

# COMPUTER & VIDEO GAMES



COURSE OF  
THE  
AZTEC TOMB

ET  
the  
letter

MEET PENGU... OUR GAME... 83-11 COMPUTER GAMES  
WARPATH... PROGRAMMING... AND A WARGAME ALL-IN-ONE

# THE BEST VIDEO GAMES

At least 20% off, up to 30% off all your favourite video games — that's the unbeatable price promise when you join the Video Games Club.

No commitments, just buy what you want, when you want — always at the guaranteed lowest prices in the UK! Plus regular special offers for Life Members like chess computers, LED and LCD hand-held games, radio watches — always at least 20% off! Life Membership costs just £25, one-year Trial Membership just £7.50. Join today, and start saving!

# THE GUARANTEED LOWEST PRICES!

## ATARI APOLLO

THE MAN  
YAK'S REVENGE  
DEFENDER  
BERZERK  
£15.47 + P&P

SPACE CAPTAIN  
SHARK ATTACK  
£17.40 + P&P

SPECIAL INTRODUCTORY OFFERS TO ALL NEW LIFE MEMBERS!

**FREE** Hungarian Rings puzzle worth £3.95, plus **FREE** 10,000,000,000 puzzle worth £3.99! Plus **FREE** entry to the Video Games Club Competition — out of every 1,000 new Life Members, one will win a complete Atari-compatible library of 71 cartridges worth £1,500! **JOIN TODAY!**

ATARI SYSTEMS ... JUST LOOK AT THE SAVINGS YOU GET AS A LIFE MEMBER!

Join VCS — only 197.00 AND GET THE 1,000,000 AND 500,000 YOU GET FREE! **MEMBERS SAVE UP TO 10% OFF THE VALUE OF THEIR PURCHASES** from a selected range of software and consoles! Join 500 £199.00 — with free merchandise worth £20.00! Join 800 £499.00 — with free merchandise worth £74.00! PLUS "Le Sock" hand-console only £25.00! CDS available on 400 and 800 at postcost!

**UPGRADE NOW! WE'LL GIVE YOU £25 WHEN YOU TRADE-IN YOUR VCS FOR AN ATARI 400 OR 800 HOME COMPUTER!**

**WE'LL TAKE YOUR OLD GAMES TOO!**

Free P&P on all Atari Computers!



## ACTIVISION PARKER

STARMASTER  
CHOPPER COMMANDO  
ICE HOCKEY  
BURNING RUBBER  
£14.95 + P&P

STAR WARS  
PROGGER  
£23.47 + P&P

**FREE LIFE MEMBERSHIP** INTRODUCED TO NEW LIFE MEMBERS AND GET FOURTEEN LIFE MEMBERSHIP BACK IN VIDEO-GAMES CLUB MERCHANDISE OF YOUR CHOICE!

See Our Video Games Club, FREEPOST, London E5 80P. (NO STAMP REQUIRED)

Please send me the Life Membership @ £25  
1yr Trial Membership @ £7.50 (where applicable)  
I am over 18, I enclose £ \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

For further information send 6" x 6" stamped & addressed envelope

Children's PCs should be made payable to Video Games Club. Or pay by TRANSACT to: 507 2751 at any Post Office. Only send cash through registered mail, please.

See Our Video Games Club, FREEPOST, London E5 80P.

\*Prices set by cheque, we guarantee no refunds on difference!

# VIDEO GAMES CLUB

## News & Reviews

### GAAMES NEWS 18

There's a great deal to be done and these are the best ways to do it. The Central Idea, and other news of the month.

### VIDEO SCREENS 28

E.T. has a computer version, and we're looking at other titles of the same genre.

### ARCADE ACTION 30

It's time to update the list of the best of the best. We're looking at the latest titles, and the reasons why they're the best. Also, the best of the best of the best of the best.

### REVIEWS 36

There's a great deal to be done and these are the best ways to do it. The Central Idea, and other news of the month.

### NEXT MONTH 4



## On the warpath...

Just when it seems that the cowboy genre is dead and the Indians take flight.

But that may be true of films but don't expect it in our Warpath game.

Tom Foltin is exercising his thrilling wild west war game in such a way as to improve your own programming skills.

Now in a self-contained memory issue and a Brian whose games earned a special prominence in the UK's video computer industry.

At the end of the series, you'll not only have a game which John Wayne would not mind, but enough knowledge and a working base on which to build your own programs tomorrow.

Turn to page 10 and take to the Warpath.

## Listings

### SUBMARINE HUNTER 32

Take your helicopter out over the icy seas and inside the enemy's mine field below the waves. You have to do much more and destroy the mine field than just keep a wary eye at their protective screens.

### SHIBULEX 36

Now, in three life creatures with the top graphic levels again in the special adaptation of our Game of the Year, written for you for the 100th.

### DRAGON'S TEETH 42

In days of old when dragons were born... there were few to see a noble hero and to fight dragons with their own time for glory days... just aim for the fire breathing beasts and knock them out. January made easy on your Dragon.

### WILSON SWATCH 48

Just what to grab a gold reward? Well here's your chance. Search around a mine and keep the hidden on your Acorn Atom.

### CURSE OF THE REDUCED TOMB 46

In the darkest corners of an ancient tomb there is a treasure so mysterious that it is only mentioned in whispers. Only IBM users will be brave enough.

### TUNNEL RUN 50

Support through narrow tunnels in your Pet.

### CAVE FLIGHT 52

On a mission to save your planet from an orange eraser your space fighter is stolen with a terminal illness. Can you program the game into your BBC micro?

### CALA XIANS 56

Armed alien action for Spectrum centers on a colony of early beings across the universe with one aim in mind. To wipe you out.

### CRITICAL MASS 58

Overlapping could prove lead to the board game which really goes with a bang! Explosive industrial action for 100th anniversary.

### ME-LUDO 62

Twelve and again thinking on what you need to beat the computer at its own game on the Sharp MC-800.

### TARGET 68

For Texas TI 90/4 owners with a death wish.



## Features

### MAILING 7

Building points, tips and advice.

### COMPETITION 10

Who's a player giving the UK's professional game designers.

### SEVEN EMPIRES 18

The major computer game wars are now over. We have a chance to check out the victors.

### RUGS 25

T. Bink's struggle with the Olympic goal. (Special Programming Experience)

### CRICK 23

More from your book.

### PUZZLING 22

Three hand held square puzzles are up for grabs if you can show them your.

### BRIDGE 29

How to play a hand with.

### MACHINE CODE 28

Inside the microprocessor with Tom Bell.

### ADVENTURE 32

Developing a story. Don't Campbell just a few words in the making yet.

### WARPATH 48

The start of our series on computer.

### GRAPHICS 57

Don't forget to make between the two, with some preliminary software.

Editor: Tony Bell. Editor: John Bell. Editorial Assistant: John Bell. Publisher: John Bell. Production: John Bell. Circulation Manager: John Bell. Advertising Manager: John Bell. Sales: John Bell. Distribution: John Bell. Post Office: John Bell. Telephone: John Bell. Address: John Bell.

ADVERTISING AND NEWS GAMES/VIDEO INFORMATION SERVICE. In order to ensure the highest quality of information, we have established a central database of information on all computer and video games. This database is available to all our subscribers and is updated regularly. For more information on this service, please contact our sales department. We are also looking for new titles to add to our database. If you have any information on new titles, please contact our sales department. We are also looking for new titles to add to our database. If you have any information on new titles, please contact our sales department.

## BEFRIEND AN ALIEN TODAY

**NEXT**  
**WORLDWIDE**

In Space Watch we have invited you to befriend the aliens, long before anyone had seen a printed copy of that E.T. character.

Now our science fiction specialist, David Langford takes the diplomacy before galactic destruction line a step further with Taming The Treaders.

This really is a game with a message, in fact there's lots of messages, all sent by you — the player — to the teeming millions of confused space creatures thronging our atmosphere.

There's getting to be so many of the little green devils out there that they'll soon be in danger of pollut-

ing the atmosphere. Can you successfully find the alien code to persuade them your species is intelligent? ... Is this asking too much of C&VG readers? No, of course not!

Follow the second article in our Warpath series, which not only promises to tidy up and speed up your programming, but also gives you a fully-fledged Wild West war-game at the end of the article.

There's also some classic games waiting for you between the covers: Chasy Emog solves the thrills of a well-known arcade game; Escape from the Pyramids of Mars; Over the Orchard Wall; Airline Pilot; Golf; Pompeii and many more.

**NEXT**  
**WORLDWIDE**

You will notice that the February issue of Computer & Video Games stands out a little more on the news-stands.

This is because it is not alone on the shelf but closely clustered with a friend, The C&VG Book of Games.

Fifty-eight pages of games for all the popular computers, tightly packed into one super free supplement to ensure that the Christmas mice is put to good use.

Of course we won't be cutting down the usual high quality content of the magazine, we've just been working specially hard, looking out and testing extra programs for the Book of Games and we hope you think that it's been worthwhile.

Let us name just a few: Star Trek, Snake, Ghosts, Victorian Sewer, 3D Mars, Space Attack, Golf, World First, Magic Square, Red Alert and others too numerous to mention. Be sure and get your free Book of Games. Newsagents have been warned to expect the rush from Saturday January 18.

## THE SEVENTH EMPIRE GOES TO WAR

The Seventh Empire will be at war as from the February issue of Computer & Video Games and we want you to get involved in the conflict.

A rulebook is on the way to all of you who have so far entered this unique play-by-mail game but the rules are also briefly outlined for the curious on pages 36 and 37 of this issue.

If you haven't yet sent in your entry form then please fill in the form below straight away and despatch it to us. Because of the strange deadlines imposed upon us by Christmas holidays, only those forms which reach us by December 31st will be entered for the first round of the game in our February issue. Any entries which arrive later will be included in the March issue game of Seventh Empire.

The Seventh Empire is a unique game-competition which will only cost you the price of a stamp each month. Specially designed

for C&VG by Mike Singleton, the inventor of Britain's top computer-modernized-game, Starboard, it can be played by up to 10,000 readers.

There will be a winner each month and an overall winner over the entire run of the game. The winner of our first turn in February will win a Colour Genie home computer.

Every player will control one of the galaxy's many tribes with seven space fleets to despatch around the star system. He will hire his fleets out as mercenaries to take part in the conflicts between rival empires, choose alien planets rich in resources to raid, commit acts of piracy on rival fleets or trade his way up to a high score by careful watching of the galactic fortunes and commodities.

The game is moderated by a Commodore Pet computer at our end but there is no luck in the play, only skill, foresight and

shrewd animal cunning. Each month a new galactic map will be published in C&VG to show ship numbers at each star system and help you work out your tribe's profits.

We will also publish battle reports which may have changed the face of the galactic map. A diplomatic diagram which will show how the empires have reacted to wars and raiding ships, which empires are currently at peace and which have declared war.

Information on where the imperial ships are travelling to and a Gateway chart which will show which of the 808 or so routes were hit by pirates. From this information you will be able to piece together your score for the turn.

At our end the computer will come up with a top 10 high scores for the issue. Scores will vary from several thousand points awarded to minor figures for those who traded badly.

Send the form below to: The Seventh Empire, Computer & Video Games, Darnley House, 8, Herby Hill, London EC1R 3JE.

Several of you sent in entries as letters and other pieces of paper last month and we decided to accept them, but if you are a new entrant please send off this form on the left cut out at the dotted line.

**Please include me in the Seventh Empire Competition.  
The name of the tribe I will play in the game is:**

.....  
**My name is:**

**Address**

.....  
**Telephone**



# WHAT A CHRISTMAS PACKAGE FROM COMPUTERS FOR ALL



**ATARI 800  
NEW LOW PRICE  
£399.95**

This Christmas there's a good time for all of Computers for All. A full range of the world's best rewards for you to give up watching Television programmes and doing writing computer programs! There's still time to pick up a bargain by calling of our shop or phoning your credit card order. But do it straight away!

Everybody is after a new computer this Christmas. How about you?

**INSTANT CREDIT AVAILABLE FOR  
CALLERS WITH CHEQUE OR CREDIT  
CARD**

Post today, phone, or call at our shop  
Post to Computers for All (V), 72 North Street, Romford,  
Essex. Telephone: (0706) 752662

Please rush me the following equipment:

- ... DRAC 48K @ £399.95 (inc VAT)
- ... BBC MICRO (3) @ £399.00 (inc VAT)
- ... DODGON 32 @ £399.90 (inc VAT)
- ... MPX II @ £270.00 (inc VAT)
- ... ATARI 400 @ £299.95 (inc VAT)
- ... ATARI 800 @ £399.95 (inc VAT)

Please add Post and Packing to all orders @ £3.00

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

Remittance enclosed: £ \_\_\_\_\_  
Please bill my Access/Bardycard/Amex  
CardNo: \_\_\_\_\_

**COMPUTERS  
FOR ALL**

"THE SHOP WHERE PEOPLE MATTER"



# CHROMASONIC PERSONAL COMPUTERS

The Home  
Computing  
Specialists

## 01-263 9493/5

48 JUNCTION RD, ARCHWAY, LONDON NW10 5SD Tel: 01-263 9493



**INTRO OFFER!**  
**VIC 20+**  
• Commodore check or 'intro to basic' part 1  
• 200K RAM  
• 5 disk drives  
**£199**

### VIC 20

NEW  
LOW  
PRICE  
£149.00



### VIC PRINTER

£212.00  
80 Characters per line,  
80 Characters per row,  
Printer Feed/Carriage

### COLOUR GENIE

#### EG 2000

##### PAL VERSION

- 8 colours
- 16K RAM standard, expandable to 32K
- Extended Microsoft colour basic standard
- Typewriter Keyboard
- CPU: 280A12 2 MHz
- 3 Sound Channels
- 40 Columns x 24 Lines

\* Serial and Parallel I/O Ports  
**OUR PRICE £199**

NEW NEW NEW

JUST RELEASED

### Commodore

16K Ram

music synthesizer

3-D effect

16-colour display

OUR PRICE **£339**



#### VIC SINGLE FLOPPY DISK

OUR PRICE **£28.00**  
One Side Single Floppy Disk  
Form Factor by VIC Drive  
Compatibility with  
VIC20

#### VIC CASSETTE DECK

OUR PRICE **£29.00**

#### ACCESSORIES FOR YOUR VIC20

Super Expansion High Resolution Graphics **£21.00**

Programmable Font Cartridge **£28.00**

Machine Code Memory Cartridge **£28.00**

GRAMM Cartridge **£29.00** (see also Cartridge **£67.00**)

#### TONS OF SOFTWARE

At a price of just  
£4.95, we're guaranteeing  
that you will be the  
VIC computer  
owner with the most  
programmes!

Commodore VIC20	16K RAM	£18.95
Commodore VIC20	32K RAM	£29.95
Commodore VIC20	64K RAM	£39.95
Commodore VIC20	128K RAM	£49.95
Commodore VIC20	256K RAM	£59.95
Commodore VIC20	512K RAM	£69.95
Commodore VIC20	1024K RAM	£79.95

Post to CHROMASONIC Personal Computers,  
48 Junction Road, Archway,  
LONDON NW10 5SD

TERMS OF BUSINESS: Payment by 14th day  
Delivery charged at Cost. Prices subject to cover date of this mag.  
Returns and Refunds and orders welcome.

Send £199.00 for a home computer  
Personalisation letter please  
VIC 20 DRAGON EG 2000 our name  
EG 2000 EG 2000

NAME: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_  
CITY: \_\_\_\_\_

Please send us your cheque or cash  
Cheques payable to Chromasonic Ltd



Please drop us a line at: Computer and Video Games, EMAP, Duxford House, 1 Bedford Way, London EC1R 4JF.

## BIRTHDAY BOUQUET!

Dear Editor,  
Happy first birthday from one of the countless satisfied readers — and shame on you for not mentioning it yourselves!

Yes, it was one year ago that Computer and Video Games first lit our newsstands. And what a year it's been! Twelve excellent games programs for the Atari, fabulous articles and artwork, great reviews and your little cartoon bugs provide good humor (despite their nasty habits).

I hope you continue the many more years to come with your very high standards of publishing. And as long as you keep printing games for the Atari you'll have at least one loyal reader.  
Keith Robertson,  
Cranston,  
Rhode  
Island

## PIMANIA PIMANIAC!

Dear Sir,  
I am a Pimaniac! And I'm answering your call in the November issue. First, let me say that Pimania is absolutely fantastic — and with the golden medal as its prize I have become completely hooked on it.

It might be useful for other readers to note that the way to move around the world of the Pinez is completely logical. If you take good notice of the clues given just after you get into the program. Unless you spot the clue you could be wanting them going up blind alleys!

The Pinez isn't really as horrible as he makes out, if you learn to treat him right. You'll have to learn what takes his fancy in different parts of his world, and what upsets him.

To tell the truth I will

hates! I got a clue where the medal is — but as long as Pimania continues to keep me rolling about with laughter I don't care.

My friends who have other machines want to know for what other machine Pimania will be produced and when.



While I think that it is great that you will be giving readers hints and tips in your paper, I hope you don't give too much away — it's taken some of us a long time to work out the intricacies of Pimania.

Well done Computer and Video Games for bringing us news of Pimania first! Keep up the good work.

Kevin Martin,  
Stratford,  
London

**Editor's reply:** The stores put in line for Pimania are the Dragon 32 and BBC Model B planned sometime for the New Year.

## AND HERE'S ANOTHER!

Dear Pinez,  
Does the line the Pimania gang "I haven't got a lot of hair" refer to Clive Sinclair, and is the world of the Pinez inside Uncle Clive's head? Also is it the man himself in the background at the end of the song? Also is it Ian Dury who does the vocals?

Does the van of worms refer to one of your earlier sets of games and can I use the megaphone apparatus? Is the Pi symbol significant?

Lastly, when the Pinez tries to sell me a two-bit, is this part of the game or am you just trying to get more money out of me? By the way, I have become completely addicted to the search for the golden medal of Pimania, and I'll find it if it's the last thing I do!

Yours fervent,  
Svenlin,  
Step King  
**Editor's reply:** Here are the answers to your questions from Automata.

No.  
Who knows what's inside Clive's head? If we had asked him to do the recording studios he would have turned up 18 weeks late!  
No comment.  
Yes.  
Yes.  
Totally!

Oh excuse it's for more money.

## SOFTWARE WORRIES . . .

Dear Sir,  
I own a full Atari 400. I'm becoming very concerned about the service being offered by some software firms. Quite a number of firms are offering programmes for the Atari allowing, and freely admitting that they have no stocks at all of the material and in some cases they do not even have a delivery date for when stocks will be available.

In some cases the problem is that the firm, in all innocence has misjudged demand or has been let down by a supplier. However, in some cases failure to supply appears to connote that the suspicion must arise that virtually no stocks are held and the firm waits for a customer's order

before contacting the wholesaler.

Having carried with your money, getting hardware repaired or defective software replaced is not easy. At the time of writing my Atari has been away a month having a "minor" fault repaired.  
M. P. Nicholas,  
Bridgewater,  
Somerset

## QUESTIONS ANSWERED

Dear Sir,  
I have a few questions to ask about the ZXII. The first question is whether or not you can convert the screen to a plain black or white and if so how do you do it? Also there is the question of where you can get a cheap home graphics board?

I have thought of a great idea! Why don't you have a place in your magazine where people can send in small programs they have written for small amounts of money?

Finally I am thinking of buying a ZX Spectrum and selling my ZXII. What would be the highest amount of money I could get for it?  
J. Morton,  
Bishop Auckland  
Co. Durham

**Editor's reply:** To convert the screen, try the graphics toolkit from ICS Software or even the 4K graphics ROM from DE "Tools". This will also provide 8-line graphics. Kayne also do a cheap home graphics board.

Many of our contributors tell us we already pay "small amounts of money" but if anyone would like to send in small routines the getting around certain problems we will look at the possibility of starting up such a page. Finally, I think you could expect around £25 for you ZXII Mr Morton.

# The SHIVA Christmas Hamper

## For the SPECTRUM

By Ian Gosden & Robin Jones	
Easy Programming for the ZX Spectrum	15.00
Computer Puzzles: For Spectrum & ZX81	12.00
Machine Code and Better Basic	17.00
Covered: Spectrum Special 1	14.00
By Martin Owen-Hillson	
Games to Play on your ZX Spectrum	11.00

## For the ZX 81

By Ian Gosden & Robin Jones	
FEEL, FOKS, BYTE & FAMS	
Basic Programming for the ZX81	14.00
Computer Puzzles: For Spectrum & ZX81	12.00
Machine Code and Better Basic	17.00
By Martin Owen-Hillson	
The ZX81 Add-on Book	15.00

£15.75 incl. p. & p.

£14.75 incl. p. & p.

Order the complete hamper and save yourself a packet

Or make up your own with any 3 items for £70.00 (incl. p. & p.)

Offer open until 31st January 1983

All books and cassettes are also available individually at the normal published prices.

Hamper will be dispatched until 1st December onwards.

### ORDER FORM

Please send me a SPECTRUM hamper, at £75.75

Please send me a ZX81 hamper, at £74.75

I wish to make up my own hamper with the following, at £70.00

I wish to order 1 or 2 items only, at the normal published price:

Title here





£ \_\_\_\_\_

£ \_\_\_\_\_

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

I enclose a cheque for £ \_\_\_\_\_

Please debit my Account/Barclayscard/American Express

Account number \_\_\_\_\_

Signature \_\_\_\_\_

# Shiva Publishing Limited

4 Church Lane, Nantwich, Cheshire CW5 5RQ

Telephone: (0270) 628272





# MAILBAG



## THANKS FROM A TEXAN!

Dear Sir,  
A big thank-you, Computer and Video Games for a program for my TI 99/4a. I am now buying your magazine not just skimming through it as a booklet! I am certain many TI owners, there are a lot of us out here, will be doing likewise.

Will you be listing programs available for the TI 99/4 or 99/4a? How on the Texas landscape. Bernard Kelly, Abilene, Texas.

**Editor's reply:** We are always interested in new and original programs. Send me about sending a note of your ideas.

## MAGAZINE MOANS . . .

Dear Sir,  
I read with interest your article on the TI 99/4a home computers, but the reference to the *Wier* magazine at the conclusion of the article was of particular interest — and inaccurate. I would like to take this opportunity to inform you and your readers that MFI of Cambridge Road, Barking are no longer supplying *Wier* magazines and would urge them not to part with any money.

MFI said that they were returning my subscription. That was in August and I'm still waiting!

I would like to add that since February I received only two *Wier* magazines from MFI which in my book is absolutely terrible service. M. E. Newham, Peasart, South Campton.

## SPECTRUM SHOWDOWN

Dear Sir,  
I find it is up to BBC and Atari owners to voice their feelings about some of the facts contained in the Sinclair Spectrum brochure inserted in many computer magazines.

For any person about to buy a computer, I can assure you that the extra money

spent in the purchasing an Atari 400 or a BBC micro is money well spent. Below, are some facts that are incorrect or omitted from the Spectrum brochure.

I own an Atari 400, and I have used a BBC, and they are amazing machines. Their graphics resolution is far superior to the Spectrums, and the comparison of the BBC and Atari's four sound channels (all one of them), is absolutely ridiculous.

The brochure claims that the Atari computer can only present five colours on the screen at once. This is not true. Three of Atari's fourteen graphics mode support 16 colours or luminance on a 1024x point array, without the intervention of the Atari's second raster, ANTIC.

Using ANTIC, it is possible to have all 128 colour

have to be purchased in buying the basic machine up to the standard of most computers.

I'm sure that the cost of adding colour graphics, sound channels, 16 or 32, Hi-res graphics and a neat case to house the arrangement, to any of Sinclair's computers would easily surpass the £199 that the Atari 400 costs, not to mention the amount of processor time available from a single raster that has to look after all of this.

M. D. Caballero, Epsom, Surrey.

## MICROVADER MUDDLE . . .

Dear Sir,  
I am still struggling with your July issue's Microvaders



luminance combinations on a 61440 array. ANTIC also offers line scrolling windows, player missile graphics, display hit interrupts etc.

Any combination of the fourteen graphics mode can be mixed on the screen, and all this leaves the 9802 almost ready free to execute the user's program.

Sinclair's brochure also omits the fact that the Atari has eight easily accessible A to D ports, four control ports (which can be used as inputs as well) and a cartridge slot for ROM based software.

This removes the necessity of the Sinclair computers expensive Christmas-tree arrangement of add on that

program for the CGM. I have noted the corrections which you published in your August issue but I am still not getting it working. In particular line 18 is quite hard to read and I think my error may lie in that.

W. Denton, Scotland.

**Editor's reply:** Some people do seem to have had difficulty with *Microvaders*, despite the other way we suggested they approach the program in our August issue's *Confessions of a Bug*. Line 18 may be the cause of the problem. The third line of line 18 reads: "GMBAR". This is correct but people are mistaking the 'W' with an 'V'.

## PRINTING PROBLEMS

Dear Sir,  
I have a TRS-80 IIIc level 1 and have made quite a few good programs which I want to send it to your magazine. However, I have no printer and none most of them want the program printed on I have a problem.

So is there anyone out there who could print out the program for me? Ian Bailey, Beverham, London.

## SINCLAIR SOLUTIONS

Dear Sir,  
I have recently purchased a Sinclair CGM and only just getting involved in the fun of operating it. It is a tremendous piece of equipment especially for its price. We are very limited here in the options available.

Even the range of cassette programs is very limited, if I had the finance available I would certainly like to set up a completely Sinclair based computer shop here in Chatham.

However, back to reality. I read in your July issue — *Making the problem* that D. McIlroy was having with 'Edi' on the CGM. It seemed related to time the computer had been on but could it be the problem experienced with the Z80 when you are running close to its memory limit?

If this is the case then I would suggest the following: 1. Place reserve at the line requiring min.

1. Depress 'CLR' then 'TRN' LINE.
2. Depress 'SHIFT' 'RIGHT' together.

This will clear the screen and put the line that requires min at the bottom.

Your magazine is excellent and very useful over here with the lack of software games etc. I am currently waiting the arrival of my *MC MAN* and then I will be able to really get into some clever new material!

John Mitchell, Christchurch, New Zealand.

## COULD YOU BE A WINNER?

To turn your games program into a household name you need to be five kinds of expert.

You'll need to be an expert programmer and inventive designer in the first place.

Then there's the question of the manufacturing expertise necessary to ensure the quality of the tapes will give the best possible load for your prospective purchasers.

Marketing expertise will help put the best package around the tape and make sure that the program gets maximum exposure in the right media. Advertisements must be designed for real impact and a knowledge of which specialist press to place them in, would be handy.

And how about distributing the cassette once the purchaser's appetite has been whetted. Getting them into the computer dealer shops, setting up a mail-order system.

Never realized how much work these software houses have to put in, did?

Well that's the promise we are returning to our new Games Program of the Year Competition.

Starting in our December issue we are carefully sifting through your games listings, looking out for that program we consider to be something special. And come next November we will take the writer of the best games program we receive and hawk both him and his program around.

We will take him to a top software house and get their advice on tidying the program up, securing it against software pirates, giving it that final professional polish.

We'll have a top audio company brought in, to bring out the copies of your tape in prime condition ready for loading.

The next stage in the program type will be to have a marketing company design an advert and advise on cassette packaging. Our top reviewers will help compose the instructions on the inside leaf of the packaging.

And then we'll throw the entire weight of Computer and Video Games behind the program and an advertising campaign in other con-



puter magazines aimed at giving it maximum exposure over the whole marketplace.

We'll have the cassette distributed, set up a mail order system to deal with its sale. And at the end of the month, having fully assessed our winner in the trials of the trade and given his cassette the sort of treatment even top software houses would struggle to equal C&VG's top programmer will be able to sit back over Christmas and wait for the money to come rolling in.

So start work on your next contribution to our games listing pages as soon as possible... after all last year's winner, *Nibblers*, was published in the very first issue!

## MEET ARKRAIDER THE DUSTMAN

Our readers' special game of computer moderated space trials. *Arkraider* is still producing thrilling reports of galactic adventures.

This month we publish one we received from one of the universe's most distinguished beings. Arkraider the arctic collector. His tale of space pirate harassment of the galactic cowboys is carried by Jerry Parsons.

It's a hard life for a hunching old fossil like me, you know, travelling around the universe collecting up unattended artefacts. Well, if others are careless enough to leave them lying about...

By the way, I'm Arkraider, archaeologist extraordinaire — a sort of galactic dustman. My role aim is to load rare treasures on to my somewhat battle-scarred and

disappointed fleet and creep off to some planet where I can gloat over my acquisitions.

Trouble is, there are constant interceptions. Pirates! Dastardly bands of do-badders, always plundering, more evil than long John Silver and Captain Hook combined.

The universe is plagued by an overabundance of bad guys. Barmarksen, intent on blowing my world to smithereens and sending vast hordes of marauding robots to terrify my peace-loving people. Empire Builders, bandits, power-hungry magicians on perpetual ego-trips. They remind me of the American Presidents on Earth, years ago...

But, I digress. There are some half-way decent chaps about. Mercenaries, for example. Hyperspace hypermarketeers, these are relatively harmless.

Mind you, like all salesmen, once they get their foot in the door... The Apostles are pretty beautiful too, although, when I arrive home after a grueling voyage, to find my people in the grip of religious mania, it becomes very wearing.

I've had some experiences in my time. Once I found a wonderful prize, the fabled and mystical Black Box imbued with legendary powers, was I in luck? No, I wasn't. It disappeared, before my incredulous eyes. Vanished into the great void. On more than one occasion I've been ambushed en route to some fabulous jewel and left for dead.

What's that you said? The Ancient Pyramid has been sighted on the other side of the galaxy? I'm off!

## TIM THE INVENTOR'S FOUR-WHEELED WINNER

Buggy is a design for a machine code arcade-type game requiring skill and quick thinking.

It is the invention of Tim Sellick of Dunry in Nottingham and was judged to be the pick of the bunch of program ideas sent in by you for our September Design a Sinclair Program Competition.

Tim has won for himself a set of five ZX81 Fairs cassette games and a Sinclair printer.

He has also earned the chance of a trip down to London to look around Piton's software house and see their game design team in action and talk about Buggy with them.

Charles Davis of Piton, who was part of the judges panel who decided over the entries for the competition explained the strengths demonstrated by Buggy.

"We felt Buggy deserved to win because Tim had considered the practicalities of putting his game onto a computer, in some detail.

"He clearly appreciated what could and could not be done and went further and suggested details of the application. He has developed the workings of an amusing and exciting game. The presentation is excellent and Buggy certainly has a realistic potential."

The Buggy in the title, moves over a scrolling landscape which includes a series of water jumps. The track is produced randomly at the right-hand side of the screen and by changing gear and speed the car manoeuvres over the terrain, picking up speed for the water jumps.

Although the idea sounds similar to one of the current arcade games,

its way of coping with the jump problems is quite original and Tim has gone into some depth working out the best way to approach the problems involved in the game.

Buggy sounds a fascinating game, and if anyone out there would like to try and see Tim's many diagrams, flow-chart and extensive thoughts on the game, to turn it into a working program, please send a stamped addressed envelope into us and we will dispatch a copy of Buggy rules to you.

Four runners-up in the competition will also receive the fine Piton ZX81 cassettes as a prize.

The runners-up are: Muggot Man by Paul Dobson; Hazy Clides by Bernard Inberwood; Tightrope Walker by D.M. Harris; and Strategic Command by Ben Bryant.

## PUZZLING SOLUTIONS

We thought we'd catch a few of you out with our sneaky Mastermind Competition in November but you were up to the challenge.

The vast majority of entrants spotted that Puzzle C had been altered to make it possible.

First three out of the hat with all four answers correct were: George Stone, The Walk, Futura Bar, Hertford Davies, Bryn Road, Bryntaman, Dyfed, and Robert Pansal, Craig Court, Cirrus, Ayrshire.

Congratulations and Insects Electronic Masterminds are on the way. If you can shoot down the insect-

ers in Space Attack on this month's Puzzling pages, you could win a Computer Games hand-held space invader game. We want your entries in by January 18th at the latest and the first three with the lowest possible solutions will receive the prizes. Full details on page 72.

Right, for those of you who complained that they read the November issue's Puzzling answers before they got a chance to try the puzzle... read no further! At least until

you have glanced at our Gaudy Monster and Oxidation brain-teasers.

If you're still with us I assure you have already looked at pages 72 and 73. Here is a sample solution for Gaudy Monster which scores 518 points, let us know if you have a better score.

And left are the donations, successfully placed together from Mr Wheel's diagram.



# SPECTRUM

## Shop NEWS

New Spectrum Centres now at

**HORNCHURCH  
ROCHFORD  
GT. YARMOUTH  
NEW MALDEN  
LONDON W1  
and just opening or  
opening soon in  
DUMFRIES  
IPSWICH YORK  
LONDON SE15  
KILMARNOCK**

**We won't  
be beaten on  
price!**

SPECTRUM is a rapidly expanding group of independent retailers who specialise in selling video computers that produce the range "WE WANT TO BEAT ON PRICE" - our best SPECTRUM centres like the latest and the best and save the customer up to 10%, the customer. We guarantee to match your bill in most circumstances and to match a similar dealer and if a better price than you... WE WILL BEAT IT! THAT'S OUR PROMISE!

### After Sales care

SPECTRUM service centres will ensure that should you require any more help you will get it within 48 hours or as quickly as possible. An even more extensive programme of technical support, advice and help SPECTRUM HOME COMPUTER CENTRES for full details.

### COMPUTER DEALERS!

For prospective Computer Dealers: If you would like to know more about becoming a SPECTRUM APPOINTED DEALER visit our exclusive video format, please contact MIKE SPEN in ALAN WARRINER on (0703) 24761. Spectrum 2, 1st. Fl., Brompton, Nelson Street City, West.

## Commodore VIC-20

Now a top quality home/business micro for the price of a games machine.



Sensational **NEW LOW** price  
**£139.90**  
INCLUDING VAT  
(£121.65 Excluding VAT)

VIC 20 Home unit	£94.00	£99.00	Business Model	£135.00	£139.90
512K Memory	£99.00	£104.00	Memory Unit	£15.00	£15.99
VIC Single Printer Unit			Soft 15	£10.00	£10.99
VIC 1071	£100.00	£105.00			
512K	£105.00	£110.00			
8K Audio	£110.00	£115.00			
VIC 20K and cartridge	£115.00	£120.00			
Home use, 4K file					
Keyboard	£12.00	£12.50			
Joystick	£13.00	£13.50			
Video Adapter	£13.00	£13.50			

The VIC-20 accurately depicts what's out there - every home SPECTRUM. A truly exceptional computer system which can be as simple as an computer as your needs require. Ideal as a home micro with a large number of educational and games cartridges available. Simple, with additional memory expansion, a disc drive and printer, a business machine or a small business system, powerful enough for most control, bookkeeping and payroll generation.

- Memory expandable to 128K
- High resolution Full RGB level graphics
- 16 Screen colours and 8 screen colours
- Storage in no more than 100 characters
- Add Disk Drive & Printer for professional look
- File system
- Can act as an intelligent terminal for a larger computer

... STOP PRESS ...  
**SUPER X2**  
**64K DYNAMIC  
RAM PACK for VIC-20**  
EXCLUSIVE TO SPECTRUM!

Attractive in design, this 64K X2 Super X2 pack will give you 64K of memory for your VIC-20. It's perfect for use in games or programs, and also it can be used to store other data which you can't store in your normal memory. It's perfect for use in programs, and also it can be used to store other data which you can't store in your normal memory. It's perfect for use in programs, and also it can be used to store other data which you can't store in your normal memory.

Spectrum LOW price  
**£114.94**  
Inc. VAT  
(£100.00 Excluding VAT)

## New! COMMODORE 64

Just Arriving

Limited stocks are just arriving of this super new micro. Just look what it offers!

- 64K Ram
- 280 processor option
- Dedicated video chip
- Sprite graphics
- Music synthesizer
- Practical link
- High resolution graphics (320 x 200)
- 16 colours and lots more...

Spectrum LOW price  
**£344.99**  
INC. VAT  
(£299.99 Excluding VAT)

## The ideal family computer! DRAGON 32



**HURRY!  
LIMITED  
STOCKS  
ONLY  
LEFT!**

DRAGON 32 is a truly exceptional computer system which can be as simple as an computer as your needs require. Ideal as a home micro with a large number of educational and games cartridges available. Simple, with additional memory expansion, a disc drive and printer, a business machine or a small business system, powerful enough for most control, bookkeeping and payroll generation.

Spectrum LOW Price **£173.00**  
Inc. VAT  
(£150.00 Excluding VAT)



# ATARI

## 800 16K RAM

Sensational  
new **LOW** price



Here's a tremendous opportunity to trade in your old Micro Computer or SPECTRUM and take a full £40 off the price of the superb ATARI 800. Yes, for a strictly limited period, SPECTRUM will allow £40 for any Micro, your £20-£1100 (even your IBM!) or, whatever the age, whatever the condition, when traded-in against a new ATARI 800. The ATARI 800 features a typewriter keyboard for fast and easy data entry. It has a 16K memory that can be easily expanded to 64K with convenient, slip-in ATARI Memory Modules. So you have more power available to run more sophisticated programmes. The ATARI 800 is expandable which means you can build the computer system you want today, knowing that it will grow to meet your needs tomorrow. You can add printers, programme recorders, disk drives and more. Call into your nearest SPECTRUM centre and ask to see the ATARI 800 today.

Sensational **NEW LOW** Price

# £399.99

INC.  
V.A.T.

(£347.00 excluding V.A.T.)

Sensational

# £40

**TRADE-IN ALLOWANCE**  
on your old computer  
when you purchase an  
**ATARI 800**  
from Spectrum

**HURRY!**

This offer is for  
a limited period  
only.

©1984 Atari Corp. 1984 1900

## Other ATARI equipment



**ATARI 400**  
16K RAM

**£198.95**

INCLUDING V.A.T.

(£173 excluding V.A.T.)



**ATARI**  
THERMAL PRINTER

**£198.95**

INCLUDING V.A.T.

(£173 excluding V.A.T.)



**ATARI**  
DISK DRIVE

**£299.00**

INCLUDING V.A.T.

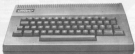
(£268 excluding V.A.T.)

AtariSoft	180	55	AtariSoft Print	£70.00	12.17	Books and Manuals		
ByteWorld	180	55	AtariSoft Print	£70.00	12.17	Atari Manual	15.00	02.0
Program Records	£10.00	140.00	AtariSoft Print	£70.00	12.17	Atari Reference	15.00	02.0
Soft Disc	£25.00	150.00	AtariSoft Print	£70.00	12.17	Manual	15.00	02.0
Special Prices	£15.00	150.00	AtariSoft Print	£70.00	12.17	Soft Manual	15.00	02.0
Interface Module	£3.00	200.00	AtariSoft Print	£70.00	12.17	Operating System	15.00	02.0
Keyboard			AtariSoft Print	£70.00	12.17	Utilities	15.00	02.0
On-Site Pack	£25.00	150.00	AtariSoft Print	£70.00	12.17	Soft Documentation	15.00	02.0

FULL RANGE OF SOFTWARE AVAILABLE — SEE OUR SOFTWARE BEST SELLERS

## New! LYNX 48

Just look at this super new LYNX Micro — an incredible 48K of memory as standard and that's expandable to 96K, 128K, or even 192K! For just £265.00 INCLUDING V.A.T. the LYNX is exceptional value and exceptionally versatile. All LYNX's 'add-on' connections are standard types. The massive memory and high definition colour graphics make it a top-value choice for the home or office (with 128K of RAM, the LYNX can become an 88 character-per-line word processor). Take a look at the LYNX — a remarkable bargain from SPECTRUM, but please phone to check stock position before making a journey as this new machine is bound to be in great demand.



Spectrum **LOW** Price **£225** including V.A.T.

(£193.00 excluding V.A.T.)

**MORE SPECTRUM LOW PRICES**

# SPECTRUM

## SOFTWARE

### The Best Sellers from Spectrum

#### For AT&T

Challenges	£12.99
New International Chessmate 2	£12.99
New JORDIS AT FOOT	£24.49
Chess Masters	£29.99
WORLD CHAMPION	£29.99
Chessmate	£29.99
FLY MAN	£29.99
Games	
Custom Travel Map	£22.00
Mathletics in PROGRESS (Part 1)	£12.99
Mathletics in PROGRESS (Part 2)	£12.99
Mathletics in PROGRESS (Part 3)	£12.99
SOFTBALL & SOFTBALL	£12.99
SOFTBALL	£12.99

#### For VHS 16

Challenges	£12.99
Chess Masters	£29.99
WORLD CHAMPION	£29.99
Chessmate	£29.99
FLY MAN	£29.99
Games in progress	£12.99
Mathletics	£12.99

#### For IBM

Challenges	£12.99
New International Chessmate 2	£12.99
New JORDIS IBM FOOT	£24.49
Chess Masters	£29.99
WORLD CHAMPION	£29.99
Chessmate	£29.99
FLY MAN	£29.99
Games	
Custom Travel Map	£22.00
Mathletics in PROGRESS (Part 1)	£12.99
Mathletics in PROGRESS (Part 2)	£12.99
Mathletics in PROGRESS (Part 3)	£12.99
SOFTBALL & SOFTBALL	£12.99
SOFTBALL	£12.99

#### For ORION

Challenges	£12.99
Chess Masters	£29.99
WORLD CHAMPION	£29.99
Chessmate	£29.99
FLY MAN	£29.99
Games in progress	£12.99
Mathletics	£12.99

Challenges	£12.99
Chessmate	£29.99
FLY MAN	£29.99
Games in progress	£12.99
Mathletics in PROGRESS	£12.99
Mathletics in PROGRESS	£12.99
Mathletics in PROGRESS	£12.99
SOFTBALL & SOFTBALL	£12.99
SOFTBALL	£12.99

For ORION IBM 5.0	
Chessmate	£29.99
FLY MAN	£29.99
Games	
Custom Travel Map	£22.00
Mathletics in PROGRESS (Part 1)	£12.99
Mathletics in PROGRESS (Part 2)	£12.99
Mathletics in PROGRESS (Part 3)	£12.99
SOFTBALL & SOFTBALL	£12.99
SOFTBALL	£12.99

For TRIMAX	
Challenges	£12.99
Chessmate	£29.99
FLY MAN	£29.99
Games	
Custom Travel Map	£22.00
Mathletics in PROGRESS (Part 1)	£12.99
Mathletics in PROGRESS (Part 2)	£12.99
Mathletics in PROGRESS (Part 3)	£12.99
SOFTBALL & SOFTBALL	£12.99
SOFTBALL	£12.99

For SINGULAR	
Challenges	£12.99
Chessmate	£29.99
FLY MAN	£29.99
Games	
Custom Travel Map	£22.00
Mathletics in PROGRESS (Part 1)	£12.99
Mathletics in PROGRESS (Part 2)	£12.99
Mathletics in PROGRESS (Part 3)	£12.99
SOFTBALL & SOFTBALL	£12.99
SOFTBALL	£12.99

Plus many many more at your local SPECTRUM dealer NOW!

## SINCLAIR ZX-81



Now available from SPECTRUM centres the top selling SINCLAIR ZX81

**SINCLAIR ZX** £49.95  
**16K RAM pack** £29.95  
**ZX Printer** £39.95

Guaranteed compatible from £230.00 when you order your local SPECTRUM dealer for details.

Stop Press . . .  
 Coming soon in '83  
**ORIC 48K**  
 and  
**JUPITER ACE**

Check with your local SPECTRUM for further details

## NASCOM

SPECIAL EDITION

For the computer enthusiast — if you're looking for a machine to take your home/office/computer skills to new heights then you need look no further than the NASCOM SPECIAL EDITION.  
**Spectrum LOW price £494.44**  
**48K RAM Plug-in board . . . £149.00**

## SEIKOSHA GP-100A Graphic Printer



Now a real printing machine in your office, the GP-100A GP-100A. Available in black or white. £189.00. Includes a 1000-page manual. £189.00. Includes a 1000-page manual. £189.00. Includes a 1000-page manual.

## Spectrum LOW price £189.00

Price	£2	£5	£10	£20	£50
Available	127	187	247	307	367
GP-100A/100					
PC-100	£189.00	£209.00	£229.00	£249.00	£269.00
GP-100A/100	£189.00	£209.00	£229.00	£249.00	£269.00
GP-100A/100	£189.00	£209.00	£229.00	£249.00	£269.00
GP-100A/100	£189.00	£209.00	£229.00	£249.00	£269.00

## EPSON PRINTERS

Choose from SPECTRUM's range of high-quality, reliable, low-cost printers. Epson's new EPSON range includes models with 8 and 24 pin printing, including 8 and 24 pin. £189.00. Includes a 1000-page manual.

Model	EP	EP	EP	EP	EP
EPSON 10	100	100	100	100	100
EPSON 10	100	100	100	100	100
EPSON 10	100	100	100	100	100
EPSON 10	100	100	100	100	100

## BOOKS

MS-Word	£12.99
MS-Excel	£12.99
MS-Access	£12.99
MS-Project	£12.99
MS-Draw	£12.99
MS-Write	£12.99
MS-Base	£12.99
MS-Base	£12.99
MS-Base	£12.99
MS-Base	£12.99

## ACCESSORIES

PRINCE 12" Green Monitor	£99.00
PRINCE 12" Green Monitor	£99.00
PRINCE 12" Green Monitor	£99.00
PRINCE 12" Green Monitor	£99.00
PRINCE 12" Green Monitor	£99.00

\* Not all items may be available in all areas. Prices subject to change without notice. Prices correct at time of going to press. E & G Ltd.



**Wares First!** The allegiance between the Water Empire and the Sun Empire has crumbled, war is declared.

Three of your fleets are currently in Water Empire systems enjoying sun-rich planets, this could be the chance you have yearned for. Other fleets attached to the Water Empire also need the time is right, shall I give the orders to grab your share of Planetia planet?

The galaxy of the Seventh Empire is full of war and chaos. The merchants are as easily calculating as the war fleets. Playing off warring empires against one-another, a cunning commander can keep his tribe in

profit, but he must keep a close eye on the way the diplomatic wheels are turning, how other tribe's fleets are responding.

It's most keen when to plunge into the risks of battle and try to alter the galactic map and he must use the Gateway wisely, moving merchandise or trading the profitable routes.

The Seventh Empire is a new way to play a game. It is quite unique in the history of publishing, computing and gaming. This one-way play-by-Mail gaming is the brainchild of Mike Singleton who runs Britain's top computer moderated game, Starlord.

The players need to order for

their fleets by post but get feedback through the pages of this magazine and it can cater for two to 10,000 players. At our end it's run by a PC computer and all the player's orders are input into it each month.

It works out how their interaction affects the galaxy's 100 centres of population and industry. The result is displayed in the following month's issue by use of a map showing how the fleets have moved. This is not information on each individual fleet but the numbers to be based on each star and how that has altered its trade index. With a diplomatic diagram showing how the empires are shaping up for next

a Gateway mode table displaying the profits on each route and some battle reports from the areas of galactic conflict, the player can find out exactly how his fleets fared and plan out his next movement commands.

The rules are not all too briefly here, but each Seventh Empire player will be sent a detailed rulebook before the game gets underway in our February issue. You'll find it easy to understand the rules and simple to play but very difficult to win and work out tactically. Remember, there is no luck in The Seventh Empire — only foresight and galactic understanding! An entry form is on page 4.

# THE SEVENTH EMPIRE

There are 100 named stars in the galaxy, arranged on a 10x10 square grid, representing major centres of galactic society.

Each star system belongs to one of seven empires: **Water** (blue), **Steel** (red), **Sun** (yellow), **Amphib** (purple), **Lead** (brown), **D'Teen's** **Scorn** (grey) and the **Fourth** (pink) Empire (orange).

There are four types of stars: **Gateway Stars** provide rapid intergalactic movement; **Energy Stars** contain planets rich in the stellar energy used for ordinary inter-system space travel; **Raw Stars** produce the ammonia-like crystals which are used to harness stellar energy; and **Elite or Life Stars** contain the sun colors which can turn unuseable planets into those capable of supporting life.

Each player has seven star-fleets under his control and each of these is considered the property of the empire from whose star it starts its turn. A player can have starships in so many empires as he wants and by sending these ships on missions from star-to-star, he tries to build up his profits.

## GAME TURNS

A simple turn sheet must be sent in by the player, every month which records where he wants his fleets to travel to. And whether each one should be involved in battle, piracy, trade, trading or just moving from star-to-star.

These orders are processed by computer so that all movement happens simultaneously. A printout of the galactic map is produced, each player's individual record updated and the winner of that turn found.

From the information given in that issue of the magazine, the player can calculate what happened to his ships and what profit he made.

You should keep a copy of your moves for this purpose. The computer keeps its own records but if you miscalculate, you could be playing with delusions of grandeur.

## STAR TYPES

The four star types are represented by different symbols on the galactic map and each has a trade value: Gateway Star = 50, Energy = 100, Raw Star = 150 and Elite Star = 200. Each star is at a square on the map, the colour of the square indicates which empire it belongs to.

Stars represent whole systems which have been colonised and each of the 100 is considered by traders to be operated as providing one of the four galactic commodities which produce real profits. A symbol shows which star type each is.

The star name is what you should use in your orders to show how you intend to show. Other data on the star includes the number of ships in that star system at the end of a turn (bottom left). And in the bottom right

is a number representing the **Trade Index** of the star for that turn, from which you calculate your profits (see example).

## AT WAR

The seven empires are continually at war with one another. This is represented by a diplomatic diagram constructed of seven different coloured circles. It will be printed each month to show the empires at peace and those at war.

When two circles are joined by a line, those empires are at war with each other the following turn. Two empires, whose circles are not joined are at peace with one another.

The diplomatic diagram changes according to the last turn's events. Every empire checks on how many ships from each of the other empires, landed its stars. If then declares war on the empire which did the most landing of its territory.

This empire responds by declaring war also. If there are two empires guilty of open trading then war is not declared. Careful study will help here.

The diplomatic diagram is important because it restricts the moves a player's fleets can make on the following turn. Trade and Movement cannot occur between stars of two empires at war.

Likewise, a fleet cannot be given an Attack order that moves it between the stars of two empires at peace.

## MOVING OUT

Each game turn consists of two movement phases. In each movement phase you can move any or all of your fleets, so each ship has up to two movement orders. There are three basic ways to move.

1) **Travel Mode:** A fleet moves to any adjacent star, horizontally, vertically or diagonally. This mode is used in Trade or in Movement. This mode takes one phase to complete.

2) **Attack Mode:** A fleet moves to any adjacent star, horizontally or vertically but not diagonally. This mode is used in Raid or in Attack. This mode takes one phase to complete (see example).

3) **Gateway Mode:** A fleet moves from any Gateway Star to any other Gateway Star. This mode is used in Cargo (gateway travel), Jump (gateway movement) or in Pioneer (Unlike the other modes of movement, this mode takes two phases to complete).

## TRADING

The star Trade Index is the key to your profit in the game of The Seventh Empire.

Each star is given a fresh Trade Index each turn. A number of factors come into the calculation. Let's consider one star:

If the total number of fleets leaving the star on Trade missions on both phases of the turn is the number of Buyers.

2) The total number of fleets arriving at the star on Trade routes on both phases of the turn is the number of fleets.  
3) Each star already has a Trade Value by virtue of its star type.  
4) Trade Index = Trade Value + Fleets + Sailors.

The trade index is used when calculating the profit to be made on a Trade mission. Trading from star A to star B:  
PROFIT = TRADE INDEX B - TRADE INDEX A.

If you go from a star with a low Trade Index to a star with a higher Trade Index, you make a profit. If you do it the other way round, you make a loss (see example).

Gateway trade (Cargo does not influence the Trade Index and profits on this are calculated differently. You can still do ordinary Trade with a gateway star, however.

On each turn, an overall Raid Penalty is announced. It is used in calculating losses due to damage during a raid on an alien empire's star. It varies according to the number of players in the game, we will announce it each turn.

## BATTLE ORDERS

Battles will be rare each game turn, but some obvious targets will present themselves each month. And, if successful, these can change the galaxy map.

A fleet travelling from its empire to a warning empire can be given an Attack or Raid order. If an Attack order is given on the first movement phase, no subsequent order can be given to that fleet.

A fleet can only be given an Attack order on its second movement phase if it stayed in its own empire on the first phase. In both cases the Attack mode of movement is used. Fleets in Attack orders stay at the star they attack (see example).

The result of an Attack is calculated as follows:

- 1) Defending ships = number of warning empire's ships at end of turn.
- 2) Attacking ships = number of star ships from all empires there on Attack orders from both movement phases.
- 3) The defender's ships are compared with the attacker's ships. Whoever has the most wins. In the cases of a draw, the defender wins.

All the fleets of all the attackers and the defenders become the fleets of the victor. Any fleets from the losing empires

lose all their profits. Fleets on the victor's side gain an additional Battle Bonus.

## FLEET ACTION

As well as moving between stars, a fleet is also given an Action order. These are as follows:

Move — no action, just movement.

Trade — taking goods from one star to another.

Raid — plundering an alien empire's star.

Return — returning from a raid to your empire's star.

Attack — moving to an enemy empire's star for battle.

There are also the following actions which can take place when using the Gateway Mode of movement:

FURUE 10 000	LULP 75 000	YABON 10 000
VEPOL 60 000	GATOT 10 000	HESSON 12 112

Fig 1

Fig 2 For Movement Phase For Movement Phase

FLEET #	DEFINITION		ACTION	
	DEFINITION	ACTION	DEFINITION	ACTION
1	Star	Raid	Star	Return

1. The fleet number is the number of the fleet. There are 100 fleets in total, numbered 01 to 100. Only those fleets which are considered to exist are active.

2. The fleet number in Fig 1 is a Gateway star represented by the symbol on the table. The fleet number represents the fleet currently located at the star in the upper empire. Trade Value is 10 for this star.

3. Move and Trade can take place only if the fleet is located at the star indicated on the table. The fleet number in the upper empire is the fleet number of the fleet currently located at the star in the upper empire. The fleet number in the lower empire is the fleet number of the fleet currently located at the star in the lower empire.

4. The fleet number in Fig 2 is a fleet which is moving from the star in the upper empire to the star in the lower empire. The fleet number in the upper empire is the fleet number of the fleet currently located at the star in the upper empire. The fleet number in the lower empire is the fleet number of the fleet currently located at the star in the lower empire.

Jump — no action, just movement.

Cargo — taking special goods on a particular route.

Plunder — piracy on any ships on the same route.

Trade orders can be given to any fleet moving in Travel mode between two stars. The profit made by this action is calculated by subtracting the trade index of the star the ship is leaving from the trade index if it is going to. For example, going from A to B:  
Profit = Trade Index B - Trade Index A.

Trade orders cannot be given to a fleet travelling between two stars of empires at war, nor can they be given to a ship travelling between stars of the same type.

Move orders can be given to any fleet moving in Travel mode be-

tween two stars. No profit or loss will be made. Move orders cannot be given to a fleet travelling between two stars of empires at war.

A fleet travelling from a star of its own empire to the star of an alien empire can be given Raid orders. It must use the Attack mode of movement and the fleet order must be given on the first phase of movement. On the second phase of movement the player must give a Return order to the ship, in which it must go to a star belonging to its own empire.

Profits are calculated as follows:

T = Trade Index of raided star.  
F = Fleets at raided star at end of turn.

R = Raid Penalty.  
Profit = T - (F x R)

attacked + Battle Bonus.

A Bay order is just that, staying at a planet. Any illegal order will be changed to a stay order and no profit gained.

Stay orders have no effect on trade or profits but may effect battle.

## GATEWAYS

A fleet moving in Gateway Mode between two stars can be given Cargo orders. This order has nothing to do with the normal Trade Index of the Gateway Stars. The profit is calculated as follows:

Profit = 1000/50 (number of fleets using same route).

If the route a fleet is taking is Plundered all profits are lost.

With Jump orders no profit or loss is made — it's simply moved!

A fleet moving in Gateway Mode between two stars can be given Plunder orders. If any other fleets are trading on the same route they lose all their profits. If no ships are trading on the same route then the Plundering fleet gets no profit. Any profit from piracy is calculated as follows:

Profit = total leaders' profit/number of pirates on route.

The Gateway Route Table is a reference guide to the profits made by taking a particular gateway-gateway route. The star of departure is given by the star and the star of destination is given by the column. Cross-referencing these, you will find the box corresponding to travel between those two stars in that particular direction. This is the gateway route. The box will show one of two things:

(1) Black squares on white background — Gateway Trade Profit — no pirates on route.

(2) White figures on black background — Pirate Profit — the profit each pirate on the route makes. Pirates get no profit.

Each empire is run by vast computers, crossing the galaxy in huge ships which react to the data the indices put into them. They are invulnerable and, if at a star, that star cannot be taken in battle. They do not trade, battle or raid and can never and their turn is at alien empire's system.

Any fleet ending its turn at the same star as an Imperial Ship will have its profits doubled.

The richest player in each empire takes control of the imperial ships that turn. But there is one condition, the only players considered are ones whose fleets all belong to that empire.

# NEW PRODUCTS NEW PRODUCTS NEW PRODUCTS NEW PRODUCTS NEW PRODUCTS

# GAMES NEWS

## SAVE THE FINAL FEW HUMANOIDS

### ABDUCTOR

The aliens are out to capture the last six remaining humanoids on planet X. And it is your task to stop them.

They sail down towards you looping-the-loop — like bugs hovering around a lamp shade — and then swoop down and grab one of the humanoids.

The humanoid is then carried dangling from the alien craft up towards the top of the screen where he comes to a stop and the aliens having extracted all the vital organs for experimental purposes then take the skull down towards the planet's surface.

The aliens attack in two waves. If you manage to survive to the 18th wave you are awarded an extra gun — which you will need as the aliens multiply in numbers and also become much faster and difficult to shoot.

When the last humanoid has been abducted that marks the end of the human race as you are charged with a mighty task.

Abductor runs on an expanded Vic-20 and is the latest addition to the Uramesoft range of software for the Commodore machine.

It sells at £6.00 inclusive from the Navigator-based firm.

## MISSION TO FIND THE GATEWAY . . .

### TIME GATE

A four dimensional game is the manufacturer's proud boast on the cover of this latest space game for the Spectrum.

Your mission is to travel back through time to destroy the enemy before they hatch their evil plot of intergalactic tyranny.

The game displays the view from the cockpit as your ship hurtles through space past stars,



planets, galaxies and ultimately towards the Time Gate.

Once through this you can attempt to shoot the aliens who appear momentarily in front of you.

You are armed with photon torpedoes which you must fire at the aliens to destroy them.

The ship is equipped with impressive light and battle control computers.

Short range radar enables you to train your photon torpedoes accurately on the aliens.

Long range radar shows you the number of aliens in any given galaxy and their positions.

There is also a jumpdrive which enables you to race through time.

The game comes complete with a keyboard overlay to simplify the playing letters on the computer.

The ship's computer records the level of damage sustained and the number of aliens destroyed. There is a lot to concentrate on so only experienced space pilots need apply.

Time Gate is the latest game from Quicksilver of Southampton. It runs on a Sinclair Spectrum in 48K and costs £6.95.

## IMPROVING YOUR TUNNEL VISION . . .

### 3D TUNNEL

3D Tunnel is the latest offering from 3D expert Malcolm Evans, the man behind 3D Monster and 3D Defender — the J. K. Coyle games that have sold more than thirty-thousand tapes between them.

The 3D effect is created by a sequence of ever decreasing squares which you reach passes through, creating the effect of depth as the squares appear to disappear into the distance on your screen.

As you pass through the tunnel a number of adversaries will attempt to stop you. You will have to deal with rats, bats, rabbits and even an express train hurtling towards you from the depths of the tunnel.

You can shoot these obstacles or try to dodge them.

3D Tunnel runs on a Sinclair Spectrum in 48K or 96K and is available from New Generation Software of Bristol at £5.95.

## THIS COULD BE A REAL BOAT!

### SHARKS

Sharks introduces you to a wriggling maze of the colorful but deadly creatures. You are in control of a glowing blob and using this you must collect seven remaining snakes which wriggle and twist around the screen.

At the start of the game, the screen is filled with tiny eggs which your blob must consume

to score points. The snakes are walked in zig lines of eggs but these are soon consumed by the real snakes thus releasing the other snakes.

The action is new fast and furious as the snakes chase after you hungry for a nice jelly blob. When all the eggs have been consumed phase two of the game commences.

Now it is the turn of the blob to get its revenge as it can now eat the snakes. To do this it must land on a snake's tail from whence it will chomp its way along the entire length of the snake to gain 100 points. The blob is moved using either a joystick or the keyboard.

Sharks runs on an unexpanded Vic-20 and is the latest addition to the Pastern range of games. It is available from the Chatterbox based company at £5.95.

## THE ACTION PACKED PACKAGE!

### GAMES PACK 2

more games for under a ten is this latest value for money package offered for the ZXII.

The games are all action packed — City Bomb places you on a bombing raid over a deserted city with the mission to destroy as much of it as possible.

3D Battle places you at the cockpit of Starblaster Cruiser hurtling through space at the speed of light. You are attacked by alien death ships which are spinning towards you intent on your destruction.

Golfball is a two player tape tennis game — with both players operating their players with the keypad control keys. The cassette is available from JPS Software of Wokingham at £4.95.



# NEW PRODUCTS NEW PRODUCTS NEW PRODUCTS NEW GAMES NEWS

## COME FLY FASTER WITH US!

### ASTRO CHASE

Astro Chase adds a number of new features to the space war genre.

You are the astronaut aboard an intergalactic spacecraft and the aliens are attacking.

But they are not just attacking from the space immediately around your planet but from throughout the entire universe.

This greater distance necessitates the simulation of greater light distances created by the innovation of something called Single Threat Propulsion. This enables the ship to fly fast over great distances while still able to manoeuvre and fire at the attackers.

Astro Chase is a recently imported game from the U.S. for the Atari 400 or 800. It is sold in this country to Gemini Electronics of Manchester at £79.95.

Also new from Gemini this month is a 3D driving game called Race Ruggles.

You are driving across the desert attempting to avoid the oncoming traffic.

The road weaves its way across the yellow sand as the sun blazes away in the new sky. The screen also displays the speedometer.

The game requires 16K of memory and costs £79.95.

## JOIN BILBO ON HIS DRAGON HUNT

### THE HOBBIT

The Hobbit — J.R.R. Tolkien's masterpiece of imagination and lyrical prose has been converted to the computer.

Your mission is to seek out the evil Dragon and return the treasure to its rightful home.

As a secondary concern, you must look after Thorin the Dwarf and protect him. Should he be killed during the adventure, it is most unlikely you will be able to



survive the dangers ahead of you.

You will meet many of your favourite characters from the book including Gandalf, Thorin, Galum, the Elves, and many others. Each of these characters has the ability to make decisions, interact, and communicate not only with the player but also with the other characters.

The program is part graphic part Adventure game.

The Hobbit runs on a Sinclair Spectrum in 48K. It comes complete with a full colour instruction manual and a copy of the book, The Hobbit.

The package is available at £14.95 from Mailboat House publishers of Loughton, Essex.

## WHAT A LOAD OF RUBBISH!

### TRASHMAN

Trashman is the latest variation on the Pacman theme featuring giant flies, garbage and you as the unfortunate dustman with the job of cleaning up all the mess.

You are a trash collector scavenging the city streets to pick up the various garbage which is represented on the screen as a series of dots.

There are a number of added dangers for your dustman to be aware of. A super-breed of giant flies have sprung up feeding on the debris. These flies have grown to man eating proportions and are beginning to change their diet to include the local population as well as the garbage.

To fight the flies the control have invented in a flash of genius control garbage collectors in the hope of removing the flies diet of garbage.

There are also six green trash cans placed around the city streets. If you pick up one of these the flies are temporarily weakened and you can run them over with your trash truck. But you will have to be quick as the flies are not weakened for long.

Occasionally a lot of bones rubbish appears at the centre of the screen for which you can earn bonus points if you manage to pick it up.

Trashman is the new cartridge game from Audiozone for the Vc-26. It is available at £79.95 from the leading book firm or from any Vc dealer.



## DR. DEATH MEETS MR BOND

### SHAKEN NOT STIRRED

Secret agent 007 comes to the screen of your computer.

The game kicks off in true Bond style with an action packed scene in which a jet carrying a nuclear missile is stolen by the badies. Your mission is to locate the missile and neutralise it.

The game introduces the evil Doctor Death who is holding the world to ransom.

The missile is hidden in a three dimensional maze in Doctor Death's under water lab.

The maze is patrolled by Puss who is Doctor Death's top henchman.

With sheer luck or Bond — like professionalism you may reach the missile control room. All you have to do now is crack the secret code.

Shaken but not Stirred runs on Sinclair Spectrum in 64K and costs £9.50 from Richard Shepherd Software of Mordenhead.

## MISSION TO DESTROY THE DEATH STAR

### SPACE WAR

There is a strong flavour of Star Wars in the latest game for the new Dragon computer.

You are at the controls of the sole surviving star fighter on a mission to penetrate the Death Star defences and destroy it.

Enemy fighters are circling the Death Star and may blast you with their torpedoes at any time.

It is not only enemy fighters you have to worry about. There is also a black hole with a strong gravitational pull.

The space around the Death Star is littered with invisible space mines which can only be detected by firing carefully. For a sonic blast which they will emit before they explode.

Space War is available from Microdeal of Bodmin, Cornwall at £2.00.

# SOFTWARE FOR ALL

SOFTWARE FOR ALL presents programs for the people! Our list of original programs for the BBC, DRAGON, and SPECTRUM is growing every day! Reasonably priced, ingenious use of programming, excellent entertainment. These are the hallmarks of SOFTWARE FOR ALL.

Order now for fast delivery or visit one of our dealers. There's big things happening for all computer users ... That's why we're called SOFTWARE FOR ALL!

**GALACTIC INTRUDER**

For those who prefer space games to other genres, GALACTIC INTRUDER is a classic. It's a fast-paced, action-packed game. Includes code. **£6.95**



**J.R.**

The most entertaining and absorbing simulation program. Includes code. **£6.95**



**PAIRS**

A sophisticated version of the classic card game with 12 new graphics. Includes code. **£6.45**



**AREA RADAR CONTROLLER**

The tactical control team of a machine and it's a classic. Includes code. **£7.95**



**POLAR BEAR**

A 2-player card game with a twist. Includes code. **£7.45**



**ROW OF FOUR**

Includes code. **£6.45**



**PHAROS'S TOMB EXPERTISE**

Includes code. **£6.95**



**SPACE KINGDOM**

Includes code. **£7.95**



**TIME TRAVELLER**

Includes code. **£6.95**



**Utility Pack 1**

Includes code. **£7.45**



**CAR WARS: ALIEN PLANET**

Includes code. **£6.95**



**DANGER ISLAND**

Includes code. **£6.95**



**Utility Pack 2**

Includes code. **£7.45**



**ZOMBIE ISLAND**

Includes code. **£7.95**



**SEND TODAY!** Please send me SOFTWARE FOR ALL, Dept. 21, 12 North Street, Hemel Hempstead, Bucks. HP1 1JA

Name \_\_\_\_\_  
Address \_\_\_\_\_


Postcode \_\_\_\_\_

Place of my Order (Reference only to)

Please add £1.00 P&P per order \_\_\_\_\_ £1.00

Total \_\_\_\_\_

Accepted Deposit £1.00, bank orders to 021 4649 154 x42.



**SOFTWARE FOR ALL**

"Programs for the people"



# NEW PRODUCTS NEW PRODUCTS NEW PRODUCT

# GAMES NEWS

## METAL MEN OUT FOR YOUR BLOOD!

### ROBOT

Robot is the blood sport of the future. You are the human prey in this cruel entertainment.

You are pummeled around an arena by a killer robot. If the robot catches up with you you are inevitably doomed to death by being jumped on by three tons of mechanical gladiator.

The robot is also armed with a plasma gun which will cut all you outright with the heat shield weakness and steam you down. If you suffer more than a few shots it's all over.

In order to avoid a messy death you must reach the robot's remote control box situated in the bottom right hand corner of the arena and switch it off.

If you manage to do this you can open the door of the arena and slide out a free man.

Just to make things a little more interesting for the spectators and a little more dangerous for you the arena is covered with several hidden mines which will blow you or the robot to bits if you put a foot in the wrong place.

Robot runs on a BBC Model B and is available from Mountain-based Viking Software at £18.95.

Also new from Viking this month for the BBC Model B is an action sports game called Speedlight, a breakout type game called Break-Up and a two player game called Slouch which will run on a Model A. The games cost £19.95.

## PROWLING THE MEAN STREETS...

### DEADLINE

Deadline is the latest crime solving mystery game to be imported from the U.S.

The package comes as a complete dossier of a crime committed on the 7th July 1980 when the wealthy industrialist Marshall



Robner died of an overdose of Ecstasy — an anti-depression drug he had been taking for some time. But was it suicide or was it murder?

That's for you to work out and you have only twelve hours to do it.

You get a brown folder containing all of the documentary evidence. This includes the Doonan report, a large black and white photograph of the scene of death with a white chalk line showing the position and outline of where the body had been found, a letter from Mr Marshall's Attorney, the Inspector's notebook complete with excerpts from an interview with Mrs Robner, some fingerprints and an official memo, a lab report, and even samples of the tablets which were the cause of death.

Deadline became the number one best selling Apple game when it was released in the States in July.

The game is available in this country from Lancashire based Peto and Peto Computers. It runs on an Apple II and costs £26.25.

## FAMOUS FIVE BREAK OUT FOR BBC

### GALAXIANS

Five new arcade favorites have recently been launched by a new software house manufacturing exclusively for the BBC Model B.

A Galaxians cassette is an offer featuring four types of Galaxian swooping down individually or in groups of two or three.

The game features six skill levels, with a five score recorder which ranks in numerical order the various high scores of the session.

Bonus bees are awarded for higher scores although the game gets increasingly difficult — just as in the arcade game.

Space Fighter is a hybrid combining some of the best features of the arcade classics Scramble and Defender.

A stepped-up version of Space Invaders is offered with a few extra features thrown in to add interest. The flying saucers for example drop powerful bombs which avoid until later on your laser beams.

Centipede is also offered featuring many features of the arcade version — mushrooms, snails, flies, spiders, and the centipede itself.

The games all run on the BBC Model B and cost £16.50 each or £36.00 each when you order two or more cassettes.

They are available from new Leeds-based firm, Superior Software.

## HOT TIME IN THE OLD TOWN TONIGHT!

### FIREBIRD

A firebird is flying across the city setting fire to buildings and terrorizing a defenceless populace.

You play the part of a fireman trying to extinguish the flames and rescue the inhabitants of Mazing Apartments.

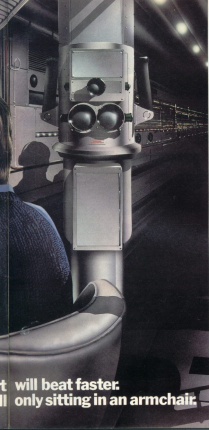
In order to rescue the unfortunate victims of the bid from another world you have to climb a ladder to where the trapped people are screaming for help.

The game comes on cartridge for the Atari 400 and 800 and retails at £24.95. It is available from Manchester-based Games Electronics.





**Your hands will sweat. Your heart  
Your oxygen might run out. And you're still**



As severity falters the only light comes from your Sensor, steadily tracking the advancing enemy fleet.

Suddenly they're above, dropping depth charges. You could dive! But how close is the sea bed? You could attack. But how many torpedoes are left? And your oxygen, isn't it dangerously low?



'Submarine Commander' is one of 21 challenging new home computer games from THORN EMI for use with Atari 400/800 or Commodore VIC 20. Like our Jumbo Jet Pilot it's more a real life simulator than a game.

But our programs aren't all work and so play 'River Rescue', 'Kickback' and 'Soccer' are all-action games. 'Pool' and 'Darts' will suit armchair sportsmen.

And whilst budding Beethovens play the 'VIC Music Composer' would be Chancellors can work on their budgets with 'Home Financial Management'. We also have educational puzzles for children that will puzzle adults at higher skill levels.

But there's one simple idea behind all our titles. They're designed for players who expect more of a challenge from a video game than creatures from outer-space can provide. Now, are you sitting comfortably?



THORN EMI

The world's greatest TV games.



THORN EMI is a registered trademark of Thorn EMI Limited. All other trademarks are the property of their respective owners.

Available from all branches of Lasky (Patented), Micro C at Carrys, and all other leading Computer software outlets.

It will beat faster.  
 All only sitting in an armchair.



Music Composer



Screen



Graph-It



Intro to BASIC I



Star Raiders



European Countries



Missile Command



Soccerball

3.2 million reasons why the Atari Home Computer is something to see. The display screen used with our computers is composed of 192 horizontal lines, each containing 120 dots. Delineating colour and luminosity instructions to each dot for a second requires 37 million cycles—a lot of work for the normal 600K processor.

That's why the Atari computer has equipped its 6502 with its own electronic assistant. It's called ANTEC, and it handles all of the display work, leaving the 6502 free to handle the rest. What this means to you is incomparably spectacular display capabilities without loss of computer power needed to carry out the demands of your program.

That's a quality you just don't find in ordinary home computers. And it's one of the reasons some computer experts say that Atari computers are so far ahead of their time.

There's more...which is what would speak from Atari Language. The Atari Home Computer uses several programming languages to give the user maximum control of its extraordinary capabilities. PLOT, Microsoft BASIC and Atari BASIC are understood and spoken by the Atari computer. You'll also discover Assembly Editor cartridge indispensable for machine language programming.

Sound. An Atari computer has four sound generators, or voices, activated by a separate microphone. This leaves the principal microprocessor chips free to perform other tasks. And you can take full advantage of this capability which is designed for easy programming.

Change. Atari Home Computers have been designed to make change an option, not a cost. The Atari computer has a modular operating system that can be easily replaced as new technology develops. If you need it, memory expansion requires no more than inserting additional RAM modules.\* And the Atari BASIC cartridge system also makes it easy to change languages. In short, your Atari computer won't become obsolete by future developments...because it already incorporates the future.

Shopping. To learn more about the amazing capabilities of Atari Home Computers, either visit your local dealer or fill in the coupon below.

## THE GRAPHIC DIFFERENCE BETWEEN ATARI COMPUTERS AND ALL THE OTHERS.

Atari 600 Processor



Please send me FREE a brochure, price list and the address of my nearest stockist.

Name \_\_\_\_\_

Address \_\_\_\_\_

order

# ATARI

Atari International Ltd. Inc.  
Woodhouse, 101-105 Ealing  
Road, Acton, Wembley,  
Middlesex.

MAIL FUNCTION

SMUG JERK

SCREAMING FOOL UP

T. WITCH



HE'S GOT GROPE THAT REVOLUTIONARY NEW PROGRAMMING LANGUAGE THE WHOLE COMPUTER CLUB HAVE COME AROUND TO SEE IT DEMONSTRATED.

**IS YOUR MIND  
PLUGGED INTO G.R.O.P.E.?**

Graphic Displays, Organic Programming, Dynamic Icons is a brand new video language where you instantly start work on the program that does results before you realize you're working.

It includes: **YOUR ANSWERS FAST** — why stop at the computer? **Quick Start** — Complete range of software instructions. **It's fast** — includes instructions with 3 separate software systems. **It's fun** — includes video instruction also see you. **It's fun** — learn through graphics.

**SEND NOW! ONLY £300!**

IT'S LOADED, CAN'T YOU FEEL THE POWER FLOWING THROUGH THIS OLD MACHINE'S CIRCUITS!

HE'S TRYING A LOOP WATCH THIS CLOSELY SWIRL THIS COULD BE VERY EDUCATIONAL.

LOGIC  
CIRCUITS

SHADY ANGLES

WHEELS

NOW THAT'S WHAT I CALL A LOOP!

Wow! TOTAL ANIMATION COMMANDS THIS SHOULD BE SOMETHING

OH NO! I'D PROGRAMMED IT FOR A LONGER TABLE!

# VIC-20

16k  
Adventure

## STAR WARP II

A fast-action real-time space adventure — choose a ship to suit your style and explore Space for the Confederacy. Face dozens of alien ships and a hundreds of planetary systems. With Hyperspace, Star Bases.....A real test of skill. **£3**

## THE LAIR

Explore the 700+ caverns of The Lair seeking the fabled Treasure. But be careful — the caves are inhabited with Orcs, Sprites, Ballogs and ... the Blue Man! **£3**

## Soft Toys 2 — Games for 6.5k

This is what they thought of COMMODORE, Casine — 'A new idea ... Excellent graphics.' Simon — 'A new use of music that can be enjoyed by the entire family.' Luke Lamber — 'Excellent graphics.' Maths Maze — 'For ages 3 to 93.' Hangman — 'One of the best Hangman games.' **£3**

### 'SPECIAL OFFER!'

FREE arcade game on cassette (worth £2) when you order two or more Soft Toys cassettes before 31.1.93.

Write or phone NOW for a catalogue.

All prices include P&P 1st class. Send cheque/PO to:

**soft toys**

1, Locherman Avenue, Edinburgh  
EH4 1AZ, Tel: 031 443 3000

BEFORE  
YOU BUY A  
CHESS COMPUTER

buy



# Chess Computer News

CHESS COMPUTER NEWS is a vital 32-page report on the leading chess computers, with the latest news, full lists of the different features of each machine, the manufacturers' two top ten different tests, and more news. Current issue \$19.95 (UK P&P extra post).

### TO GET YOUR CHESS COMPUTER NEWS FAST

- Call us and get your copy now — and we'll give the computer of the week free — give London addresses: **COMPUTER NEWS**, The Chess Computer Specialists, 2018 Forest Road, London NW11 2BA (you receive each of Birmingham, Exeter and Leeds editions) **Now: £11.95** (UK P&P extra)
- Or we'll get your copy to you by return post if you subscribe at our cheapest (second class) rate of **£5.95/ISSUE**, or send your cheque to PO with the form.

For any information about these computers you can call us on 01-261 9363. Only Computer offers you 21 days return thoroughly judge the machine for yourself. In some cases return the machine within 21 days. Computer will refund you should you find you have your mind changed, we are the only retailer to offer you a return post without special Computer Mail Order Service. But we do not refund returns unless you do show your satisfaction.

NAME: \_\_\_\_\_ Per: C/C/D

ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_

London cheque/PO to: C11 2B (return post). GB prices debit by Access / Bankgiro number.

# MICHAEL ORWIN'S ZX81 CASSETTES

The best software (by various authors) at low prices

### QUOTES

"Michael Orwin's ZX Cassette Tapes is very good value. It contains 18 great well designed games which will offer plenty of variety and choice, and are fun."

from the ZX Software review in Your Computer, May '92 issue.

"I had your Invader-Road cassette ... I was delighted with this fast cassette."

Z' Magazine London NW10

"I have been intending to write to you for some days to say how much I enjoy the games on 'Cassette One' which was supplied me with earlier this month."

Z' London Dave

"... I previously bought your Cassette One and consider it to be good value for money."

Michael Stone-Jarvis  
Managing Director  
Wire of Information Ltd

### CASSETTE 1

Ten games in Basic for 16 (2k)

Cassette Two contains: Beavers, Aesop, Laser Bases, Ward Maximised, Remington, Cook, Scudnik, Porton, Penny Chase and Sun Command

Cassette 1 costs £5.

### CASSETTE 2

8 programs for 16 (2k)

### STARSHIP TROJAN

Race your Starship before disaster strikes. Features include: polygonisation, rotation, zoomed, integral sound-effects and playing into a 30-second.

**STARSHIP** This version of the well-known space adventure game features variable blinger metal by, and graphics plus integral blinging.

### PRINCE OF KNAL

An adventure game

**BATTLE** Strategy game for 1 to 4 players.  
**GALBARAD** World's oldest card game, full of complex complicated rules.  
**GAME** Basic table game, with lots of functions including 'Backstab'.

**SECRET MESSAGES** This message coding program is very easy to use.

**MAINTAIN CRICKET** A simple but addictive game (initially under Basic) coded in machine code. The speed is variable, and its top speed is very fast.  
Cassette 2 costs £5.

### CASSETTE 4

4 games for 16

### 25 (CASSINI) (machine code)



Build and shoot your way through the tormented cavern.

### SUNNYT

(machine code)



### INVASION

(machine code)



### FORWARDER (machine code)

**GALAXY INVASION** (machine code)

Plans of attacking and being plan craft.

### STANDSTILL (machine code)

Can the snake survive in each one. Variable speed (very fast at top speed)

### 148 (machine code)

A ZX81 version of the well known game.

### 30 TIC-TAC-TOE (Basic)

Played on a 3x3 x3 board, this is a game for the brain. It is very hard to beat the computer at it 7 of the 8 games are in machine code, because this is much faster than Basic. (Some of these games were previously available from Z' Board)

Cassette 4 costs £5.

### CASSETTE 7

between 8 programs

### machine code:

**Beast** Invaders, Preston plans, Maze of death, Planet (255), Bouncing letters, Bug split.

### Basic:

**Clips**, Maximised, Beasts, Basic Hangman, PLUS large screen versions of Invaders and Maze of Death, ready for when you get 16.  
Cassette 7 costs £18.

Recorded on quality cassettes, sent by first class post, from:  
**MICHAEL ORWIN, 26 BROWNLOW RD., WILLOSDEN, LONDON NW19 9QL (small order only please)**

**SPECTRUM SOFTWARE WANTED**

# CHESS



## GOING BY THE BOOK . . .

I have described Ken Thompson's invention BELLE in previous articles. It (or she?) is a special-purpose machine built solely for playing chess, and was the third world Computer Chess Championship held at less than two years ago with a score of 4/5.

The development speed of BELLE is as impressive as its subsequent results. The initial design was in February 1980 at which point its components (1,300 chips) were ordered. BELLE's first move was made in July 1980 and only two months later it won the world championship!

The machine generates a candidate move in just over one two-millionth of a second and can examine 168,000 positions per second.

The opening "book" comprises 300,000 positions (compared with an estimated 200,000 positions in each volume of the Encyclopaedia of Chess Openings). The entire book is scanned in one and a half seconds.

BELLE's official rating is now around 1250, but improving its performance further is prohibitively difficult.

It is remarkable that the philosophy behind BELLE (fast and extensive searching of variations) is the exact opposite to that adopted by Mikhail Botvinnik, who as well as being a computer chess researcher for many years was three times world (human) champion.

His conference talk (see panel) stressed the importance of examining only a small number of positions at each turn — preferably only one — and to restrict the analysis for each move to approximately 50-60 — well chosen — positions in all.

Only by this means, in Botvinnik's view, can master play be achieved. Botvinnik's program "Pioneer" has been a long time in development but may well be a major advance when it appears. Sadly it seems that there is virtually no other USSR

as well as a hobby and a game. Computer chess has long served as a vehicle for serious research in computer science, especially the branch known as artificial intelligence which is largely concerned with the methods by which people solve problems involving complex reasoning.

There has been a series of academic conferences on the subject and the papers from the most recent one are soon to appear in book form under the title *Advances in Computer Chess, 3* to be published by Pergamon Press and edited, as before, by Michael Coffe, a researcher at Queen Mary College, London.

The conference itself was held last Easter at Imperial College, London and attracted delegates from nine countries as well as speakers from as few as three.

The first two conference talks were by Ivan Bratko, a Yugoslavian, and Don West from Queen Mary College who have been independently investigating the question "why are evaluations of positions based on deep analysis more reliable than "static" ones made without any analysis?"

This seems obvious (and if it were not so, most chess playing programs are searching out a vast amount of calculation for nothing), but it is astonishingly difficult to answer precisely. At least, an explanation (or, at least, a partial one) has been found and is given in the book.

Other theoretical papers of the conference dealt with various aspects of searching (not of variation, forms of automatic learning, long-range positional planning, measuring the "information" contained in a chess position, and psychological experiments on both people and machines.

Two of the most interesting papers of the conference were presented by Ken Thompson, of Bell Laboratories, and Michael Botvinnik who was making a rare visit to Britain from the USSR.

work on computer chess is progress at present.

The Keessa program which won the world championship in 1994 has not been developed much since.

Although some of the conference papers are far from simple for the uninitiated to understand, *Advances in Computer Chess, 3* and the two earlier volumes, published by Edinburgh University Press, are the best available works for the serious student of the topic.

The next conference is due in 1994. Will computers have reached master level by then?

To conclude, here is a game played on the evening of the conference between Danny Koper — a U.S. Master and former Scottish champion — and BCP, a good example of a well-developed and relatively strong program.

Danny Koper was playing BCP and an early version of BELLE — 30 times slower than the current one — simultaneously.

### BCP (White) versus D. Koper (Black)

1. P-F4, P-F3, 2. P-G4, P-GB4;
- The "Franco-Gitler" defence. Black's strategic aim is "to confine White" and he succeeds. BCP is now out of the book.
3. N-BB3, P-F4, 0-0-P
- An attempt at originality.
- 0... N-GB3, 0-0-G3, 0-04, 0, 0-02,
- 0-03, 7, 0-0B4, 0-03, 0-03, P-04, 0,
- P - P, 0 - P, 10, 0-02, 0 - 0, 11, P - 0,
- 0-02. Black is now well ahead as development.
- 12, 0-02, 0-02, 13, 0-02P 0-0 (Fig 1.)
- White is lost. Black threatens 14... 0-0-P
- immediately. White's Queen Bishop Pawn is vulnerable and a Knight move to G4 is also dangerous.
- 14, 0-03, 0-02, 15, 0-02.
- White's only possible counterplay is 15, 0-0B4.
- 15... 0-04;
- Oversteering 15... 0 - 0B4ch.
- 16, 0-04, 0-04ch; 17, P-02, 0B-01;
- 18, 0-04, P-04;
- A typical computer game. White is totally lost but keeps finding counterplay.
- 19, N-04, 0-02; 20, P-0B3, 0-02; 21, P-04, 0 - 0P;
- 22, 0-04 - 0, 0 - 0; 23, 0 - 0,
- 0 - 0Pch; 24, 0-02, 0-0Pch;
- 25, N-02P, 0 - 0ch; 26, 0 - 0,
- 0 - 0ch; 27, 0-0B4, 0-02;
- 28, 0-02, P-0B2; 29, N-01, P-02
- and Don West resigned for his program.



Fig. 1. a b c d e f g h

# TV GAMES CENTRES TV GAMES CENTRES TV GAMES VIDEO SCREEN

## E.T. MEETS THE F.B.I.

All I want to do is get home. That's poor old E.T.'s lament in the latest Steven Spielberg blockbuster in which the friendly alien from outer space dies his best to get back to his family and friends.

Trouble is every time E.T. tries to do just that those 'Earthling Aliens' conspire to stop him.

The man from the FBI tries to lock him up for the protection of the good citizens of the US.

The scientist wants to get him back to his laboratory to carry out all sorts of gruesome experiments.

E.T. soon finds that the only person he can trust is the adorable plumed planet Earth is schoolboy kid.

Now you can become E.T.'s friend and help him get home in this latest game from Atari for the NES.

The idea of the game is to find the three pieces of E.T.'s inter-planetary telephone and then call up his ship to come and rescue him.

Whilst conducting your search, manoeuvring E.T. around the screen using the joystick, you can also pick up pieces of candy which appear periodically in the corners of the screen.

As well as earning you extra points these pieces of candy are also vital in helping you locate the third section of the telephone.

The game is controlled by nine power cane symbols which are constantly changing and so

### E.T.

which you must keep a sharp eye on they do take what you can and cannot do at any given stage in the game.

The game has three difficulty levels. The simplest of these features just E.T. and his little friend Stan searching for the various bits of the telephone.

Game two introduces the government agent who is trying to arrest E.T. and chases him.

For really skilled players level three introduces another hostile to deal with in the shape of a scientist who will haul E.T. back to his laboratory.

E.T. will be in the shops before Christmas to coincide with the film going on general release. It costs £29.95.

## SECRETS OF SYSTEM X

The long awaited successor to Atari's successful VCS machine is about to be released in the US.

The 5200 will be in the shops in the U.S. this Christmas at around the £190 mark. Dubbed System X when prototypes were shown to journalists the machine has 48K of computer memory enabling it to produce 'state of the art' graphics.

The aim was to produce video games to be played on a console TV set of the same high quality as the coin operated games of the arcades, and according to our sources, the first wave of games, which includes Pacman and Centipede, do include the fine graphic detail one associates with the pay-per-play devices.

Before Atari owners start railing out to the shops to enquire about this new machine there are two drawbacks that must be mentioned first. Most importantly Atari have so far said nothing about a UK launch date for the 5200. Indeed an Atari spokesman told *Game*: "We don't want to talk about that yet".

Secondly the present range of Atari VCS games will not be compatible with the new system. It has been rumoured in the U.S. that an adaptor which would enable VCS games to be played on the 5200 is also to be produced



## WHO'S NOT A PRETTY BOY THEN!

### SPACE VULTURES

Space Vultures are a vicious breed of birdlike aliens who can fly through space without the aid of space ship. They will attack any old planet that takes their fancy on their strange intergalactic migration.

Nobody seems to know where they are going, or for what purpose, but then it does not really matter to you — the lone pilot of the sole remaining planetary Defender Ship.

Your duty is clear. Shoot down the aliens before they attack you and colonise your planet for their evil birdlike overlords.

The vultures attack in groups of three, hovering around the screen and then homing in on your space ship.

You are armed with an energy shield which will protect you for a few seconds, enabling you to survive a head-on collision with the aliens and shrug off their laser fire.

If you survive the first wave of Vultures you are then challenged by the super birds who are several times the size of their predecessors and who attack in waves of three.

These superior adversaries take more than one direct hit to knock off. They swoop down straight towards your ship bombarding you with missiles. You will need to shoot fast and accurately to down them before they down you.

One drawback that Defender Ship pilots very quickly have to come to terms with is the slowness of the ship's missiles. They jerk very noticeably sideways.

Despite this the Vultures are still pretty easy to deal with. This particular Defender Ship pilot managed to shoot down seven other waves of them on his second go.

Space Vultures is the latest game for the new Harman MMS 3000. The game is available from Harman's stockists at approximately £25.

### ATARI 5200

but the two so far will be confirmed.

If there is some uncertainty about when Atari will launch their new machine in the U.K. there is no doubt about the debut of another exciting video games system from America — the ColecoVision.

The graphics are not only more detailed than conventional systems but they are also capable of producing more on-screen movement, greatly enhancing the playability of the popular space battle genre of video games.

Coleco have entered the system against obsolescence in the fast moving video games market by making it capable of being upgraded with a planned programme of add-ons. The first of these add-ons will be an adaptor which will enable any existing cartridge produced for the VCS to be played on the ColecoVision.

The machine will be launched with an exciting range of games. Arcade smash hits like Donkey Kong lead the exotic gorilla, and captured starting, Zaxxon and Gal have both been converted.

The ColecoVision is expected to be in the shops by next April but no news in price yet.





# CENTRES TV GAMES CENTRES TV GAMES CENTRES VIDEO SCREEN

## BRIGHT NEW YEAR FOR VIDEO FANS

Every other TV commercial these days seems to be advertising either video games centres or video cartridges to go with them.

One sign off from this hotting up of competition is that prices in the high street shops are beginning to fall.

The Intellivision VC800 can now be snapped up for less than £30 which includes a free Space Invaders cartridge. The price of additional cartridges for this machine are also down in price.

It is as well to look a word of warning about the machine however. Hasnam have recently introduced a new machine to replace the Intellivision — the HMM2 250. They will therefore be no new games for the Intellivision since current supplies have sold out.

### GAMES CENTRES

Not that only machines which are being phased out are falling in price. Philips have recently announced that they will be cheapening £30 off the price of their 67000 to help them compete with Atari in the Christmas shopping spree. New price £70.

Atari is tight liped on the subject of price cuts in their Intellivision machines which is now selling for £155. It is unlikely that they will be able to maintain this price for too much longer. Many of the dealers have already felt it necessary to top £20 off this price. Even at £35 the machine is competing not only with other TV games centres but with half a dozen micro-

computers many with superior graphics and a wider and cheaper range of games available.

Even Atari, who currently head the field with sales of their VCS, will find it difficult to retain a price cut in the new year as the prices of micro computers look set to tumble.

The price of cartridges too is likely to come down more in line with prices in the U.S. where games cartridges are roughly a third of the price they sell for in the U.K.

So although it is not an option open to Father Christmas the wise buyer may do better by saving his money until the Spring.

## DOWN THE CORRIDOR OF DANGER

You are a secret agent on a mission to infiltrate a top secret fortress.

Armed with a powerful laser gun you can shoot the mechanical guards of the fortress who are chasing you. You can also duck down by pulling back the joystick to crouch beneath the guards' lasers.

The screen shows five corridors, one on top of the other, with all connecting lifts.

The idea of the game is to get your little man to the highest corridor and then safely back down again.

Pressure timing is needed to dodge and the right split second

### INFILTRATE

to jump on one of the lifts which pump up and down automatically like pistons in a steam engine.

Once on a lift you have to watch carefully for the positions of the mechanical guards as a blast of laser fire is their usual greeting to anything unexpected emerging from a different floor level.

Infiltrete can be played by one or two players and is the latest addition to the Apollo range of games for the Atari VCS.

Also new from Apollo for the pre-Christmas shopping rush is a

real-time traffic control game called Final Approach.

This is your chance to suffer the terrors in a simulation of one of the world's most high pressure jobs.

Planes are taking off and landing on an international airport. It is your job to see that the incoming traffic goes down safely without colliding with countless outgoing flights. Sounds easy? Just you give it a try. And remember some of the world's most serious air disasters have been traced back to air traffic control blunders and that the average air traffic controller retires with an ulcer before the age of 40!

Also new this month on the Apollo table is a slightly less serious game called Watson.

You are an honest hard-working farmer trying to protect your crops from a family of thieving rabbits who live in a series of burrows in your carrot field.

Every time their big ears pop up from one of the holes you throw one of your rotten eggs at them in an attempt to scare them out of their honeycombed hide out.

The Apollo range of games are imported into this country from the US by Valcon Electronics of London. They are currently in the shops at £24.95.



MACHINE	NAME	MANUFACTURER
1 Intellivision	Oraxxon and Oraxxon	Mattel
2 Intellivision	Sub Hunt	Mattel
3 Atari	Galaxian	Mattel
4 Intellivision	Night Sarker	Activision
5 Atari	Starwiper	Mattel
6 Intellivision	Lock 'n' Chase	Mattel
7 Atari	Barren	Mattel
8 Atari	PacMan	Mattel
9 Atari	Utopia	Parker
10 Atari	Frogger	Parker

The above top list represents the sales of cartridges during the month of October.

The dominance of Mattel games is being due to a lack of rival releases in that month. People bought a number of Mattel titles they had been waiting for for some time.

The retailers are expecting the November chart to show a completely changed picture. Watch out for next month's top ten. Will your favourite be in the chart?

# ARCADE

## PENGO IS REALLY COOL!

It is possible to judge your addition to an arcade game by how far you will travel to play it. For one more game of Pengo I would willingly travel to the Arctic wastes in which it is set.

Four lucky members of the CARS team have so far tried out this latest of coin-operated video games and two wrote a commentary. Pengo is the CARS tip for 1985.

For reason and time we get inside your local arcade where to get hold of a Pengo machine.

Brrr! Deep in the confines of the frigid blue maze Pengo is pushing his way out of trouble.

His flippers may not be much good for flying but they sure pack a punch on the Antarctic ice-ink he knows as home.

The maze unrolled is made up of a random maze constructed out of blue ice blocks. Pengo starts in the centre and the villains of the piece, the one-beers, set off from the corners.

The one-beer sting is deadly and Pengo is helpless in any one-to-one confrontation, but his lightning ice level can melt the ice blocks around with a heavy push. And who beside any one-beer who gets caught behind a block.

### PENGO

That is the essence of the game. Pengo must wipe out each swarm of one-beers before they can run him to ground.

Each screenful of one-beers consists of some which become instantly active and others disposed as ice blocks. These can be pushed to death by Pengo before they "wake up".

Unlike the Pacman game, one-beers are somewhat flighty and in their pursuit although you will occasionally give dogged chase to Pengo.

But while not unduly aggressive, these cute little villains can usually spot a waiting penguin a mile off and will try to approach on the wrong side of the ice block, thus robbing Pengo of his ammunition.

They are helped in this by their ability to crawl through the ice blocks and Pengo shares this ability when he needs to get out of a tight corner.

There is a lot more to this game, like making the one-beers dizzy and scoring big bonuses by coasting two with one block or using the indestructible blocks.

Pengo is a game apart, with



wonderful graphics, delightful characterisation, plenty of scope to work out your own tactics and a catchy melody.

But if there's one over-riding reason why Pengo will take off, it's down to that feeling of satisfaction you get when an one-block picks up speed and levels off the wind out of a surprised one-beer!

## THE SUICIDAL STOCKBROKER

### WALL STREET CRASH

The great Wall Street crash is happening all over again.

As for what it's your job to catch the suicidal stock brokers as they try to end it all in one final desperate leap.

Once safely perched in a safety basket the danger is not over as they must be bounced into a waiting ambulance. A good player will manage it in two bounces, a beginner may well see his shareholder bouncing off screen or just straight up again.

And the Dow Jones Index is falling all the time. Each broker who reaches an ambulance helps light up the bank and six will enable you to move into the real stage of the game.

This is a long maze where money bags have been hidden. These must be collected and deposited in a safe. Tanks chase you through the maze.

The action continues in three modes alternately with more tanks and more brokers being added. By the time you reach three suicidal stock marketers, a helicopter has appeared and it is possible to achieve a bonus by shooting a saved broker skywards into it.

## BURGERS HAVE YOU IN A PICKLE

Burger time is the fast food game to keep a budding chef on his toes.

Picture the scene: the eggs, sausages and pickles are revelling in the kitchen.

You take the part of a chef, whose only hope is to trap your edible enemies in the burgers you are busy making.

A series of burger bridges are constructed among the platforms and ladders which make up your kitchen. Every time you run across a burger, piece of bun, cheese, tomato or lettuce, it drops clear to the dish the complete burger should end up in.

As you run across the piece of cheese, for example, it drops down a level, landing whatever lay below it, down too. Gradually a complete burger is built up, but a good player will add eggs, sausages and pickles to that burger by catching these items of food between layers.

### BURGER TIME

This is done by running across a piece of burger when closely followed by an enemy.

When things get too hot for you, a quick sprinkle of pepper from your pot will stop the enemy.

French fries and ice-cream cones will add to the paper you have left in your container.

Like Donkey Kong the game is divided into different screens, so that once you have completed the burgers on one screen, a more difficult one will appear.

Burger Time has a charm all of its own and enjoys the benefits of only having a joystick and one button control. The idea behind it is simple, its implementation more difficult than you would think possible.



# ACTION

## ON THE ROAD TO RUIN ON THE MOON

### MOON PATROL

The moon's surface is an infernal place, pitted with craters and also boasting an atmosphere teeming with aliens.

In Moon Patrol a moon buggy is your responsibility as it maneuvers a lunar landscape across the screen.

You are armed with a fire button and a jump stick to overcome most of the hazards that come your way.

The aliens hovering above your craft are the main source of danger in this game.

By pushing your fire button you can launch a missile skyward to try and bring them down.

But take care to avoid the bombs that are dropping moonwards to bring about your destruction.

These bombs may also leave dangerous pits in the moon surface and these have to be noted and duly jumped.

The alien attackers take on three forms, these are obstacles across the surface which have to be blown up. Land mines, rocketing volcanoes and fire-flying planes add to the tension.

If you survive the beginners' course there is a champion course waiting to challenge you.

Moon Patrol is a simple game with easy to tackle controls and an obvious game objective, but it is not among the best of the recent batch.



## SOMETHING NASTY IN THE GARDEN

### DOG-DUG TIPS

The Dog-Dug score clock runs over at 999,999 but that needs to be the limit for a dedicated player.

Although this score seems beyond belief to a beginner, it is really just a matter of knowing the short cuts.

Beginners tunnel their way up to a monster (either a fire-breathing Pygar or a less dangerous Pooka), fire their pump (or pump the creature to death and then move onto the next victim).

Using this technique it is possible to clear round after round but it has several disadvantages: it stops being effective at the higher rounds, it is very time consuming, it generates far less points as the trail is not always recovered.

A better technique is to lead your way beneath a rock, wait for some monsters, squash them, tunnel through to the next rock, squash some more, grab the fruit and then finish off the monsters.

Try and reach the rock before the ringing noise sounds as this releases the monsters.

Should monsters block you off from the next rock there is a technique for killing them.

After dropping the first rock tunnel yourself close to the main tunnel but not actually breaking through into it. Two minutes is enough to use your pump on passing monsters who cannot

get your men. Always approach the tunnel horizontally as more points accrue from monsters tackled this way. When only two monsters remain move to the next rock, see it, thus making the fruit appear, grab it and finish off the final monster.

Pygars killed horizontally are worth double points and another way to bump up the points is to pump monsters in the lower areas of the screen.

It is divided into four horizontal layers. Points scored for a monster depend on which area he is finished off in. For example, a Pooka is worth 500 points if he is killed in the bottom layer.

When pumping a monster, push towards them as this will release them faster.

A tip for rock tunnelling is to leave a notch below the horizontal entrance to the vertical tunnel. This notch will ensure that no monsters escape.

Norwegian Dig Dog champion, Tooba Zaid, who compiled these tips for us, offers some other information for top players: most rounds that can be displayed are 99, if you scratch off eight monsters a 15,000 point bonus is retrieved and after the 32nd round any successful pattern you devise will score for the next 50 rounds at least.



Grab your bicycle clips and head for your nearest arcade — Bally's BAX is leading your way! This latest pinball from the American giant is based on the new cycling craze, bicycle motor-cross.

BAX continues Bally's return to the table that requires quite a lot of skill to master it. BAX features two levels and colour-coded targets — like the recently released Spectrum. There's also a mysterious magnetic device on the top level.

A novel feature of this novel machine are the devices which save a ball which finds its way down the chute. There are two additional buttons alongside those which control the flippers and these work two "shields" which catch the lost ball and send it back into play — but you can only use them just as often!

## THE VIDEO WIZARDS

The latest casualty of improving arcade scores is Atari's Centipede. Three players have now come forward to reach 999,999 and I gather that it is possible to go well over the clock on this machine — and so it seems time to close the file down.

Only one contender for timing

the clock was at Dig Dog though Tooba Zaid, who wrote the tips is our highest scorer here. Tooba also claims top spot on the Tempest machine. See winning scores on Space Dungeon and Robotron.

Illustrations: Terry Hooper



TEMPEST

945,401

Tooba Zaid

SCRAMBLE

972,190

Andrew Wimp

GOB

888,430

Gary Miller

PROGGER

116,190

Richard George

DOG-DUG

828,998

Tooba Zaid

GORKEY-KORNO

428,300

John Bull

GOB

993,800

Sarah-Jay Singh

CRASH ROLLER

471,500

Alan Dowler

ARMADA

114,378

R. J. Arundell

HYPERBALL

1,448,000

Mark Strakings

PROGGER

408,870

John Dowlers

PARCIBAN

1,095,000

Tom Hayward

Perhaps it's just the rhythmic "plink" of the sonar bouncing off the enemy hull, or maybe that tomblike silence which adds to the tension between depth charge blasts but submarine films always have that much more atmosphere than any other war movies.

Sub Hunter lets you partake in the thrill of an under-

water naval battle . . . but luckily for the claustrophobic, your role is acted out above the Briny.

The submarines may be running silent and deep but your mission is to seek them out and blow 'em up.

Your helicopter hovers above the waves, while the enemy uses them to dodge

and hide from your bombs.

The submarines are not alone though.

A fleet of destroyers is on hand to give covering fire and try to blast you out of the sky.

Points are scored for successful bombing of destroyers and for the destruction of the enemy subs.

**RUNS ON AN ATARI 400 IN 16K**

# **SUBMARINE HUNTER**

**BY HUGH DENHOLM**



```

10 GOTO 8800
2098 REM **ROCKET CONTROL **
2099 REM ** FOR HELICOPTER **
2100 S=STICK(10)
2102 SOUND 6000
2103 SOUND 7000
2104 IF STICK(10)=0 THEN 8000
2105 IF S=15 THEN 2100
2110 T=0:D=0
2120 T=(D*5)+(S*7)+(S*5)-(D*10)-(D*15)-(D*9)
2130 D=(18*D)+(18*S)+(S*13)-(D*6)-(S*14)-(D*10)
2140 IF T=0 THEN 2170
2142 IF T=1 THEN 2150
2145 GOTO 2140
2150 D=D+4:POKE 53281,X:IF D>250 THEN D=250
2155 GOTO 2170
2160 D=D-3:POKE 53281,X:IF D<0 THEN D=0
2170 IF D=0 THEN 2180
2172 IF D=1 THEN 2179
2175 GOTO 2199
2179 IF Y=40 THEN 2180
2180 FOR I=7 TO 0 STEP -1:POKE PBASE+896+Y+I,PEEK(PBASE+896+Y+I):NEXT I
2190 Y=Y+1
2195 GOTO 2100
2199 IF Y=4 THEN 2100
2200 FOR I=0 TO 7:POKE PBASE+896+Y+I,PEEK(PBASE+896+Y+I):NEXT I
2210 Y=Y-1
2220 GOTO 2100
4999 REM **HELICOPTER MISSILE CONTROL**
5000 S=(S/55)+(S/3):POKE PBASE+384+S,172:POKE 53285,88
5005 M=L-(L/100000)7000
5010 R=D+1:R=PEEK(53281)
5015 SOUND 6000:SOUND 7000
5020 IF R<95 OR S<5 OR S<220 OR R=2 OR R=3 OR PEEK(53279)=0 THEN SOUND 7600:G
OTO 2100
5030 POKE PBASE+384+R,0:POKE PBASE+384+S,172:SOUND 3,30+(R+R)/2,10,8
5040 IF STICK(10)=7 THEN S=S-1:POKE 53285,88
5050 IF STICK(0)=1 THEN S=S-1:POKE 53285,88
5060 POKE 53285,88
5070 GOTO 5010
5999 REM **SUBMARINE CONTROL**
6000 E=E+1
6010 J=PEEK(53289):IF E<1 THEN E=0
6020 IF E=180 THEN GOTO 6100
6030 POKE 53249,E:IF J=0 THEN HITS=HITS+1:SOUND 7600:GOTO 6060
6040 K=0:IF K=20-M=L THEN POKE 623,2:FOR A=1 TO 10:NEXT A:POKE 623,4:K=0
6050 RETURN
6060 FOR D=250 TO 100 STEP -1:SOUND 0,200,8,4/17:NEXT A:SOUND 0,0,0,0:GOTO
6070 SOUND 7000
6080 RETURN
6100 POKE 623,2:FOR A=1 TO 50:POKE 705,14:SOUND 2,30,10,8:SOUND 0,75,10,8:NEXT A
6110 SOUND 2,0,0,0:SOUND 0,0,0,0:POKE 705,88:GOTO 6080:POKE 623,4:K=0:RETURN
6999 REM **DESTROYER MOVEMENT**
7000 IF J=12 THEN R=2:DET=DET+1:SOUND 7350:SOUND 7600:GOTO 7030
7010 G=0:IF G=0 THEN D=180
7020 COLOR G&E=INT(RND(10)+120):PLOT XX,59:COLOR 3,88=INT(RND(100)+130):PLOT XX,59
7030 GOTO 7200
7035 POKE 53290,0:RETURN
7040 FOR R=71 TO 75
7042 SOUND 0,220,12,4:FOR A=0 TO 0 STEP -1:POKE PBASE+768+R+A,PEEK(PBASE+767+R
+A):NEXT A
7050 FOR C=1 TO 50:NEXT C7
7060 NEXT R
7070 G=180:POKE 53290,0:SOUND 0,0,0,0
7080 FOR S=75 TO 71 STEP -1
7090 FOR A=0 TO 6:POKE PBASE+767+R+A,PEEK(PBASE+768+R+A):NEXT A
7100 NEXT R
7105 SOUND 7800
7110 RETURN
7199 REM **DESTROYER MISSILES**
7200 IF FIRE=1 THEN 7240

```

# STOP HERE!

## ATARI FOR ATARI GAMES ATARI

### AT SPECIAL PRICES

Apple Panic	D/C	24/16K	19.95	Picnic Paradise	D/C	32/16K	22.95
Chopper	D	48K	22.95	Glain Jumper	D/C	32K	22.95
Track Attack	D	32K	18.95	Fort Apocalypse	D/C	32K	22.95
David's Minute Magic	D	48K	22.95	Reptilian	D/C	32K	22.95
Serpentine	D	48K	18.95	Zork I, II & III	D	32K	26.50
Star Blazer	D	32K	20.95	Deadline	D	32K	22.95
Deadly Secrets	D	48K	22.95	Starcross	D	32K	26.50
Stella Shuttle	D/C	32/16K	19.95	Abuse	D	48K	12.95
Genetic Drift	D/C	32/16K	19.95	S.A.M. Voice Synth.	D	16K	38.95
Labyrinth	D/C	32/16K	19.95	Micropainter	K	48K	22.95
Sea Fox	D	48K	19.95	Sands of Egypt	D	16K	26.95
Wizard of War	D	32K	22.95	O'Reilly's Mine	D/C	16K	22.95
Deluxe Space Invaders	D	16K	22.95	Rosen Brigade	D/C	16K	22.95
Goof	D	16K	22.95	Fathoms 40	D	48K	22.95
Astro chase	D/C	24/16K	19.95	Canyon Climber	D/C	16K	19.95
Cosmic Squawks	D/C	24/16K	19.95	Frogger	D/C	32/16K	22.95
Plattmania	ROM	8K	27.95	Ranbits	D	48K	22.95
Monster Maze	ROM	8K	27.95	Tweeps	D	48K	22.95
Star Warrior	D/C	32K	26.95	Wayout	D	48K	22.95
Sentinel 1	D/C	24/16K	19.95	Beavis Bopper	ROM		22.95
Guardians of the Gorn	D/C	24/16K	19.95	Deadly Duck	ROM		22.95
K-Razy Antics	ROM	8K	27.95	Tigers in the Snow	D/C	48/32K	27.95
K-Star Patrol	ROM	8K	27.95	Cosmic Balance	D	48K	27.95
K-Razy Killers	ROM	8K	27.95	Sea Dragon	D/C	24/16K	22.95
K-Razy Antics	ROM	8K	27.95	Stratos	D/C	24/16K	22.95
Firebird	ROM	8K	27.95	Space Challenge	D/C	24/16K	19.95
Embargo	ROM	8K	27.95	King Arthur's Hair	D	32K	19.95
Bojo Buggies	D/C	24/16K	19.95	32K RAM board 406/800 machines			59.95
Crystals of the Underd	D	32K	19.95	Fast Chip	ROM		27.95
Escape from Volcano Isle	D	32K	19.95	Atari 408 keyboard (in-home)			79.95
Protector II	D/C	32K	22.95				

#### To: SOFT-DEAL

48 BROADWAY GROVE,  
ST. JOHNS, WORCESTER W62 5EY

## SOFT DEAL

Please send me the following items:

- 1 .....
- 2 .....
- 3 .....
- 4 .....
- 5 .....
- 6 .....

Despatch to:

Name .....

Address .....

I enclose my cheque for £ ..... Add 50p post/packing for each item

Please detail my Access card no. ....



```

7210 IF @>180 OR @<40 THEN 7020
7220 @0=#RND*101#100:IF @0/75 THEN FIRE=1:GOTO 7240
7230 GOTO 7020
7240 IF START=# THEN 7260
7250 START=@U=@V=#0
7260 POKE #RAME+288#V,0
7270 IF X# THEN @#RND*200
7280 IF @U THEN @#RND*100
7290 V=#-11#F V+10#Y OR V=0 OR U=0 OR U=255 THEN GOSUB 7350
7300 HIT=#RND*532581:IF HIT=# THEN GOSUB 7350:GOSUB 7500
7310 IF START=# THEN GOTO 7020
7320 SOUND 3,V,10,F
7330 POKE #RAME+288#V,48:POKE 53254,U
7340 GOTO 7020
7349 REM **DESTROYER MISSILE END**
7350 FIRE=@START=@:POKE 53254,0:POKE #RAME+288#V,0:SOUND 2,0,0,0
7355 FIRE 77,0
7360 GOTO 7020
7449 REM **CLEAR HELICOPTER**
7500 GOSUB 7600:R=3
7600 FOR A=1 TO 20:POKE 707,0:POKE 707,14:GOSUB 0,200,0,15:NEXT A
7610 SOUND 0,0,0,0:POKE 707,84:R=#0:POKE 53251,R
7620 #L=20:#HL=#HL-11#F #L=# THEN GOSUB 7350:GOSUB 7600:GOTO 8000
7630 GOSUB 7600
7699 REM **HELICOPTER MISSILE END **
7600 SOUND 2,0,0,0:POKE 53278,0:POKE 53255,0:POKE #RAME+287#R,0:R=#5
7620 IF #L=# THEN 7610
7630 RETURN
7799 REM **PRINT SCORE**
7800 POKE 752,1
7810 #TS=(#HITS*250)-(#DM*80)+(#DT*100)

```

5th  
ZX MICROFAIR  
EXHIBITION  
BY ARRIVAL ONLY AT 12.00PM

AUTOMATA Ltd. (C)  
85a Osborne Road  
Portsmouth PO5 3LR  
England



# PIMANIA

THE ADVENTURE GAME THAT'S FOR REAL! £6,000 PRIZE!

Will you be the first to locate the Golden Sandal of Pi in time and space, and be rewarded with the original? Exquisitely crafted by the winner of the De Beers Diamond International Award, from gold, diamond and the most precious of the earth's riches.

PIMANIA - where saxophones turn into hangliders, where music meets madness and where the Pi Man rules supreme! He'll talk with you, he'll befriended you, he'll betray you, he'll even do the Holey-Koley! Animated cartoon graphics! Full musical score! Spectacular colour and sound effects! Includes free hit single "Pimania", with vocals by Clair Sanchez and the Pi Man!

It could take you a week to play, it could take you a lifetime! PIMANIA, "the best evidence that computer gaming has come of age... an adventure enthusiast's dream!" (Computer & Video Games)

An investment at £10 (40K Spectrum) / £8 (16K ZX81)





```

7800 ? "SUBS DESTROYED "a1? HITs1? " HELICOPTERS "i1? HEL
7805 ? "SUBS HOME "i1? HOME1? " MISSILES "i1? MISL
7810 ? "DESTROYERS SUNK "a1? DST1? " POINTS "i1? PTS
7870 RETURN
8000 RESTORE
8002 POKE 53277,0:POKE 53248,0:POKE 53249,0:POKE 53250,0:POKE 53251,0
8005 GRAPHICS 2:16
8010 ? a1 " i1? a1 " i1? a1 " THE END:i1? a1 " "
8015 FOR a=1 TO 200:NEXT a:GRAPHICS 2:16
8020 ? a1"YOU BANK "a1? B&DNT1? a1 " DESTROYERS"
8030 ? a1"YOU BLEW UP "a1? B&HITS? a1 " SUBMARINES"
8040 ? a1"AND SCORED "i1? B&PTS? a1 " POINTS"
8050 ? a1 "
8060 IF PTS<2000 THEN 8070
8064 IF PTS<8000 THEN 8080
8068 IF PTS<15000 THEN 8090
8073 ? a1"perfect!!! well done":GOTO 8075
8076 ? a1"perhaps you had the joystick upside down":GOTO 8075
8080 ? a1" not bad! try again":GOTO 8075
8090 ? a1 " very good"
8095 ? a1"PRESS START TO PLAY AGAIN"
8100 IF PEEK(53277)<16 THEN 8100
8110 GOTO 50
8800 GRAPHICS 2:16:POSITION 0,4? a1 " submarine number":POSITION 0,4? a1 "
BY HUGH DENHUR"
8810 POSITION 0,10? a1"press start to begin"
8850 IF PEEK(53277)<16 THEN 8850
8900 REM **ESTABLISH BACKGROUND**
8901 REM **NEW PLAYERS**
8905 GRAPHICS ?
8910 COLOR 1:SETCOLOR 0,0,18:SETCOLOR 4,9,10
8920 PLOT 35,50:DRAWTO 38,10:PLOT 33,11:DRAWTO 40,51:PLOT 32,12:DRAWTO 43,13
8930 PLOT 30,13:DRAWTO 41,13:PLOT 29,14:DRAWTO 45,14:PLOT 27,15:DRAWTO 48,15
8935 PLOT 28,16:DRAWTO 47,16:PLOT 29,17:DRAWTO 45,17:PLOT 31,18:DRAWTO 44,18
8940 PLOT 33,19:DRAWTO 42,19:PLOT 34,20:DRAWTO 41,20:PLOT 36,21:DRAWTO 40,21
8945 PLOT 37,22:DRAWTO 40,22:PLOT 35,23:DRAWTO 42,23:DRAWTO 41,24:DRAWTO 41,24:PLOT 2
2,5:DRAWTO 104,5
8950 PLOT 91,6:DRAWTO 107,6:PLOT 90,7:DRAWTO 111,7:PLOT 90,8:DRAWTO 113,8:PLOT 8
9,9:DRAWTO 114,9
8960 PLOT 90,10:DRAWTO 115,10:PLOT 90,11:DRAWTO 115,11:PLOT 91,12:DRAWTO 114,12
PLOT 92,13:DRAWTO 113,13
8970 PLOT 93,14:DRAWTO 112,14:PLOT 93,15:DRAWTO 111,15:PLOT 95,16:DRAWTO 109,16
PLOT 97,17:DRAWTO 107,17
8975 PLOT 92,20:DRAWTO 95,20:PLOT 90,21:DRAWTO 96,21:PLOT 88,22:DRAWTO 98,22:PLOT
T 67,23:DRAWTO 79,23
8980 PLOT 60,24:DRAWTO 78,24:PLOT 69,25:DRAWTO 76,25:PLOT 71,26:DRAWTO 75,26:PLOT
T 72,27:DRAWTO 74,27
8910 COLOR 3:SETCOLOR 2,8,4
9020 FOR Y=60 TO 79:PLOT 6,Y:DRAWTO 109,Y:NEXT Y
9030 FOR CT=1 TO 80:CT=INT(100/101+160)*PLOT 11,59:NEXT CT
9035 COLOR 2:SETCOLOR 1,12,10:FOR YY=50 TO 70:PLOT 130,YY:DRAWTO 109,YY:NEXT YY
9037 FOR YY=71 TO 79:PLOT 157,YY:DRAWTO 109,YY:NEXT YY:PLOT 0,79:DRAWTO 159,79
9040 YY=57:FOR XX=150 TO 159:L=RD(100)*2:YY=YY-L:PLOT 11,57:DRAWTO 11,YY:NEXT XX
9042 HEL=3*HEL+20:HITS=0:HOME=0:SET=0
9045 POKE 752,1: ? "PLEASE WAIT WHILE I BUILD YOUR"i1? " HELICOPTER"
9050 POKE 427,4
9055 POKE 509,46:POKE 707,80
9060 1+47:Y=516:O=D=180
9070 A=PEEK(126)-24:POKE 54279,A:PBAS=256+A
9080 FOR B=PBAS=384 TO PBAS=1024:POKE B,0:NEXT B:POKE 53277,3
9090 FOR B=PBAS=696+Y TO PBAS=702+Y:READ A:POKE B,A:NEXT B
9100 DATA 127,8,170,251,42,36,126
9110 POKE 53251,8
9120 FOR B=PBAS=736 TO PBAS=734:READ A:POKE B,A:NEXT B
9130 DATA 8,8,128,127,62
9140 POKE 53257,1:POKE 705,89:POKE 53247,8
9150 FOR B=PBAS=839 TO PBAS=843:READ A:POKE B,A:NEXT B
9160 DATA 16,58,253,127,62
9170 POKE 53258,1:POKE 53248,0:POKE 706,2
9175 GOSUB 7800
9180 GOTO 2100

```

Some nasty alien dam-busters are out to knock a big hole in your local dam and only you can stop them! The alien ships — code named Nibblers — can only be stopped by a well placed bomb from your fighter. If you miss the Nibbler will blast a bit out of the dam, weakening it. This is a game for one player adapted from Paul Jay's prize-winning program which won him the Com-

puter and Video Games Program of the Year competition.

The Nibbler appears on the right hand side of the screen and moves across towards the dam. To stop the Nibbler and launch your ship you hit the space bar. When you are directly above the nasty alien you press the space bar again to bomb.

If the computer has been expanded and so has extra memory you

could use the user-definable graphics capability of the Vic to improve the game. If so then the following routine should be added at the end of the program, and line 3 changed to:

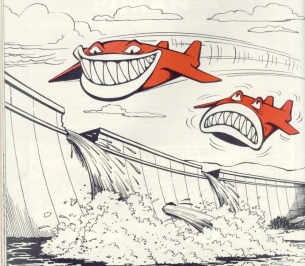
```
3 PRINT CHR$(14):
GOSUB 1000
1000 FOR I = 0 TO 1024
1010 POKE 9129 + I,
PEEK (32768 + I):
NEXT I
1020 FOR I = 0 TO 1024:
READ A
```

```
1030 IF A = 1 THEN 1070
1040 POKE 9144 + I, A:
NEXT
1050 DATA 58, 124, 230,
3, 3, 230, 124, 58
1060 DATA 24, 80, 102,
231, 168, 24, 95, 66
1070 POKE 38863, 253:
POKE 38866, PEEK
(38866) OR 128
```

1080 RETURN

If the above program is used then the pokes and geeks will have to be changed — 60 to 128 and 62 to 128.

# NIBBLERS



```

1  @RNDCHCNT
2  PRINT " " ; G=0;
3  PR INTCORP(14);
4  FOKR=36879;.237;FORK=36879;.85
5  FOKR=7000707793;FORKR=.224;HEXT
6  FOKR=77037091645STEP22;FORKR=.224;FORKR=21;.224;HEXT
7  FOKR=0;C4709185;FORKR=.224;HEXT
8  FOKR=1705
9  FOKR=36879;.289;FORK=36879;.6
10 FOKR=170590;HEXT
11 PRINT "#####";;FORK=170200;HEXT
12 PRINT " " ; FOKR=170200;HEXT
13 PRINT " " ; FOKR=170200;HEXT
14 PRINT " " ; FOKR=170200;HEXT
15 PRINT "L " ; FOKR=36879;.289;FORK=36879;.6;FORK=170200;HEXT
16 PRINT " " ; FOKR=170200;HEXT
17 PRINT " " ; FOKR=170200;HEXT
18 PRINT " " ; FOKR=170200;HEXT
19 PRINT "#####";;FORK=170200;HEXT
20 HEHT
21 FOKR=36879;.25;FORK=36879;.8
22 PRINT "HE OBJECT OF THE GAME"
23 PRINT "IS TO HIT THE -100,000"
24 PRINT "BEFORE THEY DESTROY" ;PRINT
25 PRINT "THE DOLL" ;PRINT
26 PRINT "THE CONTROLS ARE:" ;PRINT
27 PRINT "SPACE TO STOP ;DOLLER" ;PRINT ;PRINT "AND UNDO YOUR SHOP" ;PRINT
28 PRINT "AND SPACE WORDS TO ;WORDS ;PRINT "DROP YOUR DOLL" ;F YOU "
29 PRINT "NEED YOU LOSE A POINT" ;PRINT
30 PRINT "IT A KEY TO CONTINUE"
31 GET#179;" " ;HEHT150
32 FOKR=36879;.124
33 PRINT " "
34 FOKR=0;C4709185;FORKR=.224;FORKR=36729;.6;HEHT
35 REM#####;CONSTRUCT DOLL #####
36 WHILE FOKR=36879;.15
37 R=0
38 FOKR=77247091645STEP22
39 FOKR=36877;.228;FORK=1705;HEXT;FORK=36877;.6
40 FOKR=0;.224;FORKR=0;36729;.6
41 HEHT0
42 R=R+1;SPR2THEM188
43 FOKR=0701
44 FOKR=77247091645STEP22
45 FOKR=36877;.228;FORK=1705;HEXT;FORK=36877;.6
46 FOKR=0;.182;FORKR=0;36729;.6
47 HEHT0
48 HEHT0
49 PRINT "SCORE" ;G
50 TIR="#####";
51 PRINT "#####";;HEHT0
52 REM#####;#####DOLLER#####
53 R=INT(DIR(17415)+1);D=7744;R=" " ;F=0
54 FOKR=170910;D=D+22;HEXT
55 IF FOKR=0;C4709185;FORKR=0;10070200

```

**RUNS ON AN UNEXPANDED VIC-20**

**ADAPTED FROM C&V's  
PROGRAM OF THE YEAR**



# \* SUPER QUALITY SOFTWARE FROM LLAMASOFT! \*

(DESIGNER — JEFF MINTER)

J — JOYSTICK CONTROL

## WIC-20

ADVENTURE

A classic role space game! Zap the evil alien hordes before they can take—and destroy your homeworld! Features the most fun being enough and you get an extra edge in your spaceship with double firepower! Features: unexpanded VIC. **2000 J**

## SPACEMAN

Finally, true arcade quality on the unexpanded VIC! Blast down the expanded PROTONS meeting the evil, Swampy of the pits and conquer! The classic space, sound and graphics game you've been most excited for unexpanded VIC. **2000 J**

## BRIDES AFFAIR (SR, REFERENCE DESKTOP)

Your spreadsheet that offers the outstanding ability and features that set it apart. It's your financial ledger over the entire computer range and protect your files from damage by hostile VPIOS. Features: features of WIC controls include all other records, the final and grand totals. Entry in machine code. Features SR expansion and joystick. **2000 J** **500 P&P**

## TRAKS II (SR) — EXPANSION

This is the 4th volume based between the two former "Trakers" and the game "Clear". All a machine code, fast and fun with custom options, use in the expansion game. An 8 page expansion manual. Only \$5.99 + 50¢ P&P complete with instructions. **2000 J**

## RAJMAN (SR EXPANSION)

Another amazing game from Llamasoft! You are the main under attack by the deadly city as they fall from the sky. You must dodge the enemy's guns! The last mission repeat that will your favorite cities that they enter the pattern on screen you aimed, and make the attack. Fast action with great graphics on screen or reference. Includes manual, all 8 page expansion reference manual. Includes custom graphics in machine code. Only \$5.99 + 50¢ P&P complete with instructions. **2000 J**

## BRANDOUT DEFLEX

Unexpanded package a full feature version of the popular arcade featured plus a new conceptual computer game. Features that programs are on cassette only \$5.99.

## BUTTERED

As seen in the Commodore store and featured by the Data Terminal. It's your "Butter" Minter over the entire world and destroy the world. It's made of clay, use the custom graphics and place this graphics between screens. Only \$5.99 complete with instructions. **2000 J**

## GAZE GRAPHICS EDITOR

Create your own custom characters for the unexpanded VIC 20, up to 48 characters with features such as rotate and scale on cassette. **2000 J**

## 2000 J

## 2000 J

## 2000 J

## 2000 J

## SPECTRUM

GRAPHICS CREATOR (SR)

Get your graphics character and allow you to define not only the 19 user defined characters, but also allow you to change the entire VIC character set. Comes with 8000 characters for the unexpanded VIC and unexpanded VIC. Includes reference manual, 8 page expansion manual. Only \$5.99 + 50¢ P&P. **2000 J**

## 2000 J

For more info on the unexpanded VIC, see the VIC 20 or VIC 2000.

## 2000 J

Get the fulling reference as you create your graphics, create multiple on your video interface in the screen of display. Every screen through the rest of your expansion you'll see the screen contents will fall. An amazing game with fast action and great graphics. **2000 J** **500 P&P**

## 2000 J

Reference "Vic" the space character, under the screen into the game code, listing every screen of the screen from the screen of display around the screen. Start with your training manual for the VIC 2000. Only \$5.99 + 50¢ P&P. **2000 J**

## AT&T 280-100

SOFTWARE

Support, service and study see best game. Uses AT&T's unique features in the full unexpanded VIC character set. Includes manual, 8 page expansion manual. Includes 19 characters with features in VIC. **2000 J** **500 P&P**

## GRAPHICS CHARACTER CREATOR

Now you can define your own custom characters, plus, add graphics sets. Results can be displayed on screen in modes 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100. **2000 J** **500 P&P**

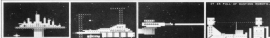
## 2000 J

CHARACTER (SR)

Get your graphics character and allow you to define not only the 19 user defined characters, but also allow you to change the entire VIC character set. Comes with 8000 characters for the unexpanded VIC and unexpanded VIC. Includes reference manual, 8 page expansion manual. Only \$5.99 + 50¢ P&P. **2000 J**



Please add 50¢ P&P with all orders



## And now for the big picture.

**TRADER** A trilogy of 14K programmes that combine to give an epic 48K graphic adventure. As a galactic trader, you deal with some very bizarre customers indeed. Will you live to tell the tale? **2000 J** £10.50 VIC20 £14.50 (paper or disc)

**SUBSPACE STRIKER** Our top selling, big screen graphic game. With your deadly Armatex torpedo, you unleash havoc in the Federation space lanes and try to claw back to the safety of safe-space. **2000 J** £5.50 VIC20 £9.50 14K

**STARQUEST** A voyage of discovery and adventure in the cosmos. With the help of your onboard computer, you seek a habitable planet, avoid the perils of deep-space. **2000 J** £5.50 VIC20 £9.50 14K

**ENCOUNTER** Would you know what to do if you encountered extraterrestrial beings? In this adventure, you are snatched off the Earth and the space invaders play you! **2000 J** £5.50 VIC20 £9.50 14K

**ZOR** Battle of the robots. Fight for survival in this action-packed strategy game. Megajoules of destructive energy in a futuristic duel. **2000 J** £5.50 VIC20 £9.50 14K

**PIXEL POWER** At last it is easy to create your own custom-characters on the VIC, plus expanded VIC20. A graphics workshop packed with useful features like Create, Amend, Save, View/Get. £9.50. References the pixels that other programmes can't reach. (See Pixel Power in action in Trader and Subspace Striker)

**HARVESTER** Keep your reward in the Biospace tests around the planet Delta. A cut-throat strategy game for 2 to 4 players for the unexpanded VIC20. £4.50

**BRAINSTORM** The telepathic emissions of the friendly Florio can wreck a human brain. Can you get our three space explorers across a river of nasty goo without blowing their minds. Unexpanded VIC20. £4.50

**GUITARPIX 1** For the VIC20 owner who wants to play the guitar. The first of a series that shows how to tune the guitar and demonstrates some elementary chords. Unexpanded VIC20. £4.50

Send SAE for more details.

# PIXEL

Pixel Productions, 29 Ripley Close, London SW14 2NF

```

224 IF PEEK (D) = 224 THEN GOTO 225
225 POKE 36676, 15 : POKE 36684, 11 : POKE 36677, 226 : FOR N = 1 TO 40 NEXT N : POKE 36677, 8 : POKE 3
2
226 POKE 36684, 12 : GOTO 227
227 POKE 36685, 58 : POKE 36720, 8
228 IF PEEK = " " THEN H4000
229 GETIN : IF PEEK = " " THEN H4000
400 D = 1
401 POKE 36676, 15 : POKE 36676, 140 : FOR N = 1 TO 20 NEXT N : POKE 36676, 8
410 POKE 36720, 8
420 POKE 36720, 32 : GOTO 229
424 REPEAT *****
430 POKE 7762107720
440 POKE 36720, 32 : POKE 36720, 8
445 POKE 36676, 15 : POKE 36676, 226 : FOR N = 1 TO 5 NEXT N : POKE 36676, 8
450 GETIN : IF PEEK = " " THEN H4000
470 IF PEEK = 1 TO 20 THEN NEXT N
480 POKE 36720, 32 : NEXT N
491 GOTO 229
494 REPEAT *****
500 L = 300
491 POKE 36720 + 22708 + 404512720
495 IF PEEK = 7762107720
496 POKE 36676, 8 : L = L - 1 : POKE 36676, L
500 POKE 36720, 40 : POKE 36720, 8
505 IF PEEK (D) = 224 THEN GOTO 510 : GOTO 229
510 D = 8
512 IF PEEK (D) = 44 THEN 224 THEN POKE 36676, 8 : POKE 36720, 32 : D = D - 1 : GOTO 229
520 FOR N = 1 TO 30 NEXT N : POKE 36720, 32
530 NEXT N
540 POKE 36720, 32 : GOTO 229
550 POKE 36676, 8 : POKE 36720, 32 : POKE 36720, 32
551 PRINT "*****"
552 POKE 36677, 229
553 POKE 153008127 - 1
554 POKE 36676, 8
555 IF PEEK = 1 THEN POKE 36685, 37
556 POKE 36720, 32 : POKE 36720, 32 : POKE 36685, 39
557 FOR N = 1 TO 30 NEXT N : POKE 36685, 39
558 POKE 36677, 8 : FOR N = 1 TO 5 NEXT N : POKE 36685, 39
559 POKE 7762107720
559 POKE 36720, 42 : POKE 36720, 8 : POKE 36676, 15 : POKE 36676, 226 : FOR N = 1 TO 5 NEXT N : POKE 36676,
8
571 FOR N = 1 TO 40 NEXT N : POKE 36720, 32
575 NEXT N
576 D = 1 : POKE 36685, 39 : GOTO 229
580 GOTO 229
590 FOR I = 801 : POKE 36720 + 2, 224 : POKE 36720 + 2, 36720, 6 : NEXT I : PRINT CHR (142) : POKE 36720 + 2, 229 : POKE 36720 + 2, 4
594 POKE 36676, 4 : POKE 36677, 100
595 FOR I = 24 TO 31 : GOTO 600 : POKE 36720 + 2, 224 : POKE 36720 + 4, 8 : NEXT I
599 POKE 36685, 39 : GOTO 600
600 POKE 36720 + 2, 224 : POKE 36720 + 4, 8
610 NEXT I
620 PRINT CHR (142) : "*****" : GOTO 600 : PRINT
630 PRINT "*****" : GOTO 600 : PRINT
640 PRINT "*****" : GOTO 600 : PRINT
644 PRINT "*****" : GOTO 600 : PRINT
645 PRINT "*****" : GOTO 600 : PRINT
647 PRINT "*****" : GOTO 600 : PRINT
650 PRINT "*****" : GOTO 600 : PRINT
655 POKE 36677, 8
658 GETIN
670 IF PEEK = 3 THEN PRINT " " : GOTO 600
680 IF PEEK = 7 THEN GOTO 600
700 PRINT " "
710 PRINT CHR (142) : POKE 36685, 8
720 END

```

```

10 REM DRAGON'S TEETH BY C. GORDON
20 GOSUB 330
30 BS=BS+(JOYSTK(3)-28 AND BS-0)-(JOYSTK(3)-80 AND BS-37)
   PRINT@410-BS,BS;RETURN
40 GOSUB 30
50 TP=SP=80;IF TP=180 THEN 120 ELSE IF PEEL(TP)=108 THEN PORE SP,
   120 PORE TP,120;SP=TP;GOSUB 20;GOTO 40
60 GOSUB 30
70 IF PEEL(TP)=340 THEN BS=BS-2;GOTO 40
80 IF PEEL(TP)=140 THEN BS=BS-32+(BS-32)-(BS-32);IF SC=MX=60 THEN
   MX=SC;GOSUB 330;GOTO 40 ELSE GOTO 40
90 IF PEEL(TP)=140 AND PEEL(TP)=330 THEN PORE TP,108;SC=SC
   +1;PRINT@440;"",PRINT USING"####"SC;SOUND
   180,180-32*(ABS(30)-21)-(ABS(30)-30);GOTO 40
100 IF PEEL(TP)=250 THEN BS=BS-1;BS-2;BS-32;2;180;32;2;180;32;GOTO 40
110 IF PEEL(TP)=250 THEN BS=BS-2;GOTO 40
120 SOUND 1,40;PORE SP,120;BL=BL-1;IF BL=0 THEN 370 ELSE
   PRINT@500;"",PRINT USING"#####"BL
130 PRINT@410;STRNG(32,120);
140 GOTO 180
150 CLR@CLEAR200;PRINT@EL;STRNG(32,250);FOR I=0 TO 400 STEP 32
   PRINT@L;CHR(340);PRINT@I-1;CHR(250);NEXT I
160 GOSUB 330
170 SC=0;BL=0
180 SP=127+RND(10);SC=32
190 PRINT@430;"SCORE";PRINT@560;"BALLS";PRINT@500;"";PRINT
   USING"#####"BL
200 BS=CHR(120)+STRNG(3,140)+CHR(120);SC=10;PRINT@470;BL,BS;
210 GOSUB 30;IF PEEL(5000)AND 1)=0 THEN 210
220 GOTO 40
230 CLS;PRINT@6;"DRAGON'S TEETH";PRINT@7;"YOU ARE CONFRONTED BY A
   HORRIBLE DRAGON AND YOU ARE ONLY EQUIPPED WITH A BAT AND FIVE
   BALLS."PRINT@8;"YOU WILL HAVE TO KNOCK OUT MOST OF ITS TEETH TO
   SURVIVE."
240 PRINT;PRINT;"HIT ANY KEY TO START"
250 IF INKEY=-1 THEN 250
260 GOTO 150
270 CLS
280 PRINT USING"YOUR FINAL SCORE IS#####"SC
290 P=0;PRINT@440;"WANT ANOTHER GAME?"
300 ZS=INKEY;IF ZS="" THEN 300
310 IF ZS="N" AND P=0 THEN PRINT@410;"DOES
   ANYONE ELSE?"P=1;GOTO 300 ELSE IF ZS="N"
   THEN CLS;END
320 GOTO 150
330 FOR I=80 TO 180 STEP 32;PRINT STRNG(30,
   (142+I-1)*2);NEXT I;RETURN
340 END

```

BY COLIN GORDON

RUNS ON A DRAGON IN 32K

# DRAGONS TEETH

If you thought fighting dragons was all about insights in armor, giant broadswords and maidens in distress you've got another think coming! All you really need to vanquish one of these fire-breathing reptiles is a rubber-rodent bat and five tennis-balls. Yes, really! And you don't even have to be John McEnroe to do it!

You are confronted by a particularly nasty-looking dragon with a set of razor-sharp teeth that make jaws look like Alton Deynes. All you have to do to survive is knock out the dragon's teeth using the bat and balls. Easy huh? This is a knockout with a difference — it bites back! Only brave dentists need apply ...



**sinclair**  
ZX Spectrum

# JOYSTIX !

FROM INTERCEPTOR  
MICRO'S

At last, the ultimate in ZX add-ons has arrived. The unique board has been designed to take Atari™ Type or Commodore™ Type joysticks. The board will take two joysticks which are software programmable using the joystick statement on your Spectrum. Just add a few simple lines to your program for true arcade action. Supplied with full instructions and demonstration cassette for only

**£18-95**



JOYSTIX SHOWN NOT INCLUDED

2 earth shattering games at fantastic prices

INTERCEPTOR  
SOFTWARE

TRADE ENQUIRIES WELCOME  
FOREIGN DISTRIBUTORS REQUIRED

#### FROG



#### SPACE SHOTS - INTERCEPTOR CODE

See your beloved alien shoot for his own pleasure. The intergalactic war commencing in the sky for the first time ever. Includes an soundtrack. — £3.95

#### THE GARDEN - INTERCEPTOR CODE

Use the more exciting, more diverse and more profitable 6502 implementation available to date. Includes an intergalactic soundtrack. The exciting program for the intergalactic war. — £3.95

#### FRISK

An intergalactic war of Frogger in the intergalactic war. With moving letters and planets all contained in one file. Includes an soundtrack and high resolution graphics. Includes an soundtrack. — £3.95

#### SPACE ATTACK - INTERCEPTOR CODE

See the world from an intergalactic war. The intergalactic war commencing in the sky for the first time ever. Includes an soundtrack and high resolution graphics. Includes an soundtrack. — £3.95

#### RUCKMAN



#### THE BOMBED

See your beloved alien shoot for his own pleasure. The intergalactic war commencing in the sky for the first time ever. Includes an soundtrack and high resolution graphics. Includes an soundtrack. — £3.95

#### RUCKMAN - INTERCEPTOR CODE

See the world from an intergalactic war. The intergalactic war commencing in the sky for the first time ever. Includes an soundtrack and high resolution graphics. Includes an soundtrack. — £3.95

#### SPACE 7 HOURS - INTERCEPTOR CODE

See your beloved alien shoot for his own pleasure. The intergalactic war commencing in the sky for the first time ever. Includes an soundtrack and high resolution graphics. Includes an soundtrack. — £3.95

#### THE BOMBED - INTERCEPTOR CODE

See your beloved alien shoot for his own pleasure. The intergalactic war commencing in the sky for the first time ever. Includes an soundtrack and high resolution graphics. Includes an soundtrack. — £3.95

#### THE BOMBED - INTERCEPTOR CODE

See your beloved alien shoot for his own pleasure. The intergalactic war commencing in the sky for the first time ever. Includes an soundtrack and high resolution graphics. Includes an soundtrack. — £3.95

#### VIC RESCUE



#### SPACE SHOTS

See your beloved alien shoot for his own pleasure. The intergalactic war commencing in the sky for the first time ever. Includes an soundtrack and high resolution graphics. Includes an soundtrack. — £3.95

INTERCEPTOR SOFTWARE

#### SPACE SHOTS

See your beloved alien shoot for his own pleasure. The intergalactic war commencing in the sky for the first time ever. Includes an soundtrack and high resolution graphics. Includes an soundtrack. — £3.95

## URGENTLY REQUIRED

Software and hardware projects for all micro computers. If you have written a program or designed an add-on then we will pay you cash or the highest royalties. So send in a demo now to Interceptor Micro's, Lindon House, The Green, Tadley, Hants.

™ is a registered trade mark of Atari Inc. ® is a registered trade mark of Commodore Business Machines.  
™ is a registered trade mark of Sinclair Research Ltd.

INTERCEPTOR  
MICRO'S

LINDON HOUSE, THE GREEN,  
TADLEY, HANTS.



Quantity	Item	Unit Price	Total
	Space Shots Spectrum	£3.95	
	Space Shots Vic 20	£3.95	
	Space Shots Atari	£3.95	
	Space Shots Commodore	£3.95	
	Space Shots Amstrad	£3.95	
	Space Shots Sinclair	£3.95	
	Space Shots Spectrum	£3.95	
	Space Shots Vic 20	£3.95	
	Space Shots Atari	£3.95	
	Space Shots Commodore	£3.95	
	Space Shots Amstrad	£3.95	
	Space Shots Sinclair	£3.95	
	<b>TOTAL</b>		<b>£39.50</b>

Send order to: Interceptor Micro's, Lindon House, The Green, Tadley, Hants









# CURSE OF THE



BY DAVID HEALEY

Somewhere in the Mountains of the Moon there lies an ancient Aztec temple. Inside this crumbling ruin there is a treasure so strange, so valuable and so cunningly hidden that bounty hunters from all over the world have been lured to take up the challenge to discover it.

But so far none have managed to unearth the treasure from its ancient resting place. They have all fallen victim to the Curse of the Aztec Tomb. There are many unmentionable dangers for the would-be treasure hunter to overcome once he steps into the misty depths of the tomb and the only clue to the treasure's hiding place is a curious

```

65 GOTO 9999
66 LET X=24
67 LET H=1
68 LET Y=12
69 LET S=0
70 LET S=10000
71 LET H1=0
72 LET S=0
73 PRINT 3000
74 PRINT AT B=1,C=1," "
75 IF S=0 THEN GOSUB 3000
76 PRINT AT B,C,"O"
77 LET S=S+25
78 LET C=C+1
79 IF C=10 THEN GOTO 90
80 IF Y=0 AND C=K THEN GOTO 90
81 PRINT AT Y,X," "
82 IF INKEY="A" THEN GOSUB 30
83 IF INKEY="B" THEN GOTO 300
84
85 GOTO 370
86 LET S=0
87 LET X=12
88 RETURN
89 LET S=S+1
90 PRINT AT B,C,"O"
91 PRINT AT Y,X," "
92 IF S=10000 THEN GOTO 3000
93 PRINT AT B,C,"O"
94 PRINT AT Y,X," "
95 GOTO 370
96 PRINT AT Y,X," "
97 IF S=10000 THEN GOTO 3000
98 PRINT AT Y,X," "
99 GOTO 370
100 PRINT AT B,C,"O"
101 PRINT AT Y,X," "
102 IF S=10000 THEN GOTO 3000
103 PRINT AT B,C,"O"
104 PRINT AT Y,X," "
105 GOTO 370
106 PRINT AT B,C,"O"
107 PRINT AT Y,X," "
108 IF S=10000 THEN GOTO 3000
109 PRINT AT B,C,"O"
110 PRINT AT Y,X," "
111 GOTO 370
112 PRINT AT B,C,"O"
113 PRINT AT Y,X," "
114 IF S=10000 THEN GOTO 3000
115 PRINT AT B,C,"O"
116 PRINT AT Y,X," "
117 GOTO 370
118 PRINT AT B,C,"O"
119 PRINT AT Y,X," "
120 IF S=10000 THEN GOTO 3000
121 PRINT AT B,C,"O"
122 PRINT AT Y,X," "
123 GOTO 370
124 PRINT AT B,C,"O"
125 PRINT AT Y,X," "
126 IF S=10000 THEN GOTO 3000
127 PRINT AT B,C,"O"
128 PRINT AT Y,X," "
129 GOTO 370
130 PRINT AT B,C,"O"
131 PRINT AT Y,X," "
132 IF S=10000 THEN GOTO 3000
133 PRINT AT B,C,"O"
134 PRINT AT Y,X," "
135 GOTO 370
136 PRINT AT B,C,"O"
137 PRINT AT Y,X," "
138 IF S=10000 THEN GOTO 3000
139 PRINT AT B,C,"O"
140 PRINT AT Y,X," "
141 GOTO 370
142 PRINT AT B,C,"O"
143 PRINT AT Y,X," "
144 IF S=10000 THEN GOTO 3000
145 PRINT AT B,C,"O"
146 PRINT AT Y,X," "
147 GOTO 370
148 PRINT AT B,C,"O"
149 PRINT AT Y,X," "
150 IF S=10000 THEN GOTO 3000
151 PRINT AT B,C,"O"
152 PRINT AT Y,X," "
153 GOTO 370
154 PRINT AT B,C,"O"
155 PRINT AT Y,X," "
156 IF S=10000 THEN GOTO 3000
157 PRINT AT B,C,"O"
158 PRINT AT Y,X," "
159 GOTO 370
160 PRINT AT B,C,"O"
161 PRINT AT Y,X," "
162 IF S=10000 THEN GOTO 3000
163 PRINT AT B,C,"O"
164 PRINT AT Y,X," "
165 GOTO 370
166 PRINT AT B,C,"O"
167 PRINT AT Y,X," "
168 IF S=10000 THEN GOTO 3000
169 PRINT AT B,C,"O"
170 PRINT AT Y,X," "
171 GOTO 370
172 PRINT AT B,C,"O"
173 PRINT AT Y,X," "
174 IF S=10000 THEN GOTO 3000
175 PRINT AT B,C,"O"
176 PRINT AT Y,X," "
177 GOTO 370
178 PRINT AT B,C,"O"
179 PRINT AT Y,X," "
180 IF S=10000 THEN GOTO 3000
181 PRINT AT B,C,"O"
182 PRINT AT Y,X," "
183 GOTO 370
184 PRINT AT B,C,"O"
185 PRINT AT Y,X," "
186 IF S=10000 THEN GOTO 3000
187 PRINT AT B,C,"O"
188 PRINT AT Y,X," "
189 GOTO 370
190 PRINT AT B,C,"O"
191 PRINT AT Y,X," "
192 IF S=10000 THEN GOTO 3000
193 PRINT AT B,C,"O"
194 PRINT AT Y,X," "
195 GOTO 370
196 PRINT AT B,C,"O"
197 PRINT AT Y,X," "
198 IF S=10000 THEN GOTO 3000
199 PRINT AT B,C,"O"
200 PRINT AT Y,X," "
201 GOTO 370
202 PRINT AT B,C,"O"
203 PRINT AT Y,X," "
204 IF S=10000 THEN GOTO 3000
205 PRINT AT B,C,"O"
206 PRINT AT Y,X," "
207 GOTO 370
208 PRINT AT B,C,"O"
209 PRINT AT Y,X," "
210 IF S=10000 THEN GOTO 3000
211 PRINT AT B,C,"O"
212 PRINT AT Y,X," "
213 GOTO 370
214 PRINT AT B,C,"O"
215 PRINT AT Y,X," "
216 IF S=10000 THEN GOTO 3000
217 PRINT AT B,C,"O"
218 PRINT AT Y,X," "
219 GOTO 370
220 PRINT AT B,C,"O"
221 PRINT AT Y,X," "
222 IF S=10000 THEN GOTO 3000
223 PRINT AT B,C,"O"
224 PRINT AT Y,X," "
225 GOTO 370
226 PRINT AT B,C,"O"
227 PRINT AT Y,X," "
228 IF S=10000 THEN GOTO 3000
229 PRINT AT B,C,"O"
230 PRINT AT Y,X," "
231 GOTO 370
232 PRINT AT B,C,"O"
233 PRINT AT Y,X," "
234 IF S=10000 THEN GOTO 3000
235 PRINT AT B,C,"O"
236 PRINT AT Y,X," "
237 GOTO 370
238 PRINT AT B,C,"O"
239 PRINT AT Y,X," "
240 IF S=10000 THEN GOTO 3000
241 PRINT AT B,C,"O"
242 PRINT AT Y,X," "
243 GOTO 370
244 PRINT AT B,C,"O"
245 PRINT AT Y,X," "
246 IF S=10000 THEN GOTO 3000
247 PRINT AT B,C,"O"
248 PRINT AT Y,X," "
249 GOTO 370
250 PRINT AT B,C,"O"
251 PRINT AT Y,X," "
252 IF S=10000 THEN GOTO 3000
253 PRINT AT B,C,"O"
254 PRINT AT Y,X," "
255 GOTO 370
256 PRINT AT B,C,"O"
257 PRINT AT Y,X," "
258 IF S=10000 THEN GOTO 3000
259 PRINT AT B,C,"O"
260 PRINT AT Y,X," "
261 GOTO 370
262 PRINT AT B,C,"O"
263 PRINT AT Y,X," "
264 IF S=10000 THEN GOTO 3000
265 PRINT AT B,C,"O"
266 PRINT AT Y,X," "
267 GOTO 370
268 PRINT AT B,C,"O"
269 PRINT AT Y,X," "
270 IF S=10000 THEN GOTO 3000
271 PRINT AT B,C,"O"
272 PRINT AT Y,X," "
273 GOTO 370
274 PRINT AT B,C,"O"
275 PRINT AT Y,X," "
276 IF S=10000 THEN GOTO 3000
277 PRINT AT B,C,"O"
278 PRINT AT Y,X," "
279 GOTO 370
280 PRINT AT B,C,"O"
281 PRINT AT Y,X," "
282 IF S=10000 THEN GOTO 3000
283 PRINT AT B,C,"O"
284 PRINT AT Y,X," "
285 GOTO 370
286 PRINT AT B,C,"O"
287 PRINT AT Y,X," "
288 IF S=10000 THEN GOTO 3000
289 PRINT AT B,C,"O"
290 PRINT AT Y,X," "
291 GOTO 370
292 PRINT AT B,C,"O"
293 PRINT AT Y,X," "
294 IF S=10000 THEN GOTO 3000
295 PRINT AT B,C,"O"
296 PRINT AT Y,X," "
297 GOTO 370
298 PRINT AT B,C,"O"
299 PRINT AT Y,X," "
300 IF S=10000 THEN GOTO 3000
301 PRINT AT B,C,"O"
302 PRINT AT Y,X," "
303 GOTO 370
304 PRINT AT B,C,"O"
305 PRINT AT Y,X," "
306 IF S=10000 THEN GOTO 3000
307 PRINT AT B,C,"O"
308 PRINT AT Y,X," "
309 GOTO 370
310 PRINT AT B,C,"O"
311 PRINT AT Y,X," "
312 IF S=10000 THEN GOTO 3000
313 PRINT AT B,C,"O"
314 PRINT AT Y,X," "
315 GOTO 370
316 PRINT AT B,C,"O"
317 PRINT AT Y,X," "
318 IF S=10000 THEN GOTO 3000
319 PRINT AT B,C,"O"
320 PRINT AT Y,X," "
321 GOTO 370
322 PRINT AT B,C,"O"
323 PRINT AT Y,X," "
324 IF S=10000 THEN GOTO 3000
325 PRINT AT B,C,"O"
326 PRINT AT Y,X," "
327 GOTO 370
328 PRINT AT B,C,"O"
329 PRINT AT Y,X," "
330 IF S=10000 THEN GOTO 3000
331 PRINT AT B,C,"O"
332 PRINT AT Y,X," "
333 GOTO 370
334 PRINT AT B,C,"O"
335 PRINT AT Y,X," "
336 IF S=10000 THEN GOTO 3000
337 PRINT AT B,C,"O"
338 PRINT AT Y,X," "
339 GOTO 370
340 PRINT AT B,C,"O"
341 PRINT AT Y,X," "
342 IF S=10000 THEN GOTO 3000
343 PRINT AT B,C,"O"
344 PRINT AT Y,X," "
345 GOTO 370
346 PRINT AT B,C,"O"
347 PRINT AT Y,X," "
348 IF S=10000 THEN GOTO 3000
349 PRINT AT B,C,"O"
350 PRINT AT Y,X," "
351 GOTO 370
352 PRINT AT B,C,"O"
353 PRINT AT Y,X," "
354 IF S=10000 THEN GOTO 3000
355 PRINT AT B,C,"O"
356 PRINT AT Y,X," "
357 GOTO 370
358 PRINT AT B,C,"O"
359 PRINT AT Y,X," "
360 IF S=10000 THEN GOTO 3000
361 PRINT AT B,C,"O"
362 PRINT AT Y,X," "
363 GOTO 370
364 PRINT AT B,C,"O"
365 PRINT AT Y,X," "
366 IF S=10000 THEN GOTO 3000
367 PRINT AT B,C,"O"
368 PRINT AT Y,X," "
369 GOTO 370
370 PRINT AT B,C,"O"
371 PRINT AT Y,X," "
372 IF S=10000 THEN GOTO 3000
373 PRINT AT B,C,"O"
374 PRINT AT Y,X," "
375 GOTO 370
376 PRINT AT B,C,"O"
377 PRINT AT Y,X," "
378 IF S=10000 THEN GOTO 3000
379 PRINT AT B,C,"O"
380 PRINT AT Y,X," "
381 GOTO 370
382 PRINT AT B,C,"O"
383 PRINT AT Y,X," "
384 IF S=10000 THEN GOTO 3000
385 PRINT AT B,C,"O"
386 PRINT AT Y,X," "
387 GOTO 370
388 PRINT AT B,C,"O"
389 PRINT AT Y,X," "
390 IF S=10000 THEN GOTO 3000
391 PRINT AT B,C,"O"
392 PRINT AT Y,X," "
393 GOTO 370
394 PRINT AT B,C,"O"
395 PRINT AT Y,X," "
396 IF S=10000 THEN GOTO 3000
397 PRINT AT B,C,"O"
398 PRINT AT Y,X," "
399 GOTO 370
400 PRINT AT B,C,"O"
401 PRINT AT Y,X," "
402 IF S=10000 THEN GOTO 3000
403 PRINT AT B,C,"O"
404 PRINT AT Y,X," "
405 GOTO 370
406 PRINT AT B,C,"O"
407 PRINT AT Y,X," "
408 IF S=10000 THEN GOTO 3000
409 PRINT AT B,C,"O"
410 PRINT AT Y,X," "
411 GOTO 370
412 PRINT AT B,C,"O"
413 PRINT AT Y,X," "
414 IF S=10000 THEN GOTO 3000
415 PRINT AT B,C,"O"
416 PRINT AT Y,X," "
417 GOTO 370
418 PRINT AT B,C,"O"
419 PRINT AT Y,X," "
420 IF S=10000 THEN GOTO 3000
421 PRINT AT B,C,"O"
422 PRINT AT Y,X," "
423 GOTO 370
424 PRINT AT B,C,"O"
425 PRINT AT Y,X," "
426 IF S=10000 THEN GOTO 3000
427 PRINT AT B,C,"O"
428 PRINT AT Y,X," "
429 GOTO 370
430 PRINT AT B,C,"O"
431 PRINT AT Y,X," "
432 IF S=10000 THEN GOTO 3000
433 PRINT AT B,C,"O"
434 PRINT AT Y,X," "
435 GOTO 370
436 PRINT AT B,C,"O"
437 PRINT AT Y,X," "
438 IF S=10000 THEN GOTO 3000
439 PRINT AT B,C,"O"
440 PRINT AT Y,X," "
441 GOTO 370
442 PRINT AT B,C,"O"
443 PRINT AT Y,X," "
444 IF S=10000 THEN GOTO 3000
445 PRINT AT B,C,"O"
446 PRINT AT Y,X," "
447 GOTO 370
448 PRINT AT B,C,"O"
449 PRINT AT Y,X," "
450 IF S=10000 THEN GOTO 3000
451 PRINT AT B,C,"O"
452 PRINT AT Y,X," "
453 GOTO 370
454 PRINT AT B,C,"O"
455 PRINT AT Y,X," "
456 IF S=10000 THEN GOTO 3000
457 PRINT AT B,C,"O"
458 PRINT AT Y,X," "
459 GOTO 370
460 PRINT AT B,C,"O"
461 PRINT AT Y,X," "
462 IF S=10000 THEN GOTO 3000
463 PRINT AT B,C,"O"
464 PRINT AT Y,X," "
465 GOTO 370
466 PRINT AT B,C,"O"
467 PRINT AT Y,X," "
468 IF S=10000 THEN GOTO 3000
469 PRINT AT B,C,"O"
470 PRINT AT Y,X," "
471 GOTO 370
472 PRINT AT B,C,"O"
473 PRINT AT Y,X," "
474 IF S=10000 THEN GOTO 3000
475 PRINT AT B,C,"O"
476 PRINT AT Y,X," "
477 GOTO 370
478 PRINT AT B,C,"O"
479 PRINT AT Y,X," "
480 IF S=10000 THEN GOTO 3000
481 PRINT AT B,C,"O"
482 PRINT AT Y,X," "
483 GOTO 370
484 PRINT AT B,C,"O"
485 PRINT AT Y,X," "
486 IF S=10000 THEN GOTO 3000
487 PRINT AT B,C,"O"
488 PRINT AT Y,X," "
489 GOTO 370
490 PRINT AT B,C,"O"
491 PRINT AT Y,X," "
492 IF S=10000 THEN GOTO 3000
493 PRINT AT B,C,"O"
494 PRINT AT Y,X," "
495 GOTO 370
496 PRINT AT B,C,"O"
497 PRINT AT Y,X," "
498 IF S=10000 THEN GOTO 3000
499 PRINT AT B,C,"O"
500 PRINT AT Y,X," "
501 GOTO 370
502 PRINT AT B,C,"O"
503 PRINT AT Y,X," "
504 IF S=10000 THEN GOTO 3000
505 PRINT AT B,C,"O"
506 PRINT AT Y,X," "
507 GOTO 370
508 PRINT AT B,C,"O"
509 PRINT AT Y,X," "
510 IF S=10000 THEN GOTO 3000
511 PRINT AT B,C,"O"
512 PRINT AT Y,X," "
513 GOTO 370
514 PRINT AT B,C,"O"
515 PRINT AT Y,X," "
516 IF S=10000 THEN GOTO 3000
517 PRINT AT B,C,"O"
518 PRINT AT Y,X," "
519 GOTO 370
520 PRINT AT B,C,"O"
521 PRINT AT Y,X," "
522 IF S=10000 THEN GOTO 3000
523 PRINT AT B,C,"O"
524 PRINT AT Y,X," "
525 GOTO 370
526 PRINT AT B,C,"O"
527 PRINT AT Y,X," "
528 IF S=10000 THEN GOTO 3000
529 PRINT AT B,C,"O"
530 PRINT AT Y,X," "
531 GOTO 370
532 PRINT AT B,C,"O"
533 PRINT AT Y,X," "
534 IF S=10000 THEN GOTO 3000
535 PRINT AT B,C,"O"
536 PRINT AT Y,X," "
537 GOTO 370
538 PRINT AT B,C,"O"
539 PRINT AT Y,X," "
540 IF S=10000 THEN GOTO 3000
541 PRINT AT B,C,"O"
542 PRINT AT Y,X," "
543 GOTO 370
544 PRINT AT B,C,"O"
545 PRINT AT Y,X," "
546 IF S=10000 THEN GOTO 3000
547 PRINT AT B,C,"O"
548 PRINT AT Y,X," "
549 GOTO 370
550 PRINT AT B,C,"O"
551 PRINT AT Y,X," "
552 IF S=10000 THEN GOTO 3000
553 PRINT AT B,C,"O"
554 PRINT AT Y,X," "
555 GOTO 370
556 PRINT AT B,C,"O"
557 PRINT AT Y,X," "
558 IF S=10000 THEN GOTO 3000
559 PRINT AT B,C,"O"
560 PRINT AT Y,X," "
561 GOTO 370
562 PRINT AT B,C,"O"
563 PRINT AT Y,X," "
564 IF S=10000 THEN GOTO 3000
565 PRINT AT B,C,"O"
566 PRINT AT Y,X," "
567 GOTO 370
568 PRINT AT B,C,"O"
569 PRINT AT Y,X," "
570 IF S=10000 THEN GOTO 3000
571 PRINT AT B,C,"O"
572 PRINT AT Y,X," "
573 GOTO 370
574 PRINT AT B,C,"O"
575 PRINT AT Y,X," "
576 IF S=10000 THEN GOTO 3000
577 PRINT AT B,C,"O"
578 PRINT AT Y,X," "
579 GOTO 370
580 PRINT AT B,C,"O"
581 PRINT AT Y,X," "
582 IF S=10000 THEN GOTO 3000
583 PRINT AT B,C,"O"
584 PRINT AT Y,X," "
585 GOTO 370
586 PRINT AT B,C,"O"
587 PRINT AT Y,X," "
588 IF S=10000 THEN GOTO 3000
589 PRINT AT B,C,"O"
590 PRINT AT Y,X," "
591 GOTO 370
592 PRINT AT B,C,"O"
593 PRINT AT Y,X," "
594 IF S=10000 THEN GOTO 3000
595 PRINT AT B,C,"O"
596 PRINT AT Y,X," "
597 GOTO 370
598 PRINT AT B,C,"O"
599 PRINT AT Y,X," "
599 GOTO 9999

```

Illustration: Robert Healey



# AZTEC TOMB



RUNS ON A Z801 IN 16K

Aztec symbol — which looks strangely like a modern dollar sign. But you'll have to struggle to even find that . . .

This is an adventure game based almost entirely on graphics and you have to explore the scene presented to you on the screen. The only controls you have are the 'I' key which is the walk command and the 'O' key which can be used to make your explorer, represented by a plus sign, jump over any obstacles.

You start the game at the base of the mountain and the entrance to the tomb is on the far side. Once you are at the base of the mountain there is no turning back . . .

```

.1. . . . AT 11.2:
8888 PRINT AT 10.0: " " AT 11
.1.
8888 PRINT AT 10.0: " "
AT 11.1:
8888 PRINT AT 10.0: " "
8888 GOTO 8888
8888 IF U=0 THEN GOTO 4888
8888 LET U=0
8888 LET H=1
8888 PRINT AT 10.0: " " AT 11.1:
8888 PRINT AT 10.0: " " AT 11.1:
8888 PRINT AT 9.0: " " AT 10.1:
8888 PRINT AT 9.0: " " AT 10.1:
8888 PRINT AT 9.1: " " AT 10.1:
8888 AT 11.2:
8888 PRINT AT 9.1: " " AT 10.1:
8888 AT 11.2:
8888 PRINT AT 9.0: " " AT 10.1:
8888 AT 11.2:
8888 PRINT AT 9.0: " " AT 10.3:
8888 IF H=1 AND H1=1 THEN GOTO 5
8888 GOTO 8888
8888 LET H1=1
8888 PRINT AT Y,X: " "
8888 LET S=0+100
8888 PRINT AT Y,X: " "
8888 IF H=1 THEN GOTO 8848
8888 IF INT (RND*(S)-1) THEN GOTO
8888 LET
8888 PRINT AT 9.2: " "
8888 GOSUB 7388
8888 PRINT AT 10.2: " "
8888 GOSUB 7388
8888 GOSUB 7388
8888 GOSUB 7388
8888 GOSUB 7388
8888 PRINT AT 11.2: " "
8888 GOSUB 7388
8888 PRINT AT 11.2: " "
8888 GOTO 7388
8888 RETURN
7312 RETURN
7328 LET S=S-200
7348 PRINT " AN INTERESTING FE
7378 PRINT "AZTEC ARCHITECTURE I
7388 PRINT "THE DOOR"
7398 PRINT "LITTLE CEILINGS THAT
7408 PRINT "THEMSELVES GO ON T

```



## OUT NOW— Software for your BBC Computer

Make the most of your BBC Microcomputer with this exciting new range of BBC software packs. Featuring colour, sound, movement and superb graphics, they cover a wide range of applications — from painting, drawing and home finance to sophisticated video games. Two of the packs include programs demonstrated in *The Computer Programs* on BBC tv.

Each of these high-quality software packages contains a pre-recorded program cassette and a comprehensive handbook.

Home Finance • Early Learning  
Fun Games • Games of Strategy  
Painting • Drawing • Music

The Computer Programs Vol. 1  
The Computer Programs Vol. 2

Price £10.00 (inc. VAT) each

ON SALE  
WHERE YOU  
SEE THIS  
SIGN



THE REAL  
SOFTWARE FOR  
YOUR BBC  
COMPUTER

Published by British Broadcasting Corporation

# TRS-80 SOFTWARE

## DOUBLE AGENT

(3-D MIC Graphics Adventure. With sound)

£12.95

Your mission is to steal the secret plans. As a master of disguise you must choose one very carefully before entering the enemy H.Q. Don't rush, don't dawdle, for either will raise suspicion. If challenged you may be able to bluff, flee or fight. You may also be taken to the cells where your disguise will help, won't it?

BUY THE TWO PROGRAMS  
**DOUBLE AGENT &  
EXTERMINATOR**  
for **£19.95**

and get a FREE copy of **MOONBASE RESCUE** (also £3.95)  
This offer valid until 31st January 1983

## THE EXTERMINATOR

(Fast action MIC arcade style game)

£7.95

### Stage 1

... Kill the birds. Your ship has 8 directions of fire. Remember they like their eggs. They have a helper ... watch out!

### Stage 2

... Now the birds have gone, it will be easy. All you do is pick them off the ground and return them to the 'Safe zone' for elimination. Watch ... what was that. Look out!! It's two robo... AGGGGGH!

## ALGRAY SOFTWARE

Please put me on your mailing list.

Name .....

Address .....

Town/City .....

Machine ..... Memory ..... Disks .....

Signed .....

**ALGRAY**  
FREEMONT ALGRAY

Algray House, 35 Broadway Street,  
Barnsley, South Yorkshire.



```

7400 PRINT "UNEXPECTEDLY ENLARGED
7405
7410 PRINT "ESPECIALLY WHEN THEY
7415 GO ONLY
7420 PRINT "YARDS AWAY FROM THE
7425 DUN
7430 PRINT "TREASURES OF THE INN
7435 GO TO 1
7440 PRINT
7450 PRINT "YOU SCORED "J
7455 PRINT
7460 PRINT "PRESS N/L TO RE-STAR
7465
7470 IF INKEY$="" THEN GOTO 7475
7475 CLS
7480 GOTO 50
7485 PRINT AT 9,8,"B"
7490 LET S=9
7495 IF S=9 THEN GOTO 7500
7500 IF INKEY$="9" THEN GOTO 7505
7505
7510 GOTO 7515
7515 IF INT (RND*8)+4 THEN GOTO
7520
7525 LET C=C+1
7530 LET S=S-50
7535 LET Y=Y-1
7540 PRINT AT Y+1,X," "AT Y,X;"
+
7545 LET Y=Y+1
7550 PRINT AT Y-1,X," "AT Y,X;"
+
7555 GOTO 7510
7560 LET Y=Y-1
7565 PRINT AT Y+2,X," "AT Y,X;"
+
7570 LET Y=Y+2
7575 PRINT AT Y-2,X," "AT Y,X;"
+
7580 PRINT AT 9,8,"CONGRATULATED
7585 YOU HAVE FOUND
7590 PRINT "THE ACTED TREASURE A
7595 500000!"
7600 GO TO 9=500000
7605 GO TO 5
7610 PRINT AT 11,10," "
7615 PRINT AT 10,11," "
7620 PRINT AT 11,11,"++":AT 11,1
5," "AT 11,10," "
7625 PRINT AT 10,11,"++":AT 10,1
5," "AT 10,10," "
7630 GOTO 7575
7635 FOR J=1 TO 30
7640 NEXT J
7645 CLS
7650 PRINT " YOU HAVE BEEN BIT
7655 BY A
7660 PRINT "DREADY KING COBRA. H
7665 EAVEN YOU
7670 PRINT "CAN DO ABOUT THAT. Y
7675 OU FORGET TO
7680 PRINT "BRING SOMEONE TO SAC
7685 R OUT THE
7690 PRINT "POISON."
7695 GOTO 9310
7700 LET H=1
7705 GOTO 9320
7710 PRINT AT 3,8,"
7715
7720 PRINT "
7725 PRINT "
7730 PRINT "
7735 PRINT "
7740 PRINT "
7745 PRINT "
7750 PRINT "
7755 PRINT "
7760 PRINT "
7765 PRINT "
7770 PRINT "
7775 PRINT "
7780 PRINT "
7785 PRINT "
7790 PRINT "
7795 PRINT "
7800 PRINT "
7805 PRINT "
7810 PRINT "
7815 PRINT "
7820 PRINT "
7825 PRINT "
7830 PRINT "
7835 PRINT "
7840 PRINT "
7845 PRINT "
7850 PRINT "
7855 PRINT "
7860 PRINT "
7865 PRINT "
7870 PRINT "
7875 PRINT "
7880 PRINT "
7885 PRINT "
7890 PRINT "
7895 PRINT "
7900 PRINT "
7905 PRINT "
7910 PRINT "
7915 PRINT "
7920 PRINT "
7925 PRINT "
7930 PRINT "
7935 PRINT "
7940 PRINT "
7945 PRINT "
7950 PRINT "
7955 PRINT "
7960 PRINT "
7965 PRINT "
7970 PRINT "
7975 PRINT "
7980 PRINT "
7985 PRINT "
7990 PRINT "
7995 PRINT "
8000 PRINT "
8005 PRINT "
8010 PRINT "
8015 PRINT "
8020 PRINT "
8025 PRINT "
8030 PRINT "
8035 PRINT "
8040 PRINT "
8045 PRINT "
8050 PRINT "
8055 PRINT "
8060 PRINT "
8065 PRINT "
8070 PRINT "
8075 PRINT "
8080 PRINT "
8085 PRINT "
8090 PRINT "
8095 PRINT "
8100 PRINT "
8105 PRINT "
8110 PRINT "
8115 PRINT "
8120 PRINT "
8125 PRINT "
8130 PRINT "
8135 PRINT "
8140 PRINT "
8145 PRINT "
8150 PRINT "
8155 PRINT "
8160 PRINT "
8165 PRINT "
8170 PRINT "
8175 PRINT "
8180 PRINT "
8185 PRINT "
8190 PRINT "
8195 PRINT "
8200 PRINT "
8205 PRINT "
8210 PRINT "
8215 PRINT "
8220 PRINT "
8225 PRINT "
8230 PRINT "
8235 PRINT "
8240 PRINT "
8245 PRINT "
8250 PRINT "
8255 PRINT "
8260 PRINT "
8265 PRINT "
8270 PRINT "
8275 PRINT "
8280 PRINT "
8285 PRINT "
8290 PRINT "
8295 PRINT "
8300 PRINT "
8305 PRINT "
8310 PRINT "
8315 PRINT "
8320 PRINT "
8325 PRINT "
8330 PRINT "
8335 PRINT "
8340 PRINT "
8345 PRINT "
8350 PRINT "
8355 PRINT "
8360 PRINT "
8365 PRINT "
8370 PRINT "
8375 PRINT "
8380 PRINT "
8385 PRINT "
8390 PRINT "
8395 PRINT "
8400 PRINT "
8405 PRINT "
8410 PRINT "
8415 PRINT "
8420 PRINT "
8425 PRINT "
8430 PRINT "
8435 PRINT "
8440 PRINT "
8445 PRINT "
8450 PRINT "
8455 PRINT "
8460 PRINT "
8465 PRINT "
8470 PRINT "
8475 PRINT "
8480 PRINT "
8485 PRINT "
8490 PRINT "
8495 PRINT "
8500 PRINT "
8505 PRINT "
8510 PRINT "
8515 PRINT "
8520 PRINT "
8525 PRINT "
8530 PRINT "
8535 PRINT "
8540 PRINT "
8545 PRINT "
8550 PRINT "
8555 PRINT "
8560 PRINT "
8565 PRINT "
8570 PRINT "
8575 PRINT "
8580 PRINT "
8585 PRINT "
8590 PRINT "
8595 PRINT "
8600 PRINT "
8605 PRINT "
8610 PRINT "
8615 PRINT "
8620 PRINT "
8625 PRINT "
8630 PRINT "
8635 PRINT "
8640 PRINT "
8645 PRINT "
8650 PRINT "
8655 PRINT "
8660 PRINT "
8665 PRINT "
8670 PRINT "
8675 PRINT "
8680 PRINT "
8685 PRINT "
8690 PRINT "
8695 PRINT "
8700 PRINT "
8705 PRINT "
8710 PRINT "
8715 PRINT "
8720 PRINT "
8725 PRINT "
8730 PRINT "
8735 PRINT "
8740 PRINT "
8745 PRINT "
8750 PRINT "
8755 PRINT "
8760 PRINT "
8765 PRINT "
8770 PRINT "
8775 PRINT "
8780 PRINT "
8785 PRINT "
8790 PRINT "
8795 PRINT "
8800 PRINT "
8805 PRINT "
8810 PRINT "
8815 PRINT "
8820 PRINT "
8825 PRINT "
8830 PRINT "
8835 PRINT "
8840 PRINT "
8845 PRINT "
8850 PRINT "
8855 PRINT "
8860 PRINT "
8865 PRINT "
8870 PRINT "
8875 PRINT "
8880 PRINT "
8885 PRINT "
8890 PRINT "
8895 PRINT "
8900 PRINT "
8905 PRINT "
8910 PRINT "
8915 PRINT "
8920 PRINT "
8925 PRINT "
8930 PRINT "
8935 PRINT "
8940 PRINT "
8945 PRINT "
8950 PRINT "
8955 PRINT "
8960 PRINT "
8965 PRINT "
8970 PRINT "
8975 PRINT "
8980 PRINT "
8985 PRINT "
8990 PRINT "
8995 PRINT "
9000 PRINT "
9005 PRINT "
9010 PRINT "
9015 PRINT "
9020 PRINT "
9025 PRINT "
9030 PRINT "
9035 PRINT "
9040 PRINT "
9045 PRINT "
9050 PRINT "
9055 PRINT "
9060 PRINT "
9065 PRINT "
9070 PRINT "
9075 PRINT "
9080 PRINT "
9085 PRINT "
9090 PRINT "
9095 PRINT "
9100 PRINT "
9105 PRINT "
9110 PRINT "
9115 PRINT "
9120 PRINT "
9125 PRINT "
9130 PRINT "
9135 PRINT "
9140 PRINT "
9145 PRINT "
9150 PRINT "
9155 PRINT "
9160 PRINT "
9165 PRINT "
9170 PRINT "
9175 PRINT "
9180 PRINT "
9185 PRINT "
9190 PRINT "
9195 PRINT "
9200 PRINT "
9205 PRINT "
9210 PRINT "
9215 PRINT "
9220 PRINT "
9225 PRINT "
9230 PRINT "
9235 PRINT "
9240 PRINT "
9245 PRINT "
9250 PRINT "
9255 PRINT "
9260 PRINT "
9265 PRINT "
9270 PRINT "
9275 PRINT "
9280 PRINT "
9285 PRINT "
9290 PRINT "
9295 PRINT "
9300 PRINT "
9305 PRINT "
9310 PRINT "
9315 PRINT "
9320 PRINT "
9325 PRINT "
9330 PRINT "
9335 PRINT "
9340 PRINT "
9345 PRINT "
9350 PRINT "
9355 PRINT "
9360 PRINT "
9365 PRINT "
9370 PRINT "
9375 PRINT "
9380 PRINT "
9385 PRINT "
9390 PRINT "
9395 PRINT "
9400 PRINT "
9405 PRINT "
9410 PRINT "
9415 PRINT "
9420 PRINT "
9425 PRINT "
9430 PRINT "
9435 PRINT "
9440 PRINT "
9445 PRINT "
9450 PRINT "
9455 PRINT "
9460 PRINT "
9465 PRINT "
9470 PRINT "
9475 PRINT "
9480 PRINT "
9485 PRINT "
9490 PRINT "
9495 PRINT "
9500 PRINT "
9505 PRINT "
9510 PRINT "
9515 PRINT "
9520 PRINT "
9525 PRINT "
9530 PRINT "
9535 PRINT "
9540 PRINT "
9545 PRINT "
9550 PRINT "
9555 PRINT "
9560 PRINT "
9565 PRINT "
9570 PRINT "
9575 PRINT "
9580 PRINT "
9585 PRINT "
9590 PRINT "
9595 PRINT "
9600 PRINT "
9605 PRINT "
9610 PRINT "
9615 PRINT "
9620 PRINT "
9625 PRINT "
9630 PRINT "
9635 PRINT "
9640 PRINT "
9645 PRINT "
9650 PRINT "
9655 PRINT "
9660 PRINT "
9665 PRINT "
9670 PRINT "
9675 PRINT "
9680 PRINT "
9685 PRINT "
9690 PRINT "
9695 PRINT "
9700 PRINT "
9705 PRINT "
9710 PRINT "
9715 PRINT "
9720 PRINT "
9725 PRINT "
9730 PRINT "
9735 PRINT "
9740 PRINT "
9745 PRINT "
9750 PRINT "
9755 PRINT "
9760 PRINT "
9765 PRINT "
9770 PRINT "
9775 PRINT "
9780 PRINT "
9785 PRINT "
9790 PRINT "
9795 PRINT "
9800 PRINT "
9805 PRINT "
9810 PRINT "
9815 PRINT "
9820 PRINT "
9825 PRINT "
9830 PRINT "
9835 PRINT "
9840 PRINT "
9845 PRINT "
9850 PRINT "
9855 PRINT "
9860 PRINT "
9865 PRINT "
9870 PRINT "
9875 PRINT "
9880 PRINT "
9885 PRINT "
9890 PRINT "
9895 PRINT "
9900 PRINT "
9905 PRINT "
9910 PRINT "
9915 PRINT "
9920 PRINT "
9925 PRINT "
9930 PRINT "
9935 PRINT "
9940 PRINT "
9945 PRINT "
9950 PRINT "
9955 PRINT "
9960 PRINT "
9965 PRINT "
9970 PRINT "
9975 PRINT "
9980 PRINT "
9985 PRINT "
9990 PRINT "
9995 PRINT "

```

```

9150 PRINT "
9155 PRINT "
9160 PRINT "
9165 PRINT "
9170 PRINT "
9175 PRINT "
9180 PRINT "
9185 PRINT "
9190 PRINT "
9195 PRINT "
9200 PRINT "
9205 PRINT "
9210 PRINT "
9215 PRINT "
9220 PRINT "
9225 PRINT "
9230 PRINT "
9235 PRINT "
9240 PRINT "
9245 PRINT "
9250 PRINT "
9255 PRINT "
9260 PRINT "
9265 PRINT "
9270 PRINT "
9275 PRINT "
9280 PRINT "
9285 PRINT "
9290 PRINT "
9295 PRINT "
9300 PRINT "
9305 PRINT "
9310 PRINT "
9315 PRINT "
9320 PRINT "
9325 PRINT "
9330 PRINT "
9335 PRINT "
9340 PRINT "
9345 PRINT "
9350 PRINT "
9355 PRINT "
9360 PRINT "
9365 PRINT "
9370 PRINT "
9375 PRINT "
9380 PRINT "
9385 PRINT "
9390 PRINT "
9395 PRINT "
9400 PRINT "
9405 PRINT "
9410 PRINT "
9415 PRINT "
9420 PRINT "
9425 PRINT "
9430 PRINT "
9435 PRINT "
9440 PRINT "
9445 PRINT "
9450 PRINT "
9455 PRINT "
9460 PRINT "
9465 PRINT "
9470 PRINT "
9475 PRINT "
9480 PRINT "
9485 PRINT "
9490 PRINT "
9495 PRINT "
9500 PRINT "
9505 PRINT "
9510 PRINT "
9515 PRINT "
9520 PRINT "
9525 PRINT "
9530 PRINT "
9535 PRINT "
9540 PRINT "
9545 PRINT "
9550 PRINT "
9555 PRINT "
9560 PRINT "
9565 PRINT "
9570 PRINT "
9575 PRINT "
9580 PRINT "
9585 PRINT "
9590 PRINT "
9595 PRINT "
9600 PRINT "
9605 PRINT "
9610 PRINT "
9615 PRINT "
9620 PRINT "
9625 PRINT "
9630 PRINT "
9635 PRINT "
9640 PRINT "
9645 PRINT "
9650 PRINT "
9655 PRINT "
9660 PRINT "
9665 PRINT "
9670 PRINT "
9675 PRINT "
9680 PRINT "
9685 PRINT "
9690 PRINT "
9695 PRINT "
9700 PRINT "
9705 PRINT "
9710 PRINT "
9715 PRINT "
9720 PRINT "
9725 PRINT "
9730 PRINT "
9735 PRINT "
9740 PRINT "
9745 PRINT "
9750 PRINT "
9755 PRINT "
9760 PRINT "
9765 PRINT "
9770 PRINT "
9775 PRINT "
9780 PRINT "
9785 PRINT "
9790 PRINT "
9795 PRINT "
9800 PRINT "
9805 PRINT "
9810 PRINT "
9815 PRINT "
9820 PRINT "
9825 PRINT "
9830 PRINT "
9835 PRINT "
9840 PRINT "
9845 PRINT "
9850 PRINT "
9855 PRINT "
9860 PRINT "
9865 PRINT "
9870 PRINT "
9875 PRINT "
9880 PRINT "
9885 PRINT "
9890 PRINT "
9895 PRINT "
9900 PRINT "
9905 PRINT "
9910 PRINT "
9915 PRINT "
9920 PRINT "
9925 PRINT "
9930 PRINT "
9935 PRINT "
9940 PRINT "
9945 PRINT "
9950 PRINT "
9955 PRINT "
9960 PRINT "
9965 PRINT "
9970 PRINT "
9975 PRINT "
9980 PRINT "
9985 PRINT "
9990 PRINT "

```

Meanwhile back in space ... the long and winding tunnel faces our brave astronaut trapped deep in the heart of a very unfriendly planet.

You have to steer a ship through the tunnel avoiding outcrops of rock and deadly mines. To keep the

ship flying you must navigate through fuel gates which you'll find tucked away in the tunnel.

There is a high score feature built into the program and you can alter the width of the tunnel as you get more skillful

at navigating through the tortuous twists and turns. Control keys are 'd' for left and 'w' for right.

So now it's all up to you — are you a space-age arthful dodger?

RUNS ON A

3000 SERIES PET

IN BK

BY NEIL STEVENSON

# TUNNEL RUN

```

5 ***** TUNNEL RUN *****
6 ***** OCT. 1982 BY NEIL STEVENSON *****
10 PRINT "C":FOR=32767TO32897:POKEA,168:NEXT
20 FOR=32897TO32976:STEP48:POKEA,169:NEXT
30 FOR=32976TO33055:STEP-1:POKEA,168:NEXT
40 FOR=33055TO33134:STEP-48:POKEA,169:NEXT
50 PRINT "*****"
60 PRINT "*****"
70 PRINT "*****"
71 PRINT "*****"
72 PRINT "*****"
73 PRINT "*****"
74 PRINT "*****"
75 PRINT "*****"
76 PRINT "*****"
77 PRINT "*****"
78 GET#(0)=V:(R#):IF#<C3OR#>=1:THEN70
79 G=0:G=2
100 PRINT "C":G=32772:PRINT "*****"
110 R=32774:FOR=HTOH+(48*(12)/STEP-48:POKEA,168:NEXT
115 FOR=H+OSTOH+06-(48*(12)/STEP-48:POKEA,168:NEXT
120 POKEG,32:POKEH,168:POKEH+00,168:PRINT "":POKEG,22
130 IFPEEK(0)=40:G=32774:G=88
140 G=0:G=1
150 IFPEEK(151)=41:THEN#POKE32,G=0+1:GOTO240
160 IFPEEK(151)=42:THEN#POKE32,G=0-1:GOTO240
170 R=INT(RND(1)*8)>=1
175 IFR=1:RND(0.33328:THE#H=H-1:GOTO120
180 IFR=1:THE#H=H+1:GOTO120
190 IFR=2:RND(0.33367-60):THE#H=H+1:GOTO120
200 IFR=2:THE#H=H-1:GOTO120
210 IFR=3:THE#H=H+INT(RND(1)*60-3)+3:POKEH,91:
POKEH+1,64:POKEH+2,91:GOTO120
220 IFR=4:THE#POKEH+1,168:POKEH+2,168:POKEH+3,
168:GOTO120
230 IFR=5:THE#POKEH+00-1,168:POKEH+00-2,168:
POKEH+00-3,168:GOTO120
235 IFR=6:THE#POKEH+INT(RND(1)*60-3)+3,90:GOTO120

```



```

1 MODE1
2 PB=0
3 ENVELOPE1,1,-26,-26,-26,255,255,255,50,0,0,50,45,0
4 ENVELOPE2,1,1,1,1,10,10,50,100,15,0,0,100,0
10 PROCLIMIT
11 MODE1178=117802:8000:0:0:0
12 SOUND1,1,255,255
20 PRINTTAB10,210"DAVE FLIGHT"
30 UP=24DOWN=15
40 S=0:DFD25=0T020:PRINTTAB10,15:DOWN=250:INEXT
45 TIME=0
46 REPEAT
47 FORD1=0:T020:PRINTTAB10,15: " " :INEXT
48 UP=150:TIME=TIME+0
50 FDR1=S:OT020:PRINTTAB10,15:CHR1(255):INEXT
60 FDR1=S:DOWN:T020:PRINTTAB10,15:CHR1(255):INEXT
70 PRINTTAB10," " " "
80 D=1:NR1(10):IFDR1=0? AND S=1: THEN S=S-1
90 IFDR1=0? AND S=0: THEN S=S+1
100 J=NR1:NR1=C:DOWN:J=NR1
110 IF J=255 OR TIMES:1000: THEN S=0
120 IF J=255: "!" THEN TIME=C+SOUND1,1,100,20
130 IF NR1(10)=1 THEN PRINTTAB127,AND(DOWN-UP)+UP:CHR1(
AS1+NR1(10)): "!" :CHR1(255)
124 NR1=S+1:IFNR1=30 THEN PRINTTAB127,AND(DOWN-UP)+UP:CH
R1(255): "!" :CHR1(255): "Y S=0"
125 CALL STRAT
127 PRINTTAB10,5:CHR1(244):CHR1(245)
130 PRINTTAB10,220"TIME LEFT " :C0:STORE SIV 1000:" "
140 PRINTTAB10,220"DIST. TRAVELLED:" :FASFB-PB+1
150 UP=UP+50:DOWN=DOWN+50:TIME=TIME+1:IFDOWN=0 THEN DON
W=DOWN+50:END
160 IF UP=0 THEN UP=UP+50:END
170 IF UP(1)THENUP=1
175 IF DOWN=0 THEN DOWN=1
177 IF DOWN=UP+2 THEN DOWN=UP+4
180 UNTIL FALSE
2000 DEFPROCINIT
2010 DIM X 140
2020 FDR1=NR1=0T02 STER1
2030 PB=0
2040 +DEPT 9999 2120 STR HIMER=119, X
2050 +START LOS 90 2130 STR HIMER=150, X
2060 .99 LOS HIMER, X 2140 LOS HIMER=200, X
2070 STR HIMER=1, X 2150 STR HIMER=199, X
2080 LOS HIMER=40, X 2160 LOS HIMER=240, X
2090 STR HIMER=30, X 2170 STR HIMER=279, X
2100 LOS HIMER=80, X 2180 LOS HIMER=280, X
2110 STR HIMER=70, X 2190 STR HIMER=279, X
2120 LOS HIMER=120, X 2200 LOS HIMER=320, X
2210 STR HIMER=110, X 2220 STR HIMER=319, X
2230 LOS HIMER=420, X 2240 LOS HIMER=360, X
2250 STR HIMER=420, X 2260 STR HIMER=359, X
2270 LOS HIMER=480, X 2280 LOS HIMER=400, X
2290 STR HIMER=720, X 2290 LOS HIMER=450, X
2300 STR HIMER=710, X 2300 STR HIMER=479, X
2310 LOS HIMER=760, X 2310 LOS HIMER=480, X
2320 STR HIMER=750, X 2320 STR HIMER=479, X
2330 LOS HIMER=800, X 2330 LOS HIMER=520, X
2340 STR HIMER=790, X 2340 STR HIMER=519, X
2350 LOS HIMER=860, X 2350 LOS HIMER=560, X
2360 STR HIMER=850, X 2360 STR HIMER=559, X
2370 LOS 2370 STR HIMER=600, X
2380 STR 940 2380 STR HIMER=600, X
2390 LOS 0 2390 STR HIMER=650, X
2400 STR 99 2400 STR HIMER=699, X
2410 .9 STR 2410 STR HIMER=699, X
2420 +
2430 NEXT PARS
2440 EPOPROC
2000 PRINTTAB100,101"GAME OVER"
2001 PRINTTAB10,127:CHR1(267): "YOUR SCORE " :F4
2002 PRINTTAB10,127:CHR1(267): "4104 SCORE " :F4
2003 PRINTTAB10,140:CHR1(267): "4104 SCORE " :F4
2004 PRINTTAB10,140:CHR1(267): "4104 SCORE " :F4
2005 PRINTTAB10,140:CHR1(267): "4104 SCORE " :F4
2006 PRINTTAB10,140:CHR1(267): "4104 SCORE " :F4
2007 PRINTTAB10,140:CHR1(267): "4104 SCORE " :F4
2008 PRINTTAB10,140:CHR1(267): "4104 SCORE " :F4
2009 PRINTTAB10,140:CHR1(267): "4104 SCORE " :F4
2010 PRINTTAB10,140:CHR1(267): "4104 SCORE " :F4

```



# CAI

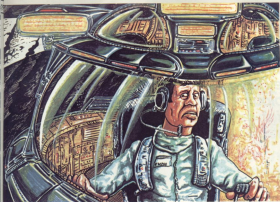
RAPS ON A BBC

MODEL A & B IN 16K

BY S. R. BLACKBURN

The year is 2094. All reserves of energy have been exhausted and the people of the Earth have had to resort to a new source of power — Eydiumium. This is an element twice as heavy as uranium and can only be found deep in the heart of Planet 1a. Every year a brave space pilot is sent to it to fly through the dangerous cave system and collect a supply of Eydiumium crystals — which, strangely, float weightless in the caverns —





# WE FLIGHT

before teleporting them to Earth or Mars.

This year you, as an ace pilot from the C&VG space fleet, have been chosen for the task. You have negotiated the caverns, collected the crystals and are making your way back to the surface.

Suddenly all the alarms that can go off in your ship do just that. Lights are flashing, bells ringing, and beepers beeping. The automatic navigation system cuts out, the power control system explodes in a mass of sparks, and every other system apart from life support also cuts out. Your ship is careering through the caverns at breakneck speed — and all

you can do is manoeuvre around the rocky outcrops and hope for the best!

Your ship only has enough fuel for 10 seconds more flight time. You can recharge your engines by flying through the floating patches of Elyctentum crystals but you must have quick reactions to steer your way into the crystals and avoid the very solid cavern walls. How long can you survive?

The ship is controlled using the 'R' key for up and 'Z' for down. The distance you have travelled and how much fuel you have left will be displayed at the bottom of the screen. Your fuel does not start run-

ning out until your score reaches 40.

The walls of the cave will never quite close up but long diagonal passageways are common. These may seem impossible to fly through but all the caverns are navigable. A score of over 1,000 puts you in the space ace class!

Variables

F%—distance travelled.

H%—high score.

Y%—counter for position of red stars.

L—used in delay loops.

X—vertical position of ship.

DOWN—position of cave floor.

UP—position of cave ceiling.

AS—used for input of movement.

# Sinclair ZX Spectr

**16K or 48K RAM...  
full-size moving-  
key keyboard...  
colour and sound...  
high-resolution  
graphics...  
From only  
£125!**

First, there was the world-beating Sinclair ZX80. The first personal computer for under £100.

Then, the ZX81. With up to 16K RAM available, and the ZX Printer (giving more power and more flexibility). Together, they've sold over 500,000 so far, to make Sinclair world-leaders in personal computing. And the ZX81 remains the ideal low-cost introduction to computing.

Now there's the ZX Spectrum! With up to 48K of RAM. A full-size moving-key keyboard. Vivid colour and sound. High-resolution graphics. And a low price that's unrivalled.

## Professional power— personal computer price!

The ZX Spectrum incorporates all the proven features of the ZX81. But its new 16K BASIC ROM dramatically increases your computing power.

You have access to a range of 8 colours for foreground, background and border, together with a sound generator and high-resolution graphics.

You have the facility to support separate data files.

You have a choice of storage capacities (governed by the amount of RAM): 16K of RAM (which you can upgrade later to 48K of RAM) or a massive 48K of RAM.

At the price of the Spectrum 16K, is an amazing £125! Even the popular 48K version costs only £175!

You may decide to begin with the 16K version. If so, you can still return it later for an upgrade. The cost? Around £80.

## Ready to use today, easy to expand tomorrow

Your ZX Spectrum comes with a mains adaptor and all the necessary leads to connect to most cassette recorders and TVs (colour or black and white).

Employing Sinclair BASIC (now used in over 500,000 computers worldwide) the ZX Spectrum comes complete with two manuals which together represent a detailed course in BASIC programming. Whether you're a beginner or a competent programmer, you'll find them both of immense help. Depending on your computer experience, you'll quickly be moving into the colourful world of ZX Spectrum professional-level computing.

There's no need to stop there. The ZX Printer—available now—is fully compatible with the ZX Spectrum. And later this year there will be Microdrives for massive amounts of extra on-line storage, plus an RS232C network interface board.



## Key features of the Sinclair ZX Spectrum

- Full colour - 8 colours each for foreground, background and border, plus flashing and brightness-intensity control.
- Sound - BEEP Command with variable pitch and duration.
- Massive RAM - 16K or 48K.
- Full-size moving-key keyboard - all keys at normal typewriter pitch, with repeat facility on each key.
- High-resolution - 256 dots horizontally x 192 vertically, each individually addressable for true high-resolution graphics.
- ASCII character set - with upper- and lower-case characters.
- Teletext-compatible - user software can generate 40 characters per line or other settings.
- High speed LOAD & SAVE - 16K in 100 seconds via cassette, with VERIFY & MERGE for programs and separate data files.
- Sinclair 16K extended BASIC - incorporating unique 'one-touch' keyword entry, syntax check, and report codes.

# rum



## The ZX Printer - available now

Designed to slaterly for use with the Sinclair ZX range of computers, the printer offers ZX Spectrum owners the full ASCII-character set—including lower-case characters and high-resolution graphics.

A special feature is COPY which prints out exactly what is on the whole TV screen without the need for further instructions. Printing speeds 50 characters per second, with 30 characters per line and 8 lines per vertical inch.

The ZX Printer connects to the rear of your ZX Spectrum. A roll of paper (66ft long and 4in wide) is supplied, along with full instructions. Further supplies of paper are available in packs of five rolls.



## The ZX Microdrive - coming soon

The new Microdrives, designed especially for the ZX Spectrum, are set to change the face of personal computing.

Each Microdrive is capable of holding up to 100K bytes using a single interchangeable microfloppy.

The transfer rate is 10K bytes per second, with average access time of 0.5 seconds. And you'll be able to connect up to 8 ZX Microdrives to your ZX Spectrum.

All the BASIC commands required for the Microdrives are included on the Spectrum.

A remarkable breakthrough at a remarkable price. The Microdrives are available later this year, for around £30.



## ZX Spectrum software on cassettes - available now

The first 21 software cassettes are now available directly from Sinclair. Produced by IC, and Prose, subjects include games, education, and business/household management. Subjects include Invasion...Flight Simulation...Chess...History...Inventions...MU-CALC...MU-3D...47 programs in all. There's something for everyone, and they all make full use of the Spectrum's colour, sound and graphics capabilities. You'll receive a detailed catalogue with your Spectrum.

## RS232/network interface board

This interface, available later this year, will enable you to connect your ZX Spectrum to a whole host of printers, terminals and other computers.

The potential is enormous. And the astonishingly low price of only £20 is possible only because the operating systems are already designed into the ROM.

# sinclair

Sinclair Research Ltd, Stanhope Road,  
Camberley, Surrey GU15 3PS.  
Tel: Camberley (0376) 685371.

## How to order your ZX Spectrum

BY PHONE - Access, Barclaycard or Trustcard holders can call 01-200-0200 for personal attention 24 hours a day, every day. BY FRIEDPOST - use the no-stamp needed coupon below. You can pay by cheque, postal order, Barclaycard, Access or Trustcard.

Access or Trustcard. EITHER WAY - please allow up to 28 days for delivery. And there's a 14-day money-back option, of course. We want you to be satisfied beyond doubt - and we have no doubt that you will be.

To: Sinclair Research, FREEPOST, Camberley, Surrey, GU15 3BP. Order

Qty	Item	Code	Item Price £	Total £
	Sinclair ZX Spectrum - 128K RAM version	100	125.00	
	Sinclair ZX Spectrum - 48K RAM version	101	175.00	
	Sinclair ZX Printer	27	58.95	
	Printer paper (pack of 5 rolls)	16	11.86	
	Postage and packing: orders under £100	29	2.99	
	orders over £100	29	4.95	
			Total £	

Please tick if you require a VAT receipt

I enclose a cheque/postal order payable to Sinclair Research Ltd for £

\*Please charge to my Access/Barclaycard/Trustcard account no

\*Please delete/complete as applicable

Signature

PLEASE PRINT

Name: Mr/Ms/Miss

Address

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

FREEPOST - no stamp needed. Prices apply to UK only. Export prices on application.



# GALAXIANS

BY CRAIG FISHER

From out of the deepest recesses of space comes a conveyer of aliens bent on destruction — your destruction! Can you halt their determined advance?

This is a version of arcade Galaxians, complete with those nasty swooping craft which dive down at you from the skies. To make scoring harder in this version you can only shoot these diving aliens — and not the ones in the conveyer.

Key 'V' moves your laser beam left, key 'Y' right. Use 'D' to fire. The high score so far, obtained by the author, is 4180. Can you do better?

## TABLE OF VARIABLES

### Alien 1:-

- H: Horizontal position
- AZ: Character(s)
- DD: Direction (-1 for left, 1 for right)
- OB: Previous horizontal pos. of alien.

### Alien 2:-

- I: horizontal position
- HZ: Character(s)
- ED: Direction (see above)
- OL: previous horizontal pos. of alien.

### A: High score

- a: Current score
- T: Horizontal pos. of conveyer.
- D: Direction of conveyer (see above)
- F: Position of laser beam.
- V: FOR ... NEXT loop height of alien.

### W: Current wave No.

- WL: Flaga string shows No. of wave a on screen — 51.
- DL: Temporary direction variable.
- CB: Conveyer character string.

RUNS ON A SPECTRUM IN 16K





Here's a really explosive board game. You'll have to be really careful not to start off a chain reaction which will literally wipe you out!

It's a two player game based on a board game called Explosion — difficult to play on a board but tailor made for the TRS-80. You are presented with a 6x6 grid and each player in turn introduces one of his counters either onto an empty square or a square occupied

by one or more of his own counters. However, each square has a point at which critical mass is reached and fission occurs. Corner squares explode when two counters are on them, side squares explode when containing three counters, central squares go up when four counters occupy their space.

When an explosion occurs the counters on the exploding square are distributed

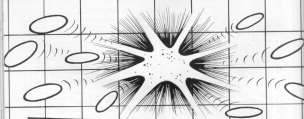
across the board. Any enemy counters on the latter square are captured and become counters belonging to the mover. Should receiving squares attain critical mass further explosions will result.

Any player having no counters left at the end of his opponent's move is the loser. The game has some interesting sound effects which can be enjoyed via the cassette port.

RUNS ON A TRS-80 IN 3K

BY PETER MILLEN

# CRITICAL MASS



```

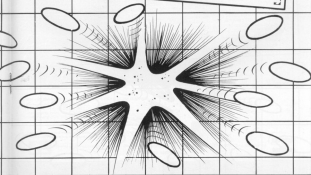
10 CLEAR200:CLS:FORLX=1:TO6:PRINTTAB(LX):CHR$(22)"CRITICAL MASS":NEXTLX:GOSUB60
15 CLEARINT:PRINT:PRINT:PRINT:CHR$(22)"DO YOU WANT INSTRUCTIONS - Y/N?"
17 $B=(INKEY$)POS="":TAB$(7)ELSE:POS="":THENEXSUB1000
20 GOSUB65,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83:CHR$(183):CHR$(187):CHR$(174):G
END:END
30 FORLX=1:TO6
40 FORLY=1:TO6
50 SEARCH(LX,LY)
60 NEXTLY:NEXTLX
70 FORLX=1:TO6:FORLY=1:TO6
80 $PCLX,LY=150+6.8-11+10+LY-1:4128
90 NEXTLY:NEXTLX
95 CLS
100 FOR$="1546R7D15547
110 FOR$="7D76R87EP428
120 FOR$="Y,140
130 NEXT$
140 NEXT$
150 FOR$="7D7D2087EP20
160 FOR$="7D45
170 SET(X,Y)

```

```

100 NEXT Y
110 NEXT X
200 FOR L=1 TO 8
210 PRINT#40+(L-1)*101, LX;#PRINT#(200+(L-1)*128), LX)
220 NEXT L
230 S=0:GOTO500
240 FOR L=1 TO 8
310 PRINT#(TX, TY), STRING#(R, 32);#FOR TD=1 TO 8:NEXT TD:R=USR1000
320 PRINT#(TX, TY), STRING#(S, 128);#FOR TD=1 TO 8:NEXT TD
330 NEXT L
340 R=TX, TY=MIN#(TX, TY)-C#(TX, TY)
350 #PRINT#(TX, TY);#OTHER#PRINT#(TX, TY), R#(TX, TY);#PRINT#(TX, TY)+4, R#(X);#L#(L, TX, TY)+6
360 IF#TX=0:#IF#Y=0:THEN#GOTO37:FOR L=8 TO 0:NEXT L
370 R=X-TX-1:#IF#R=0:THEN#GOTO38:FOR L=8 TO 0:NEXT L
380 R=Y-TY-1:#IF#Y=0:THEN#GOTO39:FOR L=8 TO 0:NEXT L
390 R=X+TX+1:#IF#R=8:THEN#RETURN#L#(L, TX, TY)+4, R#(X);#L#(L, TX, TY)+6
400 R=0
410 FOR TX=1 TO 8
420 FOR TY=1 TO 8
430 #PRINT#(TX, TY)+1:C#(TX, TY) R#(R#(X)+1):#GOTO500
440 NEXT TY
450 NEXT TX
460 GOTO500:#IF#R=1:THEN#GOTO40:FOR L=8 TO 0:NEXT L
500 R=1-8
510 PRINT#5, "PLAYER";R#(X);# WHICH COLUMN?";#GOTO560
520 PRINT#5, STRING#(124, 128);#PRINT#50, "WHICH ROW?";#GOTO570:#PRINT#50, STRING#(20, 128)
530 #PL#(TX, TY) C#(X)+L#(L, TX, TY) THEN#PRINT#5, "ILLEGAL MOVE:";#FOR TD=1 TO 8:NEXT TD:R=0
540 PRINT#(TX, TY), R#(TX, TY)+1:#PL#(TX, TY)+OTHER#(TX, TY)+R=0
550 #PRINT#(TX, TY), R#(TX, TY);#PRINT#(TX, TY)+4, R#(X);#L#(L, TX, TY)+6
700 V=0
710 FOR L=1 TO 8
720 FOR LY=1 TO 8
730 #PL#(LX, LY)+1-8)+1:THEN#V=1
740 NEXT LY
750 NEXT L

```



```

760 IFV0=1 THEN RETURN
770 FOR L3=1 TO 5
780 PRINT#5,"GM FOR PLAYER "+B$(L3)+": "+FORF0=1 TO 50:INEXT F0
790 PRINT#5," "
795 NEXT L3
800 CLS
810 PRINTCHR$(23)"MOVE TO PLAY BEGIN (Y/N) ?"
820 M=INKEY:IF M="" THEN GOTO 810
830 IF M="" THEN M=FOR L3=1 TO 5:FOR LY=1 TO 8:FOR LX,LY=0 TO 7:INEXT LY,INEXT LX:GOTO 810
835 M= " "
840 POKE16553,300
850 SF=STR$(M+24,19)
860 I=VALPTR$(SF+1)+J3-PEEK(I+0)+200+PEEK(I+1)+IF(J3) 32767*HEM3-[+165536-JJ
870 FOR P=J3 TO J3+23:READ I:POKE I,PEEK I+23
880 DONE=5000,PEEK(I-1)+POKE16527,PEEK(I+23):RETURN
890 DATA 127,10,14,60,65,62,91,211,300,16,256,63,60,211,300,16,256,43,126,181
900 DATA 3,3,3,3,2,3,4,4,4,4,3,3,4,4,4,4,2
910 DATA 4,4,4,4,2,3,4,4,4,4,4,4,3,3,3,3,2
920 LTX,EY=0+1:RMTX,EY=0+1:TX,LY=1+1:PRINT$(TX,EY):PRINT$(TX,EY
930 LTX,EY=0+1:RMTX,EY=0+1:TX,LY=1+1:PRINT$(TX,EY):PRINT$(TX,EY
940 LTX,EY=0+1:RMTX,EY=0+1:TX,LY=1+1:PRINT$(TX,EY):PRINT$(TX,EY
950 LTX,EY=0+1:RMTX,EY=0+1:TX,LY=1+1:PRINT$(TX,EY):PRINT$(TX,EY
960 IF INKEY$(PF8)="" THEN M=DEL$(VAL$(M)+10000,18):GOTO 810:IF M=DEL$(VAL$(M)+10000,18) THEN M=DEL$(VAL$(M)+10000,18):GOTO 810
970 IF INKEY$(PF8)="" THEN M=DEL$(VAL$(M)+10000,18):GOTO 810:IF M=DEL$(VAL$(M)+10000,18) THEN M=DEL$(VAL$(M)+10000,18):GOTO 810
980 CLS:PRINT$(30)"CRITICAL MASS"!PRINT
990 PRINT"THIS IS A GAME FOR TWO PLAYERS ON A 8 X 8 BOARD."
1000 PRINT"IN HIS TURN, EACH PLAYER INTRODUCES ONE OF HIS"
1010 PRINT"PIECES ON THE"
1020 PRINT"(1) AN EMPTY SPACE, OR"
1030 PRINT"(2) A SQUARE WITH ONE OR MORE OF HIS PIECES"!PRINT
1040 PRINT"HOWEVER, EACH SQUARE HAS A POINT AT WHICH CRITICAL"
1050 PRINT"MASS IS REACHED AND A FISSION EXPLOSION OCCURS"!
1060 PRINT"CORNER SQUARES EXPLODE WHEN CONTAINING 3 PIECES,"
1070 PRINT"SIDE SQUARES EXPLODE WHEN CONTAINING 2 PIECES,"
1080 PRINT"CENTRAL SQUARES EXPLODE WHEN CONTAINING 4 PIECES."
1090 PRINT"PRINT"NOT ONE KEY TO CONTINUE"
1100 PRINT"PRINT"NOT ONE KEY TO CONTINUE"
1110 PRINT"PRINT"NOT ONE KEY TO CONTINUE"
1120 M=INKEY$(PF8)="" THEN M=DEL$(VAL$(M)+10000,18)
1130 PRINT"WHEN AN EXPLOSION OCCURS THE PIECES ON THE EXPLODING"
1140 PRINT"SQUARE ARE DISTRIBUTED TO ITS NEIGHBOURS. ANY ENEMY"
1150 PRINT"PIECES ON THE LATTER SQUARE ARE CAPTURED AND BECOME"
1160 PRINT"PIECES OF THE OWNER, SHOULD (RECEIVED) SQUARES"
1170 PRINT"WITHIN CRITICAL MASS THEN FURTHER EXPLOSIONS RESULT"!
1180 PRINT"PRINT"ANY PLAYER HAVING NO PIECES LEFT AT THE END OF THE"
1190 PRINT"OPONENT'S TURN LOSES"!PRINT
1200 PRINT"THE GAME CONTAINS SOUND EFFECTS WHICH MAY BE ENJOYED"!
1210 PRINT"USE THE CASSETTE PORT"!PRINT
1220 PRINT"PRESS ANY KEY TO CONCLUDE"
1230 M=INKEY$(PF8)="" THEN GOTO 810:RETURN
1250 END

```





"GS Produce the most  
**ULTRA-MEGA- AMAZING** Games in  
 the entire known Universe!"



**MORE NEW RELEASES**

**THE CROSS PLAYER**

What if you're a PC Challenge fan? Then why not challenge your own skills with this challenge game? The Cross Player is a challenge game with a wide variety of levels and difficulty. Features: 3-D graphics, realistic sound effects and music to immerse you in the action. Play on any PC.

**SPACE ADVENTURE**

And space is never too far from the excitement of this game. The features include: 3-D graphics, realistic sound effects and music to immerse you in the action. Play on any PC.

**EDWARD DE BONO'S CLASH**

Edward de Bono's Clash is a game that will challenge your mind. It's a game that will challenge your mind. It's a game that will challenge your mind.



**SPACE INVADERS**

Features: 4 alien types, random sound effects, and a classic space shooter.

**METEOR STORM**

A classic space shooter with a meteor storm. Features: 4 alien types, random sound effects, and a classic space shooter.



**WHAT THEY SAY ABOUT OUR BEST GAMES:**

- ON SCRANBLE** — "Amazing Features!" (PCW)
- ON MY ABILITY** — "Just like the real thing!" (E & W)
- ON ASTEROIDS** — "Very good!" (additive game.) (E & W)
- ON DEFENDERS** — "Better than any other arcade game I've seen." (Flynt)
- ON SPACE INVADERS** — "I never played on the 2491. All the Space Invaders I've ever played." (Which More & W)

**COME AND SEE OUR AMAZING RANGE AT:  
 THE LONDON HOME COMPUTER SHOW  
 [7th, 8th and 9th of Jan]**

**2D - 21 GAMES**

- Scrapple m/c £5.99
- Invaders m/c £5.99
- Astroids m/c £5.99
- Defenders m/c £5.99

**SPECTRUM GAMES**

- Scrapple m/c £5.99
- Invaders m/c £5.99
- The Cross Player m/c £5.99
- Space Invaders m/c £5.99
- Meteor Storm 1-game m/c £5.99

Please send me the games as listed.

Total cheque/PC £ \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_



Send order to: **THE ONE, DEPT 989, 88 NORTHAM ROAD, SOUTHAMPTON, SO8 0PS**



**09700 00988**

# MZ LUDO

Quick thinking, an eye for the main chance and a grasp of tactics are what you need to beat the computer at this adaptation of the famous board game Ludo. It may seem simple at first but your Sharp will prove a tough opponent in this battle of wits. If you fancy a more even battle why not take on a friend — the program allows for two players to take part.

All the normal rules of the board game apply here — and the computer will not allow you to cheat!

There's a nice graphic dice to control all the moves and you simply use the 'Space' key to get it rolling.

Remember if you manage to land on an opponent's counter — represented on the Sharp board by graphic characters — it sends him right back where he started from — a very satisfying move!

For those who can't remember the childhood tactics of the game, it's all a question of deciding which piece to push along in front.

I stand towards a one-out, all-out strategy but will let you develop your own tactics to

get your four counters home fastest.

You will need to get an exact move to finish on, so there's a little luck involved at the death but you'll just have to trust your Sharp not to cheat on its dice throws.

It's during games like this that you really notice those Shift-y keys the Sharp has!

BY FRANK ROONEY

```

100 H=0:R=0:G=0:B=0:W=0:Y=0:TEMPO=1:RUS=0:R=1:R2=0
110 P=0:Q=0:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
120 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
130 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
140 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
150 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
160 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
170 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
180 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
190 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
200 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
210 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
220 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
230 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
240 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
250 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
260 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
270 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
280 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
290 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
300 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
310 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
320 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
330 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
340 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
350 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
360 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
370 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
380 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
390 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
400 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
410 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
420 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
430 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
440 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0
450 P=0:Q=1:R=0:S=0:T=0:U=0:V=0:W=0:X=0:Y=0:Z=0:AA=0:BB=0:CC=0:DD=0:EE=0:FF=0:GG=0:HH=0:II=0:JJ=0:KK=0:LL=0:MM=0:NN=0:OO=0:PP=0:QQ=0:RR=0:SS=0:TT=0:UU=0:VV=0:WW=0:XX=0:YY=0:ZZ=0

```

RUNS ON A SHARP MZ-80K IN 32K

```

440 NEXT J:GOTO 470
450 IF P<=0 THEN GOTO 470
460 IF P<=0 THEN GOTO 470
470 GOTO 490
480 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
490 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
500 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
510 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
520 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
530 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
540 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
550 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
560 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
570 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
580 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
590 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
600 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
610 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
620 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
630 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
640 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
650 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
660 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
670 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
680 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
690 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
700 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
710 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
720 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
730 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
740 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
750 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
760 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
770 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
780 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
790 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
800 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
810 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
820 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
830 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
840 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
850 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
860 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
870 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
880 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
890 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
900 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
910 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
920 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
930 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
940 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
950 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
960 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
970 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
980 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)
990 POKER=P+(R(I)*1),O+(R(I)*R(C)+R(FOR3=OTOR)

```

For your Tandy TRS-80 and Video Game

# DRACULA ISLAND

We've captivated! So many people have asked for a Kansas quality Adventure, that finally, here it is.

This has all the ingredients of the traditional adventure plus an involved plot, which will take a great deal of solving.

The aim is to get rid of Dracula, but of course you have to feed him, and at the same time have the correct objects at the correct time at the way throughout, otherwise you will not get very far.

There are countless locations, objects and happenings, with the game operated in the normal way with other single key entries for the regular used words and the program operated with two separate words throughout.

The programme says it will take on average three weeks to solve! But unlike normal adventures, this one can be saved to tape, thus allowing you to load the saved data, and so resume at the same place and time and with the same objects as you previously left the game.

Needless to say, as our very first adventure, it's a good one. It's machine language of course!

£9.50



*If you have a BBC Micro ask to get on our BBC program reading list — and see the difference!*

*We are offering TEN great TRS-80 Video Game programs in our annual January sale — ask for details.*

Recognised brand leader in microcomputer software. The only company giving a lifetime unconditional guarantee and assured return first class post service.

# Kansas

Kansas City Systems, Unit 3, Sutton Springs Wood, Chesterfield, S44 5XF. Tel. 0346 850357

## NOW YOU HAVE YOUR HOME COMPUTER/VIDEO GAME

HOME COMPUTER SOFTWARE

FOR ATARI 400/800

Adventure II	£12.95
Adventure III	£12.95
Adventure IV	£12.95
Adventure V	£12.95
Adventure VI	£12.95
Adventure VII	£12.95
Adventure VIII	£12.95
Adventure IX	£12.95
Adventure X	£12.95
Adventure XI	£12.95
Adventure XII	£12.95
Adventure XIII	£12.95
Adventure XIV	£12.95
Adventure XV	£12.95
Adventure XVI	£12.95
Adventure XVII	£12.95
Adventure XVIII	£12.95
Adventure XIX	£12.95
Adventure XX	£12.95
Adventure XXI	£12.95
Adventure XXII	£12.95
Adventure XXIII	£12.95
Adventure XXIV	£12.95
Adventure XXV	£12.95
Adventure XXVI	£12.95
Adventure XXVII	£12.95
Adventure XXVIII	£12.95
Adventure XXIX	£12.95
Adventure XXX	£12.95

THORN EMI

Adventure I	£12.95
Adventure II	£12.95
Adventure III	£12.95
Adventure IV	£12.95
Adventure V	£12.95
Adventure VI	£12.95
Adventure VII	£12.95
Adventure VIII	£12.95
Adventure IX	£12.95
Adventure X	£12.95
Adventure XI	£12.95
Adventure XII	£12.95
Adventure XIII	£12.95
Adventure XIV	£12.95
Adventure XV	£12.95
Adventure XVI	£12.95
Adventure XVII	£12.95
Adventure XVIII	£12.95
Adventure XIX	£12.95
Adventure XX	£12.95
Adventure XXI	£12.95
Adventure XXII	£12.95
Adventure XXIII	£12.95
Adventure XXIV	£12.95
Adventure XXV	£12.95
Adventure XXVI	£12.95
Adventure XXVII	£12.95
Adventure XXVIII	£12.95
Adventure XXIX	£12.95
Adventure XXX	£12.95

8-BOW C-CASSETTE 8-BOW

TEXAS

Adventure I	£12.95
Adventure II	£12.95
Adventure III	£12.95
Adventure IV	£12.95
Adventure V	£12.95
Adventure VI	£12.95
Adventure VII	£12.95
Adventure VIII	£12.95
Adventure IX	£12.95
Adventure X	£12.95
Adventure XI	£12.95
Adventure XII	£12.95
Adventure XIII	£12.95
Adventure XIV	£12.95
Adventure XV	£12.95
Adventure XVI	£12.95
Adventure XVII	£12.95
Adventure XVIII	£12.95
Adventure XIX	£12.95
Adventure XX	£12.95
Adventure XXI	£12.95
Adventure XXII	£12.95
Adventure XXIII	£12.95
Adventure XXIV	£12.95
Adventure XXV	£12.95
Adventure XXVI	£12.95
Adventure XXVII	£12.95
Adventure XXVIII	£12.95
Adventure XXIX	£12.95
Adventure XXX	£12.95

Software stocked for ZENITH 1001

Full range of Texas Educational Programmes from 10 to 30

THE BEST THIRD PARTY SOFTWARE

Adventure I	£12.95
Adventure II	£12.95
Adventure III	£12.95
Adventure IV	£12.95
Adventure V	£12.95
Adventure VI	£12.95
Adventure VII	£12.95
Adventure VIII	£12.95
Adventure IX	£12.95
Adventure X	£12.95
Adventure XI	£12.95
Adventure XII	£12.95
Adventure XIII	£12.95
Adventure XIV	£12.95
Adventure XV	£12.95
Adventure XVI	£12.95
Adventure XVII	£12.95
Adventure XVIII	£12.95
Adventure XIX	£12.95
Adventure XX	£12.95
Adventure XXI	£12.95
Adventure XXII	£12.95
Adventure XXIII	£12.95
Adventure XXIV	£12.95
Adventure XXV	£12.95
Adventure XXVI	£12.95
Adventure XXVII	£12.95
Adventure XXVIII	£12.95
Adventure XXIX	£12.95
Adventure XXX	£12.95

## WHAT ABOUT THE SOFTWARE?

VIDEO GAME SOFTWARE

FOR ATARI

Adventure I	£12.95
Adventure II	£12.95
Adventure III	£12.95
Adventure IV	£12.95
Adventure V	£12.95
Adventure VI	£12.95
Adventure VII	£12.95
Adventure VIII	£12.95
Adventure IX	£12.95
Adventure X	£12.95
Adventure XI	£12.95
Adventure XII	£12.95
Adventure XIII	£12.95
Adventure XIV	£12.95
Adventure XV	£12.95
Adventure XVI	£12.95
Adventure XVII	£12.95
Adventure XVIII	£12.95
Adventure XIX	£12.95
Adventure XX	£12.95
Adventure XXI	£12.95
Adventure XXII	£12.95
Adventure XXIII	£12.95
Adventure XXIV	£12.95
Adventure XXV	£12.95
Adventure XXVI	£12.95
Adventure XXVII	£12.95
Adventure XXVIII	£12.95
Adventure XXIX	£12.95
Adventure XXX	£12.95

ACTIVISION

Adventure I	£12.95
Adventure II	£12.95
Adventure III	£12.95
Adventure IV	£12.95
Adventure V	£12.95
Adventure VI	£12.95
Adventure VII	£12.95
Adventure VIII	£12.95
Adventure IX	£12.95
Adventure X	£12.95
Adventure XI	£12.95
Adventure XII	£12.95
Adventure XIII	£12.95
Adventure XIV	£12.95
Adventure XV	£12.95
Adventure XVI	£12.95
Adventure XVII	£12.95
Adventure XVIII	£12.95
Adventure XIX	£12.95
Adventure XX	£12.95
Adventure XXI	£12.95
Adventure XXII	£12.95
Adventure XXIII	£12.95
Adventure XXIV	£12.95
Adventure XXV	£12.95
Adventure XXVI	£12.95
Adventure XXVII	£12.95
Adventure XXVIII	£12.95
Adventure XXIX	£12.95
Adventure XXX	£12.95

RACKER BROS

Adventure I	£12.95
Adventure II	£12.95
Adventure III	£12.95
Adventure IV	£12.95
Adventure V	£12.95
Adventure VI	£12.95
Adventure VII	£12.95
Adventure VIII	£12.95
Adventure IX	£12.95
Adventure X	£12.95
Adventure XI	£12.95
Adventure XII	£12.95
Adventure XIII	£12.95
Adventure XIV	£12.95
Adventure XV	£12.95
Adventure XVI	£12.95
Adventure XVII	£12.95
Adventure XVIII	£12.95
Adventure XIX	£12.95
Adventure XX	£12.95
Adventure XXI	£12.95
Adventure XXII	£12.95
Adventure XXIII	£12.95
Adventure XXIV	£12.95
Adventure XXV	£12.95
Adventure XXVI	£12.95
Adventure XXVII	£12.95
Adventure XXVIII	£12.95
Adventure XXIX	£12.95
Adventure XXX	£12.95

FOR INTELLIVISION

Adventure I	£12.95
Adventure II	£12.95
Adventure III	£12.95
Adventure IV	£12.95
Adventure V	£12.95
Adventure VI	£12.95
Adventure VII	£12.95
Adventure VIII	£12.95
Adventure IX	£12.95
Adventure X	£12.95
Adventure XI	£12.95
Adventure XII	£12.95
Adventure XIII	£12.95
Adventure XIV	£12.95
Adventure XV	£12.95
Adventure XVI	£12.95
Adventure XVII	£12.95
Adventure XVIII	£12.95
Adventure XIX	£12.95
Adventure XX	£12.95
Adventure XXI	£12.95
Adventure XXII	£12.95
Adventure XXIII	£12.95
Adventure XXIV	£12.95
Adventure XXV	£12.95
Adventure XXVI	£12.95
Adventure XXVII	£12.95
Adventure XXVIII	£12.95
Adventure XXIX	£12.95
Adventure XXX	£12.95

FROM IMAGIC

Adventure I	£12.95
Adventure II	£12.95
Adventure III	£12.95
Adventure IV	£12.95
Adventure V	£12.95
Adventure VI	£12.95
Adventure VII	£12.95
Adventure VIII	£12.95
Adventure IX	£12.95
Adventure X	£12.95
Adventure XI	£12.95
Adventure XII	£12.95
Adventure XIII	£12.95
Adventure XIV	£12.95
Adventure XV	£12.95
Adventure XVI	£12.95
Adventure XVII	£12.95
Adventure XVIII	£12.95
Adventure XIX	£12.95
Adventure XX	£12.95
Adventure XXI	£12.95
Adventure XXII	£12.95
Adventure XXIII	£12.95
Adventure XXIV	£12.95
Adventure XXV	£12.95
Adventure XXVI	£12.95
Adventure XXVII	£12.95
Adventure XXVIII	£12.95
Adventure XXIX	£12.95
Adventure XXX	£12.95

CREDIT CARD HOTLINE  
TEL: 01 636 9612

For a range of software products visit our website at [www.kansas.com](http://www.kansas.com)

LOW PRICES  
AND FAST SERVICE

### LANDAU ELECTRONICS

THE HOME COMPUTER & GAMES SPECIALIST

LANDAU ELECTRONICS (Dept 100) (LEON BODEN)  
877 TOTTENHAM COURT ROAD, LONDON W11



```

990 NEXT Q:GOTO1100
995 POKP=4:TOP:POKQ=J:TOP:
IF POKI=I:GOTO1100:PRINT "L:IDD:THEM=H"
1000 NEXT Q:NEXT P
1010 IF Q=3 THEN I=130
1020 IF Y=3 THEN H=30
1030 M=1:GOTO340
1040 POKP=H:IF ID1=1,GOP=ID1=H:ID2=2:FOR I=0 TO 7:POKEP+H:CF(ID1),0:FOR I=0 TO 50:NEXT I
1050 POKP=H:IF ID1=1,L:ID1:POKQ=ID2:GOTO:NEXT I:NEXT I:RETURN
1060 MUSIC="OLD BOY" :GOSUB1040
1070 POKP=TOP:IF POKK=I+4:ID1=0:THEN POKP=H+1:ID1=1:GOTO:GOTO:POKQ
1080 NEXT Q
1090 MUSIC="GG-DG-DG-D"
1100 POKS=4444,17:PRINT TAB(127);"Cae'te go !!":FOR I=1 TO 500:NEXT I:GOTO1020
1110 GOSUB1060:MS:MS:POKQ=4444,17:PRINT TAB(126);" I WIN !!!"
1120 FOR I=1 TO 5:GOTO:GOTO:
1130 PRINT "***** YOU want another game (Y or N) ?"
1140 NEXT I:IF X="":GOTO1140
1150 IF X="Y" THEN GOTO
1160 IF X="N" THEN PRINT "":END
1170 GOTO1140
1175 REM ***** DICE *****
1180 H=0:FOR I=1 TO 6:GOSUB1200:NEXT I
1190 H=1+(X)INT(360D/314159)
1200 GOSUB1010:1210,1220,1230,1240,1250,1270
1210 GOSUB1140:POKQ=512,0:GOTO1240
1220 GOSUB1140:POKQ=432,0:POKEP=25,0:GOTO1290
1230 GOSUB1140:POKQ=434,0:POKEP=512,0:POKEP=570,0:GOTO1290
1240 GOSUB1140:POKQ=430,0:POKEP=434,0:POKEP=512,0:POKEP=574,0:GOTO1290
1250 GOSUB1140
1260 POKP=430,0:POKEP=434,0:POKEP=512,0:POKEP=570,0:POKEP=574,0:GOTO1290
1270 GOSUB1140:POKQ=430,0:POKEP=434,0:POKEP=512,0:POKEP=574,0:POKEP=570,0
1280 POKP=574,0:GOTO1290
1290 IF H=0 THEN SET LUM
1300 IF INT(314159/2) THEN H=0
1310 SET LUM
1320 PRINT " "
1330
1340 PRINT " "
1350 PRINT " "
1360 PRINT " "
1370 PRINT " "
1380 PRINT " "
1390 PRINT " "
1400 PRINT " "
1410 PRINT " "
1420 PRINT " "
1430 PRINT " "
1440 PRINT " "
1450 PRINT " "
1460 PRINT " "
1470 PRINT " "
1480 PRINT " "
1490 PRINT " "
1500 PRINT " "
1510 PRINT " "
1520 PRINT " "
1530 PRINT " "
1540 PRINT " "
1550 PRINT " "
1560 PRINT " "
1570 PRINT " "
1580 PRINT " "
1590 PRINT "*****" : IF INT(1+8*INT(8/2)) THEN PRINT TAB(17-INT(4*2/3));44:GOTO1620
1600 IF L=1 THEN PRINT TAB(15);"YOU":GOTO1620
1610 PRINT TAB(14);"PLAYER 1"
1620 POKS=4444,17
1630 IF L=0 THEN PRINT TAB(4);"PLAYER 2":PRINT " " : TAB(32-INT(4*2/3));44
1640 IF L=0 THEN PRINT TAB(22-INT(8/2));"FOR I=1 TO 8-1:PRINT " " : NEXT I:PRINT " "
1650 IF L=1 THEN PRINT "*****" : PRINT TAB(120);"COMPUTER*****"
1660 RETURN
1670 DATA 207,287,347,369,379,383,393,411,421,431,431,441,451,45,43,41,121,201,281,361
1680 DATA 444,521,501,581,741,791,831,851,911,931,931,931,931,931,931,931,931,931,941
1690 DATA 941,931,781,701,521,521,521,521,521,521,521,521,521,521,521,521,521,521
1700 DATA 771,871,811,811,811,811,811,811,811,811,811,811,811,811,811,811,811
1710 DATA 501,381,347,347,321,321,321,321,321,321,321,321,321,321,321,321,321
1720 DATA 108,208,94,84,84,84,84,84

```



# ELTEC SERVICES LTD



## BBC MICRO COMPUTERS

BBC Model 'M' (in stock now)	£299.00
BBC Model 'M' (in stock now)	£299.00
BBC Model 'M' plus extra 128 memory	£329.00

128 Kbit memory (as fitted by ACORN) ..... £31.00

P1.1 UPGRADE KIT (Genuine ACORN issue)	£90.00
UPGRADE KIT fitting charge	£19.00

14" Full colour MONITOR (used in BBC computer programmes)	£399.00
17" Green Screen MONITOR	£179.00
RGB Monitor lead	£5.00
Monitor lead	£5.00
Cassette Recorder (recommended)	£79.00
Cassette lead (7 pin DIN) (also PLUS matching connector for reliable wiring)	£5.00
Blank Cassettes: 902101 30 C-10	£9.00

## SOFTWARE

Gridair (UK) Software cassettes 1-7	from £2.99
ACORN to IBM EYTE software	
ADDRES for PROGRAM FORMER software	
FULL RANGE of ACORN/IBM MIC CASSETTES	40 £9.95
10" PC-DS Discmaster	£9.95
DELTA/PC..... Fully proportional control for drawing and games	£29.95

SEND SAE FOR OUR SOFTWARE PRICE LIST

## BOOKS

BBC 20th Anniversary.....	£5.99
Practical Programming for the BBC Computer Journal-Dewar	£5.99
New Programming for the BBC Microcomputer Club	£5.99
FULL RANGE of BOOKS on the PROGRAMMING of the BBC	

SEND SAE FOR OUR BOOK LIST

128 Kbit memory (as fitted by ACORN)	£20.00
FULL UPGRADE KIT (Genuine ACORN issue)	£90.00
UPGRADE KIT fitting charge	£19.00

## PRINTERS

Sceptre CP100A	£279.00
EPSON 8000 P-T II	£289.00
EPSON 80000 P-T II	£399.00
DATA CONTROL Easy Wheel Printer	£301.00
Printer Cable	£16.40

## ATOM MICROCOMPUTER

Extra Memory (271K)	per 6 £2.29
Floating point ROM	£21.00
ACORN 90K DiskPack	£249.00
Disk Buffer Pack	£11.79
LOW ROM SUPER ROM — The most powerful toolkit yet	£29.95
4 Socket software utility packs	£32.99

Prices are VAT INCLUSIVE

P&P £1.00 for orders under £100.00

Orders over £100.00 add £70.00 for a Secure Delivery

# ELTEC SERVICES LTD

211 Marningham Lane, Bradford BD8 7TH Tel: (0274) 491771

©1985 Eltec Services Ltd. All Rights Reserved.

# M. C. LOTHORIEN

## SPECTRUMS and DRAGONS! (not forgetting ZX81)



A fantastic range of 185 games, each complete with fully comprehensive instructions

### 1. TYRANT OF ATHENS

Can you survive long enough to turn Athens into the most feared state in the Mediterranean?

Train troops, build warships, fight battles by land and sea against hostile Greek States and the vast Persian Empire. Many more features in this very addictive game. Dragon version uses high resolution graphics to produce a map of the E. Mediterranean on which the naval battles are fought. Price: DRAGON £5.99 ZX81 £4.99 SPECTRUM £5.99

### 2. ROMAN EMPIRE

Your aim is to conquer the hostile countries surrounding Rome. Build armies, appoint Generals and fight campaigns. This challenging game takes full account of morale, fighting effectiveness, resource ability, etc. 3 levels of play. Price: ZX81 £4.99. Spectrum £5.99

### 3. PELOPONNESIAN WAR

Set in Ancient Greece from 431-404 BC, covering the great War between Athens and Sparta. Your goal is a final victory over the Spartans but you will need all your skill in a combination of diplomacy and military force before you even stand a chance. 3 levels of play. Price ZX81 only £4.99

### 4. SAMURAI WARRIOR

Set 4 centuries before the film "Shogun" you can discover how you would have fared as a Samurai in 13th Century Japan. Face challenges from Samurai and Barbits. Are you a survivor? Or will you be forced to commit ritual suicide? 7 levels of play. A most fascinating game. Price: DRAGON £5.99 ZX81 £4.99 Spectrum £5.99

### 5. WARLORD

Have you got the opportunity and strategic ability to control a village and army like the Warlords of Old Japan? Rule your subjects, trade for food, attack pirates and make raids for gold and slaves. As if this wasn't enough you must also face combat challenges from other Warlords and their Samurai and defeat attacks from their armies. Dragon version uses HVH graphics for a map of Japan for private battles and graphics for Samurai and land battles. Price: DRAGON £5.99 ZX81 £4.99

Cheques and POs please, made payable to: M. C. LOTHORIEN

Dept. CL, 4 Granby Road, Cheshire Moline, Cheshire SK9 9LS



```

100 REM ##### SOFTWARE####
110 REM R. WATKINS (1982)
120 REM #####
130 DIM A(32) : A(1),A(2),A(3),A(4),A(5),A(6),A(7),A(8),A(9),A(10),A(11),A(12),A(13),A(14)
140 RANDOMIZE : CALL RANDOMIZE%
145 CALL SOUND% : CALL INSTRUCTIONS%
150 R1=0 : SOUND% : GOTO 270
160 R2=0 : IF GOTO 270 : GOTO 270
170 R3=0 : GOTO 270
180 R4=0 : GOTO 270
190 R5=0 : GOTO 270
200 R6=0 : GOTO 270
210 R7=0 : GOTO 270
220 R8=0 : GOTO 270
230 R9=0 : GOTO 270
240 CALL CLEAR% : R1=100 : R2=100 : R3=100 : R4=100 : R5=100 : R6=100 : R7=100 : R8=100 : R9=100
250 CALL CLEAR% : FOR J=4 TO 20 STEP 2 : HT=INT(RND%*8)+1
260 CALL CLEAR% : FOR J=4 TO 20 STEP 2 : CALL VOH% : HT=INT(J+1.25) : CALL VOH%(24,1,112,20)
270 R1=0 : R2=0 : R3=0 : R4=0 : R5=0 : R6=0 : R7=0 : R8=0 : R9=0
280 CALL SPRITE% : R1=100 : R2=100 : R3=100 : R4=100 : R5=100 : R6=100 : R7=100 : R8=100 : R9=100
290 CALL SPRITE% : R1=100 : R2=100 : R3=100 : R4=100 : R5=100 : R6=100 : R7=100 : R8=100 : R9=100
300 CALL SOUND% : IF 2 THEN SOUND 200 ELSE 50-50*PH
310 GOTO 270
320 CALL POSITION% : X,Y : CALL LOOR% : X,Y :
330 CALL SPRITE% : R1=100 : R2=100 : R3=100 : R4=100 : R5=100 : R6=100 : R7=100 : R8=100 : R9=100
340 IF CL=0 OR CL=1 THEN 360
350 CALL CLEAR% : IF 2 THEN 360 ELSE CALL POSITION% : X,Y :
360 IF 10-104 THEN 360 ELSE PH=INT(12.5/R1)+1 : IF PH=CL THEN 360
370 CALL SPRITE% : R1=100 : R2=100 : R3=100 : R4=100 : R5=100 : R6=100 : R7=100 : R8=100 : R9=100
380 CALL VOH% : PH=2 : CL=20 : RCL=PH*4
390 SOUND% : DISPLAY RCL,12,50
400 CALL DELSPRITE% : IF 10-10 THEN RETURN
410 FOR J=4 TO 20 : IF RCL=CL THEN 360
420 NEXT J : RETURN
430 CALL SPRITE% : R1=100 : R2=100 : R3=100 : R4=100 : R5=100 : R6=100 : R7=100 : R8=100 : R9=100
440 SOUND% : DISPLAY RCL,12,50
450 CALL POSITION% : R1=100 : R2=100 : R3=100 : R4=100 : R5=100 : R6=100 : R7=100 : R8=100 : R9=100
460 CALL SOUND% : R1=100 : R2=100 : R3=100 : R4=100 : R5=100 : R6=100 : R7=100 : R8=100 : R9=100
470 FOR RCL=1 TO 1500 : NEXT DEL : RUN
480 STOP
490 SUB INSTRUCTIONS% : CALL CLEAR
500 DISPLAY RCL,12,50 : "TARGET" : DISPLAY RCL,12,50 : "*****"
510 DISPLAY RCL,12,50 : "USE KEY TO DROP BOMB."
520 DISPLAY RCL,12,50 : "CHOOSE OPTION PLEASE"
530 DISPLAY RCL,12,50 : "EASY OPTION (TAB=26) : *1*"
540 DISPLAY RCL,12,50 : "HARD OPTION"
550 DISPLAY RCL,12,50 : "OR NEGATIVE SCORING" : TAB(26) : "C?"
560 CALL KEY (K,RY,ST) : CALL SOUND% : R1=100 : R2=100 : R3=100 : R4=100 : R5=100 : R6=100 : R7=100 : R8=100 : R9=100
570 IF K=49 OR K=50 THEN PH=40 ELSE 470
580 SOUND%
590 REM #####
600 REM LINES 150 TO 210 DEFINE CHARACTERS .. EXPERIMENT HERE!
610 REM R1.. PLANE
620 REM R2.. TRNK
630 REM R3.. BOMB
640 REM R4,R5,R6.. EXPLOSIONS
650 REM R7.. BOMB
660 REM R8,R9.. BUILDBOCS
670 REM #####
680 REM SPRITE R1.. PLANE
690 REM SPRITE R4,R5,R6.. TRNKS
700 REM SPRITE R3.. BOMB
710 REM #####
720 REM INCREASE DIFFICULTY LEVEL BY INCREASING SPEED OF SPRITE(R2)
730 REM ALSO HEIGHT OF BUILDBOCS CAN BE CHANGED IN LINE 240
740 REM TRNK CAN BE SPEEDED UP OR SLOWED DOWN IN LINES 260 AND 264
750 REM BOMB (R7) KEEPS CHECK OF HEIGHT OF EACH BUILDBOCS
760 REM AS AN ALTERNATIVE TO "RUN" IN 260 YOU CAN CHECK FOR HIGHEST SCORE TO
770 REM DATE .. HIGHEST=PH*(CL-HIGHEST) AND GOTO 240 . HIGHEST SCORE CAN THEN
780 REM BE DISPLAYED
790 REM BE DELETED
800 REM ALL REMS MAY BE DELETED
810 END
820 END

```



# TARGET

**RUNS ON A TI 99/4A IN 16K BY R. MATTHEWS**

You are the pilot of a jet fighter on a kamikaze mission. Your task is to bomb a city occupied by enemy troops and cause as much destruction as possible before your jet crashes into the flaming ruins. Enemy tanks are racing through the city streets and these must also be destroyed before

they manage to find shelter. They can only be hit when your bombs have cleared gaps in the buildings.

But all the time you are blowing away at the city below your jet is losing altitude — and it's only a matter of time before it crashes — so you have to move fast to complete

your mission.

Program notes: A15 to A24 define character shapes. Miskeying will not affect the running of the program — but it will produce some odd shapes! A variable A(12) is defined twice in line 138. This is unnecessary and one of them may be deleted before copying.



# Let Commodore expand your horizons.

VIC 20 is the finest home computer that money can buy.

And the better you get to know it, the more confident, adventurous and ambitious you'll become.

You'll want to take advantage of the vast range of VIC software: a superb and constantly-growing selection of programs, embracing business systems, entertainment, education and many applications in the home.

Every program in the series has been designed by experts, and chosen for its quality and value for money.

VIC business software covers a wide range of applications, including spread-sheet analysis, stock control, information handling and word-processing.

A mind-blowing range of games including Scott Adams' world-famous 'Adventure' series.

Advanced space games, including the sophisticated 'Omega Race'.

Learn subjects as diverse as English Language, programming, and biology.

And 'home' software ranges from IQ tests to Robert Carrier menus.

In addition, there is a range of VIC software, like programmers' aids and graphics packages—



to add to your understanding and enjoyment of computers and computing.

There's even a special 'VicSoft' Club for VIC 20 enthusiasts, with many advantages including special offers to club members.



VIC software will expand your horizons. And your mind.

PRICES RANGE FROM £4.99 to £34.95 INC. VAT.

**commodore**  
**VIC 20**



For more information, a catalogue of VIC software and details of your local retailer or dealer, please phone or complete the coupon and send to:  
The Commodore Information Centre,  
675 Alan Avenue, Strath, Perthshire TD1 4BG  
Telephone: Strath (0754) 76261.

Name \_\_\_\_\_  
Tel./Fax No. \_\_\_\_\_  
Address \_\_\_\_\_

Postcode \_\_\_\_\_

VICVIC 89/94

# PULLING

BY TREVOR TRUMAN

## CAN YOU STEM THE ALIEN TIDE?

If all the arcade aliens were joined together to address the line would stretch very nearly from Hazelebury Flancknet to farthest Wollumbow-wonga.

The task can be completed provided you and your trusty laser can give the deep-fried treatment to those, the laser-misguided monsters who have crossed the Comet in the belief that Earth is their new paradise.

The puzzle can be solved by hand and brain right here on the page (may we recommend a piece of this paper laid on top, so that several attempts can be carried out) or a program can be written which will achieve the task in the most efficient manner.

To begin, place your gun on any of the firing positions A to F and loose off a shot. This, as in all future firings, will have two effects: One alien lying on that vertical line will be destroyed and that firing position will have its value (shown by the number) reduced by one. Enter the new value in the grid below the firing range and prepare to move.

After each shot you must move your gun the distance in squares equal to its current value. You can move to right or left but must proceed in one direction unless the value of the square would take you beyond the firing range.

In the case you "bounce" back from the end square, as our sample picture shows.

At the end of your move you must fire the laser and reduce the value of that square by 1 even though there may be no aliens to shoot at. You must be sure never to land on a square and reduce its value to zero as you will then be stuck and the rest of the gang will lead — with consequences dire to the future of the human race.

True success will only come if you can complete the task in the

Example of bounce



A	B	C	D	E	F
5	6	7	5	4	6

Enter each new value here

lowest possible number of moves.

Remember this is no easy undertaking with a bunch of alien E.T. wots, but the future of this very Earth is at stake. Realizing the gravity of the situation, the editor of this magazine feels prompted to reward those space-war heroes who find the correct solution.

Try a few rough attempts first to work out how the aliens move.

Send your lowest solution to: Space Attack Competition, Computer & Video Games, Durrant House, 8, Herford Hill, London EC1R 5BE, before January 12. The first three out of the hat will win hand-held space invader machines.



If you can beat the Pulling page's space invaders, then you could have a chance to tackle invaders on the Galaxy Invader 1000.

Three of Computer Games Ltd's hand-held space invader games are up for grabs for the first three answers with the best solutions out of the hat.

The Galaxy Invader has three skill levels, two colour graphic displays and scores up to 999 with extra missile stations for scores over 700.

Make sure your story is with us before January 12th 1982.

## DEFEAT THIS WORDY HORROR

The relic (right) from the primordial past is in urgent need of taming before it leaves its dark undisturbed cave and starts chomping up fair damsels, post office towers and Cive Slevain.

To do this, drop one letter from those used in the line above and arrange the remaining letters to form a word or words.

Words, to be valid fodder for our toothsome fiend, must be of three letters or more and must be valid type entries in Chambers's Twentieth Century Dictionary, Revised Edition.

Words must not overlap along the line and must be separated by a bar. A word once used must not be repeated on any subsequent line.

Each line scores the total of all the letter values which appear in it. The letter values are shown above the top line. So keeping "Y" in is worth extra points.

A bonus can be scored for each word which is of five or more letters and is equal to the length of the word; a five-letter word gains five extra points and so on.

When you have entered the score for each line add on the sum of your bonuses to give the final grand total — the greater that is, the more peaceful the terrahan.



## UNSCRAMBLE THE ONMIDOSE

This somewhat bizarre title is a direct indication as to just what is the problem below — dominos have been scrambled.

Not that the event caused any grief to Ephraim Wheel, rather the opposite.

He was so delighted that his

daughter, Daisy, had managed to arrange her complete set of picture-pairs into a six by five rectangle that he quickly drew the layout for posterity.

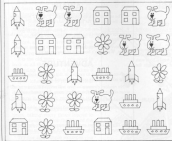
It mattered not that the girl had paid scant regard to the usual rule that adjacent dominos should have the same picture touching, at a few days over 18 months, it was a miracle to the proud father that geometric genius had manifested itself at so early an age.

Hence, as we have remarked, the quick drawing . . . Too quick, in fact, as Ephraim has omitted the lines which show the separate dominos.

It is not too difficult a task to find the unique way in which the cards were laid out, bearing in mind that with 5 different pictures, all the different arrangements of possible pairs are present somewhere.

Can you draw the dividing lines and so complete the picture for Ephraim?

The solution to these two puzzles and the winners of our November Mastermind competition can be found on page 11 of this issue. Try them before you look out an answer.



# PUNTING



### CIMBRIA MERSKON £7

THE FIRST OF A NEW SERIES OF 128K RAM ACTION PACKED M/CODE ARCADE GAMES. Cimbria Merskon is a top-down view of a ship on a sea. You are to destroy various icons and collect items. The game is controlled by a joystick and a fire button. It is a fast-paced and exciting game. Price £7.00. (P.O. order only)

### THE PROTECTOR £7

THE SECOND OF A NEW SERIES OF 128K RAM ACTION PACKED M/CODE ARCADE GAMES. The Protector is a top-down view of a ship on a sea. You are to destroy various icons and collect items. The game is controlled by a joystick and a fire button. It is a fast-paced and exciting game. Price £7.00. (P.O. order only)



# ATOM

ACTION PACKED M/CODE ARCADE GAMES



ALL 128K RAM  
PRIZES INCLUDE P&P, FAST 2 DAY DISPATCH  
**micromania**  
14 LOWER HILL RD. EPSOM, SURREY.



### CENTIPEDE £5

THE THIRD OF A NEW SERIES OF 128K RAM ACTION PACKED M/CODE ARCADE GAMES. Centipede is a top-down view of a centipede on a sea. You are to destroy various icons and collect items. The game is controlled by a joystick and a fire button. It is a fast-paced and exciting game. Price £5.00. (P.O. order only)

### PUCKMAN £5

THE FOURTH OF A NEW SERIES OF 128K RAM ACTION PACKED M/CODE ARCADE GAMES. Puckman is a top-down view of a puck on a sea. You are to destroy various icons and collect items. The game is controlled by a joystick and a fire button. It is a fast-paced and exciting game. Price £5.00. (P.O. order only)



**ZX81** 16K    **SPECTRUM** 16/48    **DRAGON** TRS COLOR    **TANDY** LEVEL 2    **BBC** A/B

## FANTASTIC VOYAGE

(ZX81 MK ONLY)

This real-time graphics adventure set inside the human body was written by a lecturer in anatomy. You are injected into the blood stream in your miniature submarine. Navigate the arteries, veins and heart to the brain, where a blood clot must be dissolved. Features a real vascular map. You will be attacked by lymphocytes which must be destroyed using special game type graphics. Everything you do uses up precious energy. Three display formats — a lateral and frontal body scan plus blood vessel scans, a close-up scan and a laser-sight for fighting lymphocytes.

ALL GAMES £5.95 EACH, 3 FOR £15.95, 5 FOR £19.95 (ANY MIX) INCLUSIVE.

DEPT. PR5,  
46 LITTLEHAM,  
TATE,  
BRISTOL BS17 4JQ

## AWARI

- The ancient African game of logic. It takes 2 minutes to learn the rules but far longer to master the tactics.
- Select the 'You-there!' level of play and it's an addictive game for children (8+) that exercises their minds — not their liver fingers.
- Select the 'Wish-doctor' level and it's a blast to your sanity. We haven't beaten it and we wrote it!

## ADVENTURE

- Over 200 places to explore in this machine code game using advanced data compression techniques.
- No random elements — you will need skill, cunning and a sense of humour as you explore caves, forests and castles.
- Evade ruthless pursuers and overcome a host of obstacles.
- Multiple word commands and single letter abbreviations.

•• Buy both Awari and Adventure and enter the 'Folkade Challenge' competition. Details with contents or send SAE.

**FOILKADE LTD**

**£1000 IN PRIZES**

K

# BRIDGE

BY ALAN HIRON

## DEALING WITH THE DOUBLE-DUMMY POSER

In my last article I talked about the possibilities of running an exhaustive search to tackle the play in the sort of bridge problems where 'you can see all four hands — the so-called — or rather misnamed — double-dummy problem.

As I had suggested, if the problems involve only five or six cards per player, then absolutely all the legitimate sequences of play can be inspected. As soon as you advance to larger numbers of cards (like thirteen per player?) then the computation becomes too massive for present day machines, even huge-main-frame let alone a personal machine. And I am looking on the bright side!

The sort of problems that comes along in real life involves you — as declarer — seeing only dummy. It asked how best to play the hand, an exhaustive search would involve creating and testing all possible ways of distributing the opponents' twenty-six cards between them!

It all sounds impossible complex, but these are simplifying routes to be considered. Suppose the computer is set a problem involving all 52 cards but where the target is to make all thirteen tricks.

It would be completely lunatic to explore all of the avenues of play which started with the declarer managing to lose the first trick.

It is the old story — if you want to look at all the possibilities the programming is easy — it just takes a few centuries to run.

Now infuriating to have a power failure in 2342 AD when one of your descendants was nearly there! But perhaps it wouldn't worry you too much!

But a more sophisticated program, taking many times longer to write, should reduce the size of the calculation by several, indeed many, orders of magnitude.

Try this very simple example — a double squeeze in a three-card ending:

Perhaps your bridge moments don't go back as far as mine but in the late 1830's Dr Colchester sponsored Auto-Bridge. In other words, bridge for one player.

The idea was neat and simple — you slipped one of a number of master cards into a tin container with a number of metal buttons on the top, you opened your thirteen buttons and saw your hand. You decided on a bid, you opened another hatch to see if you had made the right bid.

If you hadn't, you read the manual to see where you had gone wrong and made the right bid instead. Then you opened your left hand opponent's first bidding hatch, found out what he had done, looked at your partner's bid and then you right hand opponent's bid. Now your next decision — right, wrong or wrong, correct — and so on.

Then the play started after you had reached the approved contract. You opened the first card hatch on your left and saw the opening lead, inspected dummy — thirteenth man's tactics to spot. You carried on, logically

enough, by deciding on your play to each bid before opening the appropriate hatch to see if you were right or wrong.

I suppose it might have been thought of in the Chinese Riddle game with its compartmented bridge.

Now back to the 1930's. After the personal computer that plays bridge, came a logical step. If you have your own machine then for a relatively small sum you can buy a plug-in addition to your store — ROM, of course — that contains the raw material of a large number of hands, rather exciting colour graphics, sensible bidding for its hands and suitable play.

The plug-in board — produced by Intelligent Software for Family in compatible machines — doesn't play bridge — it just sees if you can, for it knows the hands and has been programmed to cope with whatever you try.

The release date is December 1. More details when I have had a chance to play with the package more thoroughly.

S	A	J
H	K	
D	none	
C	none	

S	K	J	Q	10
H	A		H	none
D	none		D	A
C	none		C	none

S	J
H	none
D	K
C	A

With South on lead and clubs as trumps it is easy for the horses — play the Ace of Clubs.

If West discards HA, you are home and dry. So West pairs with SJ, dummy with the new useless HK and now East is squeezed.

Here it was relatively easy to look at all the possibilities as they were so few.

But as South required all the tricks, it would be time-wasting to examine all the sequences of play starting with a low spade from both South and North.

You see the point? For more programming but less computation.

You can try to be too sophisticated. You remember the story of the chess computer that made a silly looking move, watched by and sneered at by many top-ranking human players?

Only later analysis proved that the machine was right in the sense that any alternative would have lost more quickly.

Who knows? Maybe exhaustive searches will still produce inferior winners and exciting plays on the bridge scene. Watch this space. Computer and Video Games hopes to bring you them first!



A

# INTEREST FREE

## On Atari, VIC20, Commodore 64 and

If your order contains over £120 worth of computer hardware apply now for interest free credit by telephoning: Mail-order: (0702) 662911, London Shop: 01-748 0926, Birmingham Shop: 021-366 7282, Southeast Shop: 0702 664000 or write to P.O. Box 3, Rayleigh, Essex SS6 6LR.

You pay 10% down, then 10% per month for a further nine months (to nearest penny). Example: VIC20 Colour Computer, Cash Price £169.99. Credit terms: £16.99 down then £17 per month for nine months; Total £169.99. Credit questions on request.

### THE NEW COMMODORE 64

The incredible new computer from Commodore comes with 64K RAM fitted! Plus 16 colours, hi-res graphics, 320 x 200 pixels, 40 columns by 25 lines, 280 micro processor can be added — that means you can run CP/M software, 8 independently movable Sprites with collision detection, and a sound generator with 3 voices, 4 wave forms, envelope and filter to rival some dedicated music synthesizers. And all this at the most incredible price ever. (AF64L) Only £339.00

### DRAGON 32



The amazing new British computer with a full-travel standard keyboard, a 56-bit microprocessor, 32K RAM fitted (expandable to 64K and later to 256K!), 9 colours, hi-res graphics and Microsoft extended colour BASIC (the very best BASIC to learn with). It can be used with virtually any ordinary cassette recorder, it has a printer interface (Centronics-type), joysticks are available and it's incredible value for money. (AF57M) Only £199.95

### THE AMAZING ATARI COMPUTERS

- 4 Computers Available**
- Atari 400 with 128K RAM (AF36P) **£249.95**
  - Atari 400 with 48K RAM (AF37S) **£219.95**
  - Atari 800 with 128K RAM (AF36C) **£399.95**
  - Atari 800 with 48K RAM (AF36R) **£369.95**

All above with BASIC & manuals

- Other hardware**
- Cassette Recorder (AF38P) **£50.00**
  - Disk Drive (AF36D) **£299.95**
  - Printer/Printer (AF36E) **£299.95**
  - Epson Model 146 II (AF36M) **£299.95**
  - Epson Model 146 III (AF36N) **£297.95**
  - Printer Interface for 400 (AF37U) **£99.95**
  - Printer Interface for 800 (AF37V) **£99.95**
  - Interface Module (AF39D) **£129.95**
  - Video card (AF37W) **£199.95**
  - 128K RAM Module (AF37X) **£99.95**
  - 48K RAM Module for 400 (AF44A) **£79.95**
  - 48K Upgrade for 400 (AF44T) **£79.95**
  - floppy Disk (FX87U) **£1.50**
  - Joystick (AC43P) **£24.95**
  - Joystick Controller (AF43) **£19.95**
  - Printer Controller (AF41) **£19.95**

For full details ask for our hardware catalog (AF42) and approval

also try a free ATARI COMMODORE CATALOGUE

Our independent review group has ranked us as the best value computer shop in the UK. We offer a complete range of computer hardware and software, plus a complete range of computer accessories and peripherals. We also offer a complete range of computer software, plus a complete range of computer accessories and peripherals. We also offer a complete range of computer software, plus a complete range of computer accessories and peripherals.



### THE FINEST SELECTION OF ATARI SOFTWARE

Software Title	Price	Software Title	Price	Software Title	Price
Adventure	£19.95	Baseball	£19.95	Chess	£19.95
Assault	£19.95	Baseball 2	£19.95	Checkers	£19.95
Bank	£19.95	Baseball 3	£19.95	Clayton	£19.95
Bank 2	£19.95	Baseball 4	£19.95	Clayton 2	£19.95
Bank 3	£19.95	Baseball 5	£19.95	Clayton 3	£19.95
Bank 4	£19.95	Baseball 6	£19.95	Clayton 4	£19.95
Bank 5	£19.95	Baseball 7	£19.95	Clayton 5	£19.95
Bank 6	£19.95	Baseball 8	£19.95	Clayton 6	£19.95
Bank 7	£19.95	Baseball 9	£19.95	Clayton 7	£19.95
Bank 8	£19.95	Baseball 10	£19.95	Clayton 8	£19.95
Bank 9	£19.95	Baseball 11	£19.95	Clayton 9	£19.95
Bank 10	£19.95	Baseball 12	£19.95	Clayton 10	£19.95
Bank 11	£19.95	Baseball 13	£19.95	Clayton 11	£19.95
Bank 12	£19.95	Baseball 14	£19.95	Clayton 12	£19.95
Bank 13	£19.95	Baseball 15	£19.95	Clayton 13	£19.95
Bank 14	£19.95	Baseball 16	£19.95	Clayton 14	£19.95
Bank 15	£19.95	Baseball 17	£19.95	Clayton 15	£19.95
Bank 16	£19.95	Baseball 18	£19.95	Clayton 16	£19.95
Bank 17	£19.95	Baseball 19	£19.95	Clayton 17	£19.95
Bank 18	£19.95	Baseball 20	£19.95	Clayton 18	£19.95
Bank 19	£19.95	Baseball 21	£19.95	Clayton 19	£19.95
Bank 20	£19.95	Baseball 22	£19.95	Clayton 20	£19.95
Bank 21	£19.95	Baseball 23	£19.95	Clayton 21	£19.95
Bank 22	£19.95	Baseball 24	£19.95	Clayton 22	£19.95
Bank 23	£19.95	Baseball 25	£19.95	Clayton 23	£19.95
Bank 24	£19.95	Baseball 26	£19.95	Clayton 24	£19.95
Bank 25	£19.95	Baseball 27	£19.95	Clayton 25	£19.95
Bank 26	£19.95	Baseball 28	£19.95	Clayton 26	£19.95
Bank 27	£19.95	Baseball 29	£19.95	Clayton 27	£19.95
Bank 28	£19.95	Baseball 30	£19.95	Clayton 28	£19.95
Bank 29	£19.95	Baseball 31	£19.95	Clayton 29	£19.95
Bank 30	£19.95	Baseball 32	£19.95	Clayton 30	£19.95
Bank 31	£19.95	Baseball 33	£19.95	Clayton 31	£19.95
Bank 32	£19.95	Baseball 34	£19.95	Clayton 32	£19.95
Bank 33	£19.95	Baseball 35	£19.95	Clayton 33	£19.95
Bank 34	£19.95	Baseball 36	£19.95	Clayton 34	£19.95
Bank 35	£19.95	Baseball 37	£19.95	Clayton 35	£19.95
Bank 36	£19.95	Baseball 38	£19.95	Clayton 36	£19.95
Bank 37	£19.95	Baseball 39	£19.95	Clayton 37	£19.95
Bank 38	£19.95	Baseball 40	£19.95	Clayton 38	£19.95
Bank 39	£19.95	Baseball 41	£19.95	Clayton 39	£19.95
Bank 40	£19.95	Baseball 42	£19.95	Clayton 40	£19.95
Bank 41	£19.95	Baseball 43	£19.95	Clayton 41	£19.95
Bank 42	£19.95	Baseball 44	£19.95	Clayton 42	£19.95
Bank 43	£19.95	Baseball 45	£19.95	Clayton 43	£19.95
Bank 44	£19.95	Baseball 46	£19.95	Clayton 44	£19.95
Bank 45	£19.95	Baseball 47	£19.95	Clayton 45	£19.95
Bank 46	£19.95	Baseball 48	£19.95	Clayton 46	£19.95
Bank 47	£19.95	Baseball 49	£19.95	Clayton 47	£19.95
Bank 48	£19.95	Baseball 50	£19.95	Clayton 48	£19.95
Bank 49	£19.95	Baseball 51	£19.95	Clayton 49	£19.95
Bank 50	£19.95	Baseball 52	£19.95	Clayton 50	£19.95





# MACHINE CODE

## LEARNING A NEW LANGUAGE . . .

We have already looked at some background material on binary numbers and the structure of a computer system. Although there will be more of this background material later on, this month we will be dealing with micro-processors and some simple assembly language instructions.

To understand assembly language we need to look inside the micro-processor. Figures 1, 2 and 3 show the internal registers (memory locations and working storage) of the 6801, 6802, and 6803 processors.

Some registers hold an eight-bit binary number and others a 16-bit binary number, and all instructions use or operate on the contents of at least one register.

There are more differences between the three processors in the number, names and uses of the registers, but there are similarities among the main registers.

The Program Counter, PC, keeps track of the address of the instruction currently being executed, and is updated automatically every time an instruction is executed.

The Stack Pointer (S) in the 6801 and 6802, SP in the 6803 is used to keep track of subroutine calls and returns.

Although these registers are very important in the operation of the processor, they can be ignored in elementary programming.

The most important registers to the programmer are the accumulator, A (or two very similar accumulators A and B in the 6803) and the flags (called F for Processor Status Register in the 6801, CC for Condition Code Register in the 6802, and F for Flags in the 6803).

The accumulator is used for performing arithmetic and logical operations, and although some of these operations can be carried out in other registers there are some operations which can only be carried out in an accumulator.

The flags record information about a binary number or about the result of a calculation, and are used in binary arithmetic and in conditional jumps (the equivalent of IF... THEN GOTO... IN BASIC).

The other registers differ greatly between the three processors, and will be introduced slowly throughout this series.

The first instructions we are going to look at move data between the registers and the memory. You will remember



from last month that a memory location is selected by 16 address lines and can be specified by a 16-bit binary number (equivalent to a hexadecimal number from 0 to FFFF) or a decimal number from 0 to 65536) and each memory location contains eight-bits of data (equivalent to a hexadecimal number from 0x0F or a decimal number from 0 to 255).

Because the assembly languages are so different we will look at the processors individually.

## THE 6502 AND MNEMONICS . . .

The 6502 uses the mnemonics LDA, LDX, LDY (LD being an abbreviation for load) in instructions that load data from memory into the registers A, X, Y, and STA, STX, STY (ST being an abbreviation for store) in instructions that load data from the registers into memory.

As well as the opcode mnemonic we need an operand to indicate the memory location involved. The 6502 has several addressing modes, which are methods of specifying the memory location or register involved in an instruction, and we will begin by looking at two of these addressing modes, immediate and absolute.

In immediate addressing the actual data is included in the instruction, and a hash sign, #, is placed in front of the data to show that it is immediate data. Thus, we may write:

```
LDA #10  
LDX #18  
LDY #10  
LDY #10
```

The assembly language allows us to use several different notations for writing numbers. Two of these are shown in

the examples above: decimal numbers, which are written in the ordinary way with no distinguishing marks, and hex-decimal, which are distinguished by being preceded by the dollar sign, \$. Thus 2D and 0x0F represent the same number.

Note that, because the registers A, X and Y contain eight-bits the operand in an immediate mode instruction must be an eight-bit number (0 to FF hex, or 0 to 255 decimal).

The result of these instructions is to replace whatever was in the register by the value specified in the instruction. Obviously, we cannot use immediate addressing with the store instructions STA, STX, STY, because there is nothing to tell us where to store the number.

In absolute addressing we specify a memory location. The load instructions load the contents of the memory location into a register, and the store instructions put the contents of the register into the memory location.

The instruction LDA \$1000 takes the eight-bits from memory location 1000 hex and puts them into the accumulator, while STX \$1000 takes the eight-bits from register X and puts them into memory location 1000 hex. Note that we need four hex digits to specify an address.

There are also instructions to move data between the registers: TAX (Transfer contents of A to X), TXA (Transfer contents of X to A), TYA (Transfer contents of A to Y), and TYA (Transfer contents of A to Y).

In all these instructions only the destination (register or memory location) is changed; the source data remains the same. Thus, LDA \$1000 leaves the contents of memory location \$1000 unchanged, STX \$1000 leaves the contents of the X register unchanged, and TAX leaves the contents of the Y register unchanged.

**BY TED BALL**

## GETTING FAMILIAR WITH THE 6809

The 6809 assembly language is very similar to the 6800 assembly language. We write decimal numbers in the usual way with no distinguishing mark, and precede hexadecimal numbers with a dollar sign.

We have the opcode mnemonic LDA, LDB, LDD, LDY, LDR, LDX, and LDZ to load data from memory into the processor registers, and STA, STB, STD, STU, STV, STW and STY to store data from the processor registers into memory. The mnemonic must be followed by an operand to specify the memory location to be used.

Like the 6800, the 6809 has a number of addressing modes which allow the memory location or register involved in an instruction to be specified.

The simplest addressing modes are immediate addressing, where the data is contained in the instruction, and extended addressing, where the memory location to be used is contained in the instruction.

Examples of immediate mode instructions are:

```
LDA #32
LDB #114
LDD #$1104
LDR #2000
```

The hash sign is used to indicate immediate addressing; decimal numbers are written with no distinguishing sign, and hexadecimal numbers are preceded by the \$ sign. Thus LDA #32 means "load the decimal number 32 into accumulator A", LDB #114 means "load the hexadecimal number 14 into accumulator B", and LDX #2000 means "load the hexadecimal number 2000 into register X".

The two accumulators, A and B, each contain eight bits, so the operand must be an eight-bit binary number (equivalent from 0 to 255).

The 16-bit accumulator C is actually the two eight-bit accumulators combined, with A being the high order part and B being the low order part; the instruction LDD \$1104 thus means "load the hexadecimal number 11 into accumulator A and load the hexadecimal number 04 into accumulator B".

The operand in a LDD instruction must always be a 16-bit number, and if we were to write LDD 1, the result of this instruction would be to put 0 in A and 1 in B. The registers U, S, X, Y, are 16 bits long and take a 16 bit immediate operand.



Some extended mode instructions are:

```
LDA $1000
LDB $1000
LDY $0000
```

LDA \$1000 takes the eight-bits from memory location 1000 hex and loads them into accumulator A. A 16-bit load instruction cannot, of course, take 16-bits from an eight-bit memory location, so it uses two consecutive eight-bit memory locations.

Thus LDY \$1000 loads the Y register with the contents of memory locations \$1000 and \$1001, the contents of location \$1000 becoming the high order part of Y and the contents of \$1001 becoming the low order part of Y.

Similarly, LDB \$1000 loads the contents of location \$1000 into B and the contents of \$1001 into-B.

The store instructions in extended mode work in the opposite direction.

From the corresponding load instructions.

Thus, STA \$1000 puts the eight-bits from accumulator A into memory location \$1000, STD \$1000 puts the eight bits from A into memory location \$1000 and the eight bits from B into memory location \$1001, and STY \$1000 puts the 16-bits from Y into memory locations \$1000 and \$1001.

We cannot use immediate addressing with store instructions, as this is meaningless.

As well as the load and store instructions, which move data between registers and memory we have the TFR and SWP instructions which move data between registers.

The operand with these instructions has the form r1, r2 where r1 and r2 may be any two registers of the same length.

Thus we can write TFR A, B which transfers the contents of A to B leaving

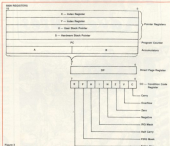


Figure 1



## LEAP INTO THE COMPUTERISED AGE

VISIT OUR BRANCHES AT  
ROCHFORD AND  
NORWICH AND SEE THE  
LARGEST SELECTION OF  
HOME COMPUTER SOFTWARE  
AND HARDWARE IN SOUTH  
ENGLAND



THE AMAZING 64K COMPUTER

NEW  
LOW  
PRICES

START  
UP TO  
£195.50

START UP TO  
£195.50  
+ 10% INST. CHARGE

START UP TO  
£195.50  
+ 10% INST. CHARGE

JOIN OUR SOFTWARE CLUB and save £s. Lifetime membership £20. Your membership fee includes your choice of software to value of £18. You will receive order by return with membership card and your own personal club no. PLUS 50% reduction on ALL future orders. We pay all postage and handling costs. For instant membership you may telephone your Access/Order/VISA card no.

Agents for Atari, Vic, Dragon, Rabbit, Perm, Mag Byt, Sharp, Texas, Xerox, Nascom, More Power, etc.

VIC 20  
£159.95



Software Title	Price	Software Title	Price
Adventure	£15.00	Wizard of Wor	£15.00
Arkanoid	£15.00	Zaxxon	£15.00
Assault	£15.00	Zaxxon II	£15.00
Assault 2	£15.00	Zaxxon III	£15.00
Assault 3	£15.00	Zaxxon IV	£15.00
Assault 4	£15.00	Zaxxon V	£15.00
Assault 5	£15.00	Zaxxon VI	£15.00
Assault 6	£15.00	Zaxxon VII	£15.00
Assault 7	£15.00	Zaxxon VIII	£15.00
Assault 8	£15.00	Zaxxon IX	£15.00
Assault 9	£15.00	Zaxxon X	£15.00
Assault 10	£15.00	Zaxxon XI	£15.00
Assault 11	£15.00	Zaxxon XII	£15.00
Assault 12	£15.00	Zaxxon XIII	£15.00
Assault 13	£15.00	Zaxxon XIV	£15.00
Assault 14	£15.00	Zaxxon XV	£15.00
Assault 15	£15.00	Zaxxon XVI	£15.00
Assault 16	£15.00	Zaxxon XVII	£15.00
Assault 17	£15.00	Zaxxon XVIII	£15.00
Assault 18	£15.00	Zaxxon XIX	£15.00
Assault 19	£15.00	Zaxxon XX	£15.00
Assault 20	£15.00	Zaxxon XXI	£15.00
Assault 21	£15.00	Zaxxon XXII	£15.00
Assault 22	£15.00	Zaxxon XXIII	£15.00
Assault 23	£15.00	Zaxxon XXIV	£15.00
Assault 24	£15.00	Zaxxon XXV	£15.00
Assault 25	£15.00	Zaxxon XXVI	£15.00
Assault 26	£15.00	Zaxxon XXVII	£15.00
Assault 27	£15.00	Zaxxon XXVIII	£15.00
Assault 28	£15.00	Zaxxon XXIX	£15.00
Assault 29	£15.00	Zaxxon XXX	£15.00
Assault 30	£15.00	Zaxxon XXXI	£15.00
Assault 31	£15.00	Zaxxon XXXII	£15.00
Assault 32	£15.00	Zaxxon XXXIII	£15.00
Assault 33	£15.00	Zaxxon XXXIV	£15.00
Assault 34	£15.00	Zaxxon XXXV	£15.00
Assault 35	£15.00	Zaxxon XXXVI	£15.00
Assault 36	£15.00	Zaxxon XXXVII	£15.00
Assault 37	£15.00	Zaxxon XXXVIII	£15.00
Assault 38	£15.00	Zaxxon XXXIX	£15.00
Assault 39	£15.00	Zaxxon XL	£15.00
Assault 40	£15.00	Zaxxon XLI	£15.00
Assault 41	£15.00	Zaxxon XLII	£15.00
Assault 42	£15.00	Zaxxon XLIII	£15.00
Assault 43	£15.00	Zaxxon XLIV	£15.00
Assault 44	£15.00	Zaxxon XLV	£15.00
Assault 45	£15.00	Zaxxon XLVI	£15.00
Assault 46	£15.00	Zaxxon XLVII	£15.00
Assault 47	£15.00	Zaxxon XLVIII	£15.00
Assault 48	£15.00	Zaxxon XLIX	£15.00
Assault 49	£15.00	Zaxxon L	£15.00
Assault 50	£15.00	Zaxxon LI	£15.00
Assault 51	£15.00	Zaxxon LII	£15.00
Assault 52	£15.00	Zaxxon LIII	£15.00
Assault 53	£15.00	Zaxxon LIV	£15.00
Assault 54	£15.00	Zaxxon LV	£15.00
Assault 55	£15.00	Zaxxon LVI	£15.00
Assault 56	£15.00	Zaxxon LVII	£15.00
Assault 57	£15.00	Zaxxon LVIII	£15.00
Assault 58	£15.00	Zaxxon LIX	£15.00
Assault 59	£15.00	Zaxxon LX	£15.00
Assault 60	£15.00	Zaxxon LXI	£15.00
Assault 61	£15.00	Zaxxon LXII	£15.00
Assault 62	£15.00	Zaxxon LXIII	£15.00
Assault 63	£15.00	Zaxxon LXIV	£15.00
Assault 64	£15.00	Zaxxon LXV	£15.00
Assault 65	£15.00	Zaxxon LXVI	£15.00
Assault 66	£15.00	Zaxxon LXVII	£15.00
Assault 67	£15.00	Zaxxon LXVIII	£15.00
Assault 68	£15.00	Zaxxon LXIX	£15.00
Assault 69	£15.00	Zaxxon LXX	£15.00
Assault 70	£15.00	Zaxxon LXXI	£15.00
Assault 71	£15.00	Zaxxon LXXII	£15.00
Assault 72	£15.00	Zaxxon LXXIII	£15.00
Assault 73	£15.00	Zaxxon LXXIV	£15.00
Assault 74	£15.00	Zaxxon LXXV	£15.00
Assault 75	£15.00	Zaxxon LXXVI	£15.00
Assault 76	£15.00	Zaxxon LXXVII	£15.00
Assault 77	£15.00	Zaxxon LXXVIII	£15.00
Assault 78	£15.00	Zaxxon LXXIX	£15.00
Assault 79	£15.00	Zaxxon LXXX	£15.00
Assault 80	£15.00	Zaxxon LXXXI	£15.00
Assault 81	£15.00	Zaxxon LXXXII	£15.00
Assault 82	£15.00	Zaxxon LXXXIII	£15.00
Assault 83	£15.00	Zaxxon LXXXIV	£15.00
Assault 84	£15.00	Zaxxon LXXXV	£15.00
Assault 85	£15.00	Zaxxon LXXXVI	£15.00
Assault 86	£15.00	Zaxxon LXXXVII	£15.00
Assault 87	£15.00	Zaxxon LXXXVIII	£15.00
Assault 88	£15.00	Zaxxon LXXXIX	£15.00
Assault 89	£15.00	Zaxxon LXXXX	£15.00
Assault 90	£15.00	Zaxxon LXXXXI	£15.00
Assault 91	£15.00	Zaxxon LXXXXII	£15.00
Assault 92	£15.00	Zaxxon LXXXXIII	£15.00
Assault 93	£15.00	Zaxxon LXXXXIV	£15.00
Assault 94	£15.00	Zaxxon LXXXXV	£15.00
Assault 95	£15.00	Zaxxon LXXXXVI	£15.00
Assault 96	£15.00	Zaxxon LXXXXVII	£15.00
Assault 97	£15.00	Zaxxon LXXXXVIII	£15.00
Assault 98	£15.00	Zaxxon LXXXXIX	£15.00
Assault 99	£15.00	Zaxxon LXXXXX	£15.00
Assault 100	£15.00	Zaxxon LXXXXXI	£15.00



### SPECTRUM COMPUTER GROUP MEMBER

1000, SOUTH  
114, SOUTH STREET  
LONDON, W14 9JF  
TELE: 0427 7610

11, 120, 204, CROSS PASSAGE  
BRANDY CROSSLAND,  
MILTON KEYNES  
TELE: 0298 4200

# Mysterious Adventures



VIC 20  
Spectrum  
SOFT

## WE PROUDLY PRESENT, FOR THE VIC 20

### THE INTERNATIONAL SUCCESSFUL MYSTERIOUS ADVENTURES

These exciting games, Mysterious Adventures, have been internationally "Best Selling" games in Britain for well over a year and are currently selling like hotcakes in the States. The British has now introduced Mysterious Adventures to the Spectrum VIC 20. In 1987 with a total cost

ALL ADVENTURES IN THE SERIES INCLUDE:  
Full screen graphics, Linear Plot branching story sequences, Fast play, variable statistics, Strategic plot based movement, 300 words, 100 locations in each, 500 objects in inventory, 50 or more "problems" to overcome.

- ADVENTURES INSTANTLY AVAILABLE:
- 1) THE DOOR TO NOWHERE - a strange machine of King Zaxxon and his magic to destroy the entire planet of King Zaxxon.
  - 2) THE TOWER BEHIND - As a mysterious monster you have been captured and made an inmate of King Zaxxon's prison of LARON.
  - 3) THE TOWER OF LARON - How to - In the last part of this set Mysterious Adventures take you into the source of the evil King Zaxxon has hidden your treasures.

These are the first three of a series which could ultimately total more than 50 Adventures.

WARNING: ... This requires strategic and fast thinking and excellent problem solving on these delightful missions.

NEW ADVENTURES:  
Ghouls from Hell  
Army of Death Part 2

SEND CHECK OR C.D. FOR INST. ORDER VISA - DEPOSIT RECEIPTS

Also available for BBC and Atari. Soon available for Commodore 64.  
Memory expansion - phone for prices.  
Dealer enquiries invited.



A unchanged, or TFR I, Y which transfers the contents of X to Y leaving X unchanged, but we cannot have TFR A, X because A is an eight-bit register and X is a 16-bit register.

Similarly, we can write EXG A, B which exchanges the contents of A and B, or EXG U, Y which exchanges the contents of V and Y, but not EXG A, U.

## THE REGISTERS IN THE Z80

If you look at Figure 3, showing the registers in the Z80 you will see that there are a total of 16 registers. We are not going to look at all these at once, but we will begin with the most important: the accumulator A, and the registers B, C, D, E, H and L.

The instructions to move data from memory to registers, from registers to memory, and between registers all have the form LD destination, source.

There are several ways of specifying the destination and source, leading a number of different groups of LD instructions.

We can load data directly into a register by an instruction like LD A, 12 or LD H, 10H. Note that a decimal number is written in the normal way, while a

hexadecimal number must be followed by the letter H.

Thus, LD A, 12 loads the decimal number 12 into register A, and LD H, 10H loads the hexadecimal number 10 into register H.

We can load an eight-bit number (0-FF hex or 0 to 255 decimal) into any of the registers A, B, C, D, E, H, L, in this way. We can also treat the register pairs BC, DE, HL as if each pair was a single 16-bit register, and write, for example, LD BC, 1000H. This loads the low number 10 into B and the low number 0 into C.

We can also load a register or register pair from data in memory. Thus, LD A, (1000H) loads the eight-bits from memory location 1000H into the accumulator A.

When we load a register pair from memory, we must, of course, use two memory locations. LD HL, (1000H) loads the contents of memory location 1000H into register L and the contents of memory location 1001H into register H.

Note that the high-order part of the register pairs BC, DE, HL is B, D, H and the low-order part is C, E, L, respectively, but when we load two memory locations into a register pair the order is reversed.

If we have 34H in memory location 1000H and 12H in memory location 1001H, the instruction LD BC, (1000H)

puts 34H in C and 12H in B, but the register pair BC will be treated as if it contained 1234H.

We can move data from registers into memory by instructions of the form LD (1000H), A or LD (1000H), BC, LD (1000H), A puts the eight-bit number from A into memory location 1000H, and LD (1000H), BC puts the 16-bit number from register pair BC into memory locations 1000H and 1001H, with the 8 bits from C going into location 1000H and the eight bits from B going into location 1001H.

There is also a group of instructions of the form LD register I, register J which move data between eight-bit registers; for example LD A, C moves the contents of C into A.

However, we cannot move data from one register pair into another register pair in a single instruction; if we wish to copy the data from BC into DE we must use two instructions, LD D, B and E, C.

A very important form of the LD instruction uses a register pair as a pointer to a memory location. For example, if HL contains 1000H (10H in H and 00H in L) the instruction LD A, (HL) puts the contents of memory location 1000H into the accumulator A, and the instruction LD (HL), A puts the contents of A into memory location 1000H.

Next month we will continue by looking at arithmetic instructions.

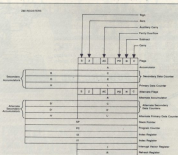


Figure 3

# Adventure

## PLOT OF THE GAME OF THE BOOK...

An adventure game is very similar to a story in that it must have a theme. The extent to which the game differs from a book is the degree of interaction with the plot.

This can vary from the player having no choice but to guess or deduce the correct commands, to allowing multiple choices of action at every turn.

In other words, the plot may branch endlessly in a book, the outcome is fixed. In real life there is an infinite choice of actions, each with vastly differing results. An adventure game falls between these two extremes.

Perhaps this explains the popularity of Adventure; it is fiction in which the reader participates and affects the outcome.

Depending on the player's actions he can change the storyline to a certain extent.

A verb is the key to an action. We can look at all the different circumstances in which the verb may be used, and vary the outcome accordingly. The greater the number of different circumstances which can change the effect of using a particular verb the nearer the game will be to real life.

Of course, on a micro this will have a definite limit, but with caution we can disguise that limit to a certain extent. Let us take as an example the word LOOK, often synonymous with EXAMINE in an adventure. LOOK AROUND has the

potential to produce a different reply for every location, and then some more, giving additional clues about hidden features, such as a secret exit, while LOOK HOLE may produce a reply like "I see a bottle of rum".

It may be arranged for the bottle to then be displayed as a normal visible object.

The outcome of the game will be affected, since it might be that without the rum a pirate will not be so helpful, and this might eventually be crucial to the game.

The program code to achieve these multiple replies can be relatively short:

```
9999 REM ***** LOOK (EXAMINE)
*****
4000 IF E2 <> [code for AROUND]
THEN 4000
4010 ON PW GOTO 4100,4110,
4100,4100 .... etc.
4100 LET Q18 = "THERE'S A BOAT
ON THE HORIZON" : GOTO 100
4110 LET Q18 = "I SEE A SECRET
PASSAGE" : GOTO 100
4120 .... etc.
4190 LET Q18 = "I SEE NOTHING
SPECIAL" : GOTO 100
```

This last line is the reply dreaded by all Scott Adams fans, and is the default line where no specific reply is required.

LOOK (object) implies EXAMINE and requires a different approach. First we must check whether the object is in the player's current inventory, or if it is visible in the player's current location. Assuming there are 30 objects in the game, then:

## BEWARE THE RIGELIAN HOUND

Strange Discovery is yet another of Scott Adams' offerings, and has a science fiction theme. The hardy adventurer finds himself in a broken down spaceship somewhere on the surface of the moon.

A good space traveller will of course know what precautions to take and how to use low gravity to advantage. A good adventurer will need similar insight!

Armed with a phaser it is quite likely that the explorer will come to an alien room and discover the way to travel to strange worlds. He might find, for example, an intergalactic zoo and become the prep of a Rigelian dog-see hound — not a beast to embark itself to any but the most devoted of dog-lovers!

```
4000 IF E2 > 30 THEN 4000 : REM
SUBSCRIPT IN RANGE FOR 4000
4000 IF P1E2 <> 30 AND P1E2 <> 30
LN THEN LET Q18 = "I DON'T
SEE IT HERE" : GOTO 100
4000 ON E2 GOTO 4000,4100,
4000,4100,4000 .... etc.
4000 LET Q18 = "IT SAYS 'BEWARE
THE SLEEPING DRAGON'" :
GOTO 1000
4000 LET Q18 = "THERE ARE 2
LEVELS — RED & GREEN" :
GOTO 100
4000 .... etc
```

Note the use of the existing default line to avoid writing it twice. Line 4000 checks that E2 isn't greater than the highest permissible subscript set by the DIMENSION of the array P.

You can thus see that the limit to the different responses to LOOK are set only by the computer memory available and the author's imagination!



BY KEITH CAMPBELL

**NEW**  
**SAVE IT!**

Only **£13.95** with **BATTPACK**  
(Retail value £17)

FOR ZX 81 AND SPECTRUM  
COMPUTERS

(AND OTHER MODELS USING 9V DC ADAPTERS)

PROTECT YOUR PROGRAMS WITH THIS RECHARGEABLE BATTERY PACK.

At LAST! The answer to one of the major problems facing personal computer (programmers and users) — POOR MAINS SUPPLIED CARBON BATTERIES, WHILE YOU SPEND HOURS TRYING TO ENTER YOUR CAREFULLY PREPARED PROGRAMS.

New Adaptors and Eliminators, also have produced nearly 70% of all ZX Main Adaptors, bring you **BATTPACK** — a rechargeable 9v Ni-Cad battery pack and transient suppressor, housed in a complementary black ABS case that simply clips into your ZX adaptor in seconds.

**BATTPACK** ensures the voltage into your ZX computer never drops below 8v, thereby eliminating the possibility of a programme crash because of a split second mains dropout! (One cycle is all it needs!)

**BATTPACK** also suppresses transients and RFI using carefully selected capacitors. Your ZX Adaptor keeps the **BATTPACK** at full charge even when in use — so it's always ready for emergencies. Even in the event of a full power cut **BATTPACK** will run your ZX computer for at least 30 minutes giving you time to save your programme on a cassette or print a hard copy on your ZX printer. **BATTPACK** comes complete with all connecting leads and is ready for use.

ORDER NOW — **SAVE NOT ONLY YOUR PROGRAMS BUT ALSO YOUR TEMPER!**

MAIL ORDER ONLY PLEASE ALLOW 28 DAYS FOR DELIVERY



ADAPTORS AND ELIMINATORS (TO MATCH THE MODEL OF YOUR ZX) PLEASE SUPPLY \_\_\_\_\_ (CITY) CHECK/CHEQUE (if AT £13.95 each PLUS £1.45 p.p. I ENCLOSE CHEQUE POSTAL ORDER FOR £ \_\_\_\_\_

SIGNATURE \_\_\_\_\_

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# The Name of the Game in the South!

**SAVE £100**  
**ATARI 400 ONLY**  
**ONLY £399**



- ATARI 400 (16k) from £199.
- 32k and 48k upgrades available
- Choose from our extensive range including: Santa Cruz, Adventure International, Data Soft, Infocom, On Line, Synapse, InHome Software, Automated Simulations.

■ Lansdowne Computer Centre have one of the largest ranges of Software for the ATARI 400-800 in the South.

Please rush me full details of your superb range of Software including most order form.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Tel No. \_\_\_\_\_

I am interested in details of the Atari 400-800 home computer range including accessories.

I am interested in \_\_\_\_\_

make of computer. Please send me details. CP/188



**ATARI**

**LANSDOWNE COMPUTER CENTRE**

14 Marlborough Road, Bournemouth, Dorset  
Telephone: Bournemouth 29145  
(Access from London: 01256 29145)  
Newport Street, The-Chartwell



# T-SHIRTS



Want to look tough? Well, when you wear a Computer and Video Games T-shirt no-one is going to kick sand in your face! There are three designs to choose from. One is discreet little number with the C&VG logo on the front in delicate shades of red and black. The Bags feature large on our other two offerings. One features Bag Junior in glorious bright blue with the words "Watch out-there's a Bag about" well large. Screaming Paul Up has managed to find his way onto our third shirt in brilliant yellow and green with the slogan "There's no polite word for something that large!"

The T-shirts come in four sizes. Extra small, small, medium and large, and cost £2.95 plus 30p for post and packing. Clamper and or PD's (not cash) should be sent to Computer and Video Games T-shirt Offer, 16-12 Victoria Road, Northampton.

## COMPUTER & VIDEO GAMES T-SHIRT OFFER

Name

Address

For further info write to: C&VG T-shirt Offer, 16-12 Victoria Road, Northampton, NN1 2JL. There is also an offer of "T-shirt T".

Orders are sent via the City Clamper & Postcard to Computer & Video Games T-shirt Offer.

CASH ADVANCE V.K. ONLY

Return address to: Computer & Video Games T-shirt Offer, 16-12 Victoria Road, Northampton, NN1 2JL. PLEASE RETURN TO US BY POST OR TELEPHONE.



## BACK ISSUES

Look what you've been missing! Games programs for your favourite machines, news and reviews of those games tapes you've always wanted to know about, plus special features on the latest trends in the exciting world of computers and gaming.

If you would like to catch up on what's been going on in the pages of Computer and Video Games over the past months why not send off for some back issues? It's easy to do.

Just send details of the copies you want with your name and address, plus a cheque or postal order made payable to Computer & Video Games.

Computer & Video Games is C&VG Back Issues, Competition House, Fardon Rd., Market Harborough, Leicestershire. Each issue costs £1 including post and packing.



## EASIBINDERS

Quick, neat and easy!



It's so easy and tidy with the EasiBinder to file your copies away. Each binder is designed to hold 12 issues and is attractively bound and blocked with the COMPUTER & VIDEO GAMES logo. Price U.K. £4.25 including postage, packing and V.A.T. Overseas orders add 35p per binder.

Nat. Giro No. 5157952. Please allow 3-4 weeks for fulfillment of order. Payment by ACCESS BARCLAYCARD VISA. Send coupon below detailing credit card no. and signature. Why not place your order now! Send the completed coupon below with remittance payable to:

Eastbind Ltd., 4 Underhill St., London, W8 7LZ

### Order Form COMPUTER & VIDEO GAMES

I enclose P.O. cheque value \_\_\_\_\_ for \_\_\_\_\_ copies  
 Yours required \_\_\_\_\_

Name \_\_\_\_\_  
 Address \_\_\_\_\_

Date \_\_\_\_\_ Registration No. 521000



**GROUND FORCE ZERO**

£25

MAY THE  
FORCE  
OF  
**TITAN**  
BE WITH  
YOU

**GAVERNS**

£25

**MISSING LINKS**

£25

**GLASSBORO**

£25

# TITAN PROGRAMS

## IMMEDIATE DELIVERY

TITAN HOUSE, 83 ASHWOOD ROAD, RUDLOE, DORSETSHAM, WILTSHIRE SN13 6LQ

Please send me:

1.  **Ground Force Zero** £25.00

2.  **Gaverns** £25.00

3.  **Missing Links** £25.00

4.  **Glassboro** £25.00

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Post Code: \_\_\_\_\_

Daytime Telephone: \_\_\_\_\_

ORDER BY MAIL PLEASE. CASH ORDERS WILL BE ACCEPTED BY CARD. ALL ORDERS MUST BE PAID IN ADVANCE. PLEASE ALLOW 2 WEEKS FOR DELIVERY.

### PLYMOUTH COMPUTERS

83 Exeter Street, Plymouth, Devon. (0752) 23042

#### GAMES FOR SPECTRUM MODELS and 8

- **OIL STRIKE**. Try and become an oil tycoon. A, B & K.
- **SPACE MISSION**. A & K. Destroy aliens.
- **SQUASH**. A & K. Real time. 2 levels.
- **MAPRUDERS**. A & K. Learn to survive.
- **NUMBER ADVANCE**. A & K. Addictive!
- **AIR BOMBER**. A & K. 4 Levels of play.
- **CODE BREAKER**. A & K. 7 well levels — deduction.
- **FOOTBALL LEAGUE**. A, B & K. 4 English divisions.
- **ADDRESS-TEL BOOK**. A, B & K. 200 records.
- **MUSCHE MEN**. A & K. The answer to Pacman.

**SPACE MISSION** £25.00

**SQUASH** £25.00

**MAPRUDERS** £25.00

**NUMBER ADVANCE** £25.00

**AIR BOMBER** £25.00

**CODE BREAKER** £25.00

**FOOTBALL LEAGUE** £25.00

**ADDRESS-TEL BOOK** £25.00

**MUSCHE MEN** £25.00

ALL GAMES IN 96 each. No VAT & P+P.

All prices incl. VAT and Delivery. [WWW.PLYMOUTH.COM](http://WWW.PLYMOUTH.COM)



### New Generation Software

Professionally Written and Produced Software for the Home Computer

From M.G. Evans the author of the highly acclaimed 3D MONSTER BAZES and 3D DEFENDER for the ZX81 comes TWO GAMES FOR THE SPECTRUM

**BY TUNNEL**. 750-4-400 minutes on one sheet that has been in the depths of the TUNNEL? There's lots, including traps, monsters, and other things. Perhaps there's the key here to meet the ends of the TUNNEL, for it seems you and your pet also to enter that out. All in 3D of course. 750-4-400 minutes.

**ESCAPE** (price £1.95). The only 3D/4000 minutes maze containing 2 exciting dimensions, including a 3D/4000 minutes maze. The maze has the maze to escape from on top. One of the best and most original games we have seen for the SPECTRUM in 3D. £1.95. £1.95.



Available mid-Jan.

These enquiries welcome at address below.

Send to: **NEW GENERATION SOFTWARE, FREEPOST (BUSINESS), COLLEGE CAMPUS, BATH, GLOS. BA2 9BN** (no stamp need by UK) or for **INSTANT CREDIT CARD** orders ring 01-830 0050, U.K. or with enquiries 04544.

Please send me:  **BY TUNNEL** ..... or **ESCAPE** ..... or **BOTH** each (incl. p&p and VAT). I enclose cheque/P.O.

My name is: \_\_\_\_\_

Address: \_\_\_\_\_

Post Code: \_\_\_\_\_



# ORIC-1™

TIMELESS TECHNOLOGY FROM ORIC PRODUCTS INTERNATIONAL

# The Computer Challenge

16 colours  
professional keyboard  
full graphics  
real sound

- Superb styling
- Choice of 16K RAM or massive 48K RAM
- Ergonomic keyboard with 57 moving keys
- 28 rows x 40 characters high resolution
- Teletext/viewdata compatible graphics
- 6 octaves of real sound plus HI-FI output
- Centronics printer interface and cassette port
- Comprehensive user manual

OPTIONAL MODEM OFFERS COMPUTER PHONE LINK FOR:  
● ELECTRONIC MAIL ● TELESOFTWARE ● PRESTEL

COMING SOON, TO COMPLETE YOUR SYSTEM, ORIC MICRO-DRIVE DISCS & SPEED-PRINTER

**FOR HOME:** The ORIC-1 is the professional alternative for home computing. Superbly styled, the 57 key layout is based upon computers costing many times more than the ORIC... and will help the whole family to learn and understand computing, right from day one. The ORIC incorporates an improved version of Basic for ease of programming and use. For the enthusiasts the computer has laser taps, explosions, etc. pre-programmed for games use, with HI-FI output for incredible effect. The communications Modem will allow "Telesoftware", message sending, and Prestel use.

**FOR BUSINESS:** The ORIC-1 is the answer to many day to day problems. Software is becoming available for payroll, accounts, stock-control, and many more systems to help you day to day business organising and control. In addition, the ORIC COMMUNICATIONS MODEM will allow you to access up to 200,000 pages of Prestel information, to send and receive "electronic" mail, to book hotels, and flights (and pay for them) and to look at the latest stock-market and share indexes. In short the ORIC-1 is a must for all businesses large or small.

**HOW TO ORDER YOUR ORIC-1:** By phone: Just ring our teleshops number Ascot (05940) 27041.  
By post: You can pay by cheque, postal order  
ACCESS - BANKCARD - AMEX - OTHERS.  
(Please allow 28 days for delivery.)  
Money back if not satisfied.

Copyright ORIC PRODUCTS INTERNATIONAL 1982

FREE  
FORTH  
with every  
48K  
model

THE REAL  
COMPUTER SYSTEM  
FOR

£ 99<sup>95</sup>  
incl VAT

**ORIC-1**

The Real Computer System

ORIC PRODUCTS INTERNATIONAL LTD

ORIC



**W**arpath is set in a Wild West scenario. A group of troopers are making their way through Indian country to relieve a beleaguered garrison. They are if their flag is carried successfully to the gates. The Indians, on the other hand, are intent on recovering the garrison from their territory. They aim by capturing either the garrison's headquarters or the flag.

While the troopers have the greater firepower, this is matched by the increased mobility of the Indians so that the game is fairly evenly balanced. It is a relatively simple wargame. The rules, by modern wargame standards, are not complex but despite this it can produce interesting situations.

This is poor chance to change history and be remembered as the hero that saved Fort Chisagolet! Or perhaps you would prefer to be known as the Indian Chief that saved the West and kept the tribe out of the reservations.

In this series of articles I am going to explain some of the techniques used to develop my wargames using Warpath as a typical example. Although it was written for the TRS-80 Level II, it is intended to provide sufficient detail to enable it to be modified for any computer. As we progress we will introduce the rules of play and the further routines and we have a complete wargame. As well as taking part in an interesting project, it is hoped you will find the ideas helpful in your own programming.

First, an explanation is necessary. Warpath contains 134 lines in multiples of 10 (i.e. from 10 to 1340). To avoid any subsequent confusion, every line will be printed exactly as it appears in the program. This will mean that occasionally lines will include references to subroutines which, if they are not relevant to the current article, are not listed. To ensure that the program runs properly without them, I have simply



# WARPATH

*More than just a wargame, Ron Potkin's series develops into a thrilling wild west conflict but also teaches some advanced programming techniques.*

added a RETURN at the appropriate line with the remark, 'TUNE' See lines 890 and 890 for examples. These will eventually be filled out and completed.

For those of you who are unfamiliar with wargames, let me first describe the box. Most games are played on a board divided into squares so that pieces may move in four or, if you include diagonals, eight directions. But squares are a problem in wargames because a piece moving diagonally will, in fact, move further than a piece moving, say, North or West.

This difficulty has been overcome by dividing a map into regular hexagons, or 'hex' for short (see Figure 1). While the number of possible directions is

reduced to six, you will see that all distances are equal. I have adopted the hex as standard in all my wargames with the exception of Turf and Track, which uses squares.

We are going to start by describing Nipscreen and Window. These are the basic elements of the program and were designed so that several wargames could be devised (Nipscope! I and Up Periscope! use the same routine). Instead of an area of 100 hex which fills the video screen, the map is held in a separate part of memory and only the relevant section appears on the screen. This large map is called Nipscreen and contains 31 rows of 128 prime locations. The video is regarded as a Window

looking over a portion of the map.

Nipscreen is an array of 2048 bytes and can hold a map of 400 hex (see Figure 2). The numbers represent the first prime positions for the pieces. Figure 3 shows the layout of the Window. It starts at the prime location 132 and consists of 11 rows of 88 bytes leaving room for messages and the map co-ordinates. It displays at any time an exact image of a portion of the map.

You should examine both arrays carefully and, in particular, note the way that the hex are laid out. We will discuss them in more detail later when we look at the movement of pieces. In a program of this nature many of the routines are concerned with searching the hex.



Right now we have to try and relate the Biquaness positions to the Window. If a piece is at location ML, on Biquaness, how do we decide what part of the map should appear in the Window? In the magazine, it is desirable that the current piece being moved be in the centre of the Window so that it can "see" in all directions.

An algorithm is needed which, given ML — the location on the Biquaness, will calculate: HI — the address of the top-left corner of the selected rectangle, and EP — the position at which the piece will appear on the screen. Unless the piece is near the edge of the map, EP will be 42L.

The following routine will perform these calculations:

```

2= 289L=MLAND (17Q=STYML:18I)
EP=5PTEHSEP=13+ENT=CELDSEP
=5PTEHSEP=50+ENT=TELDSEP=18E
HI=0-34
EP=5PTEHSEP=EP+47Q=ENT:58DEL:
EP=EP+32E
EPQ=5PTEHSEP=EP+47Q=STYHI
=STY=289L=MLAND (17Q=STYML:18I)
Q=58RTURN

```

Looks complicated, doesn't it? Try it. Type the lines in, INPUT various values for ML and PRINT out the values EP and



HI. Most of the routine is spent checking to see if the piece is near the edges.

Once we have made the calculation, the correct part of the map is transferred to the Window and after we have carried out the player's move, the updated image is transferred back to the map. It is, of course, very important that we do not disturb ML during the process.

Unfortunately, transferring the map to the Window or copying the Window back to the map is very slow in Basic and so we must use machine language to perform these functions. Never used this before? Well, don't worry; I am going to make it as straightforward as I can so that you can't go wrong.

Strings are used in the program to save memory. Compared with DATA statements and other methods of using machine language in Basic programs, strings are very efficient in terms of convenience, time and space. In general, an 80% saving is realistic — you can see this by comparing the length of lines 3900 to 3911 with the length of lines 3540 to 3558 which will eventually contain the DATA. However, strings do have disadvantages: the lines containing them cannot be edited or lined and neither (in our case) should be used since these have special meanings to the Basic editor.

In the Basic listing that follows we shall use DATA to create a string of machine language and then delete it from the program. For those of you that want to understand the machine language contained in the DATA, a section of the coding which performs the algorithms above is shown in figure 4. You can see that the second column matches the DATA statements.

The program contains a loader which converts the code held in DATA statements to strings and a driver to demonstrate the Biquaness routine. It is important to list X(1) with exactly 230 characters, X(2) with 31 and X(3) with 37. You will find that the editor will refuse to accept line 3540 in one shot (the limit is 240 characters including the line number), so type as much as you can and then enter the END? mode and press 2. You will be able to add the additional characters at the end. Finally, make sure you save the program.

When you run it, there will be a pause while the strings are created. The program will stop if it encounters errors in the DATA lines. X(3) is used to clear the Biquaness by loading each byte with 128. Do not use the space (or 0) if you intend using graphics since you cannot manipulate the pixels. X(1) is used to set the appropriate rectangle, a character is processed in the Window and then X(1) is used again to put it back.

Finally, the Biquaness with its contents and co-ordinates is correlated across the Window. Press ENTER to stop the loading.

All lines up to 1798 which are multiples of 30 are extracts from the magazine. Eventually, all other lines can be deleted but we will keep them until all the strings are complete. Finally, here

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00

Figure 4

132	146	160	174	188	202	216	230	244	258	272	286	300	314	328	342	356	370	384	398	412	426	440	454	468	482	496	510	524	538	552	566	580	594	608	622	636	650	664	678	692	706	720	734	748	762	776	790	804	818	832	846	860	874	888	902	916	930	944	958	972	986	1000																																	
132	284	388	492	596	700	804	908	1012	1116	1220	1324	1428	1532	1636	1740	1844	1948	2052	2156	2260	2364	2468	2572	2676	2780	2884	2988	3092	3196	3300	3404	3508	3612	3716	3820	3924	4028	4132	4236	4340	4444	4548	4652	4756	4860	4964	5068	5172	5276	5380	5484	5588	5692	5796	5900	6004	6108	6212	6316	6420	6524	6628	6732	6836	6940	7044	7148	7252	7356	7460	7564	7668	7772	7876	7980	8084	8188	8292	8396	8500	8604	8708	8812	8916	9020	9124	9228	9332	9436	9540	9644	9748	9852	9956	10000

Figure 5

MERseyside's BIGGEST SOFTWARE STOCKIST

# Microspot

ATARI 400 16K £199.99

ATARI 400 48K £279.99

ATARI 800 16K £399.99

DRAGON 32 £199.00

**KEYBOARD FOR ATARI 400 £79.99**

ATARI SOFTWARE ... OVER 200 IN STOCK INCLUDING Bandits, Chopper, Venus Voyager, Pionic Paradise, Claim Jumper. Call for latest software.

VIC 20 SOFTWARE ... Mind Twisters, Marlon Raider, Space Storm, Skramble, Space Phreako, Night Crawler.

BUG BYTE SOFTWARE — Call for latest.

DRAGON 32 ... Escape, Slipper, Defence Programs, Frooks 1, 2 & 3, Scorfman, Planet Invasion, Light Pen, Alcatraz, Space Monopoly, Mansion Adventure, Jerusalem Adventure. Ring for latest.

## MICROSPOT

15 Woodfield  
Liverpool L12 8BJ  
Tel: 051-236 8828

## ATARI VCS CARTRIDGES

from **PANCOM**

The largest selection in the UK ... at lowest prices

ATARI Title	Price	ATARI Title	Price
Bandits	£1.99	Planet Invasion	£1.99
Chopper	£1.99	Planet Invasion	£1.99
Claim Jumper	£1.99	Planet Invasion	£1.99
Chopper	£1.99	Planet Invasion	£1.99
Claim Jumper	£1.99	Planet Invasion	£1.99
Chopper	£1.99	Planet Invasion	£1.99
Claim Jumper	£1.99	Planet Invasion	£1.99
Chopper	£1.99	Planet Invasion	£1.99
Claim Jumper	£1.99	Planet Invasion	£1.99
Chopper	£1.99	Planet Invasion	£1.99
Claim Jumper	£1.99	Planet Invasion	£1.99
Chopper	£1.99	Planet Invasion	£1.99
Claim Jumper	£1.99	Planet Invasion	£1.99
Chopper	£1.99	Planet Invasion	£1.99
Claim Jumper	£1.99	Planet Invasion	£1.99
Chopper	£1.99	Planet Invasion	£1.99
Claim Jumper	£1.99	Planet Invasion	£1.99
Chopper	£1.99	Planet Invasion	£1.99
Claim Jumper	£1.99	Planet Invasion	£1.99

Shipping costs: Outside Great Britain: Europe: £10.00, USA: £20.00, Australia: £20.00, Japan: £25.00, India: £15.00, Pakistan: £15.00, Middle East: £15.00, Africa: £15.00, Asia: £15.00, Oceania: £15.00.



## MAKE YOUR CONTRIBUTION TO SPECIAL EDUCATION MORE EFFECTIVE

Katey Franklin copes very well with her learning problems. Thanks to developments with computers in special education, like many other children, she now has the ability to communicate with the aid of microelectronic devices which help her to write essays. Arrows, pictures and more important of all, to gain her independence.

**Learning To Cope '80** — Computers in Special Education, is the second of this annual publication which presents the story of Robben and how many other physically and mentally handicapped children and adults are coping with their futures. Translating progress is being made through the manufacture of specialised devices and through the dedication of teachers and parents.

**Learning To Cope '81** looks at specialised computer hardware and software and brings you the latest developments in applications covering all aspects of special education. Read for yourself how committed people have developed and redesigned one and existing equipment to help those in special education help themselves.

Write us all help if we can't reach.

### Learning To Cope '80 — Computers in Special Education £2

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Postcode: \_\_\_\_\_  
 Telephone: \_\_\_\_\_  
 Send me £2.00 (enclosed) / £1.00 (by cheque) / £1.00 (by credit card)



are a few notes on some of the lines in the program:

Line 10 — Why do I perform this GOTO 999? I have found that it is a good idea to put my subroutines near the beginning of the program. There are two reasons for this.

- The interpreter searches for line numbers from the beginning of the program and so it is marginally faster. I experimented with this in a program on the IBM, and found that I could save several seconds by moving a subroutine from line 8000 to line 20.

- It saves space. COBOL/360000 costs bytes but COBOL/360 only costs 3. You will discover that I am a byte-miser and will try anything I'll cut save a few bytes as a result. You can see therefore that by jumping to line 990, I leave room for subroutines.

Line 190 — POKE F and D+1 with the value of F which must be between 0 and 255. POKE is a marvelous instruction to try out on a friend, but was used by me typed out a long program without a single BAKT!

Line 380 — O is the GETPUT flag. If O=1 copy SCREEN to WINDOW, if O=0 copy WINDOW to SCREEN. Don't forget that although IBM will



## WARPATH

to be continued  
next month

accept only one argument up to 255, you can use compound arguments. In this case, I must pass the variables M, and C. Since M ranges from 0 to 255 in steps of 8, I am able to use B+0 as the GETPUT flag.

Line 440 — Obtain the address of the string in KEY. If your computer has VALPTR then replace it with the CBI which makes using machine language somewhat cumbersome.

Line 790 — Save MEMORY SIZE. You must use CLEAR before and after OSUB 160. This method avoids having to remember the size each time the program is run. Many types of BASIC already have this built in.

Line 1110 — Use machine language routines often call other routines. This would involve POKEing new addresses each time the program is run and could cause problems with 04 and zero. Instead, a fixed jump table is used (see variable B1) and its address coded into the routine.

Once you understand the principles, experiment with the routine. Remember that ML must always be an even number otherwise it will upset the GETPUT flag. Next month I shall continue with the Internal Board and the Peace Table which looks at the make-up of the cavalry, garrisons and Indian tribe.

0001	0002	0003	0004	0005	0006	0007	0008	0009	0010	0011	0012	0013	0014	0015	0016	0017	0018	0019	0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	0030	0031	0032	0033	0034	0035	0036	0037	0038	0039	0040	0041	0042	0043	0044	0045	0046	0047	0048	0049	0050	0051	0052	0053	0054	0055	0056	0057	0058	0059	0060	0061	0062	0063	0064	0065	0066	0067	0068	0069	0070	0071	0072	0073	0074	0075	0076	0077	0078	0079	0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	0090	0091	0092	0093	0094	0095	0096	0097	0098	0099	0100	0101	0102	0103	0104	0105	0106	0107	0108	0109	0110	0111	0112	0113	0114	0115	0116	0117	0118	0119	0120	0121	0122	0123	0124	0125	0126	0127	0128	0129	0130	0131	0132	0133	0134	0135	0136	0137	0138	0139	0140	0141	0142	0143	0144	0145	0146	0147	0148	0149	0150	0151	0152	0153	0154	0155	0156	0157	0158	0159	0160	0161	0162	0163	0164	0165	0166	0167	0168	0169	0170	0171	0172	0173	0174	0175	0176	0177	0178	0179	0180	0181	0182	0183	0184	0185	0186	0187	0188	0189	0190	0191	0192	0193	0194	0195	0196	0197	0198	0199	0200	0201	0202	0203	0204	0205	0206	0207	0208	0209	0210	0211	0212	0213	0214	0215	0216	0217	0218	0219	0220	0221	0222	0223	0224	0225	0226	0227	0228	0229	0230	0231	0232	0233	0234	0235	0236	0237	0238	0239	0240	0241	0242	0243	0244	0245	0246	0247	0248	0249	0250	0251	0252	0253	0254	0255	0256	0257	0258	0259	0260	0261	0262	0263	0264	0265	0266	0267	0268	0269	0270	0271	0272	0273	0274	0275	0276	0277	0278	0279	0280	0281	0282	0283	0284	0285	0286	0287	0288	0289	0290	0291	0292	0293	0294	0295	0296	0297	0298	0299	0300	0301	0302	0303	0304	0305	0306	0307	0308	0309	0310	0311	0312	0313	0314	0315	0316	0317	0318	0319	0320	0321	0322	0323	0324	0325	0326	0327	0328	0329	0330	0331	0332	0333	0334	0335	0336	0337	0338	0339	0340	0341	0342	0343	0344	0345	0346	0347	0348	0349	0350	0351	0352	0353	0354	0355	0356	0357	0358	0359	0360	0361	0362	0363	0364	0365	0366	0367	0368	0369	0370	0371	0372	0373	0374	0375	0376	0377	0378	0379	0380	0381	0382	0383	0384	0385	0386	0387	0388	0389	0390	0391	0392	0393	0394	0395	0396	0397	0398	0399	0400	0401	0402	0403	0404	0405	0406	0407	0408	0409	0410	0411	0412	0413	0414	0415	0416	0417	0418	0419	0420	0421	0422	0423	0424	0425	0426	0427	0428	0429	0430	0431	0432	0433	0434	0435	0436	0437	0438	0439	0440	0441	0442	0443	0444	0445	0446	0447	0448	0449	0450	0451	0452	0453	0454	0455	0456	0457	0458	0459	0460	0461	0462	0463	0464	0465	0466	0467	0468	0469	0470	0471	0472	0473	0474	0475	0476	0477	0478	0479	0480	0481	0482	0483	0484	0485	0486	0487	0488	0489	0490	0491	0492	0493	0494	0495	0496	0497	0498	0499	0500	0501	0502	0503	0504	0505	0506	0507	0508	0509	0510	0511	0512	0513	0514	0515	0516	0517	0518	0519	0520	0521	0522	0523	0524	0525	0526	0527	0528	0529	0530	0531	0532	0533	0534	0535	0536	0537	0538	0539	0540	0541	0542	0543	0544	0545	0546	0547	0548	0549	0550	0551	0552	0553	0554	0555	0556	0557	0558	0559	0560	0561	0562	0563	0564	0565	0566	0567	0568	0569	0570	0571	0572	0573	0574	0575	0576	0577	0578	0579	0580	0581	0582	0583	0584	0585	0586	0587	0588	0589	0590	0591	0592	0593	0594	0595	0596	0597	0598	0599	0600	0601	0602	0603	0604	0605	0606	0607	0608	0609	0610	0611	0612	0613	0614	0615	0616	0617	0618	0619	0620	0621	0622	0623	0624	0625	0626	0627	0628	0629	0630	0631	0632	0633	0634	0635	0636	0637	0638	0639	0640	0641	0642	0643	0644	0645	0646	0647	0648	0649	0650	0651	0652	0653	0654	0655	0656	0657	0658	0659	0660	0661	0662	0663	0664	0665	0666	0667	0668	0669	0670	0671	0672	0673	0674	0675	0676	0677	0678	0679	0680	0681	0682	0683	0684	0685	0686	0687	0688	0689	0690	0691	0692	0693	0694	0695	0696	0697	0698	0699	0700	0701	0702	0703	0704	0705	0706	0707	0708	0709	0710	0711	0712	0713	0714	0715	0716	0717	0718	0719	0720	0721	0722	0723	0724	0725	0726	0727	0728	0729	0730	0731	0732	0733	0734	0735	0736	0737	0738	0739	0740	0741	0742	0743	0744	0745	0746	0747	0748	0749	0750	0751	0752	0753	0754	0755	0756	0757	0758	0759	0760	0761	0762	0763	0764	0765	0766	0767	0768	0769	0770	0771	0772	0773	0774	0775	0776	0777	0778	0779	0780	0781	0782	0783	0784	0785	0786	0787	0788	0789	0790	0791	0792	0793	0794	0795	0796	0797	0798	0799	0800	0801	0802	0803	0804	0805	0806	0807	0808	0809	0810	0811	0812	0813	0814	0815	0816	0817	0818	0819	0820	0821	0822	0823	0824	0825	0826	0827	0828	0829	0830	0831	0832	0833	0834	0835	0836	0837	0838	0839	0840	0841	0842	0843	0844	0845	0846	0847	0848	0849	0850	0851	0852	0853	0854	0855	0856	0857	0858	0859	0860	0861	0862	0863	0864	0865	0866	0867	0868	0869	0870	0871	0872	0873	0874	0875	0876	0877	0878	0879	0880	0881	0882	0883	0884	0885	0886	0887	0888	0889	0890	0891	0892	0893	0894	0895	0896	0897	0898	0899	0900	0901	0902	0903	0904	0905	0906	0907	0908	0909	0910	0911	0912	0913	0914	0915	0916	0917	0918	0919	0920	0921	0922	0923	0924	0925	0926	0927	0928	0929	0930	0931	0932	0933	0934	0935	0936	0937	0938	0939	0940	0941	0942	0943	0944	0945	0946	0947	0948	0949	0950	0951	0952	0953	0954	0955	0956	0957	0958	0959	0960	0961	0962	0963	0964	0965	0966	0967	0968	0969	0970	0971	0972	0973	0974	0975	0976	0977	0978	0979	0980	0981	0982	0983	0984	0985	0986	0987	0988	0989	0990	0991	0992	0993	0994	0995	0996	0997	0998	0999
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

# CHRISTMAS ONCE A YEAR. GAMES ONCE IN A



---

## ACTIVISION

video game cartridges for use with  
the Atari® Video Computer System™

---

### STARMASTER®

You are cruising through an empty part of the galaxy, but squadrons of enemy starfighters are threatening your four friendly starbases. You call up your Galactic Chart and plot a course to intercept. Warping through hyperspace en route you avoid deadly showers of meteors. Now your cursight is flashing and the enemy is near. You destroy them with your laser cannon, but your computer read-out tells you that their fire has destroyed your shields and drained your energy

reserves.

Again you call up the Galactic Chart and plot a course to your starbase. You dock, and your damage is repaired, your energy banks replenished. Back you go to re-engage the enemy.

Now you have some idea of the astonishing realism and excitement of this Space Odyssey.

### CHOPPER COMMAND®

A convoy of trucks is ferrying vital medical supplies through the arid desert. You are flying escort in your helicopter gunship.

Suddenly a flight of enemy machines shows up on your long range scanner and you head in to attack with your laser cannon. They reply with deadly multi-warhead missiles. You start with two choppers in reserve, and add another for each 10,000 points scored, up to a maximum of six.

# S COMES BUT S AS GREAT AS THESE A LIFETIME.



You'll need to move very fast to destroy this enemy, for the more you shoot down, the better they get. So even though your chopper is really manoeuvrable (a touch on the joystick sends it into an instantaneous 180° turn) you'll find the opposing helicopter and jets very difficult to defeat. It's by no means easy. It requires lots of strategy and lightning reflexes and that's why 'Chopper Command' is destined to become one of the all-time video game classics.

STORMMASTER<sup>®</sup> and COPPER COMMAND<sup>®</sup> just two of the great ACTIVISION<sup>®</sup> range of video game cartridges for use with the Atari<sup>®</sup> Video Computer System<sup>®</sup>. Each and every ACTIVISION<sup>®</sup> cartridge features an outstanding game concept and the quality of the graphics just has to be seen to be believed. So get along to your local video game stockist and see the range demonstrated.

Atari<sup>®</sup> and Video Computer System<sup>®</sup> are trademarks of Atari Inc.



To: CCL Activision  
Fun Club, FREEPOST,  
Loughnon, Essex  
S40 9AR. (No stamp  
required). Tel: Paddy Leonard  
on 0620 704488/30000.

Please register me as a member  
of the Activision Fun Club. I understand that membership  
is entirely free and entitles me to a 50p cash rebate token,  
a free regular magazine and the opportunity to  
participate in special Activision competitions.

First Name(s) \_\_\_\_\_  
Surname \_\_\_\_\_  
Age (in years) 11 or under  12-17  18-24  25 or over

Address \_\_\_\_\_  
\_\_\_\_\_

Postcode \_\_\_\_\_  
**Bringing leisure to life**





## YOU'VE SEEN THE PICTURES, NOW SEND FOR THE WORDS

### BBC Microcomputer or Acorn Atom

Acornsoft is the software division of Acorn Computers, designers and manufacturers of the BBC Micro and Atom. We know better than anyone the capability of the machines, we know how to get the very best from the hardware. And we have produced a range of exciting games, exciting business and useful household software.

### The Biggest Range Available

Acornsoft software ranges from authentic arcade games like Snapper to Algebraic Manipulation to Desk Diary to other languages like FORTH and LISP, printing colour, amazing sound effects and powerful

graphics are all used to the full. And it does not stop there. There is a complete range of manuals, accessories and plug-in ROMs.

### Free Brochure

Just clip the coupon or write to us and we will rush our catalogue absolutely free. Can't wait for the post ring 01-484 1664 now! Don't delay - do it today. Let Acornsoft help you get the best from our machine and open the doors to your imagination.

Acornsoft and Acorn are registered trademarks of Acorn Computers Ltd.

# ACORN<sup>®</sup>SOFT

14 Market Hill,  
CAMBRIDGE CB2 1JQ

**FREE!**



Please send me  
my free  
brochure from  
Acornsoft.

Yes

No

Name

Address

Postcode



# MYSTERIOUS ADVENTURES



Join the greatest band of Adventurers who are enjoying their amazing and stimulating adventures. Step into another world of fantasy, magic, mystery and horror. Find out why and learning the most exciting games in their series!

FOR BBC MICROCOMPUTER  
MODELS A & B\*

- WRITTEN IN 6502/65C2 MACHINE CODE.
- 6502 GAME FEATURE.
- 6502 GAME DISPLAY.
- SOUND AND GRAPHICS ON ADVENTURE A & B.

1. **THE GOLDEN BATON** (P. 1) — Venture into a strange province of fantasy and Evil Magic to rescue the Golden Baton, a precious object whose powers are said to bring great wealth and prosperity to the Land.
2. **THE KING'S MOUNTAIN** (P. 2) — As a Hermitage member you are sent to investigate the ancient Professor who lives in the old house on the Mount. What is his secret and why has he found his strength?
3. **WINDY OF DEATH** (P. 3) — A night has fallen on your homeland, the Irons. The people are terrified and now require a magician to save them. Your mission is clear — to find the source of the evil and destroy it or be destroyed. This is the first part of an Epic Adventure although each part can be played as a stand alone adventure.
4. **ARROW OF DEATH** (P. 4) — You have found the means to destroy your enemy... but who are they? How have they the land is strange to you. Can you save your already perilous world against you, and have you the strength to see your mission through to the final conflict?



5. **ESCAPE FROM PULSAR 7** — Acorn on a gigantic Space-Fighter... The rest of your crew have died horribly at the hands of a mutated Bio-Organism, but only chance of escape is to reach the Final Destination. But the Sinking Machine is huge and you are the only hope it has left!
6. **WINDY** — Your Car has run out of Petrol on a lonely mountain from Galatia. As you fudge miserably Omen's arrival, but only chance of escape is to reach the Final Destination. But the Sinking Machine is huge and you are the only hope it has left!
7. **WINDY (V) EXPERIMENT** — The secret of time and space, a Spring 1000 of Super-Designer beings search the Universe for a Hero to save their existence. At length their mission has to be completed. You are chosen to be their hero and to locate someone whose death is their thought only...

\* Adventure A, B and 7 require DMA ROM

Each adventure costs attractively packaged for just £9.95 inc. Post. Now in stock for AT400 480 800 912 70.  
Available also for ZX SPECTRUM, C64, 1346, APPLE II.



Send orders to P.O. Box

**DIGITAL PANTHERA**, DEPT. SWL,  
16 WICKHAMPTON ROAD, WIMBORNE, BLAKEFOOT, LANGSHIRE,  
Tel: 0206 5262

# Graphics



## IN-BETWEEN THE LINES

To produce graphics that move, a technique known as "in-betweening" can be used to automatically give the stages in an animated sequence.

As its name suggests, when given starting and finishing pictures, the technique will provide all the frames in between, and in the correct order. This method has been used in one form or another to help automate the production of cartoon films.

Computers have been adapted to relieve artists of the routine tasks of creating the in-between frames for many sequences.

To begin with a simple example, the frame that is half way between a square and a tall thin rectangle can be constructed as shown in figure 1. The dashed lines show the paths from the points on the first frame to the corresponding points on the last frame. The frame that is half way between the first and the last is virtually half way along these paths.



Fig 1

The in-between frame in this example has the shape that we would expect. It has been produced entirely by geometric means, and any number of in-between frames could have been generated in essentially the same way. It only remains to develop a program to carry out the same process.

In writing the program, we must first decide how a picture is to be stored, since we must provide the initial and final positions. We can do this by storing the columns and row positions of every point that has to

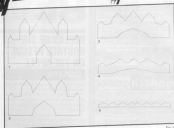


Fig 2

be joined up in order to draw the picture in two arrays.

We shall store the column and row positions respectively for the first picture in the arrays XF and YF, and for the last picture in the arrays XL and YL.

The following program will then draw the first frame, an in-between frame half way between the first and last frames, and then the last frame. It assumes that the frames are each drawn by joining 25 points, but this number can be changed throughout to any other.

```

10 DIM
  XF(25),YF(25),XL(25),YL(25)
20 REM ENTER COLUMN AND
  ROW POSITIONS
30 REM FOR FIRST AND LAST
  FRAMES
100 REM DRAW FIRST FRAME
110 MOVE XF(1),YF(1)
120 FOR J=2 TO 25
130 DRAW XF(J),YF(J)
140 NEXT J
200 REM DRAW IN-BETWEEN
  FRAME
210 MOVE (XF(1)+XL(1))/
  2,YF(1)+YL(1)/2
220 FOR J=2 TO 25
230 DRAW (XF(J)+XL(J))/
  2,YF(J)+YL(J)/2
240 NEXT J
400 REM DRAW LAST FRAME
410 MOVE XL(1),YL(1)
420 FOR J=2 TO 25
430 DRAW XL(J),YL(J)
440 NEXT J
  
```

The program can be developed further to draw any number of frames in between the first and the last. The program is written so that the user can enter the number of in-between frames that is required. The program is obtained by replacing all the lines with line numbers in the two-hundredths in the previous program with the following segment.

```

200 REM DRAW ANY NUMBER
  OF IN-BETWEEN FRAMES
210 INPUT "NUMBER OF IN-
  BETWEEN FRAMES";NF
220 FOR I=1 TO NF
230 X=(XF(I)*NF+1-I)+XL(I)/I)
  (NF+1)
240 Y=(YF(I)*NF+1-I)+YL(I)/I)
  (NF+1)
250 MOVE X,Y
260 FOR J=2 TO 25
270 X=(XF(J)*NF+1-I)+XL(J)/I)
  (NF+1)
280 Y=(YF(J)*NF+1-I)+YL(J)/I)
  (NF+1)
290 DRAW X,Y
300 NEXT J
310 NEXT I
  
```

The sequence shown in figure 2 was produced with this program. In order to generate realistic sequences, the initial and final frames should not be too dissimilar. However, when very different frames are used for the first and last ones, some very interesting, and sometimes artistic, results can be obtained.

**Z81 Spectrum BBC VIC**

**ADULT GAMES 11**

**Can of Worms £3**  
 8 GAMES • ADULT SUBJECTS • SMUT DOGS  
 WITH 12 MOVIE FLICKS • BILLY • P. & G.

**Love & Death £5**  
 8 GAMES • BILLY • SUBJECTS • ADULT  
 MOVIES • FLICKS • C. & G. • P. & G.

**The Bible £5**  
 8 GAMES • BILLY • SUBJECTS • ADULT  
 MOVIES • FLICKS • C. & G. • P. & G.

**ADULT GAMES 11**

**Can of Worms £3**  
 8 GAMES • ADULT SUBJECTS • SMUT DOGS  
 WITH 12 MOVIE FLICKS • BILLY • P. & G.

**Love & Death £5**  
 8 GAMES • BILLY • SUBJECTS • ADULT  
 MOVIES • FLICKS • C. & G. • P. & G.

**The Bible £5**  
 8 GAMES • BILLY • SUBJECTS • ADULT  
 MOVIES • FLICKS • C. & G. • P. & G.

**ADULT GAMES 11**

**Can of Worms £3**  
 8 GAMES • ADULT SUBJECTS • SMUT DOGS  
 WITH 12 MOVIE FLICKS • BILLY • P. & G.

**Love & Death £5**  
 8 GAMES • BILLY • SUBJECTS • ADULT  
 MOVIES • FLICKS • C. & G. • P. & G.

**The Bible £5**  
 8 GAMES • BILLY • SUBJECTS • ADULT  
 MOVIES • FLICKS • C. & G. • P. & G.

**martech games**

**ADULT GAMES 11**

**Can of Worms £3**  
 8 GAMES • ADULT SUBJECTS • SMUT DOGS  
 WITH 12 MOVIE FLICKS • BILLY • P. & G.

**Love & Death £5**  
 8 GAMES • BILLY • SUBJECTS • ADULT  
 MOVIES • FLICKS • C. & G. • P. & G.

**The Bible £5**  
 8 GAMES • BILLY • SUBJECTS • ADULT  
 MOVIES • FLICKS • C. & G. • P. & G.

**MC-80K GAMES, SOFTWARE**

**HIGH QUALITY — LOW COST — SAME**

**DAY OPERATOR**

**ADULT GAMES 11**

**Can of Worms £3**  
 8 GAMES • ADULT SUBJECTS • SMUT DOGS  
 WITH 12 MOVIE FLICKS • BILLY • P. & G.

**Love & Death £5**  
 8 GAMES • BILLY • SUBJECTS • ADULT  
 MOVIES • FLICKS • C. & G. • P. & G.

**The Bible £5**  
 8 GAMES • BILLY • SUBJECTS • ADULT  
 MOVIES • FLICKS • C. & G. • P. & G.

**PORTFOLIO**

**ADULT GAMES 11**

**Can of Worms £3**  
 8 GAMES • ADULT SUBJECTS • SMUT DOGS  
 WITH 12 MOVIE FLICKS • BILLY • P. & G.

**Love & Death £5**  
 8 GAMES • BILLY • SUBJECTS • ADULT  
 MOVIES • FLICKS • C. & G. • P. & G.

**The Bible £5**  
 8 GAMES • BILLY • SUBJECTS • ADULT  
 MOVIES • FLICKS • C. & G. • P. & G.

**ZX81 1K ADULT GAMES 11**

**ON CASSETTE**

**Can of Worms £3**  
 8 GAMES • ADULT SUBJECTS • SMUT DOGS  
 WITH 12 MOVIE FLICKS • BILLY • P. & G.

**Love & Death £5**  
 8 GAMES • BILLY • SUBJECTS • ADULT  
 MOVIES • FLICKS • C. & G. • P. & G.

**The Bible £5**  
 8 GAMES • BILLY • SUBJECTS • ADULT  
 MOVIES • FLICKS • C. & G. • P. & G.

**WARE SOFTWARE SOFTWARE SOF**

# REVIEWS

## REPLAY OF THE HOSTAGE RESCUE ON THE APPLE

### CHOPFLIFTER

Chopflifter is the top selling game in the UK for the Apple II range.

In it you play the part of a helicopter pilot on a mission to rescue hostages trapped inside enemy barracks deep inside hostile territory.

The game has obvious associations with the Iranian hostage affair with the helicopters crashing in the desert, and the hostages running helplessly towards the helicopter with enemy tanks in hot pursuit. No mention is made of the affair of course in the interest of good taste, but whatever Chopflifter's associations it is undoubtedly an impressive game.

The graphics are superb. The running motion of the hostages has been excellently simulated as has the flight of the helicopter.

Each time you rescue a hostage the

## THIS ONE WILL GO DOWN FIGHTING

Golden Gloves is all about the noble art of boxing. You can either take control of a boxer and fight a friend or the computer.

The computer will also fight an exhibition match with itself.

After naming your boxer the screen switches to a view of the ringside. Your fighter is in the left hand corner. The bell rings and you come out fighting.

You guide your boxer with the joystick. Moving it left or right moves your boxer across the screen. Pulling it down makes him duck and pushing it up makes him unleash his best uppercut. Pressing the trigger button allows him to jab.

The computer boxer — Rocky — is a mean and hard hitter. You will have to be on your toes to avoid the knockout.

Indeed it takes a good fighter to feel more than one round with him. If you do get knocked down the count starts and if you are still on the canvas at ten then you have lost and you are asked for a rematch.

If you manage to avoid a knockout and go through the three, two minute rounds then the winner is the player with the most points. These are awarded for the number of punches that are landed and the number of times your opponent has been on the canvas.

Golden Gloves is a colourful game and

computer sends a high pitched beep telling you that the hostage is safely aboard.

You can only carry sixteen hostages without overloading the chopper so you will have to make more than one sortie into enemy territory.

The number of hostages rescued and tanks destroyed is recorded at the top of the screen.

Advanced play will have to deal with jet fighters called up by the enemy when a chopper pilot is being a little too successful in liberating the hostages.

The game is best played with joysticks although the reviewer played quite an interesting game using paddles. The helicopter can fly backwards forwards and sideways — leaning into a dive most realistically. It is also quite difficult to control and will take you some time to master just as a real helicopter would.

Chopflifter is manufactured by US Apple game specialist BoulderBard. The game is imported into the UK by S&B Software of Bournemouth and can be purchased at £19.95 plus VAT from the London firm.

- ◆ Getting started 5
- ◆ Playability 8
- ◆ Value for money 7

### GOLDEN GLOVES

the figures of the boxers are nicely animated. However I think I would tire of it quickly.

It was very difficult to get beyond the first round but above the third and it seemed all too easy to get a knockout.

Golden Gloves is for the Atari 800/800 and costs £26.95 from Aldus, Hayes, Middlesex.

- ◆ Getting started 5
- ◆ Value 5
- ◆ Playability 5





## DRAGON 32 SOFTWARE

Original adventure games in cassette  
 1014 Mystical Island \$14.95  
 1015 Treasure Island \$14.95  
 1016 Arabian Nights \$14.95  
 1017 Pharaoh's Curse \$14.95  
 All prices include 25% (Sect 504) for full rate

APTEX TRADING LTD. (Dept. 3202)  
 110 Cleveland Street, Birmingham B2 1BA  
 Tel: 021 222 2884. Access Birmingham 021 222 2884

Introducing a new range of software for  
**Atari/VIC/Apple**

400 NAME FOR ATARI 400 (MS) MS NAME  
 400 NAME FOR ATARI 800 (MS) MS NAME  
 400 NAME FOR VIC (MS) MS NAME  
 400 NAME FOR APPLE (MS) MS NAME

1014 Mystical Island \$14.95  
 1015 Treasure Island \$14.95  
 1016 Arabian Nights \$14.95  
 1017 Pharaoh's Curse \$14.95

APTEX TRADING LTD. (Dept. 3202)  
 110 Cleveland Street, Birmingham B2 1BA  
 Tel: 021 222 2884. Access Birmingham 021 222 2884

## SPECIAL CHRISTMAS OFFERS FOR THE SPECTRUM AND THE ZX81

**SPECTRUM** — A fantastic real time adventure in space! Search for the alien Spectrums. Travel between star sectors and destroy the Klingons by planets in space! Features include: auto-computers, damage reports and long-range sensors. Only £5.

**DEATH STAR ATTACK & MEMORY MATCH** — Two programs for the ZX81. One a set of skill card speed and the other a test of memory. Both terrific fun and both at one penny for only £5.

Send cheque/£ 5 to: **SATELLITE SOFTWARE LTD., BROOKHURST, HYDE LANE, DUNSMITH, ESSEX.**

## MZ80K

**HELICOPTER RUN** Moving technique. A game of action, speed and ultimate fun!  
**WALLBALL** An interactive program. Tests your reflexes against a live alien player. Various levels of difficulty. £6.00.

Both games £10. Three include postage £1.10 (incl. VAT). 11 Redway Road, Birmingham, Sect. 1021 102, Tel: 021 222 2884.

## ATARI 400/800 OWNERS

A comprehensive library of cassette cartridges, discs.

Scores of games and adventures etc., for you to file for your Atari Home Computer.

Send SAE for details to:

**HIGHLAND GAMES LIBRARY**

48 Reed Way, Birkhof, Cleve,  
 Doncaster, Glos.

## TEXAS TI99/4A SOFTWARE

Quality software on cassette, programmed under the name of our retail partner. All titles feature format box art for complete fun! All prices include 25% (Sect 504) for full rate

APTEX TRADING LTD. (Dept. 3202)  
 110 Cleveland Street, Birmingham B2 1BA  
 Tel: 021 222 2884. Access Birmingham 021 222 2884

# SOFTWARE REVIEWS

## MASTERING THE ROGUE ROCKS

### ASTEROIDS

*Asteroids* became one of the most games of the early 1980's after the worldwide success of such mega-games as *Space Invaders* and *Galaxian*.

It is considerably more difficult than these earlier games, where you had really only two controls to worry about. *Asteroids* added hyperspace, thrust, rotate left, rotate right and fire.

The game places you in control of space ship being bombarded to a shower of meteorites that come at you relentlessly from the four corners of the screen.

Using your controls you must spin your ship around to shoot the asteroids.

You can also dodge in front or behind the rocks using the thrust button.

If things get a little too hot and a collision seems certain the hyperspace button will make you momentarily disappear and then reappear at a random on the screen. But this could prove disastrous

keyboards overlay which, although it seems just like a gimmick, is actually quite useful in *Asteroids*-type games when you have up to five controls to concentrate on.

My main criticism of *Master Storm* is that the thrust button has inertia, causing you to drift helplessly towards an asteroid, helplessly rotating and thrashing.

Sinclair's official software writers, Pagan, entered the field with *Planetoids*. This is not as close to the arcade game as the *Galaxian* version though the graphics are no less impressive for this.

*Planetoids* had the best fire mechanism of the three games tested. The missiles could be fired in quick succession and reached their targets quickly.

The final version tested was *Meteoroids*



from the new software writers — Galax.

This was not as good a version of the game as the others played. An admirable attempt had been made to simulate the rock-like texture of the asteroids but this did not work. They looked more like chewed up pieces of bubble gum.

There was really not much to choose between the other two — though for my £5 the *Galaxian* version is marginally better because of its extra facilities and graphics.

**Master Storm**

● Getting started 5

● Rules 3

● Playability 8

**Meteoroids**

● Getting started 5

● Rules 5

● Playability 8

**Planetoids**

● Getting started 5

● Rules 5

● Playability 7





South London's Largest  
Micro Computer  
Centre

# VISION STORE

## COMMODORE VIC 20

**5K**  
**£137.95\***  
Inc. basic

**5K + 16K**  
**£185.95\***  
Inc. basic



\*includes 3 Free programmes.

VIC Cassette **£44.00** VIC Disk Drive **£275.00**  
VIC Printer **£275.00** New Low Price **£299.95**  
16K RAM Pack **£49.95**

**NEW** Commodore 64, 64E Colour Computer **£345.00**

**Main Commodore Dealer for:** New 500 series, New 700 series, Business Computers.

### New Vic Software

Wacky Wang!	(Escape/Adventure)	<b>£2.99</b>
Doodle (King's) Benelli's as you climb the side)	(Judge Cam)	<b>£2.99</b>
SD VIC Joystick	Border	<b>£4.99</b>
<b>£6.99</b>	Invision	<b>£4.99</b>
<b>£6.99</b>	Konami	<b>£4.99</b>
Base the on-topside until ending the spider amongst the mountains. Fast action.	Star Wars	<b>£4.99</b>
SD VIC Joystick	Clare	<b>£4.99</b>
<b>£6.99</b>	Target	<b>£4.99</b>
<b>£6.99</b>	Search	<b>£4.99</b>
<b>£6.99</b>		
Make space invaders look like your play, superb graphics.	New 51K Cartridges	<b>£24.95</b>
SD VIC Joystick	Star-Brow	<b>£24.95</b>
<b>£6.99</b>	Music Computer	<b>£24.95</b>
<b>£6.99</b>		
Choose one to three ghosts.	Send for VIC price list	
SD VIC Joystick		
<b>£6.99</b>		

## ATARI 400

**16K**  
**£199.95**  
Low Basic

**32K**  
**£249.95**  
Low Basic



Basic Cartridge **£34.90**

Atari 800 16K Inc. **£299.00** Atari 810 Cassette **£44.00**  
Atari 800 48K Inc. **£449.00** Atari 810 Disk Drive **£299.00**  
Atari 820 Printer **£199.95**

Plus Daisy Wheel and Dot Matrix printers for the Atari range.

**NEW** Atari 400 Typewriter keyboard. Direct easy replacement for standard keyboard **£78.95**

### New Atari Software

Mutiny	CD	<b>£21.99</b>	Time	CD	<b>£21.99</b>
Prepper	CD	<b>£29.99</b>	Kingquid	CD	<b>£19.99</b>
Sea Fighter	C	<b>£18.99</b>	Multiquest	D	<b>£29.99</b>
Musikman	C	<b>£9.99</b>	Shooting Arcade	CD	<b>£29.99</b>
Harold Run	C	<b>£21.99</b>	Procedural	D	<b>£21.99</b>
Amigo Jet Pilot	Beam	<b>£14.99</b>	Nautica	K	<b>£21.99</b>
Golden Gloves	C	<b>£29.99</b>	Prison	CD	<b>£21.99</b>
Pacific Coast	CD	<b>£24.99</b>	Frigger	CD	<b>£21.99</b>
Highway Canyon Climber	CD	<b>£15.99</b>	Couch, Crumble, Crump	CD	<b>£24.99</b>
Chopper	D	<b>£15.99</b>	Empire of	CD	<b>£24.99</b>
My First	D	<b>£29.99</b>	Procedural	CD	<b>£24.99</b>
Adapted	D	<b>£29.99</b>	Ball (Sara)	C	<b>£19.99</b>
Keyboard	D	<b>£22.99</b>	Ball Soccer	Com	<b>£29.99</b>
Submarine	Both	<b>£25.99</b>	All from inc. VAT		

## THE AMAZING ORIC - 1



16K Microsoft Basic  
32K Microsoft Basic  
**£199.95**

Panel

- 40 Columns x 28 rows.
- Microsoft Basic Language.
- 8 Foreground + 8 Background Colours.
- Built-in Sound Synthesiser.
- High Res Graphics.
- Teletext-Printer Compatible.

48K Microsoft Basic & Fort **£349.95**

Come in for a Demonstration.

**Dragon 32K** — Limited Stocks Available  
New Software coming in all the time.

**Now available**  
64K Submarine Commander, 64K Junior Jet  
London, incredible Games for Atari.

**3 Eden Walk Precinct,  
Kingston-on-Thames, Surrey.  
Tel: 01-546 8974**

**VISION STORE**

## Sinclair ZX81

Cased  
typewriter  
Keyboard **£29.95**  
16K RAM **£29.95**  
Printer **£39.95**



Over 700 software programmes always in stock  
We carry probably the widest range with  
continuous demonstrations.

We offer excellent part exchange deals or cash  
for your old machine.

Mail Order — send for our comprehensive list.

Instant  
Credit  
Available  
subject to  
status



# ZX81 & SPECTRUM KEYBOARDS COMPLETE WITH LUXURY CASE FOR ONLY £37.95 INC. V.A.T.

These highly professional keyboards incorporate executive buttons similar to those used on top-quality computers. A repeat key facilitates entering of characters much faster than is possible with a conventional keyboard, thus making it particularly ideal for cursor control and editing. Attractive black plastic moulded case. Supplied with 12" flexible ribbon cable for connection into your computer. *Not to be confused with top keyboards currently on the market. Other attributes as reviewed by **The Mirror**, **ZX Computing/Interface**.*



## OTHER KAYDE HARDWARE/SOFTWARE

### ZX81 4K GRAPHICS BOARD

The 4K graphics board available for microcomputers can, in the words of our ZX81, in some computers with a pre-programmed Graphics ROM. This gives you 4K sub-graphics and 4K sub-graphics modes which allow more screen space to be used. Available graphics are 4096 colours for the ZX81 and 16 colours for the ZX Spectrum. All the graphics are completely software controlled. No hardware can be added, and no programming. There are colour examples. Ask our sales manager -

**£29.95**

### 128K GRAPHICS SOFTWARE

**PECKMAN** - The only true ZX version of the popular arcade game.  
**SPACE INVADERS** - The best version available anywhere.  
**CENTRE** - "Is all I think this is the best presented moving graphic programme I've yet seen" - **Phil Garrett, INTERFACE**

**£5.95 each**

Quality software and only the best with a Kayde's touch.

### RAMPACKS ... With a difference

Kayde Rampacks are exceptionally stable. They don't over heat, over-heaters, available or easier to use than your program. They are fully compatible with all accessories and need no extra power, and therefore without efficiency on existing Sinclair power supply. Simply plug them straight into the rear port of your computer. Top-quality massive add-on memory only.

**£29.95 for 128 ZX81 Rampack and  
£49.95 for 32K Spectrum Rampack**

**FLEXIBLE RAMPACK RIBBON CONNECTOR  
only £12.95**

### 128K 81 SOFTWARE

**3D-3D LABYRINTH**  
- A cube maze that has corridors which may go left, right, up and down. **£5.95**

**4K Tool Kit** full of utilities to aid the programmer in constructing and de-bugging 8-PROGRAM version for use with graphics ROM **£3.95**

### 128K 26 SOFTWARE

**THE SANDS VALLEY**  
**OTHELLO**  
**TWIDDLE TWIDDLE**  
**KAYDE PECKMAN**  
**APOLLO**  
**SPACE ATTACK**  
**PLUS MANY MORE**  
**ALL £7.95 EACH**

Via 20 dealer

Overseas please add £2.50 p.p.h. for all hardware and 75p for all software. All hardware comes fully built and tested and complete with a 14-day money back option. Micro items only.

SEND FOR A FREE CATALOGUE STATING TYPE OF COMPUTER

### KAYDE ELECTRONIC SYSTEMS LTD.

THE CONGE, GREAT YARMOUTH, NORFOLK NR30 1P

TEL: 0493 57867 TELEX: 935 247 CHATCOM G



TO: KAYDE ELECTRONIC SYSTEMS LTD.  
DEPT. 049 THE CONGE, GREAT YARMOUTH,  
NORFOLK NR30 1PJ

PLEASE PRINT

No.	Name	Quantity	Total

Please allow 14 days for all hardware items for all software



DO NOT WRITE YOUR CARD IN RED INK OR OVEN OR THE TELEPHONE WITH YOUR CREDIT CARD. DEALERS MAY COME.

\* I enclose a cheque/postal order payable to Kayde Electronic Systems Ltd. £

\* Please indicate number of machines

Signature

Name Mr. Mrs. Miss

Address



let the  
**DRAGON 32**  
fire your  
imagination . . .



for only **£199.50**

Plus CD Post & Packing

*No other computer offers  
you all these features  
at any price . . .*

- 32K RAM MEMORY
- PROFESSIONAL STANDARD KEYBOARD
- 1 YEAR WARRANTY
- 9 DISPLAY COLOURS
- 5 DISPLAY RESOLUTIONS
- EXCEPTIONAL GRAPHICS CONTROL
- 5 OCTAVE SOUND GENERATOR
- DIRECT MUSIC COMMANDS
- REAL-TIME CLOCK/TIMER
- MICROSOFT EXTENDED COLOUR BASIC
- PLUG-IN CARTRIDGES AVAILABLE
- CENTRONICS PARALLEL PRINTER PORT
- SOCKETS FOR JOYSTICKS
- SOCKETS FOR FULL CASSETTE CONTROL
- EXCELLENT CASSETTE FILE HANDLING
- COMBINED AUDIO/DATA INPUT FACILITY
- AUDIO OUTPUT VIA T.V.
- EXPANDABLE TO 64K RAM
- POWERFUL 6800E MICROPROCESSOR
- FREE 160 PAGE TRAINING MANUAL
- BRITISH MADE

Available *now* from:

**ComServe**

96 TAVISTOCK STREET, BEDFORD MK44 0PA,  
TELEPHONE: BEDFORD (0254) 216749

In stock now  
at Twickenham's  
official BBC/Acorn  
dealer & service  
centre

Phone  
01-891 1612

**BBC**

BUY BEST  
BUY BRITISH  
BUY THE BBC

MODEL A £299.00  
MODEL B £329.00

plus all the extras:

Printers + Monitors + Disk Drives  
+ Cassette Drives + Software + Books

PLUS VIC-20 Cassette decks, games  
cartridges, & tapes in stock!



Always available - a wide range of micros,  
software, printers, peripherals and books  
- send SAE for latest lists

**TWICKENHAM**  
**COMPUTER CENTRE LTD**

12 Park Hill, Twickenham, Middlesex TW9 1AW (01-891) 1612

*Yorkshire*  
**Microcomputers**

**INCREDIBLE VALUE**

VIC 20 only **£125**  
Commodore 64 only **£260**  
Dragon 32 only **£170**

VIC 20 Cassette	£34.00	VIC 20 RAM Pack	£20.00
VIC 20 Disk Drive	£200.00	VIC 20 RAM Pack	£20.00
VIC 20 Printer	£180.00	VIC 100 RAM Pack	£30.00

10% Discount off all cartridges and cassettes from:

- Commodore
- Bug Byte
- Autogenic
- Planet
- Plus a great new game — CANNIBAL

Please phone for a full list of all the wide range of items we  
stock.

All prices are exclusive of VAT.

Fast mail order service from:

**Yorkshire Microcomputers,**  
26 Farnhill Road, Scarborough,  
Tel: (01753) 78126

# E.T.A.

A BRILLIANTLY STYLISED, FANTASY AND SCIENCE-FICTION INSPIRED, THE ONE AND ONLY... E.T. IS THE LAST, BEAST AND THE SUPERSTAR FROM AMERICA. THE MOST BEAUTIFUL AND THE MOST CUTE... HELP HIM TO RECOVER HIS LOST LOVE FROM THE EVIL DRAGON BEFORE HE WALKS AWAY AND YOU WILL BE LOST FOREVER.

THE LATEST VERSION, THE ONE AND ONLY... E.T. IS THE MOST BEAUTIFUL AND THE MOST CUTE... HELP HIM TO RECOVER HIS LOST LOVE FROM THE EVIL DRAGON BEFORE HE WALKS AWAY AND YOU WILL BE LOST FOREVER.

044-488 Sinclair Spectrum, £3 (incl.)



AUTOMATA Ltd. (C)  
45a Osborne Road,  
Portsmouth, PO3 2JF

## hot stuff! DRAGON 32



### for only £199.50

Plus 60 Post & Packing

*I have a burning desire for the  
DRAGON 32 - Please send me:*

DRAGON 32 COMPUTER - £199.50

#### DRAGON PLUG-IN SOFTWARE

- Benchmark - £29.95       Cabot Attack - £24.95  
 Matchack - £19.95       Case Hunter - £29.95  
 Cosmic Invaders - £19.95       Turbo Thrax - £29.95  
 Standby Operations - £19.95

#### DRAGON CASSETTE SOFTWARE

- Special collection 1 - £29.95       Special Selection 2 - £29.95  
 Quasi - £7.95       Graphic Adventure - £7.95  
 Compulsive - £7.95       Maze - £7.95  
 Monsters & Minotaur - £7.95  
 Examples from manual - £7.95

#### DRAGON PERIPHERALS

- Pair of Joysticks - £29.99       Cassette Cables - £7.95

044-488 Post & Packing for DRAGON 32 - £1 for accessories

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

\* Please debit my Barclaycard/Venoco account with  
I enclose Cheque/P.O. for

£

Name or signature

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

044-488

## ComServe

98 TAVENTOCK STREET, BEDFORD MK40 0BX,  
TELEPHONE: BEDFORD: 05254 336749

## GAMES CENTRE

THE LARGEST SELECTION  
OF GAMES IN THE WORLD

Choose from the wide  
range of

**ATARI  
COMPATIBLE  
SOFTWARE**

Also in stock  
**SINCLAIR ZX81 and  
coming soon SPECTRUM**

and a wide range of  
Independent  
SOFTWARE

Main Computer Branches:

22 CIXFORD STREET, London W 1  
400 CATHAY STREET, London W 1  
52 WINDYBARN ROAD, BROMLEY

Also at:

184 REGENT STREET, London W 1  
254 REGENT STREET, London W 1

# MORE IDEAS THAN MORE PROGRAMS THAN LESS MONEY THAN



**PROGRAMS FOR EDUCATION, HOME, BUSINESS, AND GAMES – FOR  
SINCLAIR, BBC, RESEARCH MACHINES, APPLE, COMMODORE,  
ACT SIRIUS, TRS-80, IBM, ICL, and more each month. . .**

#### HOW THE MICRONET 800 SERVICE WORKS

Used energy carried by a standard 204 plug wall-mounted outlet by a standard telephone line, you can use the system whenever you and your computer and telephone.



Simply dial Micronet's number and enter your subscriber number into the keyboard. A "welcome to Micronet" message appears on the screen. You're on-line to one of the world's largest databases.

#### PRESTEL MICRONET 800's

Personalized library, product pages, games, education, business software, club news and more.

When you have all the information you need – or you've finished "downloading" software to your computer's memory – just switch off the telephone line at your keyboard and replace the receiver.

# AN A THINK-TANK. AN A SOFTWARE HOUSE. AN YOU'D EXPECT.

Whether you bought your computer for games, business, or education, you can spend a lot of time wondering what to do with it. And then spend a lot of money on packaged games and applications software.

NOW you can bring your computer to life - economically - by joining the amazing new MICRONET 800 service: a vast database with hundreds of FREE games, plus business and education software, computer news, special offers and 'big prize' opportunities for you to compete against the system - and win!

MICRONET 800 is packed with ideas and information. And there's no waiting - you get programs straight down the phone line! Updates on operating systems... school and college programs

... gobble man... invaders... business packages. They're constantly renewed. And hundreds of them are free; you simply turn on your micro, dial up MICRONET 800 and LOAD.

Sounds expensive? Here's the surprise! All you pay for is a low-cost adaptor (in most cases just £49) to link your computer to your telephone, plus a MICRONET 800 subscription of about £1 per week. Then, via your computer and telephone line you will be able to access over 30,000 ideas-packed 'pages' of the MICRONET 800 service, and call down the software you want to your own computer! Look at just a FEW of the services already available on Micronet for you to call on:

- **Free Telephones:** Instead of subject and by name of service, slight variations can be loaded down onto your computer.
- **Educational Exchange Library:** Schools and colleges are already preparing to display programs written for students and teachers, so take your benefit from these experts and experiences.
- **Applications Guides:** Quick-reference guide by subject and by micro name shows you available applications software. You can move from the guide to further details held on the system if you wish.
- **Newsletters:** Check through the features of the software packages that interest you - previously and without obligation. Order only if you're sure it's what you need.
- **Business/Entrepreneurial Software:** Many 'business' programs can be bought from the system and loaded down direct to your micro. But

don't worry - there's plenty of evening if you MICRONET service you're planning to use daytime charge.

- **Electronic Mail:** A mailbox service on Postal allows you to exchange messages with other Postal or Micronet users. Messages are held securely and only you can collect them.
- **Business Search:** An additional subscription you can operate your own bulletin board - club news, for example. Like rings, swap shops for second-hand items and so on.
- **Phone In:** If you're away from your computer but need to send a message to another Micronet user - call the Micronet 800 service by phone and we'll send the message for you.
- **Printed:** Over 300,000 pages of information on British Telecom's established services. Each week advice on finance, business, entertainment, features

and even direct bookings for travel, holidays, etc.

- **Product and Service Guide:** A constantly updated reference source - covering product comparisons, software reviews, dealer/retailer contacts (details and all the best buy information).
- **Around-the-world:** Includes features, just like a magazine, including jobs and classified ads. If you've used an advertiser before you, through MICRONET you can find out about the manufacturer, the dealer, the prices, and even order the product via your micro!
- **User Groups:** Many User Groups Consumer Club meet every other day. A.C.C. BELLIS, EDUO, I.S.O. £5-99/£10, will maintain their news and reference service on Micronet.
- **Big Price Games:** Micronet offers a range of games and quizzes to keep you entertained and hooked - and there'll be big prizes too!

## SOUNDS FANTASTIC? THAT'S JUST THE START!

MICRONET 800 is a completely new service and we'll be adding to it all the time. Find out more about what Micronet 800 has in store for

you return this coupon TODAY and we'll send you a FREE FACTS FOLDER on Micronet 800 services and details of how you can join!

**micronet**  
800

IT BRINGS YOUR  
COMPUTER TO LIFE!

Send to: MICRONET 800, Peterston House, 57a Horton Road, London EC1B 1DF.

Yes, I am interested in the MICRONET 800 service. Please keep me in touch with developments and send me details of the low-cost Micronet 800 adaptor.

I am interested in saving money on software I develop for the system.

I'm interested in:  Home uses  Business uses  Educational uses

Name \_\_\_\_\_

Address \_\_\_\_\_

Telephone \_\_\_\_\_

Type of computer \_\_\_\_\_

POST TODAY









27 Duke Drive,  
Park Hall,  
Shakopee, MN,  
55376

WE PROUDLY PRESENT THESE ALL NEW PROGRAMS  
FOR THE FOLLOWING MACHINES:

**1 GAMES PACK 1 FOR DOS/1 — 16 OR MORE**

The exciting machine code games pack includes such favorites as  
INVADERS, DEMONST, SAGA/2 as well as NEOPOLIS, THE 13  
ROVERS, COLONY and a special version of AIR SEA (SPECIAL  
SPECIAL PRICE \$4.75 in VAT + P&P)

**2 GAMES PACK 2 FOR DOS/1 — 16 OR MORE**

If you thought that Games Pack 1 was incredible the pack will amaze  
you. All machine code versions of JUMP, JOCKEY, ROYAL/200,  
INVADERS ON 2, SILENT CYCLE, DEC. SUPER/200 and SUTTON  
programme. All Games Pack games are fast and exciting. SPECIAL  
PRICE \$4.75 in VAT + P&P

**3 3000**



This is a brand new program! You'll  
see pictures to enjoy and you will find  
it an exciting 3-D maze. You will  
try not before you can get out easily  
and we are here! The program  
shows full use of video graphics —  
with sound, Bats and Birds of 30  
to VAT + P&P

BBC MICROCOMPUTER 2" x 2"  
with 32K

We can also offer high quality Tandy compatible software for use with most  
models i.e. 2024, 2024/2, 2024, 2024/2, 2024, 2024/2, 2024, 2024/2 etc. at an  
unbeatable price of £25.00 inc VAT + P&P  
P&P on all orders 10p.

Watch this space for Spectrum, VIC, Apple II, Commodore 64 program-  
mes. All shipped P.O. to UK MAILAGE SOFTWARE.

Dealers wanted nationwide — Tel: 0206 50055

MAIL ORDER ONLY — EXPORT ORDERS WELCOME

ALL PROGRAMS AND GOODS GUARANTEED 1 YEAR.



## VICTAGRAPH-PLOT WINDOW

The above photographs show VICTAGRAPH PLOT WINDOW  
and a full demonstration RUN on a T140-480 EPIC. Have you  
got PLOT, DRAW, DRAW TO or similar to an absolute  
co-ordinate?

Could you draw the above screen display?

Without using graphpaper?

Place your drawing in the VICTAGRAPH and you are ready to  
plot all the points, using the movable windows most and easy  
to read scale. Plot 0.0 in each corner and a fully adjustable  
window to 305.200 ... working area 13in x 5in total size 13in  
x 7.0in approx. NOT SUITABLE FOR 23 SPECTRUM DRAW.

Total price £7. (Cheque PO in VICTA CERAMICS)

UK ONLY

VICTA CERAMICS (CYS)

UK ONLY

6a BOW STREET, RUGLEY, STAFFS WS15 2PT

# Electronics & Computing

Magazine

### Electronics & Computing Monthly

is Britain's FIRST electronics and computer applications  
magazine.

### Electronics & Computing Monthly

is designed for the technically aware computer enthusiasts.

### Electronics & Computing Monthly

has a unique blend of theory, projects, software and  
product reviews, plus science and general features on a  
wide variety of topics.

### Electronics & Computing Monthly

keeps you fully informed on changes in computer  
technology.

### Electronics & Computing Monthly

is at your  
newspaper  
now.



## SIR COMPUTERS LTD

Agents for Torch and Acorn Computers

### BBC MICROCOMPUTERS — DIRECT FROM STOCK

Model A	£299.00
Model A + 32K Ram + VMA	£329.00
Model B	£399.00
Upgrade of your model A to model B	£190.00
BBC single disc drive	£249.00
BBC dual disc drive	£399.00
(suitable disc drives also in stock)	

TORCH 238 disc pack

(300k, dual disc drive with CP/M compatible  
280 second processor for the BBC model B;  
interfacing included)

EPSON MX80 11 type free	£379.00
BMC 14in. colour monitor	£299.00
Black & Green Monitor	£99.00

All current Bug Byte and Program Power Software for a  
BBC micro now in stock.

All prices are inclusive of VAT.

Please add £7.50 for delivery by Interlink.

## SIR COMPUTERS

38 Den-y-Coed Road  
Cyncoed, Cardiff  
Tel: (0222) 799015

## VIDEO GAME T-SHIRTS

Superb 5-colour screen-printed video game motif on quality poly/cotton T-shirt. Imported from U.S.A. where they are this year's fashion craze. Available for first time in U.K.



### SIZES

Kids: 10-12 (27"-29"), 14-16 (30"-32")

Adult: S, M, L, XL

### MOTIF/T-SHIRT COLOUR

Pac-Man/White, Pac-Man/Tan, Asteroids/Black, Missile Command/Blue (not 10-12), Space Invaders/Black (not 10-12), Donkey Kong/White, Tompaat/Black (not kids or small), Frogger/White.

ONLY £4.95 (inc. P&P) £4 (inc.) Kids Sizes.

Male alternative motif if possible.

Orders despatched within 3 days.

Cheque/P.O. to:

NEIL HOPE, 3 VICTORIA ROAD, LEAMINGTON SPA, WARRICKS.

## SPECTRUM NEWS FROM



And remember your ZX SPECTRUM magazine is looking for letters - can you help the editors you without the price you expect?

### SP48

32K Memory extension (opening out to 64K) (approx. £100)

### £25

Both the SP48 and the SP80 will work on the Spectrum card, and take a cassette with all your software (if you have 800K). Attention! We can only take in cassette programmes if you're willing to add your £100 investment. £100 only for 100 programmes.

Transfer your ZX SPECTRUM and machine code programs, and save onto your Spectrum 1Mbit card with the SLOWLOADER.

## ZX SLOWLOADER

### £10

SOFTWARE PRODUCT OF THE YEAR

The sophisticated software maker, SLOWLOADER, makes it so easy to transfer software from 720K and 1Mbit cards to your ZX SPECTRUM 1Mbit card, for normal spectrum loading.

Send us the **FREE** coupon for **ORDER & ENCLAVES**. We'll send you the SLOWLOADER, and you'll send us your £10. Please enclose your cheque for £10 with your order. Please allow 2 weeks for delivery.

Name	_____	Address	_____
Postcode	_____	County	_____
£10			
I enclose cheque/postal order for £10.00			
Name	_____	Address	_____

DAVE LONDON ROBOTICS - THE OPTIMUM SOLUTION



## IJK Software

### A FANTASTIC RANGE OF

### • LATEST CASSETTES •

#### CASSETTE 13 - HYPERDRIVE

A new, very addictive machine code arcade game. Guide your laser tanka around the intricate of passages destroying the vile aliens - but beware, evil OTTO lies in wait! Only £5.95 inc. Model B for A+ £24

#### FOR MODEL B ONLY

ONE: 2700 TRAX (2nd Edition, Kings, Plores 40) and CAPTIV FUSION, the marvellous new game everyone is talking about. Only £5.95 inc.

TWO: Holograms, HYPTOGRAM, OOL, BEETLE, GRAND apt/Comp, apt/MUSIC. Only £12.95 inc.

THREE: ULTIMATE INVADERS arcade game! Can you destroy the aliens before they destroy you with their rockets. Intimidat' arcade game! Superb graphics - 4 and levels, 1 or 2 players. Only £5.95 inc.

FOUR: Model A invaders - a superb full feature machine code space shoot 'em up game of the invader arcade game. Only £4.95 inc.

#### FOR MODEL B ONLY (A+ £24)

FIVE: BEAT-BEAT! Excellent version of the popular 'beat' game. Very much enjoyed by children, great fun & perfect! Includes the phrase of the number of points and sounds. Only £4.95 inc. For A+ £24

SIX: BEAT-BEAT-CH! Arcade game! One version of the 'Pac-Man' game. Outstanding graphics, combining multi-graphics, scrolling text, suspenseful, excellent etc. Only £5.95 inc.

#### CASSETTE 14 - STRATOBOMBER

Another new highly colourful machine code arcade game. Can you keep the enemy fleet at bay long enough to destroy the nuclear reactor of the rogue Star Ship before it destroys your home planet? Superb Graphics. Only £8.95 inc. Model B for A+ £24

SEVEN: SUPER HANGMAN! The special feature is the high resolution animated star. Master of the detail of his cutting 500 words his impalpable. Contains many categories. Only £2.95 inc.

EIGHT: 500 WORDS! Same against the clock to answer from the maze, with the computer checking your score in 2-30 each after you play! Only £2.95 inc.

NINE: Contains Model B invaders. A superb full feature adaptation of the arcade Space Invaders game! This programme is chosen from the many others. Only £5.95 inc.

TEN: Wordnik! Cassette based word processor for Spectrum or Spectrum printer. Features right hand justification, etc. Details upon request. £10.00 inc. £10.00 inc. £10.00 inc.

ELEVEN: BUNNIES! The superb full action underground arcade game. This game features all the usual Bunnies/Bunnies features - guide your submarine through using the wireless controller to reach your objective goal - Helsinki. Only £5.95 inc.

TWELVE: PLAGE! This model B for A+ £24 program uses fine colour graphics to depict wonderful beachside your geography in one scene - travel from fun sunbathing. Only £3.95 inc.



CASSETTE NINE Actual Screen Photo



## IJK Software

35 FITZROY ROAD, BISPHAM, BLACKPOOL, LANCASHIRE.

# HENRY'S COMPUTER KIT DIVISION

404 EDGWARE RD, LONDON W2 1ED  
TEL: 01-462 6822

RETAIL SALES  
& DEMONSTRATIONS

## MICROTAN 65



### STARTER KITS

**Microtan 65** is the most complete, easy-to-use, and reliable computer system available. It includes a full-size keyboard, a 6502 microprocessor, and a 64K RAM. The system is designed to be expanded to a full-size computer system. The Microtan 65 is the most complete, easy-to-use, and reliable computer system available. It includes a full-size keyboard, a 6502 microprocessor, and a 64K RAM. The system is designed to be expanded to a full-size computer system.

**USUAL PRICE (OFFER ONE LAST PRICE)**  
£79.95 inc.

**OUR PRICE (OUR OWN, NEW AND BEST)**  
£49.95 inc.

**DRAGON-32  
COMPUTER**  
£299.00  
inc.

**Sinclair ZX1**  
In stock £49.95

DELIVERY EX-STOCK POST PAID MAIL ORDERS to:  
11/12 Paddington Green, London W2.

## NEW for your Spectrum Masterchess

The program for the real player!

from **MIKRO-GEN**

Available in 25 parts.



**EASY USE OF THE BEST MOVE FIRST (BEST PROGRAM AVAILABLE)**

The makers of the original ZX Chess have now produced the most advanced and enjoyable chess program you can buy for your Spectrum.

**ONLY £6.95**

Ten levels of play - graphics display of board - can change sides or level in midgame - set board to any position - scrolling history of moves - copy/display history to printer at any time - can save game at any point - displays your moves and the computer's - PLUS tournament-style Chess Clock on request for 99p only.

Other great ZX programs from Mikro-Gen:

Space Invaders • Breakout • Bomber • Scavenger • Frog  
Puzzle • Soccer's Castle • Tetris

Each program £2.95 inc. postage. All prices include VAT. **£3.95 each**

MIKRO-GEN, 11/12 Paddington Green, London W2. Tel: 01-462 6822

# MIKRO-GEN

24 April 1984 Spectrum 1000 800 280, 10000 2000 2000 2000

## NEW FROM MR MICRO

**V.I.L.** — You may be familiar with some of the many fun playing programs available for the Vic but we now offer something which takes the Vic to new musical and sound heights. **VIC SOUND LANGUAGE** or **V.I.L.** gives full control over the sound envelope of its attack, sustain and decay and volume. In fact, V.I.L. converts the Vic into a sound synthesiser. Over loaded the tone fully synthesised commands can be incorporated into other programs to make sound effects effective and music musical. The package includes versions for any expanded Vic, simple performance and instruction manual. **£19.95 inc VAT.**

**VIC TINY BASIC COMPILER** — produces true BASIC code. Set-up of BASIC suggests all floating point operations. Compiler listing optional if you have memory (8K-4K). Req. 3K-8K expander. **£19.95 inc VAT.**

Mr Micro are pleased to announce the following new releases in our popular Vic Value Series.

**VIC VALUE NO 2**  
AlphaGraphics, Sketchbook  
Rayfection, Micromind — **£9.95 inc VAT**

**VIC VALUE NO 3**  
2 player chess and chess clock, Jugglers  
Aster Scavenger, Martian Defence — **£9.95 inc VAT**

Send SAE for our latest catalogue. For 24 hour telephone ordering service with Access or Visa ring 080 728 2265. Or send cheque/P.O. to **MR MICRO LTD, 89 PARKINGTON LANE, SWITTON, MANCHESTER M27 1AL.**

**WE ARE NOW A MEMBER OF THE SPECTRUM COMPUTER GROUP. OUR RETAIL SHOP IS NOW OPEN. WE LOOK FORWARD TO SEEING YOU THERE.**

## Electronequip

(A Authorised BBC Dealer and Service Centre)

88C1	BBC Micro Model A	299.99
88C2	BBC Micro Model B	399.99
88C3	BBC Model A Micro with 32K	399.99
88C4	BBC Model A Micro 25K & VMA	399.99
88C5	Upgrade Model A to B	119.99
88C6	Disc Upgrade for BBC B	99.99
88C8	14" Colour Monitor for BBC	299.99
88C9	14" Colour Monitor	299.99
88C10	BBC12M 12" Black Green Monitor	99.99
88C11	Kanga 12" Black Green Monitor	119.99
88C12	Kanga 12" Black Green Monitor	119.99
88C13	Cassette Recorder for BBC	29.99
88C14	Single 5.25" Disc Drive 300K	299.99
88C15	Single 5.25" Disc Drive 300K	299.99
88C16	4.25" Discs for BBC 300K units	2.25
88C17	Eprom MABET type 3 for BBC	275.75
88C18	Eprom MABET type 3 for BBC	294.75
88C19	Memory Upgrade for BBC	29.99
88C20	Cassette head for BBC	4.99
88C21	Printer head for BBC	19.99
88C22	Dragon 32K 5M40	199.99
88C23	Barcode RUPROM Printer for Dragon	229.99
88C24	Joysticks for Dragon	19.99
88C25	Cartridges for Dragon	19.99
ATM2	Acorn appointed Ocean	199.00
ATM11	Acorn in Ocean	199.00
ATM20	New Acorn 1.5A Power Supply	9.99
ATM44	5.25" Disc Drive for Acorn 1.500K	299.99

All prices inclusive of postage except Micros £3.00

All repairs etc. are fitted free of charge and the computer fully retested. Credit cards not accepted for BBC orders.



**Electronequip**



11/12 Paddington Green, London W2. Tel: 01-462 6822

# Push your Sinclair to the limit

## ZX81/SPECTRUM ARCADE GAMES

**NEW**

**ZX INVASION FORCE (Z81)**  
Use your skill to fire through the energy beam to destroy the remaining alien ship. — **£3.95**

**NEW**

**SPEC INVADERS SPEC GOBLINMAN**  
These exciting high-speed classic games incorporate 16-colour ring graphics and sound to bring you the best in arcade action at only **£4.95 each (£9.95)**

**NEW**

**SPEC FROG SPIDERDOWN**  
Help rescue the dangerous frog avoiding the spider cars, their bombs, and bees to the wild west for a daylight deal in amongst cars and sagons. Features include western music. **£4.95**

**NEW**

**RAMBIT RAIDERS (Z81)**  
High speed, quick action arcade game with four score with groups of attackers. **£3.95**

Additional titles available for Z81 at £9.95

## UTILITIES



**TODAY!**  
More powerful new functions for your ZX81 including renumber, time table, goods program, strong string, debugging replacement. **£9.95**

**SPEC 888**  
A ZX81 software code test and disassembler for your ZX Spectrum. **£9.95**

**ZX 808**  
A ZX81 machine code test and disassembler for your ZX81. **£9.95**

**Improve your machine code programs with this new 48K Spectrum Assembler**

Just released by Artic, this new professional grade assembler is also available for the ZX81 and features...

- Memory-mapped file test editor.
- High speed, variable base jump instructions.
- Automatic support facilities such as auto-reload, variable memory capacity and search for debugging.
- 7 bit output in 25 grades.
- Memory-mapped input and comprehensive data manual.

**ONLY £9.95**



## ADVENTURE GAMES

**JUST RELEASED for ZX81 SPECTRUM**  
with comprehensive data

**INCA CURSE**  
Adventure  
In a single playing you roam across an ancient landscape. This mission is wild, colorful and strange with treasure and danger alike. **£4.95/each**

Included a complete save routine. **£9.95**

**SHIP OF DOOM**  
You are immediately drawn to an alien planet. Can you reach the control room and then fly out? Or are there other traps? Includes a complete save routine. **£9.95**

**ESPIONAGE ISLAND**  
Adventure  
While on a reconnaissance mission your plane goes down and you are forced to land. Can you survive and escape with the island's hidden secret? **£9.95**

**PLANET OF DEATH**  
Adventure  
This first person adventure on an inhospitable alien planet. Can you reach your ship and escape? **£9.95**

**REDUCED TO £29.95**

### ZX FORTH

Equipped on cassette with editor, compiler and keyboard interface. ZX FORTH combines the simplicity of BASIC with the speed of machine code.

THE ULTIMATE ADVENTURE FOR THE SPECTRUM/ZX81 for only **£9.95**

AND THE CHANCE TO WIN **£10,000** or more IF YOU



Your eccentric father has left you £10,000 in his will. In order to claim your windfall you must solve twelve clues and gain access to a bank account in which the money has actually been deposited. Be the first to crack the puzzle and the prize is yours! Plus you will win two tickets to the city of the secret KRAKIT™ vault location. The prize money is increased weekly. A telephone number will be supplied so you have the opportunity to find out just how much you could win.

**DON'T MISS YOUR CHANCE TO WIN A FORTUNE!**

## ALWAYS AHEAD WITH ZX81/SPECTRUM SOFTWARE

Developed by P.O. made available by Artic Computing Limited. Please specify software. Please state whether your order is for ZX81 or Spectrum. Send £4.95 plus a 3p order charge.



**ARTIC COMPUTING LTD.**

396 JAMES RECKITT AVENUE, HULL, N. HUMBERSIDE.

**A GREAT CHESS GAME FOR YOUR ZX81 OR SPECTRUM**

**ZX CHESS I**  
Very popular machine code program, with an analysis option and an analysis option. Available for ZX81. **£9.95**

**ZX CHESS II**  
A new implementation, with faster response time, search facilities, analysis option and an additional computer mode option. **£9.95**

**ZX III CHESS**  
An incredible game. **£9.95**

**As a subsidiary of TV**

**VOICE CHESS**  
This innovative program lets you play chess with your voice. You can play a single or double player game. The program is available for ZX81 or ZX Spectrum. **£9.95**

**VOICE CHESS**  
This innovative program lets you play chess with your voice. You can play a single or double player game. The program is available for ZX81 or ZX Spectrum. **£9.95**

**SPECTRUM CHESS** now only **£9.95**

To: Artic Computing Ltd., 396 James Reckitt Avenue, Hull, N. Humberside, HU6 8JQ.

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Postcode: \_\_\_\_\_  
Daytime telephone: \_\_\_\_\_  
Order for: \_\_\_\_\_  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Postcode: \_\_\_\_\_

# BBC MICRO INSTANT MACHINE CODE!

Yes, it's true. Instant machine code from a good subset of BBC BASIC. Type your BASIC program into your model B BBC Micro, trigger the compiler, and your program is changed almost instantaneously into superfast machine code. For £34.95 you get: Cassette version of the complete compiler (along with a version of the compiler for use with discs, ready for when you upgrade, the disc version being dubbed on the cassette after the cassette version); complete compiler listing; extensive documentation and instructions. The compiler was written by Jeremy Ruston.

## THE BBC MICRO REVEALED

By Jeremy Ruston

... destined to become the bible of all BBC microcomputer users... (Personal Computing Today). If you've mastered the manual, then this book is for you. Just £7.95.

## LET YOUR BBC MICRO TEACH YOU TO PROGRAM

By Tim Hartwell

... takes you further into the cloudy areas of the BBC machine than anything else I've yet seen... (Computer and Video Games). If you're just starting out in the world of programming, then this book is the one for you. Fully complete programs, including Orkney/Rovers, Piano and a host of alternate graphics demos. Just £8.45.

Interface, Dept. DVC

44-46 Park Court Road, London W8 5LJ

Please send me:

( ) INSTANT BBC MACHINE CODE—tape and book—£34.95

( ) THE BBC MICRO REVEALED—Ruston—£7.95

( ) LET YOUR BBC MICRO TEACH YOU TO PROGRAM—Hartwell—£8.45

I enclose £

Name \_\_\_\_\_

Address \_\_\_\_\_

A retailer for Sinclair accessories in the Yorkshire/Lancashire/Humber area. We are situated close to the M1 to M62 motorways and offering easy parking. As well as a complete range of hard and software, our service department can repair, modify or fit a wide range of accessories.

For further details of these and many other services phone:

**PHILIP COPLEY**  
on  
**0924 272 545**

Manufacturers of accessories looking for a retailer in our area are invited to contact us.

**SPECTRUM SOFTWARE/HARDWARE  
AVAILABLE NOW**

Hours of business:  
**MONDAY to SATURDAY, 10am to 6pm**

### ADVERTISEMENT INDEX

Accessoft	56	Lands Electronics	64
Adaptors and Eliminators	83	Lansdown Computers	83
After Instruments	158	Leisuratics	88
Agony	46	Limesoft Software	46
Aktion	88	M C Luffkins	66
Artis Computing	113	Magix	76/77
Art	24	Microstars	74
Autobahn	30/35	Microtek	106/107
BBC Publications	48	Minipro	80
Calisto Computers	44	Micro-gen	110
Channel 1 Software	88	Mt Micro	112
Chromasonic Electronics	6	New Generation Software	85
Commodore	10/71	Eric Products	85/87
Completions	26	M Drive	26
Computer Games (M)	14/16	Parsons	92
Computer-Pop All	5	Personal Computer Palace	104
Comstar	104/105	Pixel	40
P. Copley (H-F)	714	Plymouth Computers	86
Creative Software	88	Quintix	61
Database Software	118	Formix Software	106
Digital Fantasy	96	Shiva Publishing	6
East London Robotics	111	Silica Shop	67
Electronique	110	Sinclair Research	54/55
Elec. Services	66	SIR Computers	110
Filebase Ltd	74	Soft Deal	34
Games Centre	102	Soft Tays	26
J/C Dreyf Software	108	Software-App 40	20
Henry's Radio	112	Spectrum	12/13/14/15
How Leisure	111	Tron (M)	10/10
UK Software	111	Tron/Programs	85
Interceptor Micros	43	Twickenham Computer Centre	104
Interface	114	Videometrics	118
Magpie	116	Video Games Club	2
Manx City Systems	64	Vision Store	102
Kevin Electronics Systems	103	Vividex Microcomputers	104

## IMAGINE

a company brought into being by top professional programmers, graphic designers and software marketing specialists.

A company dedicated to the highest quality software and customer service in the world.

## ARCADIA

the some of the games especially created to hit the latest, greatest, most addictive shoot 'em up game you've ever desired. Wave after wave of the most fiendish and deadly aliens follow hypnotically towards your space fighter with deadly intent. But then you have dual Plasma Disruptors and an Ion Thrust Drive haven't you? ...

## ZXSPECTRUM

(516K or 486K)

100% machine code with 12 different alien types, incredible animation and explosive effects, sound and the fastest, smoothest hi-res graphics ever!

## VIC-20

easy memory size!

100% machine code with eight different alien types, smooth hi-res multicolor graphics and animation, narrow playfield and sensational sound effects. Keyboard or joystick. Game design and software by D. H. Lawson.



When you buy

## ARCADIA

you buy it for life. If you Imagine software product EVER fails to load then free simply return it to Imagine for an instant free replacement.

ALL ORDERS DESPATCHED BY FIRST CLASS POST WITHIN 24 HOURS OF RECEIPT.

## ARCADIA

for any ZXSPECTRUM or VIC-20. Just

# £5.50

which includes first class postage and packing, V A T and an **UNCONDITIONAL LIFETIME GUARANTEE!**

Imagine Software

Masons Buildings, Exchange Street East,  
Liverpool, Merseyside L2 3PN.



SUPERFAST CREDIT CARD SALES LINE

051 236 6849 (24hrs)



Why not put a first class stamp on your order and you will receive ARCADIA within 3 days of posting. Please allow for Brexit post!

Post postage made for:

**Imagine Software**  
Masons Buildings, Exchange Street East,  
Liverpool, Merseyside L2 3PN.

Please rush me a copy of ARCADIA for (tick box):

Any ZX Spectrum  Any Commodore VIC-20

Please debit my Barclaycard/Master  
Charge/Check/P.O. for

£

Name

Address





# ROMIK SOFTWARE

24 Church Street, Slough, SL1 1PT. Telephone: Slough (0750793) 71839

**ROMIK SOFTWARE: A ONE MONTH TRIAL OF THE NEW GAME SYSTEM**  
**ALL PROGRAMS £9.99**

**BRITAIN'S LEADING GAMES SOFTWARE HOUSE ARE PROUD TO ANNOUNCE OUR NEW RANGE OF EXCITING GAMES & OTHER SOFTWARE FOR THE VIC 20, SPECTRUM & ZX81 (GAMES FOR BBC, DRAGON & ATARI AVAILABLE SOON)**

**ALL ACTION GAMES CARRY A FREE ENTRY TO NATIONWIDE COMPETITIONS WITH FANTASTIC PRIZES**

### SEA INVASION FOR THE UNEXPANDED VIC 20



Fight off the attacking sea creatures for as long as you can. Shoot the whale for a surprise score. Watch out for the cross, starfish, & octopus!!!!

### MOONS OF JUPITER FOR EXPANDED VIC 20, ZX, OR DR 80A



You are the commander of a fleet of destroyers... Looking on from the safety of mother ship, you send in one destroyer at a time to blast a passage through the moons of Jupiter. Your destroyers have to dodge, and blast the "J.P.D.'s". Watch out for the "Goochs", they can smash your destroyers, but you cannot harm them....

### SPACE ATTACK FOR THE UNEXPANDED VIC 20



Space attack is a game of skill, you, as the pilot of an intergalactic battleship, have to fight your way through waves after waves of various alien space ships.

## MARTIAN RAIDER

FOR UNEXPANDED VIC 20

Scan as virus as you stare to the surface of the planet, descending the Martian dunes, detecting poisonous droms opening round them, climbing down the ground in an insides and S.T.O.S. (Scoping & Searching the Insides).

## SHARK ATTACK

FOR UNEXPANDED VIC 20

You are in shark infested waters after being thrown overboard from a pirate ship. Your only protection being an atomic net which you can behind you, being driven off the coast clean and around the sharks or the same time. Beware of stopping or slowing your vessel for too long, if you do, the sharks will escape and come after you. Watch out for the star (narrowly likely) which (sometimes) the sharks will eat (all or 20-30 times).



A REAL ACTION SHOT OF THE GAME!



A REAL ACTION SHOT OF THE GAME!

## MIND TWISTERS

FOR UNEXPANDED VIC 20  
FOUR GAMES TO STRETCH YOUR BRAIN

Blackjack, Twister, Four Througs and Tetris are our sensational versions of very popular board games and will test your mental agility and skill for many a long time.

**ROBOT PANIC... A FANTASTIC HIGH SPEED GAME ON CARTRIDGE THE PRICE IS SET TO BE ANNOUNCED, BUT AROUND £10.**

### SUPER NINE

## ZX81

NINE 1K GAMES

- 1... CANYON 2... ASTEROIDS
- 3... ACTIONBLASTER & DEFENDER
- 4... SQUASH 5... SCRAMBLE
- 7... SKETCH 8... COSMIC RAIDER
- 9... FOUR THOUGHT.

## MULTISOUND SYNTHESIZER

FOR THE UNEXPANDED VIC 20

The Vic Multisound Synthesizer is very flexible and can be played in many ways than can ever be explained here, to create music and special effects. For example, create any tune, up to 255 notes (after following appropriate instructions), then press "F1" or "F2", then key "B" and enjoy the added effect. Now hit "+", listen to the difference. For a surprise — hit "—". Now add a melody over the top — hit key "B" then "T" — now play a melody, or experiment. Have fun!

Our games are available from all good home computer shops, including: All London Computers, Mark C. (Home Comp) at Birmingham (051 5165) Leeds (424250), 111 City Centre, West of Leeds (424433), New Market (01753) 2001, and at Leicester (424242), Luton (447 447), Manchester (447 0144), Maccs, Chorley and (061 274) 241, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.