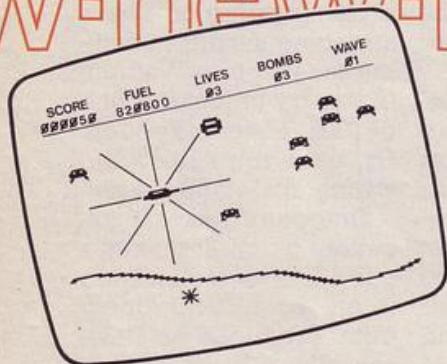
Oh... but don't run out of fuel on the way – otherwise it's... SPLASH!



1. Diamonds
2. Sea
3. Platforms
4. Ladders
5. Fuel Cans
6. Rocket
7. Vulture
8. Leg of Lamb
9. Player
10. Bubloid
11. Fuel Gauge
12. Men remaining

Z-XTRICATOR

A long time ago, in a galaxy far, far, away a terrible war took place between two hostile races. Any prisoners taken could not expect to live very long in the hands of their captors. Their only hope lay with a group of valiant warriors – the XTRICATORS – whose task it was to rescue fellow beings from the alien planet's surface. You are about to take on the role of such a warrior....



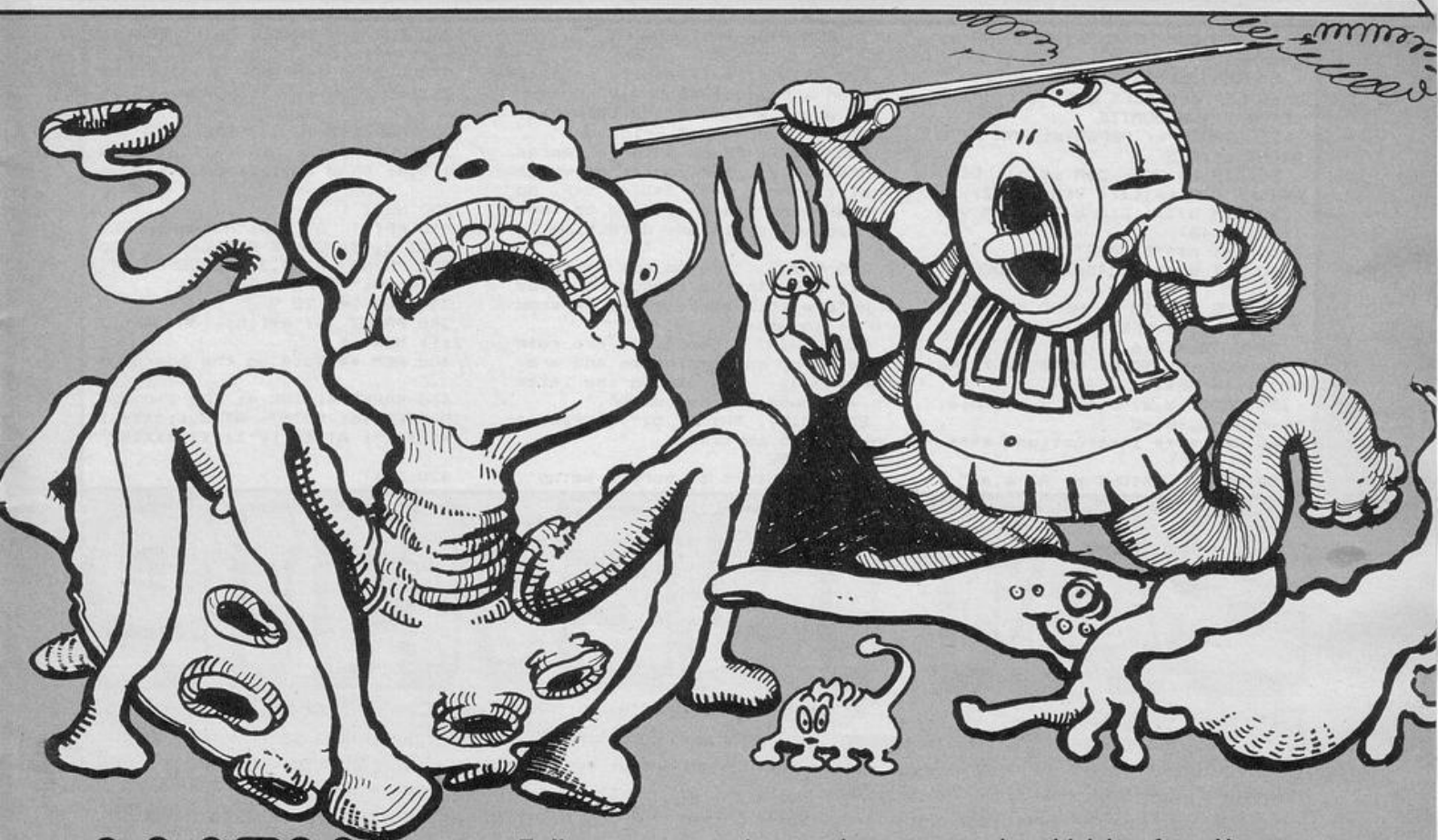
Please send me:

	QTY	TOTAL AMOUNT
FORTY NINER £5.95		
ROCKET MAN £5.95		
Z-XTRICATOR £5.95		
TOTAL		

Available from all good computer shops or send cheque/P.O. for £5.95 (inc. P&P) to:

Software Farm,
FREEPOST (No stamp required) (BS3658),
BS8 2YY.

Software Farm, 155 Whiteladies Road, Clifton, Bristol BS8 2RF.
Telephone (0272) 731411. Telex 444742 AFMADV G



ALIEN 10

Aliens are appearing on the screen and multiplying fast. You can defend yourself by pressing O=left, P=right and Q=fire. Beware, if 10 aliens are on the screen at the same time you will be eliminated. Alien 10 has five levels of difficulty and has been written for the Spectrum by Adam Parker, Wolverhampton.

All underlined characters are to be entered in graphics mode.

u

```

6 PRINT AT 12,12; FLASH 1;"A
LEIN 10"
7 PAUSE 0
10 GO SUB 1000
20 GO SUB 1200
30 REM screen setup
35 BORDER 0
40 CLS : PRINT AT 20,2; PAPER
4;"
"
45 PRINT AT 21,2; PAPER 4;"
"
50 FOR s=1 TO 20
60 PLOT RND *254, RND *120+40

70 NEXT s
80 LET f1=0: LET l=15
90 LET z=0: LET hits=0
100 REM aliens
110 POKE 23672,0
120 LET t= PEEK 23672
130 IF t >= 80-(a*6) THEN PRIN
T AT RND *17, RND *28+2; INK 2
;"A": LET z=z+1
140 IF z=10 THEN GO TO 400
150 PRINT AT 21,21;z
160 IF t >= 80-(a*6) THEN POKE
23672,0
200 REM lazer base
205 LET l=1+(INKEY$="p")-(IN
KEY$="o")
210 LET l=1+(l=0)-(l=30)
220 PRINT AT 19,1;" L ": PAUSE
4
230 IF INKEY$="q" THEN GO TO
250
240 IF INKEY$ <> "q" THEN GO
TO 120
250 FOR c=18 TO 0 STEP -1
260 PRINT AT c,1+1;"D": PAUSE
2
270 PRINT AT c,1+1;" "

```

```

275 IF ATTR (c-1,1+1)=58 THEN
GO TO 300
280 NEXT c
290 GO TO 130
300 REM missile hit
310 BEEP .1,z*2
320 LET z=z-1: PRINT AT 21,21;
z
330 PRINT AT c-1,1+1; FLASH 1;
"E": PAUSE 50
340 PRINT AT c-1,1+1;" "
350 LET hits=hits+1
360 PRINT AT 21,3;"HITS=";hits

370 GO TO 130
400 PRINT AT 4,8; INK 0; FLASH
1;"YOU'VE BEEN ELIMINATED"
405 FOR i=30 TO -30 STEP -1: BE
EP .01,i: NEXT i
410 PRINT AT 12,3;"Do you want
another game y/n"
420 IF INKEY$="y" THEN GO TO
20
430 IF INKEY$="n" THEN PRINT
"
GOODBYE
"
440 GO TO 420
1000 FOR n=0 TO 7
1010 READ a: POKE USR "a"+n,a

1020 NEXT n
1030 DATA 129,126,219,126,60,60,
90,129
1040 FOR n=0 TO 7
1050 READ l: POKE USR "l"+n,l

1060 NEXT n
1070 DATA 24,24,24,24,60,126,255
,90
1080 FOR n=0 TO 7
1090 READ d: POKE USR "d"+n,d

1100 NEXT n

```

```

1110 DATA 16,16,16,16,16,16,58,4
0
1120 FOR n=0 TO 7
1130 READ e: POKE USR "e"+n,e

1140 NEXT n
1150 DATA 137,74,52,204,51,44,82
,145
1160 RETURN
1200 REM instructions
1210 PRINT AT 3,3;"YOU HAVE TO
DEFEND YOURSELF AGAINST THE A
TTACKING ALEINS THEY WILL RE-
ENERGISE OUT OF HYPERSPASE A
BOVE THE GROUND IT'S YOUR JO
B TO BLAST THE ALEINS OUT O
F THE UNIVERSE USING YOU LAS
ER BASE GOOD LUCK!"

1220 PRINT AT 16,3;"PRESS ANY K
EY TO CONTINUE"
1230 IF INKEY$=" " THEN GO TO
1250
1240 PAUSE 0
1250 CLS : PRINT AT 3,1;"YOU MO
VE YOU BASE WITH THE KEYS
O = LEFT
P = RIGHT
Q = FIRE

IF Y
OU ALLOW 10 ALEINS TO BE PRES
ENT ON THE SCREEN AT ONCE
YOU WILL BE ELIMINATED"
1260 PRINT AT 13,2;"SELECT SKIL
L LEVEL FROM 1 TO 5"
1270 PRINT AT 15,2;"1=EASY 5=I
MPOSSABLE!!"
1280 LET a$= INKEY$
1290 INPUT "SKILL LEVEL= ";a$
1300 IF a$<"1" OR a$>"5" THEN
GO TO 1280
1310 LET a= VAL a$
1320 RETURN

```



```

10 REM COMPUTER BATTLESHIPS by
  A. Pratt
50 REM Initialise variables
60 LET a=0: LET b=1: LET d=2:
LET e=7: RANDOMIZE
70 BORDER e: PAPER e: INK a: B
RIGHT a: CLS
80 DIM b$(20): DIM w$(b): DIM
n$(6): DIM i$(17): DIM j$(32)
90 DIM h(3): DIM g(3): DIM y(8
): DIM x(8)
100 LET n$="BDDFFF"
110 LET b$="0123456789ABCDEFGHI
J"
120 FOR i=b TO 3: READ h(i): LE
T g(i)=h(i): NEXT i
130 DATA 4,6,6
140 FOR i=b TO 8: READ y(i): RE
AD x(i): NEXT i
150 DATA -b,a,-b,b,a,b,b,b,a,
b,-b,a,-b,-b,-b
160 REM **** Instructions ****
180 PRINT BRIGHT b; AT a,a;"

```

```

COMPUTER BATTLESHIPS      "
190 PRINT "Battleships is play
ed on a board of 10 by 10 squares
on which are sited 1 Battleship,
2 Destroyers and 3 Frigates."
200 PRINT "Each ship is repres
ented by a horizontal or verti
cal line of 4*B, 3*D or 2*F. No
two ships are allowed to touc
h each other in any direction."
210 PRINT "The object is to lo
cate and sink the computers ships
before it sinks yours. A scor
e of 16 wins."
220 PRINT "Locations are refe
red to by co-ordinates and are
chosen by pressing the lette
r followed by the number."
230 PRINT BRIGHT b;" Press a
ny key to continue "
240 PAUSE a
250 REM Start of screen setup

```

```

260 FOR i=b TO 21: PRINT AT i,
a;j$: NEXT i
270 PLOT d,34: DRAW a,131: DRAW
251,a: DRAW a,-131: DRAW -251,a
280 FOR i=5 TO 133 STEP 128
290 PLOT i,37: DRAW a,125: DRAW
117,a: DRAW a,-125: DRAW -117,a
300 NEXT i
310 PRINT AT d,b;"HUMAN SCORE:
"; AT d,17;"COMPS SCORE:"
320 PRINT AT 4,3;"ABCDEFGHIJ";
AT 4,19;"ABCDEFGHIJ"
330 FOR i=a TO 9
340 PRINT AT 6+i,b;i; AT 6+i,1
7;i: NEXT i
400 REM ** Sets up the boards *
410 PAPER 4: INK 4: FOR i=d TO
18 STEP 16: PRINT AT 5,i;"XXXXX
XXXXXXX"; AT 16,i;"XXXXXXXXXXXXX"
420 NEXT i

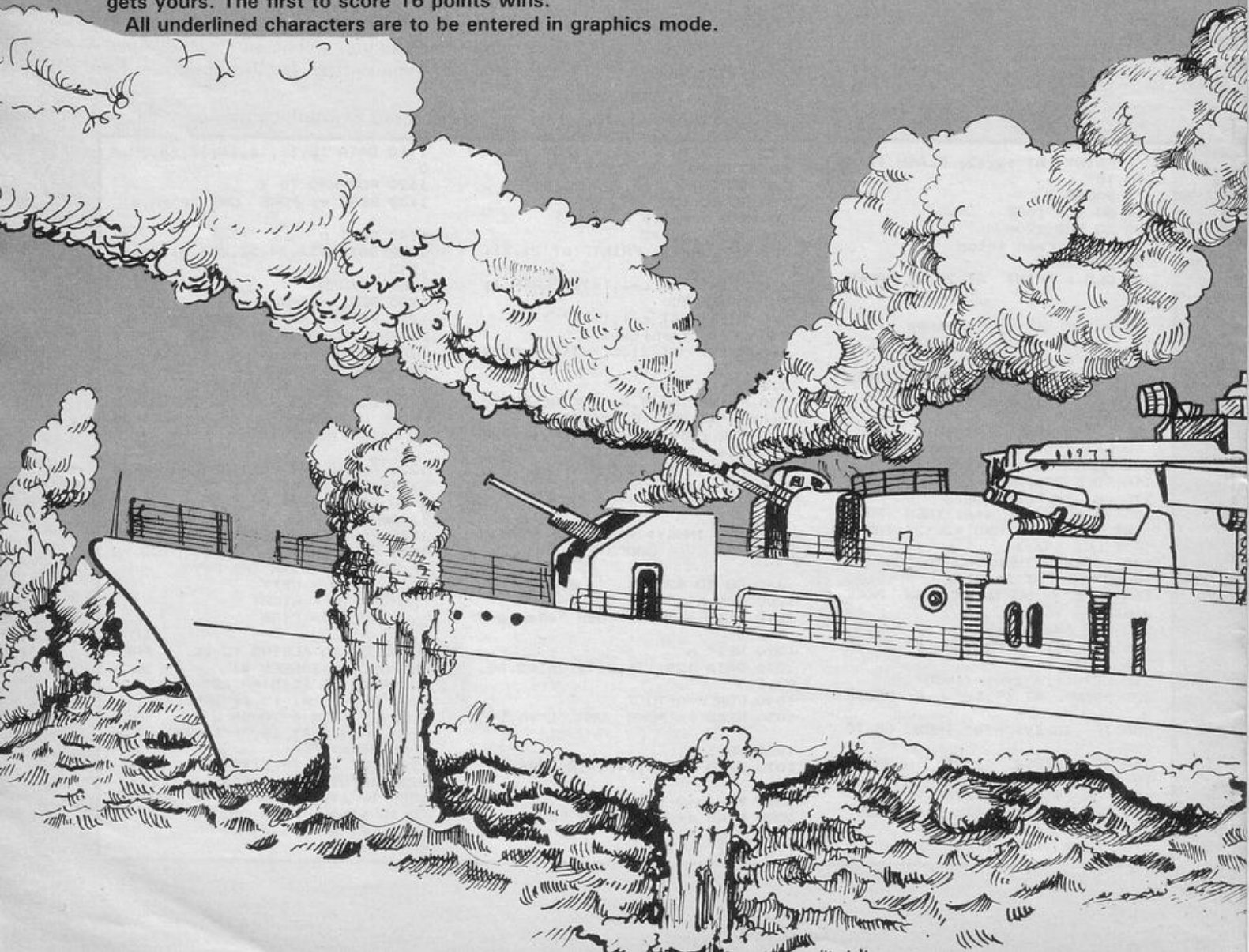
```

BATTLESHIP

Pit your wits against the computer in Battleship written by A. Pratt from Chelmsford for the Spectrum. Two boards are displayed on screen. Each contains a set of 10 by 10 square boxes each with a unique combination of numbers and letters. Play commences when you position your ships on your board and continues when you select the co-ordinates you think will uncover the computer's ships.

Neither you nor the computer can see the other's fleet, but you must locate and destroy its ships before it gets yours. The first to score 16 points wins.

All underlined characters are to be entered in graphics mode.




```

430 FOR i=6 TO 15
440 PRINT AT i,d;"X"; AT i,13;
"X"; AT i,18;"X"; AT i,29;"X"
450 FOR j=3 TO 12: LET k=(i+j)/
d
460 PRINT PAPER e; BRIGHT ((k-
INT (k))*d); AT i,j;" "; AT i,j
+16;" "; NEXT j
470 NEXT i: PAPER e; INK a
600 REM *** Enter the ships ***

```

```

620 BRIGHT b
630 GO SUB 4000: GO SUB 5000
640 LET dir=a: LET max=a: LET r
last=a: LET clast=a: LET h=a: LE
T g=a: GO SUB 990
650 IF RND <.5 THEN GO TO 830

800 REM *** Main game loop ***

810 GO SUB 1000: REM Human move

820 IF h=16 THEN GO SUB 8000:

```

```

PRINT AT 19,a;"Human won ";h;"
to ";g: STOP
830 GO SUB 2000: REM Comps move

840 IF g=16 THEN GO SUB 8000:
PRINT AT 19,a;"Computer won ";g
;" to ";h: STOP
850 GO TO 810
980 REM **** Score update ****

```

```

990 PRINT AT d,13;h; AT d,29;g
: RETURN
1000 REM **** Humans move ****

```

```

1010 LET j=6-b*(g(b)<3)-b*(g(d)<
5)-b*(g(d)<3)-b*(g(3)<5)-b*(g(3)
<4)
1020 IF j<d THEN LET j=d
1030 GO SUB 8000: LET pos=b
1050 PRINT AT 18,a;"HUMAN has "
;j;" moves. Enter co-ords"
1060 FOR k=b TO j: LET r=a: LET
c=a: LET pos=pos+4
1090 PRINT AT 21,b;"Move Number
";k; FLASH b; AT 21,16;"?"; PR
INT " ";
1100 GO SUB 7000: LET c=c+16
1160 PRINT AT 19,pos;b$(c-8);b$
(r-5); AT 21,a;j$
1170 IF ATTR (r,c)=87 THEN PRI
NT INK d; AT 20,pos;"Mad": GO T
O 1290

```

```

1180 LET w$= SCREEN$ (r,c)
1200 IF w$=" " THEN GO SUB 6500
: GO TO 1270
1210 IF w$="B" THEN LET g(b)=g(
b)-b
1220 IF w$="D" THEN LET g(d)=g(
d)-b
1230 IF w$="F" THEN LET g(3)=g(
3)-b
1240 PRINT PAPER d; INK e; FLAS
H b; AT r,c;w$: PRINT AT 20,pos
;"*";w$;"*"
1250 GO SUB 6000
1260 LET h=h+b: GO SUB 990
1270 PRINT PAPER d; INK e; BRIG
HT b; AT r,c;w$:
1280 IF h=16 THEN RETURN
1290 NEXT k
1300 RETURN
1999 REM
2000 REM *** Computer's move ***

```

```

2010 LET j=6-b*(h(b)<3)-b*(h(d)<
5)-b*(h(d)<3)-b*(h(3)<5)-b*(h(3)
<4)
2020 IF j<d THEN LET j=d
2030 GO SUB 8000: LET pos=b
2040 PRINT AT 18,a;"COMPUTER ha
s ";j;" moves."
2050 LET r=rlast: LET c=clast
2060 FOR k=b TO j: LET pos=pos+4

```

```

2070 IF dir>a AND max>a THEN GO
TO 2500
2100 REM **** Random choice ****

```

```

2110 LET r= INT ( RND *10)+6: LE
T c= INT ( RND *10)+3
2120 IF ATTR (r,c)=87 OR ATTR
(r,c)=82 THEN GO TO 2110
2150 REM Isolated square check

```

```

2160 LET v=a: FOR i=b TO 7 STEP
d
2170 LET attr= ATTR (r+y(i),c+x(
i))

```

```

2180 IF attr=87 OR attr=82 OR at
tr=36 THEN LET v=v+.25
2190 NEXT i: IF v=b THEN GO TO
2110

```

```

2200 REM ** Ship close check **
2210 LET v=a: FOR i=b TO 8
2220 IF ATTR (r+y(i),c+x(i))=87
THEN LET v=b

```

```

2230 NEXT i: IF v=b THEN GO TO
2110

```

```

2300 GO SUB 3000: LET w$= SCREEN
$ (r,c)

```

```

2310 IF w$=" " THEN GO SUB 6500
: PRINT PAPER d; INK d; BRIGHT
b; AT r,c;"X": GO TO 2410

```

```

2320 IF w$="B" THEN LET h(b)=h(
b)-b: LET max=3

```

```

2330 IF w$="D" THEN LET h(d)=h(
d)-b: LET max=d

```

```

2340 IF w$="F" THEN LET h(3)=h(
3)-b: LET max=b

```

```

2350 PRINT PAPER d; INK e; FLAS
H b; AT r,c;w$: PRINT AT 20,pos
;"*";w$;"*"

```

```

2360 GO SUB 6000

```

```

2370 LET g=g+b: GO SUB 990

```

```

2380 LET dir=b+d*( RND <.5)

```

```

2390 PRINT PAPER d; INK e; BRIG
HT b; AT r,c;"*"

```

```

2400 IF g=16 THEN RETURN

```

```

2410 NEXT k

```

```

2420 LET rlast=r: LET clast=c

```

```

2430 PAUSE e*e

```

```

2490 RETURN

```

```

2500 REM *** Search routine ***

```

```

2600 LET rt=r+y(dir): LET ct=c+x
(dir)

```

```

2610 IF ATTR (rt,ct)=87 THEN L
ET r=rt: LET c=ct: GO TO 2600

```

```

2620 IF SCREEN$ (rt,ct)=" " THE
N LET r1=rt: LET c1=ct: LET dir
=dir+4-6*(dir=5)-10*(dir=7): GO
TO 2800

```

```

2630 IF ATTR (rt,ct)=82 OR ATT
R (rt,ct)=36 THEN LET dir=dir+4
-6*(dir=5)-10*(dir=7): GO TO 260
0

```

```

2640 IF SCREEN$ (rt,ct) <> " "
THEN LET r1=rt: LET r=rt: LET c
1=ct: LET c=ct: GO TO 2800

```

```

2800 REM *** Successive hits ***

```

```

2810 GO SUB 3000: LET w$= SCREEN
$ (r1,c1)

```

```

2820 IF w$=" " THEN GO SUB 6500
: PRINT PAPER d; INK d; BRIGHT
b; AT r1,c1;"X": GO TO 2400

```

```

2830 IF w$="B" THEN LET h(b)=h(
b)-b

```

```

2840 IF w$="D" THEN LET h(d)=h(
d)-b

```

```

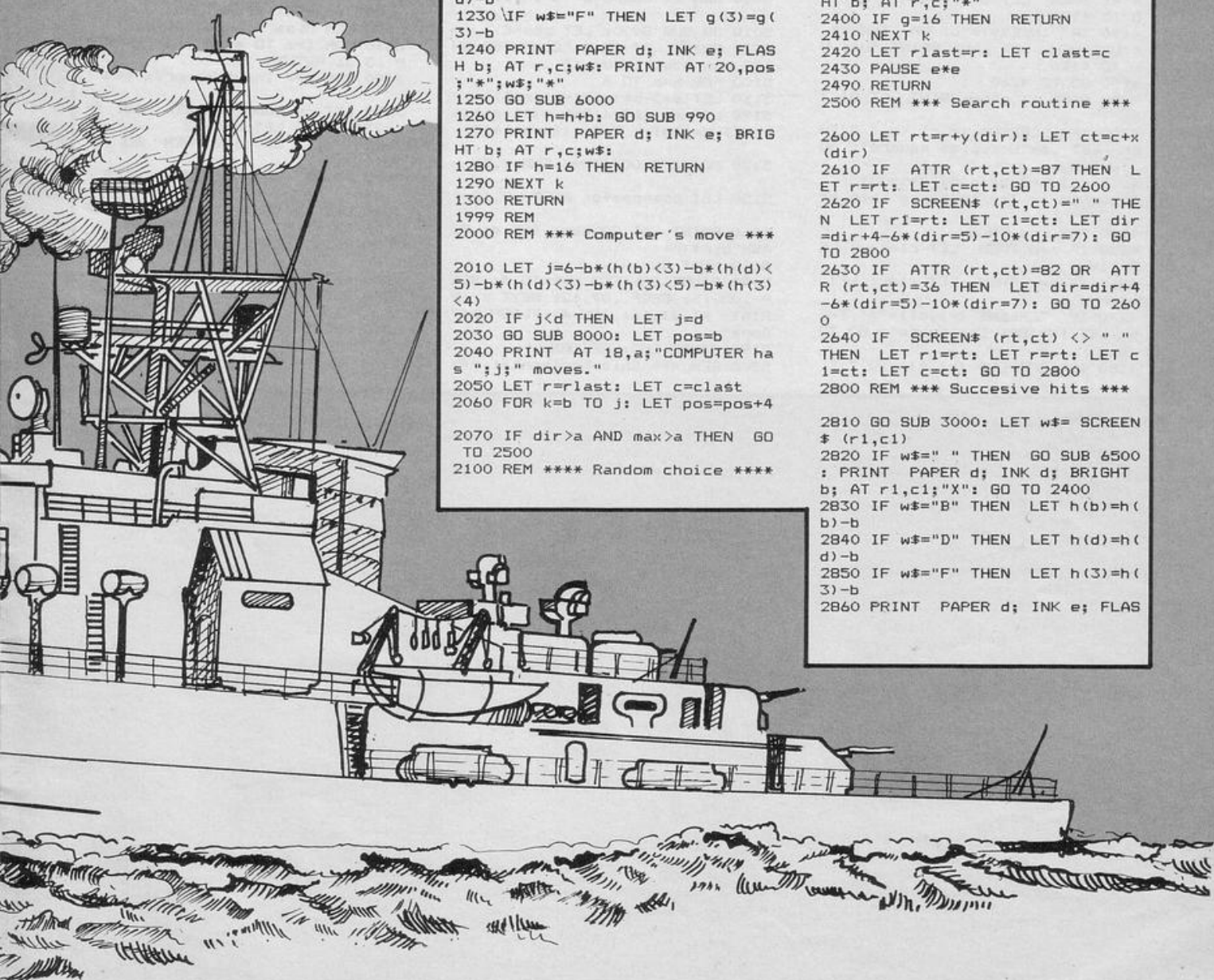
2850 IF w$="F" THEN LET h(3)=h(
3)-b

```

```

2860 PRINT PAPER d; INK e; FLAS

```




```

H b; AT r1,c1;w$: PRINT AT 20,p
os;"*";w$;"*"
2870 GO SUB 6000
2880 LET g=g+b: LET max=max-b: G
O SUB 990
2890 IF max=a THEN LET dir=a
2900 PRINT PAPER d; INK e; BRIG
HT b; AT r1,c1;"*"
2920 GO TO 2400
3000 PRINT AT 19,pos;b$(c+8);b$
(r-5): PAUSE 30: RETURN
4000 REM **** Human's Ships ****

4010 GO SUB 8000: LET pos=8: LET
Bad=4700
4020 PRINT AT 18,a;"HUMAN SHIPS
: Enter start co-ords A-J , 0-9
, R - Right or U - Up"
4025 PRINT AT 20,9; PAPER 5;"
"
4030 FOR n=b TO 6
4035 PRINT AT 21,a;j$: PAUSE e*
e
4040 LET r=a: LET c=a: LET z=a:
LET x=5
4050 IF n=b THEN PRINT AT 21,a
;"Battleship (4 squares) ";
4060 IF n=d OR n=3 THEN PRINT
AT 21,a;"Destroyer "+STR$(n-b)
+" (3 squares) ";
4070 IF n>3 THEN PRINT AT 21,a
;"Frigate "+STR$(n-3)+" (2 squ
ares) ";
4080 PRINT AT 21,26; FLASH b;"?
";: PRINT " ";
4100 GO SUB 7000
4160 IF INKEY$="r" OR INKEY$
="R" THEN LET z=b: PRINT "R": G
O TO 4190
4170 IF INKEY$="u" OR INKEY$
="U" THEN LET z=d: PRINT "U": G
O TO 4190
4180 GO TO 4160
4190 BEEP .1,e+b: PRINT AT 21,2
6;" "
4200 IF SCREEN$(r,c) <> " " TH
EN LET i$="Occupied square": GO
TO Bad
4210 LET m=3-b*(n>b)-b*(n>3)
4230 REM ** Try to place ship **

4240 FOR x=a TO m
4250 IF z=b THEN LET c1=c+x: LE
T r1=r
4260 IF z=d THEN LET c1=c: LET
r1=r-x
4270 IF SCREEN$(r1,c1)="X" THE
N LET i$="Off the board": GO TO
Bad
4280 IF SCREEN$(r1,c1) <> " "

```

```

THEN LET i$="Overlaps another":
GO TO Bad
4290 REM ** Check neighbours **

4300 LET v=a: FOR j=-b TO b: FOR
k=-b TO b
4310 IF SCREEN$(r1+j,c1+k) <>
" " THEN IF SCREEN$(r1+j,c1+k
) <> "X" THEN LET v=b
4320 NEXT k: NEXT j
4330 IF v=b THEN LET i$="Too cl
ose": GO TO Bad
4340 NEXT x
4350 REM **** Place ship ****
4360 FOR x=a TO m
4370 IF z=b THEN LET c1=c+x: LE
T r1=r
4380 IF z=d THEN LET c1=c: LET
r1=r-x
4390 PRINT AT r1,c1; INK b;n$(n
)
4400 NEXT x
4410 LET pos=pos+d
4420 PRINT AT 20,pos; PAPER 5;
INK b;n$(n)
4430 NEXT n
4440 FOR x=1 TO 100: NEXT x: RET
URN
4700 REM Invalid routine
4710 PRINT AT 21,a; INK e; PAPE
R d;i$;" Try again ": FOR f=
1 TO 3: BEEP .05,3: BEEP .05,12:
BEEP .05,3: BEEP .05,12: NEXT f

4720 FOR f=b TO 100: NEXT f: PRI
NT AT 21,a;j$
4730 GO TO 4040
5000 REM ** Computer's Ships **

5010 GO SUB 8000: LET pos=8
5020 PRINT AT 18,a;"COMPUTER SH
IPS now positioned : "
5100 FOR n=b TO 6
5110 LET m=3-b*(n>b)-b*(n>3)
5120 LET r= INT ( RND *(11-m))+6
: LET c= INT ( RND *(11-m))+19

5130 GO TO 5200+100*( RND <.5)

5150 LET pos=pos+d: BEEP .2,12

5160 PRINT AT 20,pos; INK d; FL
ASH b;n$(n)
5170 NEXT n
5180 PAUSE 20: FOR x=b TO 4: BEE
P .05,15: BEEP .07,12: NEXT x: P
RINT AT 21,14; INK 4; FLASH b;"
Done"
5190 PAUSE 200: RETURN
5200 REM *** Ship horizontal ***

```

```

5210 LET r1=r: FOR x=a TO m: LET
c1=c+x
5220 IF SCREEN$(r1,c1) <> " "
THEN GO TO 5110
5230 GO SUB 5400: IF v THEN GO
TO 5110
5240 NEXT x
5250 FOR x=a TO m: LET k=(r+c+x)
/2
5260 PRINT AT r,c+x; INK e; BRI
GHT ((k-INT k)*d);n$(n)
5270 NEXT x
5290 GO TO 5150
5300 REM *** Ship vertical ***

5310 LET c1=c: FOR x=a TO m: LET
r1=r+x
5320 IF SCREEN$(r+x,c) <> " "
THEN GO TO 5110
5330 GO SUB 5400: IF v THEN GO
TO 5110
5340 NEXT x
5350 FOR x=a TO m: LET k=(r+c+x)
/2
5360 PRINT AT r+x,c; INK e; BRI
GHT ((k-INT k)*d);n$(n)
5370 NEXT x
5390 GO TO 5150
5400 REM Check comp's neighbours

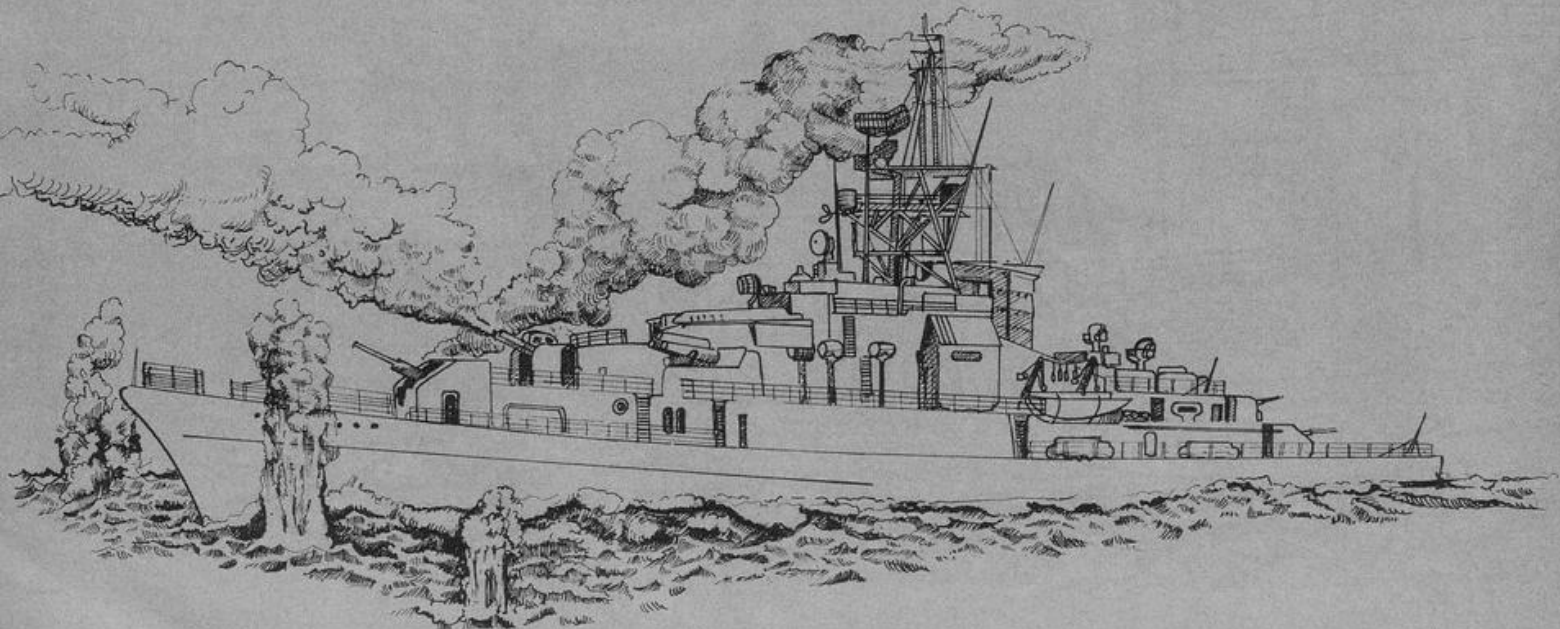
5410 LET v=a: FOR j=-b TO b: FOR
k=-b TO b
5420 IF SCREEN$(r1+j,c1+k) <>
" " THEN IF SCREEN$(r1+j,c1+k
) <> "X" THEN LET v=b
5430 NEXT k: NEXT j: RETURN
6000 REM Hit ship - sound effect

6010 FOR i=e TO a STEP -.1: BEEP
.005,i: NEXT i: RETURN
6500 REM Miss - sound effect
6510 FOR i=a TO e*e: NEXT i: BEE
P .3,3: RETURN
7000 REM *** Input co-ords ***

7010 LET c= CODE INKEY$ -62: IF
c>34 THEN LET c=c-32
7020 IF c<3 OR c>12 THEN GO TO
7010
7030 PRINT CHR$(c+62);: BEEP .
1,e-b
7040 LET r= CODE INKEY$ -42: IF
r<6 OR r>15 THEN GO TO 7040
7050 PRINT CHR$(r+42);: BEEP .
1,e
7060 RETURN
8000 REM * Clear bottom lines *

8010 PRINT AT 18,a;j$;j$;j$;j$:
RETURN
9999 SAVE "BTSHPS": STOP

```




```

5 GO SUB 9000
10 CLS
20 PRINT AT 10,8;"A A A A A A"
A A"
25 INK 0
30 PRINT AT 11,7;"(17*ig8)"
40 PRINT AT 12,7;"(17*ig8)"
50 PRINT AT 13,7;"(17*ig8)"
55 INK 7
60 PRINT AT 14,8;"B B B B B B"
B B"
70 FOR a=0 TO 9: FOR b=8 TO 22
STEP 2
80 PRINT AT a,b;"C"
90 NEXT b
100 NEXT a
105 LET score=0: LET energy=3
110 FOR a=15 TO 21: FOR b=8 TO
22 STEP 2
120 PRINT AT a,b;"C"
130 NEXT b: NEXT a
140 LET a=9: LET b=16
150 LET x=0: LET y=INT ( RND
*8)+1
155 PRINT AT 21,1: PAPER 2: IN
K 7;"SCORE=": PRINT AT 21,22: I
NK 7: PAPER 2;"ENERGY=";energy
160 PRINT AT a,b: INK 6: BRIGH
T 1;"E"
165 IF y=1 THEN LET y=8

```

```

166 IF y=2 THEN LET y=10
167 IF y=3 THEN LET y=12
168 IF y=4 THEN LET y=14
169 IF y=5 THEN LET y=16
170 IF y=6 THEN LET y=18
171 IF y=7 THEN LET y=20
172 IF y=8 THEN LET y=22
179 PRINT AT x,y: INK 2: PAPER
7: FLASH 1;"D"
180 PRINT AT x-1,y;"C"
190 LET x=x+1
200 IF x=10 THEN GO SUB 1000
210 IF INKEY$="1" OR INKEY$
="2" OR INKEY$="0" THEN GO SU
B 2000
220 GO TO 160
1000 BEEP .1,-20: LET energy=ene
rgy-1
1010 IF energy=0 THEN GO TO 800
0
1020 PRINT AT x-1,y;"C"
1030 GO TO 150
2000 IF INKEY$="1" AND b>8 THE
N LET b=b-2: PRINT AT a,b+2;"C
"
2010 IF INKEY$="2" AND b<22 TH
EN LET b=b+2: PRINT AT a,b-2;"
C"
2020 IF INKEY$="0" THEN GO SU
B 3000
2030 RETURN
3000 BEEP .01,50: IF b=y THEN B
EEP .01,5: PRINT AT x-1,y: INK

```

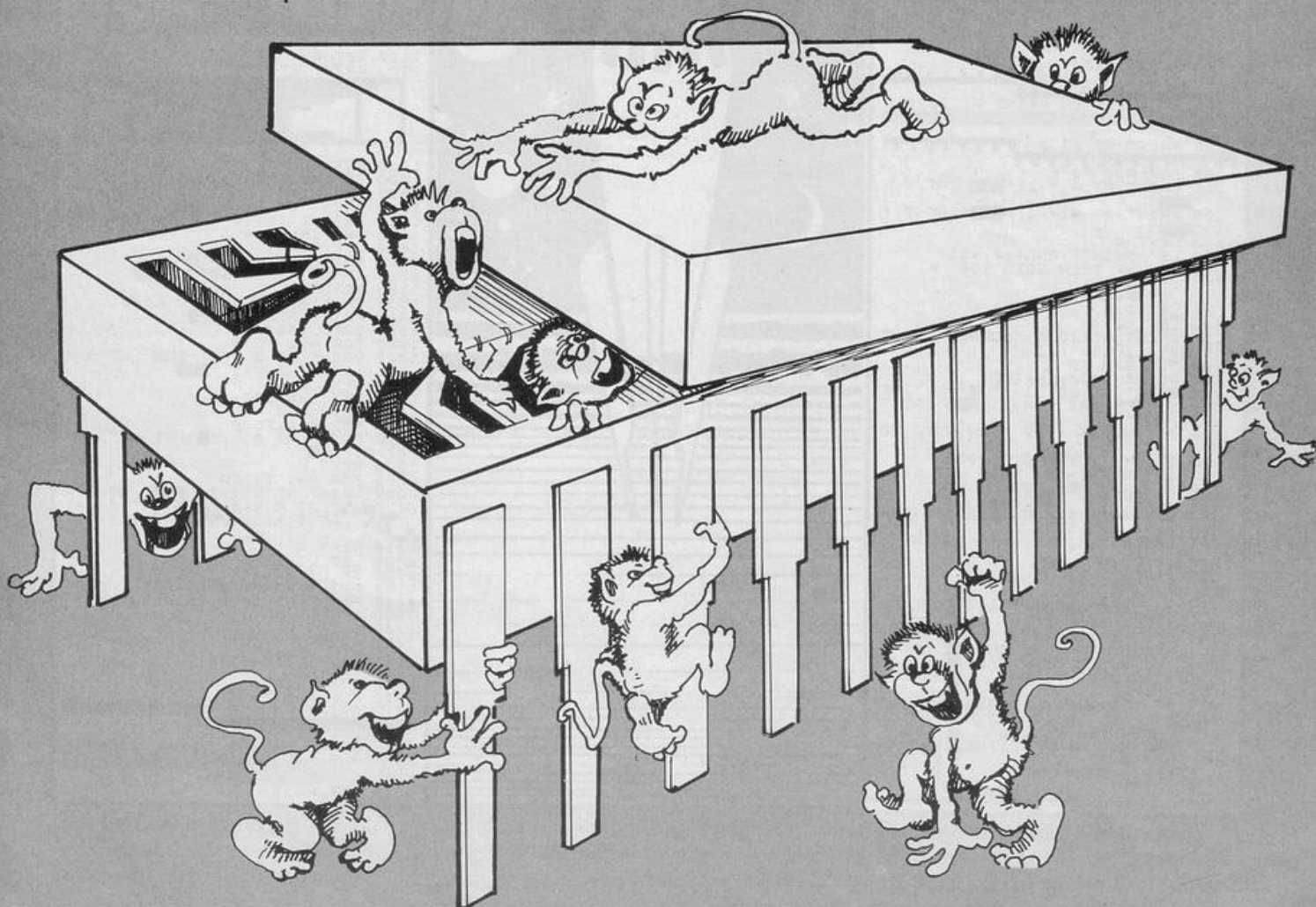
```

7;"C": LET score=score+10: LET x
=0: LET y=INT ( RND *5)+1
3005 PRINT AT 21,7: PAPER 2: IN
K 7:score
3010 RETURN
8000 CLS: PRINT AT 1,10: FLASH
1;"You scored ";score
8030 FOR a=0 TO 20: BEEP .01, RN
D *20: NEXT a: PRINT AT 10,2:
FLASH 1;"Press any key to start
again"
8040 PAUSE 0
8050 RUN 6
9000 FOR a= USR "a" TO USR "e"
+7
9010 READ b: POKE a,b
9020 NEXT a
9025 BORDER 4: PAPER 1: INK 7: C
LS
9030 DATA 24,24,24,24,255,129,12
9,129,129,129,129,255,24,24,24,2
4
9040 DATA 24,24,24,24,24,24,24,2
4,90,153,90,153,90,153,90,153
9050 DATA 90,90,219,219,219,219,
126,60
9055 PRINT AT 2,11: FLASH 1;"CH
IP RAID"
9056 PRINT AT 5,9: PAPER 7: INK
2;"By S.WHITE 1985"
9060 PRINT AT 10,5:"Press any k
ey to start"
9070 PAUSE 0
9080 RETURN

```

Gremlins are trying to get into your microchip and you must stop them. 0=fire, 1=left and 2=right. Underlined characters are to be entered in graphics mode. Chip Raid, by S White, Hampshire, was written for the Spectrum.

GREMLINS



PLANET DESTROYER

```

100 GOSUB 1200
101 LET X=0
102 LET L1=3
103 LET L2=0
104 LET T=0
105 LET X=15
106 FOR A=0 TO 5
107 PRINT AT A,0," "
110 NEXT A
115 PRINT AT 5,0," "
116 PRINT AT 11,0," "
117 FOR A=12 TO 17
118 PRINT AT A,0," "
119 NEXT A
120 GOSUB 1200
121 PRINT AT 19,0," "
122 IF W<5 THEN PRINT AT 20,0," "
123 PRINT AT 21,0," "
124 FOR A=0 TO 5
125 PRINT AT A,X-1," "
126 PRINT AT A,X-1," "
127 NEXT A
128 LET Y=INT (RND*10)+11
129 IF Y=X THEN GOTO 150
130 LET Q=0
131 LET P=5
132 LET P=6
133 LET X1=X
134 PRINT AT 10,0,"SCORE=";3;AT
135 "LIVES=";L1
136 FOR A=0 TO 2
137 GOSUB 1000+(A+100)
138 PRINT AT 20,31-(T/2)," "
139 X=X-1
140 IF X<9 OR X>22 THEN GOTO 200
141 IF X=Y THEN GOTO 1900
142 IF INKEY$="0" THEN LET Q=1
143 IF Q=0 THEN GOSUB 1500
144 LET B=INT (RND*2)
145 LET Y=Y+(B=0 AND Y<25)-(B=1
146 Y)
147 LET X=X+(INKEY$="2")-(INKEY
148 NEXT A
149 LET T=T+2
150 IF T<64 THEN GOTO 200
151 IF W=0 THEN LET A$="
YOU HAVE PASSED THROUGH THE FIRST LINE OF THE FEDERATIONS DEFENSE YOU MUST NOW USE ONLY YOUR FINEST LIGHT COMPUTER KEEP THE MIDDLE OF YOUR SIGHTS
152 IF W=1 THEN LET A$="
YOU HAVE SUCCESSFULLY FLOWN DOWN THE TARGETING CHANNEL YOU MUST MAKE THE FINAL RUN DOWN TO THE VULNERABLE DUCT WHEN IT IS DIRECTLY BENEATH YOUR SHIP
153 DESTROY IT.....

```

```

455 FOR A=1 TO 192
456 PRINT A$(A);
457 NEXT A
460 PAUSE 4E4
465 IF U=1 THEN GOTO 5000
470 GOTO 3000
490 STOP
1000 PRINT AT 3,0;

```



```

1010 RETURN
1100 PRINT AT 3,0;

```



```

1110 RETURN
1200 PRINT AT 3,0;

```



```

1210 RETURN
1500 IF Q=2 THEN GOTO 1510
1505 LET X1=X
1510 PRINT AT P,X1;"■"
1511 LET X1=X1+(2 AND INKEY$="2")
1512 --(2 AND INKEY$="1")
1512 LET P=P-1
1515 PRINT AT P,X1;"■"
1520 IF P=3 THEN GOTO 1530
1525 RETURN
1530 IF X1=Y THEN GOTO 1800
1540 PRINT AT P,X1;"■"
1550 GOTO 180
1800 FOR A=1 TO 5
1805 PRINT AT 3,Y-1;"■■■■";AT 3,Y
1810 --"■" AT 3,Y-1;"■■■■"
1810 NEXT A
1820 LET S=S+100
1850 GOTO 150
1900 FOR A=4 TO 5
1910 PRINT AT A,Y;"■";AT A,Y;"■"
1915 --"■"
1920 NEXT A
20000
20005 PRINT AT 5,X-1;"■■■■";AT 5,X
20010 --"■";AT 7,X-1;"■■■■";AT 6,X-1
20015 --"■";AT 5,X-1;"■■■■";AT 7,X-1;"■■■■"
20010 NEXT A
2020 LET LI=LI-1
2030 IF LI=0 THEN GOTO 50
2040 PRINT AT 0,10;"GAME OVER"
2050 PRINT AT 10,0;"SCORE=";S
2060 STOP
3000 CLS
3001 PRINT AT 10,0;"SCORE=";S;AT
3010 10,25;"LIVES=";LI
3005 LET W=1
3010 GOSUB 1200
3011 FOR A=0 TO 2
3012 PRINT AT A,0;

```



```

3013 NEXT A
3015 PRINT AT 8,0;

```



```

3020 LET Y=15

```

In the role of Galactic Space Highway Construction Engineer (Demolition Specialist) it is your aim to blast the hapless planet below you to smithereens in order to make way for a new Space Highway. Luckily for the planet, it has members of the Keep Our Galaxy Intact Federation to defend it. Pilot your ship through three game levels in order to destroy the planet, or be destroyed by the Federation.

Planet Destroyer was written for the 16K ZX-81 by P Sansom of Wisbech, Cambridgeshire.


```

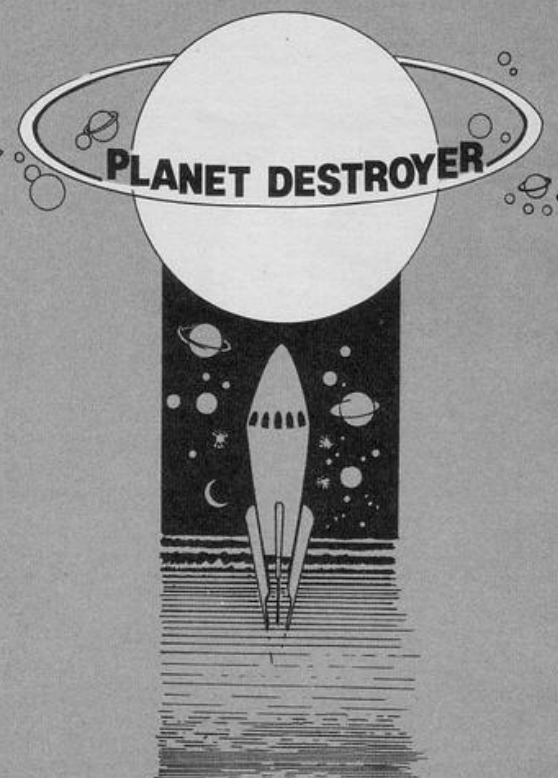
3025 LET X=15
3030 PRINT AT 11,0;" ";AT 19,0;" "
3032 FOR A=12 TO 18
3035 PRINT AT A,0;" ";AT A,31;" "
3040 NEXT A
3045 PRINT AT 20,0;" "
3090 FOR F=1 TO 64
3095 PRINT AT 15,X;"X";AT 20,31-
(F/2);" "
3100 PRINT AT 14,Y-3;" ";AT 13,Y-4;" "
;AT 12,Y-5;" ";AT 18,Y-5
;AT 17,Y-4;" ";AT 16,Y-3;" "
3105 IF X<Y-2 OR X>Y+2 THEN GOTO 3500
3110 PRINT AT 15,X;" "
3115 IF X=Y THEN LET S=S+10
3120 LET X=X+(INKEY$="2")-(INKEY
$="1")
3125 LET B=INT (RND*2)
3130 LET Y=Y+(B=0 AND Y<20)-(B=1
AND Y>10)
3200 NEXT F
3250 GOTO 400
3500 FOR A=1 TO 25
3505 PRINT AT 15,X;"X";AT 15,X;" "
X";AT 15,X;" "
3509 NEXT A
3510 LET LI=LI-1
3512 IF LI>0 THEN GOTO 3000
3520 PRINT AT 0,10;"GAME OVER";
AT 2,10;"SCORE = ";S
3525 STOP
5000 LET X=15
5010 LET L=INT (RND*25)+10
5095 FOR B=1 TO L
5096 FOR A=0 TO 2
5098 GOSUB 1000+(A*100)
5100 PRINT AT 4,X-1;" ";
5110 LET X=X+(INKEY$="2")-(INKEY
$="1")
5120 IF X<9 OR X>22 THEN GOTO 20
00
5200 NEXT A
5205 NEXT B
5210 PRINT AT 7,X-1;" ";
5215 FOR A=1 TO 5
5218 NEXT A
5220 PRINT AT 7,X-2;" ";AT 8

```

```

X;" "
5222 FOR A=1 TO 5
5225 IF INKEY$="9" THEN GOTO 800
0
5228 NEXT A
5230 PRINT AT 7,X-2;" ";AT 8
X;" "
7000 CLS
7010 PRINT AT 10,1;"YOU HAVE MIS
SED.YOU REAPPROACH"
7020 PAUSE 4E4
7030 CLS
7040 GOTO 10
8000 FOR A=5 TO 8
8005 PRINT AT A,X;" ";AT A,X;" "
8006 FOR B=1 TO 2
8007 NEXT B
8010 NEXT A
8011 FOR A=1 TO 10
8012 NEXT A
8015 FOR A=1 TO 50
8020 FAST
8030 SLOW
8040 NEXT A
8050 CLS
8060 LET S=S+1000
8070 PRINT AT 10,10;"SCORE = ";S
8080 PRINT AT 20,1;"YOU NOW ATTA
CK ANOTHER PLANET"
8090 PAUSE 4E4
8095 CLS
8098 GOTO 10
8099 PRINT " "
8099 PRINT AT 3,0;"YOU MUST PILO
T YOUR SHIP (0-9) THROUGH THREE
LEVELS TO ULTIMATELY BO
MB THE PLANET."
8910 PRINT
8920 PRINT "STEER YOUR SHIP WITH
1 AND 2 AND FIRE WITH 0.ONCE YOU
HAVE FIRED YOU CAN STEER YOUR M
ISSILES BUT MIND YOU DONT CRASH
INTO THE WALLS."
8930 PRINT
8940 PRINT "THE GAGE AT THE BOTT
OM SHOWS THETIME REMAINING ON TH
AT LEVEL."
8950 PRINT AT 20,10;"GOOD LUCK"
8960 PAUSE 4E4
8970 CLS
8980 RETURN
8990 SAVE "DEATHSTAR"
8995 RUN

```



3 in a row

```

1 REM #3-IN-A-ROW#
4 DIM A(36)
6 DIM M(36)
10 DIM T(2)
13 LET S=0
13 LET T=0
14 LET Z=0
15 LET X=0
16 LET U=1
18 IF G<>0 THEN GOTO 30
20 GOSUB 7000
25 GOSUB 5000
30 IF U<>1 THEN GOTO 45
35 GOSUB 5999
40 FOR C=1 TO 36
45 LET A(C)=0
50 NEXT C
55 GOSUB 500
60 REM #FIRST PLAYER SELECTION
75 REM #1 THEN LET O=INT (RND*
2)+1
81 IF U=1 THEN LET E=0-1
82 IF U=1 THEN LET E=0-1
85 FOR I=1 TO 36
90 IF E=0 THEN PRINT AT 5,1;"
TO PLAY E=1" THEN PRINT AT 5,1;"
95 IF E=1" THEN PRINT AT 5,1;"
TO PLAY
99 REM #GAME BEGINS#
100 INPUT P
105 IF P<1 OR P>36 THEN GOTO 10
0
110 IF A(P)<>0 THEN LET U$=" "
120 IF E=0 THEN LET U$=" "
125 IF E=1 THEN LET U$=" "
130 PRINT AT M(P)-1,N(P);U$
135 PRINT AT M(P)-1,N(P);U$
140 IF E=0 THEN LET A(P)=1
145 IF E=1 THEN LET A(P)=2
150 IF E=0 THEN GOTO 170

```

Continued on next page

Written for the 16K ZX-81 by Glenn and Paul Jones of Kingsthorpe, Northampton, Three In a Row is a strategy game for two players. Compete to form as many rows of three counters as possible within the six by six game grid. The game is played over four rounds, and the computer takes 18 seconds to calculate the scoring rows.

Continued from p25

```

Continued from p25
164 LET E=0
165 GOTO 175
170 LET E=1
175 NEXT I
180 PRINT AT 5,1;"PRESS A KEY"
185 IF INKEY$="" THEN GOTO 185
190 GOSUB 1000
195 IF E=1 THEN GOTO 198
196 LET E=1
197 GOTO 200
198 LET E=0
199 PRINT AT 5,1;"
200 IF U=1 THEN LET A=0
204 IF U=2 THEN LET A=2
205 IF U=3 THEN LET A=4
206 IF U=4 THEN LET A=6
207 PRINT AT 15,U+A,X;AT 20,U+A
210 PRINT AT 15,U+A,X;AT 20,U+A

```

```

0000 IF W=0 PRINT AT 10
0001 LET T(1)=T(1)+X
0002 LET T(2)=T(2)+Z
0003 IF W=4 THEN GOSUB 2000
0004 LET W=W+1
0005 LET X=0
0006 LET Z=0
0007 LET X=30
0008 GOTO 30
0009 REM #BOX NUMBERS*
0010 PRINT AT 5,13,"AT 5,13"
0011 PRINT AT 5,24,"AT 5,24"
0012 PRINT AT 5,30,"AT 5,30"
0013 PRINT AT 5,23,"AT 5,23"
0014 PRINT AT 5,16,"AT 5,16"
0015 PRINT AT 5,12,"AT 5,12"
0016 PRINT AT 5,11,"AT 5,11"
0017 PRINT AT 5,14,"AT 5,14"
0018 PRINT AT 5,18,"AT 5,18"
0019 PRINT AT 5,21,"AT 5,21"
0020 PRINT AT 5,25,"AT 5,25"
0021 PRINT AT 5,29,"AT 5,29"
0022 PRINT AT 5,33,"AT 5,33"
0023 PRINT AT 5,36,"AT 5,36"
0024 PRINT AT 5,39,"AT 5,39"
0025 PRINT AT 5,42,"AT 5,42"
0026 PRINT AT 5,45,"AT 5,45"
0027 PRINT AT 5,48,"AT 5,48"
0028 PRINT AT 5,51,"AT 5,51"
0029 PRINT AT 5,54,"AT 5,54"
0030 PRINT AT 5,57,"AT 5,57"
0031 PRINT AT 5,60,"AT 5,60"
0032 PRINT AT 5,63,"AT 5,63"
0033 PRINT AT 5,66,"AT 5,66"
0034 PRINT AT 5,69,"AT 5,69"
0035 PRINT AT 5,72,"AT 5,72"
0036 PRINT AT 5,75,"AT 5,75"
0037 PRINT AT 5,78,"AT 5,78"
0038 PRINT AT 5,81,"AT 5,81"
0039 PRINT AT 5,84,"AT 5,84"
0040 PRINT AT 5,87,"AT 5,87"
0041 PRINT AT 5,90,"AT 5,90"
0042 PRINT AT 5,93,"AT 5,93"
0043 PRINT AT 5,96,"AT 5,96"
0044 PRINT AT 5,99,"AT 5,99"
0045 PRINT AT 5,102,"AT 5,102"
0046 PRINT AT 5,105,"AT 5,105"
0047 PRINT AT 5,108,"AT 5,108"
0048 PRINT AT 5,111,"AT 5,111"
0049 PRINT AT 5,114,"AT 5,114"
0050 PRINT AT 5,117,"AT 5,117"
0051 PRINT AT 5,120,"AT 5,120"
0052 PRINT AT 5,123,"AT 5,123"
0053 PRINT AT 5,126,"AT 5,126"
0054 PRINT AT 5,129,"AT 5,129"
0055 PRINT AT 5,132,"AT 5,132"
0056 PRINT AT 5,135,"AT 5,135"
0057 PRINT AT 5,138,"AT 5,138"
0058 PRINT AT 5,141,"AT 5,141"
0059 PRINT AT 5,144,"AT 5,144"
0060 PRINT AT 5,147,"AT 5,147"
0061 PRINT AT 5,150,"AT 5,150"
0062 PRINT AT 5,153,"AT 5,153"
0063 PRINT AT 5,156,"AT 5,156"
0064 PRINT AT 5,159,"AT 5,159"
0065 PRINT AT 5,162,"AT 5,162"
0066 PRINT AT 5,165,"AT 5,165"
0067 PRINT AT 5,168,"AT 5,168"
0068 PRINT AT 5,171,"AT 5,171"
0069 PRINT AT 5,174,"AT 5,174"
0070 PRINT AT 5,177,"AT 5,177"
0071 PRINT AT 5,180,"AT 5,180"
0072 PRINT AT 5,183,"AT 5,183"
0073 PRINT AT 5,186,"AT 5,186"
0074 PRINT AT 5,189,"AT 5,189"
0075 PRINT AT 5,192,"AT 5,192"
0076 PRINT AT 5,195,"AT 5,195"
0077 PRINT AT 5,198,"AT 5,198"
0078 PRINT AT 5,201,"AT 5,201"
0079 PRINT AT 5,204,"AT 5,204"
0080 PRINT AT 5,207,"AT 5,207"
0081 PRINT AT 5,210,"AT 5,210"
0082 PRINT AT 5,213,"AT 5,213"
0083 PRINT AT 5,216,"AT 5,216"
0084 PRINT AT 5,219,"AT 5,219"
0085 PRINT AT 5,222,"AT 5,222"
0086 PRINT AT 5,225,"AT 5,225"
0087 PRINT AT 5,228,"AT 5,228"
0088 PRINT AT 5,231,"AT 5,231"
0089 PRINT AT 5,234,"AT 5,234"
0090 PRINT AT 5,237,"AT 5,237"
0091 PRINT AT 5,240,"AT 5,240"
0092 PRINT AT 5,243,"AT 5,243"
0093 PRINT AT 5,246,"AT 5,246"
0094 PRINT AT 5,249,"AT 5,249"
0095 PRINT AT 5,252,"AT 5,252"
0096 PRINT AT 5,255,"AT 5,255"
0097 PRINT AT 5,258,"AT 5,258"
0098 PRINT AT 5,261,"AT 5,261"
0099 PRINT AT 5,264,"AT 5,264"
0100 PRINT AT 5,267,"AT 5,267"
0101 PRINT AT 5,270,"AT 5,270"
0102 PRINT AT 5,273,"AT 5,273"
0103 PRINT AT 5,276,"AT 5,276"
0104 PRINT AT 5,279,"AT 5,279"
0105 PRINT AT 5,282,"AT 5,282"
0106 PRINT AT 5,285,"AT 5,285"
0107 PRINT AT 5,288,"AT 5,288"
0108 PRINT AT 5,291,"AT 5,291"
0109 PRINT AT 5,294,"AT 5,294"
0110 PRINT AT 5,297,"AT 5,297"
0111 PRINT AT 5,300,"AT 5,300"
0112 PRINT AT 5,303,"AT 5,303"
0113 PRINT AT 5,306,"AT 5,306"
0114 PRINT AT 5,309,"AT 5,309"
0115 PRINT AT 5,312,"AT 5,312"
0116 PRINT AT 5,315,"AT 5,315"
0117 PRINT AT 5,318,"AT 5,318"
0118 PRINT AT 5,321,"AT 5,321"
0119 PRINT AT 5,324,"AT 5,324"
0120 PRINT AT 5,327,"AT 5,327"
0121 PRINT AT 5,330,"AT 5,330"
0122 PRINT AT 5,333,"AT 5,333"
0123 PRINT AT 5,336,"AT 5,336"
0124 PRINT AT 5,339,"AT 5,339"
0125 PRINT AT 5,342,"AT 5,342"
0126 PRINT AT 5,345,"AT 5,345"
0127 PRINT AT 5,348,"AT 5,348"
0128 PRINT AT 5,351,"AT 5,351"
0129 PRINT AT 5,354,"AT 5,354"
0130 PRINT AT 5,357,"AT 5,357"
0131 PRINT AT 5,360,"AT 5,360"
0132 PRINT AT 5,363,"AT 5,363"
0133 PRINT AT 5,366,"AT 5,366"
0134 PRINT AT 5,369,"AT 5,369"
0135 PRINT AT 5,372,"AT 5,372"
0136 PRINT AT 5,375,"AT 5,375"
0137 PRINT AT 5,378,"AT 5,378"
0138 PRINT AT 5,381,"AT 5,381"
0139 PRINT AT 5,384,"AT 5,384"
0140 PRINT AT 5,387,"AT 5,387"
0141 PRINT AT 5,390,"AT 5,390"
0142 PRINT AT 5,393,"AT 5,393"
0143 PRINT AT 5,396,"AT 5,396"
0144 PRINT AT 5,399,"AT 5,399"
0145 PRINT AT 5,402,"AT 5,402"
0146 PRINT AT 5,405,"AT 5,405"
0147 PRINT AT 5,408,"AT 5,408"
0148 PRINT AT 5,411,"AT 5,411"
0149 PRINT AT 5,414,"AT 5,414"
0150 PRINT AT 5,417,"AT 5,417"
0151 PRINT AT 5,420,"AT 5,420"
0152 PRINT AT 5,423,"AT 5,423"
0153 PRINT AT 5,426,"AT 5,426"
0154 PRINT AT 5,429,"AT 5,429"
0155 PRINT AT 5,432,"AT 5,432"
0156 PRINT AT 5,435,"AT 5,435"
0157 PRINT AT 5,438,"AT 5,438"
0158 PRINT AT 5,441,"AT 5,441"
0159 PRINT AT 5,444,"AT 5,444"
0160 PRINT AT 5,447,"AT 5,447"
0161 PRINT AT 5,450,"AT 5,450"
0162 PRINT AT 5,453,"AT 5,453"
0163 PRINT AT 5,456,"AT 5,456"
0164 PRINT AT 5,459,"AT 5,459"
0165 PRINT AT 5,462,"AT 5,462"
0166 PRINT AT 5,465,"AT 5,465"
0167 PRINT AT 5,468,"AT 5,468"
0168 PRINT AT 5,471,"AT 5,471"
0169 PRINT AT 5,474,"AT 5,474"
0170 PRINT AT 5,477,"AT 5,477"
0171 PRINT AT 5,480,"AT 5,480"
0172 PRINT AT 5,483,"AT 5,483"
0173 PRINT AT 5,486,"AT 5,486"
0174 PRINT AT 5,489,"AT 5,489"
0175 PRINT AT 5,492,"AT 5,492"
0176 PRINT AT 5,495,"AT 5,495"
0177 PRINT AT 5,498,"AT 5,498"
0178 PRINT AT 5,501,"AT 5,501"
0179 PRINT AT 5,504,"AT 5,504"
0180 PRINT AT 5,507,"AT 5,507"
0181 PRINT AT 5,510,"AT 5,510"
0182 PRINT AT 5,513,"AT 5,513"
0183 PRINT AT 5,516,"AT 5,516"
0184 PRINT AT 5,519,"AT 5,519"
0185 PRINT AT 5,522,"AT 5,522"
0186 PRINT AT 5,525,"AT 5,525"
0187 PRINT AT 5,528,"AT 5,528"
0188 PRINT AT 5,531,"AT 5,531"
0189 PRINT AT 5,534,"AT 5,534"
0190 PRINT AT 5,537,"AT 5,537"
0191 PRINT AT 5,540,"AT 5,540"
0192 PRINT AT 5,543,"AT 5,543"
0193 PRINT AT 5,546,"AT 5
```

```

0030 PRINT "AT 20,20", "AT 20,20"
0032 "AT 20,25", "35", "AT 20,25"
0034 AT 20,25; "35", "AT 20,25"
0050 RETURN
0055 SCORE CALCULATION+
0060 REM AT 5,1 "CALCULATING "
0065 REM #HORIZONTAL+
0070 REM D=0 TO 30 STEP 5
0075 FOR D=0 TO 4
0080 FOR C=1+D TO 4+D
0085 IF R(C)=1 AND R(C+1)=1 AND
0090 IF R(C)=1 THEN LET X=X+2
0095 IF R(C)=2 AND R(C+1)=2 AND
0100 IF R(C+2)=1 THEN LET Z=Z+2
0105 IF R(C)=2 THEN LET Z=Z+2
0110 IF R(C+2)=2 THEN LET Z=Z+2
0115 NEXT C
0120 NEXT D
0125 REM #VERTICAL+
0130 REM D=0 TO 28 STEP 5
0135 FOR D=0 TO 6+D
0140 FOR C=1+D TO 6+D
0145 IF R(C)=1 AND R(C+6)=1 AND
0150 IF R(C)=1 THEN LET X=X+2
0155 IF R(C)=2 AND R(C+6)=2 AND
0160 IF R(C)=2 THEN LET Z=Z+2
0165 IF R(C)=2 THEN LET Z=Z+2
0170 IF R(C)=2 THEN LET Z=Z+2
0175 IF R(C)=2 THEN LET Z=Z+2
0180 IF R(C)=2 THEN LET Z=Z+2
0185 NEXT C
0190 NEXT D
0195 REM #DIAGONAL (1)+
0200 REM D=0 TO 15 STEP 5
0205 FOR C=1+D TO 4+D
0210 FOR C=1+D TO 4+D
0215 FOR C=1+D TO 4+D
0220 FOR C=1+D TO 4+D
0225 FOR C=1+D TO 4+D
0230 FOR C=1+D TO 4+D
0235 FOR C=1+D TO 4+D
0240 FOR C=1+D TO 4+D
0245 FOR C=1+D TO 4+D
0250 FOR C=1+D TO 4+D
0255 FOR C=1+D TO 4+D
0260 FOR C=1+D TO 4+D
0265 FOR C=1+D TO 4+D
0270 FOR C=1+D TO 4+D
0275 FOR C=1+D TO 4+D
0280 FOR C=1+D TO 4+D
0285 FOR C=1+D TO 4+D
0290 FOR C=1+D TO 4+D
0295 FOR C=1+D TO 4+D
0300 FOR C=1+D TO 4+D
0305 FOR C=1+D TO 4+D
0310 FOR C=1+D TO 4+D
0315 FOR C=1+D TO 4+D
0320 FOR C=1+D TO 4+D
0325 FOR C=1+D TO 4+D
0330 FOR C=1+D TO 4+D
0335 FOR C=1+D TO 4+D
0340 FOR C=1+D TO 4+D
0345 FOR C=1+D TO 4+D
0350 FOR C=1+D TO 4+D
0355 FOR C=1+D TO 4+D
0360 FOR C=1+D TO 4+D
0365 FOR C=1+D TO 4+D
0370 FOR C=1+D TO 4+D
0375 FOR C=1+D TO 4+D
0380 FOR C=1+D TO 4+D
0385 FOR C=1+D TO 4+D
0390 FOR C=1+D TO 4+D
0395 FOR C=1+D TO 4+D
0400 FOR C=1+D TO 4+D
0405 FOR C=1+D TO 4+D
0410 FOR C=1+D TO 4+D
0415 FOR C=1+D TO 4+D
0420 FOR C=1+D TO 4+D
0425 FOR C=1+D TO 4+D
0430 FOR C=1+D TO 4+D
0435 FOR C=1+D TO 4+D
0440 FOR C=1+D TO 4+D
0445 FOR C=1+D TO 4+D
0450 FOR C=1+D TO 4+D
0455 FOR C=1+D TO 4+D
0460 FOR C=1+D TO 4+D
0465 FOR C=1+D TO 4+D
0470 FOR C=1+D TO 4+D
0475 FOR C=1+D TO 4+D
0480 FOR C=1+D TO 4+D
0485 FOR C=1+D TO 4+D
0490 FOR C=1+D TO 4+D
0495 FOR C=1+D TO 4+D
0500 FOR C=1+D TO 4+D
0505 FOR C=1+D TO 4+D
0510 FOR C=1+D TO 4+D
0515 FOR C=1+D TO 4+D
0520 FOR C=1+D TO 4+D
0525 FOR C=1+D TO 4+D
0530 FOR C=1+D TO 4+D
0535 FOR C=1+D TO 4+D
0540 FOR C=1+D TO 4+D
0545 FOR C=1+D TO 4+D
0550 FOR C=1+D TO 4+D
0555 FOR C=1+D TO 4+D
0560 FOR C=1+D TO 4+D
0565 FOR C=1+D TO 4+D
0570 FOR C=1+D TO 4+D
0575 FOR C=1+D TO 4+D
0580 FOR C=1+D TO 4+D
0585 FOR C=1+D TO 4+D
0590 FOR C=1+D TO 4+D
0595 FOR C=1+D TO 4+D
0600 FOR C=1+D TO 4+D
0605 FOR C=1+D TO 4+D
0610 FOR C=1+D TO 4+D
0615 FOR C=1+D TO 4+D
0620 FOR C=1+D TO 4+D
0625 FOR C=1+D TO 4+D
0630 FOR C=1+D TO 4+D
0635 FOR C=1+D TO 4+D
0640 FOR C=1+D TO 4+D
0645 FOR C=1+D TO 4+D
0650 FOR C=1+D TO 4+D
0655 FOR C=1+D TO 4+D
0660 FOR C=1+D TO 4+D
0665 FOR C=1+D TO 4+D
0670 FOR C=1+D TO 4+D
0675 FOR C=1+D TO 4+D
0680 FOR C=1+D TO 4+D
0685 FOR C=1+D TO 4+D
0690 FOR C=1+D TO 4+D
0695 FOR C=1+D TO 4+D
0700 FOR C=1+D TO 4+D
0705 FOR C=1+D TO 4+D
0710 FOR C=1+D TO 4+D
0715 FOR C=1+D TO 4+D
0720 FOR C=1+D TO 4+D
0725 FOR C=1+D TO 4+D
0730 FOR C=1+D TO 4+D
0735 FOR C=1+D TO 4+D
0740 FOR C=1+D TO 4+D
0745 FOR C=1+D TO 4+D
0750 FOR C=1+D TO 4+D
0755 FOR C=1+D TO 4+D
0760 FOR C=1+D TO 4+D
0765 FOR C=1+D TO 4+D
0770 FOR C=1+D TO 4+D
0775 FOR C=1+D TO 4+D
0780 FOR C=1+D TO 4+D
0785 FOR C=1+D TO 4+D
0790 FOR C=1+D TO 4+D
0795 FOR C=1+D TO 4+D
0800 FOR C=1+D TO 4+D
0805 FOR C=1+D TO 4+D
0810 FOR C=1+D TO 4+D
0815 FOR C=1+D TO 4+D
0820 FOR C=1+D TO 4+D
0825 FOR C=1+D TO 4+D
0830 FOR C=1+D TO 4+D
0835 FOR C=1+D TO 4+D
0840 FOR C=1+D TO 4+D
0845 FOR C=1+D TO 4+D
0850 FOR C=1+D TO 4+D
0855 FOR C=1+D TO 4+D
0860 FOR C=1+D TO 4+D
0865 FOR C=1+D TO 4+D
0870 FOR C=1+D TO 4+D
0875 FOR C=1+D TO 4+D
0880 FOR C=1+D TO 4+D
0885 FOR C=1+D TO 4+D
0890 FOR C=1+D TO 4+D
0895 FOR C=1+D TO 4+D
0900 FOR C=1+D TO 4+D
0905 FOR C=1+D TO 4+D
0910 FOR C=1+D TO 4+D
0915 FOR C=1+D TO 4+D
0920 FOR C=1+D TO 4+D
0925 FOR C=1+D TO 4+D
0930 FOR C=1+D TO 4+D
0935 FOR C=1+D TO 4+D
0940 FOR C=1+D TO 4+D
0945 FOR C=1+D TO 4+D
0950 FOR C=1+D TO 4+D
0955 FOR C=1+D TO 4+D
0960 FOR C=1+D TO 4+D
0965 FOR C=1+D TO 4+D
0970 FOR C=1+D TO 4+D
0975 FOR C=1+D TO 4+D
0980 FOR C=1+D TO 4+D
0985 FOR C=1+D TO 4+D
0990 FOR C=1+D TO 4+D
0995 FOR C=1+D TO 4+D
1000 FOR C=1+D TO 4+D
1005 FOR C=1+D TO 4+D
1010 FOR C=1+D TO 4+D
1015 FOR C=1+D TO 4+D
1020 FOR C=1+D TO 4+D
1025 FOR C=1+D TO 4+D
1030 FOR C=1+D TO 4+D
1035 FOR C=1+D TO 4+D
1040 FOR C=1+D TO 4+D
1045 FOR C=1+D TO 4+D
1050 FOR C=1+D TO 4+D
1055 FOR C=1+D TO 4+D
1060 FOR C=1+D TO 4+D
1065 FOR C=1+D TO 4+D
1070 FOR C=1+D TO 4+D
1075 FOR C=1+D TO 4+D
1080 FOR C=1+D TO 4+D
1085 FOR C=1+D TO 4+D
1090 FOR C=1+D TO 4+D
1095 FOR C=1+D TO 4+D
1100 FOR C=1+D TO 4+D
1105 FOR C=1+D TO 4+D
1110 FOR C=1+D TO 4+D
1115 FOR C=1+D TO 4+D
1120 FOR C=1+D TO 4+D
1125 FOR C=1+D TO 4+D
1130 FOR C=1+D TO 4+D
1135 FOR C=1+D TO 4+D
1140 FOR C=1+D TO 4+D
1145 FOR C=1+D TO 4+D
1150 FOR C=1+D TO 4+D
1155 FOR C=1+D TO 4+D
1160 FOR C=1+D TO 4+D
1165 FOR C=1+D TO 4+D
1170 FOR C=1+D TO 4+D
1175 FOR C=1+D TO 4+D
1180 FOR C=1+D TO 4+D
1185 FOR C=1+D TO 4+D
1190 FOR C=1+D TO 4+D
1195 FOR C=1+D TO 4+D
1200 FOR C=1+D TO 4+D
1205 FOR C=1+D TO 4+D
1210 FOR C=1+D TO 4+D
1215 FOR C=1+D TO 4+D
1220 FOR C=1+D TO 4+D
1225 FOR C=1+D TO 4+D
1230 FOR C=1+D TO 4+D
1235 FOR C=1+D TO 4+D
1240 FOR C=1+D TO 4+D
1245 FOR C=1+D TO 4+D
1250 FOR C=1+D TO 4+D
1255 FOR C=1+D TO 4+D
1260 FOR C=1+D TO 4+D
1265 FOR C=1+D TO 4+D
1270 FOR C=1+D TO 4+D
1275 FOR C=1+D TO 4+D
1280 FOR C=1+D TO 4+D
1285 FOR C=1+D TO 4+D
1290 FOR C=1+D TO 4+D
1295 FOR C=1+D TO 4+D
1300 FOR C=1+D TO 4+D
1305 FOR C=1+D TO 4+D
1310 FOR C=1+D TO 4+D
1315 FOR C=1+D TO 4+D
1320 FOR
```

```

1095 IF R(C)=1 AND R(C+7)=1 AND
R(C+14)=1 THEN LET X=X+2
1100 IF R(C)=2 AND R(C+7)=2 AND
R(C+14)=2 THEN LET Z=Z+2
1105 NEXT C
1110 REM D=DIAGONAL (2) * STEP 5
1113 FOR D=0 TO 13 STEP 5
1115 FOR C5=D TO 3+D STEP 1 AND
1120 FOR C=C5+1 AND R(C5)=1 AND
1125 IF R(C)=1 THEN LET X=X+2
R(C+10)=1 THEN LET Z=Z+2
1130 IF R(C)=2 THEN LET R(C+5)=2 AND
R(C+10)=2
1135 NEXT C
1140 NEXT D

```

```

135 NEXT C
140 SLOW
145 RETURN
150 REM #RESULT CALCULATION#
2000 PRINT AT 5,0; "GAME OVER"
2002 FOR C=7 TO 11
2003 PRINT AT C,0;
2004 NEXT C
2050 PRINT AT 8,0; " "; T(1); AT
1,0; " "; T(2)
2055 IF T(1) > T(2) THEN PRINT AT
8,6; "WINNER"
2055 IF T(2) > T(1) THEN PRINT AT
10,6; "WINNER"
2055 IF T(1)=T(2) THEN GOTO 2040
2060 PRINT AT C,0; "

```

```

2070 NEXT C
2075 LET G=1
2080 LET T(1)=0
2085 LET T(2)=0
2090 LET T(3)=0
2095 LET T(4)=0
2100 LET T(5)=0
2105 LET T(6)=0
2110 LET T(7)=0
2115 LET T(8)=0
2120 LET T(9)=0
2125 LET T(10)=0
2130 LET T(11)=0
2135 LET T(12)=0
2140 LET T(13)=0
2145 LET T(14)=0
2150 LET T(15)=0
2155 LET T(16)=0
2160 LET T(17)=0
2165 LET T(18)=0
2170 LET T(19)=0
2175 LET T(20)=0
2180 LET T(21)=0
2185 LET T(22)=0
2190 LET T(23)=0
2195 LET T(24)=0
2200 LET T(25)=0
2205 LET T(26)=0
2210 LET T(27)=0
2215 LET T(28)=0
2220 LET T(29)=0
2225 LET T(30)=0
2230 LET T(31)=0
2235 LET T(32)=0
2240 LET T(33)=0
2245 LET T(34)=0
2250 LET T(35)=0
2255 LET T(36)=0
2260 LET T(37)=0
2265 LET T(38)=0
2270 LET T(39)=0
2275 LET T(40)=0
2280 LET T(41)=0
2285 LET T(42)=0
2290 LET T(43)=0
2295 LET T(44)=0
2300 LET T(45)=0
2305 LET T(46)=0
2310 LET T(47)=0
2315 LET T(48)=0
2320 LET T(49)=0
2325 LET T(50)=0
2330 LET T(51)=0
2335 LET T(52)=0
2340 LET T(53)=0
2345 LET T(54)=0
2350 LET T(55)=0
2355 LET T(56)=0
2360 LET T(57)=0
2365 LET T(58)=0
2370 LET T(59)=0
2375 LET T(60)=0
2380 LET T(61)=0
2385 LET T(62)=0
2390 LET T(63)=0
2395 LET T(64)=0
2400 LET T(65)=0
2405 LET T(66)=0
2410 LET T(67)=0
2415 LET T(68)=0
2420 LET T(69)=0
2425 LET T(70)=0
2430 LET T(71)=0
2435 LET T(72)=0
2440 LET T(73)=0
2445 LET T(74)=0
2450 LET T(75)=0
2455 LET T(76)=0
2460 LET T(77)=0
2465 LET T(78)=0
2470 LET T(79)=0
2475 LET T(80)=0
2480 LET T(81)=0
2485 LET T(82)=0
2490 LET T(83)=0
2495 LET T(84)=0
2500 LET T(85)=0
2505 LET T(86)=0
2510 LET T(87)=0
2515 LET T(88)=0
2520 LET T(89)=0
2525 LET T(90)=0
2530 LET T(91)=0
2535 LET T(92)=0
2540 LET T(93)=0
2545 LET T(94)=0
2550 LET T(95)=0
2555 LET T(96)=0
2560 LET T(97)=0
2565 LET T(98)=0
2570 LET T(99)=0
2575 LET T(100)=0
2580 LET T(101)=0
2585 LET T(102)=0
2590 LET T(103)=0
2595 LET T(104)=0
2600 LET T(105)=0
2605 LET T(106)=0
2610 LET T(107)=0
2615 LET T(108)=0
2620 LET T(109)=0
2625 LET T(110)=0
2630 LET T(111)=0
2635 LET T(112)=0
2640 LET T(113)=0
2645 LET T(114)=0
2650 LET T(115)=0
2655 LET T(116)=0
2660 LET T(117)=0
2665 LET T(118)=0
2670 LET T(119)=0
2675 LET T(120)=0
2680 LET T(121)=0
2685 LET T(122)=0
2690 LET T(123)=0
2695 LET T(124)=0
2700 LET T(125)=0
2705 LET T(126)=0
2710 LET T(127)=0
2715 LET T(128)=0
2720 LET T(129)=0
2725 LET T(130)=0
2730 LET T(131)=0
2735 LET T(132)=0
2740 LET T(133)=0
2745 LET T(134)=0
2750 LET T(135)=0
2755 LET T(136)=0
2760 LET T(137)=0
2765 LET T(138)=0
2770 LET T(139)=0
2775 LET T(140)=0
2780 LET T(141)=0
2785 LET T(142)=0
2790 LET T(143)=0
2795 LET T(144)=0
2800 LET T(145)=0
2805 LET T(146)=0
2810 LET T(147)=0
2815 LET T(148)=0
2820 LET T(149)=0
2825 LET T(150)=0
2830 LET T(151)=0
2835 LET T(152)=0
2840 LET T(153)=0
2845 LET T(154)=0
2850 LET T(155)=0
2855 LET T(156)=0
2860 LET T(157)=0
2865 LET T(158)=0
2870 LET T(159)=0
2875 LET T(160)=0
2880 LET T(161)=0
2885 LET T(162)=0
2890 LET T(163)=0
2895 LET T(164)=0
2900 LET T(165)=0
2905 LET T(166)=0
2910 LET T(167)=0
2915 LET T(168)=0
2920 LET T(169)=0
2925 LET T(170)=0
2930 LET T(171)=0
2935 LET T(172)=0
2940 LET T(173)=0
2945 LET T(174)=0
2950 LET T(175)=0
2955 LET T(176)=0
2960 LET T(177)=0
2965 LET T(178)=0
2970 LET T(179)=0
2975 LET T(180)=0
2980 LET T(181)=0
2985 LET T(182)=0
2990 LET T(183)=0
2995 LET T(184)=0
3000 LET T(185)=0
3005 LET T(186)=0
3010 LET T(187)=0
3015 LET T(188)=0
3020 LET T(189)=0
3025 LET T(190)=0
3030 LET T(191)=0
3035 LET T(192)=0
3040 LET T(193)=0
3045 LET T(194)=0
3050 LET T(195)=0
3055 LET T(196)=0
3060 LET T(197)=0
3065 LET T(198)=0
3070 LET T(199)=0
3075 LET T(200)=0
3080 LET T(201)=0
3085 LET T(202)=0
3090 LET T(203)=0
3095 LET T(204)=0
3100 LET T(205)=0
3105 LET T(206)=0
3110 LET T(207)=0
3115 LET T(208)=0
3120 LET T(209)=0
3125 LET T(210)=0
3130 LET T(211)=0
3135 LET T(212)=0
3140 LET T(213)=0
3145 LET T(214)=0
3150 LET T(215)=0
3155 LET T(216)=0
3160 LET T(217)=0
3165 LET T(218)=0
3170 LET T(219)=0
3175 LET T(220)=0
3180 LET T(221)=0
3185 LET T(222)=0
3190 LET T(223)=0
3195 LET T(224)=0
3200 LET T(225)=0
3205 LET T(226)=0
3210 LET T(227)=0
3215 LET T(228)=0
3220 LET T(229)=0
3225 LET T(230)=0
3230 LET T(231)=0
3235 LET T(232)=0
3240 LET T(233)=0
3245 LET T(234)=0
3250 LET T(235)=0
3255 LET T(236)=0
3260 LET T(237)=0
3265 LET T(238)=0
3270 LET T(239)=0
3275 LET T(240)=0
3280 LET T(241)=0
3285 LET T(242)=0
3290 LET T(243)=0
3295 LET T(244)=0
3300 LET T(245)=0
3305 LET T(246)=0
3310 LET T(247)=0
3315 LET T(248)=0
3320 LET T(249)=0
3325 LET T(250)=0
3330 LET T(251)=0
3335 LET T(252)=0
3340 LET T(253)=0
3345 LET T(254)=0
3350 LET T(255)=0
3355 LET T(256)=0
3360 LET T(257)=0
3365 LET T(258)=0
3370 LET T(259)=0
3375 LET T(260)=0
3380 LET T(261)=0
3385 LET T(262)=0
3390 LET T(263)=0
3395 LET T(264)=0
3400 LET T(265)=0
3405 LET T(266)=0
3410 LET T(267)=0
3415 LET T(268)=0
3420 LET T(269)=0
3425 LET T(270)=0
3430 LET T(271)=0
3435 LET T(272)=0
3440 LET T(273)=0
3445 LET T(274)=0
3450 LET T(275)=0
3455 LET T(276)=0
3460 LET T(277)=0
3465 LET T(278)=0
3470 LET T(279)=0
3475 LET T(280)=0
3480 LET T(281)=0
3485 LET T(282)=0
3490 LET T(283)=0
3495 LET T(284)=0
3500 LET T(285)=0
3505 LET T(286)=0
3510 LET T(287)=0
3515 LET T(288)=0
3520 LET T(289)=0
3525 LET T(290)=0
3530 LET T(291)=0
3535 LET T(292)=0
3540 LET T(293)=0
3545 LET T(294)=0
3550 LET T(295)=0
3555 LET T(296)=0
3560 LET T(297)=0
3565 LET T(298)=0
3570 LET T(299)=0
3575 LET T(300)=0
3580 LET T(301)=0
3585 LET T(302)=0
3590 LET T(303)=0
3595 LET T(304)=0
3600 LET T(305)=0
3605 LET T(306)=0
3610 LET T(307)=0
3615 LET T(308)=0
3620 LET T(309)=0
3625 LET T(310)=0
3630 LET T(311)=0
3635 LET T(312)=0
3640 LET T(313)=0
3645 LET T(314)=0
3650 LET T(315)=0
3655 LET T(316)=0
3660 LET T(317)=0
3665 LET T(318)=0
3670 LET T(319)=0
3675 LET T(320)=0
3680 LET T(321)=0
3685 LET T(322)=0
```

```

5000 LET E$=" "
5005 LET E$=" "
5025 FOR C=3 TO 20 STEP 3
5030 PRINT AT C,13;W$;AT C+1,13;
E$;AT C+2,13;E$
5035 NEXT C
5040 PRINT AT 21,13;W$
5050 RETURN
5055 GOTO 6050
9999 IF G% THEN GOTO 6051
6000 IF G% THEN RETURN
6001 IF G% THEN RETURN
6002 LET K=5
6004 FOR D=0 TO 30 STEP 6
6005 FOR C=1+D TO 6+D
6006 LET M(C)=K
6007 NEXT C
6008 LET K=K+3
6009 NEXT D
6010 LET K=14
6011 FOR C=1 TO 5
6012 LET N(C)=K
6013 LET N(C+6)=K
6014 LET N(C+12)=K
6015 LET N(C+18)=K
6020 LET N(C+24)=K
6021 LET N(C+30)=K

```

```
6025 LET K=K+3  
6036 NEXT C  
6051 RETURN  
6060 REM %SCORE BOXES#  
6062 PRINT AT 0,0,"===== "  
        "===== THREE IN A RO"  
        "===== "  
6065 PRINT AT 1,0,"===== "  
        "===== IN A ROW"  
        "===== "  
U...THREE AT 2,0,"===== "  
6070 PRINT AT 2,0,"===== "  
        "===== "  
        "LET F$="
```

```

6070 F=
6080 LET F$="
6091 LET H$="
6092 PRINT AT 21,0;H$;AT 19,0;G$
6093 LET H$="
6094 PRINT AT 20,0;F$
6095 PRINT AT 18,0;H$
6096 PRINT AT 15,0;G$;AT 14,0;G$
6097 PRINT AT 13,0;"PRESS"
6098 PRINT AT 13,4;"PRESS"
6099 PRINT AT 18,4;"YOU SCORE 2"
6099 PRINT AT 10,1;"POINTS FOR"
6099 PRINT AT 11,1;"3-IN-A-ROW"
6099 PRINT AT 5,1;"PLEASE WAIT"
6100 GOTO 6000
6100 REM *INSTRUCTIONS*
7000 PRINT AT 0,0;"=====
7003 =====
7005 PRINT AT 2,0;"***WELCOME
=====
7010 PRINT AT 4,0;"=====
=====
7015 PRINT AT 5,0;"3-IN-A-ROW
=====
7015 PRINT AT 3,3;"FOR 2 PLA
A GAME OF STRATEGY"
7020 PRINT AT 10,2;"PLAYED
THE GAME IS"
7025 PRINT AT 12,1;"EX6 GRI
FOUR ROUNDS ON A"
7030 PRINT AT 14,1;"TRY5 T
SCORE EACH AT
7035 AS MANY AT 15,3;"OF 3 C
LETE PRINT AT 16,3;"PRESS
7040 POSSIBLE.
7045 PRINT AT 21,3;"PRESS
3 AS
7045 CONTINUE.
7050 IF INKEY$="" THEN GO
Y TO
7050 FOR C=5 TO 19
7055 PRINT AT C,0;"
7060 PRINT AT 5,4;"SCORE

```

```

7050 IF INKEY#="" THEN GOTD 7100
7055 FOR C=6 TO 10
7060 PRINT AT C,0;" "
7065 NEXT C
7070 PRINT AT 8,4;"SCORING ROWS
CAN BE MADE"
7075 PRINT AT 8,7;"IN FOUR DIRECTIONS"
7080 PRINT AT 11,9;"1. VERTICAL
7085 PRINT AT 13,8;"2. HORIZONTAL
7090 PRINT AT 15,9;"3. DIAGONAL
7095 PRINT AT 17,5;"(IN BOTH DIRECTIONS)"
7100 IF INKEY#="" THEN GOTD 7100
7105 CLS
7110 RETURN

```



```

1 PRINT "Who yer gonna call...
.....GHOSTBLASTERS!"
"By Michael Durkin"
2 BEEP .3,4: BEEP .15,2: BEEP
.5,4: PAUSE 50
3 OVER 1
4 BORDER 2: PAPER 0: INK 7: C
LS : BRIGHT 1
8 GO SUB 9000
10 FOR f= USR "a" TO USR "d"+
7: READ a: POKE f,a: NEXT f
20 DATA 3,15,27,49,59,63,63,57
,192,240,216,140,220,252,252,220
,24,12,0,0,0,0,0,0,204,102,0,0,0
,0,0,0
30 LET sc=100: LET a=15: LET b
=10: LET ti=1000
32 GO SUB 1000
35 LET x= INT ( RND *21): LET
y=30
37 IF sc<0 THEN GO TO 3000
40 PRINT AT b,a: OVER 0: " ":
LET a=a+( INKEY$ =f$)-( INKEY$ =
1$): LET b=b+( INKEY$ =d$)-( INK
EY$ =u$)
42 LET ti=ti-1: IF ti=0 THEN
GO TO 2800
45 IF INKEY$ =1$ THEN LET a=
a-1

```

The attic room is haunted. As chief Ghostblaster, can you train your sights on the ghosts and shoot them down before they escape through the door at the left of the room?

Written for the Spectrum or Spectrum Plus by Michael Durkin of Preston, Lancashire.

```

50 IF b<0 THEN LET b=0
60 IF a>30 THEN LET a=30
70 IF a<0 THEN LET a=0
80 IF b>21 THEN LET b=21
90 PRINT AT x,y: OVER 1: "AB":
AT x+1,y: OVER 1: "CD"
95 BEEP .005,x+y-10
100 PRINT AT b,a: OVER 0: "+"

```

```

110 IF INKEY$ =f$ AND b=x AND
a=y THEN FOR g=7 TO 0 STEP -1:
PRINT OVER 0: AT b,a: INK g: "AB
": AT b+1,a: INK g: "CD": BEEP .0
5,g+30: NEXT g: LET sc=sc+( INT
( RND *200))+100: LET p=0: CLS :
GO SUB 1000: GO TO 35
120 IF INKEY$ =f$ AND b <> x A
ND a <> y THEN BEEP .01,-5
140 PRINT #0: AT 0,0: FLASH 1: "
GHOSTBLASTERS"
150 PRINT AT x,y: OVER 1: "AB":
AT x+1,y: OVER 1: "CD": LET y=y-
1

```

```

160 IF y=0 THEN CLS : LET sc=s
c-10: GO SUB 1000: GO TO 35
170 PRINT #0: AT 0,15: "CASH:";s
c:#0: AT 1,10: "TIME:";ti
175 LET v= INT ( RND *100): IF
v>50 THEN LET v=0

```

```

177 IF v<25 AND v>0 THEN LET v
=-1
178 IF v >= 25 AND v <= 50 THEN
LET v=1
180 LET x=x+v: IF x<0 THEN LET
x=0
190 IF x>20 THEN LET x=20
200 GO TO 40
1000 PLOT 0,0: DRAW 50,50: DRAW
155,0: DRAW 0,75: DRAW -155,0: D
RAW 0,-75: PLOT 255,0: DRAW -50,
RAW 0,-75: PLOT 255,175: DRAW -50,-50:
50: PLOT 0,175: DRAW 50,-50
PLOT 0,175: PLOT 10,10: DRAW 0,1
1010 INK 5: PLOT 10,10: DRAW 0,1
00: DRAW 20,-5: DRAW 0,-75: PLOT
24,75: DRAW 4,0: PLOT 150,100:
DRAW 30,0: DRAW 0,-30: DRAW -30,
0: DRAW 0,30: INK 7: RETURN
2800 IF sc >= sk THEN GO TO 700
0

```

```

2805 CLS : PRINT FLASH 1: AT 10
,10: "GAME OVER": AT 12,3: "TIME U
P AND YOU DIDNT EARN": AT 14,9: "
ENOUGH CASH": GO TO 9500
3000 CLS : PRINT FLASH 1: AT 10
,10: "GAME OVER": AT 12,6: "YOU'RE
OUT OF CASH!"
3010 GO TO 9500
7000 CLS : PRINT "YOU MADE SUFFI
CIENT CASH. WELL DONE!
YOU WERE ON SKILL LEVEL ";sk/100
0: ". WHY NOT TRY A HARDER LEVEL"
: FOR f=0 TO 50: BEEP .01,f: NEX
T f: GO TO 9510

```

```

9000 INPUT "KEYS:LEFT ? ";l$
9010 INPUT "RIGHT ? ";r$
9020 INPUT "UP ? ";u$
9030 INPUT "DOWN ? ";d$
9040 INPUT "FIRE ? ";f$
9045 INPUT "SKILL LEVEL (1-10)":
sk: IF sk<1 OR sk>10 THEN GO TO
9045
9050 LET sk=sk*1000: RETURN
9500 BEEP .5,4: BEEP .3,1: BEEP
.2,5: BEEP .5,4: BEEP .4,1
9510 PRINT #0, AT 1,0: "Another g
ame? eh? (Y/N)": FOR k=0 TO 50:
NEXT k
9520 IF INKEY$ ="y" THEN RUN

```

```

9530 IF INKEY$ ="n" THEN GO TO
9550
9540 GO TO 9520
9550 CLS : PRINT "Sure?(Y/N)": B
EEP .5,-20
9560 IF INKEY$ ="y" THEN RANDO
MIZE USR 0
9570 IF INKEY$ ="n" THEN GO TO
9510
9580 GO TO 9560

```

GHOSTBLASTERS

You've got it



Licked



Cheat at **Cavelon** by starting the game and then pressing down as many keys as you can at the same time. This is best done by placing a book on the keyboard and then pressing down upon it. "HI CHRIS WHAT SHALL I DO" will then be printed on screen. Press a key 1 to 6 to choose the sheet on which you wish to start the next game.

Paul Howarth,
Skelmersdale, Lancs.

Disable the **BREAK** key on a mark 3 Spectrum by entering **POKE 23613,82** at the start of a program. To make the computer crash when the **BREAK** key is pressed, enter **23613,0** at the beginning of a program.

Mrs T Burke,
Scrafield, Lincs.

This short Basic program will provide infinite lives on some versions of **Underwulde** from Ultimate. Enter it, and then run the tape.

```
10 LOAD "" SCREEN$
20 LOAD "" CODE
30 POKE 23314,201
40 RANDOMISE USR
23300
50 POKE 59377,0
60 RANDOMISE USR
26610
```

João Prospero,
Lisbon, Portugal.

Gain infinite lives in **Sabre Wolf** from Ultimate. Load the first section of the program, press break and stop the tape. Type in: **POKE 23756,1: CLEAR 65535**. Edit the line and move the cursor to the end and delete the following: **PRINT USR 23424**. Add line 10 with either of these two pokes: **POKE 43575,255** for infinite lives with one player, or **POKE 45520,255** for infinite lives with two players.

Gregory Cawthorn,
Letchworth, Herts.

To reach the B.P. can in **Pyjamarama**: collect the empty water bucket, take it to the bathroom and pass under the tap. Your bucket will now be full. Take the bucket to the room with the B.P. can, and you will find that it is now safe to pass the snappers. To fill the B.P. can, take it to the fuel dispenser.

Jason Humphries,
Coventry.

Obtain infinite lives on **Lunar Jetman** from Ultimate by adding this to the loader program:

```
10 CLEAR 24575: PAPER
7: INK 0: BORDER 0: CLS
20 FOR L=1 TO 5: PRINT
AT 6,0: LOAD "" CODE:
NEXT L
30 POKE 23439,201:
POKE 36965,0: RANDO-
MISE USR 32768
```

Thomas Hindson,
Oldham, Manchester.

ZX-81 owners will be less familiar with the end-listing procedure which occurs in machine code programs when **NEWLINE** is pressed and the first line overfills the screen. **POKE 16513,118** to prevent this happening.

Paul Lockett,
Northwich, Cheshire.

To escape from the goblins' dungeon in **The Hobbit** from Melbourne House, say to Thorin "open window", and repeat this until he does so. Then say "carry me" and then say "go". He should then carry you out of the dungeon.

To cross the black river say "Throw rope across" and carry on throwing until the rope lands in a boat. Then pull the rope and climb into the boat.

Christopher Ryan,
Euxton, Lancs.



Pen-friends

James White, 27 River Valley Road, Chudleigh Knighton, South Devon would like to find a pen pal outside the Devon area who also owns a Spectrum, and who would be interested in swapping program listings. He would be interested to hear from anyone who has been reading *Sinclair Programs* since before March 1984.

Computer Pen-Pal Club, 1 Constellation Street, Adamsdown, Cardiff CF2 1HJ are just starting up. They hope to be able to arrange contacts between computer users, particularly Sinclair users. If you are interested, send a stamped addressed envelope, together with your age, computer, telephone number, and any other relevant details.

Andrew Hales, 26 Queens Annes Drive, Westcliff-on-Sea, Essex owns a ZX-81 and would like to find a penfriend in the Essex area. He is interested in swapping ZX-81 games and ideas.

Jonathan Roberts, 5 Troed-y-Bwlch, De-ganwy, Gynedd, North Wales would like a penpal from the York area who owns a Spectrum, preferably a 48K Spectrum.

Martin Garthwaite, 127 Dringthorpe Road, Dringhouse, York, is eleven years old. He is looking for a penfriend who is interested in Spectrum software such as *Atic Atac* and *Ghostbusters*, and who knows codes for infinite lives in such games. He would also be pleased to swap program listings.



Savasan Yurtsever, Mimarlar ap 6/6, A. Eglence, Etlik, Ankara, Turkey has owned a 48K Spectrum for five months and has already written several programs for it. He would like to hear from anyone in search of a penfriend.

Paul Birch, Treetops, Whitby, Ellesmere Port, L65 6QT owns a 16K ZX-81. He would like to find a ZX-81 owning pen-pal who lives in the Cheshire area.

Simon Brodbeck, Wild Carr Barn, Gressingham, Lancaster, Lancashire feels that the ZX-81 is a very useful machine and that it is treated unfairly both by the general public and by software companies. He would like to hear from other people who think the same way, in order to exchange programs and tips.

Stuart Bain, 1 Trenowin Mews, 31 Chancellor Avenue, Durban, South Africa is 14 years old and is looking for a Spectrum owning pen-friend about the same age as himself. He would be willing to swap advice, news, tips and programs. His favourite games are *Sabre Wolf* and *Lords of Midnight*.

Questline

Urban Upstart from Richard Shepherd

Cathy Foot made the grave mistake of leaving sunny Hampstead for the wilds of Scarthorpe. Will she ever escape?

"HAD bovver wiv dog the other day — lost! Said Yeah man, you get out this hole. So I tell me, split this dump, which bug me more than I thought. Decide I leave this mong the town hall stuff fo who want to split dis Babylon."

Yah, well that's what I found in the archives when I tried to find out how to get out of here — I mean, well, it's just TOO tacky, not a Habitat in sight, and Julian says the wine bars don't bear thinking about — too, too sick-making. We've taken to drinking lager, but this stripey stuff the previous tenant left in the fridge has the oddest effect on one — Oh, Hampstead! Why did I leave you? Oh God — another can of beer — I can't keep this style going much longer!

If I didn't know that I could escape I might never have made the effort. Living here HAS that effect on folks. But I got this letter, see. It was addressed to me, but the person what wrote it forgot we know our mates by their Christian names and signed S. Jay. Good on yer mate, I hope the schools and fings are better out there than they are in Scarthorpe — don't see how they CAN'T be! But next time give me yer full name, so I'll know who you are!

Still, I'm getting out meself and will look you up. The next grubby tramp that knocks at yer door in Glebelands Road, looking for a

handout or a job COULD be yer old mate from Scarthorpe. Fanks, too, to the postie for gettin through. Only one question, postie, old pal, did yer HAVE to use yer submachine gun on my front door? That's part of the reason I'm getting out. I LIKED my old doss, the only thing this one has going for it is a solid front door.

I'm writing this in hospital while I get over my last mixup with the United supporters, then I'm getting out while the going is good. The problem is that the painkillers they are giving me sometimes effects what I write, so please excuse my wandering fingers . . . you CAN make sense of it if you try.

Oops, here comes the nurse again!

Getting out of jail is easy, once you've sussed it. If you xbjum poh fopvhi (move letters back one), the sergeant jt dbmmfex bxbz and you dbo tofbl pvu.

Boy, that stuff they give you is powerful!

There is not much chance to improve reading skills here, apart from gravestones, posters and signs. There is a useful book in the bookshop, though.

Fellow adventurers might remember to dress before leaving their rooms, the police in this town are GOOD, they have to be, but they can be said to be too keen on arrests — perhaps 'cause we don't believe in staying locked up if we can help it. They seem to spend more time on making arrests for indecent exposure, loitering and littering, when, if they was to arrest the football hooligans this might become quite a decent little town. Still, after the last Football Wars, when we were banned by the F.A. from playing against any club outside the town for the next hundred years — I may have

missed a few zeros off that figure, but it don't matter, do it? — the police seem to have lost interest in other thugs and the town has gone right to the dogs.

The worst thing about a charge of indecent exposure is that there is NO WAY to rip off a pair of strides if yore in the nick — the old bill are too attached to theirs and they've learnt to keep their spares at home — if cops HAVE homes.

The worst of the hooligans seem to live off Cut Throat Alley — that used to be such a pretty street once, when it was called Coburn Road. NEVER go down there on yer own, the filth use an armoured car if they get called in. The Ambulance guys are pretty good too; they go everywhere — they can afford to, they got their ambulance from the army experimental center and it spozed to be able to take anything up to an atom bomb. Nobody tried that yet, they closed down the college and moved out a lot of stuff when we got banned — some folks declare U.D.I., we got it forced on us; even Maggie gave up when they stopped her from using a nuke.

The only problem with the hospital is that since the oiks started roaming the corridors the staff don't see no point in letting us out. They say that if they do, it only means getting the ambulance out to pick us up again later. I spoze they right. You CAN get out though, there IS a way through that maze of corridors and if you got a doctor coat, they got so many problems with staff they let you go in case you really ARE the new Doctor.

If you REALLY stuck — god, here comes that *** nurse again, there is one surefire way out of the hospital, you just txfbs. Leave the mbshf lfz in uif jpvtf before



There's one thing bout living in Scarthorpe, once I get out the world's gonna wonder what hit it.

To: Questline, Sinclair Programs,
Priory Court, 30-32 Farringdon Lane,
London EC1

From:

HELP OFFERED

HELP WANTED

.....

TRACER

g is the vertical position of the missile.

40-50 Clears screen and prints ground under the missile base.

70 Prints alien ship at a,b
using graphic 6 and
graphic a. Again, a
space is used to the left
to erase old positions.

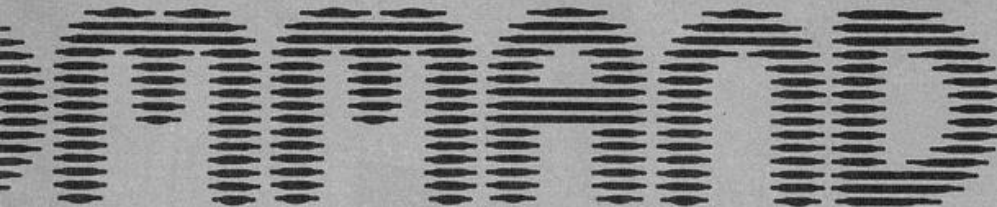
sound effect when moving the base. The STOP key is also scanned to interrupt the game (line 95) and 0 for firing (line 100). If 0 has been pressed then control moves to the FIRE subroutine.

```

1004 PRINT AT a,b;"(sp;g6;2*lg3
)"
1005 PRINT AT g-1,e+2;" "; AT g
+1,e+2;" "
1006 PRINT AT g,e+2;"t": BEEP .
02, INT ( RND *10)
1010 IF b >= 29 THEN CLS : PRIN
T FLASH 1;"Plane out of missile
range": PAUSE 0: GO TO go
1015 LET b=b+1
1020 LET g=g-1
1030 IF g=a AND e=b THEN PAUSE
500: GO TO 1500
1040 NEXT z
1050 PRINT AT 21,0;"Missile bur
nt up in atmosphere.": FOR a=1 T
O 20: BEEP .02,20-a: NEXT a: BEE
P 1,-20
1055 FOR a=1 TO 2: PAUSE 0: NEXT
a
1060 GO SUB go
1500 PRINT AT 21,0;"You hit the
plane.": PAUSE 200
1510 PRINT AT 21,0;"Press any k
ey.": PAUSE 0:
GO TO 2000
2000 CLS : LET Z$="Press any key
for another game.....
.....@ 1984 Stephe
n Page.....Press any key
.....Missile comma
nd....."
2010 PRINT AT 11,0;Z$(1 TO 31)

2020 LET z$=z$+z$(1): LET z$=z$(
2 TO )
2030 BEEP 1/100, RND : IF INKEY
# <" THEN CLS : GO TO 10
2040 GO TO 2010

```

105 Checks if alien ship is
still in range (i.e. still on
the screen).

110 Moves alien 1 position to the right every five times the MAIN loop is executed. This means that the base can be moved five times as fast as the ship (though the programmer has used a cunning trick here — see notes for

120

FIRE routine).

Keeps the program repeating the MAIN loop until an exit is made to the END routine at line 2000.

FIRE ROUTINE

```
1000   Sets up a loop counter
      for each missile position.
1004   Re-prints alien ship.
1005-   Erase old missile and
1006   print new.
```

1010- Move ship to right and
1015 check for range. Line
1015 is the cunning bit. It
makes the alien move to
the right as fast as the
missile is moving up the
screen, to help him es-
cape.

1020 Moves missile up one
character position.

1030 Jumps to line 1500 if hit is scored.

```

1040  Loops back to start of
      FIRE routine if missile
      still below top of screen.

```

END ROUTINE

1050 Missile at top of screen.

```

1055- Wait for a double key
1060 press to continue at line
2000

```

1500- Print Hit message.

1510

```
2000- Set up title etc, in string
2040 variable Z$ and then
PRINT repeatedly, re-
moving first character
each time (to give ap-
pearance of text moving
left to right) until a key is
pressed to re-start game.
```

CASSETTE FILE

Kee*p* a record of your recorded programs with Computer File, written for the 16K ZX-81 by James Broadhurst and Neal Card of Bollington, Cheshire.

The program allows you to store records of up to twenty cassettes on tape, and has enabled James and Neal to sort out their program collection and keep an eye on where it all is.

[illegible]

```

100 NEXT A
110 PRINT AT 24,0: "PRESS A KEY"
120 RETURN TO MENU
130 IF INKEY$="" THEN GOTO 180
140 IF INKEY$="C" THEN GOTO 10
150 PRINT "ENTER THE NUMBER OF"
160 PRINT "ITEMS. (MAXIMUM NUMBER IS 2"
170 INPUT B$
180 IF B$="" THEN GOTO 220
190 IF B$="1" THEN "YOU MUST NOW TYPE"
200 IF B$="2" THEN "ON CASSETTE"
210 PRINT "THE NAME OF THE CASSETTE"
220 IF INKEY$="" THEN GOTO 250
230 IF B$="1" THEN GOTO 27
240 IF B$="2" THEN GOTO 27
250 PRINT AT 10,0: "CASSETTE NUM"
260 INPUT B$
270 LET A=(A)+B$
280 NEXT A
290 GOTO 10

```

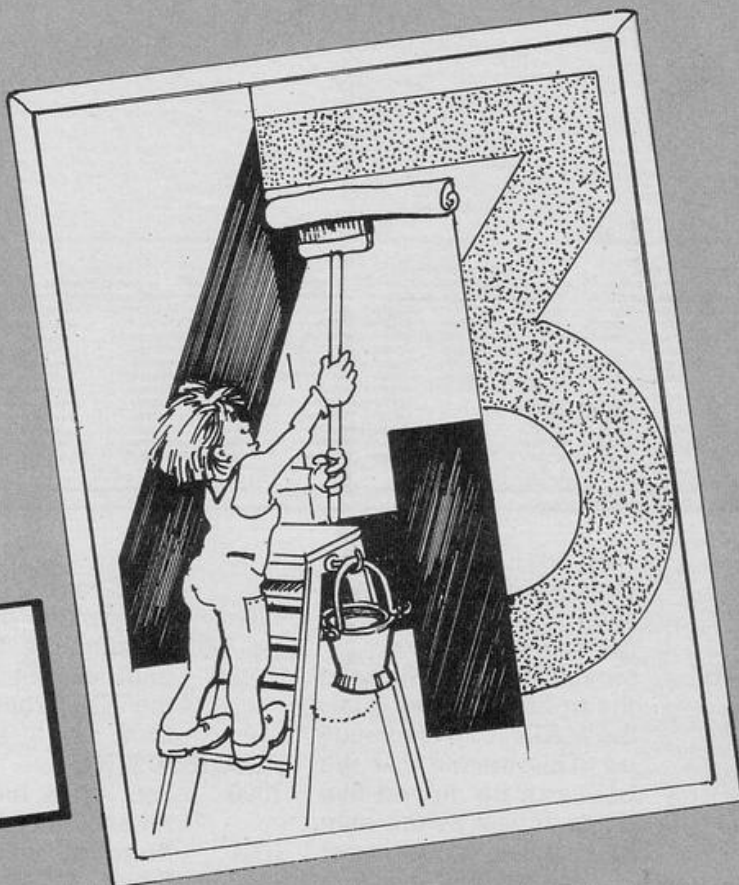

RENUMBER

Renumbring programs is often Ruseful, both to make them look tidy, or to create a little more room in a subroutine. With these lines at the end of your listing, you can Renumber programs on the 48K Spectrum or Spectrum Plus as often as you wish. Simply enter GOTO 9997 when you wish to change line numbers, and the program will prompt you.

Note that only line numbers will be changed. Numbers within lines, following statements such as GOTO and GOSUB will not be changed.

Written by G Bennett of Hillingdon, Middlesex.

```
9997 LET s= PEEK 23635+256*( PEEK
K 23636): INPUT "in steps of?";s
t: INPUT "begin at?";b
9998 IF ( PEEK s+1)+(256* PEEK s
)>9996 THEN STOP
9999 POKE s, INT (b/256): POKE s
+1,b-256* INT (b/256): LET s=s+4
+ PEEK (s+2)+ PEEK (s+3)*256: LE
T b=b+st: GO TO 9998
```



BEGINNER

COIN DROP

Drop your coins into the box which appears on the bottom of the screen by pressing any key. Your coin is held in a claw suspended from a rail running across the top. Each time you hit your target you are awarded a sum of money. To continue playing press any key. All underlined characters are to be entered in graphics mode.

Coin Drop was written for the Spectrum by Jamie Monk from Crawley.



```
5 LET mi=0
10 LET mib=0
30 CLS : LET m= INT ( RND *10)
+1
31 IF m=1 THEN LET v=50: LET
a$="D": LET b$="Fifty Pence"
32 IF m >= 2 THEN LET v=1: LE
T a$="o": LET b$="One Penny"
34 IF m >= 6 THEN LET v=5: LE
T a$="*": LET b$="Five Pence"
36 IF m >= 9 THEN LET v=10: L
ET a$="o": LET b$="Ten Pence"
40 PRINT AT 0,5; INVERSE 1;b$
45 PRINT AT 9,0;"(32*ig3)"
50 LET pob= INT ( RND *26)+5
70 PRINT AT 20,pob;"AB"
75 FOR f=0 TO 31
80 PRINT AT 10,f;"C"
90 PAUSE 5
100 IF INKEY$ <> "" THEN GO
TO 200
110 PAUSE 1: PRINT AT 10,f;" "
```

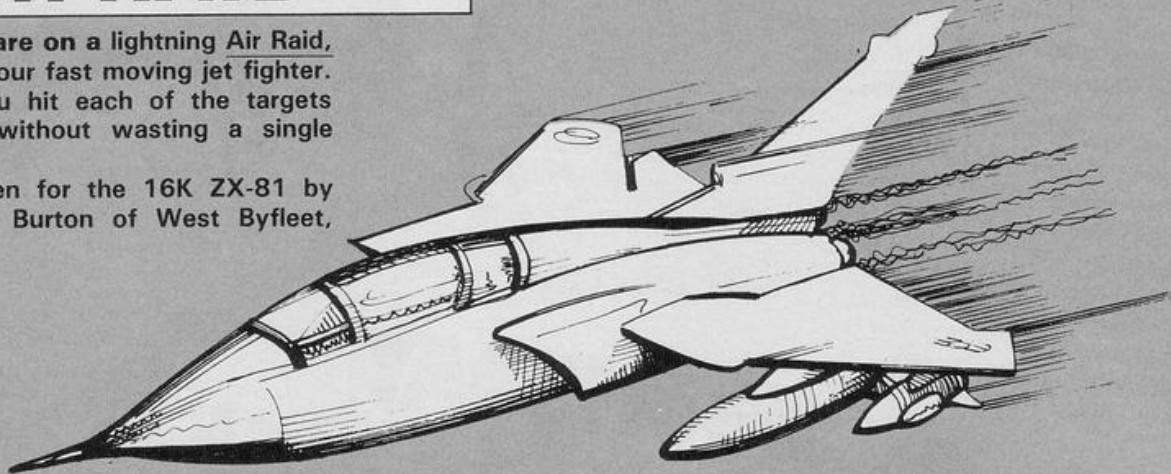
```
: NEXT f
120 LET mi=mi+1: IF mi=5 THEN
GO TO 300
130 GO TO 30
200 FOR g=10 TO 19
210 PRINT AT g,f;a$
220 PAUSE 2: PRINT AT g,f;" "
230 NEXT g
240 IF f=pob OR f=pob+1 THEN G
O TO 260
241 LET mi=mi+1: IF mi=5 THEN
GO TO 300
245 PRINT AT 20,f;"X": BEEP .3
,-30: BEEP .3,-50
246 PRINT AT 10,0;"YOU MISSED"
: PRINT "PRESS A KEY"
247 PAUSE 0: GO TO 30
260 PRINT AT 20,pob; INK 2;"AB"
: BEEP .03,55: BEEP .03,50: BEE
P .04,50: BEEP .04,50: BEEP .03,
55
265 LET mib=mib+v
270 PRINT AT 10,0;"Well Done!"
```

```
You Dropped: "; AT 11,0; INK 2;b
$; INK 0;" In the Box"
280 PAUSE 0: GO TO 30
300 BEEP .5,-40: BEEP .5,-50
310 PRINT "You Have Collected "
;mib;" Pence"
320 INPUT "Play Again ? (y/n) "
:f$
330 IF f$(1)="y" THEN RUN
340 IF f$(1)="n" THEN STOP
350 GO TO 320
9990 FOR f=USR "a" TO USR "d"+
7: READ a: POKE f,a: NEXT f
9991 DATA 0,15,48,48,47,32,32,63
9992 DATA 0,248,4,6,250,2,2,254
9993 DATA 124,124,16,56,84,84,84
,0
9994 DATA 60,66,153,165,165,153,
66,60
9995 RUN
9999 SAVE "Coin Drop" LINE 9990
```


AIR RAID

You are on a lightning Air Raid, in your fast moving jet fighter. Can you hit each of the targets below without wasting a single bomb?

Written for the 16K ZX-81 by Charles Burton of West Byfleet, Surrey.



```

1 LET Z=0
2 DIM U(5)
3 LET S=0
15 PRINT AT 0,10:"AIR-RAID"
20 LET A$=""
21 PRINT AT 20,0;A$+A$+A$+A$
24 FOR D=1 TO 10
25 FOR N=1 TO 5
27 LET U(N)=INT (RND*27)+4
28 PRINT AT 19,U(N);CHR$ 173
29 NEXT N
40 FOR A=27 TO 1 STEP -1
50 PRINT AT 5,A;"-0:"
70 IF INKEY$="0" THEN GOTO 130
80 NEXT A
90 PRINT AT 5,A;" "
95 PRINT AT 19,0;" "
110 NEXT D
117 PRINT AT 5,0;"YOUR HITS/SHOTS=";S;" / ";Z
120 STOP
131 LET Z=Z+1
132 FOR F=7 TO 19
140 PRINT AT F,A+1;"*";AT F-1,A+1;" "
145 NEXT F
150 FOR Y=1 TO 5
153 IF U(Y)=A+1 THEN GOTO 180
160 NEXT Y
165 PRINT AT F-1,A+1;" "
170 NEXT A
180 LET S=S+1
185 PRINT AT F-1,A+1;CHR$ 151
190 NEXT A
195 GOTO 90

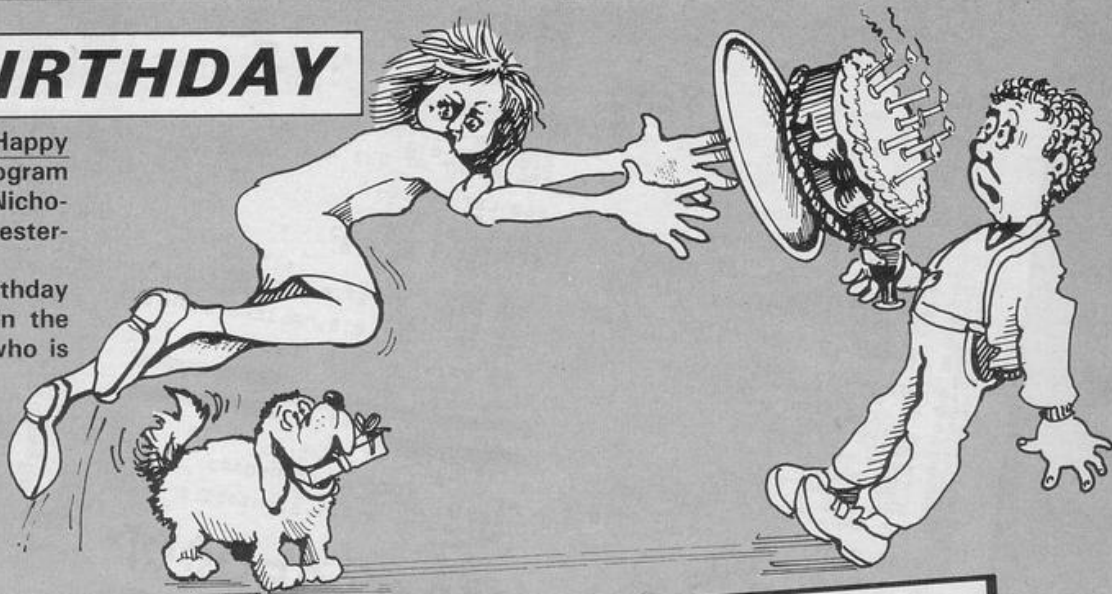
```

BEGINNER

HAPPY BIRTHDAY

Wish your friends a Happy Birthday with this program written for the Spectrum by Nicholas Moyle of Dursley, Gloucestershire.

The program will play a birthday tune and display a pattern in the favourite colour of anyone who is having a birthday.



```

1 CLS
10 INPUT "Who has got a birthday today? (Please enter your name) ";a$
20 CLS: INPUT "What is your favourite colour? (Enter a number 0 to 6) ";b
25 CLS
30 INK b
35 BORDER b
40 FOR f=0 TO 3: PRINT AT f,0

```

```

;"HAPPY BIRTHDAY ";a$
50 NEXT f
60 BEEP .25,0: BEEP .25,0: BEEP .5,2: BEEP .5,0: BEEP .5,5: BEEP 1,4
70 BEEP .25,0: BEEP .25,0: BEEP .5,2: BEEP .5,0: BEEP .5,7: BEEP 1,5
80 BEEP .25,0: BEEP .25,0: BEEP .5,12: BEEP .5,9: BEEP .5,5: BEEP .5,4: BEEP 1,2

```

```

90 BEEP .25,10: BEEP .25,10: BEEP .5,9: BEEP .5,5: BEEP .5,7: BEEP 1,5
100 FOR s=-40 TO 40 STEP 1: BEEP .005,s: PLOT s+120,140: NEXT s
110 PLOT 70,110
120 DRAW 4,4,4040
1000 STOP
9999 SAVE "Birthday" LINE 1: RUN

```


Alien space ships are streaking towards the earth. You have been chosen for an assignment which could save the earth, using the new ray missile guidance system to shoot the ships before they can land. Failure means death, success will earn you the thanks of the President and of everyone on earth.

Doomsday 85 was written for the 16K ZX-81 by J Stubbs of Chester, Cheshire.

Remember that line 0 can be produced by entering the line which you wish to become line 0 as line 1, and then entering, as direct commands POKE 16509,0 and POKE 16510,0.

DOOMSDAY

```
0 REM E.RND? TAN
1 REM MISSILE DEFENCE
40 GOSUB 820
50 LET R=INT (RND*10)+3
60 LET DES=0
70 LET LD=0
80 LET MIS=R*RR
90 LET RS="T"
95 LET T$="T"
```

```
100 LET S$=""
110 GOSUB 750
120 LET F=15
130 LET F=15
140 GOSUB 420
150 LET X=0
160 LET Z=0
170 GOSUB 750
180 IF R=0 THEN GOTO 1100
190 LET D=2
200 LET A=INT (RND*25)+1
210 LET D=D+1
220 LET B=INT (RND*(25-A))+A
230 LET Z=A TO B
240 IF RND>.7 THEN PRINT AT D,Z
250 IF RND<.7 THEN PRINT AT D,Z
260 IF P=USR 16514
270 IF P<0 THEN GOTO 550
280 IF X>0 THEN GOSUB 580
290 GOSUB 410
300 PRINT AT D,Z;S$
310 NEXT Z
320 LET D=D+1
330 LET A=INT RND*5
340 FOR Z=0 TO A STEP -1
350 IF RND>.7 THEN PRINT AT D,Z
360 IF RND<.7 THEN PRINT AT D,Z
370 IF RND<.7 THEN PRINT AT D,Z
380 LET P=USR 16514
390 IF P<0 THEN GOTO 550
400 IF X>0 THEN GOSUB 580
410 GOSUB 410
420 PRINT AT D,Z;S$
430 NEXT Z
440 GOTO 200
450 IF INKEY$="" THEN RETURN
460 IF INKEY$="5" AND E<2
470 PRINT AT 17,E-2;" " AT 1
480 LET E=E+(INKEY$="5" AND E<2)
490 IF INKEY$="0" THEN GOTO 450
450 RETURN
```

```
450 IF MIS=0 THEN RETURN
470 LET MIS=MIS-1
480 GOSUB 800
490 LET X=X+1
500 FOR F=16 TO 3 STEP -1
510 PRINT AT F,E
520 LET P=USR 16514
530 IF P=136 THEN NEXT F
540 PRINT AT F,E;" " AT F,E;" "
550 IF P=28 THEN GOTO 510
560 PRINT AT F,E
570 RETURN
580 NEXT F
590 LET X=0
600 RETURN
610 PRINT AT F-1,E;" " 0
```

```
620 PRINT AT 4,10;"YOU GOT HIM?"
630 LET DES=DES+1
640 GOTO 670
650 PRINT AT D-1,Z-2;"HE LANDED"
```

```
660 LET LD=LD+1
670 LET A=R-1
680 PAUSE 100
690 FOR Z=2 TO 13
700 PRINT AT Z,0;" "
710 NEXT Z
```

```
720 NEXT Z
730 PRINT AT 17,E-2;" "
740 GOTO 120
750 PRINT AT 0,5;"ALIENS SIGHTED"
760 PRINT AT 1,5;"DESTROYED;"
770 PRINT AT 14,0;" "
780 PRINT AT 18,4;"MISSILE GUN"
```

```
790 PRINT AT 19,0;" "
800 PRINT AT 21,21;" "
810 RETURN
820 PRINT AT 10,0;" "
830 PRINT AT 15,10;"BY JED STUBBS"
840 PAUSE 4E4
850 CLS
860 PRINT AT 4,0;"ALIEN SPACE CRAFTS ARE TRYING TO LAND ON EARTH. YOU HAVE BEEN GIVEN THE ASSIGNMENT TO USE THE NEW RAY MISSILE GUIDANCE SYSTEM TO DESTROY THEM, IF THEY LAND THE EARTH WILL BE DOOMED."
```

```
870 PRINT AT 4,0;"THE CONTROLS ARE ON THE PANEL BEFORE YOU, AS EACH CRAFT COMES INTO VIEW, MOVE YOUR GUIDANCE SYSTEM: '5' LEFT, '0' RIGHT, '0' TO THE CRAFT, '0' CLOSE IN LINE TO THE CRAFT, '0' FIRE A MISSILE PRESS '0' FOR GUIDANCE USE
```

```
872 PRINT AT 20,28;"N/L"
874 PAUSE 4E4
876 CLS
880 PRINT AT 4,0;"YOU MUST PENE-TRATE THE CENTRAL DEFLECTOR AN-D DESTROY THE COMPUTER STO-RE IN THE BUBBLE, IF YOU MISS WITH YOUR FIRST MISSILE, FIRE AGAIN BUT DO NOT KEEP YOUR FI-NGER ON THE BUTTON. OR YOU'LL R-UN OUT OF MISSILES."
```

```
885 PRINT AT 20,28;"N/L"
887 PAUSE 4E4
890 CLS
900 PRINT AT 6,2;"WHAT LEVEL DO YOU WISH: 1=1 MISSILE F 2=2 3=3 4=4 OR EACH SIGHTING"
```

```
1010 PRINT AT 12,2;"KEY IN THE N-UMBER:"
1020 INPUT R$
1030 IF R$="5" THEN RETURN
1040 GOTO 1020
1050 RETURN
1100 IF LD=1 THEN PRINT AT 10,10;"YOU FAILED"
1110 IF LD=1 THEN PRINT AT 8,0;"GROUND FORCES ARE ABLE TO DEAL WITH THE ONE THAT LANDED. THE PRESIDENT WANTS TO THANK YOU."
```

```
1120 IF LD=0 THEN PRINT AT 8,0;"WELL DONE YOU DESTROYED THEM ALL. THE PRESIDENT WANTS TO THANK YOU."
```

```
1130 STOP
9999 SAVE "MISSILE"
9999 RUN
```

DOOMSDAY 85

BY JED STUBBS



Dear Diary

Dad's been nagging me to write a program. He wants me to prove that I understand the Spectrum. He claims he only bought the machine because I told him it would turn me into a computer programmer.

Showing great patience, I explained that the Spectrum HAD been educational; it had taught me that thinking you needed to be a programmer in order to use a computer was like thinking you needed to be a mechanic in order to drive. Using it to zap aliens, as he correctly described my habits, was the true, progressive way to employ the device.

I also told him I couldn't have got this job writing for Sinclair Programs if I didn't know SOMETHING. He said that all I knew was my sister, "a computer virtuoso"

I decided that if I write a music routine then even someone of Dad's generation would be able to understand the skill involved — and it would be handy for the magazine.

After some lengthy sessions where I explained the principles involved to my little sister Eustacia, I'd sorted out the main part of the program. As I told her, the first line dimensioned an array which would be filled, in line 2, by the values of the notes contained in line 4. Lines 30 and 32, meanwhile, sat in the main loop which created your aliens and your missiles and your smart bombs and your nuclear laser gun.

```
1 DIM P(100): LET P=0
2 FOR X=1 TO 96: READ P(X): NEXT X
4 DATA . . . (the values of the notes) . . .
30 LET P=P+1: IF P=96 THEN LET P=1
32 BEEP .05,P(P)
```

However, I explained, in longer programs this routine might slow the response to key presses for the missiles and bombs and stuff. So we should stop the tune if keys were being pressed by deleting line 32, replacing line 30, and adding new lines.

```
30 IF NOT LEN INKEY$ OR IN 32766=191 THEN
GO TO 100
100 IF LEN INKEY$ OR NOT IN 32766=191
THEN GO TO 35
110 LET P=P+1: IF P=96 THEN LET P=1
115 BEEP .05,P(P)
120 GO TO 100
```

This is when Eustacia shocked me very much by refusing to calculate the DATA values for line 4 — even when I explained how very educational she would find it.

Several days later I had written line 4 as follows,

```
4 DATA 69,2,14,13,14,9,12,10,7,69,-2,2,7,9,69,2,6,9,10,69,2,1,4,13,14,9,
12,10,7,69,-2,2,7,9,69,2,10,9,7,69,69,9,10,12,14,5,15,14,12,3,14,12,10,2,
12,10,9,2,14,13,14,9,12,10,7,69,-2,2,7,9,69,2,6,9,10,69,2,14,13,14,9,12,
10,7,69,-2,2,7,9,68,2,10,9,7,69,69,69
```

However, I made sure Dad saw me sweating over this music. I'm going to convince him that buying me a new stereo system would help me learn classical guitar.

Sid



MONEY GRABBER

You and the computer take it in turns to collect money from a grid. On this grid it is only possible to move right and down, so you can never retrace your steps. The computer is playing blind so it is allowed three times as many chances as you, and is also allowed an extra pound for luck whenever it finds a pound. Your reactions must be fast and precise in order to beat the computer.

Money Grabba was written for the 16K ZX-81 by M Phillips of Redland, Bristol.

```

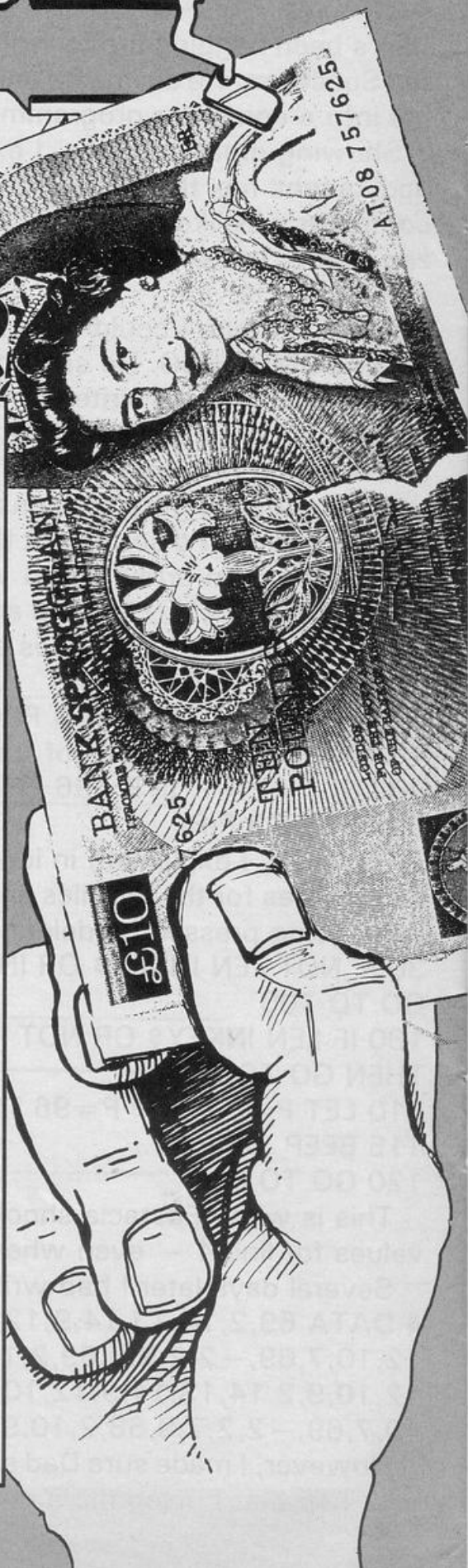
00REM COPYRIGHT MAP
01REM *** "MONEY GRABBA" ***
02REM
03CLS
04PRINT "      *** "MONEY GRAB
05PRINT "
06PRINT "
07PRINT " THE COMPUTER: "
08PRINT " YOU: "
09PRINT "
10PRINT "MOVING WITH KEYS: 8 R
11IGHT AND: 6 DOWN, YOU TAKE TURNS
12WITH THE COMPUTER TO GRAB MON
13EY. WHEN THE COMPUTER GRABS A POU
14ND IT GAINS ANOTHER (FOR LUCK) I
15T NEEDS TWO POUNDS MORE THAN YOU
16TO WIN."
17PRINT "SOME OF THE MONEY WI
18LL EITHER APPEAR TOO FAR AWAY
19OR ELSE IT MAY DISAPPEAR VERY Q
20UICKLY. THIS GIVES THE COMPUTER A
21FIGHTING CHANCE."
22PRINT "THE COMPUTER GOES FI
23RST AND HAS THREE ATTEMPTS AT GR
24ABBING SOME MONEY. YOU ONLY HAVE
25ONE ATTEMPT SO MAKE SURE YOUR AI
26M IS TRUE."
27PRINT AT 21,10;"GOOD LUCK"
28IF INKEY$="" THEN GOTO 99
29LET B=1
30LET P=0
31GOSUB 5000
32LET O=0
33LET A=0
34RAND
35LET P=23
36LET A=INT (RND*8)+1
37LET P=P+1
38LET B=INT (RND*8)+9
39PRINT AT A,B;CHR$ (12)
40LET X=1
41LET Y=8
42IF O=1 THEN GOTO 3000
43FOR N=1 TO 12
44LET C=INT (RND*2)
45IF C THEN LET X=X+1
46IF NOT C THEN LET Y=Y+1
47PRINT AT X,Y;CHR$ (128)
48PRINT AT X,Y;CHR$ (0)
49IF X=A AND Y=B THEN GOTO 12
50
51NEXT N
52GOTO 1210
53LET R=1

```

```

1210 PRINT AT A,B;CHR$ (0)
1310 IF R=1 THEN GOTO 2500
1315 IF P=31 THEN GOTO 2000
1320 GOTO 1000
2502 LET O=1
2505 IF R=0 THEN GOTO 2520
2508 PRINT AT 17,P0;CHR$ (12);AT
17,P0+2;CHR$ (12)
2510 LET P0=P0+4
2520 IF P0>26 THEN GOTO 6000
2530 IF INKEY$="" THEN GOTO 2530
2500 GOTO 500
3003 LET K=INT (RND*16)+4
3004 FOR F=1 TO K
3005 PRINT AT X,Y;CHR$ (8)
3007 PRINT AT X,Y;CHR$ (0)
3009 LET X=X+(INKEY$="8")
3010 LET Y=Y+(INKEY$="6")
3020 IF X=A AND Y=B THEN GOTO 40
00
3030 NEXT F
3032 PRINT AT A,B;CHR$ (0)
3037 IF INKEY$="" THEN GOTO 3037
3040 GOTO 400
4000 PRINT AT A,B;CHR$ (0);AT 19
,B0;CHR$ (12)
4005 LET B0=B0+2
4010 IF B0=24 THEN GOTO 6000
4020 IF INKEY$="" THEN GOTO 4020
4040 GOTO 400
5000 CLS
5003 FAST
5005 FOR N=0 TO 13
5010 PRINT AT N,7;CHR$ (3);AT N,
22;CHR$ (3)
5020 NEXT N
5022 FOR N=1 TO 29
5023 PRINT AT 15,N;CHR$ (133);AT
21,N;CHR$ (133)
5025 NEXT N
5028 FOR N=8 TO 21
5030 PRINT AT 0,N;CHR$ (133);AT
13,N;CHR$ (133)
5036 NEXT N
5040 FOR N=15 TO 21
5042 PRINT AT N,0;CHR$ (2);CHR$
(11);AT N,30;CHR$ (3)
5044 NEXT N
5046 PRINT AT 15,1;CHR$ (133);AT
21,1;CHR$ (133)
5048 PRINT AT 17,2;CHR$ (128);AT
19,2;CHR$ (8)
5050 POKE 16418,0
5052 PRINT AT 22,5;"*** "MONEY
GRABBA" ***"
5054 PRINT TAB 5;"
5150 SLOW
5152 RETURN
6000 IF P0>26 THEN GOTO 7000
6002 FOR N=4 TO 22
6004 PRINT AT 19,N;CHR$ (8)
6006 NEXT N
6010 FOR N=1 TO 25
6020 PRINT AT 19,B0;CHR$ (0)
6040 PRINT AT 19,B0;CHR$ (12)
6050 NEXT N
6070 IF INKEY$="" THEN GOTO 6070
6080 RUN
7000 FOR N=4 TO 25
7002 PRINT AT 17,N;CHR$ (128)
7006 NEXT N
7008 FOR N=1 TO 25
7020 PRINT AT 17,P0;CHR$ (0)
7040 PRINT AT 17,P0;CHR$ (12)
7050 NEXT N
7070 IF INKEY$="" THEN GOTO 7070
7777 RUN
9997 CLEAR
9998 SAVE "MONEY GRABBA"
9999 RUN

```



SPROGS

THE SPROGS MEET A KNIGHT IN ARMOUR



THEY ARRIVE IN WITCHWOOD



MERLIN COMES FORWARD



THEY LEAVE MERLIN AND SET OFF THROUGH THE FOREST



THE DRAGON AWAKES



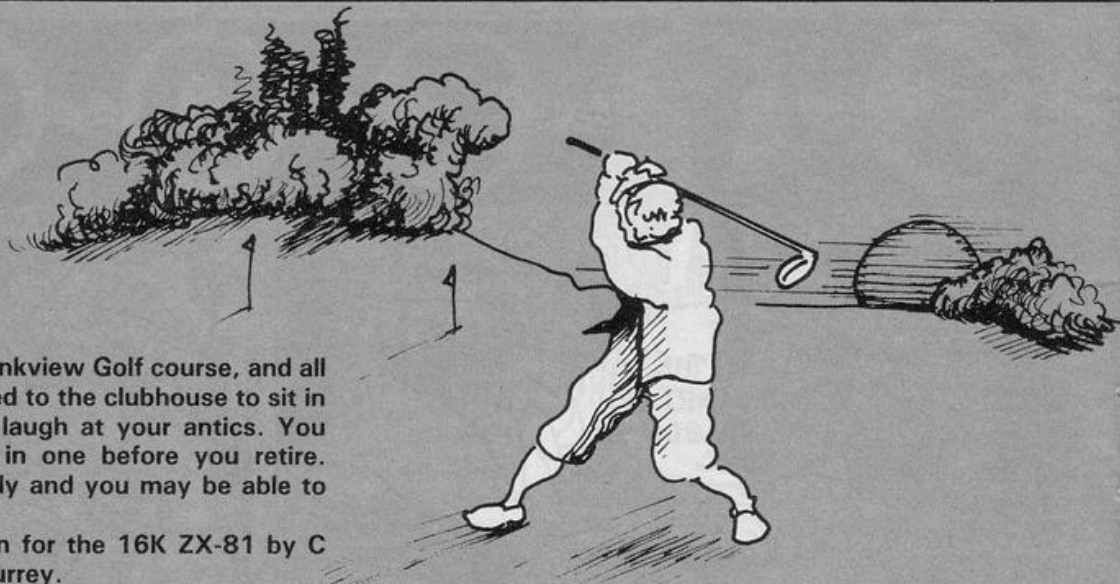
THE SPROGS ESCAPE WITH THE TORC!!



TEE FOR ONE

The sun is setting at Dankview Golf course, and all your friends have retired to the clubhouse to sit in armchairs, drink tea, and laugh at your antics. You have determined to hole in one before you retire. Choose your clubs carefully and you may be able to retire before midnight!

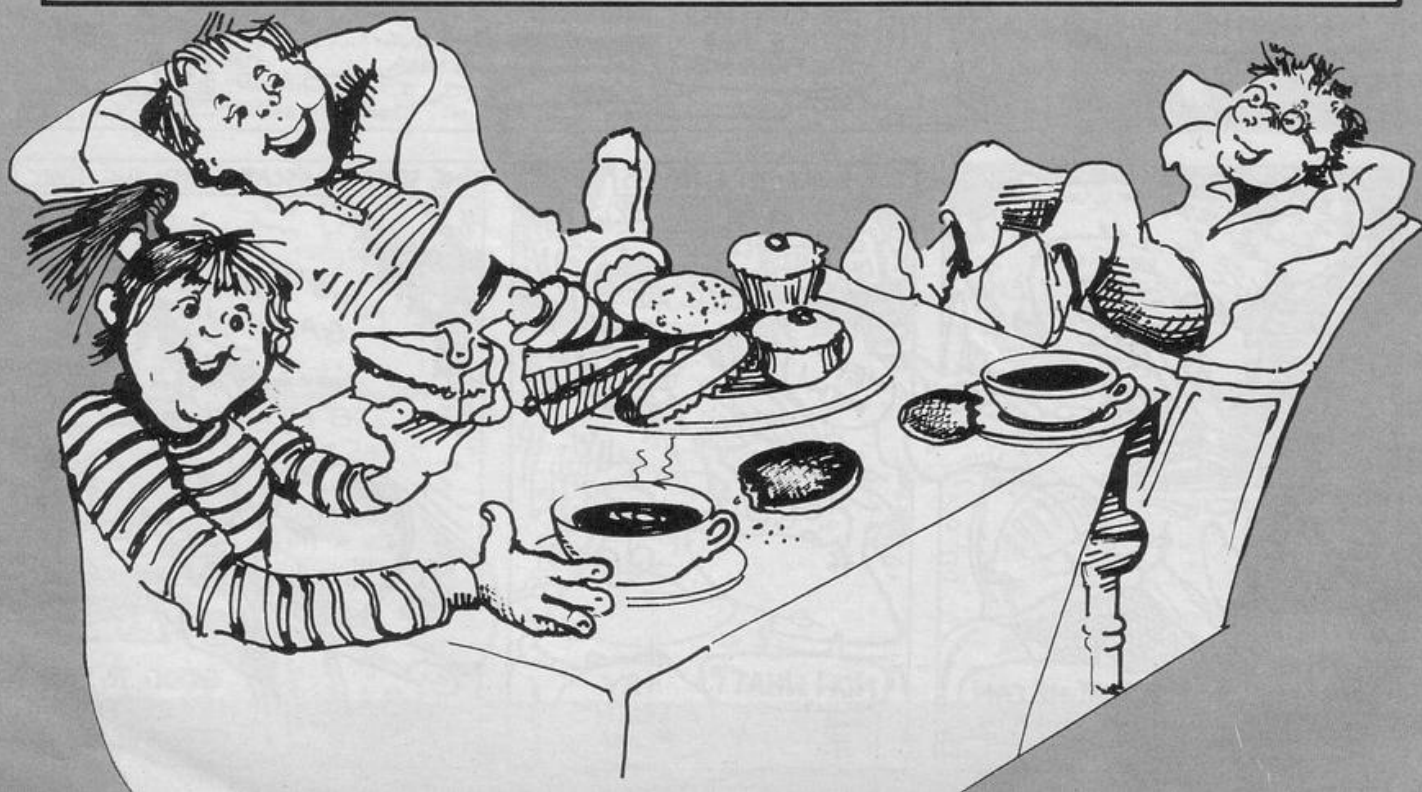
Tee for One was written for the 16K ZX-81 by C Burton of West Byfleet, Surrey.



```

228 DIM S(9)
229 LET A$=""
230 LET Z=1
231 LET DIS=INT (RND*435)+120
232 PRINT AT 19,0;A$+A$
233 LET B=1
234 PRINT AT 1,0;"YARDS:";DIS
235 PRINT AT 15,25;"0";TAB 24;"
236 TAB 24;"1";TAB 24;"2";
237 PRINT AT 0,0;"HOLE:";Z;
238 CLUBS:1,4,6,8;
239 PRINT AT 2,0;"CHOOSE YOUR N
EXT CLUB"
240 LET DRI=INT (RND*30)+230
241 GOSUB 700
242 LET D=17
243 FOR E=21 TO 1 STEP -2
244 PRINT AT D,E;" ";AT D+1,E+2
245 LET D=D-1
246 NEXT E
247 CLS
248 LET D=30
249 FOR E=2 TO 18 STEP 2
250 PRINT AT E,D;" ";AT E-2,D+1
251 LET D=D-1
252 NEXT E
253 LET DIS=DIS-INT (DRI*F)
254 IF DIS<-50 THEN LET DIS=ABS
DIS
255 LET B=B+1
256 IF DIS<20 AND DIS>-20 THEN
GOTO 300
257 IF DIS<50 AND DIS>-50 THEN
GOTO 400
258 GOSUB (INT (RND*3)+20)+800
259 PRINT AT 3,0;"YOU ARE ";DIS
"YARDS FROM THE PIN"
260 PRINT AT 18,22;" "
261 GOTO 80
262 CLS
263 PRINT "YOU ARE ON THE GREEN
ENTER THE LINE OF THE PUTT.(3/
100)"
264 FOR A=3 TO 19
265 PRINT AT A,0;A$+A$
266 NEXT A
267 LET G=INT (RND*16)+3
268 PRINT AT G,15;" "
269 INPUT H
270 IF H<3 OR H>19 THEN GOTO 37
0
271 FOR A=1 TO 15
272 PRINT AT H,A;" "
273 NEXT A
274 IF H=6 THEN GOTO 500
275 LET B=B+1
276 GOTO 300
277 CLS
278 PRINT "FROM HERE YOU MUST P
LAY A PITCH SHOT"
279 PRINT "ENTER A NUMBER(1/3)"
280 INPUT I
281 LET B=B+1
282 IF I<INT (RND*3+1) THEN GO
TO 300
283 PRINT "BAD PITCH,TRY AGAIN"
284 GOTO 420
285 CLS
286 PRINT "YOU HOLED IN ";B;" S
TROKES"
287 LET S(Z)=B
288 PRINT "PRESS ANY KEY"
289 IF INKEY$="" THEN GOTO 535
290 CLS
291 LET Z=Z+1
292 IF Z<10 THEN GOTO 31
293 CLS
294 PRINT "THE CARD OF THE COUR
SE";AT 4,5;"HOLE:"
295 LET T=0
296 FOR A=1 TO 9
297 PRINT AT A+5,6;A;AT A+5,19;
S(A)
298 LET T=T+S(A)
299 NEXT A
300 PRINT "YOU WENT ROUND I
N ";T
301 STOP
302 INPUT J
303 IF J<>1 AND J<>4 AND J<>5 A
ND J<>8 THEN GOTO 700
304 IF J=1 THEN LET F=.817
305 IF J=4 THEN LET F=.815
306 IF J=5 THEN LET F=.41
307 RETURN
308 PRINT AT 19,0;A$+A$+A$+A$
309 PRINT AT 5,0;"YOU ARE ON TH
E FAIRWAY"
310 RETURN
311 LET B$=""
312 PRINT AT 19,0;B$+B$+B$+B$
313 LET DIS=DIS+70
314 PRINT AT 5,0;"YOU DROVE INT
O THE ROUGH"
315 RETURN
316 PRINT AT 16,0;A$+" ";AT 16,
27;A$( TO 5)
317 PRINT AT 17,16;" ";AT 17,27
" ";TAB 16;" ";AT 18,27;" ";TAB
16;A$( TO 12)
318 PRINT AT 5,0;"YOU FELL IN A
BUNKER"
319 LET DIS=DIS+120
320 RETURN
321 SAVE "GOLF"
322 RUN

```



You are the spider chief in exile. You wish to return to your spider domain. All you have to do is cross the two persian carpets in the living room. However, the owners of the house hate spiders and have placed a selection of lethal traps on the carpet.

Use keys 5 and 8 to move as many of your people as is possible across the first carpet. Use keys 6 and 7 to move across the second carpet. The first spider to reach the spider domain will open the gates and lead you all to safety.

Spider Domain is based on a program written for the 16K ZX-81 by Paul Arthwell and Simon Hodgkins of Wolverhampton.

SPIDER DOMAIN



```

85 RAND
90 LET I=0
95 LET Y=0
104 PRINT AT 19,4;"(PRESS (5) T
O START)"
105 IF INKEY$="S" THEN GOTO 107
106 GOTO 105
107 CLS
108 LET X=1
109 LET S=0
110 REM SCREEN 1
111 LET G=0
120 PRINT AT X,Y;"X"
130 LET X=X+1
140 IF X=20 THEN GOTO 150
145 GOTO 120
150 LET A=0
155 LET X=INT (RND*7)+7
156 LET Y=INT (RND*29)+1
155 LET A=A+1
170 PRINT AT X,Y;"X"
175 IF A=65 THEN GOTO 185
180 GOTO 155
185 LET X=19
186 LET P=1
187 LET Q=1
190 LET U=INT (RND*15)+5
191 LET V=INT (RND*25)+2
195 PRINT AT P,U;
196 PRINT AT X,Y;"X"
197 LET P=P+0
198 PRINT AT P,U;
199 LET V=PEEK (PEEK 16398+256+
PEEK 16399)
205 IF V=189 THEN GOTO 325
206 IF V=131 THEN GOTO 295
207 IF V=61 THEN GOTO 325
208 IF V=23 THEN GOTO 325
209 PRINT "O";AT P,U;
210 FOR T=1 TO 6
211 NEXT T
212 PRINT "■";AT P,U;
213 IF INKEY$="S" THEN LET U=U+
1
214 IF INKEY$="5" THEN LET U=U-
1
215 IF P>18 THEN GOTO 325
216 GOTO 210

```

```

295 LET S=S+1
296 IF S=10 THEN GOTO 400
300 PRINT AT 0,0,S;"SPIDERS CR
OSSING"
305 PRINT AT 18,0;"X"
306 PRINT AT 19,0;"X"
310 GOTO 185
325 LET I=I+1
330 IF I=10 THEN GOTO 350
335 PRINT AT 0,17,I;"SPIDERS O
VER"
340 PRINT AT 18,0;"X"
341 PRINT AT 19,0;"X"
345 GOTO 185
355 CLS
356 LET G=0
375 PRINT AT 8,0;"
ON WAS
SUCCEFUL
HEROS)
380 LET G=G+1
385 IF G=50 THEN GOTO 45
390 GOTO 380
400 CLS
401 REM SECOND SCREEN
410 PRINT AT 8,0;"
ART OF YOUR
BEEN SUCESSFUL
415 FOR J=0 TO 200
420 NEXT J
425 CLS
430 PRINT AT 0,0;"NOW CROSS FRO
M LEFT TO RIGHT. USE KEYS 6 AN
D 7 TO STEER"
435 PRINT AT 19,8;"(PRESS (5) T
O CONTINUE)"
436 IF INKEY$="S" THEN GOTO 440
437 GOTO 436

```

```

440 CLS
445 FAST
450 PRINT AT 1,0;"XXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXX"
451 PRINT AT 19,0;"XXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXX"
460 LET U=0
461 LET X=0
462 LET Y=2
475 PRINT AT Y,X;"X"
480 LET Y=Y+1
485 IF Y>18 THEN GOTO 500
486 LET U=0
495 GOTO 475
500 LET Z=INT (RND*17)+1
505 LET R=INT (RND*20)+5
510 LET U=U+1
515 PRINT AT Z,R;"X"
520 IF U=70 THEN GOTO 540
525 PRINT AT 10,27;"SD"
530 SLOW
535 GOTO 500
540 LET D=0
545 LET X=10
550 LET Y=1
555 PRINT AT X,Y;
556 LET V=PEEK (PEEK 16398+256+
PEEK 16399)
560 IF V=61 THEN GOTO 600
565 IF V=55 THEN GOTO 620
570 PRINT "O";AT X,Y;
575 PRINT AT X,Y;"X"
580 IF INKEY$="6" THEN LET X=X+
1
585 IF INKEY$="7" THEN LET X=X-
1
590 LET Y=Y+1
595 GOTO 555
600 LET D=D+1
605 PRINT AT 0,3;"■";D;"SPIDER
S-CROSS"
610 IF D=10 THEN GOTO 355
615 GOTO 545
620 CLS
621 FOR N=1 TO 20
625 PRINT "CONGRATULATIONS: CHI
EF SPIDER"
626 NEXT N

```


SINCLAIR PROGRAMS

COMPUTER

Sinclair Programs has negotiated an exclusive offer for all readers with computer holiday specialists Dolphin Holidays.

£10 off the Basic Computer Holiday

£15 off the Advanced Computer Holiday

£20 off the special SINCLAIR PROGRAM

On all Dolphin's week-long computer holidays each participant has exclusive use of a Spectrum computer (ZX-81 owners can opt to use a ZX-81) and help from a computer expert. Also available is a wide range of robotic and artificial intelligence equipment including buggies, droids, speech synthesis, speech recognition systems and electronic lego. Software can be borrowed from each camp's extensive software library, including both educational and games software.

Also available on the camps are an enormous range of sports and activities. Tennis, swimming, sailing, BMX bikes, orienteering and gymnastics are just some of the options available during the time when you are not computing.



BASIC HOLIDAY: DOWN FROM £144 TO £134 (+ VAT)

Every computer owner from the complete beginner to the expert in Basic will enjoy this holiday. The course allows you to learn programming and software applications at your own rate as you solve problems in the fantasy adventure world of our hero, Chan. Each adventure introduces a new concept and technique in programming. Beginners start with LOGO and BASIC, while the more experienced explore FORTH, MACHINE CODE, PASCAL and ADVANCED BASIC.

Chan has adventures in the real world as well which need special robots to help him. Learn how to control robots with computers, and then build the special machines he needs.

Work at your own pace throughout, either individually or as a member of a group. With such a wide range of help and experience available, we expect that you will be racing ahead by the end of the week.

ADVANCED COURSE: DOWN FROM £154 TO £139 (+ VAT)

This holiday is aimed at readers with an extensive knowledge of programming, including a knowledge of simple machine code. On the advanced course you can opt to spend up to 2/3 of your time on the camp computing rather than on other fun activities. The problems on this course are pitched at a much more advanced level, and cover advanced aspects of robotics, artificial intelligence and control technology.

The course also takes you inside computers to show how they work, the particular facets of each machine's processor, operating system and memory. Other advanced computer work includes projects such as work on digital electronics, robot control and controlled engineering, vision systems, image processing and speech synthesis.

There will also be opportunities to bring along and solve your own software problems, and to get active help from staff in developing any project on which you have been working.



R HOLIDAY



BASIC COURSE: £134 (+ VAT)

CENTRE	AGE	START DATES
Welwyn	8-12 years	20, 27 July 3, 10, 17 August
Brighton	8-12 years	20, 27 July 3, 10, 17, 24 August
Crowthorne	12-16 years	20, 27 July 3, 10, 17, 24 August
Harrogate	8-12 years 12-16 years	20, 27 July 3, 10, 17, 24 August

ADVANCED COURSE: £139 (+ VAT)

Harrogate	12-17 years	20, 27 July 3, 10, 17, 24 August
Crowthorne	12-17 years	20, 27 July 3, 10, 17, 24 August

EXCLUSIVE SINCLAIR PROGRAM: £144 (+ VAT)

Wellington College,
Crowthorne 12-17 years 3 August

**SPECIAL SINCLAIR
PROGRAM: DOWN FROM
£164 TO £144 (+ VAT)**

The Sinclair Program is *Sinclair Programs'* own special course, open only to readers of *Sinclair Programs*. The course will be set at the same level, and cover the same subjects as the Advanced Course, so you will need to have some knowledge of machine code in order to be able to attend.

In addition to those subjects covered by the Advanced Course, and the general sporting op-

tions available on each camp, the Sinclair Program offers many extra features:

- OVER £30 WORTH OF TOP QUALITY SOFTWARE: FREE
- VISIT FROM THE EDITORIAL STAFF OF SINCLAIR PROGRAMS TO EXPLAIN HOW A COMPUTER MAGAZINE IS PRODUCED
- VISIT FROM TOP ADVENTURE GAMES PROGRAMMERS
- CHANCE TO HAVE YOUR LISTINGS PUBLISHED IN SINCLAIR PROGRAMS
- SEE YOURSELF IN THE OCTOBER ISSUE OF SINCLAIR PROGRAMS



The Sinclair Program will run at Wellington College, Crowthorne, Berkshire for a week, beginning on August 3rd, 1985. It is open to all readers aged 12-17.

To apply for the Sinclair Program, the Advanced Course or the Basic course, simply complete the coupon on this page, make sure your parent or guardian has signed it, and post it, remembering to retain the money-off voucher on the other side.

See you at Wellington College!



Machine code vertical scroll

Tony Rickwood continues his series on machine code as he looks again at the procedure for scrolling pictures vertically.

IN PART one last month, I showed you how to set up a file of addresses to identify which locations in the Spectrum display file referred to Column 0 addresses for each pixel line of the screen display (the left-most character positions). In Part two, you will learn how to use this file to execute the vertical scroll.

First, it is important to understand how the preliminary setting up of a file serves the execution routine we will be developing here. Why is a file of addresses needed when all the information is contained in the Spectrum's own display file? In any case, you might also ask, why can't the problem be dealt with by simply rotating bit patterns vertically instead of horizontally? (Remember how the "RL" and "RR" (Rotate Left/Rotate Right) instructions gave us such a compact solution to the problem of horizontal scrolling?).

Let's take the second question first. Rotation instructions (there are others beside RL and RR, as we shall see) are designed to work only on the bits of a specified byte. All bytes transferred from the display file to the screen are transferred horizontally, NOT vertically, so there is no way that eight pixels on a vertical line can be identified and manipulated as a single byte of data.

As we must work with whole bytes of data, a possible solution might be to work through consecutive bytes of the display file (though not consecutive on the screen) from the second pixel row down, find out which byte of the display file corresponds to

the location immediately above the screen, and copy the byte from one location to the other. This would be slightly long-winded though, mainly because of the way the display file is configured. Fortunately, the Z80 instruction set contains a powerful block handling instruction which allows the m/c programmer to move a block of data from one area of

Program 2

```
10 REM Program 2 - Pixel Scrol
11 UP
20 CLEAR 62999: LET s=0: FOR i
=64000 TO 64038: READ n: POKE i,
n: LET s=s+n: NEXT i
30 READ sum: IF s <> sum THEN
PRINT "error in data entry - re
type line 40": STOP
40 DATA 1,192,0,197,8,62,0,1,2
4,246,8,10,95,3,10,87,3,197,10,1
11,3,10,103,1,32,0,237,176,193,8
,60,254,191,56,231,193,16,221,20
1,3451
50 PRINT "data entry o.k." : "no
w running m/c": PAUSE 100
60 LIST : RANDOMIZE USR 64000
: STOP
70 SAVE "upcode" CODE 64000,39
```

memory to another. For this application, it enables us to transfer a whole line of data as represented on the screen (32 bytes) to the line above (via the display file) in one go. To use this instruction, we need to know the address of the first byte of the block to be copied (base address) and first byte to be copied to (destination). To move whole lines then, base and destination addresses will be the column 0 addresses in our

pre-computed file.

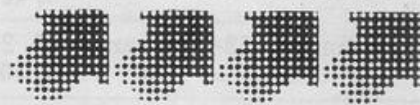
The program to execute an UPWARD SCROLL is listed as Program 2 (Program 1 being that listed in Part 1). As usual, both Basic and Assembler are given. First, try running the Basic, although you must have previously run Program 1 to create the file. The m/c for both programs loads into the same area of memory (starting at location 64000). The important point though is that Program 1 m/c has been executed to create the file at 63000 before it gets overwritten by Program 2 m/c (line 20).

For the Assembler, understanding is made easier by seeing how the whole screen is moved up by a single pixel (lines 50-270). The outer loop (lines 30-40 and 280-290) to repeat the process 192 times for all pixel lines should be self explanatory, provided you have properly understood what I have previously said about DJNZ loops.

The inner loop, which moves the whole screen by a single pixel only, really revolves around the block handling instruction, LDIR, in line 220. This mnemonic is read as Load, Increment, and Repeat" and is a self-contained automatic loop to do the following:

- 1) Load (DE) with (HL)
- 2) Increment DE and HL
- 3) Decrement BC
- 4) Repeat 1-3 until BC is zero.

As you can see, LDIR is a very powerful instruction. Let us now see how it can be harnessed to



Assembler	10 ;ASSEMBLER FOR PROGRAM 2- EXECUTES PIXEL SCROLL UP
20 ;	
01C000	30 LD BC,192 ;EXECUTES SINGLE PIXEL
C5	40 SCREEN PUSH BC ;SCROLL 192 TIMES
08	50 EX AF,AF'
3E00	60 LD A,0 ;INITIALIZE ROW COUNTER
01BF6	70 LD BC,&F618 ;START OF COL 0 ADDRESSES
08	80 ROW EX AF,AF' ;START OF LOOP FOR 1 PIXEL SCROLL
0A	90 LD A,(BC)
5F	100 LD E,A
03	110 INC BC
0A	120 LD A,(BC)
57	130 LD D,A ;DE HOLDS ROW TO BE COPIED TO
03	140 INC BC
C5	150 PUSH BC
0A	160 LD A,(BC)
6F	170 LD L,A
03	180 INC BC
0A	190 LD A,(BC)
67	200 LD H,A ;HL HOLDS ROW TO BE COPIED FROM
012000	210 LD BC,32 ;BC HOLDS NO. OF BYTES TO BE COPIED
EDB0	220 LDIR ;COPIES CURRENT ROW TO PRECEDING ROW
C1	230 POP BC
08	240 EX AF,AF'
3C	250 INC A ;INCREMENT ROW COUNTER
FEBF	260 CP 191 ;LOOP BACK UNTIL
3BE7	270 JR C,ROW ;192 ROWS SCROLLED ONCE
C1	280 POP BC
10DD	290 DJNZ SCREEN ;LOOP BACK UNTIL WHOLE SCREEN DONE
C9	300 RET

our problem. Start by considering the first two pixel lines. The addresses of the first character (column 0) of each is 4000H and 4100H respectively (which are the first two values in our address file). Each line being represented by 32 consecutive bytes of the display file from these addresses, LDIR can be used to copy the second line to the first by setting DE to 4000H and HL to 4100H with BC=32 for the byte count.

One snag with all block handling instructions (there are others as we shall see). They use up all three user register pairs HL, DE and BC. HL and DE are used repeatedly to point to the Spectrum's display file. In addition, we need a register pair to point to our own file, which can be incremented. BC is the only sensible choice, but it is tied up as a pixel count for the outer DJNZ loop. By PUSHing and POPping onto and off of the stack (lines 40 and 280), this leaves BC free for the inner loop. We must now arrange for BC to double up as our file pointer as well as the byte count for



LDIR.

Yet another slight complication. We need an inner loop counter to count each pixel row as it is moved up one pixel. Having released BC from the outer loop for two other jobs, we can hardly tie it up again on an inner DJNZ loop (remember the right and left scroll routines where we used two nested DJNZ loops?). The alternative is to use a jump instruction but we still need a counter. The A register is used in such cases and is free for the job, though again, it must double up because we will be using it as an intermediate register for getting our file addresses into HL and DE (see later).

Though the AF register pair can also be PUSHed and POPped (like BC), I have introduced an alternative device into the program called **Register Exchange**. The Z80 has an alternative register set which gives the m/c programmer a means of holding the



```
10 REM Program 3 - Pixel Scroll
11 DOWN
20 CLEAR 62999: LET s=0: FOR i
=64000 TO 64038: READ n: POKE i,
n: LET s=s+n: NEXT i
30 READ sum: IF s <> sum THEN
PRINT "error in data entry - re
type line 40": STOP
40 DATA 1,192,0,197,8,62,0,1,1
51,247,8,10,87,11,10,95,11,197,1
0,103,11,10,111,1,32,0,237,176,1
93,8,60,254,191,56,231,193,16,22
1,201,3603
50 PRINT "data entry o.k." : "no
w running m/c": PAUSE 100
60 LIST : RANDOMIZE USR 64000
: STOP
70 SAVE "dncode" CODE 64000,39
```

values in one or other of two sets. Line 50 (EX AF,AF') brings in the alternative AF pair (called AF') and line 60 initializes the alternative A register to zero for the inner loop counter.

Line 70 sets up BC to point to the start of our file (63000=F618H) and line 80 is the start of the inner ROW loop. The first step within this loop is to restore the normal AF pair with EX AF,AF' in order not to corrupt our loop counter by copying via the A register. As we have seen, we are unable to fetch two bytes in one go with our file pointer, BC. For example,

there is no such instruction as LD DE,(BC) to get the two bytes pointed to by BC into DE. It must be done one byte at a time via the A register. Thus, line 90 gets the first byte from the file (00H) and puts it in A. Line 100 then transfers this to the E register. Line 110 increments the file pointer so that lines 120 and 130 can put the next byte (40H) into D (again via the A

register). Now we have the display file address of the first line to be copied to in DE (note that E has to be loaded first because of the way we set up our file (low order byte first). Following execution up to and including line 200, the process is repeated for HL, so that DE and HL (for destination and base) contain 4000H and 4100H respectively on the first pass. Note that BC is PUSHed onto the stack in line 150. We need to free BC for the byte count in LDIR (line 210). PUSHing at this point holds our file pointer ready for the next loop.

All this preparation is finally consummated by the LDIR in line 210. BC can now be switched back to file pointer mode in line 230. We can also switch back to row counter mode for A (lines 240-250). The test for completing 192 rows (and jump back if not) is handled by lines 260-270. "CP 191" is read as 'ComPare the contents of the A register with 191'. This is really subtracting 191 from A, though only the flags in the F register are affected by the result. "JR C,ROW" is read as "Jump back Relative to instruction labelled ROW if the (C)arry flag is set". The Carry flag will be set if A contains a number which is less than or equal to 191.

Program 3 lists the SCROLL DOWN routine. The principles are exactly the same as in scrolling up, though now we start with BC pointing to the last location of our address file and work backwards. Note that D is now loaded before E and H before L when loading addresses in reverse.

Assembler

```
10 ;ASSEMBLER FOR PROGRAM 3- EXECUTES PIXEL SCROLL DOWN
20 ;
01C000 30 LD BC,192 ;EXECUTES SINGLE PIXEL
C5 40 SCREEN PUSH BC ;SCROLL 192 TIMES
08 50 EX AF,AF'
3E00 60 LD A,0 ;INITIALIZE ROW COUNTER
0197F7 70 LD BC,&F797 ;END OF COL 0 ADDRESSES
08 80 ROW EX AF,AF' ;START OF LOOP FOR 1 PIXEL SCROLL
0A 90 LD A,(BC)
57 100 LD D,A
0B 110 DEC BC
0A 120 LD A,(BC)
5F 130 LD E,A ;DE HOLDS ROW TO BE COPIED TO
0B 140 DEC BC
C5 150 PUSH BC
0A 160 LD A,(BC)
67 170 LD H,A
0B 180 DEC BC
0A 190 LD A,(BC)
6F 200 LD L,A ;HL HOLDS ROW TO BE COPIED FROM
012000 210 LD BC,32 ;BC HOLDS NO. OF BYTES TO BE COPIED
EDB0 220 LDIR ;COPIES CURRENT ROW TO PRECEDING ROW
C1 230 POP BC
0B 240 EX AF,AF'
3C 250 INC A ;DECREMENT ROW COUNTER
FEBF 260 CP 191 ;LOOP BACK UNTIL
3BE7 270 JR C,ROW ;192 ROWS SCROLLED ONCE
C1 280 POP BC
10DD 290 DJNZ SCREEN ;LOOP BACK UNTIL WHOLE SCREEN DONE
C9 300 RET
```


HAPPY BIRTHDAY SINCLAIR

SINCLAIR PROGRAMS is celebrating its third birthday with this issue of the magazine. We began back in the dark ages of home computing, before the launch of the Sinclair Spectrum. The ZX-80 had already started the computing revolution and the ZX-81 had taken us one step further in the march towards everyone owning a personal computer. The Spectrum was launched in June 1982 and the idea of the computer being a hobbyist item was finally eroded.

Sinclair Programs was launched by ECC Publications, who sadly are no more, and is now part of the giant EMAP Business and Computer Publications.

We have taken this opportunity to look back with the firms who are over three years old and also to take a look at the new up and coming software houses.

In addition we are having a light-hearted competition involving some of the battle scarred but successful firms who have survived. We hope that all those firms whom we have not included, due to limits of space, will accept our apologies.

ARTIC have been in business since the summer of 1980 and claim the notorious distinction of having received national press coverage for one of their games, certain parts of which were slammed for their bad taste. Having weathered this they have also produced their fair share of quality games. Founder of the company, Richard Turner, while still a student produced the very first game, back in 1980 while preparing for his 'A' levels.

5th year

FIREBIRD was launched by that old bird British Telecom in a major bid to attack the growing software market. Started in October 1984 they have already carved themselves a niche in the market by producing cheep (sorry) games.

1st year

OCEAN have not been around for as long as us but they have more than made up for this by quickly buying up anything that moves, particularly the **US Gold** series of games and a chunk of **Imagine**. So busy are the staff in their empire building that they were not available for comment. All we can say is that every game they produce is almost guaranteed a spot in the top ten chart.

2nd year

MELBOURNE HOUSE began in 1978 as a general book and magazine publishing company. Following the success of a ZX-81 book they published they decided to turn their expertise towards computer publishing. Taking the theme of Tolkien's book **The Hobbit**, they launched their first software game, **The Hobbit**, the rest, as they say, is history.

4th year

PRIENT 'n' PLOTTER, launched in 1981, soon realised that a new market was growing with the advent of the ZX-81 and they were able to exploit the limited graphics of this little machine. They produced graph boards which are even now essential additions for any programmer attempting serious computer graphic design on a Sinclair computer.

4th year

MASTERTRONIC began in April 1984. It was the first company to realize the potential of producing budget software. So far it has produced a tremendous sixty two games. **Finders Keepers** is an example of their games, and at £1.99 they are proving a popular choice with the software-buying public.

2nd year

SILVERSOFT began in 1981. Although they have been successful in both remaining around so long and producing games that sell well they have not allowed success to go to their heads. It is a long standing tradition in the office that anybody, from the managing director down, may fall victim to the office punishment — the Mickey Mouse hat. While they were unwilling to expand on what offences would be punished by wearing the hat the spokesman's tone of voice implied that perhaps one would not want to know!

4th year

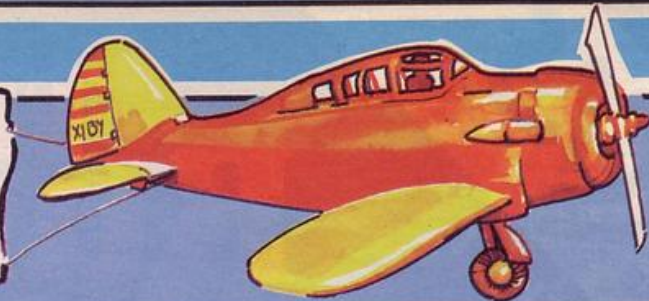
MIKRO-GEN began trading in November 1981 through their own shop, and in the early days they also acted as a distribution company. They have enjoyed success with games such as **Witch's Cauldron**, and the continuing series of **Wally** games.

One real life Wally arrived with his computer and peripherals which he duly set up. The tape had been running for a minute when he switched it off, and announced, "See, I told you it wasn't working." An explanation was sought and he replied "Well, I only want to play the first part!"

4th year



R PROGRAMS



SOFTWARE FARM were sipped at the post with a start date of August 1982. Julian Chappel and his brother began working on industrial processes at their parent's farm, hence the name of the company. Julian calculated that the demand for ZX-81 software would not decline despite the arrival of the Spectrum. The company started work on the ZX-81 games as everybody else began to switch their resources to the new machine. Software Farm have not only survived as the only company producing games for the ZX-81 but they are very successful. For the future Julian wants to keep the company "Small but beautiful" and will continue with the one man campaign against the bigger machines, so loyal fans of such games as **Fortyniner** and **Rocketman** can expect a bright future.

3rd year

DIGITAL INTEGRATION are members of the three year oldie club. They are continually amazed by their customers' ingenious interpretations of the company name, examples include Disintegration, Distant Relation, and Digital Investigation. They have produced two smash hit games so far, **Fighter Pilot** and **Night Gunner** and promise two new games.

3rd year

QUESTION: What have Margaret Thatcher and **Kempston Micro** got in common? **Answer:** They both began above a grocer's shop. Started three years ago, Kempston immediately began working on Spectrum peripherals. They also produced one game, entitled **Mission Mars**, but it never got off the ground!

4th year

A CONVERSATION over tea in **Wimpys**, Stratford upon Avon, was the setting for the beginning of **Hewson Consultants**. Andrew Hewson, founder of the company, was travelling from Manchester to Oxford with his boss when they stopped for a cup of tea at the Wimpey Bar. He explains "It was the summer of 1980 and the ZX-80 had just been launched. My boss was very impressed with the machine, while I dismissed it out of hand. However, his words 'Look at its price, its a winner' stayed in my mind." Andrew continued working as a statistician but "pondered the words of wisdom." He eventually ordered a machine and thus finally reached his true destination.

5th year



ZANY AUTOMATA have been in business since 1977, although they were not in software publishing at that time. Mel Croucher began his career as an architect and teamed up with fellow director Christian Penfold to work on various projects, one of which was a beer quiz for a radio programme. **Automata UK**, the software publishers, began operating in November 1982. They have been such a successful combination that they are decreasing their number of staff. Don't let this fool you because they achieved pre-tax profits of over £7,000 at their last audit. Their hits include **Deus Ex Machina**, the **Pi-man** series and the advertising campaign which rivals some (not ours, of course!) magazine editorial.

3rd year

THE GOOD old **Microfair** was there right at the start with the first show held in September 1981. While public demand for the shows continues the bigger software companies appear to have developed the Howard Hughes syndrome. Mike Johnstone, organiser of the fairs, believes that the Microfair will survive anything. This statement was proved by the show held in February of this year. As the country experienced the worst of a British winter people travelled to the show from all over the country. Over 6,000 visitors were recorded despite fears that the bellowing snow storms would stop people attending.

4th year

NEW GENERATION are over three years old and their new office, a coach-house, is even older, 100 years old in fact. When they made their attempt to buy it surveyors were, of course, called to evaluate the building. Upon seeing the state of it they refused to go onto the upper floors. Eventually this was resolved, the building bought and builders bought in to restore it. Business is good and they have continued to keep a roof over their heads.

4th year

CREATIVE SPARKS is Thorn EMI's contender in the software publishing market. Started in April 1984, they have already produced forty two games. Perhaps they are best known for the **Dangermouse** titles. Generally sparking (oops!) they are going for the two extremes in the market, that of low-priced games and more expensive, high-quality software. Future material will probably be influenced by films and music.

2nd year

DORCASTM
SOFTWARE
PRESENT

THE Runes OF

Zendos

- High Resolution Graphics
- Full Animation
- Sentence Input
- 12 Separate adventures
- Sound Effects

The tiny principality of DORCASIA was a pleasant fertile land until the wizard ZENDOS used his evil powers to cast the country into perpetual darkness until all citizens pledge obedience to him.

It is known that through the SPELL OF DARKNESS Zendos has trapped the spirit of each month into one of 12 GOLDEN TEMPUS RUNES or RUNIC HOUR GLASSES hidden deep within his mysterious and magical castle.

As the land dies in the grip of the black desolation a hero must be found to locate and destroy the 12 hour glasses thus releasing the months and returning Dorcasia to the natural forces of the seasons.

Each glass has a RUNIC inscription around its base which you must read and understand. Only saying these words will lift that part of the spell. To protect the hour glasses Zendos has placed them in 12 separate rooms in his castle, each room linked to a different exterior gateway by a devious route.

Depending on which entrance you select Zendos casts spells which change the locations of rooms within his castle to confuse you. The menacing creatures and challenging problems which confront you at every turn mean that only the brave and the clever will succeed.

THE ORACLE'S CAVE

Our best seller available for the
48K SPECTRUM and COMMODORE 64.

Oracle's Cave is a unique adventure game featuring continuously displayed high resolution graphics and text, a new cave layout and event sequence for every game and a time limit on every adventure.

Available on cassette from Selected Branches of
WHSMITH
and other leading retailers or direct from:

DORCAS SOFTWARE

3 The Oasis, Glenfield,
Leicester LE3 8QS
at £7.95 (inc. VAT)
Postage and Packing FREE



SPECTRUM 48K

COMPATIBLE
WITH
Sinclair
ZX
Microdrives

BIRTHDAY 3RD ISSUE

COMPETITION

COMPETITION

Some of the best software and hardware companies have agreed to help you to help us to celebrate our birthday. **Melbourne House, Mikrogen, New Generation, Silversoft, Artic, Kempston, Hewson Consultants, Print 'n' Plotter** and **Digital Integration** have all donated some of their oldest products and some of their newest products as prizes in our Third Birthday Competition.

Prizes range from a **Kempston Formula 2 joystick**, to fifty sets of free tickets to the **ZX Microfair** to the earliest games produced by **Artic Computing**. **Hutchinson Publishing Group Ltd** have agreed to help put winners in the right mood by donating 10 copies of **Fred Pipes' book 101 Things to do with a dead computer**.

As you can see, there are some very good prizes to be won, and some very silly prizes to be won. Prizes will be awarded to the first 140 correct entries drawn from the bag.

140 PRIZES

To enter: Use your skill, judgement and, above all, your good sense, to choose the correct answers to the following ten questions. Write your answers (and number them) on a postcard together with your name, address and name of the computer you own. Send the postcard to us at Birthday Competition, Sinclair Programs, Priory Court, 30-32 Farringdon Lane, London EC1 to arrive on or before May 31st, 1985.

Question 1. Who wrote **The Hobbit** book?

- A. Tolstoy
- B. Tolkien
- C. What Book

Question 2. In **Travel with Trashman** how many countries does trashman visit?

- A. Lots
- B. One
- C. Thirteen

Question 3. What does **ULA** mean in computing terms?

- A. United life assurance
- B. Uncommitted Logic Array
- C. Something to do with a television

Question 4. What is the maximum amount of memory that can be addressed by the **Z80 CPU**?

- A. Zillions
- B. 64k
- C. 20k

Question 5. Name the title of the only game **Kempston Micro Products** produced?

- A. Joystick Johny
- B. Mission Mars
- C. They didn't produce one

Question 6. Which one of the following was **Mikro-Gen's** first **Spectrum** program?

- A. Wally Waltz
- B. Dice Champion
- C. Masterchess

Question 7. In which of the following towns did the founder of **Hewson Consultants** drink tea in a Wimpy Bar and discover his future?

- A. Luton
- B. Stratford-upon-Avon
- C. New Delhi

Question 8. Who organises the **ZX Microfairs**?

- A. Sir Clive Sinclair
- B. Mike Johnstone
- C. Mike Reid

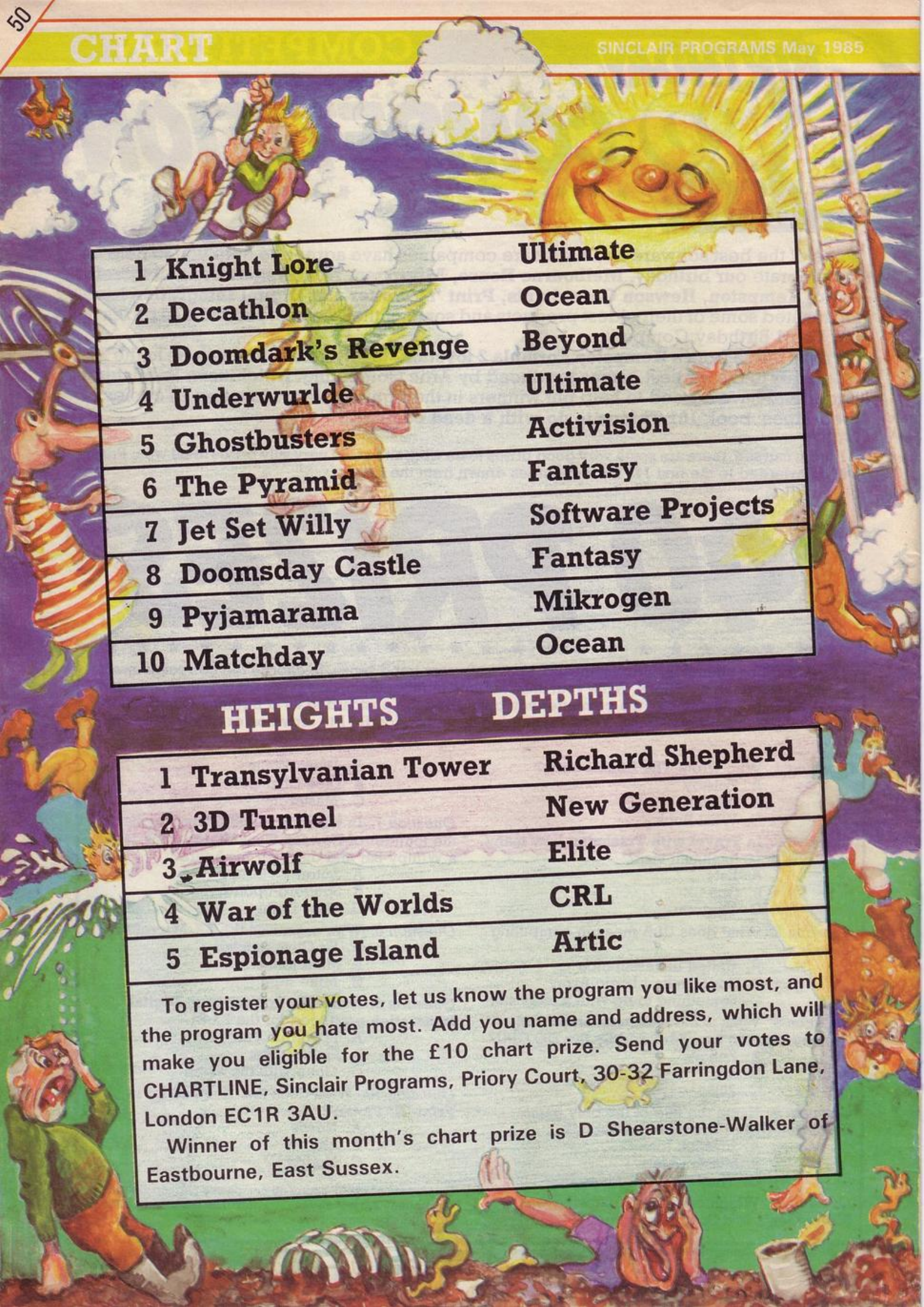
Question 9. Name the first program **Digital Integration** produced for the **ZX-81**.

- A. Spectrum Fun
- B. Fighter Pilot
- C. Gone with the Wind

Question 10. What does the 'N' stand for in **Print 'N' Plotter**?

- A. Norris
- B. And
- C. Noddy

Employees of EMAP and of all companies participating in the competition are not eligible to enter. The editor's decision in all matters concerning the competition is final.



1 Knight Lore	Ultimate
2 Decathlon	Ocean
3 Doomdark's Revenge	Beyond
4 Underwurlde	Ultimate
5 Ghostbusters	Activision
6 The Pyramid	Fantasy
7 Jet Set Willy	Software Projects
8 Doomsday Castle	Fantasy
9 Pyjamarama	Mikrogen
10 Matchday	Ocean

HEIGHTS

DEPTHS

1 Transylvanian Tower	Richard Shepherd
2 3D Tunnel	New Generation
3 Airwolf	Elite
4 War of the Worlds	CRL
5 Espionage Island	Artic

To register your votes, let us know the program you like most, and the program you hate most. Add your name and address, which will make you eligible for the £10 chart prize. Send your votes to CHARTLINE, Sinclair Programs, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.

Winner of this month's chart prize is D Shearstone-Walker of Eastbourne, East Sussex.

ARCADE

GAMES THAT FIGHT BACK!

NEW RELEASE

THE PRIZE



Selected titles
available from:
W H Smith, Boots, Menzies,
and All Good
Computer Stores

UP TO £5000 FIRST PRIZE

F The Prize Your mission to discover the innermost chamber of Midas in a huge planetary maze. If successful you could be in with a chance of winning up to £5000! Only the strongest will survive the devious traps set by the guardians, but just imagine what you could do with the prize.

Cassette carries a special £2 discount voucher off your next purchase!

Dealers, please contact us for very special discounts on our games. Phone Orpington 35639.

Programmers. We are looking for high quality m/c games for the Spectrum and Commodore 64 home computers, send them in for evaluation. You have nothing to lose!

All games are for the ZX Spectrum 48K and cost just £5.50 each inc. p.p. VAT etc.

Arcade Software Ltd, Technology House,
32 Chislehurst Road, Orpington, Kent BR6 0DG
Tel: Orpington 35639

A ☐ I enclose a cheque for £ _____ or
B ☐ debit my Barclaycard/Access Account★
C ☐ Name _____
D ☐ Address _____
E ☐ _____
F ☐ _____
_____★



A Fast-furious racing in this Arcade game for the Spectrum. 'Ponoon' on side B free!



B Funny goings-on deep in a mine. Can you escape the evil in its depths? "Original and fun . . . dexterity needed . . . strategy is also involved" — Games Computing.



C Defuse a bomb hidden on the complex planet, Lattica, before it blows!! "... action packed game ... addictive" — Sinclair user.



D The mobs out to get ya' in this no-holds-barred 25 screen, action-packed game. "Tricky and highly entertaining" — Personal Computing News.

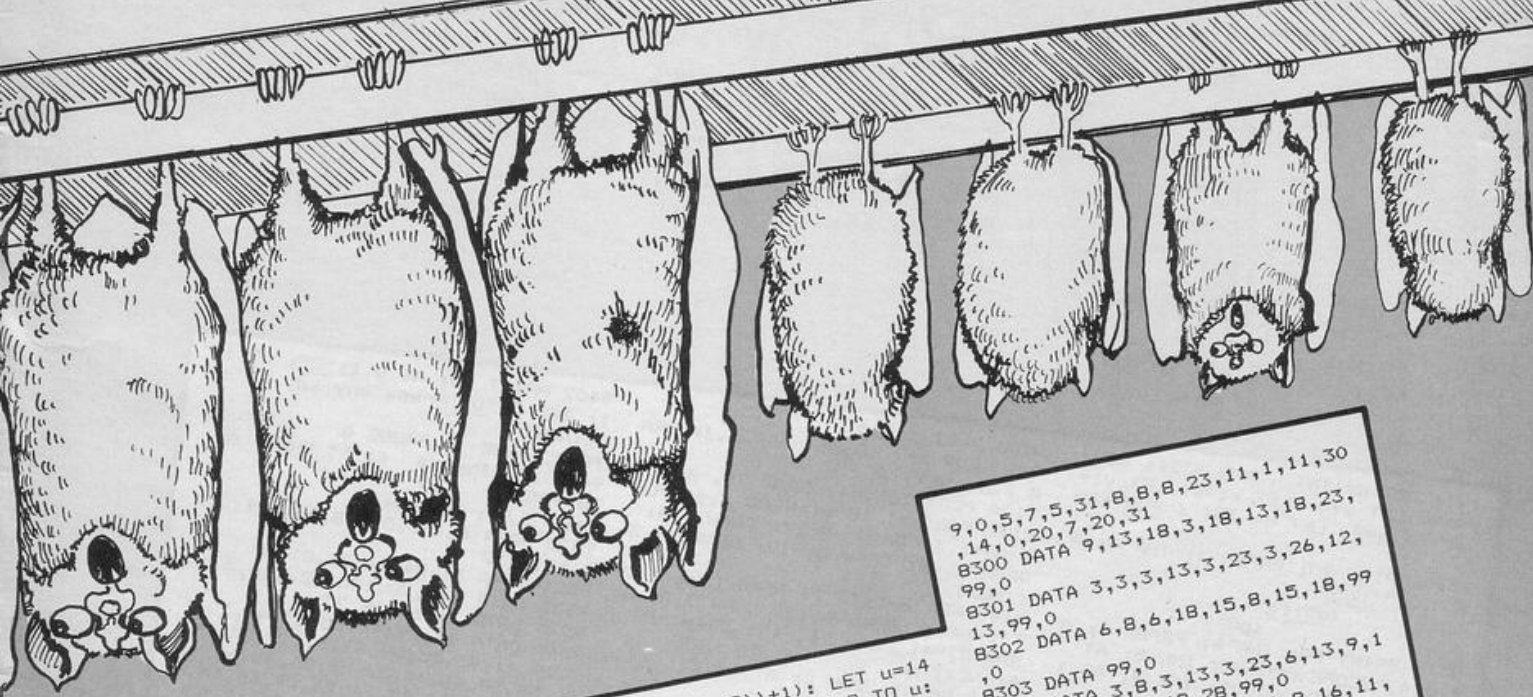


E 50 different screens of mayhem. "A fun game for all ages . . . which I thoroughly enjoyed." — Home Computing Weekly.

HAUNTED BELLTOWER

```
15 GO TO 6000
200 IF ATTR (x1,y1) <> 6 THEN
PRINT INK 5; AT x1+1,y1;"L": G
0 SUB 300: LET e=e+1: PRINT INK
6; PAPER 0; FLASH 1; OVER 0; AT
0,e*3;"L"
210 IF x1=1 AND y1=31 AND e=9 T
HEN LET z=z+1: LET s=s+100: GO
TO 8000
299 RETURN
300 LET s=s+45: PRINT #0; OVER
0; AT 0,15- LEN STR$ s; INK 6;
PAPER 1;s
310 FOR j=x1+1 TO 0 STEP -1: PR
INT INK 8; FLASH 8; AT j,y1;"L"
: BEEP .005,40-j*2: PRINT INK 8
; FLASH 8; AT j,y1;"L": NEXT j
320 RETURN
2000 FOR k=1 TO 2
2040 LET x1=x+3*(( ATTR (x+2,y)=
7)-( INKEY$ =m$(3) AND ATTR (x-
1,y)=4))
2070 LET y1=y+( INKEY$ =m$(2) AN
D y<31)-( INKEY$ =m$(1) AND y>0)
2080 IF ATTR (x1+1,y1)=6 THEN
GO SUB 200
2090 PRINT AT x,y;a$(k); AT x+1
,y;b$(k)
2095 PRINT AT x1,y1;a$(3-k); AT
x1+1,y1;b$(3-k): LET x=x1: LET
y=y1
2199 IF k=2 THEN GO TO 2262
2200 LET b1=b+(y>b)-(y<b) A
2230 LET a1=a+3*((x+1)>a AND AT
TTR (a+1,b)<12)-((x+1)<a AND AT
TR (a-2,b)<12))
2242 IF y=b1 THEN IF x+1=a1 THE
N GO TO 4000
2245 IF b1=b AND RND >.8 AND b1
<27 THEN LET b1=b1+5
2250 PRINT AT a,b;"K"; AT a1,b1
;"K"
2260 LET a=a1: LET b=b1
2261 GO TO 2361
2300 LET d1=d+(y>d)-(y<d) A
2330 LET c1=c+3*((x+1)>c AND AT
TTR (c+1,d)<12)-((x+1)<c AND AT
TR (c-2,d)<12))
2342 IF y=d1 THEN IF x+1=c1 THE
N GO TO 4000
2345 IF d1=d AND RND >.8 AND d1
>4 THEN LET d1=d1-5
2347 IF d1=b1 AND a1=c1 THEN LE
T d1= INT ( RND *32): LET c1=(3*
(2+( INT ( RND *6))))-1
2350 PRINT AT c,d;"K"; AT c1,d1
;"K"
2360 LET c=c1: LET d=d1
2999 NEXT k: GO TO 2000
4005 PRINT AT a,b;"K"; AT c,d;"
K"
4010 FOR j=41 TO 1 STEP -4: PRIN
T AT x,y;a$(3-k); AT x+1,y;b$(3
-k): BEEP .014,j: NEXT j
4030 INK 8: PAPER 8: FLASH 8
4040 LET v=1: LET w=1: LET i=x:
LET j=y: PRINT AT i,j;"K"
4041 FOR u=63031 TO 63000 STEP -
1: BEEP .05,( PEEK u)-28
4044 IF i>20 OR i<1 THEN LET v=
-v
4045 IF j>30 OR j<1 THEN LET w=
-w
4046 PRINT AT i,j;"K"
4047 LET i=i+v: LET j=j+w
4048 PRINT AT i,j;"K"
4050 NEXT u
4051 PRINT AT i,j;"K"
4052 INK 7: PAPER 0: FLASH 0
4060 LET i=1-1: IF i<1 THEN GO
TO 4400
4080 FOR i=7 TO 0 STEP -1: BORDE
R i: PAUSE 2: NEXT i
4399 GO TO 8500
4401 LET t=0
4405 PRINT OVER 0; PAPER 2; INK
t; AT 7,4;"
"; AT 8,4;"
"; AT 9,4;"
"; AT 10,4;" PRESS KEY
"; AT 11,4;"
0 TO RESTART "
4410 PRINT #0; AT 0,26; PAPER 1;
" "; AT 1,26; PAPER 1;" "
4430 LET t=t+1: IF t>7 THEN LET
t=0
4450 IF INKEY$ <> "0" THEN GO
TO 4405
4452 CLS : GO TO 8800
6000 LET p$="HHHIO": LET a$="CA"
: LET b$="DB": LET s=0: LET h=0
6001 RESTORE : PAPER 0: BORDER 0
: INK 7: OVER 0: CLS : DIM q$(5,
15)
6002 IF PEEK 63000 <> 17 THEN
FOR i= USR "a" TO USR "o"+7: RE
AD j: POKE i,j: NEXT i
6003 LET q$(1)="entrance hall":
LET q$(2)="wine cellar": LET q$(
3)="staircase": LET q$(4)="bats'
bedroom": LET q$(5)="haunted be
lry"
6004 GO SUB 9800: GO SUB 9400: G
O SUB 9200: GO TO 8800
6005 DATA 112,154,159,61,93,117,
124,56,8,62,93,157,21,116,119,7,
14,89,249,188,186,174,62,28,16,1
24,186,185,168,46,238,224
6010 DATA 187,187,187,0,238,238,
238,0,16,8,24,16,8,24,16,8,24,24
,60,126,98,98,98,126
6015 DATA 255,231,255,0,0,0,0,0,
255,0,16,56,124,84,68,108,255,25
5,183,221,107,170,84,0
6020 DATA 129,219,255,126,24,0,0
,0
6025 DATA 0,24,60,126,126,126,25
5,0
6026 DATA 60,126,255,255,255,255
,255,159,255,0,0,0,0,0,0,0
6027 DATA 56,186,186,252,60,30,1
5,3
7700 LET z=1: IF s>h THEN LET h
=s
7710 LET i=3: LET s=0
8005 IF z>5 THEN LET z=1
8006 OVER 0: INK 7: PAPER 0: CLS
8011 PRINT PAPER 4; INK 0; AT 2
1,0;" Room ";z;" .... The ";q$(z
)
8014 FOR i=2 TO 20 STEP 3: PRINT
INK 5; AT i,0;" " : NEXT i
8015 RESTORE 8000+100*z
8017 PRINT INK 6; AT 1,31;"M";
AT 2,31;"M"
```





```

8020 READ X,Y: IF X=99 THEN E J
TO 8050
8025 PRINT INK 3; PAPER 6; AT X
,Y;"EEEEEE": GO TO 8020
8050 READ X,Y: IF X=99 THEN GO
TO 8061
8060 PRINT AT X,Y: INK 0; PAPER
6; INVERSE 1;P$(Z); INK 2; PAPE
R 6;"EEEE": INK 0; PAPER 5; INVE
RSE 1;P$(Z): GO TO 8050
8062 READ X,Y: IF X=99 THEN GO
TO 8065
8064 PRINT INK 4; PAPER 1; AT X
,Y;"JJJJJJ": GO TO 8062
8070 READ X,Y: IF X=99 THEN GO
TO 8072
8071 FOR I=0 TO 4: PRINT PAPER
5; INK 0; INVERSE 1; AT X,Y+I;P$
(Z): NEXT I: GO TO 8070
8072 READ X,Y: IF X=99 THEN GO
TO 8074
8073 PRINT INK 4; AT X,Y;"E"; A
T X+1,Y;"E"; AT X+2,Y;"E"; AT X
,Y; OVER 1;"N": GO TO 8072
8080 LET E=0
8093 PRINT AT 0,0; INK 0; PAPER
4; INVERSE 1;"HHHHHHHHHHHHHHHH
HHHHHHHHHHHHHHHH": AT 1,3;"E E
E E E E E E E E"
8095 INK 4; FOR W=1 TO 4: LET I=

```

```

3*((INT (RND *9))+1)): LET U=14
+((INT (RND *7)): FOR J=2 TO U:
PRINT AT J,1;"E": NEXT J: NEXT
W: INK 7
8097 FOR I=1 TO 9: READ X,Y: PRI
NT INK 6; AT X,Y;"L": NEXT I
8100 DATA 3,23,3,26,6,24,9,6,12,
25,15,15,18,0,18,2,99,0
8105 DATA 6,0,6,2,6,8,6,20,9,11,
12,20,18,10,18,12,99,0
8110 DATA 9,26,12,2,12,6,12,12,1
8,19,99,0
8115 DATA 3,0,3,5,15,10,15,21,99
,0
8120 DATA 18,19,3,8,3,28,6,6,6,2
2,9,13,9,22,12,24,12,10,15,19,18
,11,18,24,99,0
8121 DATA 2,0,2,24,5,12,8,16,8,2
8,11,30,14,16,17,4,17,14
8200 DATA 9,2,12,6,12,7,12,24,12
,26,13,24,13,26,19,8,19,12,99,0
8201 DATA 6,16,9,8,15,0,15,2,15,
16,15,18,18,24,18,26,99,0
8202 DATA 3,18,3,20,3,26,6,26,18
,8,18,12,99,0
8203 DATA 6,6,6,11,9,18,9,23,12,
1,12,13,20,8,20,13,99,0
8204 DATA 3,18,6,20,6,27,9,13,9,
25,12,29,15,4,15,17,15,29,18,4,9

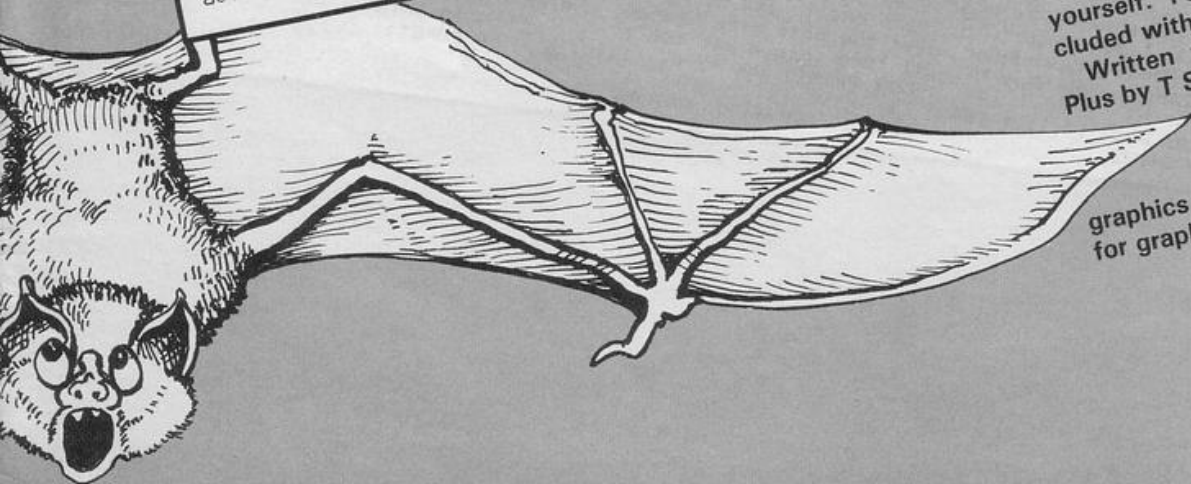
```

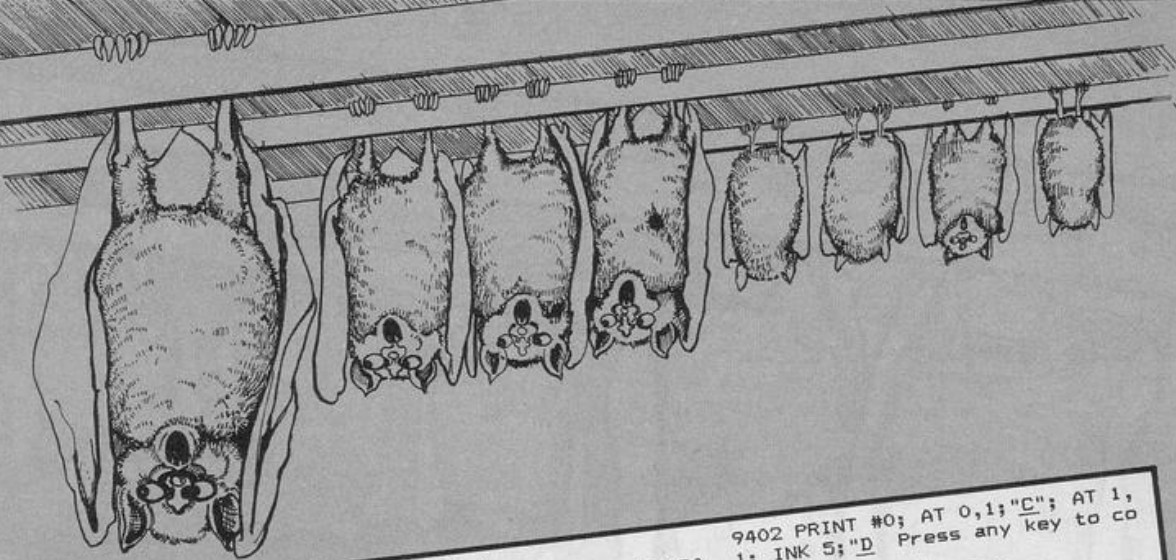
```

9,0,5,7,5,31,8,8,8,23,11,1,11,30
,14,0,20,7,20,31
8300 DATA 9,13,18,3,18,13,18,23,
99,0
8301 DATA 3,3,3,13,3,23,3,26,12,
13,99,0
8302 DATA 6,8,6,18,15,8,15,18,99
,0
8303 DATA 99,0
8304 DATA 3,8,3,13,3,23,6,13,9,1
8,12,18,15,23,18,28,99,0
8305 DATA 2,4,2,17,5,10,8,16,11,
13,14,13,17,4,17,13,20,31
8400 DATA 3,26,6,24,6,25,9,1,9,1
1,15,16,15,26,18,0,18,2,99,0,3,1
6,9,5,12,21,13,0,13,4,15,20,18,2
0,18,23,99,0
8401 DATA 3,20,6,0,6,11,12,0,12,
4,99,0,6,6,12,16,12,26,14,0,14,5
,99,0
8402 DATA 3,16,6,1,6,27,9,16,9,2
7,12,31,15,21,18,5,18,27,99,0,2,
20,5,0,5,29,8,12,11,6,11,24,14,1
6,17,1,17,28
8500 DATA 3,24,3,26,6,20,9,3,9,5
,12,19,15,2,18,18,18,26,99,0,6,2
5,9,15,9,18,12,0,12,3,15,16,18,0
,99,0
8501 DATA 3,2,3,5,3,14,3,16,12,1
1,15,24,15,25,18,10,99,0,6,0,6,6
,6,11,12,27,15,9,99,0
8503 DATA 3,10,3,20,3,29,6,22,9,
16,12,16,15,4,15,20,18,3,18,20,9
9,0,2,2,2,24,5,15,8,10,11,1,11,2
0,11,28,14,2,17,29
8509 LET C=3*((INT (RND *5))

```

Explore the Haunted Belltower.
To move from one room to the next, collect all the bells, but avoid the bats or you will become a bat yourself. Full instructions are included within the game.
Written for the 48K Spectrum Plus by T Sherwood of West Bromwich, West Midlands.
All underlined letters are to be entered in graphics mode. Refer to page five for graphics instructions.

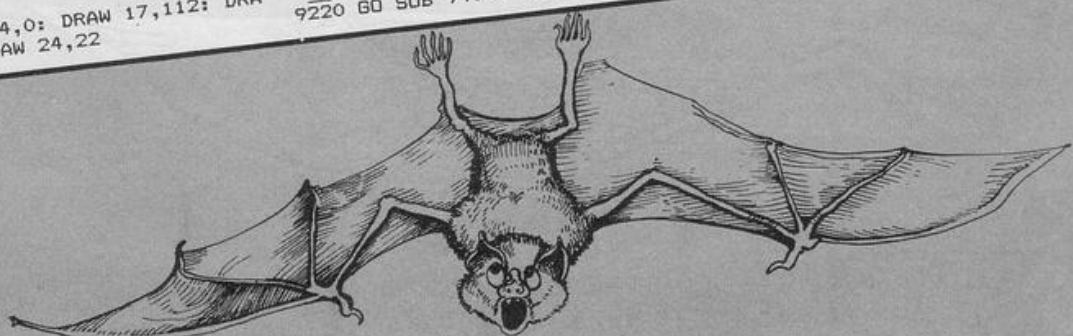




```

)-1: LET d=INT ( RND *32): LET
x=19: LET y=0: LET x1=x: LET y1=
y: LET a=2: LET b=INT ( RND *32
)
8510 PRINT #0; PAPER 1; INK 4; A
T 0,0;"(ig5)
      (g5:ig5)
      (g5)"
8515 PRINT #0; INK 6; PAPER 1; A
T 0,4;"SCORE 00000"; INK 5; AT 1
,1;"HI SCORE 00000"; INK 4; AT 1
,20;"LIVES"
8516 PRINT #0; AT 0,15-LEN STR
$ s; INK 6; PAPER 1; s; AT 1,15-
LEN STR$ h; INK 5; PAPER 1; h
8590 OVER 1: INK 8: PAPER B
8700 LET i=1: PRINT AT x,y;a$(i
); AT x+1,y;b$(i); AT a,b;"K"; A
T c,d;"K"
8705 PRINT #0; AT 0,25; FOR j=1
TO 1: PRINT #0; PAPER 1;" A";:
NEXT j
8710 PRINT #0; AT 1,25; FOR j=1
TO 1: PRINT #0; INK 5; PAPER 1;
" B";: NEXT j
8715 IF g=1 THEN FOR j=63000 TO
63007: BEEP .1,( PEEK j)-40: LET
R i=1 TO 20: NEXT i: NEXT j: LET
z=z+1
8716 IF g=1 THEN LET f=f+1: IF
f<5 THEN GO TO 8000
8717 IF f=5 THEN GO TO 8800
8720 FOR i=63000 TO 63063
8721 LET n=( PEEK i)-40
8725 BEEP .11,n
8730 IF INKEY$ =m$(2) THEN GO
TO 2000
8780 NEXT i: GO TO 8720
8800 IF PEEK 63000 <> 17 THEN
RESTORE 9540: FOR i=63000 TO 630
63: READ n: POKE i,n: NEXT i
9000 OVER 0: CLS
9004 INK 5: RESTORE 9520
9010 PRINT AT 1,3;"HE"; AT 2,2;
"HAUNTED"; AT 3,2;"BELLTOWER"
9013 PLOT 11,169: DRAW 27,0: PLO
T 21,168: DRAW 0,-7
9015 PLOT 86,145: DRAW 7,-7: DRA
W 3,0: DRAW 0,3: DRAW -85,0
9090 PLOT 0,0: DRAW 255,0: DRAW
0,175: DRAW -255,0: DRAW 0,-175
9092 PLOT 64,0: DRAW 17,112: DRA
W 2,-24: DRAW 24,22
9100 PLOT 102,0
9110 FOR m=1 TO 5: READ i,j: DRA
W i,j: NEXT m
9130 PLOT 165,44: DRAW 90,-44
9132 FOR m=1 TO 6: READ i,j: PLO
T 64+i,j: DRAW -2,12: DRAW 4,4:
DRAW 4,-8: DRAW 2,-12: DRAW -7,3
: NEXT m
9140 FOR m=1 TO 2: READ i,j: PLO
T i+64,j: DRAW 1,12: DRAW 3,8: D
RAW 3,-4: DRAW -1,-12: DRAW -5,-
4: NEXT m
9144 PRINT INK 2; AT 11,21;"K"
9145 PLOT 164,60: DRAW -35,44,4.
5
9147 LET f=0: LET g=0: INK 7
9148 PRINT #0; AT 1,1; INK 2;"0=
SCREEN DEMO 1=START GAME"
9150 FOR i=63063 TO 63000 STEP -
1: LET n=( PEEK i)-40
9157 BEEP .13,n
9158 IF INKEY$ <> "" THEN GO
TO 9160
9159 NEXT i: GO TO 9150
9160 IF INKEY$ ="0" THEN LET g
=1: GO TO 6005
9170 IF INKEY$ ="1" THEN GO TO
6005
9175 GO TO 9150
9200 CLS : PRINT INK 3; AT 0,0;
"K THE HAUNTED BELLTOWER Q
"
9201 PRINT INK 5; AT 4,0;"The m
ischievous ghosts have
down the bells and left
lying all around."
9205 PRINT INK 6;"Help the rab
bit to collect them.Each bell he
picks up will fly to it's prop
er place."
9206 PRINT INK 4;"If he collec
ts them all, he can pass through
the door on the topplatform to
the next room."
9207 PRINT INK 5;"There are 5
different rooms."
9208 GO SUB 9400
9210 PRINT INK 5; AT 4,2;"Dont
let the bats bite him or he wi
ll turn into a bat too !"
9211 PRINT INK 4; AT 11,10;"K
K K"
9220 GO SUB 9400: RETURN
9402 PRINT #0; AT 0,1;"C"; AT 1,
1; INK 5;"D Press any key to co
ntinue"
9440 PAUSE 1: PAUSE 0
9455 IF INKEY$ <> "" THEN GO
TO 9455
9460 CLS : RETURN
9520 DATA 6,138,5,-28,38,-21,2,2
4,18,-112
9521 DATA 51,84,66,76,81,68
9522 DATA 110,20,125,12,140,4
9525 DATA 16,63,29,73
9540 DATA 17,29,41,53,53,41,29,1
7,19,31,43,55,55,43,31,19,22,34,
46,58,58,46,34,22,24,36,48,60
9541 DATA 60,48,36,24,24,60,48,3
6,22,58,46,34,19,55,43,31,17,53
9542 DATA 41,29,53,17,29,41,55,1
9,31,43,58,22,34,46,60,24,36,48
9804 INK 3
9805 RESTORE 9860: READ nk
9807 LET m$="" : CLS
9808 PRINT AT 4,3;"CHOOSE USER
DEFINED KEYS: "
9810 FOR i=1 TO nk
9811 READ d$: PRINT "
d$": NEXT i: INK 6
9815 RESTORE 9860: READ nk
9816 PRINT AT 0,0: PRINT
9818 FOR i=1 TO nk: READ d$
9819 LET m$=m$+CHR$ 0
9820 PRINT " ";d$;
9822 FOR j=1 TO 12-LEN d$: PRIN
T " ";: NEXT j
9825 PRINT FLASH 1;"?"; CHR$ 8;
9827 PAUSE 1: PAUSE 0
9830 LET k$=INKEY$
9832 FOR j=1 TO LEN m$
9833 IF m$(j)=k$ THEN GO TO 982
7
9834 NEXT j
9840 LET m$(i)=k$: PRINT k$: BEE
P .05,30: NEXT i: INK 7
9858 IF INKEY$ <> "" THEN GO
TO 9858
9859 RETURN
9860 DATA 3,"LEFT","RIGHT","CLIM
B ROPE"

```





INFERNO

The tallest tower block in London is ablaze, and people are trapped on the seventeenth floor. The sixteenth floor is already alight and, as the game progresses, more and more smoke and flames will

start to break through. You play the role of firefighter, moving around the screen using cursor keys 5 to 8. Collect as many people as possible and then head for the exit. The exit is obscured by smoke, so you will

have to rely on luck and your compass to help you to escape.

Inferno was written for the 16K ZX-81 by Robert Caldecott of south west London.

```

1001 GOSUB 500
1002 LET R3=1
1003 RAND
1004 LET R1=0
1005 LET M$="P ?" /49EHKLN"
1006 LET R2=0
1007 RAND CODE M$(INT (RND*14)+1)
1008
1009 LET TT=300
1010 PRINT "MOVE TO ES"
1011 GOTO INFERNO
1012 FOR I=1 TO 21
1013 PRINT " "
1014
1015 NEXT I
1016 FAST
1017 FOR I=1 TO 30
1018 LET R=INT (RND*100)
1019 LET X=INT (RND*28)+1
1020 LET Y=INT (RND*9)+2+1
1021 LET L=INT (RND*(29-X))+2
1022 FOR J=0 TO L
1023 LET R=INT (RND*100)
1024 LET R$=" "
1025 IF R>95 THEN LET R$=" "
1026 IF R>95 THEN LET R1=R1+1
1027 PRINT AT Y,X+J;R$
1028 NEXT J
1029 LET X=INT (RND*15)+2+1
1030 LET Y=INT (RND*17)+1
1031 LET L=INT (RND*(19-Y))+2
1032 FOR J=0 TO L
1033 LET R=INT (RND*100)
1034 LET R$=" "
1035 IF R>95 THEN LET R$=" "
1036 IF R>95 THEN LET R1=R1+1
1037 PRINT AT Y,X+J;R$

```

```

150 NEXT J
151 NEXT I
152 SLOW
153 PRINT AT 21,0;"PRESS"
154 GOTO CONTINUE
155
156 INPUT R$
157 LET T=0
158 LET P=PEEK 16396+256*PEEK 1
159
160 RAND
161 LET X=32+INT (RND*608)+1
162 IF PEEK (P+X)>0 THEN GOTO 1
163
164 LET H=32+INT (RND*608)+1
165 IF PEEK (P+H)>0 THEN GOTO 2
166
167 LET F=32+INT (RND*608)+1
168 IF PEEK (P+F)>0 OR RND>.4 THEN GOTO 3
169
170 POK P+X,8
171 POK P+X,52
172 LET D=X+(INKEY$="8")-(INKEY$="5")+(INKEY$="6")*33-(INKEY$="7")*33
173 POK P+X,0
174 LET T=T+1
175 PRINT AT 21,0;"RESCUED SO F"
176
177 IF TT-T<1 THEN GOTO 450
178 IF PEEK (P+D)=27 THEN LET R
179 2=R2+1
180 IF PEEK (P+D)=8 THEN GOTO 4
181
182 IF PEEK (P+D)<>128 THEN LET X=D
183
184 IF X=H THEN GOTO 350
185 LET XD=INT (X/33)

```

```

265 LET XA=X-XD*33
266 LET HD=INT (H/33)
267 LET HA=H-HD*33
268 PRINT AT 0,5;" "
269 IF XD=HD THEN GOTO 310
270 IF HD<XD THEN PRINT AT 0,5;" "
271
272 IF HD>XD THEN PRINT AT 0,5;" "
273
274 IF XA=HA THEN GOTO 210
275 IF HA<XA THEN PRINT AT 0,10;" "
276
277 IF HA>XA THEN PRINT AT 0,10;" "
278
279 GOTO 210
280 PRINT AT 3,0;"YOU FOUND TH"
281 E EXIT IN "T;"SECS."
282 PRINT AT 4,0;"NUMBER OF PEO"
283 PLE RESCUED "R2"
284 IF R2>R3 THEN GOTO 392
285 GOSUB 600
286 CLS
287 GOTO 3
288 PRINT AT 5,0;"THE MOST SO F"
289 AR "SUPERHERO"
290
291 LET R3=R2
292 GOTO 370
293 PRINT AT 3,0;"YOU WERE ENGU"
294 LFED BY FLAMES AND "
295 PRINT AT 4,0;"HAVE FAILED"
296 IN YOUR RESCUE BID."
297 GOSUB 600
298 GOTO 3
299 PRINT AT 3,0;"YOU FAILED T"
300 O ESCAPE IN TIME "
301 GOSUB 600
302 GOTO 3

```




```

500 PRINT "INFERNO"
510 PRINT
520 PRINT "YOU ARE A FIREMAN SH
OWN BY AND YOUR JOB IS TO RESCU
E AS MANY PEOPLE AS POSSIBLE F
ROM THE 17TH FLOOR OF A TOWER BLO
CK. THE 16TH FLOOR IS ALREADY ABL
AZE AND THE FIRE IS BREAKING THR
OUGH EVERYWHERE."
530 PRINT "FLAMES ARE SHOWN BY
PEOPLE BY YOU MUST AVOID THE F
IRE AND FIND AS MANY PEOPLE AS PO
SSIBLE BEFORE THE TIME ALLO
CATED REACHES ZERO WHEN TH
16TH FLOOR COLLAPSES ENGULFING
EVERYONE."
540 GOSUB 500
550 PRINT "ONCE YOU HAVE ROUNDE
D UP THOSE PEOPLE YOU CAN RESCU
E YOU CAN EXIT, UNFORTUNATELY Y
OU DO NOT KNOW WHERE IT IS, BUT
YOU ARE GIVEN DIRECTIONS FRO
M YOUR FLOORPLAN GUIDANCE COMPUT
ER SUCH AS NORTHWEST WHICH TELL
YOU THAT TO REACH THE EXIT AN
D ESCAPE THE FLAMES MOVE NORTHWEST."
560 PRINT "THOSE PEOPLE YOU RES
CUE AND YOURSELF CAN MOVE ALONG
CORRIDORS ONLY BY USING KEYS 5
678 TO MOVE WEST SOUTH NORTH AND
EAST."
580 GOSUB 500
590 PRINT "YOU ARE SHOWN AT ALL
TIMES WHERE YOU ARE, WHERE PEOPLE
TO BE SAVED ARE, WHERE THE FIRES
ARE, THE TIME REMAINING BEFORE THE
FLOOR COLLAPSES AND THE NU
MBER OF PEOPLE TO BE RESCUED."
600 PRINT "YOU HAVE 5 MINUTES (
300 SECS) TO CARRY OUT THE RES
CUE."
610 PRINT "TO BE A TOP FIRE HER
O YOU MUST FIND AND SAVE THE MO
ST PEOPLE. GOOD LUCK HERO."
620 PRINT
630 PRINT "PLEASE WAIT FOR THE
FLOORPLAN TO BE CONSTRUCTED"
640 GOSUB 500
650 CLS
660 RETURN
670 PRINT AT 21,0: "PRESS
KEY TO CONTINUE"
680 INPUT A$
690 CLS
700 RETURN

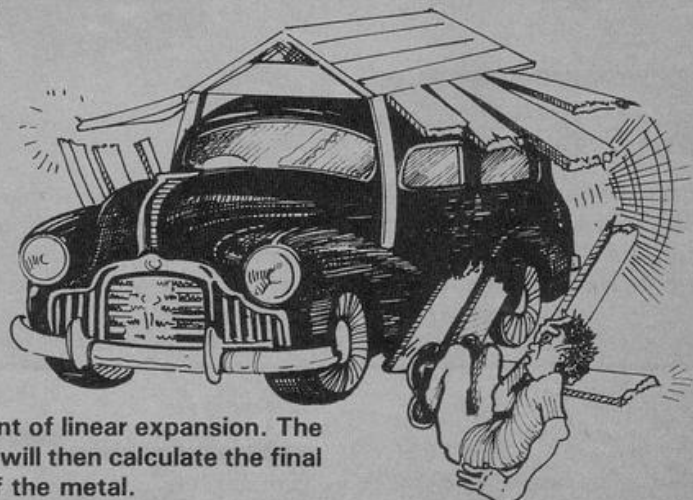
```

METAL EXPANSION

Check your physics home work with Metal Expansion, written for the Spectrum or Spectrum Plus by Gary Meakin of Clifton, Nottingham.

A metal expands and contracts at a uniform rate when subjected to changes of temperature, providing its elastic limit is not exceeded. Give the original length and temperature of your metal, together with its final temperature and its

coefficient of linear expansion. The program will then calculate the final length of the metal.



```

100 CLS : BORDER 4: PAPER 4: BR
IGHT 1: CLS : PAPER 4: BRIGHT 1

```

```

190 INK 7
200 PRINT "M E T A L   E X P A N
S I O N"
205 PRINT AT 0,0: OVER 1: "-----"

```

```

206 INK 0
210 PRINT : PRINT "A metal expa
nds and contracts at a uniform
rate when subjected to changes o
f temperature- PROVIDING IT
S ELASTIC LIMIT IS NOT EXCEEDED
"

```

```

225 BEEP .1,10
1010 PRINT AT 7,0: "CALCULATING
LINEAR CHANGES"
1020 PRINT AT 9,0: "Enter Origin
al Metal Length"
1030 INPUT La

```

```

1040 PRINT AT 9,0: "La = ";La;
TAB 15: "mm"
1050 BEEP .1,10
1060 PRINT "Enter Initial Temper
ature"
1070 INPUT Ta
1080 PRINT AT 10,0: "Ta = ";Ta;
TAB 15: "degrees c"
1090 BEEP .1,10
1100 PRINT "Enter Final Temperat
ure"
1110 INPUT Tf
1120 PRINT AT 11,0: "Tf = ";Tf;
TAB 15: "degrees c"
1130 BEEP .1,10
1140 PRINT "Enter Coefficient of
Expansion"
1145 INPUT Co
1150 PRINT AT 12,0: "Co = ";Co;
TAB 15: "1/degrees c"
1160 BEEP .1,10

```

```

1200 LET Exp=(Tf-Ta)*Co*La
1205 INK 7
1210 PRINT AT 16,0: "INCREASE=";
Exp; "mm"
1220 BEEP .1,10
1230 LET Ext=Exp+La
1240 PRINT AT 17,0: "NEW LENGTH=
";Ext
1250 BEEP .1,10
1260 COPY
1265 INK 0
1270 PRINT AT 20,0: "ANOTHER CAL
CULATION Y Yes N No"
1280 IF INKEY#="y" THEN GO TO
100
1290 IF INKEY#="n" THEN CLS :
STOP
1300 GO TO 1280
9000 SAVE "metalex" LINE 100

```

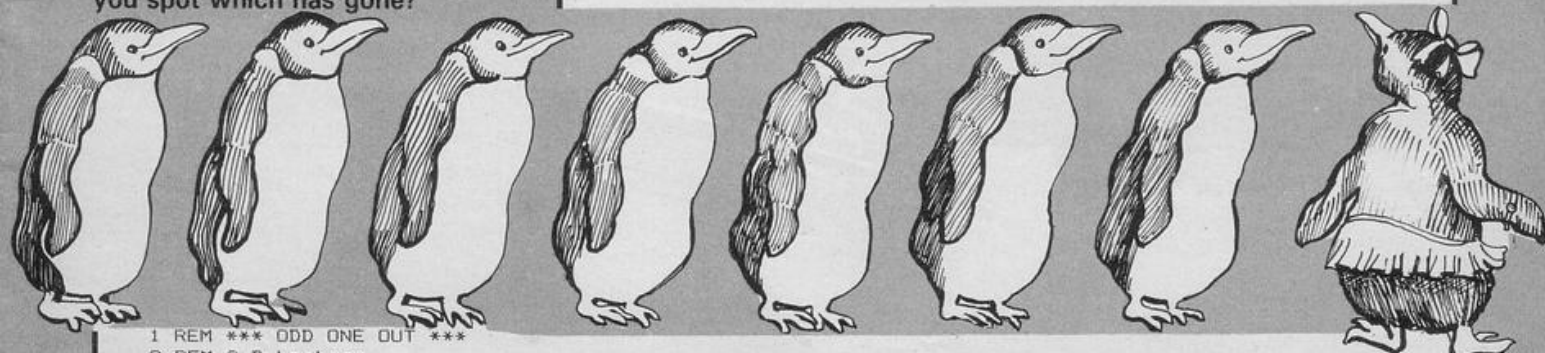

ODD ONE OUT

Test your powers of observation with Odd One Out, written for the Spectrum or Spectrum Plus.

A number of objects will be displayed on screen. Memorise their positions and then press any key. The objects will be displayed, but one will have been removed. Can you spot which has gone?

```
70 IF a=5 THEN PRINT AT x4,z
4;" "
75 IF a=6 THEN PRINT AT x5,z
5;" "
80 IF a=7 THEN PRINT AT x6,z
6;" "
85 IF a=8 THEN PRINT AT x7,z
7;" "
90 IF a=9 THEN PRINT AT x8,z
8;" "
95 IF a=10 THEN PRINT AT x9,
z9;" "
```

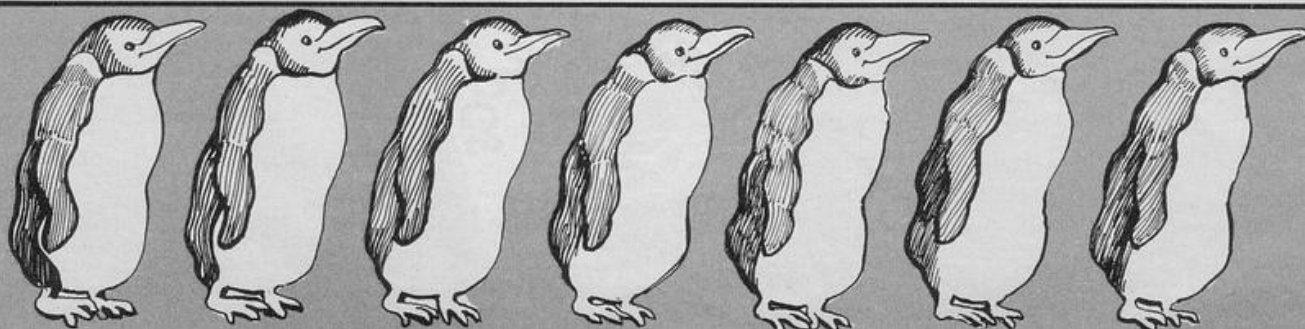
the missing object. If you name it correctly you score 1 point": PRINT #1;"Press a key to continue": PAUSE 0: PAUSE 0
8020 CLS : PRINT AT 0,6;"The objects"
8030 PRINT AT 2,0;"A=crab"; AT 4,0;"B=man"; AT 6,0;"C=ball"; AT 8,0;"D=star"; AT 10,0;"E=shoe"; AT 12,0;"F=face"; AT 14,0;"G=moon"; AT 16,0;"H=car"; AT 18,0;"I=ship"; AT 20,0;"J=ring"



```
1 REM *** ODD ONE OUT ***
2 REM @ D Larkman.
3 CLS
10 GO SUB 9000
20 GO SUB 8000
25 LET score=0
30 LET a= INT ( RND *10)+1
35 LET z= INT ( RND *31): LET
x= INT ( RND *21): LET z1= INT (
RND *31): LET x1= INT ( RND *21
): LET z2= INT ( RND *31): LET x
2= INT ( RND *21): LET z3= INT (
RND *31): LET x3= INT ( RND *21
): LET z4= INT ( RND *31): LET x
4= INT ( RND *21): LET z5= INT (
RND *31): LET x5= INT ( RND *21
): LET z6= INT ( RND *31): LET x
6= INT ( RND *21): LET z7= INT (
RND *31): LET x7= INT ( RND *21
): LET z8= INT ( RND *31): LET x
8= INT ( RND *21): LET z9= INT (
RND *31): LET x9= INT ( RND *21
)
36 PRINT AT x,z;"A": PRINT AT
x1,z1;"B": PRINT AT x2,z2;"C"
: PRINT AT x3,z3;"D": PRINT AT
x4,z4;"E": PRINT AT x5,z5;"F":
PRINT AT x6,z6;"G": PRINT AT
x7,z7;"H": PRINT AT x8,z8;"I":
PRINT AT x9,z9;"J"
37 PRINT #1;"Press a key": PAU
SE 0: CLS : PAUSE 50
40 PRINT AT x,z;"A": PRINT AT
x1,z1;"B": PRINT AT x2,z2;"C"
: PRINT AT x3,z3;"D": PRINT AT
x4,z4;"E": PRINT AT x5,z5;"F":
PRINT AT x6,z6;"G": PRINT AT
x7,z7;"H": PRINT AT x8,z8;"I":
PRINT AT x9,z9;"J"
50 IF a=1 THEN PRINT AT x,z;
" "
55 IF a=2 THEN PRINT AT x1,z
1;" "
60 IF a=3 THEN PRINT AT x2,z
2;" "
65 IF a=4 THEN PRINT AT x3,z
3;" "
```

```
100 INPUT "What's missing ";a$
105 IF a$="crab" AND a=1 THEN
GO TO 200
110 IF a$="man" AND a=2 THEN G
O TO 200
115 IF a$="ball" AND a=3 THEN
GO TO 200
120 IF a$="star" AND a=4 THEN
GO TO 200
125 IF a$="shoe" AND a=5 THEN
GO TO 200
130 IF a$="face" AND a=6 THEN
GO TO 200
140 IF a$="moon" AND a=7 THEN
GO TO 200
150 IF a$="car" AND a=8 THEN G
O TO 200
160 IF a$="key" AND a=9 THEN G
O TO 200
170 IF a$="ring" AND a=10 THEN
GO TO 200
180 GO TO 300
200 CLS : LET score=score+1: PR
INT AT 0,10; FLASH 1;"CORRECT!!
": FLASH 0: PRINT AT 2,2;"You'v
e scored ";score;" up to now": P
RINT #1;"Press a key to continue
": PAUSE 0
210 CLS : GO TO 30
300 CLS : BEEP .2,-10: BEEP .2,
-30
310 PRINT AT 0,10;"WRONG!!"
320 PRINT AT 2,2;"But you got
";score;" points"
330 PRINT AT 21,0;"Play again
(y/n)"
340 PAUSE 0: IF INKEY$ ="y" TH
EN CLS : GO TO 25
350 STOP
8000 CLS
8005 PRINT AT 0,6;"ODD ONE OUT"
8010 PRINT AT 2,0;"The object i
s to find the odd one out. You
do this by inputting the name of
```

```
8040 PRINT #1;"Press a key to pl
ay": PAUSE 0: PAUSE 0: CLS : RET
URN
9000 FOR a= USR "a" TO USR "j"+
7
9010 READ b: POKE a,b
9020 NEXT a
9030 DATA BIN 01100110, BIN 010
00010, BIN 01000010, BIN 0011110
0,255, BIN 01111110, BIN 10100010
1, BIN 00100100
9040 DATA BIN 00111100, BIN 001
11100, BIN 00011000,255, BIN 101
11101, BIN 10111101, BIN 0010010
0, BIN 01100110
9050 DATA 0,0, BIN 00111100, BIN
01111110, BIN 01111110, BIN 011
11110, BIN 00111100,0
9060 DATA BIN 00010000, BIN 100
10010, BIN 01010100, BIN 0011100
0, BIN 00111000, BIN 01010100, B
IN 10010010, BIN 00010000
9070 DATA BIN 01110000, BIN 011
10000, BIN 11110000,255,255, BIN
11001111,0,0
9080 DATA 0, BIN 11111110, BIN 1
0010010, BIN 11111110, BIN 11101
110, BIN 11111110, BIN 11000110,
BIN 01111100
9090 DATA 0, BIN 00111000, BIN 0
1111000, BIN 11000000, BIN 11000
000, BIN 11111000, BIN 01110000,0
9100 DATA 0,0, BIN 11111100, BIN
10000100,255,255,255, BIN 011001
10
9110 DATA BIN 00010100, BIN 001
10100, BIN 01110110, BIN 1111011
1, BIN 00001000,255, BIN 0111111
0, BIN 00011000
9120 DATA BIN 00011000, BIN 000
11000, BIN 00111100, BIN 0100001
0, BIN 01000010, BIN 01000010, B
IN 01000010, BIN 00111100
9130 RETURN
```





'Calling all whizz kids— my CLEVER CLOGS games are the ultimate challenge!'

These exciting games of skill and chance are the combined work of real life 'Clever Clogs' and their teachers to give you whizz kids the ultimate challenge in computer games that really make learning fun.

Exciting graphics, a wide choice of 'difficulty' levels, plus supplementary knowledge packs for several games in the range make Clever Clogs Britain's best buy in early learning software.

Starting with 'Party Time' for Age 3+, the Clever Clogs range brings a new approach to learning for whizz kids of all ages. And if you join the Clever Clogs Club you'll automatically be eligible for many money-saving special offers.

Selected titles available at W H Smith, Menzies and other leading retailers.

CLEVER CLOGS early learning games

produced by
ARGUS PRESS SOFTWARE
1 Golden Square, London W1R 3AB
Telephone: 01 437 0626



Supplementary Knowledge Pack SCIENCE
Challenge your whizz kids with 600 science questions

Supplementary Knowledge Pack THE ARTS
600 first steps into Music, Poetry, Painting, Dance, Theatre and English Literature

STAR TRUCKER
for age 9+
Hyperspace holds no fears for whizzkids who get the answers right

PARTY TIME
for age 3+
6 different games and increased difficulty options teaching letters and numbers the fun way

JUNGLE JUMBLE
for age 5+
You've never seen a zoo like this one — a laugh each time with 2 different games and increased difficulty option

WHIZZ QUIZ
for age 7+
A real challenge to today's whizzkids with increased difficulty option

BLOCKBUSTER
for age 7+
The puzzle with a million billion variations. Can your whizz kid find the answer?

SHIPSHAPES
for age 3+
See and understand SHAPES with 5 great games

MUSIC
for age 7+
A suite of musical games to encourage budding Beethovens

SAM SAFETY
for age 5+
Teach adventurous Sam roadsense and guide him safely home

SAM SAFETY
for age 5+
Teach adventurous Sam roadsense and guide him safely home

Spectrum £7.95, BBC and Commodore 64 £8.95,
Supplementary Knowledge Packs £5.95.

THE FINAL TOUCH

We've just added the final touch to our professional keyboard. This new Microdrive compatible keyboard offers more key functions than any other in its price range. And the stepped keys and space bar make it even easier to use. Our keyboard, constructed from high density black ABS, will take your Spectrum into the professional league. It has 52 "stepped" keys plus space bar. A separate numeric key pad consisting of 12 red keys including a single entry 'delete' plus single entry 'decimal point', facilitate fast

numeric data entry. The 15" x 9" x 3" case will accommodate your Spectrum and other addons like interface 1, power supply etc. and forms an attractive self-contained unit. All connections, power, Mic, Ear, T.V., network RS232 and expansion port are accessible at the rear. A few minutes, a screwdriver and the simple instructions supplied are all you need to fit your Spectrum. All **dktronics** products are covered by a comprehensive guarantee.

Constructed from high density black ABS

All connections accessible at rear



ONLY £45.00

No Price Increases!

And it's Available NOW!

Please rush me the following
 Microdrive compatible
 keyboard(s) £45.00
 Please add post and packing £1.25
 I enclose cheque/PO/Cash for Total £
 or debit my Access/Barclaycard No.

 Signature _____ Name _____
 Address _____

SP/5/85

dktronics

DK Tronics Ltd., Unit 6, Shire Hill Industrial Estate, Saffron Walden,
 Essex CB11 3AQ. Telephone: (0799) 26350 (24 hrs) 5 lines

The Spectrum Connection

FREE WITH EVERY KEYBOARD
 4 SOFTWARE GAMES
 MAZIACS - JUMBLY
 INVADERS - ZIG-ZAG
 NORMAL R.P.P. £25.80

SPECTRUM INTERFACE

TURBO INTERFACE

Trade and Export enquiries welcome

