

COMPUTER & VIDEO GAMES

Electronic Games
CHRISTMAS
Special

DECEMBER 1982

75¢



STAR GUARD SPACE ROLLER
GAMES FOR THE ZX81 VIC
TANDY BBC AND MANY MORE

PROGRAM POWER MICRO POWER

NEW-DEVASTATING MODEL B (or 32K MODEL A) GAME FROM BRITAIN'S LEADING SOFTWARE HOUSE!

BBC ALIEN DESTROYERS



Sensational, high speed program incorporating brilliant use of colour graphics and sound. 48 strong alien fleet of 3 different types plus Mothership scoring mystery bonus. Choice of 6 alien speeds and 3 bomb speeds. Vertical, angled and exploding missiles. Options to replace defences and suppress new fleet advances. Bonus bases awarded each new sheet. Scoring according to overall difficulty level plus end of game ranking of top scores.

This program also has many unique extras including "Battle Analysis" showing numbers of aliens shot down, how many Motherships destroyed, number of sheets cleared, shots fired, percentage hits and bases lost.

If you needed a reason to upgrade to 32K, now you have it!!!

ONLY £6.95

OTHER BBC PROGRAMS

MODEL A or B

CHESS (32K). Our excellent machine code program—now with superb MODE 1 graphics. Six skill levels, play back or white, illegal moves rejected, 'en passant', castling, 'take-back' of moves, and display of player's cumulative move time. Options include Blitz Chess, where you must move in 10 seconds, set-up of positions for analysis, replay of a game just played and saving of part completed game on tape. On loading a 1972 Spassky/Fisher game can be replayed. £6.95. Model A version still only £4.95. Graphics Upgrade exchange. £2.50.

ADVENTURE. All the excitement, intrigue and frustration of a main-frame adventure. Explore the tortuous forests, dark caverns and castle dungeons. Beware the maze of twisting tunnels and the desert wastelands. Outwit the predators. Rescue the Princess and carry off the treasures. Great skill and imagination are required to play this excellent game. You may never exhaust the possibilities. YES—this is our highly acclaimed ADVENTURE for the Atom!!

Other NEW 16K Titles: £8.95 FILER (Database). £5.95 each—ASTEROID BELT, SEEK (Adventure), Junior Maths Pack, Where (UK Geography). £4.95 Reversi I, £3.95 Mastermind (2-way).

MODEL B (or 32K Model A)

GALACTIC COMMANDER (Aptitude Test). Nine phase test for aspiring Space Vehicle Commanders. Begin by separating your craft from the command module and landing under acceptable gravity conditions. Then GRADUATE through combinations of lower gravities, circulating command modules, defended planets (some with homing missiles), and eventually to underground landing sites in cave systems with unfriendly inhabitants. The program presents a real challenge. The use of machine code and high-res. graphics give beautifully smooth action. Very good sound £6.95.

FOOTER. Exciting Advance in Computer Games. This is a TWO PLAYER football match, masterfully presented in HIGH-RES graphics. Out-run and out-dribble your opponent and finally blast the ball into the net. You will be amazed at the realism of this program! Newly designed graphics handling routines give a totally smooth movement to both player and ball. (See the players' legs in running action!) £6.95.

Other NEW 32K Titles: £6.95 each—METEOR BATTLE, LASER COMMAND. £5.95 each—MARTIANS, CONSTELLATION. £4.95 each—REVERSI II, MAZE INVADERS, ROULETTE. 'New Prices'—TIMETREK £6.95, ELDORADO GOLD £5.95.

All programs now available from good dealers. We pay 20% Royalties on BBC, Spectrum, Dragon and Atom programs.

AUTHORISED BBC, ACORN AND DRAGON DEALERS

Special Offer—Deduct £1 per cassette when ordering two or more.

PLEASE NOTE!

We now offer over 30 BBC and 60 Atom programs of the highest quality and at highly competitive prices. Order NOW or send for our full catalogue.



Please add 55p order P & P + VAT at 15%



MICRO POWER LTD.
8/8A REGENT STREET
CHAPEL ALLERTON
LEEDS LS7 4PE.
Tel. [0532] 683186

PROGRAM POWER MICRO POWER

News & Reviews

GAMES NEWS 16

After Mad Max II prepare yourself to meet Mad Martha, the bane of hen-pecked husbands everywhere. A domestic adventure? Well hardly. Frenzy features a frantic chase between a gorilla and the neighbourhood carpenter. Plus all the latest software releases.

VIDEO SCREENS 24

A new challenge for Riddle of the Sphinx owners. We delve the depths of Activision's terrible Pit.

ARCADE ACTION 30

Meet Donkey Kong Junior a heroic chip off the old block, with a rescue mission to perform. Find out about the nightmare creatures which inhabit Monster Bash. And improve your Gorf play.

REVIEWS 98

Hunting Pink Elephants!

Listings

STAR GUARD 32

You can tell it's almost Christmas. Even the aliens are getting into the festive spirit and seeking out exciting new gifts. Trouble is these "gifts" are space pods and they belong to Apple owners. Can you stop the aliens getting their tentacles on them?

ALIEN CHASE 38

Catch those runaway aliens on your BBC model B. But you will have to be quick. These little green men are pretty nippy!

YACHT II 42

Too many aliens so far? Well this game will bring you back to earth. It's a version of that popular dice game, Yahtzee, written specially for the ZX81 with all the challenges of the real thing built in.

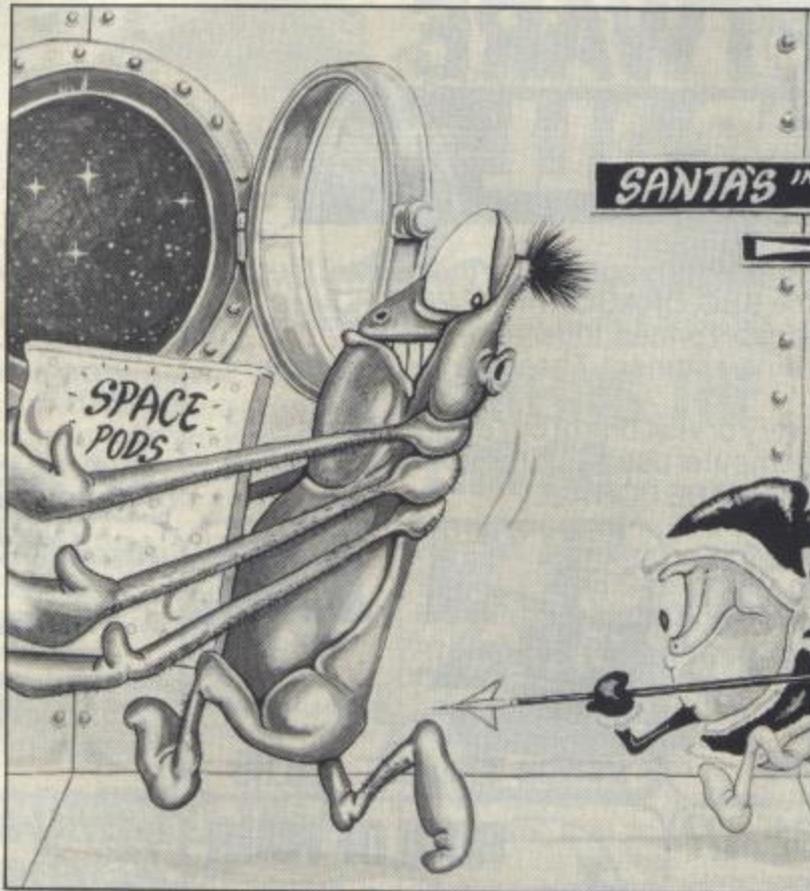


DOG FIGHT 62

Bandits at 12 o'clock skipper, and they are coming out of the sun! It's chocks away for an exciting version of this arcade game for the Vic-20.

GLUTTON 66

Definitely not a game to be played between meals. Munch your way around a maze but keep your wits about you.



SPACE ROLLER 46

Different — that's the word for this Spectrum spectacular. It involves a little man painting white lines and heat seeking missiles. Yes really! Try it out and you'll see what we mean.

GRANNY 48

Will Granny find someone to help her across the road? Will she avoid a ducking on the way to the post office? Will she collect her pension? All these questions and more will be answered by Pet owners.

HUNGARIAN HEX 52

You thought Hungarian Squares was difficult. Well it was nothing compared to this brain-twister for the TI 99/4a. It's got colourful rings of confusion just to baffle you...

AIRLOCK 56

Can you escape from a nuclear reactor about to go critical? Failsafe devices are sealing off the building rapidly and you must find the quickest way out — as one door shuts another opens in this race against time the Atari 400/800.



Bright Sparks . . .

Electronic toys and games are already eating their way into the prime commercial TV time slots in anticipation of a bleeping burping bumper Christmas.

From radio-controlled wonder cars to an abundance of games-playing time pieces, we take a buyers' look at how to approach this booming market. What to watch out for, what prices you should shop around to get and some of the best buys in each category.

Read it before you plan your stocking fillers this Christmas. It starts on page 85.

Also included in our Christmas Stocking section is a run-down of the chess machines you could buy this Christmas. How they compare with each-other and with the chess programs you could buy for a home computer.

Features

MAILBAG 5

Problems solved, questions answered, views expressed.

COMPETITION 11

What won our Program of the Year Competition? Find out on this page.

CHESS 27

Teach your computer end game expertise.

BUGS 28

It's Christmas and something awful lurks under the fairy lights.

THE SEVENTH EMPIRE 72

A competition cometh in February. So strange, so unique, it is taking us three issues to tell you about it. This month sets the scene.

ADVENTURE 75

Keith Campbell's a brave man. He's ventured back into The Asylum.

GO 77

Taking liberties on the Go board.

MACHINE CODE 78

Do you yearn to produce games as fast and thrilling as those in the arcades? The first steps on that path begin here.

PRACTICAL PROGRAMMING 80

The last in the series. Ted Ball plans for strategy games.

GRAPHICS 83

Where technology will take us next.

SANTA'S CHOICE 85

An inside view on what to buy and how to choose an electronic game or toy this Christmas. Plus chess machines and a look at TV games centres.

Editor Terry Pratt, Staff Writer Eugene Lacey, Editorial assistant Susan Cameron, Designer Linda Freeman Production editor Tim Metcalfe,

Advertisement manager Rita Lewis, Advertising executive Neil Wood Advertisement assistant Louise Flockhart, Publisher Tom Moloney

Editorial and advertisement offices: Durrant House, 8 Herbal Hill, London EC1R 5JB; Telephone Editorial 01-278 6556, Advertising 01-278 6552

COMPUTER AND VIDEO GAMES POSTAL SUBSCRIPTION SERVICE. By using the special Postal Subscription Service, copies of COMPUTER AND VIDEO GAMES can be mailed direct from our offices each month to any address throughout the world. All subscription applications should be sent for processing to COMPUTER AND VIDEO GAMES (Subscription Department), Competition House, Farmdon Road, Market Harborough, Leicestershire. All orders should include the appropriate remittance made payable to COMPUTER AND VIDEO GAMES. Annual subscription rates (12 issues): UK and Eire £10.00 Overseas surface mail £12.00 Airmail Europe £20.00 Additional service information including individual overseas airmail rates available upon request. Circulation Department: EMAP National Publications. Published and distributed by EMAP National Publications Ltd. Printed by Eden Fisher (Southend) Limited.

© Computer & Video Games Limited ISSN 0261 3697.

Cover: John Thompson. Next issue: December 16th

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!

BBC MICRO **GALACTIC INTRUDER**

Fast arcade-type action game with Hi-Res colour and sound. Machine Code. 32K **£6.95**

J.R.

Two player game, features include exploration, drilling, employment and Price Wars. 32K **£6.95**

BBC MICRO

PAIRS

A computerised version of the original card game with Hi-Res graphics.

£6.45

DRAGON 32

AREA RADAR CONTROLLER

You're in the control tower at Heathrow and it's your job to control up to 79 aircraft, taking off, landing, or just passing through. VERY ADDICTIVE — HIGHLY FRUSTRATING!

DRAGON 32 £7.95

POLAR BEAR

Educational game for 8-12-year-olds incorp. simple maths tables.

32K **£7.45**

BBC MICRO

ROW OF FOUR

Try to outwit your computer opponent in this game of skill. Great graphics. BASIC and machine code. 32K **£6.45**

BBC MICRO

PHARAOH'S TOMB

ZXSPECTRUM

3D Maze Game and Adventure rolled into one! 48K **£6.95**

SPACE KINGDOM

Battle your way around the Planets to become ruler of the Galaxy! Excellent use of graphics and sound. 32K **£7.95**

BBC MICRO

TIME TRAVELLER

Travel through over 100 rooms in different times, and find the key back to your own time. 32K **£6.95**

BBC MICRO

Utility Pack 1 **£7.45**

Envelope program, variable print-text scanner and memory dump. 32K

BBC MICRO

CAR WARS/ALIEN PLANET

Two addictive graphics games both BASIC and Machine Code.

32K **£6.95**

BBC MICRO

DANGER ISLAND

An adventure game in which you fight your way through many obstacles to escape.

DRAGON 32 £6.95

Utility Pack 2 **£7.45**

Disassembler, program crunch and text editor. 32K

BBC MICRO

ZOMBIE ISLAND

Fight for survival on an island inhabited by hungry, dangerous cannibals. BASIC and machine code program.

32K **£7.95**

BBC MICRO

BEEBTREK **BBC MICRO**

Real time advanced Star trek Game. Extra facilities include "probe satellites", "damage reports" & "on-board computer".

16/32K **£7.95**

SEND TODAY! Post to SOFTWARE FOR ALL, Dept CV, 72 North Street, Romford, Essex or Phone: (0708) 60725

Name:
Address:

Please send me:
.....
.....
.....
.....
.....
.....
Please add £1.00 P&P per order... £ 1.00
Total:

Please bill my Access/Barclaycard/Amex No.

I enclose Cheque/P.O. made payable to SOFTWARE FOR ALL.

SOFTWARE FOR ALL
"Programs for the people"



Please drop us a line at: Computer and Video Games, EMAP, Durrant House, 8 Herbal Hill, London EC1R 5JB.

TONIC FOR THE TROOPS

Dear Sir,
I am at present serving in the Falkland Islands, working out of Port Stanley.

We are trying to get a computer club started in the evenings to try and eliminate some of the boredom of off-duty hours. At present we have limited facilities — 2 ZX81 Sinclair computers — and no recognised instructors.

Could I therefore ask you for some back issues of your magazine to assist us with our club, plus any other information/leads that may be of use to us?

S/Sgt Brown
30 FD SQN R.E.
BFPO 666

Editor's reply: Those back numbers are at this moment winging their way to you SSGT Brown. We hope they'll be useful in setting up your club.

ADVENTURER NEEDS HELP!

Dear Sir,
I would like you to print this letter because if so it will — hopefully — provide me with an answer to a question that has been niggling me for months. It concerns the game Ulysses and the Golden Fleece produced by On-Line Systems.

So far, for three frustrating months I have been plodding around the opening scenario without proceeding on to the second stage. I have tried everything, wandered round the forest for the day, pounding the shopkeeper with questions, threatening the guards with death — mine! — and still have not got into see the King.

So please, please, I beg, any Apple owner out there

with the game and who have passed the first stage, please write into *Computer and Video Games* as soon as possible. Thank you! I wait eagerly.

Keep the Apple games coming — Imphotep and Alien Lemmings were excellent.

Michael Tallent,
Langport,
Somerset.

BOMBED OUT BOMBER!

Dear Sir,
I have just received the September issue of *Computer and Video Games* and I have typed into my 32K Atari 800 the program called Bomber only to find that it did not run. The program has been written or converted in such a way that it will only run on a 16K Atari.

I have converted it so it will run on any memory size Atari. First add lines
0 GRAPHICS 0 :REM CLEAR SCREEN.

8 DL = PEEK(560) + 256*PEEK(561) :REM (Find number of top left screen location. This varies with different sizes of memory).

Then change lines 10, 70, 80, 130, 190, 250, 310, 440, 450, 500, 560, 630, 690, 910 and 1030.

In these lines you will find the numbers, 15745, 15764, 15923, 15943, 15965, 15983, 16003, 16183, 16205. Change these numbers to: 15745 TO DL+353, 15764 TO DL+372, 15923 TO DL+531, 15943 TO DL+551, 15965 TO DL+573, 15983 TO DL+591, 16003 TO DL+611, 16183 TO DL+791, 16205 TO DL+813.

G. A. Ferguson,
Darlington,
County Durham.

POKEING THE TRS-80 . . .

Dear Sir,
Here are some pokes for the TRS-80. I found them in the *Basic Programmers Notebook* by Earl R. Savage.

POKE 16396,23 — disables break key.

POKE 16396,201 — enables break key.

POKE 16396,165 — replaces break with shift break.

Bypass 1 for printer.

10 POKE 16422,67:POKE 16423,0.

Line 10 causes the TRS-80 to automatically bypass all the statements which address the printer.

Bypass 2 for printer 20 POKE 16414,141:POKE 16415,5.

Line 100 is the screen bypass.

Line 200 resets line 100.

200 POKE 16414, 88:POKE 16415, 4

The book has many more 'tricks' for the TRS-80, I recommend it.

Sunil Parekh,
Eccles,
Manchester.

PLEASE, LET'S STAY SHARP

Dear Sir,
I have become rather disturbed of late by what seems to me to be a running down of interest in the Sharp MZ-80K both in advertising and articles on this splendid machine.

You have featured the MZ-80K in the Hardcore section,

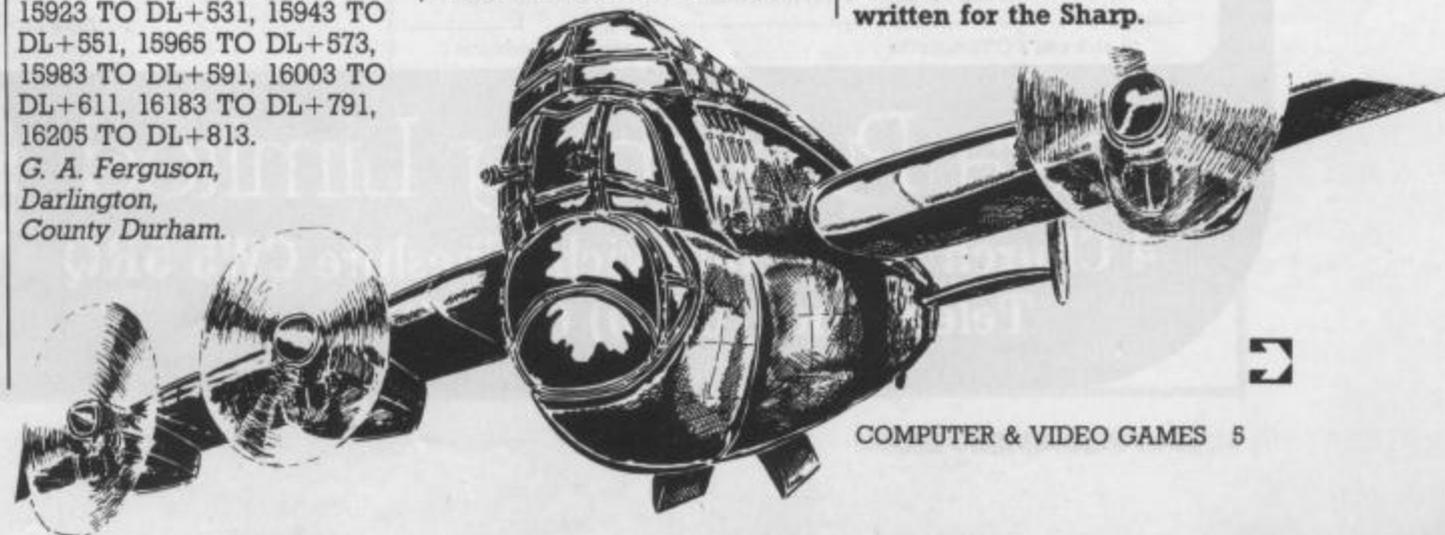
but really this is preaching to the converted and is of no use to someone who is already an owner.

I wonder if any of your readers would be able to supply games converted from another format? I am particularly interested in the 747 Simulator, which is only available for TRS-80 -Genie owners.

In conclusion, I realise that you cannot provide listings for every machine every month, but it does seem that a lot of space is taken up with new machines i.e. Spectrum and BBC etc and no doubt we will be flooded with Dragon articles. Please remember that there are specific mags for these machines, and people such as myself depend on you, in the absence of a Sharp Users magazine.

J. D. Carson,
Lurgan,
Co. Armagh

Editor's reply: You are in luck Mr Carson, a letter came into our office the other day from a group of people who are considering starting up a Sharp users magazine. The subscription rate would be between £4 to £6 and the magazine would be bi-monthly. The person to contact is Mr J. P. Griffiths, 104 Waterloo Road, Southport, Merseyside. And may we respectfully remind you that some of the best games we have published — for instance World Cup Manager — have been written for the Sharp.



The SHIVA Christmas Hamper

For the SPECTRUM

By Ian Stewart & Robin Jones

Easy Programming for the ZX Spectrum	£5.95
Computer Puzzles: For Spectrum & ZX81	£2.50
Machine Code and Better Basic	£7.50
Cassette: Spectrum Special 1	£4.95

By Martin Wren-Hilton

Games to Play on your ZX Spectrum	£1.95
-----------------------------------	-------

Normal
Published
Price

~~£22.85~~

£15.75
incl. p. & p.

For the ZX81

By Ian Stewart & Robin Jones

PEEK, POKE, BYTE & RAM: Basic Programming for the ZX81	£4.95
Computer Puzzles: For Spectrum & ZX81	£2.50
Machine Code and Better Basic	£7.50

By Martin Wren-Hilton

The ZX81 Add-on Book	£5.50
----------------------	-------

~~£20.45~~

£14.75
incl. p. & p.



Order the complete hamper and save yourself a packet!

Or make up your own with any 3 items for £10.50 (incl. p. & p.)

Offer open until 31st January 1983

Hampers will be dispatched from 1st December onwards.

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

ORDER FORM

Please send me a SPECTRUM hamper, at £15.75

Tick here

NAME

Please send me a ZX81 hamper, at £14.75

ADDRESS

I wish to make up my own hamper with the following, at £10.50

I enclose a cheque for £.....

Please debit my Access/Barclaycard/American Express

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

Account number

Signature

£

£

Shiva Publishing Limited

4 Church Lane, Nantwich, Cheshire CW5 5RQ

Telephone: (0270) 628272



TETRATECH CHRISTMAS BARGAINS

As a special Christmas treat for quick readers of Computer & Video Games we have obtained very limited stocks of the following products for sale at very special prices! These items will be sold on a strictly "first phone, first served" basis so phone us *now* on 01-941 5137. We accept BARCLAYCARD. All prices include VAT at 15%. P&P extra.

ATARI 400 ITEMS

	£
ATARI 400	172.50
THERMAL PRINTER	172.50
CRIBBAGE	11.50
HUMPTY DUMPTY	11.50
HICKORY DICKORY DOCK	11.50
DARTS	11.50
POOL	11.50
BRITISH JIGSAW	11.50
EUROPEAN JIGSAW	11.50
SUPER CUBE	11.50
INVITATION TO PROGRAMMING 1	17.25
KINGDOM	11.50
STATISTICS	11.50
TELELINK	17.25
BLACK JACK	11.50
BIORYTHM	11.50
HANGMAN	11.50

	£
GRAPHIT	11.50
TOUCHTYPE	17.25
SPACE INVADERS	17.25
STATES & CAPITALS	11.50
EUROPEAN CAPITALS	11.50
GERMAN	28.75
FRENCH	28.75
SPANISH	28.75
ENERGY CZAR	11.50
SCRAM	17.25
ITALIAN	28.75
BASKETBALL	17.25
SUPER BREAKOUT	17.25
CHESS	17.25
MISSILE COMMAND	17.25
ASTEROIDS	17.25

ATARI VCS ITEMS

	£
ATARI VCS	80.50
MINIATURE GOLF	8.95
CHAMPIONSHIP SOCCER	12.95
BACKGAMMON	12.95
BASIC PROGRAMMING	12.95
VIDEO OLYMPICS	11.95
BREAKOUT	11.95
BASKETBALL	11.95
HUMAN CANNONBALL	9.95
SKYDIVER	9.95
SUPERMAN	15.95
MAZE CRAZE	15.95
CHECKERS	11.95
OTHELLO	11.95
HUNT & SCORE	8.95
CODEBREAKER	8.95
CASINO	11.95
BASIC MATHS	8.95
HANGMAN	8.95
BRAIN GAMES	8.95
BOXING	9.95
FISHING	9.95
DRAGSTER	9.95
KABOOM	9.95
FREEWAY	9.95

CHRISTMAS BARGAINS FROM TETRATECH

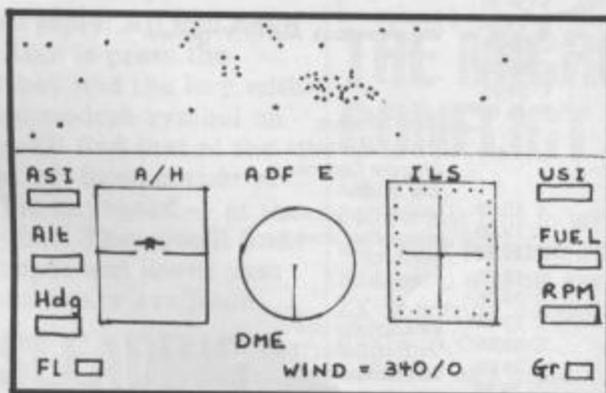
HEWSON CONSULTANTS

NIGHTFLITE

£5.95

For the ZX SPECTRUM

DISPLAY COMING INTO LAND



- A/H - artificial horizon
- ALT - altitude in ft
- HDG - heading in compass degrees
- FL - flaps up/down
- GR - gear up/down
- VSI - vertical speed indicator
- WIND - wind direction/velocity
- DME - distance measure equipment
- ADF - automatic direction finder
- ILS - instrument landing system
- VOR - VHF omni directional range

NIGHTFLITE puts you at the controls of a light aircraft flying at night. You can:

- Climb, descend, take off,
- Land, bank left or right
- Navigate between beacons
- Raise/lower the flaps
- Raise/lower the undercarriage
- Adjust engine rpm
- Raise/lower the nose varying amounts

Runway lights appear on approach.
5 modes including Autopilot.
Written by a qualified light aircraft pilot.

Order your copy today using order form or phone 0491 36307 and quote Access or Barclaycard number.

Please rush me copy/copies of NIGHTFLITE.

I enclose remittance of (cheques/PO's payable to Hewson Consultants).

Please debit my Access/Barclaycard account number Signed

Name (block capitals)

Address

. Postcode

Send today to: Hewson Consultants, 60a, St. Mary's Street, Wallingford, Oxon. OX10-0EL.

Silicon Chip

MAIN DISTRIBUTORS

ATARI AND VIC

Blend business with pleasure



ATARI 400 16K RAM	£199.00
ATARI 400 32K RAM	£259.00
ATARI 800 16K RAM	£499.00

VIC 20 CPU £154.95
Commodore 64 £299.00 + VAT

ATARI HARDWARE

410 (Cassette)	£ 50.00
850 (RS232 Interface)	£135.00
822 (Thermal Printer)	£199.00
810 (5.25 Disk Drive)	£299.00
16K RAM Packs Ex-400	£ 40.00
New	£ 65.00
32K RAM Updates for 400	£ 69.95

ATARI SOFTWARE

Star Raiders (ROM)	£ 29.95
Missile Command (ROM)	£ 29.95
Asteroids (ROM)	£ 29.95
Pacman	£ 29.95
Caverns of Mars (Disc)	£ 29.95
Music Composer (ROM)	£ 35.00
Assembler Editor (ROM)	£ 39.95
Pilot (ROM & Cassette)	£ 79.95
Super Breakout (ROM)	£ 29.95
Computer Chess (ROM)	£ 24.95
EMI Sub Commander (ROM)	£ 34.95
EMI Jumbo Jet (Rom)	£ 34.95
EMI Soccer (ROM)	£ 29.95

COMPUTE MAGAZINE

A 200 page magazine that we import from the U.S.A. containing articles, programs and reviews of software on the Atari, PET and Apple

Apple	£1.85 + 55p P&P
The COMPUTE Book of Atari	£ 12.95
Compute 2nd Book of Atari	£ 12.95
Analogue	£ 1.95
Anlic	£ 1.95

BUSINESS SOFTWARE

Chipsoft Payroll	£149.95
Chipsoft Stock Control	£149.95
Chipsoft Sales Ledger	£149.95
Chipsoft Purchase Ledger	£149.95
Textwizard (Word Processor)	£ 99.95
Atari World Processor	£ 99.95
VisiCalc	£109.95
Microsoft Basic	£ 59.95
Chipsoft Mailshot	£149.95

NEW SOFTWARE

Crush, Crumble & Chomp (D/C)	£ 19.96
Crossfire (D/C)	£ 19.96
Mission Asteroid (D)	£ 17.56
Raster Blaster (D)	£ 19.96
Frogger (D)	£ 29.96
Pathfinder (D)	£ 23.96
Canyon Climber (D/C)	£ 19.96
Apple Panic (D)	£ 19.96
Atari World (D)	£ 39.96
Wizard & The Princess (D)	£ 22.00
Threshold (D)	£ 27.60
Preppie (D/C)	£ 19.96
Trackattack (D)	£ 21.95
Choplifter (D)	£ 25.50
S.A.M. (Software Automatic Mouth)	£ 43.95
Slime (D/C)	£ 25.50
Shamus (D/C)	£ 25.50
Nautilus (D/C)	£ 25.50

Prices include postage and packing

All hardware or software purchased from either of our two shops comes with our one year direct exchange guarantee.

Visual Display Units (V.D.U.s)
 12 inch green screen monitors

£ 99.95

We also stock Atari T.V. games.

Atari Consoles	£ 89.95
Pacman Cartridge	£ 29.95
Chopper Command	£ 24.95
Star Master	£ 24.95
Imagic Demon Attack	£ 24.95
Imagic Star Voyager	£ 24.95
Joysticks	£ 12.00
Paddles	£ 13.95
Vic Cassette Unit	£ 44.95
Vic Disc Drive (174K)	£299.95
Jellymonsters	£ 19.95
Alien	£ 19.95
Adventureland	£ 24.95
Pirate Cove	£ 24.95
Mission Impossible	£ 24.95
Voodoo Castle	£ 24.95
Omega Race	£ 24.95

Ask about Part-Exchanges

Silicon Chip

302 High Street, Slough,
 Tel: Slough 70639

50 London Road, Kingston upon Thames
 Tel: 01-549 6655



MAILBAG



RATTLE AND ROLL!

Dear Sir,
A simple technique for gamers and their ZX81's — add to the effect of an explosion to produce results similar to an earthquake scene on TV — the jolted camera shot — get it?

By POKEing location 16424 you can cause the picture to judder in an alarming way — the higher the value the more alarming it gets — my program demonstrates this.
10 PRINT AT 10,10; "— □ □
—"

```
20 FOR N = 50 TO 0 STEP —
5
30 POKE 16424,N
40 POKE 16424, (50 — N)
50 NEXT N
60 GOTO 10
D. Beighton,
Silchester,
Reading.
```

CHARACTER PROBLEMS

Dear Sir,
Could you please tell me how you get lower case characters printed on the television screen using a Vic-20. I have tried desperately but to no avail.
Alan Clarkson,
Warrington,
Cheshire.

Editor's reply: All you have to do Alan is press the SHIFT key and the key with the Commodore symbol on it — you'll find that at the bottom left-hand corner of your Vic keyboard — at the same time. Then you'll find both upper and lower case characters are available.

MISLEADING MEMORIES

Dear Sir,
I wonder if any of your correspondents or staff have been slightly misled, as I was, by some advertisements for microcomputers, as far as the available RAM is concerned. I purchased my Atom as much for its expansion possibilities as anything else, but I also felt that 2K of RAM was a fairly

generous offering for starters.

I soon discovered that 1K of that RAM is in zero page and dedicated to the operating system, except for a few odd bytes. Another 1/2K is the screen memory, leaving just 1/2K for program text! Even with the Atom's fairly compact abbreviations fitting a reasonable game into 512 bytes is rather frustrating. I now have a full expansion for the lower text space, but for several months the frequent appearance of ERROR 248 was a cause of much tearing of hair and gnashing of teeth!

I wonder, when I see adverts for some of the latest machines, such as the Spectrum (48K) or the Dragon (32K), just how much of that RAM is directly available to the user for program text. Perhaps your Hardcore article could publish a comparative table sometime.
Richard Gledhill,
Bicester,
Oxfordshire.



THE MICRO CONFLICT . . .

Dear Sir,
I felt I just had to write to you and your fantastic magazine, and have a short say in the ZX Spectrum versus the BBC model A conflict.

As far as I am concerned, the Spectrum is one of the greatest achievements in the computing industry. If I were to give you about £350 and also the choice of buying a BBC model A micro at £300 or a 48K Spectrum, costing a mere £175, a ZX microdrive at £50, a ZX printer at £60, an RS232 at only £20 and if you wanted a proper keyboard at about £40, which would you take?

I think the choice is obvious and I know that if I

had £300 to spend on any computer, the Spectrum would be first on my list.

Finally, it is my belief that Sinclair make the world's best computers, and ITV make the world's best television programmes!

I would be grateful if you would publish this letter with the hope of clearing a few minds of the endless quibble between the Spectrum and BBC computers.
Alan McAuley,
Carrickfergus,
Co. Antrim.

VIDEO FAN SPEAKS OUT

Dear Sir,
Since finding your magazine in my local W. H. Smiths back in November last year, I have been buying it regularly every month.

Computer and Video Games fills a unique spot amongst all the computer-related magazines, dealing more with the fun side of computers, than boring us with the latest technical guff, which most of the others do.

I don't in fact own a computer as such, but am the proud owner of an Atari, VCS, and find your Video Screens reviews very interesting.

One request, how about doing a complete run down on the Atari VCS?, as I feel sure there are many VCS owners who don't really know much about the history or technical side of the VCS and would like to.

Mark Gentry,
Ipswich,
Suffolk.

SPECTRUM SPECIFICS

Dear Sir,
Having read a lot about the Spectrum several questions still remain in my mind.

Does the screen still flash when the 'Pause' command is used?

When saving and loading a program is the screen display retained or does it behave in the same way as that of the ZX81?

On Sinclair's order form both a "User-defineable

character set and "User-defineable graphic characters" are mentioned. What is the difference?

When a sound is generated does the program stop until the sound has finished? And finally is it possible to set up files on cassette?

Jason Orbaum,
Surrey.

Editor's Reply: No Jason, the screen does not flash when the Pause command is used. The screen contents are retained when saving and loading, and there is no difference between the "characters" mentioned in Sinclair's publicity. A program does not stop when sound is used, but it will slow slightly, and yes, it is possible to set up files.

REVIEWERS REVIEWED

Dear Sir,
I have just received my Dragon 32 computer and would like to offer my services for reviewing games for this machine.

Paul Whitby,
Gloucester.

Editor's reply: We are still short of reviewers for the Dragon 32 and Texas 99/4A computers. If there's anyone out there who has a printer with their computer please write to us.

IT'S DRIVING YOU WILD

Dear Sir,
I noticed in your November issue that some people were having difficulty with Wild Strawberries. If they are trying to load it from disc they will experience some problems as some of the POKE commands disrupt the game.

The lines to be changed are: 65 where POKE 10240 + A should read POKE 38912 + A. The same change should be made for line 70. 75 should be changed to make POKE 10448 + A read POKE 39210 + A. 100 should be changed to make POKE 756,40 read POKE 756,152.

Philip Sadler,
Acton.

CHROMASONIC PERSONAL COMPUTERS

01-263 9493/5

48 JUNCTION RD, ARCHWAY, LONDON N19 5RD Telex 22568

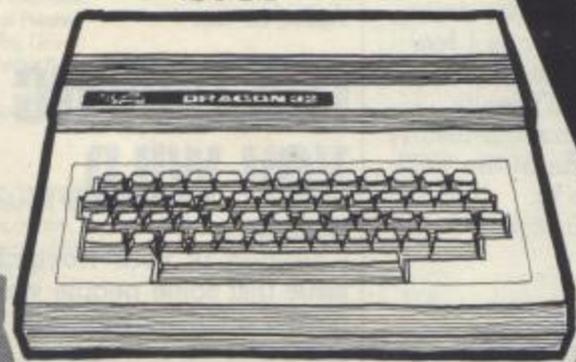
*The Home
Computer
Specialists*



DRAGON 32

- * 9 Colours
- * 32K RAM memory as standard, expandable to 64K
- * Extended Microsoft colour basic as standard
- * Typewriter Keyboard
- * 6809E CPU
- * Advance sound feature
- * 32 Columns x 16 Lines

FREE 'Basic' training manual supplied
OUR PRICE **£165**



VIC 20 COMPUTER

NEW
LOW
PRICE
£129.00



VIC PRINTER £185.00

80 Characters per line,
30 Characters per sec.,
Tractor Feed Dot matrix
printer.

VIC SINGLE FLOPPY DISK

OUR PRICE **£249.00**
174K Byte Storage Direct
Interface to VIC Direct
Compatibility with
printer.

VIC CASSETTE DECK

£34.00

Free
cassette
with
6 programs
supplied

ACCESSORIES FOR YOUR VIC 20

- Super Expander High Resolution Cartridge **£27.50**
- Programmers Aid Cartridge **£27.50**
- Machine code Monitor Cartridge **£25.00**
- 8K RAM Cartridge **£34.00**
- 16K RAM Cartridge **£59.00**

TONS OF SOFTWARE

For a copy of our
VIC list containing
everything
you need for the
VIC computer,
send us
your coupon
NOW!

COLOUR GENIE

EG 2000 PAL VERSION

- * 8 colours
- * 16K RAM standard, expandable to 32K
- * Extended Microsoft colour basic standard
- * Typewriter Keyboard
- * CPU: Z80A/2.2 MHz
- * 3 Sound Channels
- * 40 Columns x 24 Lines

* Serial and Parallel I/O Ports
OUR PRICE **£173**



SPECIAL OFFER GENIE I OR II £249.00

Sinclair ZX81 available ex-stock **£49.95** inc. VAT.
Post to CHROMASONIC Personal Computers,
48 Junction Road, Archway,
LONDON N19 5RD

TERMS OF BUSINESS: Please add 15% VAT to all prices.
Delivery charged at Cost. Prices valid for cover date of this mag.
Access and Barclaycard orders welcome.

I am interested in a home computer.
Please send me further details

- VIC 20 DRAGON 32 COLOUR GENIE
 ADD-ONS SOFTWARE

NAME:

ADDRESS:

GAME OF THE YEAR WINNER

Those ravenous little devils, the Nibblers, which appeared in the very first issue of *Computer & Video Games*, have finally done some good.

They have won their inventor, Paul Jay, a trip to Paris for two, complete with spending money, courtesy of *Computer & Video Games*.

After careful consideration and much heart-searching by our panel of judges, Paul's Nibblers was voted the winner of our first Games Program of the Year competition.

Nibblers won because it was a simple but original idea, which included different levels of difficulty, sound and graphics. It ran smoothly and proved easy to key-in but compulsive to play.

So congratulations to Paul and commiserations to all those of you who held out high hopes of Paris in the Autumn.

And for those of you who have not yet had a chance to meet The Nibblers, we will be printing a Vic-20 listing we received which was converted from Paul's game.

Congratulations to all you master-

minds out there who solved our first Puzzling challenge from the November issue.

But judging from the many phonecalls we received about Puzzle C we may have been too clever.

We changed one of the pages in Puzzle C to make it impossible and this obviously confused some of you, but most managed to come up with the right answer.

The correct solutions were — reading from the bottom of the page up:

- A) Red, Red, Yellow, Yellow.
- B) White, Green, Black, Red.
- C) Impossible.
- D) Red, White, White, Black.

The three winners will be announced next month.

THE EMPIRE STRIKES OUT

The Seventh Empire is a unique game and competition which will be starting in *C&VG's* February issue. It is a computer moderated game specially designed for *C&VG* by Mike Singleton.

Every player will control one of the galaxy's many tribes with seven space fleets to despatch around the star systems taking part in the empire battles for a share in the

spoils, initiating your own raids and acts of piracy.

It will accommodate from 1 to 10,000 players with a winner being the player with the most points scored each month. Top scorer in the first month's game will win a Colour Genie Computer.

The first 1,000 readers we hear from will enter free, the rest will be asked to pay a token 50p charge but after that first turn, Seven Empires will only cost you a stamp every month.

Fill in the form below and rush it to: The Seventh Empire, *Computer & Video Games*, 8, Herbal Hill, London EC1R 5JB. Although you can enter the game any time, you will need to be on our records before the February issue goes to press in order to enter that first month. See page 72 for the background to the game, the rules come next month.

Please include me in The Seventh Empire competition which will run in your February issue.

The name of the tribe I wish to control is: _____

My name is _____

Address: _____

_____ Tel: _____

NEXT MONTH

Take to the War Path in the new year with wargames author Ron Potkin.

Ron was the writer of our April issue star game, *Kriegspiel*, a chance to take your computer's Panzer divisions in a tank battle scenario.

War Path has a Wild West theme which gives the Indians every chance to reverse history. It also maps out Ron's unique Big Screen approach to computer war-gaming.

Instead of printing out the listing for one machine, Ron will be taking you through each part of the program, month by month, explaining how the Big Screen technique works and showing how it can be utilised on many different computers.

War Path kicks off our new year and provides some marvellous lessons in making the most of computer memory and TV screens.

The Seventh Empire rules are

printed in the January issue. So all you budding fleet commanders should pick up a copy to find out how to partake in galactic warfare, make piracy work for you and play-off one warring empire against another.

The latest news from the *C&VG* special Starweb game comes from one of the more threatening of the galactic races, the dreaded Gzinti berserkers.

Mark Woolwich who has been following the growth of the Gzinti empire closely managed to intercept the following transmission on its way to their home world of Gzin.

The rate of expansion mentioned in previous reports has slowed greatly due to conflicts with other races on the thrice removed frontiers.

The powerful and hostile Pirate 1 is being kept out of Gzinti territory. His scout fleets are destroyed by our border fleets who are taking minimal damage.

Artifact Collector 1 has proved to

be non-hostile and information received from him concerning Pirate 2 has resulted in our strengthening of the border between Gzin and Pirate 2. Furthermore a large force has been mobilized with the intent of destroying Pirate 2.

Artifact Collector 2, after being initially hostile, has retreated, as large force is pursuing him with the aim of neutralizing his threat. A time and labour-consuming job, but vital to ensure continued expansion and replacement of lost ships.

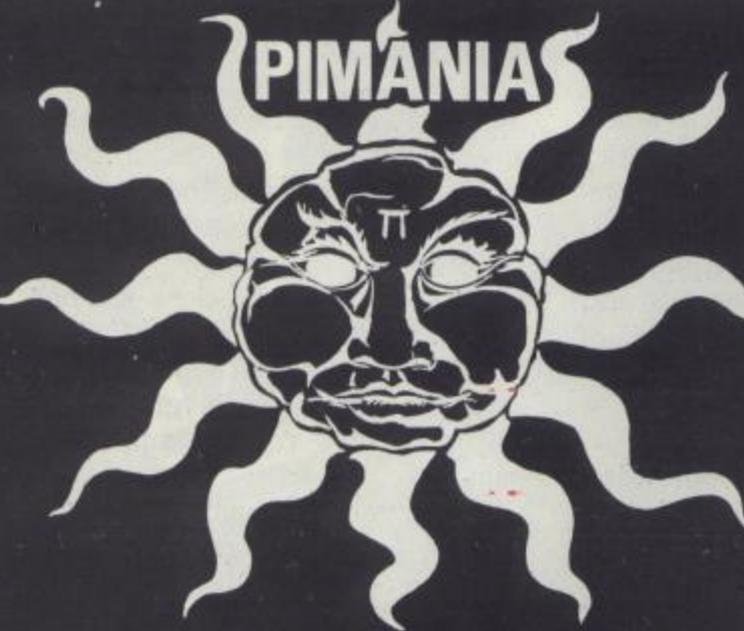
The fleet drawn into the black hole has remained silent and must be considered lost. However, the black hole provides a barrier to attack from regions beyond it.

The prime directive is never forgotten, non-robot population is destroyed wherever ships can be spared, though the needs for our survival and supremacy often conflict with it.

End of report.

The Gzinti Fleet Controller

PIMANIA



THE ADVENTURE GAME THAT'S FOR REAL !!!!
£6,000 PRIZE! FREE HIT SINGLE! 48K ZX SPECTRUM
(16K ZX81 VERSION NOW AVAILABLE)

Will you be the first to locate the Golden Sundial 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 hanggliders, where music meets madness and where the Pi Man rules supreme! He'll talk with you, he'll befriend you, he'll betray you, he'll even do the Hokey-Kokey! Animated cartoon graphics! Full musical score! Spectacular colour and sound effects! Includes free hit single "Pimania", with vocals by Clair Sinclive and the Pi-Men!

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 (48K Spectrum) £8 (16K ZX81)



Automata Ltd. (CVG)
 85a Osborne Road
 Portsmouth PO5 3LR
 England

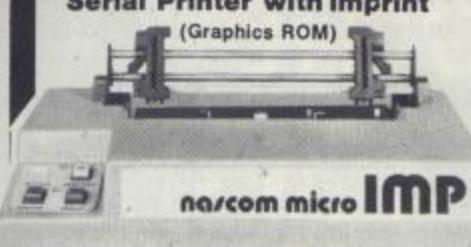
nascom

Special Offer from SRS!

We have the last of the makers stocks of the

NASCOM IMP

Serial Printer with imprint
(Graphics ROM)



GREAT VALUE!
ONLY
£199.95
EX. VAT

(Previous price before being discontinued £325 + VAT)

apple C.O.R.P.

Come & see the complete APPLE II system with C.O.R.P. program generator. It's incredible — now anyone can write what they require and C.O.R.P. will work out the program for you — call into our new store at Watford and see it for yourself.

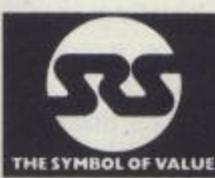
We are pleased to advise our customers that we are members of the SPECTRUM COMPUTER GROUP and can supply all the items featured in SPECTRUM'S ad's in THIS issue.



SRS MICROSYSTEMS

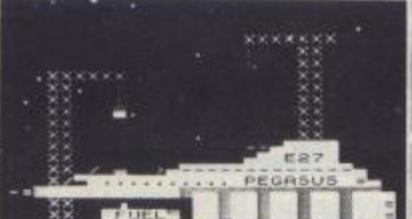
94 The Parade, High Street, Watford, Herts.
 Telephone (0923) 26602

You'll value our experience, you'll value our prices, free Securicor delivery or post on orders over £50. Access & Barclaycard welcome. Hire purchase and part exchange available E. & O.E.



THE SYMBOL OF VALUE

And now for the big picture.



TRADER A trilogy of 16K 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? ZX81 £10.50. VIC20 £18.50 (tape or disc).

SUBSPACE STRIKER Our top selling, big screen graphic game. With your deadly Antimat torpedoes, you unleash havoc in the Federation spacelanes and try to dive back to the safety of subspace, fast. ZX81 £5.50. VIC20 £9.50. 16K.

STARQUEST A voyage of discovery and adventure in the cosmos. With the help of your onboard computer, you seek a habitable planet amidst the perils of deep space. ZX81 £5.50. VIC20 £9.50. 16K.

ENCOUNTER Would you know what to do if you encountered extra-terrestrial beings? In this adventure, you are snatched off the Earth and the space invaders play YOU! ZX81 £5.50. VIC20 £9.50. 16K.

ZOR Battle of the robots. Fight for survival in this action-packed strategy game. Megajoules of destructive energy in a futuristic duel. ZX81 £5.50. VIC20 £9.50. 16K.

PIXEL POWER At last it is easy to create your own custom characters on the 8K plus expanded VIC20. A graphics workshop packed with useful features like Create, Amend, Save, View Set. £9.50. Refreshes the pixels that other programmes can't reach. (See Pixel Power in action in Trader and Subspace Striker)

HARVESTER Reap your reward in the Boosterspice fields 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 Psions 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 39 Ripley Gdns. London SW14 8HF

SPECTRUM

We won't be beaten on price!

SPECTRUM is a rapidly expanding group of independent retailers who specialise in selling home computers. Our group policy is simple - **WE WON'T BE BEATEN ON PRICE!** - our **BULK BUYING** ensures this. We select and buy the best and pass the savings on to **YOU**, the customer. We **GUARANTEE** that if you find an item currently advertised and in stock at another dealer and at a better price than ours - **WE WILL MATCH THAT PRICE ON THE SPOT.**

Only trained personnel at Spectrum!

We believe that our product 'know-how' is crucial to the customer. That's why in every one of our centres you'll find **fully trained personnel**, who have been trained by the importers or distributors themselves - so we know and understand the products we sell and can help every customer even the complete beginner. At SPECTRUM we find the **RIGHT** equipment to suit your needs. Handing over sealed boxes is not our line - our service includes 'hands-on' experience that we pass on to **YOU**.

After Sales care

SPECTRUM service centres will ensure that should your machine 'go-down' we will get it running again as quickly as possible. We also offer **extended warranties** at reasonable prices too! - ask your SPECTRUM HOME COMPUTER CENTRE for full details.

Shop News!

New Spectrum Centres
 BANBURY ● CAMBERLEY
 CHELMSFORD ● COVENTRY
 DARLINGTON ● DONCASTER
 GLOUCESTER ● HULL
 HYDE ● LONDON SE1
 LONDON N20 ● LONDON W13
 NORTHAMPTON
 NORTHWICH ● OLDHAM
 PEMBROKE ● ST. AUSTELL

COMPUTER DEALERS!

(or prospective Computer Dealers!)
 If you would like to know more about becoming a SPECTRUM APPOINTED DEALER on an exclusive area basis, please contact **MIKE STERN** or **ALAN WARREN** on (07073) 34761.
 Spectrum (U.K.) Ltd.,
 Burrowfield,
 Welwyn Garden City, Herts.

STOP PRESS
 Arriving soon! Very limited quantities of the fabulous
LYNX 48K
£195.65
 Ex. VAT
 (£225.00 Inc. VAT)

TEXAS T199/4A

Sensational Value from Spectrum!

Sensational
£50
CASH BACK OFFER!

£50 CASH REBATE WITH EVERY TEXAS T199-4A PURCHASED

Please ask for full details
 Offer expires 31.1.83



Now from SPECTRUM this expandable & comprehensive micro at an **incredible LOW price PLUS!** a **£50 CASH BACK offer** - that's right, you get a £50 REBATE when you return your mailing slip & receipt to Texas Instruments, which in effect brings the price of the T199/4A down to an **unbelievable £148.95 INC. VAT.** So if you're looking for a top quality micro at a bargain price **HURRY** to your local SPECTRUM dealer and take a look at the **TEXAS T199/4A.**

- 16K RAM (expandable to 48K)
- Built-in 14K Byte BASIC interpreter
- 16 Bit Microprocessor
- 16 Colour High Resolution graphics
- Optional programming languages - UCSD PASCAL, TI-LOGO & ASSEMBLER.

- Extensive range of solid state software command modules available from games to architectural aids.

Spectrum **LOW Price** **£173.00** PRICE INC. VAT £198-95

	EX. VAT	INC. VAT
TEXAS PERIPHERALS		
Speech Synthesizer.....	£40.50	£45.58
Peripheral Exp. System....	£122.00	£140.30
Disc Cont. Card.....	£124.30	£142.95
Disc Drive.....	£234.74	£269.95
RAM Exp. Card.....	£179.57	£206.50
Matrix printer.....	£347.78	£399.95
Software Entertainment		
TI Invaders.....	£16.48	£18.95
Tombstone City.....	£19.95	£22.95
Attack.....	£19.96	£22.95
Car Wars.....	£23.43	£26.95
Munchman.....	£23.43	£26.95
Adventure & Pirate.....	£31.26	£35.95
Education		
Number Magic.....	£12.13	£13.95
Addition/Subt. 1.....	£23.43	£26.95
Teach yourself beginners		
BASIC.....	£8.26	£9.50
Home Budget Management	£19.96	£22.95
... and many more		

Commodore VIC-20 Now a top quality home/business micro for the price of a games machine.



The VIC-20 represents **superb value-for-money** from SPECTRUM. A truly **expandable** computer system which can be as simple or as complex as your needs require. Ideal as a home micro with a large number of **educational & games cartridges** available. Equally, with additional memory expansion, a disc drive and printer, it becomes suitable as a **small business system**, powerful enough for stock control, book-keeping and payroll generation

- Memory expandable to 32K
- High resolution (full PET type) graphics
- 16 Screen colours & 8 border colours
- Plugs in to your T.V. or monitor
- Add Disk Drive & Printer for impressive 170K Byte system
- Can act as an intelligent terminal for a larger computer.

Unbelievable New LOW price **£127.50** Ex. VAT (£146.63 inc. VAT)

VIC C2N	Exc. VAT	Inc. VAT		Exc. VAT	Inc. VAT	
cassette unit.....	£34.00	£39.10	"Jelly Monsters"	£17.35	£19.95	
VIC Printer.....	£185.00	£212.75	"Super Lander"	£17.35	£19.95	
VIC Single floppy disk			"Road Race"	£17.35	£19.95	
drive (5 1/4).....	£260.83	£299.95	"Rat Race"	£17.35	£19.95	
3K RAM.....	£24.00	£27.60	"Super Slot"	£17.35	£19.95	
8K RAM.....	£34.00	£39.10	"Alien"	£17.35	£19.95	
16K RAM exp. cartridge	£59.00	£67.85	"Mole Attack"	£17.35	£19.95	
Super exp. Hi Res cartridge.....	£27.50	£31.63	"Adventure Land"	£21.70	£24.95	
Joystick.....	£6.52	£7.50	"Mission Impossible"	£21.70	£24.95	
Games paddles.....	£11.74	£13.50	"Voodoo Castle"	£21.70	£24.95	
Programmers Aid cart.....	£27.50	£31.63	"Blitz" (cass.)	£4.34	£4.99	
Machine Code Basic (1).....	£13.00	£14.95	BOOKS			
	Exc. VAT	Inc. VAT	Learn Computer Programming with the Commodore VIC	£1.95	No VAT	
			VIC Revealed	£10.00	No VAT	
			VIC 20 Prog. Reference Guide	£14.95	No VAT	
			VIC Computing Magazine	£0.95	No VAT	
GAMES						
"Avenger"	£17.35	£19.95	Super RABBIT Software for VIC-20			
"Start Battle"	£17.35	£19.95	Save 50p on rec. price of the following super quality games.	Inc. VAT.		
			Myriad	£9.49	Super Worm	£4.49
			Frogger	£9.49	Rabbit Function	£4.49
			Space Storm	£6.49	Charset 20	£4.49
			Ski Run	£4.49	Rabbit Base	£14.49
			Cosmic Battle	£4.49	Rabbit Writer	£19.49

MORE SPECTRUM LOW PRICES

Not all stores carry every advertised item, please phone before making a journey - Prices correct at time of going to press E. & O.E.

SPECTRUM

ATARI

From household budgets to analysis of bond yields. From foreign languages to spelling or geography. From missile command to PACMAN - ATARI does it all, EXCELLENTLY! See the top selling ATARI range at your nearest SPECTRUM COMPUTER CENTRE - but HURRY! As Christmas approaches stocks are selling fast so make it soon.



ATARI 400
16K RAM
£173.00
(Excluding programmer kit)
Price inc. VAT £198.95



ATARI 800
16K RAM
£434.00
(Includes programmer kit)
Price inc. VAT £499.10



ATARI
THERMAL PRINTER
£173.00
Price inc. VAT £198.95

Additional Equipment	EX. VAT	INC. VAT
Program Recorder	£43.00	£49.45
Disk Drive	£280.00	£299.00
Thermal Printer	£173.00	£198.95
Interface Module	£117.39	£135.00
Accessories		
16K Ram Pack	£56.52	£65.00
Paddles (Pair)	£12.17	£13.99
Joysticks (Pair)	£12.17	£13.99
Printer Cable	£24.78	£28.50
RS232C Cable	£21.74	£25.00
Monitor Cable	£21.74	£25.00
Thermal Paper	£3.48	£4.00
Dos. 2 Master Diskettes	£19.12	£21.99
Books and Manuals		
Wiley Manual	£5.21	£5.99
Basic Reference Manual	£5.21	£5.99
Dos. 2 Manual	£5.21	£5.99
Operating System Listing	£10.43	£11.99
Dos. Utilities Listing	£3.47	£3.99

Atari Home Computer Programs—Home/Office	EX. VAT	INC. VAT
Graphit	£13.03	£14.99
Statistics 1	£13.03	£14.99
Home Study (Cassette except where stated)		
Inv. to Programming 1	£17.38	£19.99
Inv. to Programming 3	£19.99	£22.99
Conversational French	£34.77	£39.99
Conversational German	£34.77	£39.99
Conversational Italian	£34.77	£39.99
Conversational Spanish	£34.77	£39.99
Hangman	£13.03	£14.99
Scram	£17.38	£19.99
Touch Typing	£17.38	£19.99
Music Composer (Cart.)	£31.30	£35.99
Home Entertainment		
Asteroids	£26.08	£29.99
Basketball	£21.73	£24.99

Atari Home Computer Programs—Home/Office	EX. VAT	INC. VAT
Blackjack (Cassette)	£13.03	£14.99
Caverns of Mars (Disk)	£26.08	£29.99
Centipede	£26.08	£29.99
Computer Chess	£21.73	£24.99
Missile Command	£26.08	£29.99
Pac Man	£26.08	£29.99
Space Invaders	£26.08	£29.99
Star Raiders	£26.08	£29.99
Super Breakout	£21.73	£24.99
Video Ease!	£21.73	£24.99
Programming Languages & Aids		
Assembler Editor	£34.77	£39.99
Pilot (Consumer)	£52.17	£59.99
Pilot (Educator)	£78.25	£89.99
Entertainer kit (Star Raiders, Missile Command and Pair Joysticks)	£60.86	£69.99
Programmer Kit (Basic Cartridge and Manuals)	£43.47	£49.99

SEIKOSHA GP-100A Graphic Printer



Now a top quality graphic printer at a price you can afford. The SEIKOSHA GP-100A - Terrific value at under £200 from SPECTRUM. Standard Centronics compatible interface for easy link-up with most micros. Full graphics capability. Printing speed 30 chars/sec. Double width character output under software control. Graphics, character and double width character can be intermixed on same line. Paper width adjustable up to 10" - tractor feed. Print position addressable by character or dot.

Also Available	EX. VAT	INC. VAT	EX. VAT	INC. VAT	
GP-100VC (for VIC-20)	£199.00	£228.85	APPLE SERIAL	£45.00	£51.75
GP250X 50cps	£230.00	£264.50	APPLE GRAPHIC	£55.00	£63.75
Optional Interfaces for GP-100A/GP-100VC			VIDEO GENIE	£36.00	£41.40
RS232	£70.00	£80.50	Cables for BBC MICRO, ACORN, DRAGON	£19.09	£21.95
MZ80-A	£60.00	£69.00			

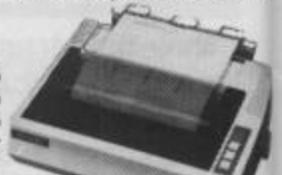
Spectrum LOW price £189.00 Price inc. VAT £217.35

EPSON PRINTERS

Chosen by SPECTRUM for their reliability, the superb new top quality graphic printers from EPSON. New features include super & subscript, underlining & deletion. If you're looking for an up-market printer at a down-to-earth-price, call in and see the EPSON range at SPECTRUM.

Model	EX. VAT	INC. VAT
MX80-T3	£299.00	£343.85
MX80 F/T Type III	£335.00	£385.25
MX100 Type III	£429.00	£493.35

Please see your SPECTRUM dealer for prices of INTERFACE/CABLE options.



NASCOM Special Edition



SAVE £15 On the BMC 12" Monitor when purchased together with the Nascom Special Edition.

Are you a real computer enthusiast? If you're looking for a machine to take you way beyond the sphere of a normal domestic computer you need go no further than the NASCOM SPECIAL EDITION. To give you some indication of its scope its already been adopted for many commercial applications including Hotel Booking Systems, blood grouping, weaponry & satellite tracking etc. Now SPECTRUM bring you the opportunity to embark on a remarkable sphere of computing with the infinitely expandable NASCOM. It's a terrific buy! - Trade-in your old machine & trade-up to a NASCOM SPECIAL EDITION - NOW!

■ Programmable in BASIC and machine code ■ 8K Memory expandable easily to 56K with plug-in board ■ Facility for up to 206K onboard memory ■ Super colour graphic facilities ■ Full range of disk drives, printers & various input/output facilities can be added ■ Supplied complete with Mains Lead & Plug, TV, Monitor & Tape Recorder connections.

Spectrum LOW price £429.95 Ex. VAT
(£494.44 inc. VAT)
BMC Monitor Illus. Extra
NASCOM Special Edition 48K RAM Board (ready to plug in) £130.00 ex. VAT (£149.50 inc. VAT).



BOOKS

We stock an extensive range of books to help you. Here are just few to what your appetite.

CP/M Handbook	£11.50
DON'T	£9.65
Programming the Z80	£11.95
Programming the 6502	£10.75
Your First Computer	£7.75
BASIC Handbook (2nd edition)	£14.95
A-Z of Computer Games	£5.60
Atari Basic	£5.95
Basic "BASIC"	£9.95
BASIC Computer Games	£6.95
BASIC Computer Programs for Business (VOL I)	£8.55

NO VAT ON BOOKS

ACCESSORIES

	Exc.VAT	Inc.VAT.
SANYO Slim 3G Cassette Recorder (for use with Nascom and Dragon)	£26.04	£29.95
CTT 3106 14" Colour TV Set	£199.96	£229.95
ACCUTRAK C12 Cassettes	£0.43	£0.50
Single sided, double density disks (for Commodore, Atari, Apple, Tandy etc.)	£1.70	£1.95
Double sided, double density disks (for Sharp and Superbrain)	£2.87	£3.30
Single sided, double density double track disks (for Nascom and Commodore 8050)	£2.30	£2.65
Disk Bank Interlocking cases for diskettes	£3.91	£4.50
Disk head cleaner	£13.00	£14.95
Single part 11" x 9 1/2" printer paper, box of 2200 sheets	£10.39	£11.95

Incredible Value!
BMC 12" Green Monitor



18 MHz band width
Green and black display
Spectrum LOW price £69.00 (£79.35 inc. VAT)
Prince 12" Monitor £86.00 Ex VAT £98.00
Sanyo 12" SM-12H £84.00 Inc. VAT £96.60
Sanyo 14" SCM-14H Colour £350.00 £402.50



FREE!
£75 WORTH
of software
 with every MZ80A
 purchased

Fantastic Value for money!
DRAGON 32



HURRY!
 Stocks of DRAGON
 32 selling fast —
 few only left at this
 amazing price

SHARP MZ-80A

Desk top genius! — the all-in-one SHARP MZ-80A. A personal computer designed with the serious user in mind. ready to run the moment you get it home. Built-in keyboard, CRT 9" display and cassette data storage with 48K RAM. The BASIC with extra useful additions, offers quite a powerful micro for the home or business. ■ 4K Byte ROM + 48K Byte RAM + 2K Byte Video RAM ■ ASCII profiled keyboard + numeric pad ■ 2 page Video RAM allows screen to be scrolled up or down. ■ CP/M available.

Spectrum LOW price £475.00 Price inc. V.A.T. £546.25

MZ Software from KUMA

- Pakman (48K) £8.00
- Asteroids £8.00
- Frogger £8.00
- Chess £14.00
- Cribbage £10.50
- Adventure £10.50
- Tombs of Karmak £8.00
- Map of U.K. £10.50
- Music Composer £10.50
- Junior Maths £5.50
- Home Budget £5.50
- Word Pro (Cass) £39.50
- Word Pro (Disk) £79.95
- Data Base (Cass) £29.50
- Data Base (Disk) £59.50

SHARP PERIPHERALS FOR MZ80A	EXC. VAT	INC. VAT
Twin floppy disk unit (inc. 1/0 card, diskette, Manual & Cable)	£689.00	£792.35
Twin floppy disk unit (5 1/4") only	£590.00	£678.50
Single floppy disk unit only	£400.00	£460.00
Floppy disk interface card	£100.00	£115.00
Floppy disk cable	£24.00	£27.50
Master diskette and manual	£31.00	£35.66
Expansion unit (disk drive or printer)	£100.00	£115.00
MZ80 P5 Printer	£349.00	£401.30
MZ80 P6 Printer	£409.00	£470.35
MZ80 P4 Printer	£745.00	£856.75
Printer interface	£30.00	£34.50
P4 Cable	£33.00	£37.95
Universal Interface Card	£45.00	£61.00
Assembler Tapes & Manuals	£42.00	£48.30
FDOS	£85.00	£97.95
MX80K to MZ80A Converter Tape	£10.00	£11.50

... and many more

Unbelievable value at only £173.00 from SPECTRUM! British built and designed it's one of the most impressive micros to appear for quite some time. Extensive facilities include highly advanced colour graphics. Just look at this top specification: Powerful standard 32K RAM (expandable to 64K Bytes) ■ 9 Colour, 5 resolution Display. ■ Extended Microsoft colour BASIC (as standard). ■ Advanced sound with 5 octaves — 255 tones. ■ Professional style editing, e.g. extract line, auto find reinsert. ■ Professional quality keyboard. ■ Centronics Paralled printer interface. ■ Serious programmer/user — the BASIC on this machine is similar to that found on machines costing 3 times the price! ■ Uses almost any cassette recorder. ■ Standard file handling ON TAPE.

Spectrum SENSATIONAL price

£173.00
 PRICE INC. VAT £198.95

SOFTWARE for DRAGON 32	EX. VAT	EX. VAT	EX. VAT
Joysticks (pair)	£17.35	Ghost Attack	£21.70
Cassette lead	£2.35	CASSETTES	
CARTRIDGES		New! Dragon Mountain	£6.91
New! Cave Hunter	£17.35	New! Typing Tutor	£6.91
New! Starship Chamelion	£17.35	New! Flag	£6.91
Beserk	£17.35	Computervoice	£6.91
Cosmic Invaders	£17.35	Graphic Animator	£6.91
Meteoroids	£17.35	Quest	£6.91
		Madness and the Minotaur	£6.91
		Selection of Games	£6.91
		Selection of Utilities	£6.91
		Examples from Dragon Manual	£6.91
		Personal Finance	£6.91
		Seiksha GP100A printer for Dragon	£189.00
		Printer cable	£19.00
		Above prices excluding VAT.	

There's a SPECTRUM CENTRE near you ...

- ALFRETON**
Gordon Harwood, 69/71 High St. 0773 832078
- ASHFORD**
Ashford Computer Centre, 2 Station Parade, Clarendon Rd. 07842 44955
- BANBURY**
Computer Plus, 2 Church Lane. (0295) 55890
- BASILDON**
Godfrey's, 28-32 East Walk, Town Centre. 0268 289379
- BASINGSTOKE**
Fisher's, 2/3 Market Place. 0256 22079
- BATH**
Software Plus, 12 York St. 0225 61676
- BIRMINGHAM**
Sherwoods, Great Western Arcade. 021 238 7211
- BRADFORD**
Photosave, 18 Cheapside. 0274 308598
- BRIGHTON**
Capricorn, 1 Queens Rd. 0273 29634
- CAMBERLEY**
Camera Arts (Micro Computer Division), 36 High St. (0276) 65848

- CAMBRIDGE**
KP Ltd., 12a Kings Parade. 0223 68087
- CANTERBURY**
Kent Micro Systems, Conquest House, 17 Palace St. 0227 50200
- CARDIFF**
Randall Cox, 18-22 High St. Arcade. 0222 31960
- CHELMSFORD**
Maxton Hayman Ltd., 5 Broomfield Rd. (0245) 354595
- COVENTRY**
Coventry Computer Centre, 33 Far Gosford St. (0203) 58942
- DARLINGTON**
McKenna & Brown, 102 Bondgate. (0325) 59744 (Just Opening)
- DERBY**
CT Electronics, The Spot. 0332 44760
- DONCASTER**
Briarstar Computer Centre 13 Netherhall Rd. 0302 6713
- EDINBURGH**
The Silicon Centre, 6-7 Antigua St. 031 557 4546
- GLASGOW**
Victor Morris Ltd., 340 Argyle St. 041 221 8958

- GLOUCESTER**
The Model Shop, 79-81 Northgate St. (0452) 410693
- GUILDFORD**
The Model Shop, 23 Swan Lane. (07072) 0483 39115
- HARROW**
Camera Arts (Micro Computer Division), 24 St. Ann's Rd. 01-427 5469
- HATFIELD**
Microworld, 2 Crawford Rd. (07072) 64137
- HULL**
The Computer Centre (Humber-side) Ltd., 31 Albion St. (0482) 26297 (Just Opening).
- HYDE**
Pase, 213-215 Market St. 061-366 5935
- LEEDS**
Bass & Bligh, 4 Lower Briggate. 0532 454451
- LEICESTER**
Youngs, 40-42 Belvoir St. 0533 544774
- LONDON SE1**
Vic Odden's, 6 London Bdg. Walk 01-407 6833
- LONDON SE9**
Square Deal, 375 Footscray Rd., New Eltham. 01-859 1516

- LONDON N1**
ASP Micro Systems, 185 Upper St., Islington. 01-359 9095
- LONDON N.20**
Devron, 1291 High Road 01-446 2280
- LONDON W3**
Colormatic Computers, 44 High St., Acton. 01-992 7611
- LONDON W11**
Electroleisure, 120 Notting Hill Gate. 01-221 7029
- MACCLESFIELD**
Camera & Computer Centre, 118 Mill St. 0625 27468
- MANCHESTER**
Lomax Ltd., 8 Exchange St., St. Ann's Sq. 061 832 6167
Mr. Micro Ltd., 69 Partington Lane, Swinton. 061 7282282 open Thurs.-Fri.-Sat. till 8 p.m.
- MIDDLESBROUGH**
McKenna & Brown, 190 Linthorpe Rd. 0642 248345
- NEWCASTLE-ON-TYNE**
Newcastle Camera & Computer Mart, 16 Northumberland Ct. 0632 327461
- NORTHAMPTON**
Basic Computers & Systems Ltd., 72 Kingsthorpe Hollow. 0604 710740

- NORTHWICH**
Camera & Computer Centre, 3 Town Sq. (0606) 45629
- NOTTINGHAM**
Cameo Computers, 8/9/10 Trinity Walk. 0602 42912
- OLDHAM**
Home & Business Computers Ltd., in store at The Mall, 119 Union St. 061-633 1608
- PAIGNTON**
Devon Computers, 81 Upper Manor Rd. (0803) 526303
- PEMBROKE**
Randall Cox, 19 Main St., 064 668 2876
- PRESTON**
Wilding's, 49 Fishergate. 0772 556250
- READING**
David Saunders Computer Centre, 8 Yield Hall Plce. 0734 580719
- RUGBY**
The Rugby Micro Centre, 9-11 Regent St. 0788 70522
- ST. AUSTELL**
A B & C Computers, 11 Brookstone Rd. (0726) 64463

- STAFFORD**
Computarama, 59 Forgate St. (0785) 41899
- TEDDINGTON**
"Andrews", 49 Broad St. 01-977 4716
- WALLINGTON**
Surrey Micro Systems Ltd., 53 Woodcote Rd. 01-647 5636
- WATFORD**
SRS Microsystems Ltd., 94 The Parade, High St. 0923 26602
- WEST BROMWICH**
Bell & Jones, 39 Queens Sq. 021 553 0820
- WIDNES**
Computer City, 78 Victoria Rd. 051 420 3333
- WIGAN**
Wilding Ltd., 11 Mesnes St. 0942 44382
- WOKING**
Harpers, 71-73 Commercial Way. 04862 61061
- WORCESTER**
David Waring Ltd., 1 Marmion House, High St. 0905 27551

COMPUTER DEALERS!
 (or prospective Computer Dealers!)

If you would like to know more about becoming a SPECTRUM APPOINTED DEALER on an exclusive area basis, please contact MIKE STERN or ALAN WARREN on (07873) 34761

Spectrum (U.K.) Ltd., Burrowfield, Welwyn Garden City, Herts.

MAIL ORDER

When it comes to MAIL ORDER our service is FAST! with SECURICOR DELIVERY to anywhere in the British Isles. — Ask your nearest SPECTRUM dealer for further details at time of ordering.

Up to £1000 INSTANT CREDIT with a SPECTRUM CHARGE CARD

With a SPECTRUM CHARGE CARD you choose the credit limit to suit YOU. e.g. a monthly payment of £10 gives you £200 credit. Ask your nearest SPECTRUM COMPUTER CENTRE for written details on how to apply for your SPECTRUM CHARGE CARD — NOW!

(Typical APR 30.6%)

V.A.T.

You will see that we quote our prices both including VAT and excluding VAT — no hidden 15% to suddenly up-lift your bill but also making our prices easier to compare with our competitors.

Not all stores carry every advertised item, please phone before making a journey — Prices correct at time of going to press E. & O.E.

ALIENS WILL GIVE YOU THE SHAKES

KAMIKAZE ALIENS

Aliens are zooming down towards planet Earth with suicidal determination. They will crash into your ship — killing themselves and taking you with them without a pause for thought.

These kamikaze aliens are launched from the mother ship which zaps back and forth across the top of the screen sending a deadly rain of little green men down at your defences.

Shoot fast to stay alive in this new Vic game from Audiogenic. The game is obtainable from the Reading-based firm at £7.99.

Another new space theme game from Audiogenic this month is Satellites and Meteorites.

You are the commander of a meteorite destroyer ship on a mission to neutralise a storm of meteorites that are threatening your planet.

The only way to destroy the giant rocks is to blast them with your lasers — dodging the ones you cannot get in your sights.

Your mission is made more difficult by a squadron of enemy satellites which fly in after the meteorites.

If you survive the meteorites and the satellites you must then avoid the black hole to complete your mission.

Satellites and Meteorites is a cartridge game and plugs into the back of your Vic. Available at £24.99.

THE HAPPY EATER IS STILL BITING

GOBBLEMAN

Gobbleman, Munchman, Munchyman, Snapper — even Munch 'n' Crunch. Come on guys — let's have some more original names for Pacman style games! Better still let's have some original and exciting new games.



Meanwhile, back in the maze, the ghosts and the little yellow disk with the insatiable appetite are running around the circuits of the Sinclair Spectrum. Gobbleman is fairly close to the arcade version although it does not feature the cage at the centre of the maze.

The game is the latest addition to the Artic computing range of games for the Spectrum. It is available from the Hull-based firm at £4.95.

The range also includes a high resolution graphics version of Space Invaders at £4.95 and a Chess tape with seven levels of play at £9.95. All games will run on the 16K or 48K Spectrum.

THEY CAME FROM THE ARCADES . . .

ARCADIANS

Two new games based closely on arcade money-spinners Asteroids and Galaxians are the latest offerings from Acornsoft for the BBC Model B.

Arcadians — the Galaxians clone — looks almost identical to the arcade version and, if its anything like Acornsoft Defender it will play as well as the arcade version too.

The Asteroids type game is called Meteors and again is a close copy of the arcade version with the added improvement of colour.

The games are available from Cambridge-based Acornsoft at £9.95.

AXE MAN MEETS THE MONSTERS

ESCAPE

Escape is the name of the game in a 3D maze full of prehistoric monsters.

In order to escape from the maze you must first find an axe that is hidden somewhere in the maze. You need this to get through the

blue door to freedom.

The monsters track you at half your speed until you find the axe. This heavy weapon slows you down considerably and you may need to drop it in order to make a quick get away before you get through the blue door.

There are five different skill levels in this game — these change the number of monsters chasing you. It is also possible to alter the speed of the monsters.

Escape runs on a 16K Sinclair Spectrum and is available from Bristol-based New Generation Software at £4.95.

THE GAME OF MANY WORDS . . .

SCRABBLE

Scrabble fans will welcome this computerised version of the popular word-making board game.

The game is exactly like the board game except you must pit your wits against the computer. There are four skill levels — from easy to downright impossible and the computer keeps the score.

Scrabble runs off a disc for the 48K Apple and costs £24.95 from London-based Little Genius.

CHAMP OR CHUMP ON THE TRACK?

CARS

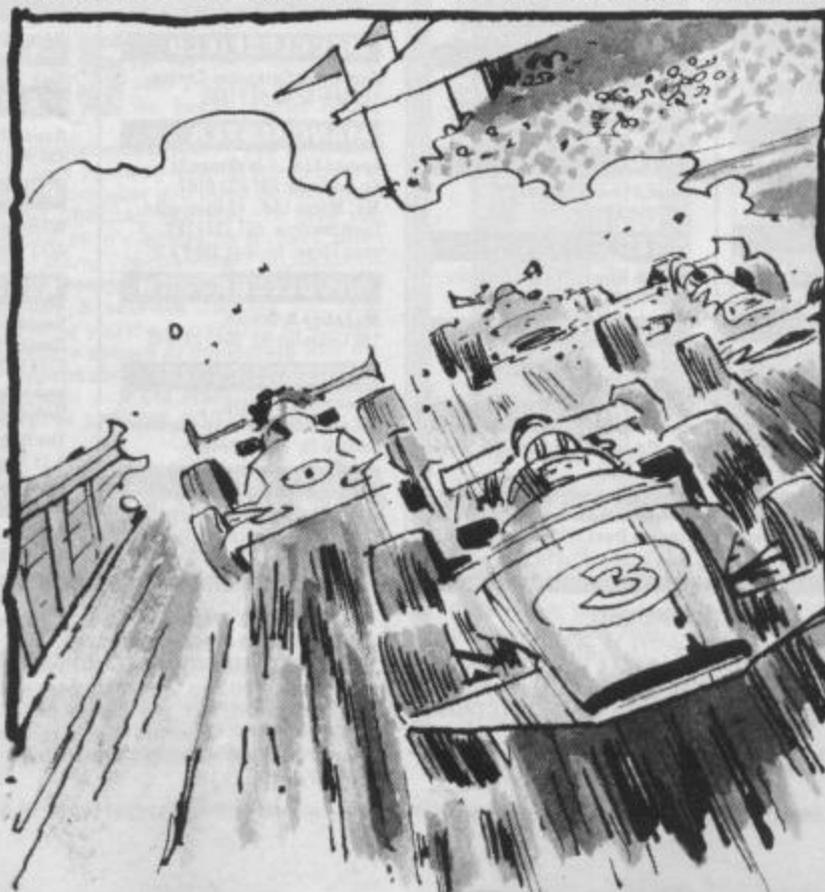
Bring the thrills and spills of the grand prix track to the keyboard of your Sharp MZ-80K.

You could become a world champ in Cars, the latest racing game for this computer.

Nine gears help you to accelerate around the twists and turns of the race track.

But its not only acceleration you'll need if you want to pop the champagne at the end of this race though. You must have quick reactions to steer in and out of all the other racers.

Cars is the latest game from Sharpsoft for the MZ-80K. It is available at £5.00 from the London-based company.



HEN-PECKED HERO IS ON THE RUN!

MAD MARTHA

Poor little Henry is the hen pecked hero of this domestic tale.

One night Henry can take no more. He steals his wages from his wife's purse, sneaks out of the house being careful not to wake the baby or trip over the cat, and heads for the bright lights to have some fun.

Trouble is he runs out of money. His only way to raise some cash is to gamble his few remaining pounds on the spinning wheel of the roulette table.

Just as Henry is getting into his evening at the tables his wife — Mad Martha — has noticed his absence. Realising Henry has absconded with the housekeeping she sets out after him with an axe.

Guess what part you play in this happy little tale? That's right, you are Henry. Watch out for that axe!

Mad Martha runs on a Sinclair Spectrum or ZX81 in 16K and costs £5.95 from Swansea based Saturnsoft.

Also new from Saturnsoft this month are two adventure games for the Spectrum or the ZX81.

Mines of Saturn challenges you to find the hidden crystal mines and then escape with the goodies. If you succeed, then you are ready for a stiffer challenge — to find your way safely back to planet Earth.

Mines of Saturn and Return to Earth are available from the Swansea-based firm at £4.95 for the ZX81 versions and £5.95 for the Spectrum — with a pound off if you purchase both games.



MEANWHILE OUT IN DEEP DARK SPACE

SPACE PHREEKS

Space Phreeks challenge you to fight them as you journey through space — a lonely traveller in time, the last survivor of a once proud planet called Earth — now just a cloud of cosmic dust floating in the space winds.

Your space ship moves right and left across the bottom of the screen as assorted aliens swarm towards you — some of them firing missiles as they approach.

Space Phreeks runs on the expanded Vic and costs £9.99 from Harrow based Rabbit Software.

Another new game from Rabbit this month is a version of the popular arcade game Centipedes. It features the spiders, beetles, bugs, and mushroom field just like the arcade version.

You must also be careful of the

'Gobblers' which travel along the bottom of the screen. Remember you cannot shoot them — you have to dodge them.

The game also runs on the expanded Vic and requires joysticks to play. This also retails at £9.99.

The third game from Rabbit this month is a version of the arcade game Frogger — again running on the expanded Vic at £9.99.

IT SHOULDN'T HAPPEN TO A BRICKIE!

FRENZY

Swing that hod of bricks onto your shoulders and set off up the ladder to the next row of scaffolding.

This is your chance to be a big butch bricklayer for the afternoon — flexing your muscles, swearing like a trooper, and

whistling at the girls.

All you have to do is carry the bricks to the next level. But watch out, this is no ordinary building site and there are two monsters stalking the scaffolding — hungry to get their teeth into any passing hunks of beefcake.

If you successfully deliver your hod of bricks and manage to avoid the monsters you go on to a new more difficult level of play. This time there are two, and then four, and then six monsters.

Frenzy runs on a Tandy Model I and III and on a Video Genie I and II. The game can be obtained from East Sussex based Molimerx at £9.78 inclusive.

GUNNING FOR ALL THOSE TOP NAMES

PESTEROIDS

Do you think your computer is better than any other computer on the market? Or do you have a pet hate — a computer that has behaved badly?

Either way this game offers you the chance to blast the company logos of a selection of rival computer manufacturers.

They are all out there — waiting to be gunned down. From Apple to IBM you can take pot shots at them all. The game is based on the arcade game Asteroids and features the familiar command ships and hyper-space associated with this game.

PS Pesteroids runs on the TI 99/4a and is the latest game from Stainless Software of Stockport. The game is available at £9.00.

Also new from Stainless this month are two adventure games — Octal 1 and Keys to the Castle — on offer at £9 for both. Separately they cost £4 for Octal 1 and £7 for Keys to the Castle.

Illustrations: Jon Davis



MICHAEL ORWIN'S ZX81 CASSETTES

The best software (by various authors) at low prices

QUOTES

"Michael Orwin's £5 Cassette Two is very good value. It contains 10 stolid well designed games which work, offer plenty of variety and choice, and are fun."

from the ZX Software review in Your Computer, May '82 issue.

"I had your Invaders-React cassette . . . I was delighted with this first cassette."

P. Rubython, 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 you supplied me with earlier this month."

E. H. London SW4

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

Richard Ross-Langley, Managing Director, Mine of Information Ltd.

CASSETTE 1

(eleven 1k programs)

machine code:

React, Invaders, Phantom aliens, Maze of death, Planet lander, Bouncing letters, Bug splat.

Basic:

IChing, Mastermind, Robots, Basic Hangman. PLUS Large screen versions of Invaders and Maze of Death, ready for when you get 16k.

Cassette 1 costs £3.80

CASSETTE 2

Ten games in Basic for 16k ZX81

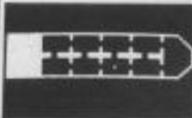
Cassette Two contains Reversi, Awari, Laser Bases, Word Mastermind, Rectangles, Crash, Roulette, Pontoon, Penny Shoot and Gun Command.

Cassette 2 costs £5.

CASSETTE 3

8 programs for 16k ZX81

STARSHIP TROJAN



Repair your Starship before disaster strikes. Hazards include asphyxiation, radiation, escaped biological specimens and plunging into a Supernova.

STARTREK This version of the well known space adventure game features variable Klingon mobility, and graphic photo torpedo tracking.

PRINCESS OF KRAAL

An adventure game.

BATTLE Strategy game for 1 to 4 players.

KALABRIASZ World's silliest card game, full of pointless complicated rules.

CUBE Rubik Cube simulator, with lots of functions including 'Backstep'.

SECRET MESSAGES This message coding program is very txlp qexi jf.

MARTIAN CRICKET A simple but addictive game (totally unlike Earth cricket) in machine code. The speed is variable, and its top speed is very fast.

Cassette 3 costs £5.

CASSETTE 4

8 games for 16k

ZX-SCRAMBLE (machine code)



Bomb and shoot your way through the fortified caves.

GUNFIGHT (machine code)



INVADERS (machine code)



FUNGALOIDS (machine code)

GALAXY INVADERS (machine code)
Fleets of swooping and diving alien craft.

SNAKEBITE (machine code)

Eat the snake before it eats you. Variable speed (very fast at top speed)

LIFE (machine code)

A ZX81 version of the well known game.

3D TIC-TAC-TOE (Basic)

Played on a 4x4x4 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 J. Steadman).

Cassette 4 costs £5.

Recorded on quality cassettes, sent by first class post, from:

Michael Orwin, 26 Brownlow Rd., Willesden, London NW10 9QL (mail order only please)

SPECTRUM SOFTWARE WANTED

VISION STORE

South London's
Largest Software
Centre

We are major stockists of software for:— Atari, Vic-20, Commodore 64, Dragon 32. Also software for ZX81 and BBC.



COMMODORE Vic-20



5K
£154.95
inc Basic

21K
£199.95
inc Basic

Vic Cassette £44.00
Vic Printer £229.00
Vic Disk Drive
New Reduced Price £299.95

ATARI 400



16K
£189.95
Less Basic

32K
£249.95
Less Basic

Basic Cartridge £34.90
Atari 800 16K inc Basic £499.00
Atari 800 48K £569.00

Commodore 64
64K Colour Computer
in Stock Now
£345

Sinclair ZX81
Now Available
£49.95
with Free Programme

Now Available*
EMI Submarine Commander
EMI Jumbo-Jet Lander
Incredible Games for Atari
*From November 8

Over 900 software programmes always in stock. We carry probably the widest range with continuous demonstrations.

Mail Order — send for our comprehensive list

VISION STORE

Vision Store, 3 Eden Walk Precinct
Kingston-on-Thames, Surrey. Tel: 01-546 8974



Instant Credit Available subject to status

We offer excellent part exchange deals or cash for your old machine.

REW

MICRO COMPUTERS

ATARI

	Nett	V.A.T.	Total
A400 16K RAM Computer (without manuals)	173.90	26.09	199.99
AM400 16K RAM Computer (with manuals)	216.52	32.48	249.00
AM800 16K RAM Computer (with manuals)	433.91	65.09	499.00
410 Cassette	43.47	6.52	49.99
810 Disk Drive	260.00	39.00	299.00
CX853 16K RAM Expansion	56.52	8.48	65.00
Colisto 32K RAM Expansion	77.39	11.61	89.00
Application Software			
Atari CX 404 Word Processor (Disk)	86.94	13.05	99.99
Atari Visicalc (Disk)	103.47	15.53	129.00
Draw Pic (Disk & Cass)	23.04	3.46	26.50
Mail List (Disk)	30.43	4.57	35.00
Entertainment Software			
Caverns of Mars (Disk)	26.07	3.92	29.99
Centipede (ROM)	26.07	3.92	29.99
Star Raiders (ROM)	26.07	3.92	29.99
Music Composer (ROM)	26.07	3.92	29.99
Missile Command (ROM)	26.07	3.92	29.99
Pac Man (ROM)	26.07	3.92	29.99
Adventures 1 to 12 (Cass)	14.34	2.16	16.50
Adventure Tri Packs (Disk)	24.00	3.60	27.60
Arcade Baseball (Cass)	17.82	2.68	20.50
Player Missile Editor (Cass)	21.30	3.20	24.50
Temple of Apshai (Cass & Disk)	24.00	3.60	27.60
Star Warrior (Cass & Disk)	24.00	3.60	27.60
Apple Panic (Disk)	17.82	2.68	20.50
Crush Crumble & Chomp (Cass & Disk)	18.04	2.71	20.75
Wizard & the Princess (Disk)	19.78	2.97	22.75
Jaw Breaker (Cass & Disk)	17.82	2.68	20.50
Eastern Front (Cass & Disk)	19.56	2.94	22.50

B.B.C. MICROCOMPUTER

	Price on Application	V.A.T.	Total
BBC Model A 16K RAM	10.00	1.50	11.50
BBC Model B 32K RAM	6.09	0.91	7.00
BBC Disk Drive	6.96	1.04	8.00
BBC Printer	21.74	3.26	25.00
Software			
BBC Space Warp	10.00	1.50	11.50
BBC Golf	6.09	0.91	7.00
BBC Backgammon	6.96	1.04	8.00
BBC Multifile	21.74	3.26	25.00
BBC Chess	10.00	1.50	11.50

ACORN ATOM

	Nett	V.A.T.	Total
Acorn 8K + 2K RAM Assembly	150.00	24.50	174.50
Acorn 12K + 12K RAM Assembly	250.00	39.50	289.50
Family Packs	173.00	27.00	200.00
Seikosa G.P. 80A Printer	199.00	33.00	232.00
Atom Disk Pack	299.00	44.85	343.85
Atom Colour Card	39.25	6.00	45.25
Software			
Games Packs I to II (each)	10.00	1.50	11.50
Maths Packs I & 2 (each)	10.00	1.50	11.50
Soft VDU Pack	10.00	1.50	11.50
Database Inc Manual	10.00	1.50	11.50
Peeko Pack	10.00	1.50	11.50
Adventures	10.00	1.50	11.50
2K Programs I, 2 & 3 (each)	3.91	0.59	4.50
Galaxian	6.96	1.04	8.00
"747"	6.96	1.04	8.00
Chess	7.83	1.17	9.00
Disassembler Program	3.48	0.52	4.00
Statistics	17.39	2.61	20.00

COMMODORE VIC20

	Nett	V.A.T.	Total
VIC - 20 Computer 5K RAM	155.65	23.35	179.00
VIC C2N Cassette Unit	39.09	5.86	44.95
VIC Printer	200.00	30.00	230.00
VIC Single Disk Drive	344.45	51.55	396.00
VIC 3K RAM Cartridge	26.04	3.91	29.95
VIC 8K RAM Cartridge	39.09	5.86	44.95
VIC 16K RAM Cartridge	65.17	9.78	74.95
VIC Programmers Aid Cartridge	30.39	4.56	34.95
VIC Super Expander High Res	30.39	4.56	34.95
Application Software			
Simpli-Calc (Disk)	21.70	3.25	24.95
Simpli-Calc (Cass)	17.35	2.60	19.95
VIC Stock Control (Cass)	17.35	2.60	19.95
VIC File (Disk)	21.70	3.25	24.95
VIC Writer (Disk)	21.70	3.25	24.95
VIC Writer (Cass)	17.35	2.60	19.95
Entertainment Software			
Rat Race (ROM)	17.35	2.60	19.95
Gorf (Cass)	21.70	3.25	24.95
Jelly Monsters (ROM)	17.35	2.60	19.95
Sargon 2 Chess (ROM)	21.70	3.25	24.95
Rabbit Chase			
Skier			
Asteroids (Cass)	6.08	0.92	7.00
VIC Panic (Cass)	6.08	0.92	7.00
Cosmiads (Cass)	6.08	0.92	7.00
VIC Men (Cass)	6.08	0.92	7.00
Arfon Expansion Boards	85.21	12.79	98.00

TEXAS TI99/4A

	Nett	V.A.T.	Total
TI99/4A - 16K RAM	173.04	25.96	199.00
Speech Synthesiser	82.60	12.40	95.00
80 Column Matrix Printer	347.82	52.18	400.00
Peripheral Expansion System	144.34	21.66	166.00
Disk Controller Card	122.03	22.31	140.34
32K RAM Expansion Card	176.47	26.48	202.95
Cassette Cable	8.65	1.30	9.95
Application Software			
Speech Editor	15.60	2.35	17.95
Personal Record Keeping (ROM)	38.21	5.74	43.95
Personal Report Generator (ROM)	38.21	5.74	43.95
Personal Financial Aids (Cass)	7.78	1.17	8.95
Inventory (Disk)	46.04	6.91	52.95
Invoicing (Disk)	46.04	6.91	52.95
Mailing List (Disk)	46.04	6.91	52.95
Text Formatter (ROM & Disk)	46.04	6.91	52.95
Entertainment Software			
TI Invaders (ROM)	16.47	2.48	18.95
Munchman (ROM)	23.43	3.52	26.95
Chess (ROM)	30.43	4.57	35.00
Soccer (ROM)	19.08	2.87	21.95
Adventure Land & Pirate (Cass/ROM)	30.43	4.57	35.00
Adventures 1 to 9 & 12 (Cass)	19.08	2.87	21.95
Adventure 10 & 11 (Joint) (Cass)	23.43	3.52	26.95
A-Maze-Ing (ROM)	19.08	2.87	21.95
Tombstone City (ROM)	19.08	2.87	21.95
Zero Zap (ROM)	19.08	2.87	21.95
Blasto (ROM)	19.08	2.87	21.95
Blac/Jack Poker (ROM)	19.08	2.87	21.95
Attack (ROM)	19.08	2.87	21.95



ORDER BY PHONE



Phone 01-240 3386 and quote your Credit Card No. for immediate despatch. 24 hour answering service.

REW

REW Micro Computers, 114-116 Charing Cross Road, London WC2. Tel: 01-240 3386

NEW

for 16K and 48K Spectrum.

This is without doubt the best game of its type ever written for any home computer. Never before have so many features been packed into one great game.

SPECTRUM Arcade Action

METEORIDS

It's terrific Machine Code for Fast Action. Fantastic SOUND EFFECTS—not just pathetic crackling noises and beeps—Arcade Quality ZAPS and EXPLOSIONS—Try amplifying them! Three meteoroid sizes—true random paths carefully programmed increases and decreases in meteoroid frequency. Our meteoroids not only shatter into (many) fragments—even fragments shatter! Look out! Laser toting evil alien ship—galactic Enemy No.1 Ship drift and decelerate. Space warp.

With the press of a key—quickly and without fuss...DEFINE speed, lives single or multi-player function, meteoroid pattern etc. etc. DEFINE your own Command keys to suit your style of play—including a Hold command. DEFINE a DIFFERENT CHARACTER SET. Yes, this game has two character sets, each with its own meteoroids, ship alien etc. Take your choice. A game for all skills, ages and requirements.

£4.95

Please rush me.....copies of Meteoroids at £4.95

ORDER NOW

Send off the coupon today or telephone Gt. Yarmouth for our answering service (available 24 hours a day, 7 days a week) quoting Barclaycard or Access number. Telephone (0493) 602453



Name

Address

Cheque/P.O. payable to DK Tronics

dktronics

DK Tronics
23 Sussex Road,
Gorleston,
GREAT YARMOUTH
Norfolk.

SILVERSOFT

NEW!

SPECTRUM — BBC — ZX81 STARSHIP ENTERPRISE

Soar through the stars as a starship commander in this exciting new space ship simulation. This new, advanced version of Startrek uses the full colour graphics and sound facilities of modern micros. Full 3D — Klingon attacks, graphic hyper-warp, plus all the normal 'Startrek' features and a whole lot more, add up to one of the best games in the galaxy!
48K Spectrum £5.95. BBC Micro model 'B' £6.95.

ORBITER

Fast and furious action is what you get in this amazing Defender-style program for the ZX-Spectrum.

ORBITER is written entirely in m/c code and has full arcade features, including scanners, reverse, hyper-space, continuous scoring and sound effects, plus humanoids, landers, mutants and all the other alien nasties. 16K or 48K Spectrum £5.95.

GROUND ATTACK

Survival is the name of the game in this exciting Scramble-type arcade game for the ZX-Spectrum.

Your mission is to pilot your spaceship through torturous caverns while destroying the enemy missile launchers and fuel dumps.

GROUND ATTACK is written completely in machine code. And has full arcade features including lasers, bombs, explosions, continuous scoring and sound effects, plus rockets, fuel dumps and airborne aliens. 16K or 48K Spectrum £5.95.

Any hiring, lending or copying (except backup) of Silversoft software is strictly forbidden without written permission from Silversoft.

GENEROUS DEALER DISCOUNTS AVAILABLE
Silversoft Ltd, 20 Orange Street, LONDON WC2H 7ED.

KILLER SATELLITE

A mysterious Black Box has appeared in earths' orbit. You have to send your killer satellite to Probe it with high energy lasers. Amazing 3D colour graphics and sound for the Model B only £5.95.

3D CONNECT 4

An advanced, challenging four in a row game for the BBC Micro. Displayed in full 3D-perspective and using the extensive colour and sound facilities of the BBC Micro. Model B only £5.95.

NEW! ZX81-COMPILER

Yes! Now you can write machine code on your ZX81. No more messing about with assemblers and disassemblers simply type in the BASIC program and the machine does the rest. ONLY £5.95.

ZX81 ARCADE ACTION (New low prices)

MUNCHER Exciting pacman game for the ZX81	£4.95
ASTEROIDS "Just the thing for asteroid addicts"	£4.95
INVADERS "Probably the best version of INVADERS"	£3.95
ALIEN-DROPOUT Exciting ORIGINAL arcade game	£3.95
STARTREK YES! you can be a starship commander	£3.95
GRAPHIC GOLF 18 graphically displayed holes	£3.95
SUPERWUMPUS An underground adventure	£3.95
GAMES PACK 1 Fantastic value for money, nearly 50K of programs on one cassette! Only	£3.95

Please send me

I enclose a cheque/PO for £

Name

Address

Silversoft Ltd, 20 Orange Street, LONDON WC2H 7ED. CVG/12

NEW PRODUCTS NEW PRODUCTS NEW PRODUCT

GAMES NEWS

THIS GAME WILL SLAY YOU!

DRAGON QUEST

Seek out the dragon and slay it. This is your task in a new Adventure game based on the popular fantasy game Demons and Dragons.

The game displays text and graphics and challenges you to gain a thousand points before you can go on to level two. The authors of the program are confident that level one will keep you occupied for quite some time. So confident in fact that level two is not yet on sale.

Dragon Quest runs on a BBC model B and costs £11.50 from the Merseyside software house Bug Byte.



Also new from Bug Byte this month is a fruit machine game with many of the features of the old end-of-the-pier favourite. The game features spinning wheels with all the fruits and hold and

nudge features. A torrent of pennies are depicted tumbling from the front of the machine when you get a winning line.

Fruit Machine runs on a BBC model B and is available at £5.50 from the Liverpool firm.

BATTLE TO REACH THE FORTRESS

SCRAMBLE

Hover above the missiles and bomb the fuel dumps. Sounds familiar — yes, you guessed it, it's another version of the arcade winner — Scramble.

This latest version on the Sinclair Spectrum in 16K or 48K and features four levels of play.

First there are the ground-to-air missiles, followed by the spiraling UFOs, and then the fast and furious meteorites.

If you survive this onslaught you can go on to attack the Fortress.

If you successfully destroy the enemy fortress the game starts again at a new more difficult skill level.

Scramble is the first Spectrum game from the Berkshire-based software house — Mikro-Gen. It costs £5.50 plus 40p postage and packing.

PIMANIA

A Fleet Street style bonanza of cash prize incentives is being offered by some up and coming games manufacturers.

Automata of Hampshire set the ball rolling with their Pimania game. The game owes a lot to the successful Kit Williams book *Masquerade*.

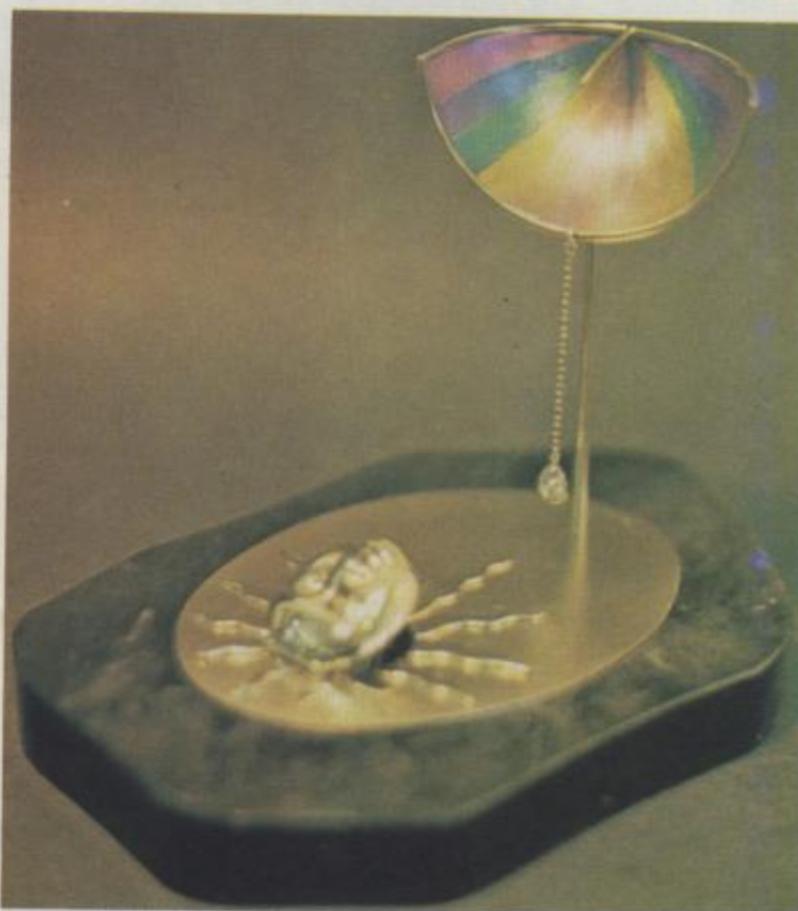
Unlike the jewelled hare of *Masquerade* the treasure is not buried secretly in the countryside but hidden metaphorically at a certain "time and place".

The prize for the lucky winner of Pimania is the Golden Sundial of Pi, an elaborate compass and sundial crafted in gold, diamonds, worth £6,000.

Not to be outdone Hull-based Artic Computing are offering £10,000 plus two tickets to the mystery city where the money is stashed away to the person who can solve their international finance adventure game — Krakit.

Is £10,000 the limit in prize money so far offered by the software houses? It seems so at the moment — but what's that rumour from Automata about a free trip around the world!

Pimania runs on a Sinclair



Spectrum in 48K and on a ZX81 with versions in the pipeline for the BBC 32K, and Dragon 32K. The Spectrum version costs £10 and the ZX81 £8. The Dragon and

BBC versions will be available for Christmas at £10.

Krakit also runs on a Spectrum and a ZX81 and is available at £9.95 for either version.

BEWARE THE DEADLY IMPOSTERS

MARTIANS

The Martians are invading. They rely on stealth and sheer numbers to overcome you.

Armed only with a force field you must attempt to catch them before they land. If you let six of them slip through your net you will be defeated.

Not all the Martians can be trapped in your force field. Destroyers can break through and will kill you if they make contact.

Imposters turn into destroyers at the last moment just as you are about to trap them.

Martians runs on a BBC model A or B and costs £5.95 plus VAT from Leeds-based Micropower.

Also new from Micropower this month are versions of the popular arcade games Missile Command and Galaxians. The games run on the BBC model B and are available at £6.95 plus VAT.

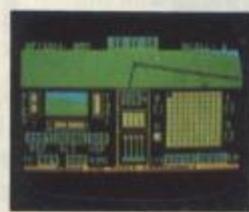
**“We will be flying at a height of 30,000 feet.
Our air speed will be 500 knots.
And there’s a fair chance we’re going to crash.”**





No smoking. Fasten your seat belt. You're about to take off in a 747. But on this flight you're the pilot.

You could hardly describe THORN EMI's 'Jumbo Jet Pilot' as simply another video game. It's more like a session in a flight simulator with life-like instrumentation and graphics.



Jumbo Jet Pilot, 16 K ROM Cartridge. 5 skill levels. Performance rating. Controls: Throttle, Ailerons, Elevators, Undercarriage, Brakes, Stall Indicator. Lights, Fuel, Longitude, Latitude, Air Speed, Artificial Horizon, Altitude, Pitch and Roll, Heading, Vertical Speed, Map Reference and Grid, Time Elapsed.

To cope you need to be alert. You should expect the unexpected. And you definitely shouldn't lower the undercarriage when your air speed is dropping and the horizon suddenly appears vertical!

On landing your in-flight computer will assess your skills and give a 'performance rating'. If you manage to land that is.

'Jumbo Jet Pilot' is one of 21 challenging new home computer games from THORN EMI. It's pretty demanding. But our programs aren't all work and no 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'.



Darts



Humpty Dumpty

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: we've designed them for players who are bored with run-of-the-mill TV games.

Now, is that Heathrow ahead? Or is it Hyde Park?



The world's greatest TV games



PROGRAMS FOR ATARI 400/800 (Trademark of Atari Inc. except where indicated).
*PROGRAMS FOR COMMODORE VIC 20 (Trademark of Commodore International).

Available from all branches of Laskys (Nationwide), Micro C at Currys, and all other leading Computer software outlets.

CHARMING ENCOUNTER WITH E.T.

E.T.

ET, the friendly Kermit the frog-like alien who is taking American cinemas by storm will soon be appearing in a brand new video game for the Atari VCS.

The game is still only in the production stage but is expected to be in the shops by Christmas together with a new upgraded baseball game.

The film opens in this country in November. It is Steven Spielberg's latest blockbuster. The 34 year-old director — already a millionaire with successes like Jaws, Close Encounters of the Third Kind, and Raiders of the Lost Ark under his belt — has hit on yet another winning formula.

E.T. is a friendly alien. He has no plans to colonise the universe, and has no lasers, death stars, or destroyer ships in tow. He befriends a little boy and is carried around in his new friend's cycle basket.

The idea of an odd, or friendly, or even helpless alien is not new. But this is the first time it has been given the full Hollywood treatment.

So what about the game? We will be publishing a full description and review as soon as the information is available from Atari — which should be in time for our next issue — watch out for it!

CAN YOU SOLVE THE DARK SECRET?

One of the darkest secrets of video gaming is the Riddle of the Sphinx.

This Atari VCS cartridge from the Imagic range is still to be solved by US gamers and should prove just as difficult for those in the UK.

This unique game which combines action with clue gathering is proving so difficult to beat we felt the first person to come up with an answer should be rewarded.

So in conjunction with Imagic's UK distributors, Hale's Limited, we are putting forward a



HOUNDED BY THE DOG CATCHER CAT TRAX

Cat Trax is the first new Pacman type game I have seen since Mattell's Lock 'n' Chase to offer any real development of the basic theme.

In this version you can actually change the shape of the maze as the game is in progress.

A series of gates which can be closed to turn the maze into a single long passage can be opened and shut to trap the dogs

that are chasing you around the maze.

You are a cat being pursued around a maze by three dogs. As you travel you eat up the dots which fill the maze until the maze has been cleared.

Every so often a fish will appear at the centre of the maze. If you eat this you will change into a dog collecting van which you drive around the maze in pursuit of the dogs which can now be deposited in the kennel at the top of the maze. But you will have to be quick as you change back into a cat 30 seconds after eating the fish.

The game also features a warp button which enables you to disappear if the dogs are about to catch you and then reappear in a different part of the maze.

It runs on the Hanimex HMG5000.

Escape is the name of the game in this second new offering from Hanimex this month.

You are trapped in an electronic maze with highly charged walls which, if you touch them, the walls will electrocute you.

The aliens are after you. You must shoot them out of the way before you make a dash for the exit of the maze. There is also a deadly spinning dicky-bow shaped flying saucer which will take off and home in on you at any moment. This cannot be shot by your figure. Arcade veterans will recognise this as a version of the popular video favourite — Beserk.

The games are in the shops now at £16.

THE GAME OF THE FILM . . .

The list of memorabilia on sale in the wake of successful new films is becoming quite daunting. As well as the book, the record, the t-shirt and the badge, video games players will soon be able to purchase the game of the film.

Mattell were the first company to spot this potentially lucrative games market with two games for their Intellivision machine based on the new Walt Disney film Tron.

Atari themselves are about to enter the field with game versions of Stephen Spielberg's latest blockbusters Raiders of the Lost Ark and ET.



RIDDLE OF THE SPHINX

prize for the first person to discover the secret of the Riddle of the Sphinx.

The winner will receive £185 worth of Imagic goods, courtesy of Hale's Limited. This includes the other six titles in the range planned for release over here: Demon Attack, the top-selling Trickshot, Atlantis, Star Voyager, Cosmic Arc and Fire Fighter. Plus a storage container for the Atari games centre and all its attendant wires which organises and 15 cartridges.

Reviewed in our November issue, Riddle of the Sphinx, sets you down in the Valley of Kings, among the pyramids, palm trees and temples of the desert, charged with the mission of collecting priceless treasures and artifacts.

If you solve the Riddle of the Sphinx, send a photograph of the screen to: Imagic Competition, Computer & Video Games, Durrant House, 8, Herbal Hill, London EC1R 5JB.

If you think you are getting

close, then send us a letter to tell us of your discoveries so far. Good luck and may your camel's hoof never descend upon the scorpion's tail.

S CENTRES TV GAMES CENTRES TV GAMES CENTRES VIDEOSCREEN

WORDS OF WISDOM FROM A B17!

Does the game sound good? This is soon to become as important a consideration as playability and what a game looks like.

Leading the field in talking games so far are Mattel with two games for their Intellivision machine.

B17 Bomber takes you on a bombing trip over Berlin, Dresden, and Hamburg.

It's 1943 — a critical period in World War II. Your mission is to destroy the German war machine by knocking out factories, refineries, warships, airstrips, and anti-aircraft batteries.

The targets are not sitting ducks. You must avoid the barrage of flak exploding around you

TALKING GAMES

— and what's that the pilot just shouted?

"Bandits at 12 o'clock". You are now the gunner. The survival of the plane depends on your ability to blast away with the machine gun around and take out those Messerschmitts that are screaming down towards the great hulking target of the B17.

At the start of the game you pick your targets on a map of Western Europe which appears on the screen. Extra points are awarded for successfully bombing a target further from base.

But this is no place for the adventurer. All missions have to

be carefully planned. You have to fly the plane, fire the guns, drop bombs, and do all the navigation with a constant eye on the altitude, fuel, speed, course, and the supply of bombs left.

The second talking game so far available from Mattel and featuring their voice synthesiser is Space Spartans.

You are at the cockpit of a Starfighter. Your computerised flight information controls talk to you as you prepare for battle.

The ship's computer reports on the status of all ship systems.

The Central Computer reports on the energy level and the number of aliens. An alert is sounded by the star base computer when

the aliens attack your starbases. The alien commander tells you when the battle is over.

Mattel are developing more talking games. It has to be said however, that the games are not cheap. Space Spartans, and B17 Bomber for example cost £29.95.

The games require the Intellivoice sound synthesiser module. This plugs into the Intellivision centre's games socket. The module is in the shops now at £50.

STOP THE SUITCASE SHAMBLES

LOST LUGGAGE

Lost Luggage tumbles from the revolving baggage dispenser as you — the unfortunate porter, struggle to pick them up.

The bags start coming faster and faster as you move the porter right, left and up and down with the joystick.

Lost Luggage is basically a catching game based on the popular Intellivision game Kaboom where the player had to catch bombs.

In this game it's not explosions you get if you make a bad catch but a red face as the contents of the bags spill out on the floor of the airport terminal.

The more you catch the more you score. The game requires speed and manoeuvrability to score really highly. Lost luggage is the latest addition to the Apollo range of games for the Atari VCS.

IN THE JUNGLE SOMETHING STIRS

Pitfall Harry is the Tarzan of video games.

He is also your companion in a perilous journey through the jungle in search of treasure.

Harry's adventures include swinging over streams on ropes, hopping across a crocodile-infested river using the crocs' heads as stepping stones, avoiding avalanches of logs and sudden swamps.

Among the other deadly fauna are snakes and scorpions which

PITFALL HARRY

lie in wait among the jungle foliage.

The screen shows a picture of the jungle with a dense covering of trees. At ground level is Harry, jumping logs and whatever other obstacles are in the game at any given time and below him an underground passage is connected to ground level by a ladder.

At the beginning of the game Harry drops out of the trees and can be made to run left or right with the joystick. He can also be made to climb up and down the ladder and jumps over the rolling logs and other obstacles by depressing the fire button on the joystick — just as in the popular arcade game Donkey Kong.

Successful Pitfall players — defined by the games manufacturers as 20,000 and over — will be invited to join the Pitfall Harry's Explorers Club.

Pitfall Harry runs on an Atari VCS and is the latest game in the Activision range available from late December and January at £24.95.

HERE'S OUR NEW TOP TEN . . .

A new feature of Computer & Video Games will be a top ten chart featuring the best selling TV games centre cartridges over the previous month.

The figures come from retail outlets rather than distributors and the ones printed below feature the best selling cartridges over the whole range of machines for the month of September.

Mattel's new launches during that month have all sold well and assured that machine filling three of the top five positions. Atari's Defender takes the top spot though.

We will be checking on the best selling cartridges every month from now on.

CARTRIDGE	MANUFACTURER	MACHINE
1. Defender	Atari	Atari VCS
2. Lock and Chase	Mattel	Intellivision
3. Utopia	Mattel	Intellivision
4. Night Stalker	Mattel	Atari VCS
5. Star Master	Activision	Atari VCS
6. Pacman	Atari	Intellivision
7. Sub Hunt	Mattel	Intellivision
8. B17 Bomber	Mattel	Intellivision
9. Space Hunt	Mattel	Intellivision
10. Trickshot	Imagic	Atari VCS



CHESS



Endgame is the part of chess where precision is most important — one slip here can throw away the benefits of hard-won advantages and victories secured in the middle game.

Computers generally play endgames badly and yet it is endgame play which is widely believed to be the best mark of a good human player.

A well known example of King and Pawn against King (KPK) is in figure 1. White's only winning move is K-QB2, not K-Q2 or K-K2. Yet to discover this by searching involves looking ahead 27 ply.

If KPK is so difficult, it is hardly likely that a program would find the best move in a complicated endgame such as, King, Rook and two Pawns against King, Rook and three Pawns. How can the grandmasters' endgame knowledge be captured? An obvious approach is to turn to textbooks such as *Basic Chess Endings* by Reuben Fine.

To a precise reader, textbooks turn out to be full of errors, ambiguities and obscurities. The rules given are unvariably vaguely worded with numerous exceptions. Despite this there is the remarkable fact that textbooks are genuinely useful to the reader and in the case of endgames such as KPK seem to show how to play almost perfectly.

A possible explanation is that chess players have some "internal model" in terms of which a piece of advice such as, "develop Knights before Bishops" can be interpreted without its meaning being precisely specified.

For instance, "Knights before Bishops" is subordinate to "Do not lose your Queen for nothing" and this is considered too obvious to be worth stating.

Finding all such hidden exceptions to rules is difficult for the programmer but simple for the textbook reader to do. Often there is a conflict of objections. How does "advance the Pawn" rate relative to "take the opposition with your King"? People seem to resolve such conflicts without even noticing them.

The art of chess playing is often sacrificed on the altar of chess programming.

The usual way of writing chess programs is based on generating huge trees of variations and assigning each position a fairly crude numerical value. This is geared to what computers can do well rather than the special difficulties of the game itself.

Human players do not analyse tens of thousands of variations before making a move. As I showed last month, grandmasters do not analyse much more than ordinary mortals, but they are much better at recognising features of a position which suggest good moves.

Conventional chess programs have achieved surprising success in recent years, but to advance to grandmaster level may require building in expert knowledge as well as deep searching. Artificial intelligence (A.I.) researchers have devoted considerable effort in the last few years to identifying the form which expert knowledge might take. The restricted nature of endgames has made them a frequent vehicle for such research. Even elementary endgames such as King and Pawn against King are remarkably difficult to program in the usual way.

One of the most important skills which humans exhibit is the ability to generalise from specific examples to a large number of equivalent positions while also recognising exceptions.

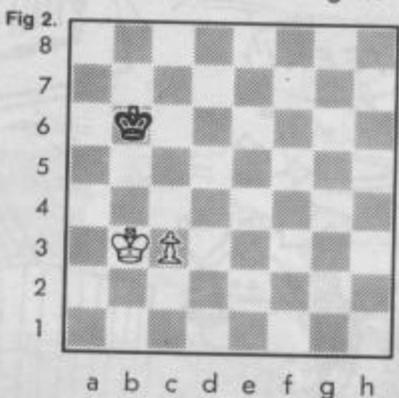
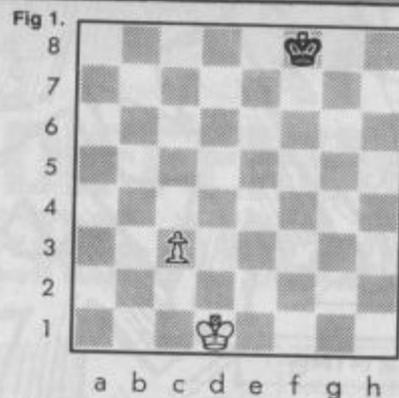
In figure 2, White's only winning move is K-N4. Giving this information to a human player immediately gives him a great deal of other information. For example, if the whole configuration of pieces were moved to the left or the right or up or down the board, the same White move (King one square forward) might well still be right (you might like to check whether this is really true).

And with the White King on N4 and the Pawn on B2 initially, the move P-B3 is also correct, since it transposes to the same winning position. K-N4 would still be the correct first move, even if White's King were on R3 or R4 instead of N3 in figure 2.

There are clearly many different situations represented by the one diagrammed example and the chess player can make this generalisation easily while appreciating that if the White King were on QB4 in Figure 2, K-N4 would ^{03Inoy} be the correct move. Playing K-Q5 then gives a position which is more favourable than taking the opposition.

Given an endgame programming environment, which allowed one example position to stand for many, where unspoken objectives (such as "avoid losing material") were automatically included and priorities among goals were easily specified, it might indeed be possible to program the endgame by giving little more than the examples from a textbook.

This sort of approach has been tried in different forms several times in the last few years. As an example of what benefits may be gained, it turns out that to program KPK for the stronger side to win in every winnable position requires only the specifying of 20 simple patterns, plus a suitable "environment", not the 38 ply search needed by a conventional approach.





IT'S CHRISTMAS EVE AND NOTHING IS STIRRING... NOT EVEN A BUG!

SEE!
I TOLD YOU!

TAP!

ULP!

A COMMODORE PET!
I KNEW HE WAS THINKING OF GETTING A NEW MICRO,
BUT I NEVER THOUGHT HE'D LET OUR ONE GO SO SOON.

SOB!!!

THIS CALLS FOR ACTION!
GET SCREAMING FOUL-UP.

GO
PET

WE'RE GOING TO BE ON THE SCRAP HEAP BEFORE YOU KNOW IT!

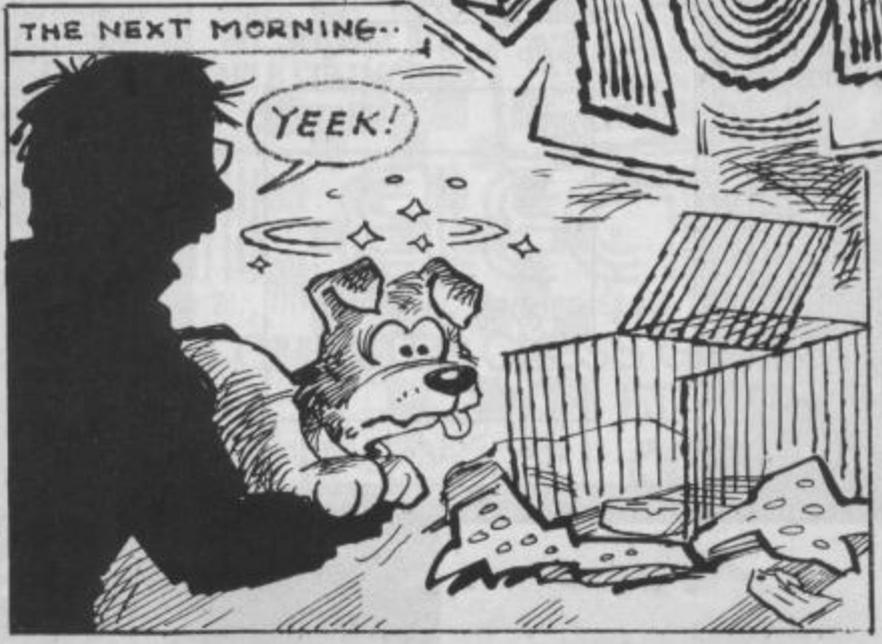
YOU UNDERSTAND NOW,
I WANT YOU TO CLIMB IN THERE AND WRECK IT UTTERLY.....

..MAKE IT UNUSABLE!

GNASH!

SNARL!

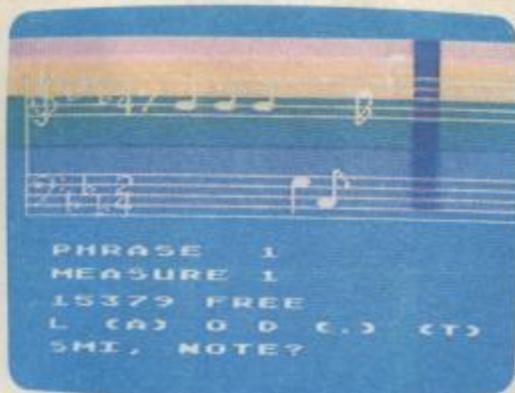
GRAHH!



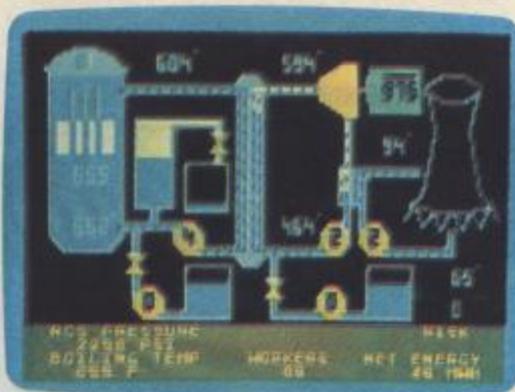
THE NEXT MORNING..

YEEK!

COLLIE DOG
PET SHOP



Music Composer



Scram

3.7 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 320 dots. Delivering colour and luminosity instructions to each dot for a second requires 3.7 million cycles...a lot of work for the normal 6502 processor.

That's why the Atari computer has equipped its 6502 with its own electronic assistant. It's called ANTIC, and it handles all the display work, leaving the 6502 free to handle the rest. What this means to you is uncompromisingly 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 you'd expect from Atari Language. The Atari Home Computer uses several programming languages to give the user maximum control of its extraordinary capabilities. PILOT, Microsoft BASIC and Atari BASIC are understood and spoken by the Atari computer. You'll also find our Assembler Editor cartridge indispensable for machine language programming.

Sound. An Atari computer has four sound generators, or voices, activated by a separate microchip. 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 and expansion easy. 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 ROM 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.

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



Graph-it



Intro to BASIC 1



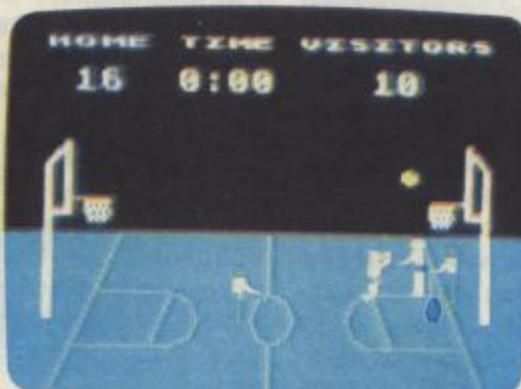
Star Raiders



European Countries



Missile Command



Basketball

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

*Atari 800™ computer only.



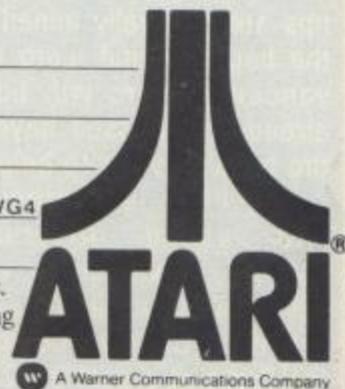
Please send me FREE a brochure, price list and the address of my nearest stockist.

Name _____

Address _____

_____ CVG4

Atari International (UK) Inc.
Windsor Hse., 185-195 Ealing
Road, Alperton, Wembley,
Middlesex.



A Warner Communications Company

Gorf presents the player with five mini-games. The combination offers variety, but also makes the game tough since each portion has its own strategy. The game also barks out an insult at the player when he loses a man.

The first mission you face is Astro Battle. Invaders are dropped into place; they then begin moving and shooting.

When the Astro Battle invaders are being dropped into place, they cannot move or shoot. Kill as many as possible since you don't have to worry about moving targets or enemy fire.

Pay little attention to the shield. It will let your shot through and block enemy shots. But if you depend on the shield, you may be unpleasantly surprised.

As in Eliminator, a shot in Gorf will disappear if another one is fired. If you see a shot is going to hit a target, avoid the urge to fire another. But if a shot is a clear miss, fire again right away.

In Laser Battle, you must deal with two laser cannons protected by escorts. The cannons fire beams that extend from their ship to the bottom edge of the screen, forcing the player to avoid two shots at a time.

The laser cannons are the main threat. You should try to wipe them out early in the round. Don't get trapped between two shots. Also, watch out for the last shot of a dying cannon. Even after the cannon is gone, this shot will be lethal.

Avoid being drawn into can-

The Gorf tips are taken from a chapter devoted to the game in a new US publication, *Guide to the Video Arcade Games*.

Twenty games are included with a description of the play and tips on how to achieve a good score. The tips are generally aimed at the beginner and more advanced players will have already progressed beyond the book's power to help.

The book is written by two young American gamers, David Lubar and Owen Linzmayer and is published by Creative Computing Press at a cost of £2.00.

TIPS ON GORF A GAME FOR REAL MEN . . .



non fire by the escort dive bombers, and take advantage of your ability to move in all directions when dealing with the escorts.

To deal with the Galaxians, get as close as possible, shoot, then pull the stick back until the shot hits. Repeat this technique, using rapid jerks of the joystick. Don't allow your ship to become trapped. Stay in the mid screen area, so you have a buffer zone.

The Space Warp mission has a black hole at the centre of the screen. This releases objects that fly an outward spiralling orbit. Since you can move upward, it is a good idea to get as close to the black hole as possible in the early part of the wave.

When the Gorfian robot appears, fire as many shots as possible. If you don't kill it fairly quickly, back away from the centre of the screen and wait until the robot has gone off the edge of the screen.

In the Flagship mission, you must fire a shot into the core of a ship. Your shots eat away parts of the ship, and at times cause chunks to fall off.

The shield offers no real help. Just blast a hole in the centre and fire through it.

When debris falls from the ship, you can either dodge it or shoot it for extra points. In tight situations, don't worry about the points.

IS IT A BIRD OR A PLANE?

Buy a hang-glider and see the world. That's the message in the high-flying arcade game, *Fast Freddie*.

Fast Freddie is a hang-glider with a yen for travel. His aim is to stay in the air as long as possible but he must use his skill to manipulate the invisible air currents, wind direction and the unpredictable up and down drafts.

Players use a joystick to control Fast Freddie as he soars over the wonders of the world. His flight takes in the Alps, both in winter and summer, the pyramids and sphinxes of Egypt, the Taj Mahal, the Pacific Ocean and a host of trees, bridges, tropical islands and other landscapes.

FAST FREDDIE

A series of obstacles can be found in the skies for Freddie to manoeuvre around. These include: aircraft, birds, helicopters and a magic flying carpet—complete with genie.

Ideally Freddie should fly above the obstacles and kick them out of the way.

Points are scored by swooping down close to earth and snatching flags which are posted along the ground. He can also grab special flags with letters on and spell out a "Bonus" for himself. Further points come for landing on five landing pads which can be found on the way.

WATCH OUT, THE WARRIOR IS ABOUT!

DARK WARRIOR

The aliens have landed and they are attacking by land and air!

In this encounter, which reads like something out of Star Wars, the Imperial Federation has landed its assault force on your planetoid and charged it with the mission of destroying your remaining fuel deposits.

While its aerial forces keep you busy, the Dark Warrior approaches from beyond the horizon, keeping low to outwit your laser guns. With each aerial task force which is destroyed, the Warrior sends in a new one to attack your laser base.

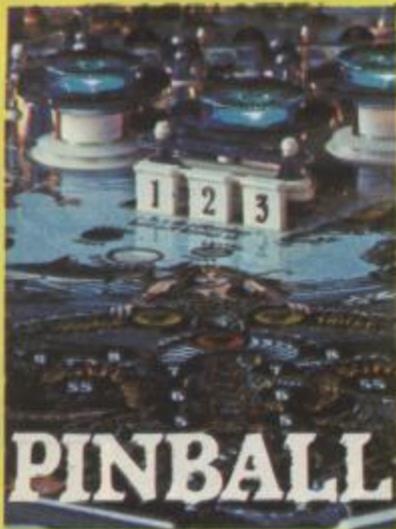
After two of the aerial forces have been destroyed, the deadly Neutron attack force, which is unerringly guided to destroy your laser blaster.

When the fuel runs low there is a verbal warning: "Beware the Dark Warrior is coming."

Dark Warrior is one of a range of eight cassette games which form the Century Video System (one of which, *Outline*, was featured last month). The cassettes are similar to those used in home computers and can be plugged into existing games cabinets to change the game. Other companies are also adopting similar systems.

So if you recognise a game as being on the Century system and would like to try one of the challenges described on these pages, then implore your arcade/pub manager to try and get it for you. We will continue to look through the Century range each month.





It was a pinball player's paradise! The Pinball Owners' Association convention held recently in South London that is.

People flocked from all over the country to play and display their favourite tables.

Around 20 pins were on show and the convention also saw the battle for the coveted Pinball Wizard title.

Dave Dutton from Leeds claimed that honour after battling through to the final which was played on the latest Gottlieb machine, Rocky.

Among the machines on show were Magic City, a Williams machine from '67, Fireball, a Bally table reckoned by pinball addicts to be THE classic machine made in '72, and a Williams Flash.

The Pinball Owners' Association was born in 1976 and has grown rapidly. It offers a spares service, a technical library, a monthly magazine and invaluable advice for all pinball owners and players. Membership costs £7.50, and this includes a subscription to the magazine, called *Pinball Player and Penny Slot Collector*, plus all the other services the association offers.

If you are interested in pinball — or any amusement machines — further information, or membership, is available from the association's HQ at the following address: The Pinball Owners' Association, Arcadia, 465 Cranbrook Road, Ilford, Essex, IG2 6EW.

FRANK, DRAC & PICO!

Only in films would a character called Little Pico dare take on the likes of Dracula, Frankenstein and the awesome Chameleon Man... only films and "X" rated arcade games.

Monster Bash is the name of this imaginative game of horrors which combines some of the aspects of Alien Panic, Donkey Kong and Pacman.

Little Pico is charged with the task of entering the castles of Frankenstein and Dracula and the graveyard of Chameleon Man and destroying each in turn.

The stairways of Dracula's house are guarded by bats but Pico has a "zap" power which he can use to shoot these creatures. Dracula is invulnerable to an ordinary zap and a charge of "super-zap" must be sought by Pico. He achieves this by lighting candles which energise a magic sword.

The candles also serve to make Dracula weak and when Pico touches the energised sword he earns a charge of superzap to try out on Dracula.

Frankenstein's castle is a similar type of challenge but with

MONKEYING AROUND WITH MARIO

It's a strange life in the arcades. One moment you're the hero and the next you're public enemy Number One.

Take poor Mario, the intrepid carpenter who risked all to save the captive girl in Donkey Kong.

In the game's sequel, Donkey Kong Junior, Mario is cast as the evil villain. He has captured Donkey Kong and holds him under lock and key in a cage at the top of the screen.

The rescue bid must be undertaken by Donkey Kong Junior.

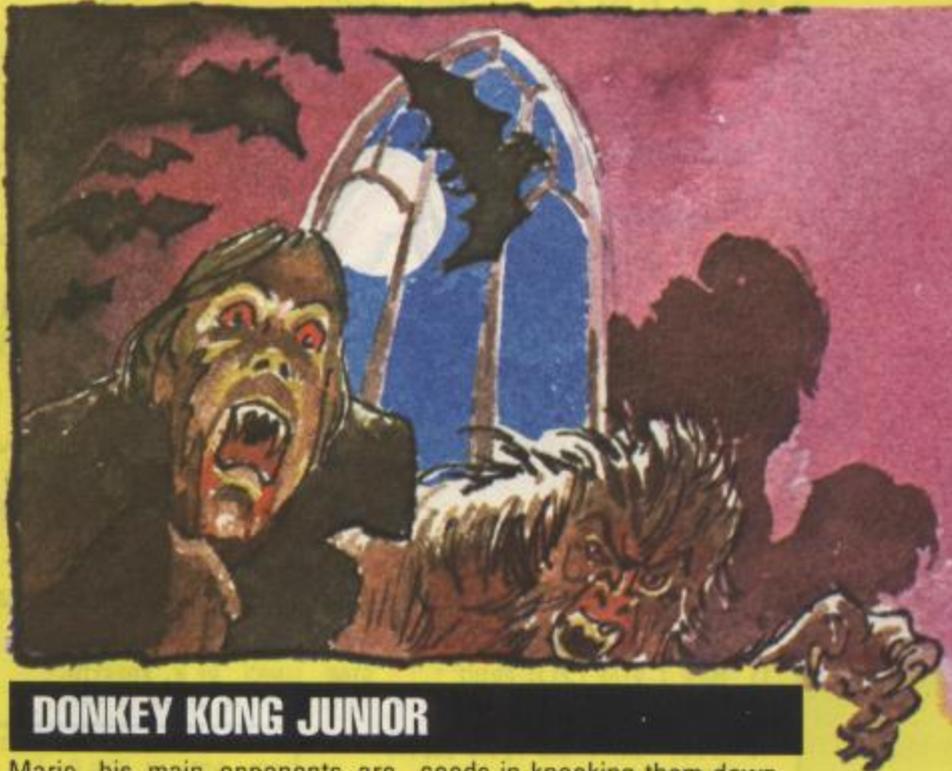
Like its predecessor, the Junior version has four screens of action. The first screen is the one featured in this piece and it consists of vines which hang from a series of platforms, suspended in the sky. Junior starts his bid from five stepping stones which rise above a river.

Apart from the whip-holding

MONSTER BASH

werewolves instead of bats.

The Chameleon Man has spiders as his pets and these are not affected by lit candles. He also has the power of changing colour to match his surroundings and Pico must make use of three colour buttons to keep this fiend visible.



DONKEY KONG JUNIOR

Mario, his main opponents are the snapjaws which travel up and down the vines. Blue ones travel one way only (downwards) while red Snapjaws wander up and down. Junior can use fruit he finds on the vines to hurl at the pursuing Snapjaws and scores extra points when he suc-

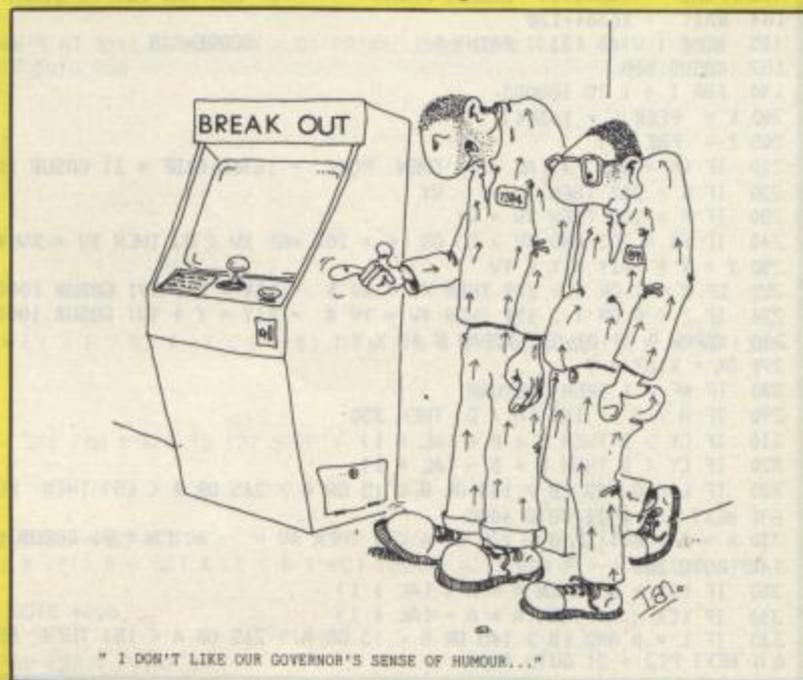
The final power of Chameleon Man is his tongue which can reach out to ensnare Pico or soak-up superzap bolts.

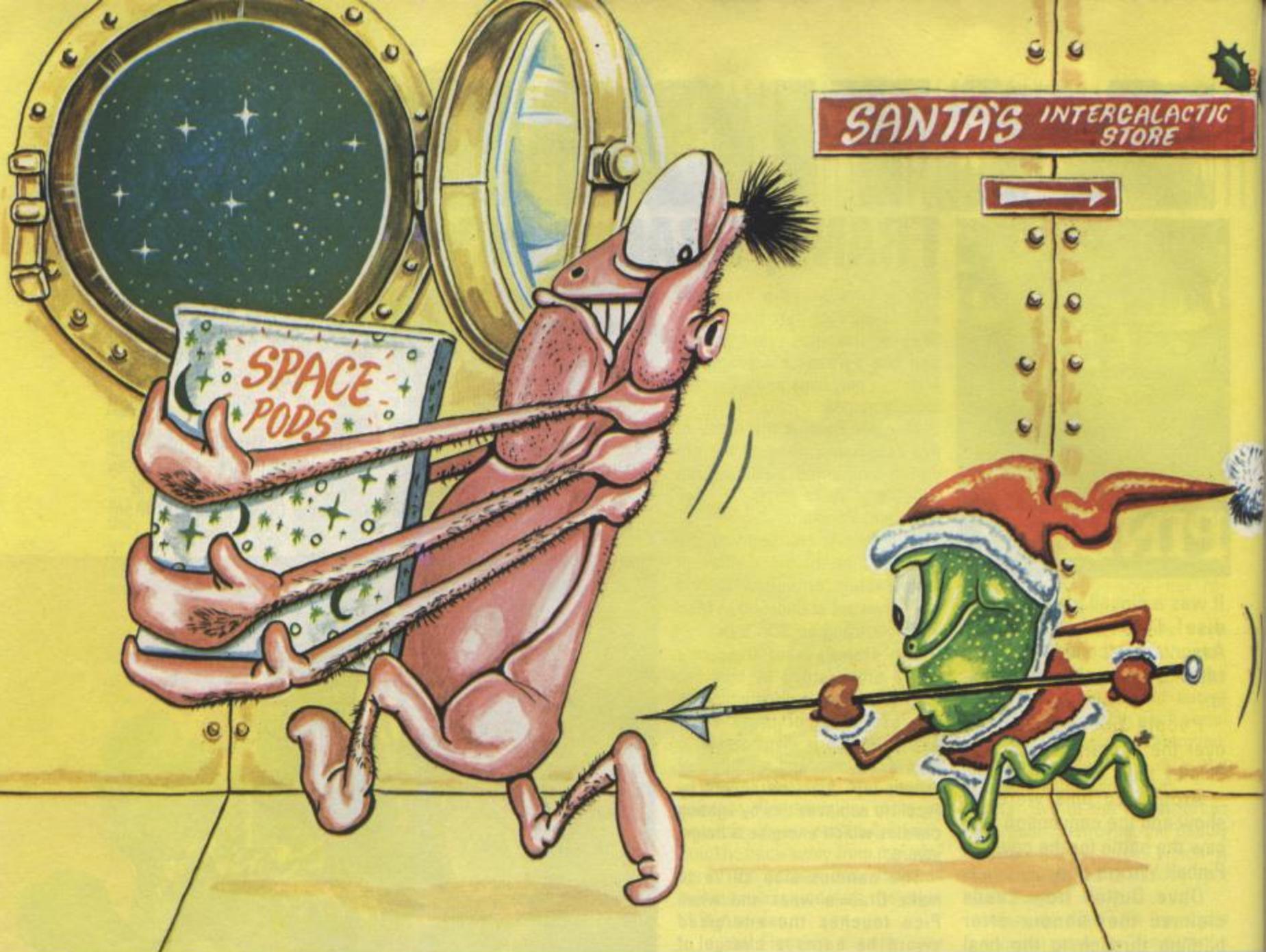
A moon also features on the screen. It is Pico's timer, if it goes behind a cloud he knows his superzap power has dwindled and he will have to light more candles.

There are also such peculiarities as Warp Doors — which can only be used when they are lit — and Jump Down Zones for Monsters and Pico to use.

ceeds in knocking them down.

At the very top of the screen is Junior's main aim, the key to his Dad's cage which hangs from a platform above said cage. But when he reaches it, Mario merely rushes Dad off to another cage, and another screen challenge.





```
5 HOME : GOSUB 6000: GOSUB 10000
```

```
10 HCR
```

```
15 HOME : VTAB (21): PRINT " STAR GUARD BY N. FORSYTH."
```

```
20 HCOLOR= 7: HPLLOT 0,0 TO 0,159 TO 279,159 TO 279,0 TO 0,0
```

```
30 FOR Y = 0 TO 159 STEP 3
```

```
40 HPLLOT INT ( RND (1) * 280),Y
```

```
50 NEXT Y
```

```
60 BX(1) = 135:BX(4) = 135:BX(7) = 135
```

```
62 BX(2) = 139:BX(5) = 139:BX(8) = 139
```

```
64 BX(3) = 143:BX(6) = 143:BX(9) = 143
```

```
70 BY(1) = 75:BY(2) = 75:BY(3) = 75
```

```
72 BY(4) = 79:BY(5) = 79:BY(6) = 79
```

```
155 XV = 10:BV = 10:VY = 7
```

```
160 CX = 139:CY = 79:D = 1
```

```
165 AL = 1
```

```
181 IF S > 0 THEN 187
```

```
182 POKE - 16368,0: FLASH : PRINT "
```

```
184 WAIT - 16384,128
```

```
185 HOME : VTAB (21): PRINT "
```

```
187 GOSUB 500
```

```
190 FOR T = 1 TO 100000
```

```
200 K = PEEK ( - 16384)
```

```
205 Z = FRE (0)
```

```
210 IF (K = 160) * (AF = 0) THEN POKE - 16368,0:SF = 1: GOSUB 700:SF = 0
```

```
220 IF K = 201 THEN YV = - YV
```

```
230 IF K = 205 THEN YV = YV
```

```
240 IF (K = 202 AND XV > 0) OR (K = 203 AND XV < 0) THEN XV = XV * - 1
```

```
250 X = X + XV:Y = Y + YV
```

```
255 IF X < 0 OR X > 279 THEN XV = XV * - 1:X = X + XV: GOSUB 1000
```

```
256 IF Y < 0 OR Y > 159 THEN YV = YV * - 1:Y = Y + YV: GOSUB 1000: POKE - 16368,0
```

```
260 XDRAW 8 AT OX,OY: XDRAW 8 AT X,Y
```

```
270 OX = X:OY = Y
```

```
280 IF AF = 1 THEN RETURN
```

```
290 IF H / 2 = INT (H / 2) THEN 350
```

```
310 IF CY > B THEN B = B + (AL + 1)
```

```
320 IF CY < B THEN B = B - (AL + 1)
```

```
325 IF L = 0 AND (B > 145 OR B < 15 OR A > 265 OR A < 15) THEN FOR P = 1 TO 10:SP = PEEK ( - 1633
```

```
6): NEXT P:D = 2: GOTO 4000
```

```
330 A = A + AV: IF A > 279 OR A < 0 THEN AV = - AV:CB = 0: GOSUB 1000:A = A + AV
```

```
340 GOTO 380
```

```
350 IF (CX > A) THEN A = A + (AL + 1)
```

```
360 IF (CX < A) THEN A = A - (AL + 1)
```

```
365 IF L = 0 AND (B > 145 OR B < 15 OR A > 265 OR A < 15) THEN FOR P = 1 TO 10:SP = PEEK ( - 1633
```

```
6): NEXT P:D = 2: GOTO 4000
```

```
74 BY(7) = 83:BY(8) = 83:BY(9) = 83
```

```
100 ROT= 0: SCALE= 1
```

```
110 FOR X = 1 TO 9
```

```
120 XDRAW 9 AT BX(X),BY(X)
```

```
130 NEXT
```

```
135 HPLLOT 130,71 TO 147,71 TO 147,87 TO 130,87 TO 130,71
```

```
140 X = 139:Y = 40:OX = 139:OY = 40
```

```
145 GOSUB 5000
```

```
150 XDRAW 8 AT OX,OY
```

```
153 REM !!! SET UP SCREEN !!!
```

```
154 L = 9:ST = 6000:S = 0
```

HIT ANY KEY TO START

": NORMAL

SCORE=":S

RUNS ON AN APPLE

IN 24K

BY NEIL FORSYTH

You can tell it's almost Christmas. Even our favourite friends the aliens are getting into the festive spirit. It seems that the best selling gift this year is a space pod — and our little aliens just can't get enough of them. Some unscrupulous aliens have actually decided to resort to stealing these much sought after space pods. As an employee of Santa's Intergalactic Branch your job is to defend these pods from the marauding aliens.

This game comes in two parts. In the first you blast away at the multi-armed aliens as they attempt to steal the pods. If you manage to shoot an alien which has stolen a precious pod

START GUARD

before it reaches the edge of the screen you'll get the pod back. In part two — which starts after the third multi-armed alien is shot — your task is to collect pods being dropped by aliens. You must do this quickly as the aliens have the nasty habit of exploding — and will destroy you if your ship is too close. If you manage to get through unscathed the game starts again with your ship at reduced power until you reach 6000 points when you will be refueled.

Controls are; I-up, J-left, K-right, M-down.

Variables and subroutines

A.....X CO-ORDINATE of alien or alien pod
AF.....When spaceship movement routine is used as a subroutine "AF" confirms use of return
AL.....Current form of alien

```

370 B = B + AV: IF B > 159 OR B < 0 THEN AV = - AV: CB = 0: GOSUB 1000: B = B + AV
380 XDRAW AL AT OA,OB: XDRAW AL AT A,B
390 OA = A: OB = B
400 IF (A > CX - 10) * (A < CX + 10) * (B > CY - 10) * (B < CY + 10) * (CB < > 1) THEN GOTO 450
405 IF (A > OX - 8) * (A < OX + 8) * (B > OY - 3) * (B < OY + 4) THEN D = 4: FOR P = 1 TO 128 STEP
8: ROT = P: SP = PEEK (- 16336):
  XDRAW B AT OX,OY: NEXT P: ROT = 0: GOTO 4000
410 IF SF = 1 THEN RETURN
420 NEXT
450 XDRAW 9 AT BX(L),BY(L)
460 L = L - 1: FOR P = 1 TO 10: SP = PEEK (- 16336): NEXT P
470 CB = 1
480 IF SF = 1 THEN RETURN
490 NEXT
495 REM
496 REM *** MAIN ROUTINE ***
497 REM
500 H = INT ( RND (1) * 2) + 1
502 IF D = 4 THEN D = 1: AL = AL + 1
505 IF H / 2 = INT (H / 2) THEN GOTO 560
507 RA = 5
510 B = INT ( RND (1) * 141) + 10
520 A = INT ( RND (1) * 2) + 1
530 IF A = 1 THEN A = 0: AV = AL * 1.8
540 IF A = 2 THEN A = 279: AV = - AL * 1.8
550 GOTO 600
560 A = INT ( RND (1) * 280)
570 B = INT ( RND (1) * 2) + 1
575 RA = 9
580 IF B = 1 THEN B = 0: AV = AL + 1
590 IF B = 2 THEN B = 159: AV = - (AL + 1)
600 OA = A: OB = B
610 XDRAW AL AT OA,OB
620 RETURN
630 REM
640 REM ***PUT ALIEN ON SCREEN***
650 REM & SELECT DIRECTION
660 REM VERTICAL OR HORIZONTAL
700 IF (X > 270 AND XV > 0) OR (X < 10 AND XV < 0) THEN RETURN
703 UXB = X: XDRAW 10 AT UXB,Y
705 IF XV < 0 THEN FOR XB = X - 10 TO 0 STEP - BV
710 IF XV > 0 THEN FOR XB = X + 10 TO 279 STEP BV
715 GOSUB 290
720 XDRAW 10 AT UXB,Y: XDRAW 10 AT XB,Y
725 SP = PEEK (- 16336) - PEEK (- 16336)
740 IF ((UXB + 2 > A) AND (A > XB - 2)) OR ((UXB - 2 < A) AND (A < XB + 2)) OR ((A > XB - 5) AND (
A < XB + 5)) AND ((Y > B - RA)
AND (Y < B + RA)) THEN GOTO 800
745 IF (UXB > CX - 10) * (UXB < CX + 10) * (OY > CY - 10) * (OY < CY + 10) THEN XDRAW 9 AT BX(L),B
Y(L): L = L - 1: FOR P = 1 TO 10:
SP = PEEK (- 16336): NEXT P: IF L = < 0 THEN D = 2: GOTO 4000
750 IF PEEK (- 16384) > 128 THEN XDRAW 10 AT XB,Y: RETURN
760 UXB = XB
780 NEXT XB
785 XDRAW 10 AT UXB,Y
790 RETURN
794 REM
795 REM ***SPACESHIP FIRES***
796 REM
800 XDRAW AL AT OA,OB: SCALE = 2
802 FOR R = 0 TO 128 STEP 8
805 ROT = R
810 XDRAW AL AT OA,OB
815 SP = PEEK (- 16336)
820 NEXT R
822 XDRAW AL AT OA,OB
825 SCALE = 1
830 S = S + (10 * AL): VTAB (21): HTAB (22): PRINT S
840 REM
850 XDRAW 10 AT XB,Y
860 D = D + 1
880 IF CB = 1 THEN L = L + 1: XDRAW 9 AT BX(L),BY(L): CB = 0: PRINT CHR$ (7):
890 IF D = 4 AND AL = 5 THEN POP: GOTO 900
894 GOSUB 500
895 RETURN
897 REM *** HIT ALIEN ROUTINE ***
900 AF = 1
905 FOR T = T TO (T + 4)
910 GOSUB 2000
915 T1 = (INT ( RND (1) * 5) + 3) * 10
917 POKE - 16368,0
920 FOR N = 1 TO T1
925 GOSUB 200
930 IF (X > A - 8) * (X < A + 8) * (Y > B - 8) * (Y < B + 8) THEN S = S + 100: VTAB (21): HTAB (22)
: PRINT S: XDRAW 7 AT A,B: PRINT
CHR$ (7): GOTO 955
935 NEXT N
940 SC = XV * 2 * SGN (XV): SCALE = SC: FOR R = 0 TO 127 STEP 4
942 SP = PEEK (- 16336)
945 ROT = R: XDRAW 10 AT A,B
950 NEXT R
951 SCALE = 1: ROT = 0: XDRAW 7 AT A,B: SC = SC * 3
952 IF (X > A - SC) * (X < A + SC) * (Y > B - SC) * (Y < B + SC) THEN D = 1: FOR P = 1 TO 128 STEP
8: ROT = P: SP = PEEK (- 16336):
  XDRAW B AT OX,OY: NEXT P: ROT = 0: GOTO 4000
955 NEXT T
960 S = S + (L * 50): VTAB (21): HTAB (22): PRINT S

```


AV..... Aliens velocity along its chosen direction towards the center
 B..... Y CO-ORDINATE of alien or alien pod
 BV..... Your ships bullet velocity
 CB..... Value is one if alien has got a pod
 CX..... X CO-ORDINATE of screen center
 CY..... Y CO-ORDINATE of screen center
 D..... Number of kind of alien appeared so far (3 of each kind)(also mode of death at end of same)
 H..... Randomly chosen direction for alien(horizontal or vertical)
 J..... Loops
 K..... Read Keyboard
 L..... Number of pods left
 M..... Looping
 N..... Looping
 OA..... Old X CO-ORDINATE of alien
 OB..... Old Y CO-ORDINATE of alien
 OX..... Old X CO-ORDINATE of spaceship
 OY..... Old Y CO-ORDINATE of spaceship
 P..... Looping
 R..... Rotational loop when alien dies
 RA..... Vertical range of bullet
 S..... Score
 SC..... Scale for spaceship power up and pod explosion
 SF..... When spaceship fires, alien continues to move. Its movement routine is used as a subroutine SF determines whether the computer meets "NEXT" or "RETURN"
 SP..... Speaker click
 ST..... Score at which bonus power is given to spaceship(6000)
 T..... Loop around main routine(s)
 T1..... Time in which alien pod must be picked up before it explodes
 UXB..... Old X CO-ORDINATE of bullet
 VY..... Magnitude of spaceships vertical velocity
 X..... X CO-ORDINATE of spaceship
 XB..... X CO-ORDINATE of bullet
 XV..... Velocity of spaceship (horizontal)
 Y..... Y CO-ORDINATE of spaceship
 YV..... Velocity of spaceship (vertical)
 Z..... Looping

```

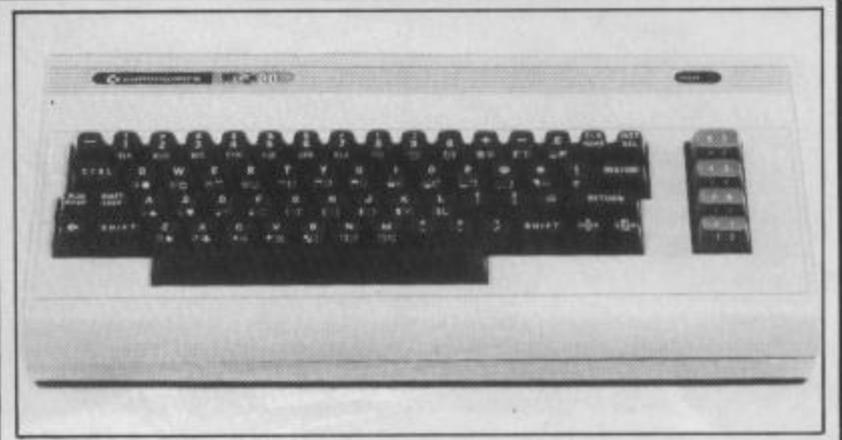
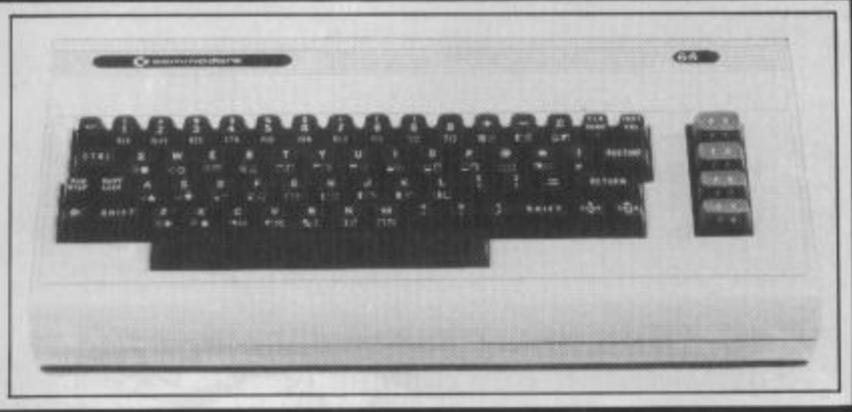
965 XV = XV - SGN (XV):VY = VY - SGN (VY) * (7 / 10):BV = BV - 1:AF = 0:SF = 0: IF XV = 0 THEN D =
3: GOTO 4000
966 IF S > ST THEN ST = ST + 6000: GOSUB 5000: GOTO 155
970 GOTO 160
980 REM ***MAIN ROUTINE FOR ALIEN PODS***
1000 FOR P = 1 TO 5:SP = PEEK ( - 16336): NEXT P: RETURN
1010 ↑ ↑ ↑ REM SPEAKER BUZZ ***
2000 A = INT ( RND (1) * 280): IF ((A > 128) * (A < 150)) + ((A > 0X - 11) * (A < 0X - 11)) THEN G
OTO 2000
2010 B = INT ( RND (1) * 140) + 20: IF (B > CY - 10) * (B < CY + 10) THEN GOTO 2010
2020 M = B - 13:N = A
2030 HCOLOR= 2: DRAW 4 AT N,M
2035 FOR P = 1 TO 25: XDRAW 4 AT N,M:SP = PEEK ( - 16336): NEXT P
2040 HCOLOR= 7: DRAW 4 AT N,M
2070 FOR P = 1 TO 400: NEXT P: XDRAW 4 AT N,M: XDRAW 6 AT N,M
2072 FOR P = 1 TO 500: NEXT P
2075 FOR J = 1 TO 2
2080 FOR Z = B - 10 TO B
2090 XDRAW 7 AT A,Z
2100 SP = PEEK ( - 16336)
2110 NEXT Z
2120 NEXT J
2130 XDRAW 7 AT A,B
2135 HCOLOR= 2: DRAW 6 AT N,M
2140 FOR P = 1 TO 25: XDRAW 6 AT N,M
2145 SP = PEEK ( - 16336)
2150 NEXT P
2160 HCOLOR= 0: DRAW 6 AT N,M
2170 HCOLOR= 7: HPLLOT 0,0 TO 0,159 TO 279,159 TO 279,0 TO 0,0
2180 HPLLOT 130,71 TO 147,71 TO 147,87 TO 130,87 TO 130,71
2190 RETURN
2200 REM
2210 REM ***HYPERSPACE ALIEN***
2220 REM ON SCREEN DEPOSIT
2230 REM ALIEN POD THEN
2240 REM LEAVE
2250 REM
4000 TEXT : HOME
4010 FLASH
4020 IF D = 1 THEN PRINT "THE BOOBY TRAP GOT YOU."
4030 IF D = 2 THEN PRINT "ALL THE PODS ARE GONE."
4040 IF D = 3 THEN PRINT "YOUR POWER CELLS ARE DEAD."
4045 IF D = 4 THEN PRINT "THE ALIEN NABBED YOU."
4050 NORMAL
4060 PRINT
4070 PRINT "SCORE: ";S
4080 PRINT
4090 FOR P = 1 TO 500: NEXT P: POKE - 16368,0
4100 PRINT "DO YOU WANT TO PLAY AGAIN ";: GET A$
4110 IF A$ = "Y" THEN CLEAR : GOTO 10
4120 TEXT : HOME : END
4130 REM
4140 REM *** END OF GAME ROUTINE ***
4150 REM
5000 FOR N = 1 TO 2
5010 FOR SC = 12 TO 1 STEP - 1
5015 SCALE= SC
5020 XDRAW 8 AT X,Y
5025 POKE 768,SC * N * 10: POKE 769,10: CALL 770
5030 REM *** PLAY MUSIC NOTES ***
5040 NEXT SC
5050 NEXT N
5060 RETURN
5070 REM
5080 REM ***POWER UP SPACESHIP ***
5090 REM
6000 FOR X = 770 TO 792
6010 READ Y
6020 POKE X,Y
6030 NEXT X
6040 DATA 173,48,192,136,208,5,206,1,3,240,9,202,208,245,174,0,3,76,2,3,96,0,0
6050 RETURN
6060 REM
6070 REM *** POKE IN MUSIC ROUTINE ***
6080 REM
10000 HGR2 : TEXT : POKE 232,16: POKE 233,64
10010 SCALE= 1: ROT= 0
10020 FOR X = 16400 TO 16575
10030 READ Y
10040 POKE X,Y
10050 NEXT X
10060 DATA 10,0,22,0,35,0,52,0,64,0,84,0,109,0,131,0,141,0,164,0,170,0
10070 DATA 62,63,44,33,36,53,42,45,62,51,54,39,0
10080 DATA 39,39,39,9,10,9,53,59,54,45,58,31,27,39,41,4,0
10090 DATA 42,44,37,60,55,63,60,55,46,53,21,0
10100 DATA 62,27,39,37,45,44,46,44,42,46,62,62,54,35,60,63,55,41,46,0
10110 DATA 13,60,63,63,39,13,44,13,53,13,62,22,53,23,59,12,60,63,39,23,55,13,46,5,0
10120 DATA 62,27,39,37,45,44,46,44,42,46,62,46,30,30,36,63,63,63,14,53,5,0
10130 DATA 63,12,37,21,46,30,63,14,5,0
10140 DATA 54,45,46,44,37,45,60,39,63,60,62,63,39,55,63,62,55,45,46,53,37,45,0
10150 DATA 62,36,45,54,7,0
10160 DATA 63,12,17,41,13,0
10170 RETURN
10180 REM
10190 REM *** POKE SHAPE TABLE ***
10200 REM ONTO HGR2 SCREEN
10210 REM TO SAVE MEMORY
10220 REM

```


CREDIT

Dragon 32 computer hardware

(Subject to approval which can take up to 48 hours) (APR = 0%)



ATARI SOFTWARE continued

Asteroids	-1E-8K-YG60Q £29.95	Blackjack	-1C-8K-YG62S £9.95
Space Invaders	-1E-8K-YG70M £29.95	Hangman	-1C-8K-YG54J £9.95
Missile Command	-1E-8K-YG64U £29.95	Super Cubes & Tilt	-1C-16K-BQ48C £14.95
Caverns of Mars	-1D-16K-BQ69A £24.50	Humpty Dumpty & Jack & Jill	-1C-16K-BQ38R £19.95
K-Razy Shoot Out	-1E-8K-BQ63T £29.95	Hickory Dickory Dock & Baa Baa Black Sheep	-1C-16K-BQ39N £19.95
K-Razy Kritters	-1E-8K-BG51F £29.95	British Heritage Jigsaw Puzzles	-1D-32K-BG33L £27.95
K-Star Patrol	-1E-8K-BG52G £29.95	European Scene Jigsaw Puzzles	-2C-16K-BQ40T £19.95
Pathfinder	-1D-32K-BG33L £27.95	Video Easel	-2C-16K-BQ41U £19.95
Crossfire	-1C-16K-BG22Y £20.64	Micro Painter	-1E-8K-BQ72P £24.50
Crossfire	-1D-32K-BG23A £20.64		-1D-48K-BG56L £29.95
Protector	-1C-32K-BG24B £21.80	Music Programs	
Protector	-1D-32K-BG25C £21.80	Music Composer	-1E-8K-YG48C £35.95
Threshold	-1D-40K-BG18U £27.54	Movie Themes	-1C-8K-BQ34M £9.95
Deluxe Invaders	-1D-16K-BG34M £29.95	Computer Languages	
Galactic Chase	-1C-16K-BQ62S £16.95	Assembler	-1C-16K-YL32K £19.95
Galactic Chase	-1D-16K-BQ61R £19.95	Assembler Editor	-1E-8K-YG68Y £39.95
Race In Space	-1C-16K-BQ35Q £14.95	Macro Assembler	-1D-32K-BQ73Q £59.95
Race In Space	-1D-16K-BG20W £16.95	Basic A+	-1D-48K-BQ31J £49.95
Space Chase	-1C-16K-BG42V £10.95	Basic A+ & Operating System A+	-1D-48K-BQ32K £99.50
Space Chase	-1D-24K-BG43W £12.95	Microsoft Basic	-1D-32K-BQ74R £59.95
Centipede	-1E-16K-BQ70M £29.95	Pilot (Educator)	-1E & 2C-16K-BQ75S £79.95
Angle Worms	-1C-8K-BG50E £10.95	Pilot (Consumer)	-1E-8K-YG69A £54.00
Lunar Lander	-1C-24K-BQ16S £10.95	QS Forth	-1D-24K-YL29G £49.95
Lunar Lander	-1D-24K-BG49D £14.95	Tiny-C	-1D-48K-BG62S £64.95
Jumbo Jet Lander	Available November	Inter-Lisp/65	-1D-48K-BG61R £87.00
Submarine Commander	Available November	Utilities	
Rasterblaster	-1D-32K-BG35Q £22.95	Programming Aids Package 1	-1C-16K-BG60Q £ 9.95
Shooting Gallery	-1C-16K-BQ36P £14.95	6502 Disassembler	-1C-8K-YL30H £9.95
Shooting Gallery	-1D-16K-BG19V £16.95	6502 Disassembler	-1D-8K-YL31J £12.95
Shooting Arcade	-1C-16K-BG15R £24.95	Atari World	-1D-40K-BQ27E £43.95
Shooting Arcade	-1D-16K-BG16S £24.95	3D Supergraphics	-1C-40K-BQ29G £29.95
Super Breakout	-1E-8K-YG67X £24.50	3D Supergraphics	-1D-40K-BQ28F £29.95
Dodge Racer	-1C-16K-BG29G £19.95	File-It 2	-1D-48K-BG10L £34.95
Dodge Racer	-1D-24K-BG30H £19.95	Filemanager 800	-1D-40K-BG59P £72.80
Matchracer	-1C-16K-BG31J £23.95	K-DOS	-1D-32K-BQ76H £49.95
Matchracer	-1D-16K-BG32K £23.95	Disk Manager	-1D-32K-BG58N £21.80
Mouskattack	-1D-32K-BQ77J £22.95	Disk Detective	-1D-16K-BG57M £24.95
Jawbreaker	-1C-16K-BG17T £20.64	Operating System A+	-1D-32K-BQ30H £49.95
Jawbreaker	-1D-32K-BQ26D £20.64	Teletink	-1E-8K-YG59P £21.50
Ghost Hunter	-1C-16K-BQ64U £19.95	The Next Step	-1D-32K-BG64U £27.54
Pac-Man	-1E-8K-BQ71N £29.95	Books	
Pacific Coast Highway	-1C-16K-BG13P £24.95	Master Memory Map	-XH57M £4.00
Pacific Coast Highway	-1D-16K-BG14Q £24.95	De Re Atari	-WG56L £16.95
Chicken	-1C-16K-BG27E £21.80	Operating System User's Manual & Hardware Manual	-WA46A £16.95
Chicken	-1D-16K-BG28F £21.80	Atari Basic-Learning By Using Games For The Atari	-WG55K £5.24
Tumble Bugs	-1D-24K-BG46A £24.95	Atari Basic	-WA47B £4.45
Bug Attack	-1C-24K-BG36P £23.95	Atari Sound & Graphics	-WG05F £6.80
Bug Attack	-1D-40K-BG37S £23.95	Your Atari Computer	-WA39N £8.25
Canyon Climber	-1C-16K-BG44X £24.95	6502 Assembly Language Subroutines	-WA40T £13.45
Canyon Climber	-1D-16K-BG45Y £24.95		-WA05F £12.45
Mountain Shoot	-1C-16K-BQ12N £10.95	Advanced 6502 Interfacing	-WA41U £11.45
Haunted Hill	-1C-16K-BG38R £16.95	Beyond Games (6502)	-WA45Y £13.00
Haunted Hill	-1D-16K-BG39N £19.95	Computers For People	-WA00A £8.25
Time Bomb	-1C-16K-BG40T £10.95	Analog: The Magazine For Atari (6 issues) Annual Subscription	-GG24B £9.00
Time Bomb	-1D-24K-BG41U £12.95	Send see now for our new software leaflet with details of all the above programs.	
Tank Trap	-1C-16K-YL34M £9.95	Order As XH52G - Issue 3.	
Tank Trap	-1D-32K-YL35Q £12.95	Key: C = Cassette, D = Disk, E = Cartridge	
Thunder Island	-1C-16K-BQ37S £10.95	2C = 2 Cassettes etc. 8K, 16K shows minimum memory requirement.	
Home Game Programs		Note: Order codes shown in brackets. Prices correct at time of going to press. (Errors excluded).	
Scram	-1C-16-24K-YG58N £17.50		
Basketball	-1E-8K-YG61R £24.50		
Cypher Bowl	-1C-16K-BQ20W £29.50		
Sunday Golf	-1C-16K-BQ13P £10.95		
Darts	-1C-16K-BQ42V £19.95		
Tournament & 8-Ball Pool	-1C-16K-BQ45Y £19.95		
Snooker & Billiards	-1C-16K-BQ44X £19.95		
Ricochet	-1C-16K-BQ47B £14.95		
Ricochet	-1D-32K-BG48C £14.95		
Computer Chess	-1E-8K-YG63T £24.50		
Fast Gammon	-1C-9K-YL33L £16.95		
Gomoku	-1C-16K-BQ18U £14.95		
Gomoku	-1D-16K-BG55K £19.95		
Reversi	-1C-16K-BQ19V £14.95		
Reversi	-1D-16K-BG54J £19.95		
Cribbage & Dominoes	-1C-16K-BQ43W £14.95		
Poker Solitaire	-1C-16K-BQ17T £10.95		
Poker Solitaire	-1D-16K-BG53H £14.95		

VIC20 COLOUR COMPUTER

Hardware		Simplicast Cassette (+16K)	(AC93B) £19.95
VIC20 Console	(AF47B) £169.99	VIC Stock Control Cassette (+8K)	(AC94C) £19.95
C2N Cassette Unit	(AF48C) £44.95	VIC File Disk (+16K)	(AC95D) £24.95
VIC Printer	(AF49D) £230.00	VIC Writer Disk (+8K)	(AC96E) £24.95
VIC Disk Drive	(AF50E) £396.00	VIC Writer Cassette (+8K)	(AC97F) £19.95
3K RAM Cartridge	(AF51F) £29.95	Education (CSE & GCE 'O' Level Revision)	
8K RAM Cartridge	(AF52G) £44.95	All cassette based and require at least 8K expansion memory.	
16k RAM Cartridge	(AF53H) £74.95	English Language	(AC98G) £9.99
Joysticks and Paddles		Mathematics 1	(AC99H) £9.99
Single Joystick	(AC53H) £7.50	Mathematics 2	(BC00A) £9.99
Pair of Joysticks	(AC37S) £13.95	Biology	(BC01B) £9.99
Le Stick	(AC45Y) £24.95	Chemistry	(BC02C) £9.99
Pair of Paddles	(AC30H) £13.95	Physics	(BC03D) £9.99
Programming Aid Cartridges		Computer Studies	(BC04E) £9.99
Super Expander 3K RAM and Hi-res graphics	(AC54J) £34.95	Geography	(BC05F) £9.99
Programming Aid: Additional commands, function key programming etc.	(AC55K) £34.95	History	(BC06G) £9.99
Machine Code Monitor	(AC56L) £34.95	Arithmetic for 9 to 11 year olds	(BC07H) £9.99
Software (all 3K unless stated)		Reading for 9 to 11 year olds	(BC08J) £9.99
Introduction to BASIC Cassettes		General Knowledge for 9 to 11 year olds	(BC09K) £9.99
Part 1	(AC57M) £14.95	Spelling for 9 to 11 year olds	(BC10L) £9.99
Part 2	(AC58N) £14.95	Home Programs	
Game Programs		All cassette based and require at least 8K expansion memory.	
Avenger Cartridge	(AC59P) £19.95	Quizmaster	(BC11M) £9.99
Star Battle Cartridge	(AC60Q) £19.95	Know Your Own IQ	(BC12N) £9.99
Super Slot Cartridge	(AC61R) £19.95	Junior IQ	(BC13P) £9.99
Jelly Monsters Cartridge	(AC62S) £19.95	Know Your Own Personality	(BC14Q) £9.99
Alien Cartridge	(AC63T) £19.95	The Robert Carrier Family Menu Planner	(BC15R) £9.99
Super Lander Cartridge	(AC64U) £19.95	VIC Money Manager	(BC16S) £9.99
Road Race Cartridge	(AC65V) £19.95	VIC Road User & Highway Code	(BC17T) £9.99
Rat Race Cartridge	(AC66W) £19.95	Garden Planner	(BC18U) £9.99
Blitz Cassette	(AC67X) £4.99	Interior Designer	(BC19V) £9.99
Mole Attack Cartridge	(AC68Y) £24.95	BBC "Ask The Family"	(BC20W) £9.99
Adventureland Cartridge	(AC68T) £24.95	BBC "Mastermind"	(BC21X) £9.99
Pirate Cove Cartridge	(AC68F) £24.95	"Mastermind" additional General Knowledge	
Mission Impossible Cartridge	(AC68U) £24.95	Data 1	(BC22Y) £2.50
Voodoo Castle Cartridge	(AC68V) £24.95	Data 2	(BC23A) £2.50
The Count Cartridge	(AC68W) £24.95	Data 3	(BC24B) £2.50
Sargon 2 Chess Cartridge	(AC67J) £24.95	Data 4	(BC25C) £2.50
Golf Cartridge	(AC69X) £24.95	"Mastermind" additional Specialist Knowledge	
Omega Race Cartridge	(AC69Y) £24.95	Wine & Food	(BC26D) £2.50
Another VIC in The Wall Cassette	(AC78K) £7.00	Music	(BC27E) £2.50
VIC Panic Cassette	(AC79L) £7.00	Sport & Games	(BC28F) £2.50
Cosmids Cassette	(AC80B) £7.00	Films & TV	(BC29G) £2.50
Backgammon Cassette (+3K)	(AC81C) £7.00	Books About VIC	
VIC Men Cassette	(AC82D) £7.00	Learn Programming on the VIC	(WA31J) £2.50
VIC Asteroids Cassette	(AC83E) £7.00	VIC Revealed	(WA32K) £10.00
Business Programs		VIC Programmers Reference Guide	(WA33L) £9.95
Simplicast Disk (+16K)	(AC92A) £24.95	VIC Graphics	(WA48C) £10.00

MAPLIN

Maplin Electronic Supplies Ltd., P.O. Box 3, Rayleigh, Essex. Tel: Southend (0702) 552911/554155.
 Demonstrations at our shops NOW. See the computers in action at 159-161 King St., Hammersmith W6. Tel: 01-748 0926
 284 London Road, Westcliff-on-Sea, Essex. Tel: (0702) 554000
 Lynton Square, Perry Barr, Birmingham. Tel: (021) 356 7292.

ALIEN CHASE

RUNS ON A BBC MODEL B IN 32K

BY JANEK SIRRS

ZZZZZZZZipppppppp!

There goes another runaway alien! Can you stop them reaching the enemy bases and telling them all your secrets? You have to chase the swift aliens through an asteroid belt. You must catch them before they reach the bot-

tom of the screen — otherwise they escape and your secrets will be common knowledge among the little green meanies. Unfortunately the only way you can stop the runaway is pretty terminal. You blast him with a laser. As the game pro-

gresses the alien runaways get quicker and the number of asteroids increases — making things just a bit more difficult.

The cursor keys control left and right movement while the Space fires the deadly laser.

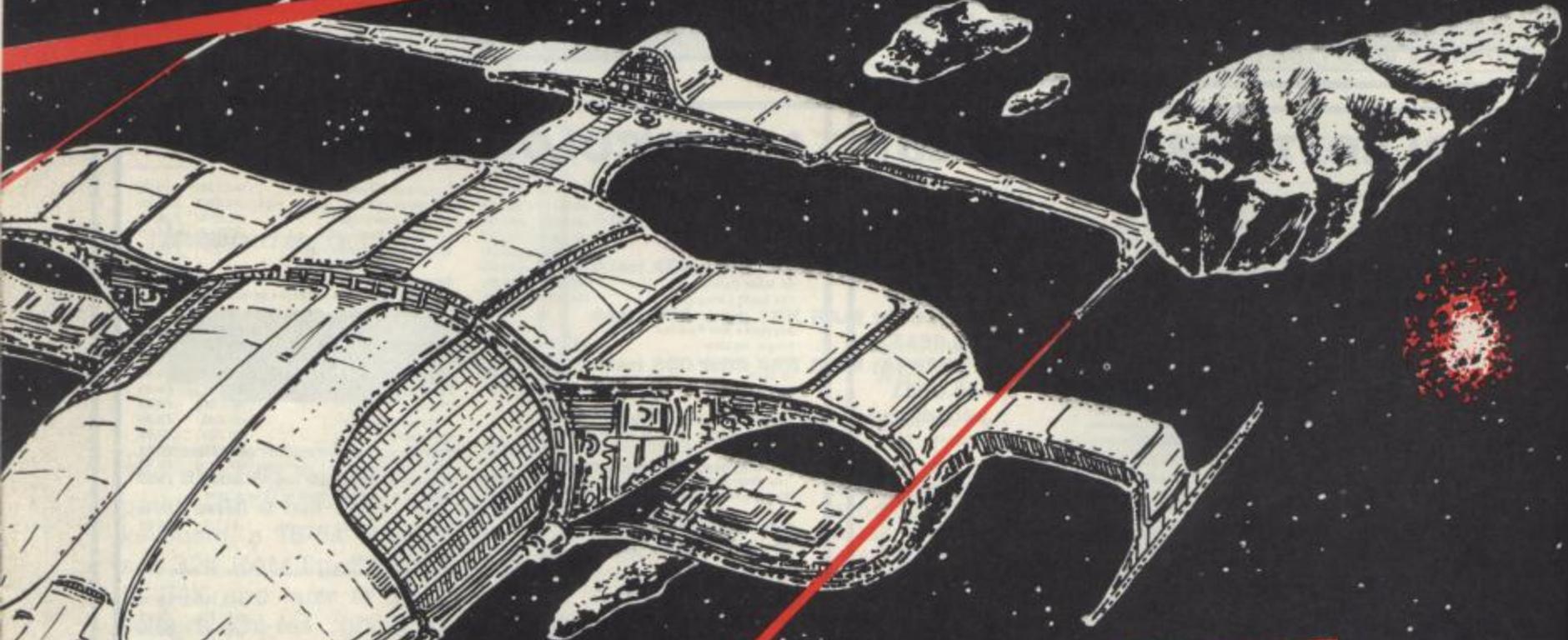


Illustration: Dorian Cross

```
10 REM *** ALIEN CHASE ***
20 REM *** FOR BBC MODEL B ***
30 PROCchars:HISCOREX=0
40 MODE2:PROCTITLE:MODE1:PROCIinst:MODE2:PROCIinit
50 !&FE00=&10200A
60 NOWTIMEX=TIME
70 PLOT4,0,0:IFSELFPLAYX=0GOTO110ELSEIFINKEY(0)<>-1GOTO40
80 XX=RND(3):IFXX=1THENIX=226:GOTO120
90 IFXX=2THENIX=249:GOTO120
100 IX=153:GOTO120
110 IX=7215
120 IFIX=226PROCFire
130 IFIX=153THENIX=-1:GOTO160
140 IFIX=249THENIX=1:GOTO160
150 IX=0
160 COLOUR7:PRINTTAB(SXX,SYX) " ":IFSXX+IX<0ORSXX+IX>19THENIX=0
170 IFPOINT(64*(SXX+IX)+32,(31-SYX)*32+16)>0GOTO280
180 SXX=SXX+IX:PRINTTAB(SXX,SYX)CHR#224:CHR#30
190 XX=RND(3):IFXX=1THENIX=-1ELSEIFXX=2THENIX=0ELSEIX=1
200 IFTIME>=NOWTIMEX+TXTHENNOWTIMEX=TIME:JX=1:TX=TX-1:IFAYX=30COLOUR12:PRINTTAB(AXX,AYX)CHR#225:COLOUR8:PRINTTAB(1,12)"THE ALIEN ESCAPES!":FORLX=1TD30000:NEXT LX:COLOUR7:PRINTTAB(0,12)STRING$(40," "):GOTO280
210 IFAXX+IX<0ORAXX+IX>19THENIX=0
220 COLOUR2:PRINTTAB(AXX,AYX) " ":AXX=AXX+IX:AYX=AYX+JX:JX=0:PRINTTAB(AXX,AYX)C HR#225CHR#30
230 IFPOINT(64*SXX+32,(31-SYX-1)*32+16)>0GOTO280
240 PRINTTAB(SXX,SYX) "TAB(AXX,AYX) " ":XX=RND(4):IFXX=4 OR R<RND(1)PRINTTAB(0,31) " ":GOTO260
250 COLOUR3+XX:PRINTTAB(RND(17)-1,32-XX)OBSTACLE$(XX)
260 COLOUR7:PRINTTAB(SXX,SYX)CHR#224:COLOUR2:PRINTTAB(AXX,AYX)CHR#225:R=R+.001
:IFR>.9THENR=.9
270 GOTO70
280 FXX=SXX:EYX=SYX:PROCExplosion:COLOUR8:PRINTTAB(5,12)"GAME OVER!":FORLX=1TD 20000:NEXTLX
290 !FSELFPLAYX=1GOTO40ELSEMODE1:VDU19,0,4,0,0,0:COLOUR1
300 COLOUR1:PRINTTAB(10,1)"ALIEN CHASE":PRINTTAB(10,2)"-----"
```

```

310 COLOUR3:PRINT"" Bad luck Commander -- I'm afraid that"" you've let the
alien escape this time!"
320 PRINT"" Your final score was - ";COLOUR2:PRINTSCOREX
330 IFScoreX>=HIScoreXTHENHIScoreX=ScoreX
340 COLOUR3:PRINT"" Today's high score is - ";COLOUR2:PRINTHIScoreX
350 COLOUR1:PRINT"" ANOTHER GAME (Y/N) ?"
360 A$=GET$:IFA$="Y"GOTO40ELSEIFA$<>"N"GOTO360
370 MODE7:END
380 DEFPROCfire
390 SOUND0,1,5,1:FORLX=SYX+1TOAYX-1:IFPOINT(SX*X*64+32,(31-LX)*32+16)=4THENSOUN
D1,1,100,1:SCOREX=SCOREX+100
400 COLOUR1:PRINTTAB(SX,X,LX)CHR#236:NEXTLX:FORLX=SYX+1TOAYX-1:PRINTTAB(SX,X,LX)
" :NEXTLX
410 IFSX<>AXXGOTO430ELSESCOREX=SCOREX+10:EXX=AXX:EYX=AYX:AXX=RND(17+1):AYX=20
:PROCExplosion
420 COLOUR129:COLOUR7:PRINTTAB(0,0)STRING$(20," ")TAB(3,0)"SCORE:";SCOREX:CO
LUR128:FORLX=1TO5000:NEXTLX
430 ENDPROC
440 DEFPROCExplosion
450 PRINTTAB(EXX,EYX) " :FORLX=1TO50:GCOL0,3:PLOT69,64*EXX+16+(RND(64)*SGN(RND
)),(31-EYX)*32+16+(RND(32)*SGN(RND)):SOUND0,-LX/3,4,1:NEXTLX
460 PRINTTAB(EXX-1,EYX-1) " CHR#10STRING$(3,CHR#8) " CHR#10STRING$(3,CHR#8)
)"
470 ENDPROC
480 DEFPROCchars
490 VDU23,224,0,0,0,56,84,254,84,0,23,225,60,126,90,126,126,126,102,60,23,226,
102,153,153,126,126,153,153,102
500 VDU23,227,0,192,248,248,252,254,254,254,23,228,0,147,255,255,255,255,255,2
55,23,229,0,29,63,127,127,63,127
510 VDU23,230,254,252,254,252,248,248,128,23,231,255,255,255,255,193,1
29,0,23,232,127,127,255,127,127,15,7,0
520 VDU23,233,255,255,255,255,255,255,23,234,254,254,252,254,254,254,2
54,254,23,235,127,63,63,127,127,127,63,127
530 VDU23,236,16,16,16,16,16,16,16,16,16
540 DIMOBSTACLE$(3):OBSTACLE$(1)=CHR#226:OBSTACLE$(2)=CHR#229+CHR#227+CHR#10+C
HR#8+CHR#8+CHR#232+CHR#230
550 OBSTACLE$(3)=CHR#229+CHR#228+CHR#227+CHR#10+STRING$(3,CHR#8)+CHR#235+CHR#2
33+CHR#234+CHR#10+STRING$(3,CHR#8)+CHR#232+CHR#231+CHR#230
560 ENDPROC
570 DEFPROCinit
580 SCOREX=0:SYX=10:SYX=6:AXX=RND(17)+1:AYX=20:R=.1:TX=250
590 ENVELOPE1,0,0,0,0,0,0,0,1,0,254,100,128:ENVELOPE2,2,50,100,-60,11,100,12
0,50,106,-100,-10,100,80
600 ENDPROC
610 DEFPROCtitle
620 GCOL0,1:PLOT4,0,512:PLOT4,0,1023:PLOT85,640,512:PLOT85,640,1023:GCOL0,2:PL
OT85,1279,1023
630 PLOT4,640,512:PLOT85,1279,512:GCOL0,3:PLOT85,1279,0:PLOT4,640,512:PLOT85,6
40,0:GCOL0,4:PLOT85,0,0:PLOT4,640,512:PLOT85,0,511
640 COLOUR7:PRINTTAB(5,14)"A L I E N"TAB(5,17)"C H A S E"
650 FORLX=1TO100:VDU19,RND(4),RND(4),0,0,0:SOUND1,-LX/7,RND(255),1:SOUND2,-LX/
7,RND(255),1:NEXTLX
660 FORLX=1TO2000:NEXTLX
670 ENDPROC
680 DEFPROCinst
690 CLS:VDU19,0,4,0,0,0:COLOUR1:PRINTTAB(5,12)"DO YOU NEED INSTRUCTIONS (Y/N)
?"
700 A$=INKEY$(1000):IFA$=""THENSELFPLAYX=1:ENDPROC
710 CLS:SELFPLAYX=0:IFA$="N"ENDPROC ELSECOLOUR1:PRINTTAB(10,1)"A L I E N C H
A S E"TAB(10,2)-----
720 COLOUR3:PRINT"" Try to shoot the fleeing alien before"" it reaches the
bottom of the screen"" amongst asteroids and enemy starbases"
730 PRINT"" Use cursor keys to move left or right"" and press 'SPACE' to fi
re your laser."
740 COLOUR1:PRINT""TAB(5)"PRESS ANY KEY TO CONTINUE":A$=GET$
750 CLS:PRINTTAB(7,1)"S T A R S H I P D A T A":PRINTTAB(7,2)-----
" :COLOUR2:PRINT"" CHR$(225)TAB(15):COLOUR1:PRINT"- Alien (Worth 10 p
oints)"
760 COLOUR2:PRINT"" CHR#226TAB(15):COLOUR1:PRINT"- Alien starbase (Worth"1
0 points)"
770 COLOUR2:PRINT"" OBSTACLE$(2)TAB(20):COLOUR1:PRINTCHR#11"- Asteroid (Wor
thless)"
780 COLOUR1:PRINT"" PRESS ANY KEY TO BEGIN THE GAME":A$=GET$
790 ENDPROC

```

UNDESCRIBABLE! UNBELIEVABLE!

Cosmic Swarm

Tandy/Genie software catalogue is free!

Having to wait four months for his BBC Micro was hard luck for top programmer Mike Chalk, but it was certainly good news for Tandy/Genie owners, for he spent the time creating his last Arcade game for these machines, and of course exclusively for Kansas

BBC MICRO and COLOUR GENIE programs
Ask for catalogue and see the difference!

It surpasses anything, anywhere! Two entirely different 'screens' provide action and variation the like of which has never been seen on a computer screen before, and certainly not in any 'arcade' game

First you have to beat the astroids. Easy at first but when hit they split and multiply, then split and multiply yet again before they can be completely killed off. But as they split, so they come in at entirely different angles... As the game progresses more and more appear.

If you survive the astroids, down swoops the swarm! These horrors move about relentlessly, then without warning two, three or even more suddenly break away and attack, raining down bombs.

Then its back to harder astroids...and so on... There are bonus scores and extra lives, and sound of course.



MIKE CHALK'S GREATEST EVER. For the Tandy and Genie £9.50 Vat and post paid.

Kansas

Recognised brand leader in microcomputer software The only company giving a lifetime unconditional guarantee and assured return first class post service.

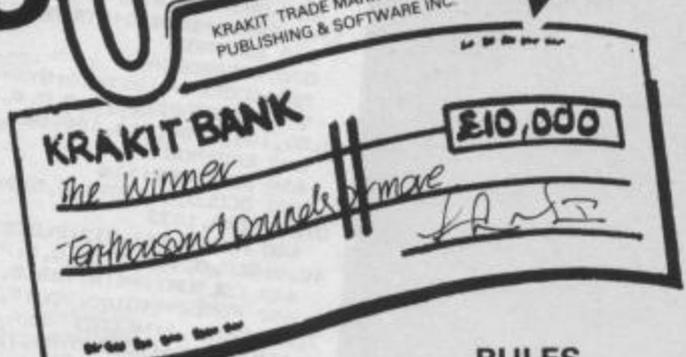
Kansas City Systems, Unit 3, Sutton Springs Wood, Chesterfield, S44 5XF. Tel. 0246 850357

THE ULTIMATE ADVENTURE FOR THE SPECTRUM/ZX81 for only £9.95

AND THE CHANCE TO WIN £10,000 OR MORE IF YOU KRAKIT™

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.

* When ordering please state whether for Spectrum or ZX81



RULES

1. The first qualified entrant to be confirmed by the judges to have completed all the clues correctly is the winner.
2. There will be one winner only.
3. No persons connected to Artic Computing Limited or International Publishing & Software Inc. or their families are eligible to enter KRAKIT™
4. This offer is not valid where prohibited by law.
5. Due to the confidential nature of KRAKIT™ we regret we are unable to enter into any individual correspondence. All the required information, including how to claim the prize, is on the computer tape.
6. The winner will be required to sign an affidavit of compliance with these rules.



ARTIC COMPUTING

396 JAMES RECKITT AVENUE
HULL, N. HUMBERSIDE, HU8 0JA

DON'T MISS YOUR CHANCE TO WIN A FORTUNE!

Dealer enquiries welcome



ATARI



LOW PRICE PACKAGE DEALS

400 (exc BASIC)	£173.04
400 (inc BASIC)	£216.52
800 (exc BASIC)	£390.43
800 (inc BASIC)	£433.91

ATARI PACKAGE DEALS

400 (16k) + BASIC + Recorder + Joystick + Manuals + 5 Blank Cass. + Free Programs	£251.30
400 (32k) + All above items	£307.83
800 (48k) + All above items	£546.96
800 (48k) + Disk Drive + Joystick + 3 Blank Disks + BASIC + Demo Disks	£734.78

SHARP		VIC 20	£129.50
MZ80A	£434	GENIE 1 & 2	£289
MZ80B	£789	ATOM	from £150

+ PERIPHERALS + SOFTWARE + BOOKS + MAGAZINES + CHESS COMPUTERS + GAMES FOR ZX81 and APPLE

DRAGON 32

32K + COLOUR + HIGH RES. GRAPHICS + SOUND + TYPEWRITER KEYBOARD + SLOTS FOR JOYSTICKS + CARTRIDGES EXPANDABLE TO 64K

ALL FOR £173.00 + VAT

NEW ATARI SOFTWARE

Tumblebugs, Canyon Climber, Shooting Arcade, Pacific Coast Highway, Clowns and Balloons, Protector, Chicken, Slime, Apple Panic, Track Attack — ALL AT £17.35

Micropainter £19.56

Shamus (16K/C) £17.35

+ ATARI, INTELLIVISION & HANIMEX TV GAMES + CARTRIDGES BY IMAGIC & ACTIVISION

GAMER

24 GLOUCESTER ROAD

Tel: 698424

BRIGHTON



PLEASE ADD 15% VAT TO ALL PRICES

LANDAU ELECTRONICS

THE HOME COMPUTER & GAMES SPECIALIST

Christmas Gifts for all the family

SENSORY CHESS CHALLENGER 8
THE THINKING CHESS GAME. SEES EVERY MOVE YOU MAKE!
WAS £119.95
NOW £89.95 + £2 p&p

POCKET GAME/WATCH
at a pocket money price. 4 titles to choose from:
King Kong New York
King Kong Jungle
Mr Woodman
Mr Richman
NOW £49.95 + £2 p&p

SINCLAIR ZX81 PERSONAL COMPUTER
ZX PRINTER £59.95 + £2 p&p
16K RAM PACK £29.95 + £1 p&p

INTELLIVISION GAME
INTELLIVOICE — VOICE-SYNTHESIS MODULE
£69.95 + £1 p&p. THE ULTIMATE VIDEO GAME!
only £139.95 + £3 p&p
'SOCCER' CARTRIDGES

THE CHRISTMAS GIFT! ALIEN ATTACK
RRP £24.95
ONLY £9.95 + £1.50 p&p
SUPER SPACE GAME

TEXAS T199/4A
£199.95 + £5 p&p

ATARI 400 £199.95 + £5 p&p
ATARI 800 £499.95 + £5 p&p

ACTIVISION CARTRIDGES for the ATARI

- Barnstorming £24.95
- Starmaster £24.95
- Bridge £24.95
- Chopper Command £24.95
- Ice Hockey £24.95
- Add 50p p&p per cartridge

FROM ATARI

- Berzerk £29.95
- Demons to Diamonds £18.95
- Math Grand Prix £14.95
- Add 50p p&p per cartridge

IMAGIC CARTRIDGES for ATARI

- Demon Attack £24.95
- Star Voyager £24.95
- Fire Fighter £19.95
- Riddle of Sphinx £24.95
- Cosmic Arc £19.95
- Atlantis £19.95
- Add 50p p&p per cartridge

FOR INTELLIVISION

- B17 Speech Cartridge £29.95 + 50p p&p
- Space Spartans (Speech cartridge) £29.95 + 50p p&p
- DUNGEONS TO DRAGONS £19.95 + 50p p&p
- TRON £19.95 + 50p p&p
- VAST RANGE OF OTHER SOFTWARE ALWAYS IN STOCK

LOW PRICES INCLUSIVE OF VAT. PROMPT DESPATCH

XMAS CARD HOTLINE

ACCESS/BARCLAYCARD Holders
TEL: 01-636 9613

FOR FULL DETAILS OF OUR RANGE SEND LARGE S.A.E. TO:-

LANDAU ELECTRONICS (Dept CVG 12) LION HOUSE, 227 TOTTENHAM COURT ROAD, LONDON W1.
Also at 215 HIGH STREET, SUTTON, SURREY
Tel. 01-643 5494

CALLERS WELCOME 6 DAYS A WEEK AT ALL STORES

In Store TEMPO, 190 KENSINGTON HIGH STREET LONDON, W8. Tel. 01-937 0291

A roll of the dice will decide your destiny. Will you be a winner or a loser? There's only one way to find out — try this game! It is based on the well known game, Yachtzee, and the standard rules of this game apply — with the addition of a 50 point bonus if the subtotal reaches 60 or more.

Once you have decided on the number of players — up to four can take part — each player is given three throws of the dice. A player may decide to stick with the first or second throw by simply pressing Newline. Otherwise he will select individual dice to be thrown by typing A, B, C, D, or E in any order and in any combination. After the third throw — or when a player has decided to stick — the player must select an option from 1-12. The appropriate score is then given and the next player takes his turn. The game ends when all the players have taken all their 12 options. The one with the highest score is the winner. Will it be you? Roll those dice and find out!

RUNS ON A ZX81 IN 16K

BY C. J. BARHAM



YACHT II

```

10 LET T$="ABCDE"
20 DIM H(5)
70 LET P1=1
72 LET LE=10
80 LET P2=5
90 LET P3=12
100 LET PLUS=60
110 LET Z$="1 ONES---2 TWOS--
-3 THREES 4 FOURS--5 FIVES--6
SIXES--*SUB TOTAL**BONUS**7
CHOICE-8 FULL/H59 4/KIND-10 LT
L/ST-11 BIG/ST-12 YACHT--**TOTA
L**"
800 CLS
802 PRINT AT 10,10;"YACHTZEE"
810 PRINT AT 12,1;"HOW MANY PLA
YERS ? (1-4)"
820 INPUT PLYRS
830 IF PLYRS<1 OR PLYRS>4 THEN
GOTO 800
832 RAND
840 CLS
900 FAST
902 LET NUMG=0
910 LET PL=1
920 DIM P(PLYRS,15)
930 FOR N=1 TO PLYRS
940 FOR M=1 TO 14
942 IF M=7 OR M=8 THEN GOTO 960
950 LET P(N,M)=-1
960 NEXT M
970 NEXT N
980 GOSUB 6000
990 SLOW
1000 LET TURN=0
1002 PRINT AT 18,1;"PLAYER ";PL
1006 LET A$="ABCDE"
1008 GOTO 1022
1010 PRINT AT 20,0;"CHOOSE"
1012 INPUT A$
1014 PRINT AT 20,0;" "
1020 IF A$="" THEN GOTO 2000
1022 PRINT AT 18,10;"THROW ";TUR
N+1
1030 GOSUB 9000
1040 LET TURN=TURN+1
1050 IF TURN<3 THEN GOTO 1010
2000 GOSUB 9200
2010 PRINT AT 20,0;"OPTION ?"

```

```

2012 PRINT AT 21,0;"(1-12)"
2020 INPUT OP
2030 PRINT AT 20,0;" "
2032 PRINT AT 21,0;" "
2050 IF OP<1 OR OP>12 THEN GOTO
2010
2052 IF OP>6 THEN LET OP=OP+2
2056 IF P(PL,OP)>=0 THEN GOTO 20
10
2070 LET PTS=0
2080 LET FLAG=0
2090 IF OP>8 THEN GOTO 2200
2100 GOSUB 9900
2110 LET P(PL,7)=P(PL,7)+PTS
2112 PRINT AT 7,(PL-1)*P2+P1+P3;
P(PL,7)
2120 IF P(PL,7)<PLUS THEN GOTO 3
000
2122 IF P(PL,8)>0 THEN GOTO 3000
2130 LET P(PL,8)=50
2140 PRINT AT 8,(PL-1)*P2+P1+P3-
1;"*50*"
2150 LET P(PL,15)=P(PL,15)+50
2200 IF OP<>9 THEN GOTO 2300
2210 FOR N=1 TO 5
2220 LET PTS=PTS+H(N)
2230 NEXT N
2240 GOTO 3000
2300 GOSUB 9200
2306 IF OP=10 THEN GOSUB 9500
2310 IF OP=11 THEN GOSUB 9400
2320 IF OP=12 THEN GOSUB 9600
2330 IF OP=13 THEN GOSUB 9700
2340 IF OP=14 THEN GOSUB 9300
3000 LET P(PL,OP)=PTS
3010 PRINT AT OP,(PL-1)*P2+P3+P1
:PTS
3012 LET P(PL,15)=P(PL,15)+PTS
3014 PRINT AT 15,(PL-1)*P2+P1+P3
:P(PL,15)
3020 LET PL=PL+1
3030 IF PL<(PLYRS+1) THEN GOTO 1
000
3040 LET PL=1
3050 LET NUMG=NUMG+1
3060 IF NUMG<12 THEN GOTO 1000
3080 GOSUB 7000
3090 PRINT AT 18,8;WIN;" WINS
"

```



```

3100 IF INKEY$("<") THEN GOTO 800
3110 FOR N=1 TO 10
3120 NEXT N
3130 PRINT AT 16,6;" "
3140 FOR N=1 TO 3
3150 NEXT N
3160 GOTO 3090
7000 REM S/R TO DETERINE WINNER
7010 LET MAX=P(1,15)
7020 LET WIN=1
7030 IF PLYRS=1 THEN RETURN
7040 FOR N=2 TO PLYRS
7050 IF P(N,15)(<=MAX THEN GOTO 7
080
7050 LET MAX=P(N,15)
7070 LET WIN=N
7080 NEXT N
7100 RETURN
8000 REM S/R TO PRINT CATS
8010 FOR N=1 TO 15
8020 LET PS=(N-1)*LE+1
8030 LET PF=PS+LE-1
8040 PRINT AT N,1;Z$(PS TO PF)
8050 NEXT N
8060 FOR N=1 TO 5
8070 PRINT AT 20,(N-1)*3+10;T$(N
)
8080 NEXT N
8090 FOR N=1 TO PLYRS
8100 PRINT AT 0,(N-1)*P2+P3;"*P
:N;"*
8110 NEXT N
8120 RETURN
9000 REM S/R TO THROW REGD DICE
9010 LET N1=LEN A$
9020 FOR N=1 TO N1
9030 FOR M=1 TO 5
9040 IF A$(N)(<>T$(M) THEN GOTO 9
060
9050 LET H(M)=INT (RND*6)+1
9060 NEXT M
9070 NEXT N
9080 FOR N=1 TO 5
9090 PRINT AT 21,(N-1)*3+10;H(N)
9100 NEXT N
9110 RETURN
9200 REM S/R TO COUNT SPOTS
9210 DIM C(6)

```

```

9230 FOR N=1 TO 5
9240 LET C(H(N))=C(H(N))+1
9250 NEXT N
9260 RETURN
9300 REM S/R TO CALC YACHT
9310 FOR N=1 TO 5
9320 IF C(N)=5 THEN LET PTS=50
9330 NEXT N
9340 RETURN
9400 REM S/R TO CALC 4/KIND
9410 FOR N=1 TO 6
9420 IF C(N)(>=4 THEN LET FLAG=1
9440 NEXT N
9450 IF FLAG(<>1 THEN RETURN
9460 FOR N=1 TO 5
9470 LET PTS=PTS+H(N)
9480 NEXT N
9490 RETURN
9500 REM S/R TO CALC FL/HSE
9510 GOSUB 9800
9520 IF CT(<=4 THEN RETURN
9530 FOR N=1 TO 5
9540 LET PTS=PTS+H(N)
9550 NEXT N
9560 RETURN
9600 REM S/R TO CALC LTL/ST
9610 GOSUB 9800
9620 IF C(6)=0 AND CT=1 THEN LET
PTS=30
9650 RETURN
9700 REM S/R TO CALC BIG/ST
9710 GOSUB 9800
9720 IF C(1)=0 AND CT=1 THEN LET
PTS=30
9730 RETURN
9800 REM S/R TO CALC CT
9810 LET CT=0
9820 FOR N=1 TO 6
9830 IF C(N)=0 THEN LET CT=CT+1
9840 NEXT N
9850 RETURN
9900 REM S/R TO CALC 123456
9910 FOR N=1 TO 5
9920 IF OP=H(N) THEN LET PTS=PTS
+OP
9930 NEXT N
9940 RETURN

```



WHAT PEOPLE ARE SAYING ABOUT OUR . . . BBC MICRO GAMES

"... I am writing to express my satisfaction at your software, both quality and delivery. I have just received a 'B' Invaders and am delighted with it. The graphics are excellent and movement very smooth. I also like the customising option. I have bought a lot of BBC software and have not often been impressed. Thanks for a lot of fun."
R.B., Devon

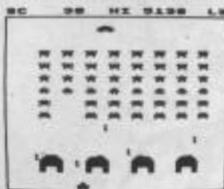
"... I was amazed with both the high quality of your software and your excellent speedy service."
H.C. Cornwall.

AND NOW LOOK AT OUR LATEST CASSETTES!

Cassette Nine contains Model B Invaders. A superb full feature adaptation of the arcade 'Space Invaders' game in machine code and high resolution colour graphics for the BBC micro model B (or A + 32K). Play normal game or choose from the many options including Missile, Bomb and Invader speeds, Invisible/Visible Invaders and Shields/ no Shields. Quite simply the best!

Only £6.95 inc.

CASSETTE NINE Model B Invaders



Actual screen photo

CASSETTE ELEVEN: ATLANTIS. The superb fast action underwater arcade game written in machine code to illustrate to the full the machine's fantastic colour graphics and capabilities. This game features all the usual Atlantis/Scramble features — guide your submarine Nautilus along the undersea landscape and through the caverns avoiding mines, depth charges, rockets etc. to reach your ultimate goal — Atlantis!
For model B machines (or A + 32K) Only £6.95 inc.

CASSETTE TWELVE: FLAGS. This model B (or A + 32K) program uses hi res colour graphics to display world flags and tests your geography at the same time! Have fun while learning.
Only £3.95 inc.

NOT FORGETTING THE REST OF OUR FANTASTIC RANGE

FOR MODELS A AND B

- Cassette One: STAR TREK (8x8 Galaxy, Klingons, Phasers etc) and CANDY FLOSS, the tremendous new game everyone is talking about! Only £5.95 inc.
- Cassette Two: HANGMAN, KRYPTOGRAM, DICE, BEETLE, GRAND NATIONAL and MUSIC. Only £3.95 inc.
- Cassette Three: MUTANT INVADERS (arcade game). Can you destroy the Mutants before they destroy you with their radioactivity. Only £5.95 inc.
- Cassette Four: BREAKOUT (arcade game). Superb version, 6 skill levels, 1 or 2 players. Only £3.95 inc.
- Cassette Eight: Model A Invaders. A superb full feature machine code teletext colour graphics version of the popular arcade game. Only £4.95 inc.

FOR MODEL B ONLY (OR A + 32K)

- Cassette Five: BEEBMUNCH (arcade game). Our version of the 'Pacman' game. Tremendous version containing multi-ghosts, tempting fruits, superpoints, screams etc. Only £5.95 inc.
- Cassette Six: SUPER HANGMAN. The special feature is the high-resolution animated man. Marvel at the detail of his clothing and witness his impatience! Contains many categories. Only £3.95 incl.
- Cassette Seven: 3D MAZE. Battle against the clock to escape from the maze, with the computer showing your view in 3-D each step you take! Only £3.95 inc.
- Cassette Ten: Wordpro. Cassette based word processor for Epson or Seikosha printers. Features right hand justification, alter, delete, insert etc. etc. Complete with manual. Only £9.95 inc.

★ SPECIAL XMAS OFFER ★

Deduct £2 from total if you order 3 or more cassettes.

(All our software is available before we advertise)

I. J. K. Software

55 Fitzroy Road, Bispham, Blackpool, Lancs



SAVE IT!

Only

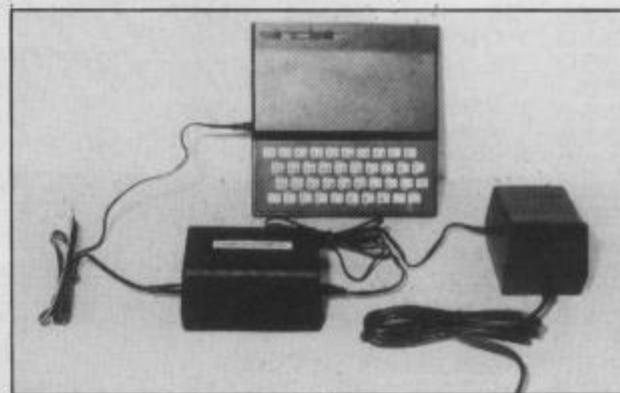
£13.95 + £1.40 p/p

with **battpack**

(Patent applied for)

FOR ZX 81 AND SPECTRUM COMPUTERS

(AND OTHER MODELS USING 9v DC ADAPTORS)



PROTECT YOUR PROGRAMMES WITH THIS RECHARGEABLE BATTERY PACK

AT LAST! The answer to one of the major problems facing personal computer programmers and users; — **POOR MAINS SUPPLIES CAUSING HAVOC, WHILE YOU SPEND HOURS TRYING TO ENTER YOUR CAREFULLY PREPARED PROGRAMMES.**

Now Adaptors and Eliminators, who have produced nearly 70% of all ZX Mains Adaptors, bring you **BATTPACK** — a rechargeable 9v Ni-Cad battery pack and transient suppressor, housed in a complementary black ABS case that simply plugs into your ZX adaptor in seconds.

BATTPACK ensures the voltage into your ZX computer never drops below 9v, 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 its 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 PROGRAMMES BUT ALSO YOUR TEMPER!!

ADAPTORS AND ELIMINATORS LTD, 14 THAMES ST, LOUTH, LINCS.

PLEASE SUPPLY _____ (QTY) **battpack** /s

AT £13.95 each PLUS £1.40 p/p

I ENCLOSE CHEQUE POSTAL ORDER FOR £ _____

PLEASE CHARGE MY ACCESS/BARCLAYCARD/TRUSTCARD

ACCOUNT No _____

SIGNATURE _____

NAME _____

ADDRESS _____

MAIL ORDER ONLY. PLEASE ALLOW 28 DAYS FOR DELIVERY.

LET ACORNSOFT OPEN THE DOORS TO YOUR IMAGINATION

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, exacting 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. Striking 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 Brochures

Just clip the coupon or write to us and we will rush our catalogue absolutely free. Can't wait for the post



ring 01-930 1614 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 Atom are registered trade marks of Acorn Computers Ltd.

ACORNSOFT

4A Market Hill,
CAMBRIDGE CB2 3NJ.

Please rush me my free literature from Acornsoft.

Atom BBC Please tick

Name _____

Address _____

Postcode _____



MYSTERIOUS ADVENTURES



Join the growing band of Adventurers who are enjoying these absorbing and stimulating programs. Step into another world of Fantasy, Magic, Mystery and Sorcery. Only your wits and cunning can ensure success in these scenarios!

FOR BBC MICROCOMPUTER MODELS A & B*

- WRITTEN IN ULTRA-FAST MACHINE CODE.
- SAVE GAME FEATURE.
- SPLIT SCREEN DISPLAY.
- SOUND AND GRAPHICS ON ADVENTURES 5, 6, & 7.

1. THE GOLDEN BATON — Venture into a strange province of Sorcery and Evil Magic to recover the Golden Baton, a priceless artifact whose powers are said to bring great Health and Prosperity to the Land.
2. THE TIME MACHINE — As a Newspaper reporter you are sent to investigate the eccentric professor who lives in the old house on the Moors. What is his secret and why is his house now deserted?
3. ARROW OF DEATH (Pt. 1) — A blight has fallen on your homelands, the Baton has become tarnished and now radiates a malevolent aura of Evil. Your mission is clear — trace the source of this Evil and destroy... or be destroyed. This is the first part of an Epic Adventure although each part can be played as a stand alone scenario.
4. ARROW OF DEATH (Pt. 2) — You now have the means to destroy your enemy... but you are far from home and this land is strange to you. Can you cope with the deadly perils which approach you and have you the strength to see your mission through to the final conflict?



5. ESCAPE FROM PULSAR 7 — Alone on a gigantic Space-Freighter... The rest of your crew have died horribly at the hands of a mutated Zoo-Specimen. Your only chance of escape is to reach the Frail Shuttlecraft. But the lurking Monster is hungry and you are the only food it has left...
6. CIRCUS — Your Car has run out of Petrol on a lonely road miles from habitation. As you trudge reluctantly down the road in search of help you are suddenly confronted by an amazing sight... in a nearby field is a Huge Circus tent! But this is no ordinary Circus as you will soon discover...
7. FEASIBILITY EXPERIMENT — Far across the gulfs of time and space, a dying race of super-intelligent beings search the Universe for a Hero to save their existence... At length their thoughts turn to planet Earth. You are chosen to be their saviour in a bizarre scenario where death is a mere thought away...

* Adventures 5, 6 and 7 require 32K RAM.

Available soon for:
ZX SPECTRUM, ZX81 (16K), APPLE II, ATARI 400/800.
EACH ADVENTURE COMES ATTRACTIVELY
PACKAGED FOR JUST £8.95 INC.



SEND CHEQUE OR P.O. TO:

DIGITAL FANTASIA DEPT DWL.
24 NORBRECK ROAD, NORBRECK, BLACKPOOL, LANCASHIRE.
Tel: (0253) 56279



SPACE ROLLER

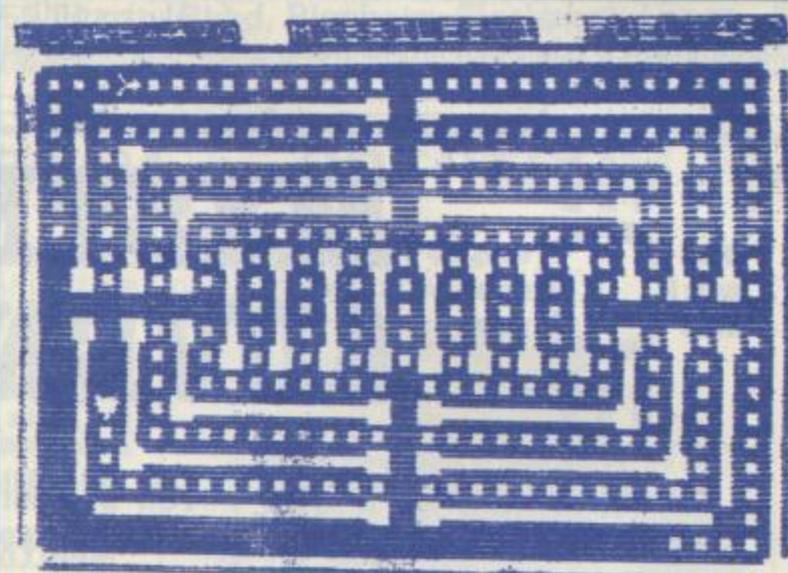
RUNS ON A SPECTRUM IN 16K

BY DAVID HOUNSLOW

Painting white lines down the middle of the road has never been an easy task. All those motorcycles, cars and juggernauts racing around are hardly an ideal environment for the creative white line painter. But now things are getting even worse. I suppose it had to happen in the era of the microchip. Someone carrying out one of those time and motion studies has come up with the idea that white line painters would work quicker if missiles were chasing them. A fair point I hear you say. Anyone would work quicker if a highly explosive missile was coming their way...

This is a mixture of two arcade games. You have to guide a white line painter along a road — eating dots and painting lines at the same time. You must also remember to avoid the heat seeking missile which chases you.

Keys 5, 6, 7, 8, control your movement. Pressing 1 will double your speed — pressing it a second time will return you to normal speed. However this uses more fuel and should only be used in emergencies. When you manage to clear a screen another will appear with two missiles — one of them travelling at double speed. There are a couple more features of the game which must remain a mystery — but *Computer and Video Games* readers like mysteries — don't you!



```

1 DIM e$(2): DIM o(2): DIM f$(
(2): DIM x(2): DIM y(2): DIM s(2)
)
2 LET h$="0": LET g$="0": LET
dots=0: LET score=0: LET y=20:
LET x=20: LET #="5"
3 LET o(1)=56: LET o(2)=56: L
ET x(1)=20: LET y(1)=2: LET x(2)
=20: LET y(2)=4: LET s(1)=1: LET
s(2)=2
4 LET #=0
10 LET fuel=500: RESTORE : PDP
ER 7: BORDER 7: BRIGHT 0: INK 1:
INVERSE 1: OVER 0: FLASH 0: CLS
20 FOR f=0 TO 7: POKE USA "a"+
f:60: NEXT f
30 FOR f=0 TO 7: POKE USA "b"+
f:0: IF f>1 AND f<6 THEN POKE US
A "b"+f:255
40 NEXT f
50 FOR i=140 TO 154
60 FOR f=0 TO 7
70 READ a: POKE USA CHR$(i)+f
:a
80 NEXT f
90 NEXT i
100 DATA BIN 00011000,BIN 00011

```




"You youngsters don't know how well off you are! It's not easy being an old-age-pensioner you know. Take my trip to the post office to get my pension for instance. I have to cross an extremely busy road — dodging the big lorries and cars because they haven't put in a crossing yet. It's lucky I'm still quick on my pins otherwise I wouldn't be talking to you now. I've had several close shaves I can tell you! But that's not the end of it. After the road comes the river and as I never learnt to swim as a girl I had to devise a special way of getting across. It took me weeks and weeks and several loaves of Mother's Pride to get the ducks to help me out. Now they let me use them as stepping stones to get to the other side. I bounce off their backs like water off a . . . well you know the rest of that old saying don't you! The only trouble is that sometimes one of my feathered friends decides to take a quick dip just as I am about to step aboard. So far I've managed to avoid a ducking! Just my little joke. But I'm sure one day I'll end up in the drink. Anyway this nice young gentleman has just offered to take me across the road so I'll see you again soon — as long as the ducks are still friendly by the time I reach the river. Byeeee!"

As you may have guessed by now this game is a version of that arcade favourite Frogger. In this version the frog is replaced by a granny and the frog's nests by several post offices. You are given four minutes to get seven grannies to a post office so you have to move fairly quickly. When the seventh granny reaches her destination she gets a double pension and you get another chance to help seven more old ladies across the road. The game starts slowly but speeds up. When a score of 2000 points has been reached the game is at its maximum speed — and will prove difficult to even the most avid Frogger player.

Variables.

A\$(1-8), BS(1-16), CS(1-8): car, log and duck strings. A\$: General get statement variable. H: Number of grannies and post offices. TI\$: Time. Y: Distance down the screen. X: Distance right of the screen. A: Peaked number of character that granny is standing on. I: General movement loop. P: Peaked number of key being pressed. HT: Number of times granny has been hit. L: Delay loop. SC: Score.



```

1 DIMB$(16),A$(8),C$(8)
10 PRINT"GRANNY";REM BY ANDREW MORTON.
20 PRINT"YOU ARE A GRANNY WHO HAS TO GO TO THE";
25 PRINT"POST OFFICE BUT YOU MUST FIRST CROSS THE";
30 PRINT"ROAD OUTSIDE YOUR HOUSE."
35 PRINT"WHEN YOU HAVE DONE THIS YOU FIND THAT ";
40 PRINT"THE BRIDGE IS OUT.THERE'S ONLY ONE THING";
45 PRINT"THAT YOU CAN DO ; JUMP ONTO THE"
50 PRINT"DUCKS AND LOGS FLOATING DOWN THE RIVER."
55 PRINT"THEN ALL THAT IS LEFT TO DO IS TO JUMP"
60 PRINT"INTO THE POST OFFICE."
65 PRINT"IF YOU CAN'T SWIM,OR JUMP THE CARS ";
70 PRINT"IF YOU MOVE OFF THE SIDE OF THE SCREEN"
75 PRINT"YOU WILL LOSE ONE OF YOUR THREE LIVES."
80 PRINT"LOGS=    : DUCKS=    "
85 PRINT"LOTTIES=    : RIVER BANK=    "
90 PRINT"ROAD=    : RIVER=    "
95 PRINT"P/O =    : DIVING DUCKS= 0"
97 PRINT"TO MOVE USE, UP LEFT RIGHT DOWN"
98 PRINT"PRESS ANY KEY TO START"
99 REM LOGS AND CARS VARIABLES

```

GRANNY

BY ANDREW MORTON

RUNS ON A 40 col PET IN 12K

```

100 A$(1)="state"
110 A$(1)=A$(1)+" "
120 A$(1)=A$(1)+" "
130 A$(1)=A$(1)+" "
140 A$(2)="state"
150 A$(2)=A$(2)+" "
160 A$(2)=A$(2)+" "
170 A$(2)=A$(2)+" "
180 A$(3)="state"
190 A$(3)=A$(3)+" "
200 A$(3)=A$(3)+" "
210 A$(3)=A$(3)+" "
220 A$(4)="state"
230 A$(4)=A$(4)+" "
240 A$(4)=A$(4)+" "
250 A$(4)=A$(4)+" "
260 A$(5)="state"
270 A$(5)=A$(5)+" "
280 A$(5)=A$(5)+" "
290 A$(5)=A$(5)+" "
300 A$(6)="state"
310 A$(6)=A$(6)+" "
320 A$(6)=A$(6)+" "
330 A$(6)=A$(6)+" "
340 A$(7)="state"
350 A$(7)=A$(7)+" "
360 A$(7)=A$(7)+" "
370 A$(7)=A$(7)+" "
380 A$(8)="state"
390 A$(8)=A$(8)+" "
400 A$(8)=A$(8)+" "
410 A$(8)=A$(8)+" "
420 B$(1)="state"
430 B$(1)=B$(1)+" "
440 B$(2)="state"
450 B$(2)=B$(2)+" "
460 B$(3)="state"
470 B$(3)=B$(3)+" "
480 B$(4)="state"
490 B$(4)=B$(4)+" "
500 B$(5)="state"
510 B$(5)=B$(5)+" "
520 B$(6)="state"
530 B$(6)=B$(6)+" "
540 B$(7)="state"
550 B$(7)=B$(7)+" "
560 B$(8)="state"
570 B$(8)=B$(8)+" "
580 FOR I=1 TO 8:B$(I+8)=B$(I):NEXT I
590 C$(1)="state"
600 C$(1)=C$(1)+" "
610 C$(2)="state"
620 C$(2)=C$(2)+" "
630 C$(3)="state"
635 C$(3)=C$(3)+" "
640 C$(4)="state"

```



Illustration: Terry Rogers

sinclair
ZX Spectrum

JOYSTIX !



ONLY
£18-95

JOYSTIX SHOWN NOT INCLUDED

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 joystick. The board will take two joysticks+ which are software programmable using the in statement on your Spectrum. Just add a few simple lines to your programs for true arcade action. Supplied with full instructions and demonstration cassette for only **£18-95**

INTERCEPTOR SOFTWARE

TRADE ENQUIRIES WELCOME
FOREIGN DISTRIBUTORS REQUIRED

FROG



VIC 20 Unexpanded

SPACE BUGS - MACHINE CODE

Can you defend your planet from an alien invasion. The Marsuding bugs are swarming in for the kill. So keep on your toes, joystick or keyboard.....£4.00

FROG

An amazing version of Frogger in the unexpanded Vic 20. With diving turtles and plenty of vehicles to run you down. Fast action and high resolution graphics. Joystick or keyboard control.....£4.00

VIC BOMBER

An extremely fast action Bomber game for the Vic 20. With high resolution colour graphics. Flatten the enemy city before its too late.....£3.00

PUCKMAN - MACHINE CODE

The old favourite back again. Joystick or keyboard control. Fast action. High resolution colour graphics on the unexpanded Vic 20.....£6.00

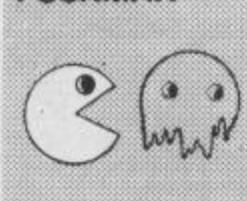
SPACE TRAVEL - MACHINE CODE

Zap your way through the myriad of invading aliens to survive. Keyboard or joystick controls, high resolution colour graphics.....£5.00

VIC RESCUE - MACHINE CODE

Your Planet is under attack by a fourth dimension and your only escape is by lunar pod to the mother ship. However you must first dodge your way through the Astroid belt and onto the landing pad before returning home. Keyboard or Joystick control, high resolution colour graphics.....£5.00

PUCKMAN



VIC RESCUE



VIC 20 3 k Expansion

GOLF

Can you get a Birdie, or how's your handicap coming along? A real time 18 hole golf course puts you to the test. One or two players, choice of clubs, with score sheet. See you at the 18th.....£4.99

SPECTRUM 16k or 48k

STAR SNAKE

A novel games idea - manoeuvre the snake around the screen to eat the stars but watch it or you may eat yourself.....£1.99

ATARI 400/800 16 k

WORDHANGER

A highly educational hangman game with vocabulary and 2 player or play against the computer option.....£5.00

INTERCEPTOR MICRO'S

LINDON HOUSE, THE GREEN,
TADLEY, HANTS.

SEE US AT
5th.
ZX MICROFAIR
DECEMBER 18th
NEW HORTICULTURAL HALL, LONDON SW1.

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 top 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. X is a registered trade mark of Commodore Business Machines

* is a registered trade mark of Sinclair Research Ltd.

Mr. Mrs. Miss _____			
Address _____			
Quantity	Item	Item Price	Total
	Joystix board (Spectrum)	£18.95	
	Space Bugs Vic 20	£4.00	
	Frog Vic 20	£4.00	
	Bomber Vic 20	£3.00	
	Puckman Vic 20	£6.00	
	Space travel Vic 20	£5.00	
	Vic Rescue Vic 20	£5.00	
	Golf (3k Exp) Vic 20	£4.99	
	Star Snake Spectrum	£1.99	
	Wordhanger Atari	£5.00	
	Postage & packing	£0.50	£0.50
	C & V.G. Dec '82 TOTAL:		£
Send order to:-		Interceptor Micro's, Lindon House, The Green, Tadley, Hants.	



```

650 C$(4)=C$(4)+" "
660 C$(5)=" "
670 C$(5)=C$(5)+" "
680 C$(6)=" "
690 C$(6)=C$(6)+" "
700 C$(7)=" "
710 C$(7)=C$(7)+" "
720 C$(8)=" "
730 C$(8)=C$(8)+" "
732 HT=0:REMSET UP VARIABLES AND SCREEN
733 GETA$:IFA$=""THEN733
735 PRINT"TIME LEFT="
736 PRINT" ";
740 FORI=1TO5:PRINT"-----":NEXTI
745 PRINT" ";
750 FORI=1TO6:PRINT"-----":NEXTI
760 PRINT" ";
765 PRINT" ";
800 H=0
910 TI$="000000"
920 Y=23:X=1+INT(39*RND(1))
990 POKE32768+40*Y+X,193
995 A=161
1000 FORI=1TO16:REM LOOP FOR MOVEMENT
1010 P=PEEK(151)
1020 IFP<>255ANDP<>161THENSC=SC+10
1030 IFP<>255THEN2000
1040 PRINTA$(I+1)/2)B$(I)C$(I+1)/2):REM PRINT LOGS AND DUCKS
1041 IFY<11THENGOTO5000
1042 IFPEEK(32768+40*Y+X)<>193THENA=PEEK(32768+40*Y+X)
1044 IFA=1020RA=450RA=67THEN6000
1046 POKE32768+Y*40+X,193
1050 PRINT"TAB(12)INT((14400-TI)/60);"GRANNYS LEFT=";2-HT
1060 IFII >=14400THENGOTO6000
1080 FORL=1TO200-SC/10:NEXTL
1090 NEXTI
1095 GOTO1000
2000 IFP=50THEN2500
2010 IFP=42THEN3000
2020 IFP=41THEN3500
2030 IFY=23THENGOTO1040
2035 POKE32768+Y*40+X,A:REM MOVE DOWN
2040 Y=Y+1
2050 A=PEEK(32768+40*Y+X)
2060 POKE32768+40*Y+X,193
2070 FORL=1TO5:NEXTL
2080 POKE32768+40*Y+X,A
2090 Y=Y+1
2100 GOTO1040
2500 POKE32768+Y*40+X,A:REM MOVE UP
2510 Y=Y-1
2520 A=PEEK(32768+40*Y+X)
2530 POKE32768+40*Y+X,193
2540 FORL=1TO5:NEXTL
2550 POKE32768+40*Y+X,A
2570 Y=Y-1
2575 IFY=1THENGOTO4000
2580 GOTO1040
3000 POKE32768+Y*40+X,A:REM MOVE LEFT
3010 X=X-1
3020 IFX<0THEN6000
3030 GOTO1040
3500 POKE32768+Y*40+X,A
3510 X=X+1
3520 IFX>39THEN6000
3530 GOTO1040
4000 IFPEEK(32768+40*Y+X)<>32THEN6000:REM ARE YOU IN THE POST OFFICE
4005 POKE32768+40*Y+X,65
4007 FORL=1TO1000:NEXTL
4010 H=H+1:SC=SC+100
4020 IFH=7THENSC=SC+100:GOTO735
4030 GOTO920
5000 ON(Y-1)/2GOTO5010,5100,5200,5010REM MOVE GRANNY WHEN ON LOGS AND DUCKS
5010 IFI/2<>INT(I/2)THENX=X-1
5020 GOTO1042
5100 X=X+1:GOTO1042
5200 IFI/2<>INT(I/2)THENX=X+1
5210 GOTO1042
6000 HT=HT+1:REM YOU HAVE LOST A LIFE
6002 IFHT=3THENGOTO6015
6005 FORK=1TO1000:NEXT
6010 GOTO920
6015 PRINT"YOUR SCORE IS";SC:REM END OF GAME
6017 IFTI>14400THENPRINT"YOU RAN OUT OF TIME"
6019 PRINT"HIGH SCORE=";SH
6020 PRINT"PRESS ANY KEY TO GO AGAIN"
6030 FORK=1TO10:GETD$:NEXTK
6045 IFSC>SHTHENSH=SC
6047 SC=0
6050 GOTO732

```

Illustrations: Terry Rogers

PROGRAM NOTES

- 100-130: Initialisation
- 140-200: Display current colours (subroutine)
- 220-460: Set up initial colours, stored in the 2-dimensional array COL(N,M), where COL(1,M) is to face, and COL(2,M) is the back of the same piece
- 470-540: Subroutine to switch the central pieces
- 550-660: Subroutine to move outer ring clockwise
- 670-780: the same thing anticlockwise
- 790-960: subroutine to swivel the left hand side
- 970-1140: same thing but right hand side
- 1150-1290: Instructions and first choice
- 1300-1610: Computer randomizes display (invisibly)
- 1620-1680: Input routine to manipulate display
- 1690-1730: Check to see if back to original display
- 1750-2140: Subroutine to print display
- 2150-2260: Successful end to puzzle

This program occupies 4950 bytes, but requires 5589 bytes to run. Because full use is made of the special colour and sound commands of the 99/4A, it will be difficult to translate this program.

All sixteen colours are used to form a colourful display, and good use is made of the CALL SOUND command.

Novice programmers may find lines 1660 and 2190 of interest — in 1660 the '+' takes the place of OR, and in 2190 the '*' takes the place of AND — these are useful devices to use.

The PRINT commands should be typed exactly as they appear, as the program uses the GCHAR command in manipulating the central areas.

```

1 REM HUNGARIAN HEX
2 REM A MANIPULATIVE PUZZLE
3 REM
4 REM IN TI BASIC FOR THE
5 REM TI 99/4A HOME COMPUTER
6 REM
7 REM (WILL ALSO RUN IN
8 REM TI EXTENDED BASIC)
9 REM
10 REM (C) 1982 STEPHEN SHAW
11 REM
12 REM AVAILABLE ON TAPE
13 REM FOR 3.00 INC P&P FROM:
14 REM
15 REM 10, ALSTONE ROAD
16 REM STOCKPORT
17 REM CHESHIRE
18 REM SK4 5AH
19 REM
200 CALL SCREEN(15)
210 DIM COL(2,6)
220 RANDOMIZE
230 GOTO 220
240 CALL SOUND(-10,1000,5)
250 CALL COLOR(9,COL(1,1),COL(1,2))
260 CALL COLOR(10,COL(1,3),COL(1,4))
270 CALL COLOR(11,COL(1,5),COL(1,6))
280 CALL COLOR(12,8,1)
290 CALL COLOR(13,14,2)
300 RETURN
310 STOP
320 CALL CLEAR
330 PRINT "ONE MOMENT.....":
340 FOR I=1 TO 2
350 FOR J=1 TO 6
360 READ A
370 COL(I,J)=A
380 NEXT J
390 NEXT I
400 FOR I=1 TO 6
410 CHECK=CHECK+COL(1,I)*7
420 NEXT I
430 DATA 4,10,9,7,13,3
440 DATA 6,12,2,11,5,16,99
450 F$="FFFFFFFFFFFFFFF"
460 CALL CHAR(96,F$)
470 CALL CHAR(104,F$)
480 CALL CHAR(112,F$)
490 F$="0"
500 CALL CHAR(97,F$)
510 CALL CHAR(105,F$)
520 CALL CHAR(113,F$)
530 CALL CHAR(120,F$)
540 CALL CHAR(128,F$)
550 REM
560 GOTO 1150
570 FOR A=0 TO 30 STEP 5
580 CALL SOUND(-99,698,A,1924,A)
590 NEXT A
600 CALL GCHAR(7,15,A)
610 CALL GCHAR(7,17,B)
620 CALL VCHAR(6,15,B,5)
630 CALL VCHAR(6,17,A,5)
640 RETURN
650 FOR A=700 TO 800 STEP 10
660 CALL SOUND(-99,A,0)
670 NEXT A
680 B=COL(2,6)
690 A=COL(1,6)
700 FOR I=6 TO 2 STEP -1
710 COL(1,I)=COL(1,I-1)
720 COL(2,I)=COL(2,I-1)
730 NEXT I
740 COL(1,1)=A
750 COL(2,1)=B
760 RETURN
770 FOR A=830 TO 700 STEP -13
780 CALL SOUND(-99,A,0)
790 NEXT A
800 A=COL(1,1)
810 B=COL(2,1)
820 FOR I=1 TO 5
830 COL(1,I)=COL(1,I+1)
840 COL(2,I)=COL(2,I+1)
850 NEXT I
860 COL(1,6)=A
870 COL(2,6)=B
880 RETURN
890 CALL SOUND(5,-3,5)
900 CALL SOUND(30,-7,20)
910 CALL SOUND(400,-7,29)
920 A=COL(1,1)
930 COL(1,1)=COL(2,5)
940 COL(2,5)=A
950 A=COL(2,1)
960 COL(2,1)=COL(1,5)
970 COL(1,5)=A
980 A=COL(1,6)
990 COL(1,6)=COL(2,6)
1000 COL(2,6)=A
1010 CALL GCHAR(7,15,A)
1020 IF (A=120)+(A=128) THEN 940
1030 A=A-2
1040 A=A+1
1050 CALL VCHAR(6,15,A,5)
1060 RETURN
1070 FOR A=0 TO 30 STEP 12

```

```

980 CALL SOUND(-99,1000,A,3250,A,6750,A)
990 NEXT A
1000 A=COL(1,2)
1010 COL(1,2)=COL(2,4)
1020 COL(2,4)=A
1030 A=COL(1,4)
1040 COL(1,4)=COL(2,2)
1050 COL(2,2)=A
1060 A=COL(1,3)
1070 COL(1,3)=COL(2,3)
1080 COL(2,3)=A
1090 CALL GCHAR(7,17,A)
1100 IF (A=120)+(A=128) THEN 1120
1110 A=A-2
1120 A=A+1
1130 CALL VCHAR(6,17,A,5)
1140 RETURN
1150 CALL CLEAR
1160 PRINT "HUNGARIAN HEX": (C)
1170 S SHAW":
1180 PRINT "YOU HAVE A DISK LIKE
OBJECT TO MANIPULATE."
1190 PRINT "THERE IS AN OUTER RING
WITH 6 COLOURS AND TWO INNER
PARTS."
1200 PRINT "YOU MAY SWOP THE TWO
INNER PARTS, ROTATE THE OUTER RING"
1210 PRINT "OR SWIVEL THE LEFT OR
RIGHT SIDES (IT HAS A BACK & A
FRONT)."
1220 PRINT "YOU MAY MANIPULATE THE
SCREEN ONLY, OR THE COMPUTER
WILL JUMBLE IT FOR YOU TO RESTORE."
1230 PRINT "PRESS ENTER TO CONTINUE."
1240 INPUT A$
1250 CALL CLEAR
1260 PRINT "PRESS:": "1 TO MANIPULATE": "2 TO RESTORE":
1270 CALL KEY(0,A,B)
1280 IF (A<49)+(A>50) THEN 1270
1290 IF A=49 THEN 1470
1300 PRINT "CHOOSE LEVEL OF DIFFICULTY": "PRESS 1,2,3 OR 4":
1310 CALL KEY(0,A,B)
1320 IF B<1 THEN 1310
1330 IF (A<49)+(A>52) THEN 1310
1340 PRINT "FIRST YOU WILL SEE THE ORIGINAL LAYOUT."
1350 PRINT "THEN THERE WILL BE A SHORT DELAY WHEN THE SCREEN WILL PARTLY BLANK."
1360 PRINT "THEN YOU MUST RESTORE THE PUZZLE."
1370 FOR I=1 TO 900
1380 NEXT I
1390 GOSUB 1750
1400 GOSUB 140
1410 FOR T=1 TO 600
1420 NEXT T
1430 FOR I=1 TO 11
1440 CALL COLOR(I,1,1)
1450 NEXT I
1460 GOTO 1510
1470 GOSUB 1750
1480 GOSUB 140
1490 GOTO 1630
1500 STOP
1510 FOR P=1 TO 3*(A-48)+1
1520 ON INT(RND*5+1) GOSUB 470,550,670,790,970
1530 NEXT P
1540 FLAG=1
1550 GOSUB 140
1560 CALL COLOR(12,8,1)
1570 CALL COLOR(13,14,2)
1580 FOR I=1 TO 8
1590 CALL COLOR(I,2,1)
1600 NEXT I
1610 REM END RANDOMIZE
1620 REM NOW THE MANIPULATION
1630 CALL SOUND(200,330,0)
1640 CALL KEY(0,A,B)
1650 IF B<1 THEN 1640
1660 IF (A<49)+(A>53) THEN 1630
1670 ON A-48 GOSUB 470,550,670,790,970
1680 GOSUB 140
1690 A=0
1700 FOR I=1 TO 6
1710 A=A+COL(1,I)*7
1720 NEXT I
1730 IF A=CHECK THEN 2160 ELSE 1630
1740 STOP
1750 CALL CLEAR
1760 PRINT "ONE MOMENT...":
1770 REM $1$=7 SPACES
1780 REM $2$=PLUS 2 SPACES
1790 $1$=" "
1800 $2$="$1$&"
1810 FOR I=1 TO 4
1820 $3$=$3$&CHR$(96)
1830 $4$=$4$&CHR$(97)
1840 $113$=$113$&CHR$(113)

```

HUNGARIAN

HEX

RUNS ON A TI99/4A IN 6K

BY STEPHEN SHAW

Remember Hungarian Squares? If that had you tearing your hair out wait until you try this new one from the devious mind of Stephen Shaw. This one does not involve squares — just rings — and it's sure to have you going around in circles.

The puzzle may be imagined as a disc with an outer ring of six colours and an inner ring of two colours. It is double sided and the outer and inner rings can be rotated.

There is also another — vertical — axis of rotation at right angles to the screen. This gives an almost 3D effect to the puzzle.

You are given the option of either manipulating the puzzle, or allowing the computer to jumble it up and attempting to restore it. Four skill levels make this brain twister a lasting challenge — will you take it up? Remember, the Cube has got nothing on this! Happy puzzling...

```
1850 $104$=$104$&CHR$(104)
1860 $112$=$112$&CHR$(112)
1870 $105$=$105$&CHR$(105)
1880 NEXT I
1890 FOR I=1 TO 5
1900 PRINT $2$&&$96$&" "&$97$
1910 NEXT I
1920 PRINT
1930 FOR I=1 TO 5
1940 PRINT $13$&$113$&" "&CHR$(12
0)&" "&CHR$(128)&" "&$104$
1950 NEXT I
1960 PRINT
1970 FOR I=1 TO 5
1980 PRINT $2$&&$112$&" "&$105$
1990 NEXT I
2000 PRINT "PRESS:": "1 TO SWOP C
ENTRE"
2010 PRINT "2 TO ROTATE CLOCKWIS
E"
2020 PRINT "3 TO ROTATE ANTICLOC
KWISE"
2030 PRINT "4 TO SWIVEL LEFT SID
E"
2040 PRINT "5 TO SWIVEL RIGHT SI
DE"
2050 PRINT
2060 F$="9191919191919191"
2070 CALL CHAR(120,F$)
2080 CALL CHAR(128,F$)
2090 F$="FF0000FF0000FF00"
2100 CALL CHAR(121,F$)
2110 CALL CHAR(129,F$)
2120 CALL COLOR(12,8,1)
2130 CALL COLOR(13,14,2)
2140 RETURN
2150 STOP
2160 CALL GCHAR(7,15,A)
2170 IF FLAG<>1 THEN 1630
2180 CALL GCHAR(7,17,I)
2190 IF (A=120)*(I=128) THEN 2210
2200 GOTO 1630
2210 CALL CLEAR
2220 PRINT "YOU RESTORED THE PAT
TERN!": "CONGRATULATIONS": "TO PLA
Y AGAIN:"
2230 PRINT "PRESS 'CLEAR' AND TH
EN ": "ENTER 'RUN'"
2240 PRINT : : :
2250 GOTO 2250
2260 END
```

Read this ad

You: "Darling, I've decided to buy a computer."

Her: "***++**??!!***@XX??££**??!!? off!"

You: "Yes, I know we could do with a new washing machine. But the new Dragon 32 Computer is much more important. It's the first computer actually designed for all the family - and it costs under £200!"

Her: "***++??!!@££??! fortune!"

You: "No, I'm not being selfish. Computers are for the whole family - and they're going to play a big part in the children's future."

Her: "Oh?"

From this point on, the conversation should follow more reasonable lines.

Allowing you to fully explain the many advantages of the new Dragon 32 family computer.

32K RAM FOR UNDER £200*

For a start, the Dragon offers 32K RAM. Your wife may not understand that, so just tell her that the Dragon's capabilities are truly massive - at least twice as powerful as its competitors, with some features you won't find even in more expensive units. The Dragon will give you all the power you're likely to need, and more, to create your own programs - along with

an exciting range of software which can do anything from helping with kids' spelling and arithmetic to creating your own cartoons.

THE FIRST FAMILY COMPUTER.

All of which brings you nicely to the point where you tell your wife just how much fun the kids will have with the Dragon. How it will save her all that

*Television not included in price.



money on those Space Invader machines. How it will magically translate simple typed instructions into beautiful drawings and designs using set, line, circle, draw, scale, rotate and paint features, in up to 9 colours - and play and compose

to your wife.

SPECIFICATIONS

6809E MICROPROCESSOR. Pet, Apple, Atari 400, BBC Micro, and VIC 20 still have the less powerful 6502.

32K RAM (as standard). At least twice the power of similarly priced machines. Expandable to 64K RAM.

EXTENDED MICROSOFT COLOUR BASIC (as standard).
Featuring: ADVANCED GRAPHICS (set, line, circle, paint, print, draw, rotate and print using).
ADVANCED SOUND 5 octaves, 255 tones.
AUTOMATIC CASSETTE RECORDER CONTROL.
FULL EDITING with INSERT and DELETE.

9 COLOUR, 5 RESOLUTION DISPLAY.

USE WITH ANY U.H.F. TV and/or separate P.A.L. monitor.

PROFESSIONAL QUALITY KEYBOARD.
Typewriter feel. Guaranteed for 20 million depressions.

PRINTER (Centronics parallel).

JOYSTICK CONTROL PORTS.

with 5 octaves of music. How it will engross your children in mind-boggling adventures in dungeons and caves without even getting their knees dirty. And the Dragon works with any U.H.F. TV.

THEY'LL LEARN AS THEY PLAY.

And then you can casually point out that although the kids are having fun, they're also learning. And within a very short space of time, the whole family will be completely at home with programming - with computer language - with every aspect of how computers work. Which can't do their future prospects any harm at all.

BRILLIANTLY SIMPLE INSTRUCTION MANUAL.

The Dragon is made in Britain, designed with the help of British Universities. And it's also worth remembering

that the Dragon's instruction manual is clearer and easier to understand than any other home computer's.

That its top-quality keyboard is as easy to use as a typewriter, and so well made it's guaranteed for twenty million depressions.

TAKE THE FAMILY DOWN THE HIGH STREET.

And if she still wants to know more, take her to see the Dragon 32. It'll soon be available in most good stores - or you can send the coupon for further details.

And if you're one of our many lady readers, please accept our apologies.

Perhaps you'd like to read this ad to your husband.

DRAGON 32 The first family computer.

To: Jean Webster, Dragon Data Ltd., Queensway, Swansea Industrial Estate, Swansea, Glamorgan SA5 4EH.
Tel: 0792 580651.

Please send me further information about the Dragon 32.

Name

Address

CV

A member of the Mettoy Group of Companies.



AIRLOCK

RUNS ON AN ATARI 400/800 IN 24K WITH JOYSTICK

BY STEPHEN LINGER

It's just another routine day in the life of the men working away in the heart of an advanced nuclear reactor when suddenly the unthinkable happens. A radiation alert. Sirens blare out a warning and emergency procedures go into action.

The maintenance men have to leave their underground workplace as rapidly as possible. The failsafe mechanism is beginning to shut down the reactor and seal off areas with airtight doors. Will you be able to get them out before time runs out?

Doors are opening and closing all over the building. Touching the walls will prove fatal — they are contaminated by the radiation leak.

One touch and you are finished.

You must keep moving always take the exit pre-

sented to you. Try not to get trapped.

Before starting the game ensure the joystick is plugged into port one on the front of your Atari. Apart from the initial Run instruction the whole game is controlled from the joystick.

```

5 REM AIRLOCK
7 REM BY S.F.LINGER
8 REM SPRINGFIELD CHELMSFORD ESSEX
10 GOSUB 3000
20 X=185:Y=115:C=0
25 HITCLR=53278
30 A=PEEK(106)-24:POKE 54279,A:PMBASE=256*A
40 GOSUB 1000:REM BUILD FIRST MAZE
50 POKE 559,46:POKE 623,4:POKE 53277,3:POKE 53248,X
60 FOR J=PMBASE+512 TO PMBASE+640:POKE J,0:NEXT J
70 POKE 704,124
80 FOR J=PMBASE+512+Y TO PMBASE+516+Y:READ A:POKE J,A:NEXT J
90 DATA 10,28,40,8,20
100 RESTORE (90)
102 GOSUB 105:SETCOLOR 2,3,8:GOTO 117

```

```

105 FOR W=1 TO INT(RND(1)*1000)+500:NEXT W
110 FOR Z=1 TO 3:FOR Z1=150 TO 20 STEP -7:SOUND 0,Z1,10,7:SOUND 1,Z1+7,10,7:SOUND 2,Z1+14,10,7
112 FOR W=1 TO 20:NEXT W
115 SETCOLOR 2,3,INT(RND(1)*8)+2:NEXT Z1:NEXT Z
116 FOR M=0 TO 2:SOUND M,0,0,0:NEXT M:SETCOLOR 2,15,3:RETURN
117 E=0
118 POKE HITCLR,0
120 A=STICK(0)
121 E=E+1:IF E>40 THEN GOTO 1700
125 POKE 87,1:POSITION 2,4:?"radiation leak"
127 POSITION 2,5:?"clear building"
130 IF A=15 THEN GOTO 120
135 C=C+1:IF C=350 THEN GOTO 1500

```

```

137 IF C=13 THEN COLOR 2:POKE 87,7:PLOT
134,70:DRAWTO 134,80
140 IF A=11 OR A=10 OR A=9 THEN X=X-2:PO
KE 53248,X
150 IF A=7 OR A=6 OR A=5 THEN X=X+2:POKE
53248,X
160 IF A=13 OR A=9 OR A=5 THEN FOR J=10
TO 0 STEP -1:POKE PMBASE+512+Y+J,PEEK(PM
BASE+510+Y+J):NEXT J:Y=Y+2
170 IF A=14 OR A=10 OR A=6 THEN FOR J=0
TO 10:POKE PMBASE+510+Y+J,PEEK(PMBASE+51
2+Y+J):NEXT J:Y=Y-2
175 L=PEEK(53252):IF L<>0 THEN GOTO 2000
180 SOUND 0,140,10,4:FOR W=1 TO 10:NEXT
W:SOUND 0,0,0,0
185 D=2:G=INT(2*RND(1)+3):IF G=4 THEN D=
4
200 POKE 87,7:GOSUB INT(RND(1)*17)*10+50
00
300 ON X=205 GOTO 4000
900 GOTO 117
1000 GRAPHICS 23:SETCOLOR 4,15,3:SETCOLO
R 0,11,6:SETCOLOR 2,15,3
1005 START=PEEK(560)+PEEK(561)*256+4
1010 POKE START-1,66:POKE START+2,2
1015 POKE START+149,65:POKE START+150,PE
EK(560):POKE START+151,PEEK(561)
1017 POKE START+3,6:POKE START+4,6
1020 COLOR 1:PLOT 0,62:DRAWTO 4,62:DRWTO
0 4,10:DRAWTO 144,10
1025 DRAWTO 144,40:DRAWTO 154,40:DRAWTO
154,60
1030 COLOR 1:PLOT 0,62:DRAWTO 0,90:DRWTO
0 134,90
1035 PLOT 159,70:DRAWTO 159,83:DRAWTO 13
4,93:DRAWTO 134,90
1040 COLOR 2:PLOT 34,40:DRAWTO 34,20:DRW
TO 14,20
1045 POKE 765,1
1050 POSITION 14,40:XIO 18,#6,0,0,"S:"
1060 PLOT 80,80:DRAWTO 80,82
1065 PLOT 134,73:DRAWTO 134,89
1070 PLOT 34,40:DRAWTO 54,40:PLOT 44,30:
DRAWTO 64,30:DRAWTO 64,60:PLOT 54,30:DRW
TO 54,20
1080 PLOT 34,60:DRAWTO 54,60:DRAWTO 54,5
0:PLOT 44,40:DRAWTO 44,50
1090 PLOT 44,10:DRAWTO 44,20:PLOT 64,10:
DRAWTO 64,20
1100 PLOT 34,80:DRAWTO 104,80
1110 PLOT 44,70:DRAWTO 94,70:PLOT 74,70:
DRAWTO 74,50:DRAWTO 84,50
1120 DRAWTO 84,30:PLOT 74,40:DRAWTO 74,2
0:DRAWTO 84,20:PLOT 84,60:DRAWTO 94,60
1130 PLOT 94,10:DRAWTO 94,30:PLOT 84,40:
DRAWTO 104,40:PLOT 104,20:DRAWTO 104,30:
PLOT 104,80:DRAWTO 104,70
1140 PLOT 114,40:DRAWTO 114,60:PLOT 104,
70:DRAWTO 159,70:PLOT 140,60:DRAWTO 159,
60
1150 PLOT 124,60:DRAWTO 124,40:DRAWTO 13
4,40:DRAWTO 134,20:PLOT 124,20:DRAWTO 12
4,30:PLOT 134,70
1155 DRAWTO 134,50:DRAWTO 146,50
1160 PLOT 34,80:DRAWTO 34,50:DRAWTO 14,5
0
1170 POSITION 14,80:POKE 765,1:XIO 18,#6
,0,0,"S:"
1180 PLOT 114,40:DRAWTO 114,30:DRAWTO 10
4,30
1190 POSITION 104,40:POKE 765,1:XIO 18,#
6,0,0,"S:"
1195 PLOT 60,90:DRAWTO 60,88

```

```

1200 PLOT 104,60:DRAWTO 104,50:DRAWTO 94
,50
1210 POSITION 94,60:POKE 765,1:XIO 18,#6
,0,0,"S:"
1215 PLOT 0,70:DRAWTO 7,70:PLOT 14,80:DR
AWTO 7,80
1220 PLOT 124,20:DRAWTO 124,10:DRAWTO 11
4,10
1230 POSITION 114,20:POKE 765,1:XIO 18,#
6,0,0,"S:"
1240 PLOT 14,80:DRAWTO 34,80:PLOT 14,40:
DRAWTO 34,40:PLOT 114,20:DRAWTO 124,20
1245 PLOT 104,40:DRAWTO 114,40:PLOT 34,6
0:DRAWTO 104,60
1250 PLOT 126,70:DRAWTO 126,80:PLOT 116,
80:DRAWTO 116,90
1300 RETURN
1500 GRAPHICS 17:SETCOLOR 4,15,15
1520 POKE 53248,5:POKE 53249,5
1530 POSITION 2,4:? #6;"TOO LATE----"
1535 FOR V=1 TO 3:SOUND 0,40,10,12:SOUND
1,150,10,12:SOUND 2,75,10,12:FOR W=1 TO
200:NEXT W
1536 FOR S=0 TO 3:SOUND S,0,0,0:NEXT S
1537 FOR W=1 TO 50:NEXT W:NEXT V
1540 FOR W=1 TO 200:NEXT W
1550 POSITION 2,6:? #6;"YOU'RE OUT"
1560 POSITION 2,8:? #6;"OF TIME!"
1562 FOR W=1 TO 500:NEXT W
1565 POSITION 2,10:? #6;"press trigger"
1570 POSITION 2,12:? #6;"to restart"
1580 IF STRIG(0)=1 THEN 1580
1590 GOTO 20
1700 SOUND 0,140,10,12:SOUND 1,50,2,12:F
OR W=1 TO 150:NEXT W:SOUND 0,0,0,0:SOUND
1,0,0,0
1710 GRAPHICS 17:SETCOLOR 4,8,12
1720 POKE 53248,5
1725 POKE 53249,5
1730 POSITION 2,4:? #6;"YOU CAN'T STOP!"
1740 FOR W=1 TO 500:NEXT W
1750 POSITION 2,6:? #6;"KEEP MOVING!!!"
1755 FOR W=1 TO 300:NEXT W
1760 POSITION 2,8:? #6;" try again"
1770 FOR W=1 TO 500:NEXT W
1780 POSITION 2,12:? #6;"PRESS TRIGGER"
1785 POSITION 3,10:? #6;"TO RESTART"
1790 IF STRIG(0)=1 THEN 1790
1799 GOTO 20
2000 POKE 53248,5:POKE 53249,5
2005 SOUND 1,12,130,10:FOR W=1 TO 100:NE
XT W:SOUND 1,0,0,0
2010 GRAPHICS 17:SETCOLOR 4,10,12
2020 POSITION 2,4:? #6;"THE RADIATION"
2025 POSITION 2,6:? #6;"IN THE WALLS"
2030 POSITION 2,8:? #6;"GOT YOU!!!"
2035 FOR W=1 TO 500:NEXT W
2040 POSITION 2,10:? #6;"PRESS TRIGGER"
2050 POSITION 2,12:? #6;"TO RESTART"
2090 IF STRIG(0)=1 THEN 2090
2100 GOTO 20
3000 REM DISPLAYLIST & TITLE
3020 GRAPHICS 2+16:SETCOLOR 4,0,12
3150 FOR W=1 TO 400:NEXT W
3160 COLOR 2
3200 POSITION 8,5:? #6;"airlock"
3250 SOUND 0,200,10,15:SOUND 1,255,10,18
3260 SOUND 2,80,10,15:SOUND 3,150,10,15
3270 FOR W=1 TO 20:NEXT W

```



```

3290 FOR H=0 TO 3: SOUND H,0,0,0:NEXT H
3295 FOR W=1 TO 500:NEXT W
3300 POSITION 2,9: ? #6;"PRESS TRIGGER TO
"
3305 POSITION 7,11: ? #6;"START"
3310 IF STRIG(0)=1 THEN 3310
3500 RETURN
4000 C=0:X=50:Y=95:HITCLR=53278
4001 POKE 53248,5
4002 A=PEEK(106)-24:POKE 54279,A:PMBASE=
256*A
4015 GRAPHICS 7+16:SETCOLOR 4,6,11:SETCO
LOR 0,4,4:SETCOLOR 2,7,8
4020 START=PEEK(560)+PEEK(561)*256+4
4025 POKE START-1,66:POKE START+2,2
4030 POKE START+149,65:POKE START+150,PE
EK(560):POKE START+151,PEEK(561)
4050 GOSUB 7000
4060 POKE 559,46:POKE 53277,3:POKE 53249
,X
4070 FOR J=PMBASE+640 TO PMBASE+748:POKE
J,0:NEXT J
4080 POKE 705,54:FOR J=PMBASE+640+Y TO P
MBASE+644+Y:READ A:POKE J,A:NEXT J
4090 DATA 10,28,40,8,20
4100 RESTORE (4090)
4102 E=0:POKE 623,4
4103 POKE HITCLR,0
4105 A=STICK(0)
4110 E=E+1:IF E>70 THEN 1700
4150 IF A=15 THEN 4105
4155 C=C+1:IF C>250 THEN 1500
4160 IF A=9 OR A=10 OR A=11 THEN X=X-2:P
OKE 53249,X
4170 IF A=5 OR A=6 OR A=7 THEN X=X+2:POK
E 53249,X
4180 IF A=5 OR A=13 OR A=9 THEN FOR J=10
TO 0 STEP -1:POKE PMBASE+640+Y+J,PEEK(P
MBASE+638+Y+J):NEXT J:Y=Y+2
4190 IF A=6 OR A=14 OR A=10 THEN FOR J=0
TO 10:POKE PMBASE+638+Y+J,PEEK(PMBASE+6
40+Y+J):NEXT J:Y=Y-2
4200 L=PEEK(53253):IF L<>0 THEN 2000
4220 SOUND 0,140,10,4:FOR W=1 TO 5:NEXT
W:SOUND 0,0,0,0
4300 D=3:G=INT(2*RND(1))+3:IF G=4 THEN D
=4
4320 GOSUB INT(RND(1)*26)*10+8000
4350 IF Y<30 THEN GOTO 7500
4500 GOTO 4102
5000 COLOR D:PLOT 14,41:DRAWTO 14,49:RET
URN
5010 COLOR D:PLOT 34,41:DRAWTO 34,49:RET
URN
5020 COLOR D:PLOT 54,41:DRAWTO 54,49:RET
URN
5030 COLOR D:PLOT 55,60:DRAWTO 63,60:RET
URN

```

```

5040 COLOR D:PLOT 65,40:DRAWTO 73,40:RET
URN
5050 COLOR D:PLOT 74,41:DRAWTO 74,49:RET
URN
5060 COLOR D:PLOT 35,30:DRAWTO 43,30:RET
URN
5070 COLOR D:PLOT 44,21:DRAWTO 44,29:RET
URN
5080 COLOR D:PLOT 64,21:DRAWTO 64,29:RET
URN
5090 COLOR D:PLOT 84,51:DRAWTO 84,59:RET
URN
5100 COLOR D:PLOT 115,40:DRAWTO 123,40:R
ETURN
5110 COLOR D:PLOT 124,31:DRAWTO 124,39:R
ETURN
5120 COLOR D:PLOT 134,41:DRAWTO 134,49:R
ETURN
5130 COLOR D:PLOT 135,40:DRAWTO 143,40:R
ETURN
5140 COLOR D:PLOT 124,61:DRAWTO 124,69:R
ETURN
5150 COLOR D:PLOT 85,20:DRAWTO 93,20:RET
URN
5160 COLOR D:PLOT 105,20:DRAWTO 113,20:R
ETURN
7000 REM MAZE 2
7005 COLOR 1
7010 PLOT 0,70:DRAWTO 4,70:DRAWTO 4,60:D
RAWTO 4,20
7020 DRAWTO 40,20:DRAWTO 40,10:DRAWTO 14
0,10:DRAWTO 140,50:DRAWTO 152,50
7025 PLOT 20,50:DRAWTO 20,86:DRAWTO 60,8
6
7030 PLOT 0,80:DRAWTO 14,80:DRAWTO 14,50
:PLOT 60,86:DRAWTO 60,88:DRAWTO 84,88:DR
AWTO 100,76:DRAWTO 110,76
7035 PLOT 82,86:DRAWTO 82,88:PLOT 130,84
:DRAWTO 130,86
7040 PLOT 120,56:DRAWTO 120,86:DRAWTO 15
4,86:DRAWTO 154,76:DRAWTO 150,70
7050 DRAWTO 150,60:DRAWTO 159,60:DRAWTO
159,40:DRAWTO 150,40:DRAWTO 150,10:DRAW
TO 159,10
7055 COLOR 3
7060 PLOT 120,86:DRAWTO 120,76:DRAWTO 11
0,76
7065 POKE 765,2
7070 POSITION 110,86:XIO 18,#6,0,0,"S:"
7080 PLOT 20,50:DRAWTO 20,30:DRAWTO 14,3
0
7085 POKE 765,2
7090 POSITION 14,50:XIO 18,#6,0,0,"S:"
7100 PLOT 20,30:DRAWTO 30,30:PLOT 20,50:
DRAWTO 30,50:PLOT 30,40:DRAWTO 40,40:DR
AWTO 40,50
7105 PLOT 140,58:DRAWTO 140,60:DRAWTO 14
2,60:PLOT 140,34:DRAWTO 144,34
7110 PLOT 30,60:DRAWTO 60,60:DRAWTO 60,5

```



```

0: DRAWTO 80,50: PLOT 70,60: DRAWTO 80,60
7115 PLOT 46,76: DRAWTO 46,78: PLOT 138,46
: DRAWTO 138,48: PLOT 140,76: DRAWTO 144,78
7120 PLOT 50,20: DRAWTO 50,50: PLOT 40,30:
DRAWTO 50,30
7125 PLOT 148,70: DRAWTO 150,70: PLOT 150,
40: DRAWTO 150,42
7130 PLOT 80,40: DRAWTO 62,30: DRAWTO 60,3
0
7135 POKE 765,2
7140 POSITION 60,40: XIO 18,#6,0,0,"S:"
7150 PLOT 60,76: DRAWTO 60,70: DRAWTO 30,7
0
7155 POKE 765,2
7160 POSITION 30,76: XIO 18,#6,0,0,"S:"
7170 PLOT 60,10: DRAWTO 60,20: DRAWTO 66,2
0: DRAWTO 80,28: DRAWTO 80,16: DRAWTO 100,1
6: DRAWTO 100,28
7175 PLOT 125,46: DRAWTO 125,50
7180 PLOT 100,24: DRAWTO 120,24: DRAWTO 12
0,10: PLOT 90,26: DRAWTO 90,40: PLOT 90,60:
DRAWTO 90,70
7190 PLOT 80,78: DRAWTO 90,70: DRAWTO 70,7
0
7195 POKE 765,2
7200 POSITION 70,78: XIO 18,#6,0,0,"S:"
7210 PLOT 110,46: DRAWTO 110,34: DRAWTO 13
0,34: DRAWTO 130,20: PLOT 140,46: DRAWTO 12
0,46: DRAWTO 120,40
7215 PLOT 130,34: DRAWTO 130,38
7220 PLOT 90,50: DRAWTO 100,50: PLOT 100,3
8: DRAWTO 100,56: PLOT 150,70: DRAWTO 148,7
0
7230 PLOT 110,66: DRAWTO 110,56: DRAWTO 10
0,56
7235 POKE 765,2
7240 POSITION 100,66: XIO 18,#6,0,0,"S:"
7250 PLOT 140,76: DRAWTO 134,60: DRAWTO 13
0,60
7255 POKE 765,2
7260 POSITION 130,76: XIO 18,#6,0,0,"S:"
7270 PLOT 140,60: DRAWTO 132,56: DRAWTO 13
0,56
7275 POKE 765,2
7280 POSITION 130,60: XIO 18,#6,0,0,"S:"
7290 PLOT 14,50: DRAWTO 20,50: PLOT 30,76:
DRAWTO 60,76: PLOT 70,78: DRAWTO 80,78
7300 PLOT 100,66: DRAWTO 110,66: PLOT 110,
86: DRAWTO 120,86: PLOT 60,40: DRAWTO 80,40
7310 PLOT 130,76: DRAWTO 140,76
7400 RETURN
7500 GRAPHICS 17: SETCOLOR 4,10,12
7505 POKE 53249,5
7510 POSITION 2,4: ? #6: "CONGRATULATIONS!
!"
7520 FOR W=1 TO 300: NEXT W
7530 POSITION 4,8: ? #6: "YOU ESCAPED--"

```

```

7540 FOR W=1 TO 300: NEXT W
7550 POSITION 3,12: ? #6: "press trigger"
7560 POSITION 4,13: ? #6: "to restart"
7570 IF STRIG(0)=1 THEN 7570
7600 GOTO 5
8000 COLOR D: PLOT 21,60: DRAWTO 29,60: RET
URN
8010 COLOR D: PLOT 30,61: DRAWTO 30,69: RET
URN
8020 COLOR D: PLOT 31,50: DRAWTO 39,50: RET
URN
8030 COLOR D: PLOT 30,31: DRAWTO 30,39: RET
URN
8040 COLOR D: PLOT 40,31: DRAWTO 40,39: RET
URN
8050 COLOR D: PLOT 51,20: DRAWTO 59,20: RET
URN
8060 COLOR D: PLOT 50,51: DRAWTO 50,59: RET
URN
8070 COLOR D: PLOT 61,70: DRAWTO 63,70: RET
URN
8080 COLOR D: PLOT 60,29: DRAWTO 80,39: RET
URN
8090 COLOR D: PLOT 80,41: DRAWTO 80,49: RET
URN
8100 COLOR D: PLOT 80,51: DRAWTO 80,59: RET
URN
8110 COLOR D: PLOT 70,79: DRAWTO 70,87: RET
URN
8120 COLOR D: PLOT 81,60: DRAWTO 89,60: RET
URN
8130 COLOR D: PLOT 90,41: DRAWTO 90,49: RET
URN
8140 COLOR D: PLOT 100,29: DRAWTO 100,37: R
ETURN
8150 COLOR D: PLOT 111,46: DRAWTO 119,46: R
ETURN
8160 COLOR D: PLOT 111,56: DRAWTO 119,56: R
ETURN
8170 COLOR D: PLOT 140,51: DRAWTO 140,59: R
ETURN
8180 COLOR D: PLOT 140,77: DRAWTO 140,85: R
ETURN
8190 COLOR D: PLOT 141,30: DRAWTO 149,30: R
ETURN
8200 COLOR D: PLOT 110,47: DRAWTO 110,55: R
ETURN
8210 COLOR D: PLOT 141,10: DRAWTO 149,10: R
ETURN
8220 COLOR D: PLOT 50,77: DRAWTO 50,85: RET
URN
8230 COLOR D: PLOT 30,77: DRAWTO 30,85: RET
URN
8240 COLOR D: PLOT 60,61: DRAWTO 60,69: RET
URN
8250 COLOR D: PLOT 131,20: DRAWTO 139,20: R
ETURN
8300 REM DONE!

```

SOFTCELL LTD

plays Santa Claus this year to Atari 400* owners



We are very excited to announce the arrival of a full-stroke typewriter keyboard which completely replaces the Atari 400* touch-sensitive keyboard. Extremely easy to install, it uses proper typewriter keys, not calculator keys, and features all Atari* function keys at an amazingly low retail price of £79.95.

Available from the following retailers, who also stock a comprehensive range of Softcell Limited third-party Atari software:

Gemini Electronics
50 Newton Street
Piccadilly, Manchester
Tel. 061-236 3083

Mays Hi-Fi Ltd
27 Churchgate
Leicester
Tel. 0533 58662

Norman Audio
51 Fishergate
Preston, Lancs
Tel. 0772 53057

Sherwoods
Great Western Arcade
Birmingham 2
Tel. 021-236 7211

Silicon Centre
7 Antigua Street
Edinburgh
Tel. 031-557 4546

Hi-Fi Western Ltd
52 Cambrian Road
Newport, Gwent
Tel. 0633 62790

Micro-Spot
15 Moorfields
Liverpool, Lancs
Tel. 051-236 6628

R.E.W. Computers Ltd
114-116 Charing X Rd
London WC2
Tel. 01-240 3386

Silica Shop Ltd
1-4 The Mews, Hatherley
Rd, Sidcup, Kent
Tel. 01-309 1111

Trionic
144 Station Road
Harrow, Middlesex
Tel. 01-861 0036

or by direct mail order from us:

SOFTCELL LTD
26 Great Cornbow, Halesowen, West
Midlands B63 3AE. Tel. 021-550 5063

Please allow 28
days for delivery



Dealer enquiries
will be welcomed

*Atari and Atari 400 are registered trademarks of Atari Inc.



TI's Home Computer. Unbeatable value. Unrivalled software.

When you choose a TI Home Computer you're choosing a "real" computer. A computer that can grow with you and your family. A computer that lets you play, invent, discover... that lets your imagination soar.

What makes this possible is our wide range of software. You'll find subjects as simple as "Early Reading" and as complex as "TMS 9900 Assembler Editor." Many of our programs are packaged in our unique Solid State Software™ Command Modules. Some have sound. Others have superb colour graphics. Simply plug them in and begin.

When you want to learn to

program for yourself, the TI 99/4A is ready too. TI BASIC is built in. The programming manual is easy to understand, easy to follow every step of the way. You will be amazed

to discover how much fun programming can be.

And when you're ready to expand your system, we're ready too. Our unique Peripheral Expansion System can house up to seven peripherals without extra cables or clutter. There is even a speech synthesiser that gives your computer a voice.

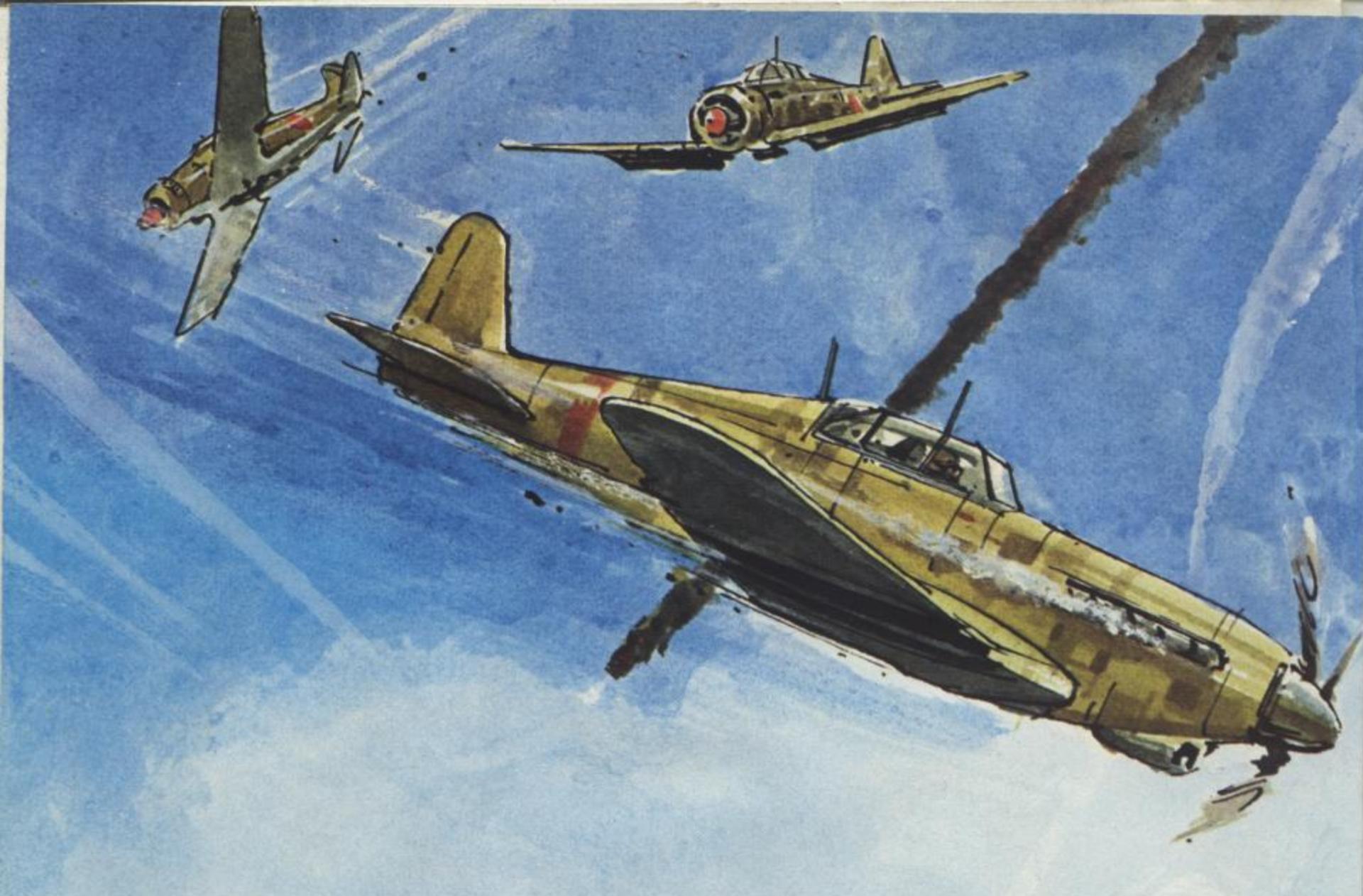
Sound impressive? Try the TI Home Computer for yourself at your nearest dealer. At around £200 you'll look no further.



WHAT THE PROFESSIONALS LOOK FOR IN A HOME COMPUTER

Feature	Texas Instruments TI 99/4A
Microprocessor	TMS 9900 16 BIT
Graphics	16 colour, high resolution
Languages	TI-BASIC (built-in), extended BASIC, UCSD-PASCAL, TI-LOGO, Assembler
Memory	16K RAM standard—expandable to max ROM/RAM of 110K
Keyboard	Full size, standard typewriter style
Software	1000 programs to choose from worldwide
Solid State Speech Capability	Yes

TEXAS INSTRUMENTS



DOGFIGHT

```

1 REM DOGFIGHT BY          RICHARD BARTON,1982
2 REM VIC20 WITH 1211A 3K HI-RES CARTRIDGE  AND JOYSTICK CONTROL
4 GOSUB10000
10 SC=0:PL=0:TI#="000000"
20 X=730:Y=730:ES=195:GF=0
25 REM TARGET POSITION
26 TP1=INT(RND(1)*1000)+70:TP2=INT(RND(1)*700):PL=PL+1
27 GOSUB4000
28 IFTI#>"000200"THEN20000
40 S=RJOY(0)
41 POKEV,4:POKES1,ES:POKES2,ES+2
43 POKES4,0
44 REM FLIGHT CONTROL
45 IFS=120RS>128THENGOSUB500
46 IFS=0THENX=X:Y=Y
50 IFS=80RS=8+128THENB=1
52 IFB=1THENX=X+100:Y=Y-100:TP1=TP1-100
60 IFS=40RS=4+128THENB=2
62 IFB=2THENX=X-100:Y=Y+100:TP1=TP1+100
67 IFS=10RS=1+128THENB=3
68 IFB=3THENX=X-100:Y=Y-100:ES=ES+1:TP2=TP2-100
69 IFES>243THEN1000
70 IFS=20RS=2+128THENB=4
72 IFB=4THENX=X+100:Y=Y+100:ES=ES-1:TP2=TP2+100
74 IFB=4ANDX<=0ORB=4ANDY<=0THENES=ES-6
76 IFTP1<600RTP1>1023THEN26
77 IFTP2<00RTP2>1023THEN26
82 IFX<0THENX=0
84 IFY<0THENY=0
90 IFES<100THENGOSUB30000
100 GRAPHIC2
103 SCNCLR
104 REM ALTIMETER
105 CHAR0,0,"9":CHAR9,0,"5":CHAR10,0,"0"
106 REGION1:DRAW2,60,0T050,1023
108 DRAW2,0,-1500+(ES*10)T060,-1500+(ES*10)

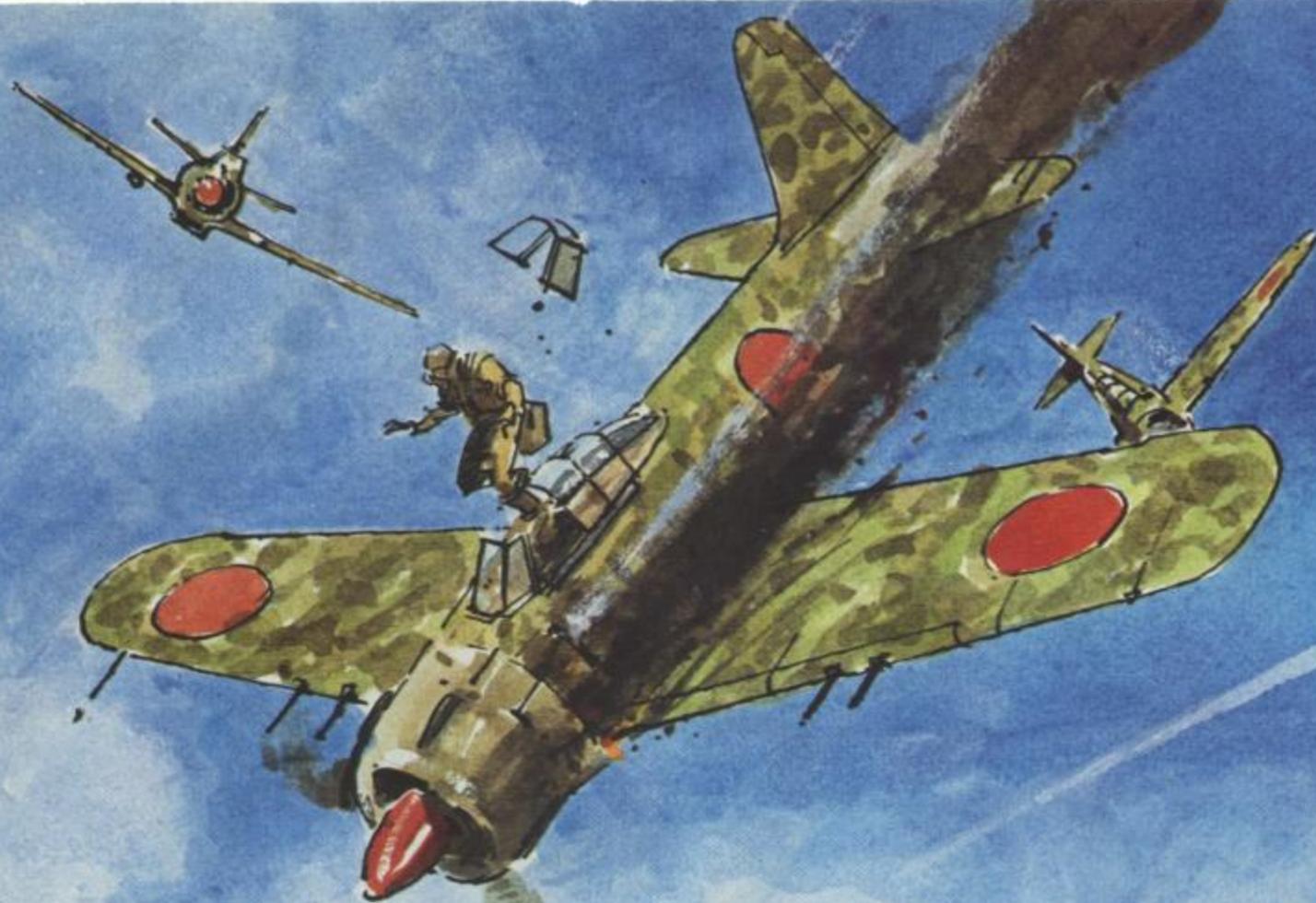
```

```

109 COLOR0,2,7,1
110 IFX>1020THENX=1020:IFY>1020THENY=1020
111 REM HORIZON
112 DRAW2,75,XT01023,Y
115 DRAW2,500,1023T0500,970
120 GOTO27
420 POKES4,0
499 REM GUN FIRING
500 POKEV,10
520 POKES4,200:GF=GF+1
523 REGION2
524 DRAW2,500,970T0500,0
525 REM HIT DETECTOR
526 IFTP1>480ANDTP1<550ANDS>=128THEN6000
550 RETURN
999 REM CRASH SEQUENCE
1000 GRAPHIC8
1010 POKE36879,10
1020 FORI=22T00STEP-1
1025 POKE36879,26
1030 POKE36864,12+I
1040 POKE36865,30+I
1050 POKE36866,150-I
1060 POKE36867,174-I*2
1070 NEXTI
1075 FORS0=14T00STEP-.1
1078 POKEV,S0
1080 POKES4,200:POKES1,120:POKES2,128
1090 NEXTS0
1100 FORT=1T0500:NEXTT
1110 PRINT"XXXXXXXXXXCRASHED-ANOTHER GO?"
1115 PRINT"XXXXXXXXXXXXX/N"
1120 GETA#:IFA#=""THEN1120
1130 IFA#="Y"THEN10
1140 END
3999 REM TARGET          GENERATOR

```

Illustration: Jon Davis



RUNS ON A VIC 20

WITH VIC 1211A HIGH-RES

CARTRIDGE AND

JOYSTICK CONTROLLER.

BY RICHARD BARTON

Curse you Red Baron! You may rule the skies today but tomorrow you may find your wings have been clipped!

It's chocks away for this version of one of the very first video games. This version features a moving horizon, and realistic aircraft sounds plus an altimeter which appears on the left of the screen. The joystick is used just like a real aircraft stick and the player has to fly his aircraft toward enemy planes and shoot them down. You get two minutes to shoot down as many enemy aircraft as possible.

But remember to keep an eye on the altimeter. Too high and the engine will stall, too low and you will crash into the ground.

So off you go into the wild blue yonder—and watch out for bandits!

```

4000 REGION7=DRAW2,TP1,TP2TOTP1+20,TP2TOTP1,TP2+20TOTP1,TP2
4005 RETURN
6000 SC=SC+1
6001 REGION7
6002 CIRCLE2,500,TP2,30,40
6004 POKES1,0:POKES2,0
6011 FOREX=15T00STEP-.2
6012 POKEV,EX
6013 POKES1,120:POKES4,200
6014 DE=INT(RND(1)*150)
6015 DF=INT(RND(1)*150)
6016 POINT2,430+DE,430+DF
6019 NEXTEX
6020 FORT=1T0400:NEXTT
6030 GOTO26
9999 REM INTRODUCTION
10000 PRINT"J":POKE36879,26:PRINT"XXXXXXXXXXXXXXXXXDOG FIGHT"
10005 PRINT"XXXXXXXXXXBY R.BARTON"
10006 PRINT"XXXXXXXXXXHIT SCORES 1"
10010 S1=36874:S2=36875:S3=36876:S4=36877:V=36878
10012 POKEV,7
10014 READA
10016 POKES3,A
10017 READB
10018 IFB=-1THEN10030
10019 FORT=1T0B:NEXTT
10020 POKES3,0
10022 FORT=1T020:NEXTT
10023 GOTO10014
10025 DATA195,200,201,80,195,150,207,80,209,80,215,200,219,80,215,250,0,50,219,1
50
10026 DATA225,150,219,150,215,150,207,150,201,80,195,80,207,150,219,150,0,-1
10030 POKES3,0
10090 RETURN
19999 REM END OF GAME
20000 GRAPHIC0
20001 POKES1,0:POKES2,0:POKES4,0
20005 POKE36879,122
20010 PRINT"XYOUR SCORE WAS"
20020 PRINT"XXXXXXXX"SC
20030 PRINT"XXXXXXXXPLANE(S) DESTROYED"
20031 PRINT"XXXXXXXX"PL-SC"X ESCAPED"
20032 PRINT"XXXXXXXXYOU FIRED "X"OF"X SHELLS"
20035 PRINT"XXXXXXXXANOTHER GO? Y / N"
20040 GETA$:IFA$=""THEN20040
20050 IFA$="Y"THEN10
20060 END
29999 REM ENGINE STALL
30000 POKES1,0:POKES2,0
30010 EO=INT(RND(1)*20)
30015 FORT=1T0EO:NEXTT
30017 IFES<160THEN40000
30020 RETURN
40000 FORCP=EST0244
40010 POKES1,CP:POKES2,CP+1:POKES3,CP+2
40020 NEXTCP
40030 GOTO10000

```



Take the wraps off the best Christmas you've ever had

The Computer Supermarket brings you entertaining, educational, practical presents for all the family – tots, teenagers, mums and dads – and at prices that'll make you celebrate.

With the bonus that telephone orders will be despatched to you within 48 hours of your order. Guaranteed. (If it's not in stock, we'll ring and tell you.)

We'll even send it Datapost (for £8.50 extra) if you need goods the very next day. You can order any of the items shown (which are only a selection of what's available from us) by telephone, telex or simply by filling in the coupon below.



TI-99/4A

The home computer that's incredibly easy to use, yet very sophisticated in its performance range. Simply snap in one of the solid state modules, touch a few keys and you're away. 16 colour graphics, five octaves, 72K memory, 16KT1 BASIC, optional speech synthesizer and plug in word modules to expand vocabulary.

£199.00

SPEAK & SPELL

The original talking learning aid with electronic voice and brain. Four levels of spelling achievement, common problem words programmed into computer-like memory. Automatic scoring announced and displayed after each set of ten words. Additional features include: "Mystery Word", "Secret Code", "Letter" and "Say It" activities.

£34.95

£50 "cash back" refund on TI-99/4A. Buy one before 31st January 1983, claim your refund and save a staggering 25% plus!



TOUCH & TELL

Texas Instruments' 'Touch and Tell' uses advanced electronics and an actual synthesized voice – not a recording – to help the pre-school child learn how to recognise shapes, colours, animals and more. It's a genuine learning aid that helps children between 2–5 years grasp the basics needed for early school years.

£29.95

THE LITTLE PROFESSOR

Suitable for children 5 years and over. The Little Professor explores basic mathematics, combining space-age excitement with the time-proven flash card learning technique.

£9.95



Telephone now for free catalogue of The Computer Supermarket's comprehensive range of computers and video games, learning aids and calculators by leading manufacturers. (Approved Distributor for Commodore, Sharp, Atari, Texas, Dragon). Products offered subject to availability.

To The Computer Supermarket Ltd. Please send me		Value
Qty	Item	
<input type="checkbox"/>	Texas TI-99/4A at £199.00	_____
<input type="checkbox"/>	Speak & Spell at £34.95	_____
<input type="checkbox"/>	Speak & Maths at £34.95	_____
<input type="checkbox"/>	Speak & Write at £23.95	_____
<input type="checkbox"/>	Touch & Tell at £29.95	_____
<input type="checkbox"/>	The Little Professor at £9.95	_____

Plus details of £50 "Cash back" refund.

I enclose my cheque for £ _____
Or debit my Access/Barclaycard/Diners/American Express number.

(Cardholders may telephone orders to 0536 744015)
(Prestel subscribers may order some items through Prestel, directory no. 400400)
Credit facilities available, write/ring for details.

Signature _____ (I am over 18)

Name _____

Address _____

SEVEN DAYS MONEY BACK GUARANTEE

If you're not happy with your purchase, return it in good condition in the carton it arrived in – we will refund your purchase price and postage.

Your remittance should be made payable to Computer Supermarket Reader's Account and shall remain your money until the goods have been despatched to you at the address specified. All goods offered are subject to Computer Supermarket conditions of sale, available on request.

Reg. in England
No. 264589.

THE Computer SUPERMARKET

All orders acknowledged by return of post.
THE COMPUTER SUPERMARKET LIMITED
Unit 8, Southfold Road, Oakley Hay Industrial Estate, Corby,
Northamptonshire. Telephone: 0536 744015.
Telex: COMPSU 341543/4. Prestel Directory No. 400400
Also at Knightsbridge Mall, Arndale Centre, Manchester (retail only)

'COMPUTER MAGIC' gives you more fun and games.

TITLE	DISK £	ATARI ROM	ATARI DISK	TRS-80 DISK	CASS £	ATARI CASS	TRS-80 CASS
Bandits	23.00	-	48K	-	-	-	-
Pool 400	28.99	*	-	-	-	-	-
Cyclod	20.50	-	48K	-	-	-	-
Match Racers	20.50	-	16K	-	20.50	16K	-
Pathfinder	23.95	-	32K	-	-	-	-
Ali Baba & the Forty Thieves	23.00	-	32K	-	-	-	-
Snake Byte	20.50	-	32K	-	-	-	-
Space Castle	-	-	-	-	11.50	-	16K
Scarfman	-	-	-	-	11.50	-	16K
Star Cross	27.60	-	32K	-	-	-	-
Pool 1.5	23.95	-	48K	-	-	-	-
Threshold	27.60	-	40K	-	-	-	-
Action Quest	20.50	-	16K	-	20.50	16K	-
Deadline	34.50	-	32K	-	-	-	-
Plattermania	27.60	*	-	-	-	-	-
Crypts of Terror	23.95	-	16K	-	20.50	16K	-
Alien Swarm	23.95	-	16K	-	20.50	16K	-
Intruder	23.95	-	16K	-	20.50	16K	-
Ghost Encounters	20.50	-	16K	-	20.50	16K	-
Battle for Normandy	27.60	-	48K	-	27.60	32K	-
Shamus	20.50	-	24K	-	20.50	24K	-
Monster Maze	27.60	*	-	-	-	-	-
Mousattack	27.60	-	40K	-	-	-	-
Adv.1. Adventureland	-	-	-	-	14.50	24K	16K
Adv.2. Pirate Adventure	-	-	-	-	14.50	24K	16K
Adv.3. Mission Impossible	-	-	-	-	14.50	24K	16K
Adv.4. Voodoo Castle	-	-	-	-	14.50	24K	16K
Adv.5. The Count	-	-	-	-	14.50	24K	16K
Adv.6. Strange Odyssey	-	-	-	-	14.50	24K	16K
Adv.7. Mystery House	-	-	-	-	14.50	24K	16K
Adv.8. Pyramid of Doom	-	-	-	-	14.50	24K	16K
Adv.9. Ghost Town	-	-	-	-	14.50	24K	16K
Adv.10. Savage Island I	-	-	-	-	14.50	24K	16K
Adv.11. Savage Island II	-	-	-	-	14.50	24K	16K
Adv.12. Golden Voyage	-	-	-	-	14.50	24K	16K
Shattered Alliance	27.60	-	48K	-	-	-	-
Raster Blaster	20.50	-	32K	-	-	-	-
Bug Attack	20.50	-	32K	-	20.50	24K	-
Clowns & Balloons	20.50	-	32K	-	20.50	16K	-
Shooting Arcade	20.50	-	32K	-	20.50	16K	-
Pacific Coast Highway	20.50	-	32K	-	20.50	16K	-
Apple Panic	20.50	-	32K	-	-	-	-
Hi-Res Adv.1. Deadly Secrets	23.95	-	40K	-	-	-	-
Zork I	27.60	-	32K	-	-	-	-
Zork II	27.60	-	32K	-	-	-	-
Zork III	27.60	-	32K	-	-	-	-
Canyon Climber	20.50	-	16K	-	17.25	16K	-
Tumble Bugs	20.50	-	24K	-	-	-	-
Sea Dragon	17.25	-	-	32K	16.50	-	16K
Eliminator	17.25	-	-	32K	16.50	-	16K
Preppie	20.50	-	-	32K	17.25	-	16K
Rear Guard	17.25	-	24K	32K	16.50	16K	16K
Track Attack	20.50	-	32K	-	-	-	-
Star Blazer	23.95	-	40K	-	-	-	-
Vault of Cymarron	-	-	-	-	27.60	-	16K
Crossfire	28.50	*	-	-	-	-	-
Lunar Lander	15.00	-	32K	-	12.50	24K	-
Doctor Goodcodes Cavern	20.50	-	48K	-	-	-	-
Crossfire	20.50	-	32K	-	20.50	16K	-
Jawbreaker	20.50	-	16K	-	20.50	16K	-
Journey to the Planets	20.50	-	16K	-	20.50	16K	-
Frogger	23.95	-	32K	-	23.95	16K	-
The Nightmare	20.75	-	32K	-	-	-	-
King Arthur's Heir	20.75	-	32K	-	-	-	-
Armour Assault	27.60	-	40K	-	-	-	-
Space Eggs	20.50	-	32K	-	-	-	-
Sneakers	20.50	-	32K	-	-	-	-
Alien Defense	-	-	-	-	11.50	-	16K
Fortress	-	-	-	-	11.50	-	16K
Micropainter	27.60	-	48K	-	-	-	-
Délux Invaders	23.95	-	16K	-	-	-	-
Probe One: The Transmitter	24.50	-	40K	-	-	-	-
The Warlocks Revenge	24.50	-	32K	-	-	-	-
Temple of Apshai	27.60	-	32K	32K	27.60	32K	16K
Star Warrior	27.60	-	32K	32K	27.60	32K	16K
Rescue at Rigel	20.75	-	32K	32K	27.60	32K	16K
Nautilus	20.50	-	32K	-	20.50	32K	-
Chicken	20.50	-	16K	-	20.50	16K	-
Maze of Death	16.95	-	24K	-	13.95	16K	-
Mar Tesoro	19.95	-	32K	-	13.95	24K	-
Alien Garden	27.60	*	-	-	-	-	-
Treasure Quest	-	-	-	-	12.50	16K	16K
Armoured Patrol	17.25	-	-	32K	16.50	-	16K
Conquest of Chesterwood	17.25	-	-	48K	16.50	-	16K
Tigers in the Snow	27.60	-	48K	-	27.60	32K	16K

(Please allow up to 28 days delivery. All prices include P & P and V.A.T.)

COMPUTER MAGIC.

57 Poland Street, London W1V 3DF.
(MAIL ORDER ONLY - NO CALLERS PLEASE)

ZX81 GAMES

from

J.K. GREYE SOFTWARE LTD THE NEW GENERATION SOFTWARE HOUSE

"Without question the finest machine code games available today".....J.N. ROWLAND Product Manager for W.H. SMITH.

GAMESTAPE 1 for 1K only £3.95
10 Games incl. ASTEROIDS, UFO, CODE, BOMBER, GUILLOTINE, KALEIDOSCOPE, etc.
PROBABLY THE BEST VALUE 1k TAPE AVAILABLE.



We've done in 1k, games which some of our competitors require 16k to do!



GAMESTAPE 2 for 16K only £3.95
***STARFIGHTER** Superb machine code Space Battle. Set against a background of twinkling stars, with stunning explosions - if you can hit the enemy!
PYRAMID Can you move the Pyramid? Make a mistake and it will collapse! A Thinkers game.
ARTIST The ultimate Graphic Designers aid. 8 Directions, 10 Memories, SAVE, COPY, RUBOUT, CLS, etc.

GAMESTAPE 3 for 16K only £4.95

***CATACOMBS** A Multi-Level Graphics Adventure. Each level can contain up to 9 Rooms, 8 Passages, 7 Monsters, Food, Gold, Traps, Phantoms, an Exit (to the next level), and there's an infinite number of levels.
NOTE. . . . This is NOT one of the necessarily limited text Adventures as sold elsewhere.



"An excellent addictive game which will keep you amused for hours".... COMPUTER & VIDEO GAMES.



GAMESTAPE 4 for 16K only £4.95
***3D MONSTER MAZE** The Game to Top All Others. Unbelievable Graphics! Can you find your way through the Maze? The EXIT is there somewhere, but then so is a T.REX, and its after YOU! All in 3D (the T.REX will actually run towards you in full perspective!), you've never seen anything like this before!
"3D MONSTER MAZE is the best game I have seen for the ZX81".... COMPUTER & VIDEO GAMES

"If I had to choose just one programme to impress an audience with the capabilities of the ZX81, then J.K. Greye's 3D MONSTER MAZE would be the one without doubt".... ZX COMPUTING. "Brilliant, brilliant, brilliant!".... POPULAR COMPUTING WEEKLY

GAMESTAPE 5 for 16K only £4.95

***3D DEFENDER** The Ultimate Space Game. Super fast Machine Code 3D version of the Arcade favourite. You have to save your home planet from the marauding Alien Spacecraft. This is all in 3D, your viewscreen shows you the view out of your fighters cockpit window. The backdrop moves when you turn, or fly up or down (8 flight directions), just as if you were really flying it! But then YOU ARE! The Enemy Saucers will actually zoom towards you in 3D, and shoot you if you let them! Your display includes Score, Shield Strength, Altitude, Proximity, Forward Radar and your viewscreen, which shows your rotating home planet, backdrop of Stars, Meteors, Explosions, Plasma Blasts, your Rotating Beams, up to 4 Enemy Saucers and of course its all in full 3D!



"Another 3D winner"..... SINCLAIR USER



GAMESTAPE 6 for 1K only £1.95

***BREAKOUT** Super Fast Full Screen Display Game. Your all time favourite with an added twist. See how much Money you can win and watch the pounds convert to Dollars. All in Machine Code for Fast Action with 3 Speeds, 2 Bat Sizes and three angles of rebound! The best BREAKOUT around and at this price you can't go wrong!

"The best of its kind"..... WHICH MICRO & SOFTWARE REVIEW

GAMES MARKED * INCL. MACHINE CODE.

Prices include VAT and U.K. P. & P.

(Add appropriate Postage on Foreign Orders). Cheques/P.O.s to
J.K. GREYE SOFTWARE LTD

Dept VG16, Brendan Close, Oldland Common, Bristol BS15 6QE

CREDIT CARD SALES: FOR INSTANT DESPATCH, BY PHONE ONLY
TEL: 01-930-9232 (9 am - 7 pm)

If you prefer to see before buying, our range of **GAMESTAPES** are stocked by the following stores.

BUFFER MICROSHOP 374A Streatham High Rd., London SW16:
GAMER 24 Gloucester Rd., Brighton;
GEORGES 89 Park St., Bristol, Avon;
MICROSTYLE 29 Belvedere, Lansdown Rd., Bath, Avon;
MICROWARE 131 Melton Rd., Leicester;
SCREEN SCENE 144 St. Georges Rd., Cheltenham, Glos;
W.H. SMITH Over 200 Computer Branches;
ZEDXTRA 5 School Lane, Kinson, Bournemouth, Dorset;

TRADE & EXPORT ENQUIRIES WELCOME

GLUTTON

When there's a glut of dots around the screen you need to be feeling pretty hungry to munch your way into the clear.

Glutton is probably not a game to be played between meals. You take the part of a Billy Bunter character and are awarded points for the most dots you can eat. These are laid out in a Pacman type maze and of course you soon realise that you are not alone in the labyrinth!

There is something spooky in there with you, actually there's three of them and they are as hungry for you as you are for the edible dots.

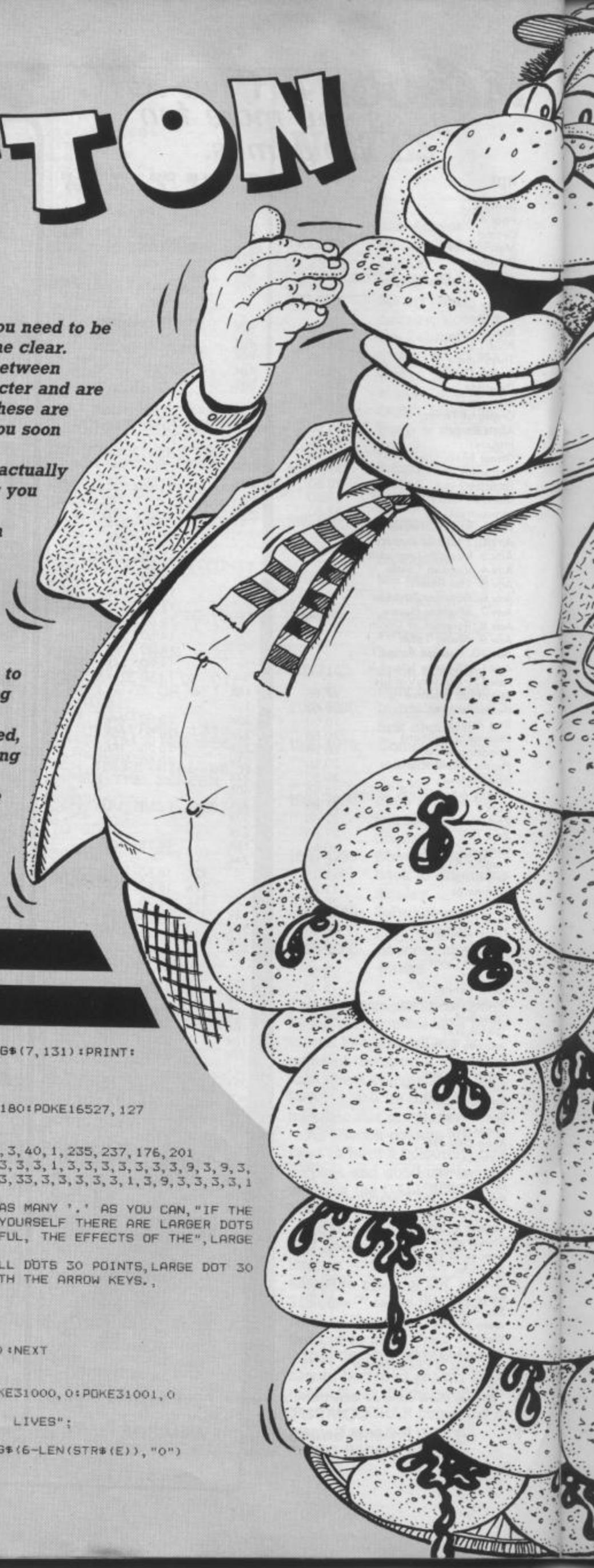
When the player eats one of the larger dots on the course, he is transformed from the hunted to the hunter — making his pursuers change their shape and run away.

Fortunately, for the hungry player they also revert to half their normal pace. But watch out when they start to flash it's a sure sign that your meal is about to leap off the plate and start to feel a little hungry itself. It's time to start running again.

The program keeps a high score which is stored, allowing the program to be re-run without clearing the high score memory.

And it also makes use of a short machine code program which loads the contents off the screen so the maze can be drawn from memory rather than the tedious reading DATA.

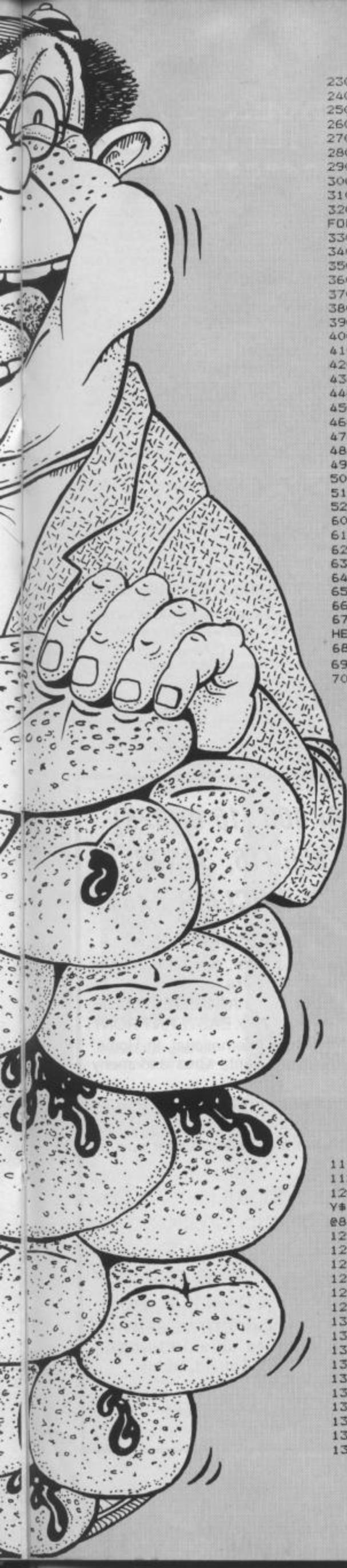
So if you're hungry for competition . . . start here.



RUNS ON A TRS-80 IN 16K

BY JASON MACHIN

```
10 CLS:PRINT 15,CHR$(23)"GLUTTON":PRINTTAB(8)STRING$(7,131):PRINT:
PRINTTAB(5)"BY J. MACHIN 23/5/82."
20 FORG=1T0500:NEXT
30 GOTO1310
40 POKE16561,177:POKE16562,123:CLR500:POKE16526,180:POKE16527,127
50 DEFINTA-Z
60 FORX=32692T032711:READY:POKEX,Y:NEXT
70 DATA205,127,10,203,69,33,179,123,17,64,60,1,192,3,40,1,235,237,176,201
80 DATA63,19,3,9,3,9,3,19,3,3,3,3,9,3,9,3,9,3,3,3,1,3,3,3,3,3,3,9,3,
3,3,3,3,3,1,3,3,3,9,6,3,9,3,6,9,3,3,3,1,3,3,3,3,3,3,3,3,3,3,3,3,1
5,3,3,3,9,3,1,3,3,9,3,3,15,3,3,9,3,3,3,1
90 DATAGLUTTON," ",RUN FROM THE GHOSTS COLLECTING AS MANY '.' AS YOU CAN,"IF THE
GHOSTS CATCH YOU, YOU WILL LOSE A LIFE.",TO SAVE YOURSELF THERE ARE LARGER DOTS
WHICH ALLOW YOU TO,"CHASE THE GHOSTS. BUT BE CAREFUL, THE EFFECTS OF THE",LARGE
DOT SOON WEAR OFF
100 DATA" ",PLAY TO SCORE POINTS ,SMALL DOTS 30 POINTS,LARGE DOT 30
0 POINTS,GHOSTS MYSTERY SCORE," ",MOVE YOURSELF WITH THE ARROW KEYS.,
110 Y$(0,1)=CHR$(174)+CHR$(188)+CHR$(157)
120 Y$(1,1)=CHR$(174)+CHR$(191)+CHR$(179)
130 Y$(2,1)=CHR$(174)+CHR$(143)+CHR$(157)
140 Y$(3,1)=CHR$(179)+CHR$(191)+CHR$(157)
150 FORD=0T04:Y$(D,0)=CHR$(174)+CHR$(191)+CHR$(157):NEXT
160 G$=CHR$(182)+CHR$(143)+CHR$(185)
170 R$=")"`{"
180 IFNDT(PEEK(32000)=191ANDPEEK(32001)=191)THENPOKE31000,0:POKE31001,0
190 POKE15405,51:DEFINTA-Z:DEFNSNGS,E
200 PRINT@0," SCORE 00 HIGH SCORE 000000 LIVES";
210 E=PEEK(31000)+PEEK(31001)*256
220 PRINT@30,":PRINTUSING"#####";E;:PRINT@30,STRING$(6-LEN(STR$(E)),"0")
```



```
230 Q=15410:IFSPRINT@8,S;
240 IFPEEK(Q)=91THEND=Q+1:GOTD240ELSEPOKED,91
250 IFPEEK(32000)=191ANDPEEK(32001)=191THENX=USR(0):GOTD320
260 C=191
270 READA:IFA=0THEN300
280 PRINTSTRING(A,C);:IFC=191THENC=128ELSEC=191
290 GOTD270
300 FORY=64TD448STEP64:FORX=0TD62
310 POKE16384-Y+X,PEEK(Y+X+15360):NEXT:NEXT
320 PRINT@262,STRING(3,128);:PRINT@822,STRING(3,128);:FORY=15488TD16256STEP64:
FORX=1TD62STEP3
330 IFPEEK(X+Y)=128THENPOKEX+Y,46
340 NEXT:NEXT
350 PRINT@472,CHR(191)STRING(4,131)" "STRING(4,131)CHR(191);
360 PRINT@536,CHR(191)" "CHR(191);
370 PRINT@600,CHR(191)STRING(4,176)" "STRING(4,176)CHR(191);
380 IFS)50000THEN400
390 POKE15492,140:POKE15854,140:POKE16314,140:POKE15952,140
400 POKE15838,128:POKE15966,128:POKE15902,128
410 POKE15489,76:POKE16257,76:POKE15549,82:POKE16317,82:POKE15551,32
420 GNINT(S/8000)+16GTD440,450,460,470,480
430 GOTD480
440 POKE16031,140
450 POKE15775,140
460 POKE15516,140
470 POKE16290,140
480 X=USR(1):C=15360:K=14400:Q=15361:B=164
490 Y=896:X=0:F=1
500 D=1
510 FORG=1TD3:X(G)=30:Y(G)=512:NEXT
520 GOTD710
600 P=PEEK(K):DNP/8GTD620,630,710,640,710,710,650
610 GOTD710
620 D=0:M=-64:GOTD660
630 D=2:M=64:GOTD660
640 D=3:M=-3:GOTD660
650 D=1:M=3
660 IFPEEK(M+X+Y+Q)=128THEN720
670 Z=PEEK(M+X+Y+Q):IFZ=46THENS=S+30:POKEX+Y+M+31604,128:PRINT@8,S;:B=B-1:IFB=0T
HEN200ELSE720
680 IFZ=82THENX=0:GOTD730
690 IFZ=76THENX=60:GOTD730
700 IFZ=140THENS=S+300:POKEX+Y+M+31604,128:J=20:PRINT@8,S;:B=B-1:IFB=0THEN200ELS
E720
710 M=0
720 IFABS(M)=64THENY=Y+MELSEX=X+M
730 PRINT@X+Y,Y*(D,F);
800 IFJ=0THEN820
810 J=J-1:IFINT(J/2)()J/2THENFORG=1TD100:NEXT:GOTD1120
820 FORG=1TD3:H=0:V=0:T=X(G)+Y(G)+C
830 IFX(G)XTHENH=-3
840 IFX(G)XTHENH=3
850 IFY(G)YTHENV=-64
860 IFY(G)YTHENV=64
870 IFT-C+V=X+YDRT-C+H=X+YTHEN1200
880 IFJTHENH=-H:V=-V
890 IFPEEK(T+H)128THENH=0
900 IFPEEK(T+V)128THENV=0
910 IFH+V=0THEN950
920 IFH*V()0THENIFRND(2)=1THENI=V:GOTD1040ELSEI=H:GOTD1040
930 IFH=0THENI=VELSEI=H
940 GOTD1040
950 DNRND(4)GOTD960,970,980,990
960 IFPEEK(T+3)129THENI=3:GOTD1040
970 IFPEEK(T-3)129THENI=-3:GOTD1040
980 IFPEEK(T+64)129THENI=64:GOTD1040
990 IFPEEK(T-64)129THENI=-64:GOTD1040
1000 IFPEEK(T+3)129THENI=3:GOTD1040
1010 IFPEEK(T-3)129THENI=-3:GOTD1040
1020 IFPEEK(T+64)129THENI=64:GOTD1040
1030 GOTD1070
1040 IFPEEK(T+1)=32THEN1070
1050 IFABS(I)=3THENX(G)=X(G)+IELSEY(G)=Y(G)+I
1060 POKEX(G)+Y(G)+C,32
1070 NEXT
1100 IFJ)7GTD1120
1110 Z=USR(0):FORG=1TD3:PRINT@X(G)+Y(G),G#;:NEXT:F=(F=1)+1:GOTD600
1120 Z=USR(0):FORG=1TD3:PRINT@X(G)+Y(G),R#;:NEXT:F=(F=1)+1:GOTD600
1200 IFJTHENL=100*(10-INT(J/2)):PRINT@X+Y-1,L;:S=S+L:FORN=1TD20:PRINT@X(G)+Y(G),
Y*(D,F);:FORZ=1TD20:NEXT:F=(F=1)+1:NEXT:X=X(G):Y=Y(G):M=0:Y(G)=512:X(G)=30:PRINT
@8,S;:GOTD720
1210 PRINT@X+Y+1,"e";:FORG=1TD400:NEXT
1220 PRINT@X+Y,">"(::FORG=1TD400:NEXT
1230 PRINT@X+Y,CHR(153);CHR(179);CHR(166);:FORG=1TD400:NEXT
1240 POKE15405,PEEK(15405)-1:IFPEEK(15405)48THEN490
1250 PRINT@X+Y," ";:PRINT"539,"GAME OVER";
1260 IFS)ETHENPOKE31001,S/256:POKE31000,S-PEEK(31001)*256
1300 RESTORE
1310 READA:IFATHEN1310
1320 PRINT@960,:IFS=0CLS
1330 READA#:PRINTTAB(32-LEN(A#)/2);A#
1340 IFA#()""THEN1330
1350 Z=0:A#=INKEY#
1360 Z=Z+1:IFZ(1000ANDINKEY#=""THEN1360
1370 IFZ=1000RUN
1380 RUN40
1390 GOTD600
```

Three New Video Games from PCP For Young and Old Alike

Headbanger VIC-20

Theme: Headbanger enjoys being hit on the head by hammers falling from the sky but collapses if hit by too many without an aspirin hitting as well. At the same time Headbanger tries to grab money bags. A brick wall on the screen is gradually knocked down by the hammers as the player attempts to strike Headbanger and to reach the money bags.

Action: Points for head collisions and money bags, plus 'pain meter' for head-to-hammer or aspirin-to-head collisions and for money bags stowed. **Headbanger £9.95 + VAT**

Rox

Theme: Rocks fall from the sky and the player tries to blast them with missiles before they hit the ground.

Action: Scores are awarded for hits and 'secret bonuses'. **Rox £4.95 + VAT**

3D Maze

Theme: The player attempts to escape from the maze which is shown in perspective view.

Action: Ratings are scored for the time taken to find the exit from the maze.

3D Maze £5.95 + VAT

● Dealer enquiries welcome.

PCP— The "One Stop Shop" For All Your Personal Computer Needs

Before buying your personal computer this Christmas, be sure you are buying from the experts... Personal Computer Palace.

We will give you sound unbiased advice plus full technical support, keen prices and one of the biggest selections of accounting, education and games software in the Reading area.

So buy your computer, and your video games — we stock over 200 — from PCP, the REAL computer professionals.

PERSONAL COMPUTER PALACE



4-6 CASTLE STREET
READING, BERKS
Tel. (0734) 589249

Kuma Computers Limited



PROFESSIONALS IN SOFTWARE SHARP — MZ80A, — MZ80K,

UTILITIES AND LANGUAGES

KUMA FORTH Fig Forth V1.1 plus floating point 40.20
BAS-MOD The ultimate toolkit for SA-5510 20.13
ZEN EDITOR ASSEMBLER
The most powerful Z-80 assembler for Sharp 22.43
DISASSEMBLER
ZEN compatible 12.08
ZEN-MOD Additional features including printer drivers 12.08
SLAVE An easy start to learning assembler 16.68
SHARP BASIC SA-5510
For the MZ80K! 11.50
Also Fortran, Pascal, Pilot, Cesium, etc.

PROVEN APPLICATIONS

[C—cassette D—disc prices]

WDPRO The professional word processor C 45.43 D 91.94
DATABASE Calculates, sorts, searches, fast loads, and is the best! C 33.93 D 68.43
ACCOUNTS (NON VAT) Ideal for the small business with less than 75 transactions/month ... C 33.93
ACCOUNTS (VAT) As above but takes care of VAT as well. Disc version handles 225 entries/month C 33.95 D 79.93
STOCK CONTROL & INVOICING
Controls up to 200 items, produces re order reports, price lists and can produce invoices C 33.95
CALC 3.2 Financial modeller/spread sheet calculator ... C 39.68

HOME AND ENTERTAINMENT

Home budget version 3 16.68
Chess V2.0 16.68
Music composer/editor 12.08
Adventure 12.08
Tomb of Karnak 9.20
M Checkers (Draughts) 12.08
Defence 9.20
Asteroids 9.20
Electron 22622 9.20
Frogger 9.20
... and over a hundred more to choose from!

FULL CATALOGUE OF SOFTWARE 1.50

KUMA FOR COMPUTERS: PRINTERS AND PERIPHERALS

PHONE: (0628) 71778

Prices include VAT at 15%. To order please add £1 postage and packing on orders under £20. Access and Barclaycard welcome.

Kuma Computers Ltd.,
11 York Road, Maidenhead, Berks.
SL6 15Q Telex: 849462 TELFAKUM

PLEASE SEND ME MORE DETAILS

ON: Software Hardware

Sharp Name

Newbrain Address

Osborne

Sirius-1

CV

AUTHORISED
DEALER
FOR

ATARI 400 (16 or 32K)

ATARI 800 (16, 32, 48K)

AND NOW SINCLAIR ZX81

We carry a full range of HARD and SOFTWARE.

Send SAE stating machine and mem. size for our list of supporting software including titles like:

ATARI MICROSOFT ATARI CENTIPEDE

ATARI PACMAN APX EASTERN FRONT

and other makes like Adventure International, In Home, Arcade Plus, Home Simulation, Santa Cruz and many more.

BUG BYTE FOR SPECTRUM & ZX81

ATARI VIDEO GAME SOFTWARE

Full range of Atari, Activision and Parker. Order now to save disappointment.

E.T. — Dec. £27.99

Volleyball — Dec. £27.99

Star Raiders — Nov. £27.99

Ice Hockey — Nov. £25.95

Chopper Command — Nov. £25.99

ACTIVISION:

Boxing, Fishing and Dragster — Only £13.95 each.

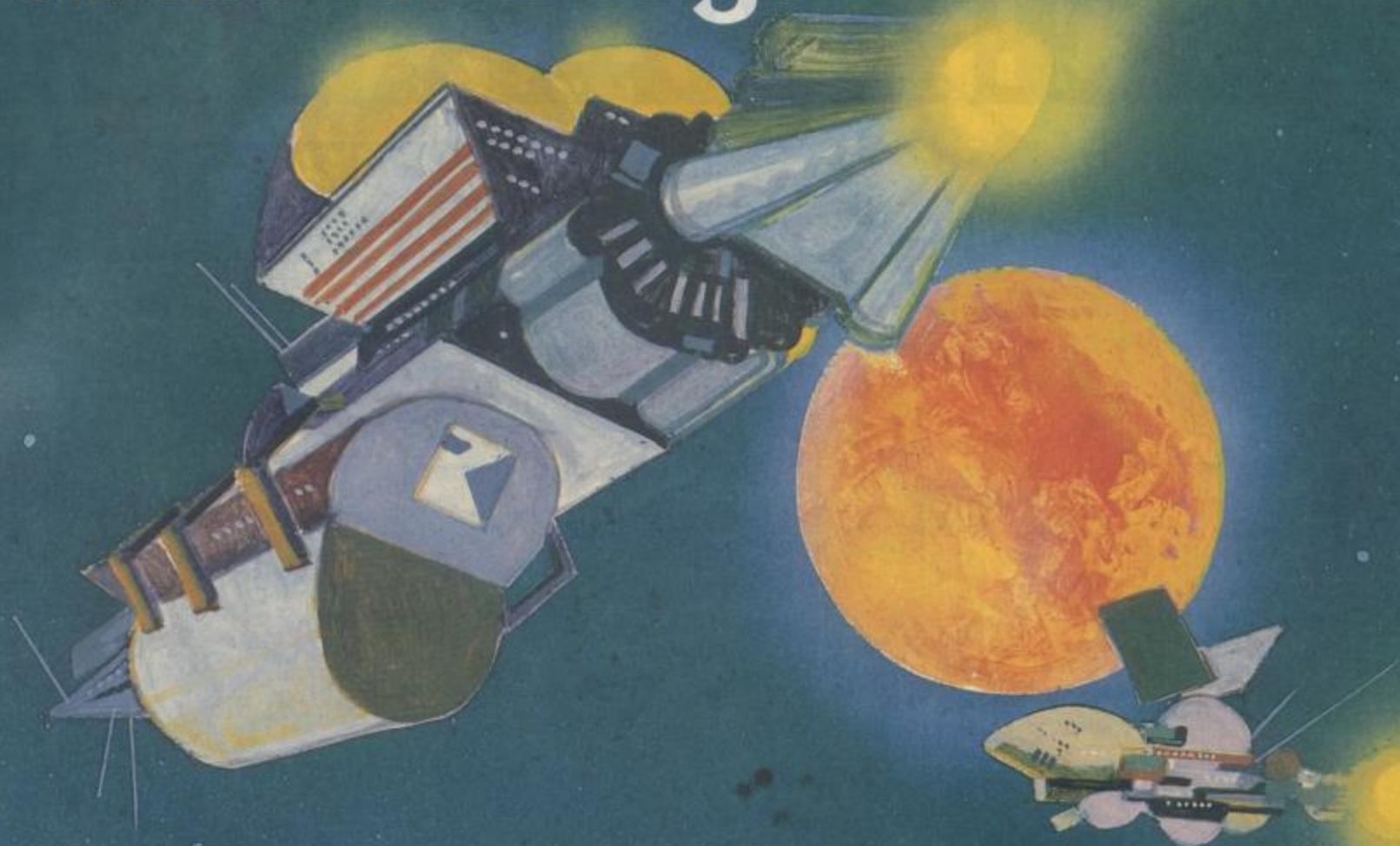
FOR A FAST RELIABLE AND COMPETITIVE SERVICE

Ring, write or come in and see us at JENNINGS, (FREEPOST), 248 Hertford Road, Enfield, Middx.

Tel.: 01-804 1767

Visa, Access, Diners Club, Transcash 302 8062
HP Written quotes available

Big game thrills for Dragon owners!



DRAGON 32

Flipper

Inscrutable oriental electronic strategy!

MICRODEAL

Find your way through the endless maze - but do it right or you're doomed!

ESCAPE

DRAGON 32

MICRODEAL

Find your way through the endless maze - but do it right or you're doomed!

Monopolise the Milky Way - become a galactic megabillionaire!

SPACE MONOPOLY

DRAGON 32

MICRODEAL

Monopolise the Milky Way - become a galactic megabillionaire!

The clues are there; so is the treasure ... but can you find it? For one player.

MANSION ADVENTURE 1

DRAGON 32

MICRODEAL

The clues are there; so is the treasure ... but can you find it?

Bust out and beat the Minotaur ...

ALCATRAZ II

DRAGON 32

MICRODEAL

Bust out and beat the Minotaur ...

If you own a Dragon 32 Family Computer this is especially for you. Microdeal have on offer another 5 great games, games to get you guessing with ruthless opponents to test your every reflex, fortunes to be won and lost. These games are also available for the TANDY COLOR computer.

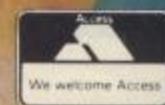
Cassette price £8.00 including VAT and postage.

You'll find them in dealers nationwide; or order direct from: Microdeal, Deal House, Bridges, Bodmin, Cornwall PL30 5EF. Tel: 0726 850821. TANDY & VIDEO GENIE owners send for our software lists.

NOW AVAILABLE IN SELECTED STORES



M I C R O D E A L



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 meteorites. Now your gunsight 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.

COMES BUT AS GREAT AS THESE LIFETIME.



You'll need to move very fast to destroy this enemy, for the more you shoot down, the faster 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 helicopters 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.

STARMASTER™ and COPPER COMMAND™ just two of the great ACTIVISION® range of video game cartridges for use with the Atari® Video Computer System™. Each and every ACTIVISION® 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® and Video Computer System® are trademarks of Atari, Inc.



To: CGL Activision Fun Club, FREEPOST, Loughton, Essex IG10 1BR. (No stamp required). Tel: Kathy Leonard on 0628-72448/32839.

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 (tick one) 11 or under 12-17 18-25 26 or over

Address _____

Postcode _____

'Bringing leisure to life'



CVG2

THE SEVENTH EMPIRE

THE best way to learn history is from the crusted carapace of a Tiaithan. All the Shell Tribes share the same lyrical tones which turn Fivespeak into a language almost capable of poetry, but the Tiaitha, being Machen — data memorisers — can provide the fullest detail.

Perhaps it is just because I first heard the story of The Seventh Empire beside Tiaithan fires that I feel this way, but I still remember the night when their fleet put down in the plains beyond our cities.

Hakub I is the unromantic name for our planet, the only inhabitable planet in the Hakub System but rich in heavy metal and one of the first "greenhouse" planets to be seeded.

That moon phase the word had gone out that a Tiaithan Fleet had landed to trade and all the local merchants had rushed to greet them — they had come from a rich system.

I was taken out to see them on the third night. There was no current war in the system, and an eager crowd surrounded their fires as the wind swept through the plain and some 30 Tiaithans came out to recount the tale.

Someone beside me pointed out a group of Debeshi Pirates, whose craft landed close by, and who were mingling among us to hear the tale. Now I wonder how it was they weren't run off the planet, then I merely drank in the rich detail of the story telling and lost myself to the saga of D'Taan and her Rebel Empire.

She belonged to a human tribe — the Jellied Ones as the hard-skinned Shell People still call us — and was a lowly scientist on an exploration ship based in the Fanus System.

In those days the galaxy knew only five empires, communication between them was rare — as was interstellar travel — and only a handful of interpreters understood the now widespread Fivespeak language.

Stellar energy was the currency then and it was in the hands of the **Bloodline Empire** named after the species which dominated both that empire and the energy reserves. The Bloodline was the name given to a tribe of smooth-skinned reptiloids who could reproduce so accurately — cell-by-cell they claimed — that they were one of the few societies in the known galaxy never to have developed clones.



The Bloodline had been the first colonisers of the galaxy and had monopolised stellar energy reserves on the few planets which housed them. These were usually the hot heavily atmosphered greenhouse effect planets and few of these could be developed even by the hardy and technologically advanced Bloodline.

So, stellar energy was in short supply and that way the Bloodline claimed control over the inter-system travel and held the other four empires in check.

The Shell People, evolving swiftly out of their natural amphibious environments, were probably the biggest force in the collection of species known as the **Water Empire**.

We poor humans being too short-lived to achieve much as space travellers had still been able to establish colonies across great tracts of space using mercenary-controlled craft and suspended animation and had found a small voice among the creatures concerned with the physical sciences.

We were highly rated as colonisers as the least volatile of



Illustration: Dorian Cross

racers and also for our suitability to colonise the group-B oxygen-atmosphere planets which produced the small amethyst-type gems used to harness the stellar energy. Ours was nicknamed the **Amethyst Empire**.

The smallest empire was the province of the sun beings. Only two species found their way to prominence through solar power and the **Sun Empire** was among the most elusive in the galaxy.

The largest empire in sheer weight of numbers were those from the frozen or dead planets who were equipped to survive environments where even the most technologically capable beings would not attempt to mine or set up colonies.

Many creatures had evolved in the **Dead Empire** but they were universally slow-witted and would have doubtless been amalgamated by a more go-ahead rival if any had seen much use to be made of the dead planets. None did and so by default the **Dead Empire** came into existence and earned a galactic voice.

So each empire found its own niche in the galactic system, their dependents seldom straying from their own environment and

never indulging in travel beyond their own solar system without the grudgingly given energy of the Bloodline.

Despite the seeming rich variety of creatures, there was still much of the galaxy which was without inhabitants or prospects. Diverse as galactic kind was, it still only occupied a narrow band of planet and star systems.

Of these the greenhouse effect planets with their ability to produce the stellar energy and rich seams of heavier metals were regarded the deepest loss.

The Sun Polyps were a well known but little investigated phenomena. Consisting of little more than a few cells they inhabited the very edge of planetary atmospheres in their trillions.

D'Taan was investigating them for her tribe, colonists of a Bloodline controlled solar system. Little importance was attached to her work, she hoped to discover how the creatures had managed such a widespread distribution over the galaxy.

A controlled colony was set up as part of her experiments on a new planet — just beyond the life ring — too close to its star to have anything really worthy of the name atmosphere.



As luck would have it, D'Taan had chosen a creation generation to transfer and when the exploration ship called back five solar years later, the planet, classified as Solar Desert Type-B had grown cloud cover.

A shuttle sent to the planet's surface came down in the middle of a rain storm and, while the heat was such that only a sun-being could have stood it un-suited, the atmosphere was doing its work. Of the polyps there was no sign — they had gone into catatonic generation and died out.

D'Taan was quick to realise the importance of the discovery, Bezel, the Gorgan captain of her craft was quicker. He stopped the news being keyed into the ship computer which was transmitting all experimental data to the nearest space station, from where it would be sent to Bloodline databanks.

D'Taan's work had told her something about the polyps' four generation evolution cycle. She estimated a Creation Generation occurred every 50 solar years.

And her other experiments had shown that only creation generation polyps actually survived the transmission to a new planet — and then only for a few years.

A brief discussion with Bezel convinced D'Taan that the Bloodline would put a stop to her work to preserve their galactic control. They had to break the bounds of the Bloodline Empire and make for an uninhabited system with polyps of a different generation. They needed stellar energy quickly.

The raid on the Bloodline space station in the Janus system was when piracy first came home to roost in the galaxy.

Prior to that, the stellar energy had been under such control that none could make good their escape to a new system. Janus was not an energy system but it did have a small supply which Bezel knew was kept on the station for passing inter-system Bloodline freighters.

It was only Bezel's inside knowledge of the station which made the raid possible. As it was there was just enough power to rush them into the neighbouring system of Vepoz.

Uninhabitable with four planets, said the exploration charts. But it had everything D'Taan needed to continue her next experiment, polyps had been charted on a dead planet,

and there was an unstable greenhouse effect class C planetoid closest to the sun — rich in stellar energy which no one could currently mine.

Armed with a cryogenic chamber and a desperate hope that by the time an intersystem Bloodline cruiser reached Janus, their trail would be cold, Bezel put the craft in orbit around the polyp's planet and the crew to sleep until D'Taan's estimated creation generation came round.

The creation generation reached maturity, was duly transferred to Vepoz I and after five further years in the "freezer", Bezel and D'Taan had a stable planet shielded from the

The Seven Empires are torn by war and rivalry. Piracy is rife, raiding an everyday part of interstellar life and loyalty to anything beyond your own tribe rare.

When our Seven Empires game gets underway in February you will be challenged to control one of the warring tribes, to rob, trade and battle your way to victory over up to 10,000 other C&VG readers plus the editor.

The game will continue for

sun's rays by a growing atmosphere and that elixir of all life, water. But more important they had access to stellar energy.

The **Pirate Empire** was born over the next years, fuelled by stellar energy and run by Bezel, it struck where it wanted, turned two further planets into stellar supporters and ran the other empires and the Bloodline ragged.



D'Taan split from Bezel, who threatened to rule the galaxy in his lifetime and continued her experiments with polyps while on the run from the Bloodline and most of the other empires, stirred up by her former colleague's atrocities.

There were many questions still unanswered about polyps but the two most important for D'Taan were: why a colony artificially transferred to a new planet always died out and her original puzzle; how could the polyps be so widespread over the galaxy.

The answer lay in the pattern of distribution which she mapped out from stolen empire surveys of the charted systems. Polyp colonies always seemed to spread outwards from a Neutron Star system.

Neutron Stars, are stars whose energy has been spent and the

mass has folded in on itself, the density and gravitational pull of these dead suns caused strange effects on space and they were avoided as navigational hazards. Could they so distort space as to allow travel through to other Neutron Stars.

D'Taan's mind struck upon an ancient hypothesis. Space was curved but how curved? Could there be areas which pulled by the distortion almost doubled back on themselves.

If you looked at the universe as a ring with two planes then a simple twist would turn that ring into a mobius strip with just one plane.

Take that twist into a third or

many months but each month will have one winner who has achieved the highest score. It's a game of pure skill, simple to enter but difficult to assess tactically and it's all moderated by computer at our end.

The top scorer of the first month will win a Colour Genie microcomputer and it will only cost you a stamp each month to enter. You can also check your own score. An entry form is on page five — so get in early!

even fourth dimension and then what would you have? black holes rent the fabric of the universe, perhaps a Neutron Star was also capable of this, pulling great folds of universal fabric around it and perhaps matter could punch its way through to a part of the galaxy which was light years away by normal means.

Seven years D'Taan spent on the problem before a Bloodline ship finally tracked down her craft and seized herself and the crew. She was frozen and taken back to Grakta, whose voice was loudest of the Five Empires which, split by Bezel's pirates, were now at war with one another.

She was taken into the presence of mighty lizard who had spoken for the Bloodline Empire for over eight generations of himself, no-one but Bloodliners themselves knowing when one Grakta died and the next took his place. With him was a token representative of the Dead Empire, — his only current ally — an ice warrior there as a symbol, whose name was never asked or recorded.

Death was the sentence for unleashing anarchy on the galaxy and creating the sixth Pirate Empire. But D'Taan still had an ace to play, Gateway

Stars. She outlined her experiments to a disbelieving Grakta and showed him a way to defeat Bezel's ambitions.



Grakta scoffed but she persevered and demanded two things in return for the secret of the Gateways across the known galaxy. She wanted an empire herself, named after her and devoted to science. And she wanted the secret of the Gateways to be shared across the empires so that none would have the advantage over the other that the Bloodline had enjoyed for so long.

"No", was Grakta's answer. "You die and we fight the pirates as best we can." They were the last words he spoke as an ice warrior's tribal axe buried itself deep in his back. It was the only time that an emissary from those Dead Planet's had acted so swiftly and so decisively.

The ice warrior turned to D'Taan: "You shall have your request and Bezel shall lose his advantage over us".

The Dead Empire, armed with the science of D'Taan's new-found Empire and backed by the Sun Empire's solar troops, met and defeated Bezel at a mighty battle in the Yuses system.

A conquered Bezel sought out his conquerors and the Treaty of the Seven Empires was sworn. It split the galaxy's habitable systems between all seven, it restricted any tribe to no more than seven space fleets, so that no army might ever again grow to threaten the whole empire and it allowed for the inevitable bickering and warfare which would break out.

Most important was the Dead Empire's insistence that the empires be disbanded and that the peoples of the galaxy revert to the tribes and species from which they had come. There was compromise and the empires ended up as figure heads, destined in the course of time to be given into the hands of seven computer controlled ships which react to the data the tribes affiliated to planets in each empire feed into them.

That was the saga of D'Taan, who died before the battle of Yuses, as told to me by the Tiaitha one magical night on the plains of Hakub I.

Fitting because D'Taan's sun polyps seeded the atmosphere of Hakub I releasing its stellar energy to the miners and colonisers and merchants, of which I am now one.



MICROTANIC COMPUTER SYSTEMS LTD.



BOOKS SOFTWARE COMPUTERS
ZX81 BBC ATARI 400/800

Interfaces available for the following computers which will enable you to use the Sinclair Printer with your computer. VIC ACORN ATOM BBC MICROTAN. Price £29.95 inc. VAT

We stock a large selection of software and books. Please write or call for catalogue stating relevant machine.

DRAGON 32 GOES FORTH



The FORTH language is NOW AVAILABLE on the DRAGON 32 — Create and run your programs up to 10-12 times faster than BASIC. AVAILABLE ON TAPE £24.95 inc. VAT.

MICROTAN 65

VIC

ACORN ATOM



SHOWROOM:
16 Upland Road,
Dulwich, London SE22

MAIL ORDER:
235 Friern Road,
Dulwich, London SE22



TELEPHONE: 01-693 1137

In stock now
at Twickenham's
official BBC/Acorn
dealer & service
centre

Phone
01-891 1612

BBC

Model A & B



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

72 Heath Rd Twickenham Middx TW1 4BW (01-892 7896/01-891 1612)

SOUND with ZX-81!

MAKE AMAZING SOUND EFFECTS WITH
YOUR ZX-81



£25.95 THE ZON X-81

incl p&p & VAT.

- * The ZON X-81 SOUND UNIT is completely self-contained and especially designed for use with the ZX-81. It just plugs in — no dismantling or soldering.
- * No power pack, batteries, leads or other extras.
- * Manual Volume Control on panel — ample volume from built-in loudspeaker.
- * Standard ZX-81 — 16K Rampack or printer can be plugged into ZON X-81 Sound Unit without affecting normal ZX-81 operation.
- * Huge range of possible sounds for games or: Music, Helicopters, Sci-Fi, Space Invaders, Explosions, Gun-shots, Drums, Planes, Lasers, Organs, Bells, Tunes, Chords etc., or whatever you devise!
- * Uses 3-channel sound chip giving programme control of pitch, volume of tones and noise, all with envelope control.
- * Easily added to existing games or programmes using a few simple "BASIC" lines.

FULL instructions with many examples of how to obtain effects and the programmes, supplied. Fully Guaranteed.

BI-PAK

Dept. CG12 P.O. Box 6,
63A High Street,
Ware, Herts.



Access & VISA accepted
Ring 0920 3182 for
immediate despatch.

Adventure

THE SANITY CLAUSE...

My sanity now partially restored with some help from our readers, I feel it is about time to tell all about Asylum.

This game by Frank Corr, like Death-maze, features a graphic maze with movement through it controlled by arrow keys, combined with typed commands in English.

However, there the similarity to Deathmaze ends. Asylum accepts whole sentences rather than two-word commands. The corridors are lined with doors which can be seen to be open or closed.

Most of the doors are locked. Some locks can be picked, others unlocked by a specific key. Guards can be seen barring the way at strategic points — try to pass them at your peril!

When the game commences the player finds himself locked in a cell with

nothing but a hand-grenade to keep him company. Yes — if handled wrongly it WILL blow up!

There is nothing for it but to find a way to escape from the cell. Should the player be recaptured, he will find he must escape again, this time by a different method.

Then what? How is it possible to break further into the game with those guards on each corner? This is the point at which I nearly went mad a few months ago! I was not the only one — Steve Gamble from Sheffield wrote in desperation asking me to pass on any useful tips I might receive from helpful readers. He even offered to take out an additional mortgage on his house to pay for such advice!

Fear not, Steve! *Computer & Video Games* readers have come to our rescue! R. W. Patterson of Silcoates School in Wrenthorpe suggested that the guard should be approached with the confidence of a hedgehog trying to overturn a speeding juggernaut.

Tiptoe, turn and face the guard and punch him, was his advice. Then frisk him, he suggested, and watch the startling metamorphosis as he turns into a box containing useful objects! Well, the last bit was OK, but the first few moves didn't quite seem to work out.

Mr P. A. Ellis of Wrexham was more explicit in how to get to the frisking stage. For readers who are as desperate as Steve and myself, I have encoded the instructions — to protect those of sound mind — in a Basic program listing. Type it in and run it to obtain the tips.

Having successfully got past the guard and armed with a brass key, I managed

to free an inmate who proved to be an expert locksmith. The trouble is, he was also a chain smoker, and got quite nasty without a regular 'fix'. I was getting on reasonably well with my new found friend when suddenly and without warning he pushed me into a maze.

Mr. Ellis has obviously got beyond this point as he ended his letter with meaningless questions like "How do you get the hanger off the inmate after the second maze?"

Never mind the second maze, Mr. Ellis, how do you get out of the first one? Mr. Ellis didn't tell me any more for fear of spoiling my game!!

Eventually I found my own favourite ending! Try this one Steve, and your worries will be over. Go into the first door on the right from the left-hand entrance to the guards quarters. There you will be welcomed in for a lobotomy.

Before you can decline, the screen will clear with a message: 'You are now very calm'.

Asylum runs on a TRS-80 or Video Genie in 16k

I often get desperate letters from readers for a solution to a particular problem in an Adventure which is baffling them and preventing further exploration.

Whilst I am happy to help — if I can! — no doubt many readers would rather not see the solution, preferring to battle on themselves. Therefore I have written some tips in code to help solve the problems that seem to be bugging most Adventurers who write in.

To decode the solutions, type in and run the decoding program provided. The program will call for lines of coded text to be input. When this has all been entered, type 'E'. After a short delay, the message will be displayed in clear language on the screen.

```

100 REM COMPUTER & VIDEO GAMES
110 REM ADVENTURE TIPS DECODE PROGRAM
120 REM BY KEITH CAMPBELL
130 CLS : PRINT"TYPE <E> WHEN DATA ENTRY
  COMPLETE*"
140 FOR I = 0 TO 10
150 PRINT"ENTER LINE NO.":I+1
160 INPUTA$(I)
170 IF A$(I) = "E" THEN 190
180 NEXT
190 FOR I = 0 TO 10
200 IF A$(I) = "E" THEN 280
210 FOR J = 1 TO LEN(A$(I))
220 Z = ASC(MID$(A$(I),J,1))
230 IF Z = 59 THEN Z = 0
240 IF Z = 64 THEN Z = 4
250 Z = Z + 32
260 B$(I) = B$(I) + CHR$(Z)
270 NEXT J : NEXT I
280 CLS : FOR I = 0 TO 10
290 IF A$(I) = "E" THEN END
300 PRINT B$(I) : NEXT I
  BEAT THE GUARDS IN ASYLUM

45%~ 121 (41/541/81'51281/88)E231E/2214/2
34/01/,2:01E2182/-1E/2,22
490X1718+115)X499
82/E231E/2214/2
490X1(341'51281/7)41'2X,192
ESCAPE THE BEAR IN SAVAGE ISLAND PART 1

/./1'21E(18)'11/8X(7)4(11,43
41+X1'/440X14/1E162
X-849125-11,134/,X1'13),
8)001'/440X17)4(13217'422182/-14)920//8
0/5217'4221/,1024'21/543)431E16X
7(1418/2185568X14/13610/2192
'16X1310914/1'212
./4X1'21210)+23131091),137214
GET PAST SERPENT IN TANDY PYRAMID

9/51-5341(16X1')281341452
'X4141)31'91E1229),11/891'/8
),1E(1-'2217)4(13X20X,414(2/71'128
*)2417)0011441E+13220X,411,4142)6X1)41/88

```

In suggesting ways that an Adventure might be programmed, I have quite frequently used FOR-NEXT loops to scan strings and arrays to identify words. For example where X\$ is the string to be searched and Y\$ is the trial string:

```

10 J=0: FOR I = 1 TO LEN(X$) STEP LEN(Y$)
20 IF MID$(X$, I, 3) = Y$ THEN J = I: GOTO 100
30 NEXT
100 REM VALID WORD STARTS AT THE JTH POSN

```

If the word is found, control jumps out of the FOR-NEXT loop to line 100.

This usually causes no problems on most machines, although it can corrupt the "stack".

The stack normally concerns only the Assembly language programmer, but it can get corrupted from Basic, causing unpredictable results.

You will probably only get these problems if the loops are nested and

buried in subroutines, but the extent to which you can 'get away with it' will also depend on which machine you have.

For instance, the BBC micro will not permit a jump out unless the FOR variable is equated to the TO value, whereas the TRS-80 is much more easy going.

The whole point of jumping out, of course, is that once the required value has been identified, no additional time is required to complete the loop, thus speeding up program execution.

If you run into FOR-NEXT problems that are apparently inexplicable, examine your coding to see if the loop is being exited before completion. If so you may have to revise your program thus:

```

10 J = 0 : FOR I = 1 TO LEN(X$) STEP LEN(Y$)
20 IF MID$(X$, I, 3) = Y$ THEN J = I
30 NEXT : GOTO 100
100 REM VALID WORD STARTS AT THE JTH POSN

```

BY KEITH CAMPBELL

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 erasing. Attractive black plastic moulded case. Supplied with 12" flexible ribbon cable for connection into your computer. *Not to be confused with toy keyboards currently on the market. Other attributes as reviewed by Tim Hartnell, ZX Computing/Interface.*



OTHER KAYDE HARDWARE/SOFTWARE

ZX81 4K GRAPHICS BOARD

The KAYDE Graphics Board is probably our best accessory yet. It fits neatly inside your ZX81. It comes complete with a pre-programmed 4K Graphics ROM. This will give nearly 450 extra graphics and with the inverse makes a total of nearly nine hundred.

The KAYDE Graphics Board has facilities for either 2K of RAM (for user definable graphics) 4K of ROM or our 4K Tool Kit Chips that will be available shortly. All the graphics are completely software controlled therefore they can be written into your programmes. Here are a few examples:

A full set of space Invaders –
Puckman – Bullets, Bombs –
Tanks – Laser Bases and
Alien Ships

NO EXTRA POWER NEEDED

£29.95

16K GRAPHICS SOFTWARE

PECKMAN – The only true ZX version of the popular arcade game.

SPACE INVADERS – The best version available anywhere.

CENTIPEDE – *"In all I think this is the best presented moving graphic programme I've yet seen" – Phil Garratt, INTERFACE*

£5.95 each

Graphic Software can only be used with a Graphics board

RAMPACKS . . . With a difference

Kayde Rampacks are exceptionally stable. They don't over-heat, lose memory, wobble or cause you to lose your program. They are fully compatible with all accessories and need no extra power, and therefore will run efficiently on existing Sinclair power supply. Simply plug them straight into the user port at the rear of your computer. Top quality massive add-on memory only:

£29.95 for 16K ZX81 Rampack and
£48.95 for 32K Spectrum Rampack

FLEXIBLE RAMPACK RIBBON CONNECTOR
only £12.95

16K 81 SOFTWARE

3D/3D LABYRINTH

– A cubit 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 E. PROM version for use with graphics ROM.

£9.95

VIC 20 SOFTWARE

THE KAYDE VALLEY
OTHELLO
TWINKLE TWINKLE
KAYDE PECKMAN
APPOLO 8
SPACE ATTACK
PLUS MANY MORE
All £7.95 EACH

Vic 20 dealer

Overseas please add £2.50 p & p for all hardware and 75p for all software. All hardware comes fully built and tested and complete with a 14 day money back option. PRICES INCLUDE V.A.T.

SEND FOR A FREE CATALOGUE STATING TYPE OF COMPUTER.

KAYDE ELECTRONIC SYSTEMS LTD.
THE CONGE, GREAT YARMOUTH, NORFOLK NR30 1PJ
TEL: 0493 57867 TELEX: 975 247 CHATCOM G

FAST
IMMEDIATE
DELIVERY

TO: KAYDE ELECTRONIC SYSTEMS LTD,
DEPT.CVG, THE CONGE, GREAT YARMOUTH,
NORFOLK NR30 1PJ



DON'T FORGET YOU CAN ALWAYS ORDER ON
THE TELEPHONE WITH YOUR CREDIT CARD.
DEALERS WELCOME.

PLEASE PRINT

Qty	Item	Item Price £	Total £

Please allow £1.50 P&P for all Hardware 50p for all software

*I enclose a cheque postal order payable to KAYDE Electronic Systems Ltd., for

£ _____ *Please charge to my Access Barclaycard Trustcard account no

* Please delete / complete as applicable.

Signature _____

Name: Mr Mrs Miss _____

Address: _____

Let's see what proverbs we can devise for a simple extension to the program outlined in the previous Go articles. We got as far as random selection of a move within a set of boundary intersections.

Each boundary intersection is defined as being next (considering up to the nearest eight intersections) to both a black and a white stone — see figure 1.

"Don't play where you can get captured next move" is rather an obvious maxim. All the points marked A fall into this category and therefore should be eliminated from the set of boundary intersections.

Then there is the well known proverb — "Your best play is often your opponent's best play". The logical converse of this proverb is "Your worst play is often your opponent's worst play". By this token the point marked B should also be eliminated — if it's a bad move for your opponent it's a bad move for you.

Having eliminated some bad moves, let us now move on to rank the remaining possibilities. We have a choice of optimising for defence or for attack. Since you are never so vulnerable as when you attack inexpertly, and considering our program's capabilities (so far) we shall tackle defence first.

A main tactic of attack is to isolate your opponent's groups by placing stones where those groups would otherwise join. Small groups have fewer liberties (adjacent vacant intersections) and so are easier to kill.

The moves to isolate stones are called "cuts" and "peeps". The white stone at E7 in figure 1 is an example of a peep.

A further move by white at E8 would seriously threaten the life of the four black stones to the left. A black stone placed at B2 is an example of a cut.

It separates the one white stone from the two above. "Block peeps and cuts" is advice well worth taking. In our defensive posture we will give such moves priority.

Even though a group might be cut off from another, it can still make territory and avoid capture if it gains enough liberties. Thus we should try to observe the proverb

The rules of play are very simple so you might expect that a few golden principles would enable a computer program to play well. Not so! Nevertheless there are hundreds of books on how to play Go — a fair number of them, English translations from the original Japanese. So surely it must be a matter of transferring the book knowledge into the computer and hey presto!

The trouble is that the proverbs, maxims and hints are all couched in far from concrete terms. Take the proverb "Play away from your opponent's strength." All very well but exactly how far away? How do you judge the strength of your opponent's positions? And then there are the inevitable exceptions to the rule to ponder! The most important Go proverb of them all is "Don't follow Go proverbs blindly!"

— "Maximise the liberties of your groups". We can do this by awarding higher priority to moves that gain more liberties.

Even with these proverbs, carefully selected for ease of implementation, there still remains a fair amount of design acumen needed to keep the programming simple and efficient.

The selection table defines a pattern recognition method which falls short of obeying the proverbs to perfection but does cover most situations.

The intersections next to each boundary intersection are examined to see which is the first pattern to match and then the appropriate action is taken.

For example we could hold the

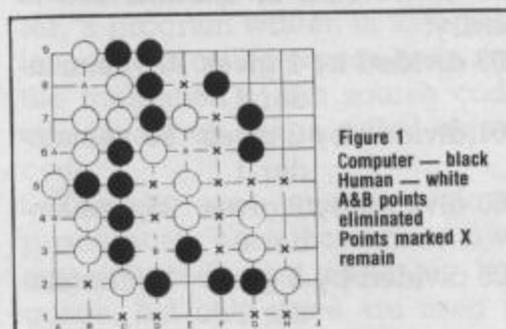


Figure 1
Computer — black
Human — white
A&B points eliminated
Points marked X remain

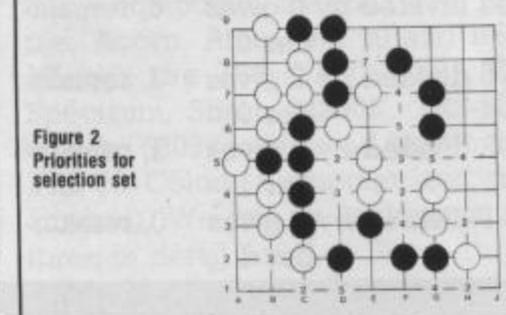


Figure 2
Priorities for selection set

first pattern as a byte string with values representing the matching instructions W, N/B, W, X, N/B, X, W, B.

Starting with North and proceeding in a clockwise direction each intersection is matched against the appropriate instruction. If all succeed i.e. North holds a white stone, North-East does not hold a black stone etc., the appropriate action is taken.

At the first failure the next pattern must be examined or at least the same pattern in the next of its four orientations. This can be done by starting with the East intersection. Note that N/B and N/W instructions include off board imaginary intersections so that points at the edge of the board can be matched against the same patterns.

Thus N/B means white, vacant or off board, and N/W means black, vacant or off board. By matching the patterns in this fashion it is possible to hold all the patterns in 88 bytes.

Figure 2 shows the final rankings.

Selection Table							
Pattern	B	W	N _B	N _W	W	B	Action
B	W	N _B	N _W	W	B		Eliminate from selection
W	W	W	W	W	W		Eliminate from selection
X	N _B	X	X	N _B	X		Priority = 7
W	B	N _W	N _W	B	W		Priority = 3+
B	B	B	B	B	B		Priority = 2+
X	N _W	X	X	N _W	X		Priority = 1+
X	W	X	W	B	X		Priority = 1+
B	B	B	B	N _W			Priority = 1+
X	X	X	X	N _B	X		Priority = 1+
N _B	B	N _B					Priority = 3+
X	X	X					Priority = 3+
X	X	X					Priority = 2+
B	B	N _B	N _B	B	B		Priority = 2+
X	X	X	X	X	X		Priority = 2+
X	X	X	X	X	X		Priority = 1+
B	B	B	B	B	B		Priority = 1+
X	X	X	X	X	X		Priority = 1+
X	N _B	X					Priority = 1+
N _B	N _B						Priority = 1+
X	N _B	X					Priority = 1+

KEY: B must be black
N_B mustn't be black
W must be white
N_W mustn't be white
X don't care

NOTES:
1. Take 1st match in strict order
2. N_B N_W include off board intersections

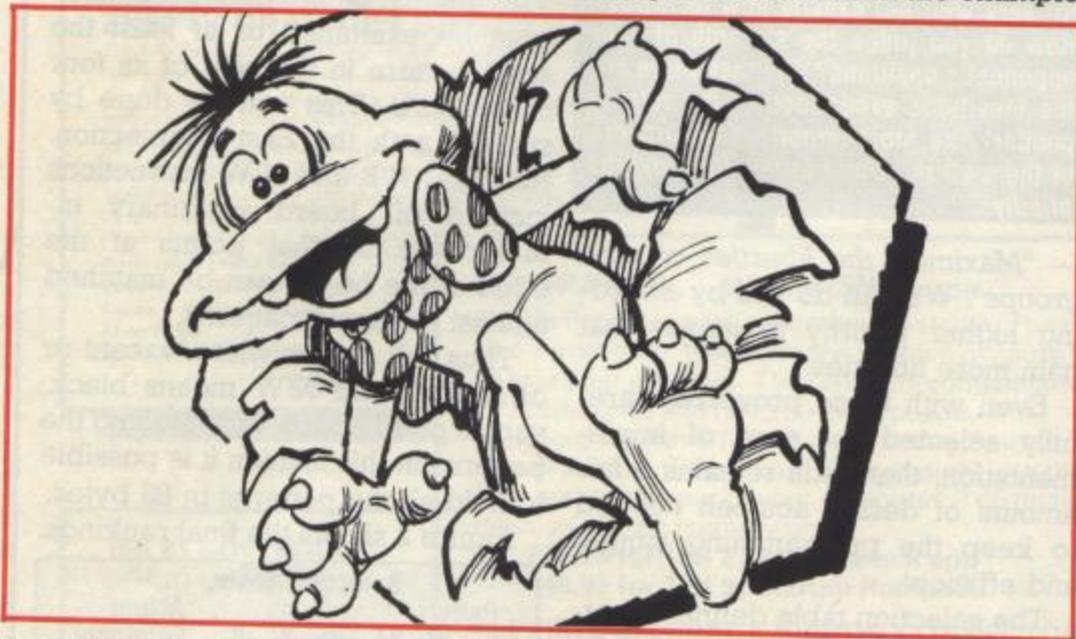
MACHINE CODE

TRY THE GO FASTER CODE

Home computers are designed to make it easy for us to type in, list, edit, save, load, and run Basic programs.

It is so easy to use Basic on these machines that we need a very good reason to take the trouble of using any other programming language.

The most common reason for getting away from Basic is that it is too slow for some applications; moving



graphics in interactive action games, the calculation of the computer's move in complicated strategy games, and the searching of large amounts of data in Adventure-type games are just a few examples.

The fastest response that can be obtained from a computer comes from machine code, but before we look at what this means we need a little background information on number systems and the internal organisation of a computer.

With ordinary decimal numbers, we use a positional principle in order to represent numbers of any size by combinations of 10 different digits, 0, 1, 2, . . . , 9. The amount a digit contributes to the number depends on the position of the digit; the rightmost digit represents units, the next digit to the left represents 10s, the next digit to that represents hundreds, and so on. The decimal number 203 thus means two hundreds plus no 10s plus three units.

BY TED BALL

We can use the same idea with other numbers than 10; if we use 2 instead of 10 we only need two digits, 0 and 1, and the positions of the digits, counting from the right represent units, twos, fours, eights, sixteens, etc, each position counting for twice as much as the position immediately to the right. Thus, the binary number 11001011 means one 128, plus one 64, plus no 32s, plus no 16s, plus one 8, plus no 4s, plus one 2 plus one 1, which works out to the decimal number 203.

We can convert numbers from binary to decimal as in the example

above, by adding the position values for the 1s in the binary number. To convert from decimal to binary we divide by 2, recording the result and remainder, and repeat the process on the result until we reach zero; the remainders in reverse order give the binary number. To illustrate this, let us look at the conversion of decimal 203 to binary:

203 divided by 2 gives 101, remainder 1
 101 divided by 2 gives 50, remainder 1
 50 divided by 2 gives 25, remainder 0
 25 divided by 2 gives 12, remainder 1
 12 divided by 2 gives 6, remainder 0
 6 divided by 2 gives 3, remainder 0
 3 divided by 2 gives 1, remainder 1
 1 divided by 2 gives 0, remainder 1

Reading the column of remainders from bottom to top gives 11001011, the binary equivalent of the decimal number 203.

These strings of binary digits (or bits) are not easy to work with; we generally need to use binary numbers 8 or 16 bits long, and it is very difficult to remember them and to copy them correctly. To get numbers that are conveniently short we generally use *hexadecimal* or base 16 numbers. In base 16 we need 16 digits, from 0 to 15, and we use the letters A to F for the digit values from 10 to 15.

The digits have positional values as in decimal and binary, but this time the values are multiplied by 16 as we move to the left. To take an example, the hexadecimal number 1A30 means one 4096 plus ten 256s plus three 16s plus no 1s, which works out to 6704 in decimal.

For numbers up to decimal 15 we can convert between binary and hex (short for hexadecimal) by a simple table:

Decimal	Binary	Hex
0	0000	0
1	0001	1
2	0010	2
3	0011	3
4	0100	4
5	0101	5
6	0110	6
7	0111	7
8	1000	8
9	1001	9
10	1010	A
11	1011	B
12	1100	C
13	1101	D
14	1110	E
15	1111	F

We can also use this table in converting larger numbers between binary and hex.

To convert from hex to binary we simply replace each hex digit by the four binary digits from the table, for example, hex 1A30 becomes binary 0001101000110000. To convert from binary to hex, we divide the binary number into groups of four digits, from the right, and replace each group by the corresponding hex digit, for example binary 11001011 gives the two groups 1100 and 1011, so the hex equivalent is CB.

Because of this direct conversion we can regard hexadecimal notation as an abbreviation for binary, and instead of 8 bit or 16 bit binary we can use 2 digit or 4 digit hex, which is much easier to use.

If we now look at the way a computer system is organised we can see why binary numbers are used. Figure 1 is a simple block diagram of a computer system CPU which stands for Central Processing Unit.

This is the part of the computer that does all the calculations and in a microcomputer the CPU is a single integrated circuit called a *microprocessor*.

operated by the presence or absence of a voltage. We can thus represent the data bus by an 8-bit binary number and the address bus by a 16-bit binary number, where a 1 means there is a voltage on the line and a 0 means there is no voltage on the line.

Machine code programs are actually patterns of 1s and 0s in the memory, which we represent as binary numbers (or in abbreviated form as hexadecimal numbers). The processor can only work with these binary numbers, but it is almost impossible for human beings to do so.

To show what assembly language looks like and to see how completely different the three processors

	6502	
A902		LDA #2
18		CLC
6902		ADC #2
8D0010		STA \$1000
	Z80	
3E02		LD A, 2
C602		ADD A, 2
320010		LD (1000H), A
	6809	
8602		LDA #2
8B02		ADDA #2
B71000		STA \$1000

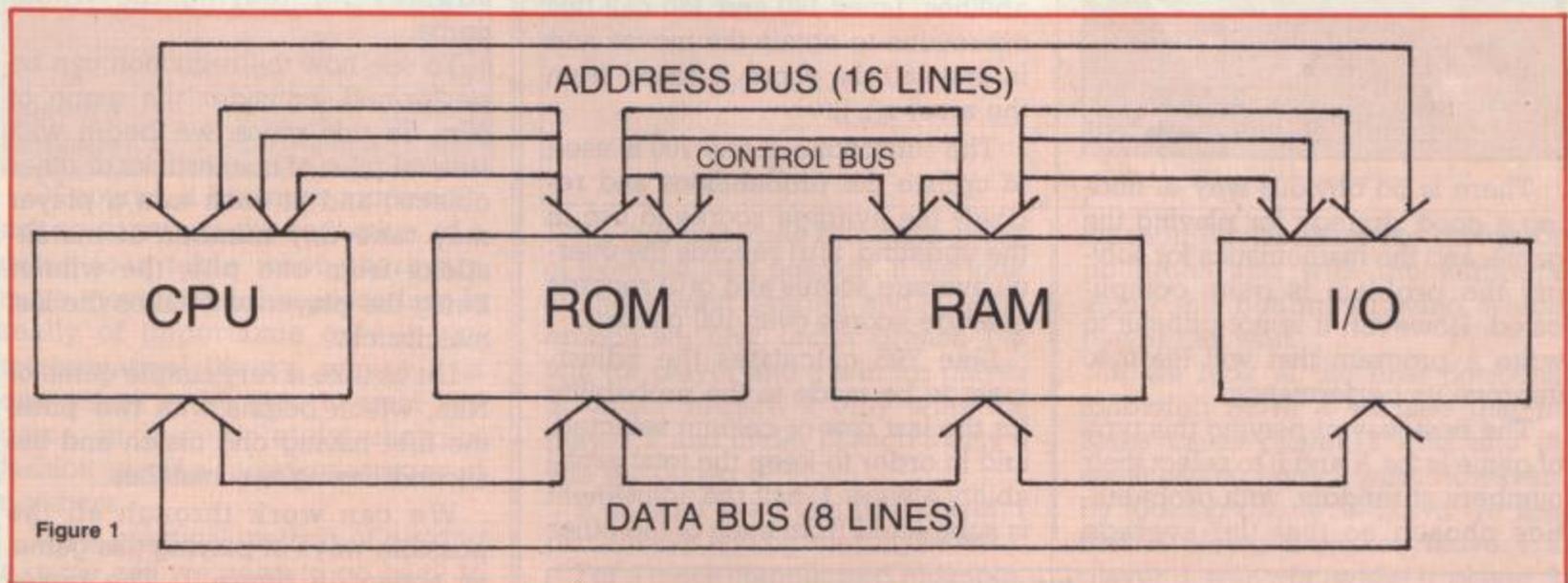


Figure 1

ROM is Ready-Only Memory, and is used for permanent storage of programs and data; the Basic interpreter and all the control programs that make the computer work are stored in ROM.

RAM stands for Random Access Memory; the name does not describe the most important point, that it's possible to write new programs and data into the RAM. I/O stands for Input/Output, the connections between the computer and the outside world: keyboard, TV display, tape recorder, printer.

The various parts of the computer are joined into a single system by three sets of connections, the Control bus (which we can ignore as it cannot be affected by programming), the Address bus, and the Data bus (a *bus* is just a group of connections).

The home computers we are dealing with have eight data line and 16 address lines which are

We actually write our programs in a language that has meaningful names for the machine instructions and allows us to use meaningful names for our data, then we translate into the binary numbers the processor needs.

The meaningful language is called **assembly language** or **assembler**, a program written in assembly language is called **source code** and the translation of the source code into binary or hex is called **object code**.

There are many microprocessors, each having its own machine code and assembly language, but only three are used in home computers: the 6502 (Pet, Apple, Acorn, Atom, Vic-20 and BBC Micro), the Z80 (ZX80, ZX81, ZX Spectrum, Sharp MZ80K, TRS-80), and the 6809 (so far used only in the TRS-80 Colour Computer and the Dragon). We will be looking at all three in detail later.

are, let us look at a simple program to add 2 and 2.

The object code (in hex) is on the left and the source code on the right.

In all three programs the same principle is used; load the number 2 into the processor, add 2, and finally store the result in memory location 1000 hex.

There are, however, several differences in the details of the source code.

Because the assembly languages are so different you will have to stick to learning just the one for the computer you have.

You will need a text book to refer to the precise details of the assembly language and the corresponding machine code.

There are many books available, some dealing with a particular model of computer and others dealing with the microprocessor without reference to any particular model.

PRACTICAL PROGRAMMING

THE SEARCH FOR A GOOD STRATEGY

I have been looking at a table for a simple game. The game consists of two players, A and B, independently choosing one of the numbers 1, 2, 3. If they choose the same number B wins the amount of the chosen number otherwise A wins the amount of his number. This is equivalent to A choosing a row and B choosing a column from table one.

		B		
		1	2	3
A	1	-1	1	1
	2	2	-2	2
	3	3	3	-3

There is no obvious way of finding a good strategy for playing the game, and the mathematics for solving the problem is quite complicated. However, it is not difficult to write a program that will learn to improve its performance.

The best way of playing this type of game is for A and B to select their numbers at random, with probabilities chosen so that the average

score is better than with any other probabilities.

Program 1 has been written to demonstrate the principle.

In order to keep the program simple and avoid obscuring the principle I have used a simple method for adjusting the probabilities, which will not work correctly all the time, and I have omitted any checks to prevent the probabilities from becoming greater than 1 or less than 0.

The probabilities are set at 1/3 to begin with, and the subroutine beginning at line 500 selects a number 1, 2, or 3 with the appropriate probabilities. Lines 140 and 150 call this subroutine to obtain the moves and in line 160 the score is found from the array $s(i, j)$.

The subroutine at line 700 is used to update the probabilities and records the average scores to use in the updating. $a(u)$ records the overall average scores and $g(u)$ records average scores over 100 games.

Line 705 calculates the adjustment to be made to the probability for the last row or column selected, and in order to keep the total probability always 1, half the adjustment is subtracted from each of the other

two probabilities, in lines 740 and 745.

In the games we have looked at so far, each player makes only one move, and the two players make their moves simultaneously, without knowing the other player's move. In most real games, each player will have to make several moves, and the players make their moves alternately and know all the previous moves.

However, it is always possible to reduce an extended game to the simple form of one move for each player, although in the reduced form a "move" actually consists of a strategy for playing the whole game.

To see how the reduction can be performed, consider the game of Nim. In this game we begin with several piles of matchsticks or other objects, and at each turn a player may take any number of matchsticks from one pile, the winner being the player who takes the last matchstick.

Let us take a very simple game of Nim, which begins with two piles, the first having one match and the second having two matches.

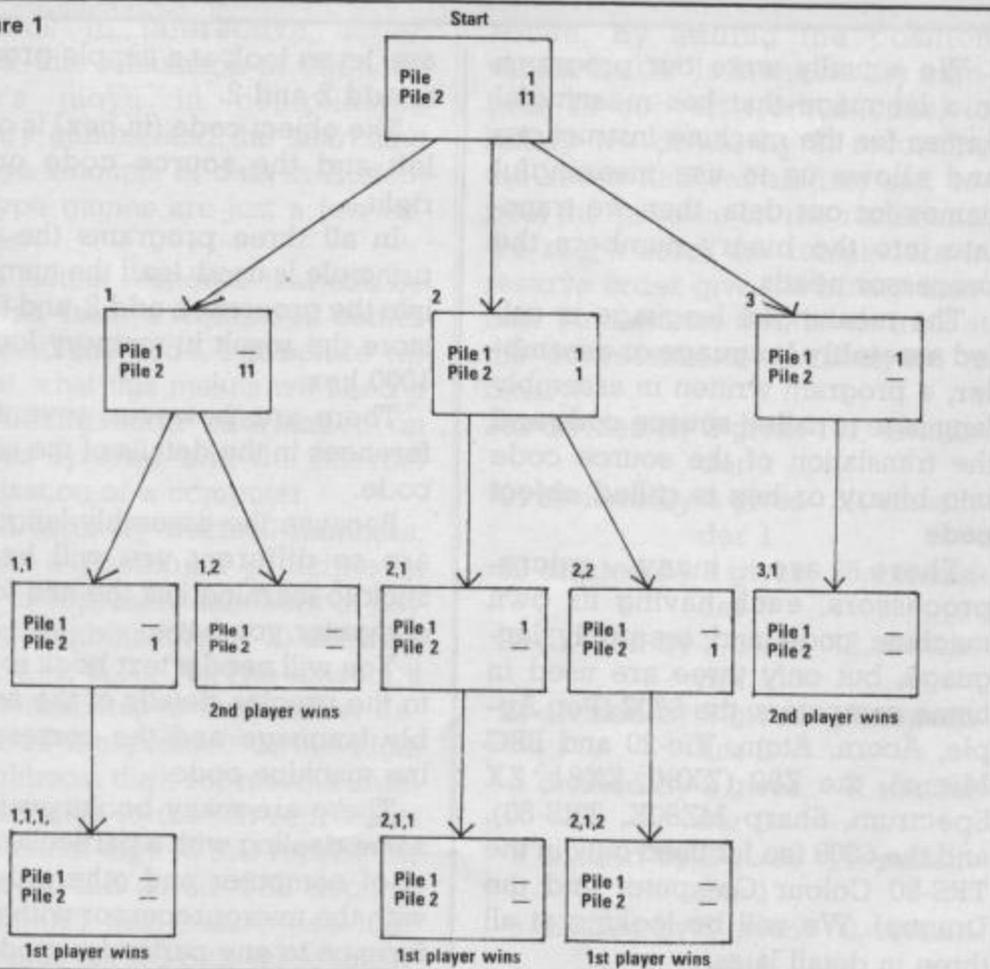
We can work through all the possible ways of playing this game, as shown in figure 1. The boxes show the position after each move and the numbers above the boxes can be used to refer to the moves.

There are only three ways for the first player to play, because after the second player's move either the second player has won or there is only one match left and the first player has no choice for his second move.

There are four ways for the second player to play (these are plans for the whole game, not single moves) as follows:

- 1) If player 1 makes move 1, make move 1, 1
If player 1 makes move 2, make move 2, 1
If player 1 makes move 3, make move 3, 1
- 2) If player 1 makes move 1, make move 1, 1
If player 1 makes move 2, make move 2, 2
If player 1 makes move 3, make move 3, 1

Figure 1



BY TED BALL

PRACTICAL PROGRAMMING

- 3) If player 1 makes move 1, make move 1, 2
If player 2 makes move 2, make move 2, 1
If player 3 makes move 3, make move 3, 1
- 4) If player 1 makes move 1, make move 1, 2
If player 1 makes move 2, make move 2, 2
If player 1 makes move 3, make move 3, 1

We can now make up a table similar to those for the earlier games, with a 1 meaning a win for the first player and a -1 meaning a win for the second player:

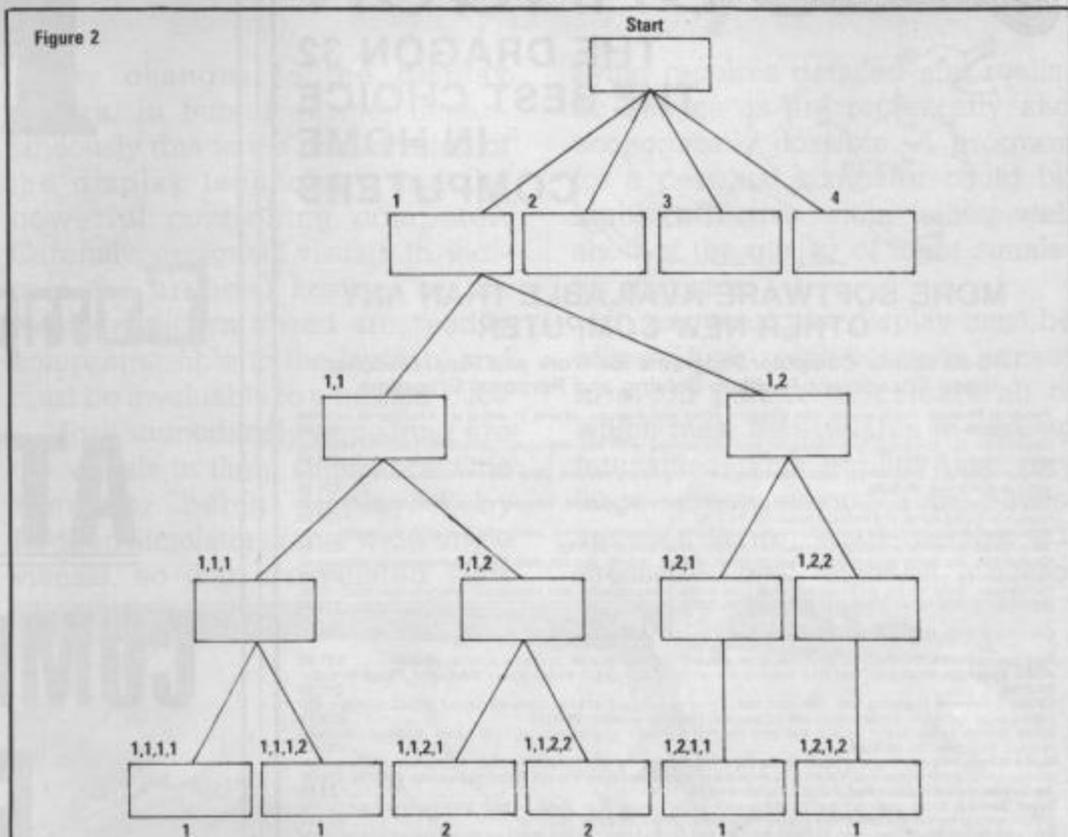
		2nd player's strategy			
		1	2	3	4
1st player's strategy	1	1	1	-1	-1
	2	1	1	1	1
	3	-1	-1	-1	-1

Of course, it becomes more difficult to carry out the reduction of a game to a table when there are more moves, and this procedure is really of importance only in the mathematical theory, where it is convenient to be able to treat any game in a completely abstract fashion as just a rectangular array of numbers.

For a practical method of playing a game will we need to go back to figure 1 and look at it in more detail.

From the point of view of player

Figure 2



1, the tree has three branches going of from the start position. If we look at the lowest entries under each branch we find, under branch 1 a win for player 1 and a win for player 2, under branch 2 only wins for player 1, and under branch 3 only a win for player 2.

It is clear from this that player 1 can always win by making move 2.

For a more complicated example, consider figure 2 which shows part of a larger tree, using the same

notation for labelling the moves or positions and with the numbers along the bottom showing which player has won.

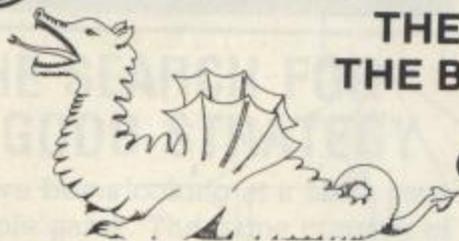
If we look at the final positions following move 1 we see that in some cases player 1 wins and in some cases player 2 wins. However, by looking one level down we see that if player 2 makes move 1, 2 player 1 will win, while if player 2 makes move 1, 1 player 1 can win by making move 1, 1, 1.

```

10 DIM p(2,3): DIM g(2): DIM a
(2): DIM b(2)
20 LET p(1,1)=.333: LET p(1,2)
=.333: LET p(1,3)=.334
30 LET p(2,1)=.333: LET p(2,2)
=.333: LET p(2,3)=.334
40 DIM s(3,3)
50 FOR i=1 TO 3
60 FOR j=1 TO 3
70 READ s(i,j)
80 NEXT j
90 NEXT i
100 LET y=0
110 LET x=0
120 LET x=x+1
130 PRINT AT 0,0:y+x
140 LET v=1: GO SUB 500: LET i=
U: REM row player's move
150 LET v=2: GO SUB 500: LET j=
U: REM column player's move
160 LET s=s(i,j)
170 LET u=1: LET v=i: GO SUB 70
0: REM Update row probabilities
180 LET s=-s
190 LET u=2: LET v=j: GO SUB 70
0: REM Update col probabilities
200 IF x/100<>INT(x/100) THEN
GO TO 120
210 CLS
220 PRINT AT 3,0:
230 FOR u=1 TO 2
240 FOR v=1 TO 3
250 PRINT p(u,v); " ";
260 NEXT v
270 PRINT
280 NEXT u
290 LET y=y+100
300 FOR u=1 TO 2
310 LET b(u)=b(u)+g(u)
320 LET a(u)=b(u)/y
330 LET g(u)=0
340 NEXT u
350 GO TO 110
500 LET p=0
510 LET u=1
520 LET r=RND
530 FOR n=1 TO 2
535 LET p=p+p(v,n)
540 IF r>p THEN LET u=u+1
550 NEXT n
570 RETURN
700 LET g(u)=g(u)+s
705 LET d=.001*s*(a(u)-g(u)/x)
710 LET p(u,v)=p(u,v)+d
715 LET l=v+1
720 IF l>3 THEN LET l=1
725 LET m=l+1
730 IF m>3 THEN LET m=1
740 LET p(u,l)=p(u,l)-d/2
745 LET p(u,m)=p(u,m)-d/2
750 RETURN
800 DATA -1,1,1,2,-2,2,3,3,-3

```

jade AND THE DRAGON



THE DRAGON 32
THE BEST CHOICE
IN HOME
COMPUTERS

MORE SOFTWARE AVAILABLE THAN ANY
OTHER NEW COMPUTER

TRS-80 Colour Computer Programs for Work and Play. Discover
these Convenient Problem-Solving and Personal Programs.

Personal Finance. Helps answer vital questions about your finances. Assists in setting up a budget 26 expense categories 26-3101 £27.95
Speculator. Do planning, forecasting or problem-solving with this electronic worksheet. Cassette recorder recommended 26-3104 £22.95
Colour SCRIPSI. Time-saving word processing with many editing features. Save text with optional recorder or print with optional printer 26-3105 £25.95
Typing Tutor. Helps you learn to type the alphabet, numbers and symbols. Whether you're a novice or experienced typist, you'll build speed and increase accuracy. 26-3152 £22.95
Investment Analysis. Helps you make financial decisions. Determine interest, present values, stock and bond yields. Save figures for review or update with optional recorder. Avail. Nov 30 26-3102 £25.95
Colour File. Electronic filing makes it easy to store, retrieve, change and use data files includes names, addresses, inventories, etc. — or create your own. Requires cassette recorder. 26-3103 £17.95
Handyman. Great for the do-it-yourself. Just feed in the measurements and Handyman tells you how much paint, insulation, fertilizer, sand, gravel, etc. you'll need. 26-3154 £16.95

Use These Unique Graphics Programs or Create Your Own With Our BASIC Manuals

Art Gallery. Draw colour pictures. Save results on optional cassette recorder. Joysticks optional. 26-3061 £27.95
Audio Spectrum Analyser. Test your stereo's performance. Bar graph shows power distribution. Requires cable 26-3156 £17.95
Colour Computer Learning Lab. Excellent hand-on self-teaching course in Standard Colour BASIC. Contains 200 page manual and eight cassette tapes with 30 lessons. Requires recorder. 26-3153 £29.95
NEW! Bridge Tutor. Learn bidding and card playing. Computer grades you too. 100 hands analysed. Joysticks optional. Avail. Nov. 30. 26-3158 £25.95
Maths Bingo. Helps to improve basic maths skills with stimulating exercises in addition, subtraction, multiplication, division and number recognition. Object is to solve the problems and score a bingo. Requires joysticks. 26-3150 £19.95
Xaverline Hi-Res Planner Pad. P&P for Planner only £1
Super Bustout. Break down not one, but three walls on the screen. Gain points for each brick you knock out. Gravity feature adds to the fun. For one to four people. Requires joysticks. 26-3056 £19.95
New Low Price! Dino Wars. Your dinosaur lumbers into position for a ruthless attack on your opponent's beast. They roar, yell and fall with a "thud". Joysticks required. 26-3057 £19.95
Skiping. Race against the clock as you manoeuvre through the gates. Three-dimensional with sound. Joysticks required. 26-3058 £22.95
New Low Price! Colour Backgammon. It's you against the computer in a game of strategy and luck. There's triumph, cold-hearted assaults, total reversal of game's flow — but no cheating. Joysticks optional. 26-3059 £19.95
Project Nebula. Thrilling dog fights as you travel through space seeking and battling enemy vessels. Four difficulty modes, each with 10 levels of difficulty. Joysticks required. 26-3063 £25.95
Polaris. Project islands — use missiles in your three submarines to intercept the incoming enemy attack. Excitement mounts as speed increases. For one or two players. Joysticks required. 26-3065 £19.95
NEW! Galactic Attack. Destroy enemy spaceships dive bombing your fortification. Enemy also reverts to ominous night attack — now destroy for double points. Joysticks required. 26-3066 £17.95
NEW! Wildcatting. Strategy game in the oilfields. Pick drilling sites, but watch out for dry holes. Player with highest profit wins. For one to four players. Joysticks optional. Avail. Sept. 30. 26-3067 £17.95
NEW! Roman Checkers. Classic board game. Play against the computer or another person. Joysticks optional. Avail. Sept. 30. 26-3071 £17.95
Getting Started With Colour BASIC Colour Manual. Learn to write Colour BASIC programs with graphics and sound. Over 300 pages of instructions written for the beginner. Entertaining and fun. 26-3191 £3.95
Going Ahead With Extended Colour BASIC Manual. Describes features of Extended Colour BASIC like advanced graphics, files and more. Over 280 pages of instructions. 26-3192 £3.95
Colour Computer Technical Reference Manual. Explains how the TRS-80 Colour Computer works. 26-3193 99p
Space Assault. Get the highest possible score by eliminating the invaders before they eliminate you. Requires joysticks. 36-3060 £17.95
NEW! Colour Cubes. Play that maddening cube puzzle on your computer. Make up to 255 moves — undo and redo them. Retrace and analyse your moves. Save your position on tape with optional recorder. Avail. Sept. 30. 26-3075 £19.95
NEW! Tennis. Realistic action. Use strategy in your matches. Beginner and expert levels. Applause and other sound effects. Avail. Nov. 30. 26-3080 £17.95
Quasar Commander. You're at the controls of a starship. Manoeuvre through space seeking and destroying alien vessels. Requires joysticks. 26-3051 £26.95
Pinball. The classic arcade game. Allows up to four players to compete. Design your own board for easier or tougher games. Requires joysticks. 26-3052 £19.95
American Football. Join the pros. You quarterback the offence with a choice of five plays, your opponent calls the defence. Requires joysticks. 26-3053 £22.95
Checkers. Features eight skill levels. Beginner to expert. Draughts will never be the same now it's you versus the computer. 26-3055 £19.95
NEW! Pyramid Adventure. Explore the pyramid's unknown passages for treasures. Cassette recorder required. Avail. Sept. 30. 26-3055 £9.95
NEW! Raski-Tu. Venture into a temple of forgotten civilisation. Cassette recorder required. Avail. Sept. 30. 26-3311 £9.95
NEW! Bedlam. Escape from the insane asylum. The way out changes every time. Cassette recorder required. Avail. Sept. 30. 26-3312 £9.95

SELECTION OF SOFTWARE

CARTRIDGES

Berserk. A shooting game for 1 or 2 players. 15 skill levels. Joysticks required. £19.95
Cosmic Invaders. A Space Invader type game. 15 skill levels. 1 player only. £19.95
Meteroids. Pick your way through the Asteroids. 15 skill levels. 1 player only. Joysticks optional. £19.95
Cave Hunter. Hunt through the maze for treasure whilst avoiding monsters. 1 player only. Joysticks required. £19.95
Ghost Attack. A Pacman type game. 1 player only. Joysticks required. £24.95
Starship Chameleon. Protect your planet by destroying enemy bombs. 1 or 2 players. Joysticks required. £19.95

CASSETTES

Quest. An adventure game with graphics. £7.95
Madness and the Minotaur. An adventure search for treasure with Magic Spells and Monsters. £7.95
Dragon Special Selection. A collection of 4 games to show the Dragon's abilities. £7.95
Dragon Special Selection 2. 4 application programs including a data base. £7.95
Graphic Animator. Allows you to create simple animated drawings. £7.95
Personal Finance. A home accounting program. £7.95
Computavoice. A machine code routine providing phonetic sounds that may be used to produce speech synthesis. £7.95

Examples from Manual. A selection of programs taken from the Dragon 32 computer manual. £7.95

EXTRA HARDWARE

Cassette Recorder. £39.95
Joysticks (pair). £19.95
Cassette Lead. Note no lead included with computer. £3.00
Blank Data Tapes. each £3.00
Colour Plotter Printer. A new 4 colour graphic printer compatible with the Dragon 32 for only £149.00
Printer cable for the above. £19.95

To: JADE COMPUTERS, MAIL ORDER DIVISION, COOMBEND, RADSTOCK, BATH BA3 3AN.
TELEPHONE (0761) 32570 FOR MORE DETAILS.

SOFTWARE REQUIRED PLEASE LIST

I enclose Cheque/PO Number _____ for £ _____ made payable to
JADE COMPUTERS LIMITED (Plus £4.50 P&P for Great Britain + Northern Ireland)

Name _____
Address _____

R & R

Computer Games

ATTENTION

COMPUTER GAME CREATORS

Had any problems selling your new
game?

R&R Computer Games is the
first company to provide a
wholesale distribution service
aimed at the retailer.

Our 1983 sales force is geared
to achieve maximum market
potential of your game.

INTERESTED IN US?

THEN WE ARE INTERESTED IN YOU!!

Write or phone:

R & R COMPUTER GAMES

226 Pontefract Road,
Cudworth, Barnsley.

0226 710414

Graphics



LOOK MUM, NO WINGS

Along with about a quarter of a million other people, I went to Farnborough last month to see the flying display. The planes and the displays can provide the inspiration for computer games and a wealth of ideas for graphics — both static and mobile. Being able to see the planes, whether in the static display or in the air, reinforces very strongly the importance of being able to see a complex object from many different points of view in order to be able to appreciate its overall shape and structure, and hence perhaps its function. Only the combination of several rather special views of a plane such as the Rockwell B-1 can reveal the way in which its shape has been designed to reduce its visibility to radar systems. This kind of experience should inspire anyone to polish up his program for displaying three-dimensional shapes and using hidden line removal.

The exhibition of aviation hardware is vast, and it is surprising — although perhaps it should not be — to come across the names of firms familiar to users of personal computers — Thorn-EMI to name one.

What is particularly striking is the number of manufacturers displaying computers and video displays. The graphics capabilities being demonstrated by various manufacturers were quite remarkable, particularly by comparison with what is available for video games and personal computers.

The major applications for graphics were in instruments displays and simulation.

The most advanced instrument panel systems for aircraft cockpits all include a cathode-ray tube on which any individual instrument display can be shown as required. Raster-scan technology is naturally used to generate the display on the C.R.T., and the visual display is composed of dots, just as on a personal computer. However, liquid crystal display technology is used for the display surface.

Any changes to the display occurs, in human terms, instantaneously due to the combination of the display technology and the powerful controlling computer. Carefully designed visuals to indicate the artificial horizon or the weather pattern ahead are readily comprehensible to the layman, and must be invaluable to a trained pilot.

More immediately appealing are the visuals in flight simulators. One simulator being displayed by Redifon Simulators gave wide-angle visuals, so that a simulated view



from the cockpit is provided for all the windows. The visuals representing airports in all conditions from daylight to darkness, and including in between, dusk and foggy conditions, are realistic and convincing.

If personal computers are to be able to display the sort of graphics used in flight simulators advances are needed in both hardware and software compared to what is generally available now. This begs the question of whether it is necessary to reproduce the graphics precisely on a personal computer.

To convince a pilot in a simulator to take his experience seriously and make him believe he is actually

flying requires detailed and realistic images as are technically and economically possible. A program for a personal computer could be highly effective while falling well short of the quality of flight simulator graphics.

In any event, the display must be of very high resolution with access to a full palette of colours all of which must be available in varying intensities. This implies that very large screen memories are necessary — larger than can be addressed by eight-bit micro-

processors — so that a 16-bit machine is needed. It would be needed to produce realistic mobile graphics with such images.

The programming expertise necessary to write programs generating such graphics is mostly contained within the companies involved in making the simulators.

The only program known to me that has graphics remotely approaching the level of flight simulators is a Jumbo jet landing program for the Atari. The Atari machines, incidentally are probably the only current personal computers able to display the necessary images.

As all this graphics capability and technology already exists in the aviation world, there is no reason why it should not be borrowed and adapted by the games and computing sector, as long as it can be delivered at the right price.

Illustration: Jon Davis

BY GARRY MARSHALL

sinclair ZX Spectrum

GROUND FORCE ZERO

The Ground Forces have been destroyed so the air attack must begin and you're in control!

Just **£5** inclusive

MAY THE FORCE OF TITAN BE WITH YOU

ATARI 400/800 16K

CAVERNS

JOURNEY THROUGH ROCK CAVERNS, PAST LASER FIELDS, THROUGH ROCK VALLEY AND INTO THE UNKNOWN.

SUPPLIED ON CASSETTE WITH FULL INSTRUCTIONS

Just **£6** inclusive

WICKED

missile-panic

TRAPPED IN THE MAZE OF DEATH THE VENOMOUS MISSILE IS ON YOUR PATH THERE'S NO HIDING A HIGH SPEED MISSILE HARKING AND A LAMB FOR THE USE OF THE MISSILE.

Just **£6** inclusive

TEXAS INSTRUMENTS

MISSION 88

THERE'S TERROR IN THE STREETS, MANHATTAN IS UNDER ATTACK, YOU'RE THE ENEMY, DON'T MISS IT.

SUPPLIED ON CASSETTE WITH FULL INSTRUCTIONS FOR THE STANDARD TURBO

Just **£6** inclusive

TITAN PROGRAMS

TITAN HOUSE, 83 ASHWOOD ROAD, RUDLOE, CORSHAM, WILTSHIRE SN13 0LG

IMMEDIATE DELIVERY

Please send me
 I enclose cheque/P.O. for
 OR Please debit my Access No.
 Barclaycard No. Expiry date
 Name
 Address
 Post Code

Dealers Discount Available
 ACCESS, BARCLAYCARD ORDERS WELCOME ON 24hr
 ANSAPHONE 0225-810132, or mail to: CVG 12
 TITAN PROGRAMS, TITAN HOUSE,
 83 ASHWOOD RD., RUDLOE, CORSHAM,
 WILTSHIRE, SN13 0LG

ATARI 400 & 800 CASSETTE SOFTWARE from PANCOM

Bl Nuclear Bomber	11.75	Babel	15.95
Midway Campaign	11.75	Blockbuster	11.75
North Atlantic Convoy	11.75	Dog Daze	15.95
Nukewar	11.75	Domination	15.95
Planet Miners	11.75	Downhill	15.95
Lords of Karma	16.75	Eastern Front 1941	23.95
Conflict 2500	11.75	Outlaw/Howitzer	15.95
Empire of the Overmind	22.50	747 Landing Simulator	15.95
Tanktics	18.50	Shattered Alliance	26.50
Guns of Fort Defiance	16.75	Space Chase	8.95
Dnieper River Line	18.95	Time Bomb	8.95
Voyager	18.95	Ghost Hunter	19.50
Galaxy	16.75	Encounter at Questar IV	15.95
Controller	22.50	Rocket Raiders	14.75
Computer Acquire	16.75	Intruder Alert	14.50
Shoot Out at the OK Galaxy	16.75	Rings of the Empire	14.50
Bomber Attack	11.75	Space Trap	11.75
Tank Arcade	9.95	Forest Fire	14.50
Knockout	16.75	Blockade	11.75
Legionaire	25.95	Giant Sialom	11.95
Moon Patrol	18.95	The Vaults of Zurich	15.95
Andromeda Conquest	11.95	Ciga Trek	11.75
Apple Panic	19.75	Kaleidoscope	11.75
Stellar Shuttle	19.75	Pilot	14.50
Star Blazer	21.25	Beta Fighter	13.75
Track Attack	19.75	Hazards Run	19.75
Arcade Machine	29.95	Dominations	14.75
Kayos	25.75	Crazy Tack	14.75
Tumble Bug	19.75	Invasion Orion	17.50
Canyon Climber	19.75	Temple of Apshi	26.50
Shooting Arcade	19.75	Datestones of Ryn	13.25
Pacific Coast Highway	19.75	Rescue at Rigel	19.75
Clowns, Balloons	19.75	Star Warrior	26.75
Jawbreaker	19.75	Crush Crumble Chomp	19.75
Protectors	19.75	Alien Garden	26.50
Chicken	19.75	Soldier of Sorcery	39.95
Nautilus	19.75	Fishes	26.50
Slime	19.75	Plattermania	26.50
Shamus	19.75	Far Protector	39.95
Attank	15.95	Qwetty Bird	26.50
Avalanche	15.95	Richochet	13.25

ATARI VCS CARTRIDGES from PANCOM

The largest selection in the UK . . . at lowest prices

New releases

Atari		Parker Bros	
Demons to Diamonds	17.95	The Empire Strikes Back	27.95
Raiders of the Lost Ark	27.95	Frogger	27.95
Star Raiders	29.95		
Activision		Xmas Specials	
Pitfall	21.95	Street Racer	12.95
Megamania	21.95	Super Breakout	20.95
Coleco		Warlords	20.95
Donkey Kong	27.95	Pele Soccer	20.95
Turbo	27.95	Superman	20.95
Venture	27.95	Circus	15.95
Tigervision		Slot Racer	16.95
Threshold	23.95	Space War	12.95
		Adventure	20.95

Recent releases

Atari		Yars Revenge	24.50
Defender	26.95	Pac Man	27.95
Berzerk	24.95	Haunted House	17.95
Activision		Grand Prix	21.95
Chopper Command	21.95	Stampede	16.95
Star Master	21.95	Barnstorming	21.95
Ice Hockey	21.95		
Imagic		Riddle of the Sphinx	21.95
Cosmic Ark	21.95	Demon Attack	21.95
Atlantis	21.95	Trick Shot	18.95
Fire Fighter	18.95	Star Voyager	21.95
USG		Tigervision	
Space Jockey	21.95	King Kong	23.95
Spectravision		Apollo	
Gangster Alley	22.50	Space Chase	21.95
Planet Patrol	22.50	Space Cavern	21.95

Coming soon Parker Bros: Amidar; Super Cobra; Reactor; Spider Man.
Spectravision: Nexar; Crossfire; Tapeworm; China Syndrome; Master Builder; Galactic Tactic; Mangia; **Tigervision:** River Patrol; Marauder; Jawbreaker.

Postage etc: 50p per item. Two or more items Post Free. For lists send S.A.E. Pancom: Mail Order and Enquiries: 6 Tranby Drive, Grimsby, S. Humbs. Telephone (0472) 694196.
 Retail Shop: 87-89 Pasture Street, Grimsby.

SANTA'S CHOICE

RADIO CONTROL

In the early days of radio controlled cars, the returns rate was nothing less than horrendous. This was due to many problems but was not helped by the customer having to pay out upwards of £10 for batteries and a licence to be able to play with the vehicle.

Initially, British suppliers (most imported the vehicles) rushed into this area and failed to check quality and many toy buyers dipped their toes in the water and ran like mad when the product was returned.

The buyers left most ranges alone during 1981 but having been convinced of the quality of ranges such as Corgi (now manufactured in Japan) have once again stocked in depth. A recharger unit and rechargable batteries are recommended.

Programmable vehicles have not suffered from the same quality aspects. Unfortunately the number of items available is very few.

Best Buys in this category are: **VW Turbo Rally Car by Corgi** a realistic model with digital proportional steering. It has five separate functions — forward, reverse, turn left, turn right and stop and costs between £33 and £40.

The Honda Superbike by Corgi is another realistic model with detachable rider; proportional steering with transmitter. Engine revving and running noises.



Milton Bradley's Bigtrak

Electronic Toys that relied on the famous "chip" were first introduced to the British Toy Trade in the Autumn of 1978.

Since then, we have seen four different generations come and go — some hugely successful, the majority completely the opposite. There have been hand-held games, table top games and most recently credit card size pocket games.

Whilst these have been introduced, throughout the traditional items have remained and I suppose could now be called staple games.

This has of course affected the toy industry and sales of electric train sets and motor racing sets have suffered, in fact collapsed. Also traditional games have suffered as electronic toys (not including television games) have taken over 10% of the actual toy sales.

What do you look for when buying an electronic toy?

Well firstly, as with television games and cartridges, there is game play. Also, and probably most important, there must be a good back-up by the manufacturer/importer, such as after-sales service.

Let's look at the varying types of electronic toys. There are mini-arcade games (both hand-held and table top versions), basic family challenge games, watches incorporating games, vehicles — radio controlled and programmable and learning aids basically for the younger child.

Functions — forward, turn left, turn right and stop. Between £26 and £32.

Bigtrak by Milton Bradley must be the best known of all electronic vehicles, having appeared on many television programmes that are concerned with the famous chip.

It can be programmed to travel forwards, backwards, left, right, turn, spin or fire it's photon cannon.

Bought separately, the Bigtrak Transporter can be linked to the vehicle and programmed to haul loads and dump them on command.

Bigtrak is priced between £27 and £40 and the transporter costs from £14 to £20.

FAMILY FUN

The area of family challenge games is most confusing. You have items that were introduced in the first year of electronic toys and remain strong sellers as they are now regarded as staples.

On the other hand you have the 'gimmicky' items that arrive with a lot of bally hoo and that is all that can ever be said of them — they have 'died' just as quickly as they arrived.

A common fallacy with toy manufacturers is that if you change a highly successful line and introduce either an up-market or down-market equivalent, success is guaranteed. This has also happened to basic electronic family/challenge games.

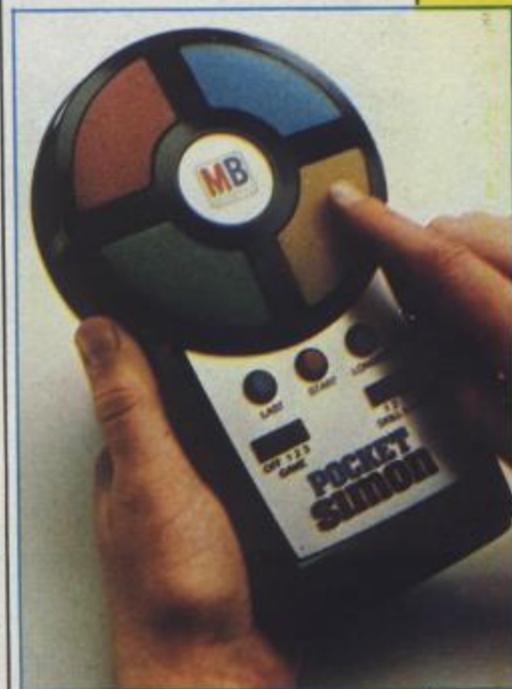
The prize winner was Computer Perfection. Perfection as a standard shape sorter game has been a huge success for the last six years. Computer Perfection was added to the range in the US in 1979 and in the UK in 1980 and played basically the same way but electronically. Unfortunately the item lasted only two years in America and was finished (if it ever started!) after one year in the UK.

One exception has been Computer Battleships,

which was accepted as the first ever electronic game in the UK in 1978 and has sold well ever since. When you think that the standard game still costs only around £7 and the electronic version is around £30-£35 it makes you wonder.

Best buys here are, the **Simon Family by Milton Bradley**. Simon was one of the earliest items onto the market place. It was followed by Super Simon and Pocket Simon. All three are still available and make up a most compact family range. The idea of the game is to repeat after 'Simon' (as in the child's game Simon Says) the colour sequences as quickly as possible. If you are correct the lights and sounds go faster, if you are wrong Simon blows a raspberry and it's back to square one.

Super Simon includes several variations and costs between £30 and £40; Simon, between £18 and £30; and Pocket Simon £11 to £20.



Pocket Simon

Dark Tower is the most recent title in Milton Bradley's electronic range. It is more than just a game — it's an experience. Record your moves on the computerised control centre as you enter this exciting world of fantasy. First to travel around the board and storm the Dark Tower is the winner. Price, between £29 and £40.

Continued on Page 88.



ORIC-1TM

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

THE REAL
COMPUTER SYSTEM
FOR
£ 99.95
incl VAT

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 Microsoft Basic for ease of programming and use. For the enthusiasts the computer has laser zaps, 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 your 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 telesales number Ascot (0990) 27641.

By post: You can pay by cheque, postal order ACCESS - BARCLAYCARD - AMEX - DINERS. (Please allow 28 days for delivery).

Money back if not satisfied.

© Copyright ORIC PRODUCTS INTERNATIONAL 1982

ORIC-1

The Real Computer System

Coworth Park Mansion
Sunninghill, Ascot, Berks SL5 7SE

Item	Qty	Price Inc VAT	Total
ORIC-1 16K RAM		£ 99.95	
ORIC-1 48K RAM		£ 169.95	
ORIC Communications Modem		£ 79.95	
Postage and Packing			£ 5.95
TOTAL		£	

Please charge my Access, Barclaycard
Amex, Diners Club account no.

Name _____ Address _____

If you require a brochure please tick

*Please delete/complete as applicable.
*I enclose a cheque/ P.O. payable to: ORIC PRODUCTS INTERNATIONAL LIMITED for £.

CVG

SANTA'S CHOICE

continued from page 85

Master Challenge by Peter Pan is an electronic quiz. Plug the Master Challenge computer into the quiz folder and dial any of the 1001 questions. Select your answer from one of four alternatives and the computer will tell you if you are right or wrong. It comes complete with cartridge number 1 with 1001 general knowledge questions and costs between £14 and £20 while Cartridge Quiz books are priced between £3.50 and £6.

Computer Battleship by Milton Bradley was the first electronic game brought into the UK. This is a game with 'live' action and sound. Hear the hunting of the sonar, the whistling of your missiles and the explosion of a direct hit. Claim victory with three 'whoops' on your destroyer's siren. Price between £24 and £40.

TABLE-TOPPERS

In the beginning there were the hand-held games. Initial sales were tremendous but as all manufacturers, especially those in the Far East, jumped into this market there was tremendous over-production and 'dumping' occurred, killing the market more-or-less overnight. The sport orientated items were never a huge success and retailers, in an effort to reduce stocks, discontinued the sports lines, this made the other items look well overpriced.

The hand-held game was followed by the table-top version, firstly space war items and then arcade

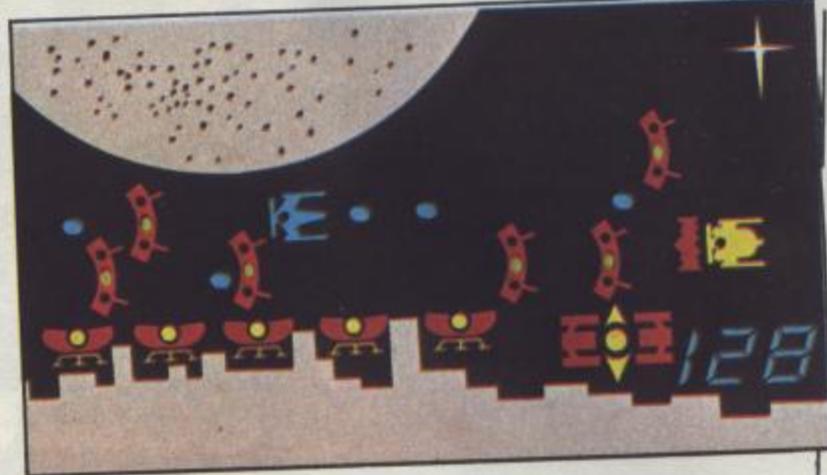
games in a reduced form. At the same time the miniature pocket games (credit card size and calculator size) entered the market, although once again we are going the way of hand-held with a lot of poor quality Far Eastern items pouring into the country.

Make sure the graphics are good (as television games cartridges) and the sound reproduction excellent. Games with varying skill levels are obviously better and the games that can be played using a mains adapter are the most sensible (batteries are expensive and these games "eat" them).

When buying, be careful, make sure the bargain has all the above, as the cheap imports that have been dumped very rarely offer the facilities mentioned.

Among the best buys in this field are: **Astro Wars by Grandstand**. A table top game featuring on-screen colour with a special magnifying effect. Five lines of action with multi-coloured invaders and futuristic sounds just like the real arcade game. It has four levels of play and was voted best new toy of 1981 by the National Association of Toy Retailers. It costs between £22 and £30.

Taking you back in time is **Caveman by Grandstand**. A table-top game with multi-coloured display. Control the caveman stealing eggs from the dinosaur, whilst avoiding his attack, features include dive bombing primitive birds, an axe attack, a volcano eruption and a fire breathing monster. Two levels of play and four lives, priced between £19 and £29.



Scramble

Scramble by Grandstand is an obvious follow-up to Astro Wars. It is based on the popular arcade game of the same name, and has a multi-coloured display with new exciting sound effects. Four separate phases including a meteorite attack, a space squadron attack, flight through the black hole and a base station attack. Costs from £22 to £30.

Defender by Entex is a hand-held version of the Williams arcade game that has long been an arcade favourite.

Defend your planet against many alien craft in a fast-moving rocket ship. It features asteroids, aliens, humanoids and a variety of hazards as well as twin radar spotter screens, multi-colour display and sound effects. Price between £27 and £35.

Munchman by Grandstand is a table top game with multi-coloured display. As with the hugely successful PacMan game you attack the monsters by eating the power food to score points. Two skill levels and costing between £18 and £24.

PacMan 2 by Entex is the hand-held version. A multi-coloured game of strategy and tactical pursuit. Six skill levels in the single player mode with two skill levels in the two player mode. It costs between £24 and £30.

Galaxy Invader 1000 by Computer Games Limited (C.G.L.) is a hand-held game with three skill levels and great sound effects — score

extra points shooting down the U.F.O. Price between £18 and £21.

PLAY SCHOOL

Electronic technology is now used in so many areas that it is no surprise at all that the expansion of the 'chip' in pre-school toys has occurred.

From a few years ago, when Texas Instruments entered the market, the idea of a small child learning from an electronic aid has become more-or-less standard. The early days of an American voice have practically disappeared and Milton Bradley have now entered the market.

The educational toy is now being used in many schools and is as much fun for the adult as the child.

Among the **Best Buys** are: **Speak and Spell by Texas Instruments**. The first of the 'talking' toys, it also has built-in extra games. It is a fantastic learning aid with computer brain and electronic voice. Pronounces words letter by letter — rewarding when right, correcting when wrong. Priced between £33 and £43.

Little Professor by Texas Instruments is a child's first electronic learning aid. Now up-dated to a LCD display, it has thousands of maths problems at four levels of difficulty. Priced between £9 and £12.

Major Morgan by Playskool is Milton Bradley's first entry into the pre-school electronic market. To play simp-



SANTA'S CHOICE

ly insert one of the song cards and touch the electronic keyboard according to the letters, numbers, colours or shapes shown. It is priced between £7 and £12.

Maximus by Playskool is the computer companion for learning and fun. Green "tick" lights up for correct answer, red "cross" with a buzz when wrong. Plays tune when all correct. Four different activities — spelling, match-ups, counting and music. It costs between £8 and £14.

You will notice from the wide range of price gaps, it pays you to shop around and find the best price.

JUST WATCH IT!

A deluge of games for the Atari VCS system is ready to descend on to the UK market.

They are manufactured by a host of new independent US software houses, which numbered 17 at the last count.

While the prospect of all these new games is an exciting one, it is necessary to add a word of warning. Not all of the games advertised have been properly converted to the UK market.

The American television system is not compatible with the British system and any cartridges produced over the Atlantic have to be converted.

Otherwise they will not offer as accurate and clearly defined graphics as they should, they may be slower and the colour usually suffers — in extreme cases, the cartridge will not produce colour at all.

The normal process is for an American company to make a deal with a UK distributor to release his cartridges over here. These are then converted and soon find their way into the shops.

Among the ranges currently out over here are: Parker, distributed by Palitoy; Imagic, distributed by Adam Imports; Appollo, distributed by Vulcan Electronics and Activision, by Computer Games Limited.

But cartridges that are available in the US can still be shipped over unconverted and sold here.

The technical reason why



WE'RE PLAYING FOR TIME . . .

Pocket size game-watches are coming down in price and there will be an abundance to choose from this Christmas.

A conservative estimate puts the number at 80 different varieties in numerous ranges. These can look very impressive with all sorts of wierd creatures inhabiting the screen. And some of the recent batches even have storylines to back them up, like HanimeX's Sleeping

Beauty for example.

But, the important thing to look for is that elusive addictive quality which prevents you from picking the game up "for just two minutes". Simple games usually work the best in this format.

Among the best games are: Popeye from C.G.L. which sets you the task of catching articles thrown by Olive Oyl, while Bluto tries to knock you into the harbour. Price about £19.95.

these cartridges are not compatible is due to the different electricity supply standards which apply in the US and in Britain. American TV sets run off 70 Hertz while British sets run off of 50 Hertz.

This causes cartridges which have not been modified to roll continuously as if the TV set were faulty.

In order to correct this cartridges need to be fitted with a stabilisation circuit to hold the picture stable.

Questions to ask your dealer before you buy are: "Is it a

British standard PAL cartridge" or simply, "Is it compatible with British television sets".

Best of all ask to see the game actually working before you purchase the cassette.

System X is a hot topic in TV gaming. Atari is still not telling its public much about the machine which is due to supersede the incredibly successful Atari VCS.

We have managed to glean a picture (right) and a few facts about this machine which has earned itself the nickname "the Super-game".

SPACE WARP

A recent addition to the pocket l.c.d. games with time facility is the watch with game facility.

Watches have always suffered from a high reject rate and obviously with the game facility added, rejection rates have increased. Watches are now much bulkier but sales have gone well due to the novelty of the item.

Again, space games are among the most popular with game watch fans.

Ones to watch out for here are: **Game Time by C.G.L.** The Space Invader type is by far the best seller and can be played with or without sound effects on the l.c.d. playing area. Cost, between £20 and £30.

Remote control joysticks are one feature on the new system and it will also have a tracker-ball control.

There will be 12 cartridges in the initial range, including sports and familiar arcade titles and the graphics will be similar in detail to the cartridges produced for the 400/800 computers.

Among the graphical frills will be clouds of dust produced by runners in the sports cartridges. And it is rumoured that there will be a plug-in attachment which will allow the system to run existing Atari VCS cartridges.

Beating the Atari System X to our selves will be ColecoVision's new TV games centre, due out early in 1983.

It is being marketed in this country by Ideal and is promising a big improvement in games centre graphics.



continued on page 91

ANIROG COMPUTERS CO-OP CRAWLEY ONE STOP SHOP

INVITATION TO OUR **XMAS ROAD SHOW** AT THE FOLLOWING HOTELS BETWEEN 12.30 P.M. & 4.30 P.M.

YE OLDE FELBRIDGE HOTEL, NR. EAST GRINSTEAD, SURREY. NOV. 21ST

THE KING'S HEAD HOTEL, CARFAX CENTRAL, HORSHAM. NOV. 28TH

THE PUNCHBOWL HOTEL, A25, REIGATE ROAD, DORKING. DEC. 5TH

THE CHEQUERS HOTEL, A23, NR. GATWICK, HORLEY. DEC. 12TH

See VIC 20, DRAGON 32, COMMODORE 64, plus fabulous collection of software for them and SPECTRUM, BBC MICRO, ZX81 by Commodore, Dragon, Bug Byte, Rabbit, Audiogenic, Llamasoft, Romica, Quicksilva, Silversoft, Artic, Softek, DK'tronics, A.S.K., Adda, Stack, Software For All, Computer Room and many others.

SEND S.A.E. FOR OUR CATALOGUE

ANIROG SOFTWARE — ALL AT £6.00

PACK OF SEVEN (VOL I) Seven quality games.

PACK OF SEVEN (VOL II) Some programs require 3K.

SEVEN GAMES FOR TOTS Slow but exciting games with hi res graphics and sound effects for children under seven.

SPACE RESCUE A high speed, solid machine code program. Rescue the survivors stranded on a devastated star base. Blast your way through a belt of meteorites. 5 skill levels.

SCRAMBLE Full machine code program 8 missions to complete over randomized courses.

MILLIPEDE Very fast, many levels of play.

DRACULA (3K/16K) Multi screen graphic adventure game. Find Dracula before he rises!

PAYMENT BY CHEQUE/PO/VISA



MAIL ORDER: 26 BALCOMBE GARDENS, HORLEY, SURREY
PHONE: HORLEY (02934) 6083/2007

PLYMOUTH COMPUTERS

83 Exeter Street, Plymouth, Devon. (0752) 23042

GAMES FOR SHARP MZ80A/K and B

- OIL STRIKE. Try and become an oil tycoon. A, B & K.
- SPACE MISSION. A & K. Destroy aliens.
- SQUASH. A & K. Real time. 3 levels.
- MARAUDERS. A & K. Learn to survive.
- NUMBER ADVANCE. A & K. Addictive!
- AIR BOMBER. A & K. 4 Levels of play.
- CODE BREAKER. A & K. 7 skill levels — deduction.
- FOOTBALL LEAGUE. A, B & K. 4 English divisions.
- ADDRESS/TEL BOOK. A, B & K. 200 records.
- MUNCHIE MEN. A & K. The answer to Pacman.

EPSON MX80 FT III
£356.50 Inc. VAT + Carr

EPSON MX80 Dustcover
£4.90

DRAGON 32 Dustcover
£4.90

MZ80A £6.90 Dustcover

DRAGON 32 Cassette Leads £2.50

DRAGON 32 £199.90

All prices inc. VAT and Delivery
ACCESS/DINERS/AMEX/VISA

ALL GAMES £4.99 each.
Inc VAT & P+P.

BOSS

The Definitive Chess Game for the VIC

- ★ 10 levels of play
- ★ Beats SARGON II
- ★ Chess clock
- ★ Wide range of opening moves
- ★ En passant, queening, and castling



audiogenic LTD

Available from Audiogenic, PO Box 88, Reading, Berks. (Tel: 0734 595647) or from VIC dealers, £14.99 (inc. VAT, p&p). Credit cards accepted. Ask for full catalogue. BOSS is copyright. KAVAN SOFTWARE 1982. *Requires 8K minimum.

SANTA'S CHOICE

Continued from page 89

OPENING MOVE

What questions should you ask when buying a dedicated chess machine?

Most important is speed of response, if you want a machine which plays as fast as you do; you will find it irritating to sit and watch it struggling over an obvious move.

Ask for a shop demonstration, not just a talk through the instruction booklet; try and find out how the machine responds to an opening variation and how easy it is to set up a position on the board.

For models destined to spend long periods away from power points, ask how long the batteries last — two hours is of little use to anyone. Examine the display or the pieces to see if you can distinguish them easily, find out about a guarantee — two years is what you should expect for the powerful machines. Remember these machines still have a 2-4% failure rate.

If book openings are important to you — if you take chess seriously they will be — ask how many the computer can play and see if you can make anything of the instruction manual. Then start checking the price.

CHESS CHAMPS. . .

The Scisys Mark VI Chess Champion came into the country last month boasting a brand new program which excels at Sicilian Defence and plays a tight game with the emphasis on strong pawn centres.

At £210 for the machine with LCD chess board dis-

Does the computer owner still have any use for a dedicated chess-playing machine?

With some extremely powerful chess programs for home computers being produced in ever-decreasing memory, it is all too easy for the computer owning chess player to scoff at the more-expensive dedicated machines.

Sargon II may be more than a match for most of us but Terry Pratt looks at the current state-of-the-art of consumer chess machines.

play, or another £125 if you want to attach it to a sensory board, it does not compare favourably with a Sargon II program on your home computer.

It would beat Sargon II in a straight contest, although — unlike its Mark V predecessor — it has not been specially designed to defeat other machines.

It was one of those inevitable ironies of the computer age that machines designed to play against humans first had to prove themselves against other machines. The Mark V did this by going out of "book" as soon as possible, and so throwing its opponent back on to its own resources early in the game.

"Book" openings are one of the main advantages of the dedicated chess machine, over its home computer rivals. All the top class chess machines have a huge repertoire of stored book openings.

As casual chess enthusiasts are more likely to study the game than actu-

ally playing it, they usually have a strong knowledge of the openings that top players use and how to progress to a reasonably even middle game in many of them.

They invariably have developed their own favourites and a computer which will take them down these familiar paths, responding quickly because it is just pulling moves out of memory, will enable the player to explore and examine his favourite openings further.

One of the Scisys' main rivals at this level is the Sensory 9, from the challenger range, distributed over here by Computer Games Limited.

It accepts a library of mod-

the dedicated machine have? Well a quick look through its extras will show a few. These include: Analysis, where it gives your best move and prints out a numerical comment on the state of the game; Comment, where it will tell you dis-arming things like "mate-in-four"; Draw, it may accept your offer of a draw; in problem mode it will sift through the combinations for the best moves; it can keep 12 simultaneous games in memory to play.

It can be educational. The Scisys comes with a booklet size set of instructions and Vulcan Electronics, which markets the game in the UK



ules, programmed to keep it up to date with the latest innovations of computer chess and store various book openings — the first two cartridges gives an effective 27,000 opening moves for its owner. The machine costs £149.95 and its cartridges cost from £59.95.

Sounds like a good idea when you consider how chess programming is constantly been updated and experimented on. Unfortunately, although the programmers themselves are naturally excited by tiny improvements in the computer's play, the benefit as seen from the usual chess player's point of view are negligible. The fact is that computers, without taking in ordinate amounts of time, or being attached to walls of mainframe memory, are still groping just below top club player standard and will be for some time.

What other benefits does

claim it is very educational. It is. In auto mode it will happily play itself and display its profound knowledge of openings with a tendency to veer towards the Sicilian.

Computer Games' Voice Sensory Challenger costs £199.95 and will also keep you aware of what is going on with phrases like: "Your move" and "Mate in two" which can be irritating and is probably the closest any chess machine will ever get to gamesmanship.

Of course these models plug into the mains and are hardly portable in the same way as the old travelling chess sets.

The Hanimex costs £30 and is a marvellous buy for the keen chess beginner.

Also its batteries last a very impressive 50 hours.

The Mini-Sensory Chess Challenger costs £49.95 and looks just like the old travelling sets, the Scisys Executive costs £69.95.



ATARI 400 48K

ATARI 400
48K WITH
PROGRAMMERS
KIT



NOW
ONLY
£299.99
INC. VAT

Available from these specialist micro computer stores for a limited period only.

Offer ends December 25th 1982.

Mail order available add £10 p&p

CALISTO COMPUTERS
119 John Bright Street
Birmingham
B1 1BE
021-632 6458

LANSDOWNE COMPUTER CENTRE
5 Holdenhurst Road
Bournemouth
BH8 8EH
0202 20165

NORMAN AUDIO
51 Fishergate
Preston
Lancs
0772 53057

SILICON CENTRE
7 Antigua Street
Edinburgh
EH1 3NH
031-557 4546

VISION STORE
3 Eden Walk Precinct
Kingston On Thames
Surrey
01-546 8974

4 from 8



CAVES OF DEATH
3D mazes with a heart attack round each corner. 32K Cassette or Disk **£19.95**



BOMB HUNTER
Find all the bombs before they explode. But watch out for the Guard Robots and Lasers. 16K Cassette or Disc **£16.50**



SKY SNAKES
Play the Computer or a friend. Try to defend the earth from the hissing snakes. 16K Cassette **£9.95**



MURDER AT AWESOME HALL
A new "Who Dun It". Each time you play (game includes on screen floor plan). 16K Cassette **£12.95**

For ATARI* 400/800 Computers *Indicates trade mark of ATARI INC
DEALER ENQUIRIES WELCOME

CHANNEL 8 SOFTWARE

51 FISHERGATE,
PRESTON,
LANCASHIRE,
ENGLAND.
TEL: (0772) 53057.

NEW HI RES GRAPHICS DESIGN PACK

FOR THE **VIC 20**

AT LAST! THE COMPLETE ANSWER TO CUSTOM CHARACTER DESIGN AND IMPLEMENTATION ON THE UNEXPANDED VIC-20. OUR NEW CHARACTER DESIGN PACKAGE GIVES YOU EVERYTHING YOU NEED TO CREATE YOUR OWN CHARACTER SETS USING THE VIC'S BUILT-IN HIGH RESOLUTION CAPABILITIES

ONLY
£14.95
inc. P&P

EACH PACK CONTAINS

character editor

A powerful programme recorded on computer quality cassette. Characters are designed on the screen using a large 8 x 8 matrix. You can design up to 64 characters for each data file. Commands include REPLACE... VIEW... LIST DATA... MASK... SAVE TO TAPE... etc.

This cassette is available separately @ £6.00 including P&P and VAT

screen formatting pad

Whether you are designing scenes for a Space Invaders game, complex mazes for adventures or simply formatting text, this programming aid will prove invaluable. Each sheet is printed with the VIC screen layout (a 22 x 23 matrix) with every screen location numbered for both unexpanded and expanded machines. There is also a useful table of screen and border colour combinations and a section for programme notes on each sheet.

Screen formatting pads are available separately @ £2.25 including VAT

coding form pad

For permanent hard copy of your custom character sets. This pad contains 80 sheets, each printed with the VIC 8 x 8 character matrix, spaces to list data and make notes, as well as an index for bit values that makes hand coding of custom characters simplicity itself. Both these pads are hole punched for filing in standard A4 files.

Character coding form pads are available separately @ £1.99 including VAT

two software character sets

To give you some idea of what can be achieved, we have included two of our most popular character sets — ALIEN, which contains a whole galaxy of rockets, flying saucers, invaders and other assorted goodies and MAZEMAN, which has all the characters you need for the popular 'P-MAN' type games. Recorded on computer cassettes these data files come complete with full instructions on how to use them in your own programmes.

Compufax Software character sets are available separately

@ £2.75 each incl. VAT

LASTLY — and possibly most important of all —

compufax software

FULL DOCUMENTATION!!

138 MONTON ROAD MONTON ECCLES MANCHESTER M30 9HQ

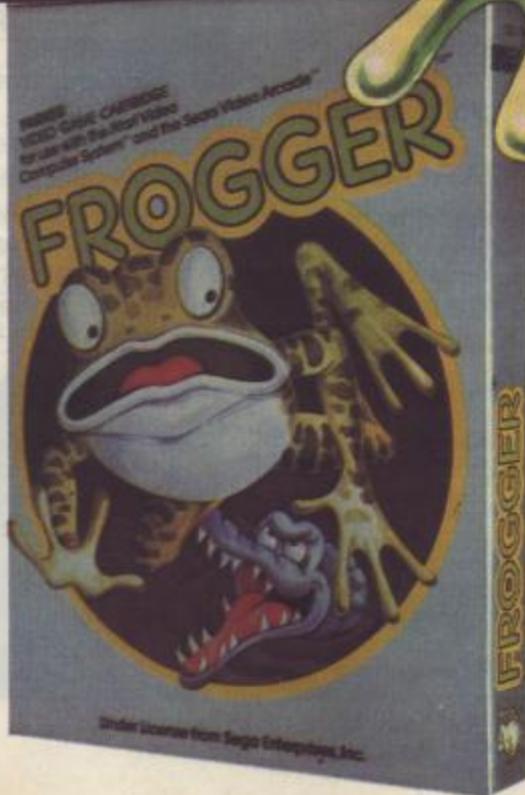
Please add 50p
P & P to all
orders under
£5

THE NEW VIDEO GAME THAT'S ABSOLUTELY RIBBETING.



You've waited in line to play it in the arcades, now bring Frogger™ home and play it in your own pad.

Getting Frogger home is the whole point of the game. It isn't easy! There's a frantic 5-lane highway with fast moving cars and trucks all heading in opposite directions. When the music stops, the traffic starts! Every leap could be his last.



Then a swirling river full of jaw-snapping alligators, diving turtles, frog-eating snakes. And Frogger can't swim! Can you keep Frogger from getting "splooched"? Please hurry up and get Frogger home safely. It's up to you.



**VIDEO GAMES
THEY HATE TO
LET YOU WIN.**

For use with the Atari video computer system.

™ FROGGER IS A TRADEMARK OF SEGA ENTERPRISES INC.

Sinclair ZX Spectrum

**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 uprate later to 48K of RAM) or a massive 48K of RAM.

Yet 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 £60.



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 RS232/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



ZX Spectrum software on cassettes – available now

The first 21 software cassettes are now available directly from Sinclair. Produced by ICL and Psion, subjects include games, education, and business/household management. Galactic Invasion... Flight Simulation... Chess... History... Inventions... VU-CALC... VU-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 (0276) 685311.

The ZX Printer – available now

Designed exclusively 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 speed is 50 characters per second, with 32 characters per line and 9 lines per vertical inch.

The ZX Printer connects to the rear of your ZX Spectrum. A roll of paper (65ft 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

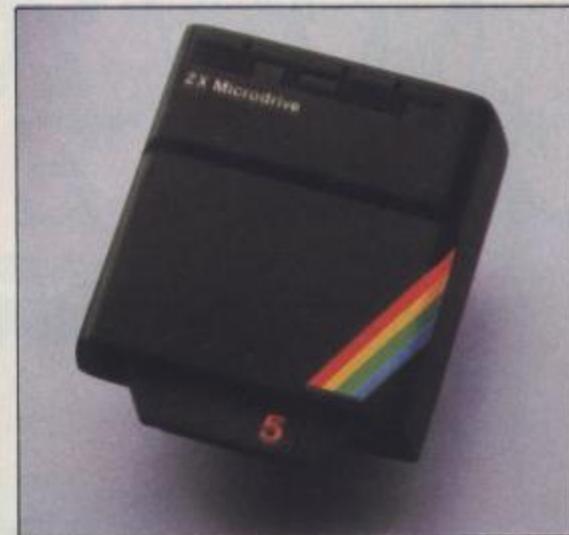
The new Microdrives, designed especially for the ZX Spectrum, are set to change the face of personal computing.

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

The transfer rate is 16K bytes per second, with average access time of 3.5 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 £50.



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 FREEPOST – use the no-stamp needed coupon below. You can pay by cheque, postal order, Barclaycard,

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 3BR.				Order
Qty	Item	Code	Item Price £	Total £
	Sinclair ZX Spectrum – 16K RAM version	100	125.00	
	Sinclair ZX Spectrum – 48K RAM version	101	175.00	
	Sinclair ZX Printer	27	59.95	
	Printer paper (pack of 5 rolls)	16	11.95	
	Postage and packing: orders under £100	28	2.95	
	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/Mrs/Miss _____

Address _____

_____ CVG 812

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



NOW YOU'VE GOT THE CHANCE TO STRIKE BACK.

You've seen it on the big screen. Now it's all happening on your screen, because now *The Empire Strikes Back*™ where it really hurts. At home.

So climb into your Snowspeeder, aim for the "bomb hatch," try to gain The Force. It's the only way the At Ats are at your mercy.

The Imperial Walkers stop at nothing. They shoot "smart bombs" that follow you, and no matter how much you try to weaken and destroy them with your barrage of missiles they seem to keep on moving,

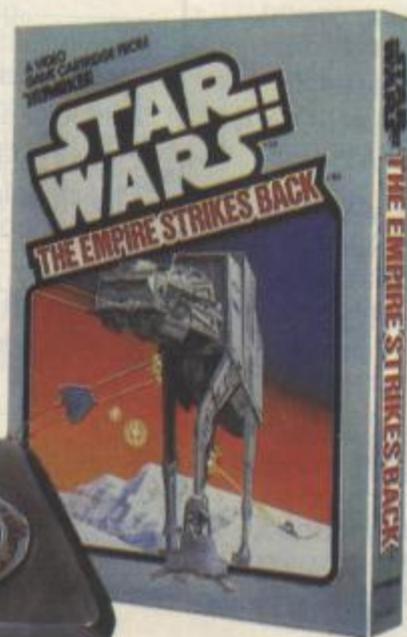
faster and faster heading for the Rebels' power generator. Unless you can prevent them they'll blow up the entire base!

It's up to you to strike back while there's still time.



**VIDEO GAMES
THEY HATE TO
LET YOU WIN.**

For use with the Atari
video computer system.



™STAR WARS AND THE EMPIRE STRIKES BACK ARE TRADEMARKS OWNED BY LUCAS FILM LTD. (LFL) AND USED BY PARKER UNDER AUTHORISATION.

ZX81/SPECTRUM/DRAGON 32

A fantastic range of 16K games, each complete with fully comprehensive instructions from:

M. C. LOTHLORIEN

ENTER THE DRAGON!



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.

Price: DRAGON £6.95 ZX81 £4.50 SPECTRUM £5.50

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 efficiencies, leadership ability, etc. 3 levels of play.

Price: ZX81 £4.50. Spectrum £5.50

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.

1Price ZX81 only £4.50

4. SAMURAI WARRIOR.

How would you have fared as a Samurai in 13th Century Japan? Face challenges from Samurai and bandits. Are you a survivor? Or will you be forced to commit ritual suicide? 7 levels of play. A most fascinating game.

Price: DRAGON £6.95 ZX81 £4.50 Spectrum £5.50

5. WARLORD.

A challenging game of analytical skill, set in 13th century Japan. You control a village and must meet attacks from other armies, combat challenges from other warlords and their Samurai; attack and defeat pirates, make raids for gold or slaves and feed your village.

Price: ZX81 £4.50. Dragon available December

Cheques and POs please, made payable to: M. C. LOTHLORIEN

4 Granby Road, Cheadle Hulme, Cheadle, Cheshire SK8 6LS



ELTEC SERVICES LTD



BBC MICRO COMPUTERS

BBC Model "A" (in stock now)	£299.00
BBC Model "B" (in stock now)	£399.00
BBC Model "A" plus extra 16K memory	£330.00

16K Hitachi memory (as fitted by ACORN) £31.00

FULL UPGRADE KIT (Genuine ACORN issue)	£90.00
UPGRADE KIT fitting charge	£10.00

14" Full colour MONITOR (used in BBC computer programmes)	£309.35
12" Green Screen MONITOR	£126.00
RGB Monitor lead	£5.00
Monitor leads	£5.00
Cassette Recorder (recommended)	£28.00
Cassette lead (7 pin DIN/3 jacks PLUS matching resistor for reliable saving)	£5.00
Blank Cassettes SCOTCH 3M C-10	£0.80

SOFTWARE

Sinclair (IJK) Software cassettes 1-7	from £3.95
AGENTS for BUG BYTE software	
AGENTS for PROGRAM POWER software	
FULL RANGE of ACORNSOFT BBC CASSETTES	all £9.95
ELTEC PRO-DIS Disassembler	£6.85
BEEBSTICK — Fully proportional joystick for drawing and games	£29.95

SEND SAE FOR OUR SOFTWARE PRICE LIST

BOOKS

NEC 30hr Basic	£5.50
Practical Programmes for the BBC Computer Johnson-Davies	£5.95
Basic Programming on the BBC Microcomputer Cryer	£5.95

WIDE RANGE OF BOOKS on the PROGRAMMING of the 6502

SEND SAE FOR OUR BOOK LIST

16K Hitachi memory (as fitted by ACORN)	£31.00
FULL UPGRADE KIT (Genuine ACORN issue)	£90.00
UPGRADE KIT fitting charge	£10.00

PRINTERS

Seikosha GP100A	£225.00
EPSON MX80 F/T III	£390.00
EPSON MX100 F/T III	£530.00
SMITH CORONA Daisy Wheel Printer	£557.00
Printer Cable	£18.40

ATOM MICROCOMPUTER

Extra Memory (2114L)	per K £2.20
Floating point ROM	£21.00
ACORN 96K DiskPack	£343.00
Disk Buffer Pack	£11.20
DISATOM SUPER ROM — The most powerful toolkit yet	£29.85
4 Socket software utility switch	£22.95

Prices are VAT INCLUSIVE

P&P £1.00 for orders under £100.00:

Orders over £100.00 add £10.00 for a Securicor Delivery

ELTEC SERVICES LTD

231 Manningham Lane, Bradford BD8 7HH Tel: (0274) 491372

OPEN Mon-Fri 9am-5pm Sat 9am-12 noon.

NEVER MIND THE QUALITY . . .

If you think that four games on one side of a cassette tape sounds too good to be true then you are proved right by Games Pack 3.

Mind The Meteors challenges you to steer your spaceship safely through a meteor storm. Trouble is the meteors are not meteors at all but simply a number of stationary asterisks dotted around a rectangle which occupies exactly half of the screen.

The spaceship is pretty unimpressive too. Just a tiny little arrow. This game was so easy I mastered it on my fifth go and found it so boring from then on that I quickly loaded the second game on the tape — Daylight Robbery — to see if it was any better.

Alas no. The game offers an interesting idea — you have to raid as many safes as you can and get away with the cash — escaping through the maze exit, before the guard can grab you. As with Mind The Meteors the game was spoilt by hopeless graphics. The safes are dollar signs, you are represented by the letter O, the guard by an I, and as with all four games there were no sound effects. This was also a frustratingly slow game to play.

Battleships is a good game, but I did not feel that this computer version was any

BEWILDERED, BOTHERED, AND BAFFLED

MASTERMIND

You would think wouldn't you that a well known TV quiz programme such as Mastermind would convert well to a computer game.

Strange then that Mastermind — the latest offering from Commodore — should be such a poor offering.

Here are just a couple of examples.

Question: What have A.A.B. and O in common. If you think the answer is types of blood or blood type you would be wrong. The answer is blood types. Therefore the answer given by yours truly was wrong according to the book of Commodore.

I wouldn't mind if the thing was at least consistent, but a two word answer was given as wrong if the answer in the data base was one word, ie. Marquis of Queensbury: wrong. Queensbury: right. Fly Fishing: wrong. Fishing; right.

But just when you think you have cracked it and answer Weismuller for the first Tarzan you find you have been double crossed and the correct answer is Johnny Weismuller.

GAMES PACK 3

better than playing the game with a pen and paper. The submarines, destroyers, cruisers, and carriers were all represented by the letters 'S','D','C','A' — a bit disappointing considering the exciting comic-style illustration of a submarine on the cassette inset.

The final game on this cassette was Invisible Invader which enables you to draw long lines of asterisks across the screen. Again the graphics are disappointing — your "spacecraft" is an asterisk. The "Invader" as the title suggests is invisible, which is just as well really, for if it had been visible I feel sure it would have been an asterisk too.

Games 3 is just one of a series of four games packs from ICL for the Sinclair Spectrum. The cassette is available from larger branches of W. H. Smith at £4.95. If the others are all like this then games packs one to four certainly won't be on my shopping list this Christmas.

- Getting started 7.
- Value 2.
- Playability 1.



I am not sure how many questions there are on each data tape but after a while life gets boring seeing the same questions appear time and time again when picked at random.

BBC Mastermind runs on a Vic 20 with a 8K or 16K ram pack expansion. It is in the shops now at £9.95 for the basic package plus £1.99 for specialist subject tapes.

- Getting started 7
- Value 3
- Playability 2

BROKEN YOUR TV/COMPUTER JOYSTICK?



Inside your joystick handle is a white plastic insert. (The main cause of failure.) Stronger insert replacements now available. Supplied with full fitting instructions allowing you to be back in action in seconds.

Send £2.50/pair inc. p&p to:
B. HILL, 146 Church Road, Boston, Lincs. PE21 0JX.

STAINLESS SOFTWARE

Software for the TI 99/4A. Large illustrated catalogue. Imported & UK programs. 50p (Refundable on order) to: 10 Alstone Road, Stockport, Cheshire, SK4 5AH.

— MAIL ORDER ONLY —

ZX81 1K ADULT GAMES !! ON CASSETTE

① Can of Worms £3

8 GAMES — ACNE, VASECTOMY, SMUT, DOLE, HITLER, ROYAL FLUSH, REAGAN, P's & Q's

② Love & Death £5

8 GAMES — SEDUCTION, CONCEPTION, BIRTH, RUBIC'S PUBE, ON THE JOB, POX, DEATH, GOD

③ The Bible £5

10 GAMES — GENESIS, ADAM & EVE, NOAH, PLAGUES OF EGYPT, EXODUS, HOLY MOSES, SODOM, DAVID GOLIATH, JONAH, BETHLEHEM
all prices include p&p, soundtracks & full notes
AUTOMATA LTD, (V), 65A OSBORNE RD, PORTSMOUTH, HANTS, PO5 3LR
TELEPHONE (0705) 735242 TELEX 86626

TRS80 — VIDEO GENIE

SOFTWARE TREASURE TROVE

25 Super programmes: m/c Arcade games like Break-out, simulations like 'Star Wars', mind-torturing games like Amazing 3-D Mazes, Business and Household Utilities etc. All 25 on one cassette, sent return post for £8.50 inclusive. Or send a SAE for full details.

J. T. WILSON, 9 COTSWOLD TERRACE, CHIPPING NORTON, OXON. TEL: 0608-3059.

ZX81 Spectrum BBC VIC

GAMES CASSETTES

ZX81 (16k) Super Invaders	£4.95
On-screen league tables. Game in machine code — "excellent ... one of the two best ... deservedly popular" (Pop. Comp. Weekly) "Great game!" S.F. (Glos).	
ZX81 (16k) Lynchmob	£4.95
Exciting word game. 2-6 players. Excellent for the family. Great fun, educational too! Animation, on-screen scoring. Good Xmas present.	
Spectrum (16k) Lynchmob	£6.50
As for ZX81 with added excitement of colour, sound and hi-res animation.	
VIC-20 (unexpanded) Invaders	£6.90
Machine code, colour, sound.	
BBC ("B") Bridgeman	£7.90
The popular gobbler game. Hi-res, colour, sound.	

Our motto — quality not quantity
Prices all-inclusive — sent 1st Class by return
"I must congratulate you not only on the quality of your goods but also on your excellent service" — G.W. Solihull.
Applications software also available

ZX81 16k RAM All-inclusive price £28.50

Send s.a.e. for details of all our products
Dept. CVG, 36 Fernwood,
Marple Bridge, STOCKPORT,
Ches SK6 5BE

Bridge Software



Calisto Computers Ltd.

119 JOHN BRIGHT STREET
BIRMINGHAM

021-632 6458



ATARI 400 with Basic language **249.95**
without Basic language **£199.95**

ATARI 800
with Basic language 16K **£499.95**

ATARI 810
Disc Drive with DOS II **£299.95**

ATARI 410
Cassette Recorder **£49.99**

ATARI 400 48K
16K BASIC **£299.99**

ATARI 800
with Basic language 48K **£579.95**

UPGRADES
for ATARI 400
32K **£75.00** 48K **£99.95**

850
Interface Module **£135.00**

GAMES

ASTEROIDS	ROM	£29.95
BASKETBALL	ROM	£24.50
MISSILE COMMAND	ROM	£29.95
PAC-MAN	ROM	£29.95
SPACE INVADERS	ROM	£29.95
SUPER BREAKOUT	ROM	£24.50
CENTIPEDE	ROM	£29.99
SUBMARINE COMMANDER	ROM	£34.99
JUMBO JET PILOT	ROM	£34.99
SOCCER	ROM	£29.99
KICKBACK	ROM	£29.99
MOUNTAIN SHOOT	16k (c)	£12.50
DEFLECTIONS	16k (c)	£12.50
ANGLE WORMS	16k (c)	£12.50
LUNAR LANDER	24k (c)	£12.50
REARGUARD	16k (c)	£16.50
REARGUARD	32k (d)	£16.50
JAW BREAKER	16k (c or d)	£23.95
FROGGER	(c or d)	£31.50
PROTECTOR	32k (c or d)	£23.00
CHICKEN	16k (c or d)	£23.00
DODGE RACER	16k (c or d)	£19.25
KRAZY SHOOTOUT	ROM	£29.95
SHOOTING GALLERY	16k (c)	£16.75
RACE IN SPACE	16k (c)	£16.75
GHOST HUNTER	16k (c)	£19.95
GHOST HUNTER	32k (d)	£19.95
ALIEN SWARM	16k (c)	£21.95
ALIEN SWARM	32k (d)	£25.50
HOTFOOT	16k (c)	£7.50
GALACTIC CHASE	16k (c)	£15.95
GALACTIC CHASE	32k (d)	£20.25
AIR STRIKE	16k (c)	£19.95
AIR STRIKE	32k (d)	£19.95
SHAMUS	16k (c) or 32k (d)	£21.80
NAUTILUS	32k (c or d)	£21.80
CLOWNS & BALLOONS	16k (c or d)	£21.80
TUMBLEBUGS	24k(d)	£21.80
TRACK ATTACK	32k (d)	£21.80
PACIFIC COAST HIGHWAY	16k (c) or 32k (d)	£21.80
CANYON CLIMBER	16k (c) or 32k (d)	£21.80
SHOP LIFTER	48k (d)	£21.80
PREPPIE	16k (c) or 32k (d)	£19.95
APPLE PANIC	32k (d)	£21.80
SLIME	24k (c)	£21.80
SNOOKER & BILLIARDS	16k (c)	£19.99
DARTS	16k (c)	£19.99
GHOST ENCOUNTERS	16k (c) or 32k (d)	£19.95
FIGUREFUN	16k (c)	£14.99
COMPUTE 4 and REVERSI	16k (c)	£14.99
OWARI & BULL & COW	16k (c)	£14.99
EASTERN FRONT	16k (c)	£24.50

ADVENTURE GAMES

ADVENTURELAND	24k (c)	£16.50
PIRATE ADVENTURE	24k (c)	£16.50
MISSION IMPOSSIBLE	24k (c)	£16.50
VOODOO CASTLE	24k (c)	£16.50
THE COUNT	24k (c)	£16.50
STRANGE ODYSSEY	24k (c)	£16.50
MYSTERY FUNHOUSE	24k (c)	£16.50
PYRAMID OF DOOM	24k (c)	£16.50
GHOST TOWN	24k (c)	£16.50
SAVAGE ISLAND PART I	24k (c)	£16.50
SAVAGE ISLAND PART II	24k (c)	£16.50
GOLDEN VOYAGE	24k (c)	£16.50
ZORK I	32k (d)	£30.95
ZORK II	32k (d)	£30.95
DEADLINE	32k (d)	£39.50
BOMB HUNTER	16k (c)	£17.95
CAVES OF DEATH	32k (c)	£19.95

GAMES SOFTWARE

COMPUTER CHESS	ROM	£24.50
VIDEO EASEL	ROM	£24.50
STAR FLITE	32k (c)	£16.50
STAR FLITE	40k (d)	£20.25
SUNDAY GOLF	16k (c)	£12.50
GALACTIC TRADER	32k (c)	£16.50
GALACTIC EMPIRE	32k (c)	£16.50
MISSION ASTEROID	40k (d)	£22.25
WIZARD & PRINCESS	40k (d)	£29.50
ULYSSES & THE GOLDEN FLEECE	40k (d)	£31.95
CROSSFIRE	32k (d)	£23.95
MOUSATTACK	32k (d)	£31.50
THRESHOLD	40k (d)	£31.95
ACTION QUEST	16k (c) or 32k (d)	£19.50
ANALOG ADVENTURE	32k (d)	£18.99
CRYPTS OF TERROR	16k (c)	£21.95
CRYPTS OF TERROR	32k (d)	£25.50
CRUSH, CRUMBLE, CHOMP	32k (c)	£22.45
RICOCLET	16k (c)	£14.95
STAR WARRIOR	32k (c)	£29.95
TEMPLE OF APShAI	32k (c)	£29.95
UPPER REACHES OF APShAI	32k (c)	£14.95
RESCUE AT RIGEL	32k (c)	£22.45
INVASION ORION	24k (c)	£18.75
DATESTONES OF RYN	32k (c)	£14.95
MURDER AT AWESOME HALL	16k (c)	£12.95
TOURNAMENT & BALL POOL	16k (c)	£19.50
DARTS	16k (c)	£19.50
CRIBBAGE & DOMINOES	16k (c)	£19.50
BRITISH JIGSAW PUZZLES	16k (c)	£19.50
EUROPEAN JIGSAW PUZZLES	16k (c)	£19.50
NURSERY RHYMES I	16k (c)	£19.50
NURSERY RHYMES II	16k (c)	£19.50

ACCESSORIES

16k RAM (800)	£40.00
16k RAM BOARD (800)	£65.00
32k RAM PACK (800)	£115.00
32k UPGRADE (400)	£89.95
DOS 2 MASTER DISKETTE	£21.95

BOOKS AND MANUALS

DE-RA ATARI	£18.00
MASTER MEMORY MAP	£4.95

GENERAL SOFTWARE

WORD PROCESSOR	£99.95
INVITATION TO PROGRAMMING 1	£15.95
INVITATION TO PROGRAMMING 3	£22.95
CONVERSATIONAL FRENCH	£39.95
CONVERSATIONAL GERMAN	£39.95
CONVERSATIONAL ITALIAN	£39.95
CONVERSATIONAL SPANISH	£39.95
MINI WORD PROCESSOR 32k (c)	£9.95
KIDS I 16k (c)	£9.95
KIDS II 16k (c)	£9.95
BOBS BUSINESS 16k (c)	£9.95
GRAPHICS MACHINE (d)	£13.50
PLAYER PIANO 16k (c)	£9.95
MICROPAINTER	48k (d) £25.50
GRAPHIC MASTER	48k (d) £29.10
GRAPHIC GENERATOR	32k (d) £18.20
S.A.M.	32k (d) £43.70
ABUSE	48k (d) £14.50
HOME FINANCIAL MANAGEMENT	16k (c) £19.99
MICROSOFT BASIC	48k (d) £59.99

TUTORIALS

DISPLAY LISTS 16k (c)	£13.95
HORIZONTAL & VERTICAL SCROLLING	16k (c) £13.95
PAGE FLIPPING	16k (c) £13.95
BASICS OF ANIMATION	16k (c) £13.95
PLAYER MISSILE GRAPHICS	32k (c) £19.95
SOUNDS	16k (c) £13.95

BUSINESS AND UTILITIES

CCA DATA MANAGEMENT	(d) £101.00
TEXT WIZARD	(d) £99.95
3-D SUPERGRAPHICS	40k (c or d) £39.99
K-DOS	£53.95
Macro Assembler	40k (c) £51.50
	40k (d) £55.50
Machine Language Monitor	16k (c) £25.95
	(d) £30.95
Monkey Wrench (800 only)	ROM £51.50
Memory test	16k (c) £7.95

To: CALISTO COMPUTERS LTD, 119 JOHN BRIGHT STREET, BIRMINGHAM.
PLEASE ACCEPT MY ORDER FOR THE FOLLOWING PROGRAMS:-

-
-
-
-
-

Cheque No. for £ enclosed.

Please debit my credit card ACCESS/VISA No.

Phone orders welcome on 021-632 6458. Signed

Calisto Computers Ltd.

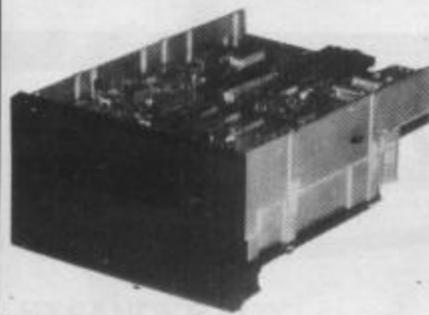
Despatch to:

Name:

Address:

SPECIALISTS IN MICROCOMPUTERS AND SOFTWARE
119 JOHN BRIGHT STREET, BIRMINGHAM B1 1BE
Telephone: 021-632 6458

TOSHIBA DOUBLE SIDED/DOUBLE DENSITY 5 1/4" DISK DRIVES



These are high quality, very reliable, industry standard disk drives. These can be used as single sided/single density, double sided/single density or double sided/double density depending on the host computer disk interface. Compatible with most micro-computers e.g. VIDEO GENIE, ATOM, TRS 80, BBC COMPUTER, SUPER BRAIN, NASCOM etc etc. If used as double sided/double density then the storage capacity is 3.5 MAGABITS/DRIVE (unformatted), track density is 48 TPI and can daisy chain up to 4 drives. 90 day warranty.

OND DISK DRIVE ONLY £169 + VAT = £194.35
 TWO DISK DRIVES £329 + VAT = £378.35
 SINGLE BOXED WITH POWER SUPPLY
 £199 + VAT = £228.85
 DUAL BOXED WITH POWER SUPPLY
 £369 + VAT = £424.35
 2 DRIVE CABLE £15 + VAT = £17.25



AND ATOM COMPATIBLE DISK SUB-SYSTEM WITH BUILT IN DISK CONTROLLER CARD

These subsystems consist of one or two Toshiba disk drives, a power supply and a BBC and ATOM compatible disk controller card housed in a strong case. The disk controller card can read and write to single or double sided diskettes in single or double density (FM or MFM) format.

SINGLE DRIVE SYSTEM (400 KBYTE STORAGE CAPACITY) .. £289 + VAT = £332.35
 DUAL DRIVE SYSTEM (800 KBYTE STORAGE CAPACITY) .. £459 + VAT = £527.85

EPSON TYPE 3 PRINTERS

MX80 T-3
 80 column, 80 CPS, super and subscripts, auto underlining, tractor feed, 32 print fonts, Bi-directional printing, logic seeking, 9x9 matrix, high res. graphics, centronic parallel interface.

Price Only £299 + VAT = £343.85

MX80 F/T-3
 As above but with tractor or friction paper feed.

Price £325 + VAT = £373.75

MX100-3
 136 columns, 100 CPS, all other features of MX80 plus true descenders, adjustable paper width up to 15 inches, friction or tractor feed, centronic parallel interface.

Price £429 + VAT = £493.35

OKI MICROLINE PRINTERS

MICROLINE 80
 Features: 80 columns, 80 CPS, friction and pin feed, Unidirectional block graphics, Centronics parallel interface.

Price £219 + VAT = £251.85

MICROLINE 82A
 Features: 80 columns, 80 CPS, friction and pin feed, bidirectional printing, parallel and serial (1200 bauds) interface.

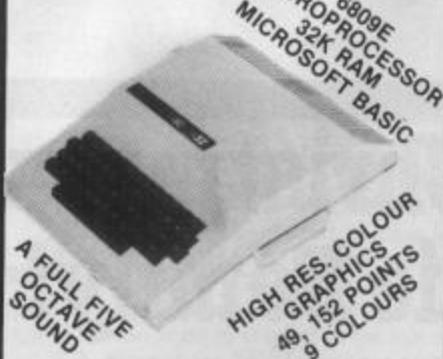
Price £319 + VAT = £366.85

NEC 8023 PRINTER

100 CPS, 80 columns, bi-directional, friction and tractor feed, high res. and block graphics, proportional spacing and Centronic parallel interface.

Price £289 + VAT = £332.35

DRAGON 32 MICROPROCESSOR



6809E MICROSOFT BASIC
 32K RAM
 HIGH RES. COLOUR GRAPHICS
 49, 152 POINTS 9 COLOURS
 A FULL FIVE OCTAVE SOUND

NEW BRITISH COMPUTER

32K Bytes of RAM (expandable to 64K). 16K Byte MICROSOFT COLOUR BASIC. High res. colour graphic and very good sound features. It has full size professional keyboard and comes complete with power supply and a built-in centronic parallel printer interface. It has a cassette interface and a slot for games cartridges. A floppy disk interface and DOS will be available shortly.

DRAGON 32..... £165 + VAT = £189.75
 JOYSTICKS (PER PAIR) .. £16 + VAT = £18.40
 30 CPS PRINTER £179 + VAT = £205.85
 PRINTER CABLE £12 + VAT = £13.80
 CASSETTE LEAD £2.60 + VAT = £2.99
 CASSETTE RECORDER... £17.90 + VAT = £20.59
 COLOUR MONITOR ... £199 + VAT = £228.85

*DRAGON SOFTWARE

The following software is available on cassettes.

- PERSONAL FINANCE
- DRAGON SPECIAL 1
- DRAGON SPECIAL 2
- QUEST
- MADNESS OF THE MINOTAUR
- COMPUTAVOICE
- GRAPHIC ANIMATOR
- FLIPPER
- SPACE TRADER
- ALCATRAZ
- ESCAPE
- MANSION ADVENTURE

All Cassettes £6 + VAT = £6.90 each

BBC MICROCOMPUTER

BBC Microcomputer Model B £339
 Model B + Econet interface £375
 Model B + Disk interface £399
 Model B + Econet + Disk interfaces £432
 Single disk drive with power supply... £129
 TELETEXT receiver £139
 PRESTEL receiver £88
 Parallel printer cable £12
 Games Paddles (per pair) £11

SOFTWARE FOR BBC COMPUTER

Desk Diary (Two programmes) £9
 Algebric manipulation package £9
 BBC Peeko Computer £9
 BBC FORTH language £14.50
 BBC LISP language £14.50
 BBC word processing package £65

* Please add 15% VAT to above prices.

CASIO CALCULATORS



*FX-702P the casio pocket computer/calculator, basic programmer, 55 scientific functions, up to 1,680 program steps.

Special Price £65 + VAT = £74.75

*FX-602P programmable calculator, 50 scientific function and 512 programme steps.

Price £56 + VAT = £64.40

*FA-2 cassette interface for FX-702 and FX-602.

Price £16 + VAT = £18.40

*FX-10 Mini printer for FX-702 and FX-602.

Price £37 + VAT = £42.55

*FX-100 College scientific calculator.

Price £12 + VAT = £13.80

*FX-7 School scientific calculator.

Price £8 + VAT = £9.20

*MG-880 Musical calculator with game.

Price £9 + VAT = £10.35

*MG-888 calculator with 3 games.

Price £9 + VAT = £10.35

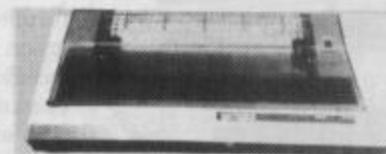
*MG-777 Calculator with clock and 3 games.

Price £12 + VAT = £13.80

GUARANTEED LOWEST PRICES

We guarantee that our prices are the lowest on the market. If you can find any item advertised and in stock at less than our price we will match that price.

SEIKOSHA GP SERIES GRAPHIC PRINTERS



GP-100
 30 CPS, 80 column, HI-RES graphic Line repeat function, adjustable upto 10" paper width, tractor feed. 5x7 dot matrix.

GP-100A centronic parallel interface

£179 + VAT = £205.85

GP-100VC Vic 20 interface

£199 + VAT = £228.85

GP-250X
 New 50 cps, 80 column, tractor feed, True descenders, 64 user defined characters, Double height and/or double width characters, 5x8 dot matrix, parallel and serial (RS232) interface.

Price £219 + VAT = £251.85

PROFESSIONAL MONITORS

*GREEN MONITORS
 12 inch green monitors with composite and sync input. Suitable for most computers.

- BM12A 15MHZ monitor

£69 + VAT = £79.35

- SM12H 18MHZ monitor

£89 + VAT = £102.35

*COLOUR MONITORS
 14 inch colour monitors, RGB or composite and sync input.

- SCM14N Normal-res. 400 dots

£199 + VAT = £228.85

- SCM14M Medium-res. 600 dots

£339 + VAT = £389.85

- SCM14H High-res. 800 dots

£499 + VAT = £573.85

SOFTWARE

Dragon Software by Microdeal

*Flipper (Reversi) 16K cassette

£6 + VAT = £6.90

*Space Trader 16K cassette .. £6 + VAT = £6.90

*Alcatraz 16K cassette £6 + VAT = £6.90

*Escape 16K cassette £6 + VAT = £6.90

*Mansion Adventure 16K cassette

£6 + VAT = £6.90

VIC20 Software by Automated Simulations

*Ricochet (Nov) cassette .. £11 + VAT = £12.65

*King Arthur's Heir (Nov) cassette

£17 + VAT = £19.55

Atari Software by Sirius

*Snake Byte 48K Disk £17 + VAT = £19.55

*Cyclod 48K Disk £17 + VAT = £19.55

*Space Eggs 48K Disk £17 + VAT = £19.55

*Sneakers 48K Disk £17 + VAT = £19.55

*Bandits 48K Disk £20 + VAT = £23.00

*Wayout 48K Disk £22 + VAT = £25.30

*Fast Eddy Cart £17 + VAT = £19.55

*Deadly Duck Cart £17 + VAT = £19.55

*Worm War I Cart £17 + VAT = £19.55

*Beanle Bopper Cart £17 + VAT = £19.55

*Apple Software by Ayon Hill Games

*Tanktics 48K Disk £15 + VAT = £17.25

*Tanktics 48K Cass £13 + VAT = £14.95

*B1 Nuclear Bomber 16K Cass

£9.50 + VAT = £10.93

*Midway Campaign 16K Cass

£9.50 + VAT = £10.93

*Nukewar 16K Cass £9.50 + VAT = £10.93

*Conflict 2500 16K Cass. £9.50 + VAT = £10.93

*Planet Miners 16K Cass £9.50 + VAT = £10.93

*North Atlantic Convoy Raider 16K Cass

£9.50 + VAT = £10.93

*Computer Acquire 16K Cass

£11 + VAT = £12.65

*Galaxy 16K Cass £11 + VAT = £12.65

*Guns of Fort Defiance 48K Cass

£11 + VAT = £12.65

*Lord of Karma 32K Cass. £11 + VAT = £12.65

*Voyager 32K Cass £11 + VAT = £12.65

*Dnieper River Line 48K Disk

£15 + VAT = £17.25

*Dnieper River Line 48K Cass

£13 + VAT = £14.95

CORDLESS PHONES



LONG RANGE TELEPHONE

This is a long range (2-5 miles) cordless extension phone with intercom facility between portable hand set and the base station. You can receive all incoming calls and dial out to anywhere in the world from the hand set from any location within 5 mile radius of your home or office. The maximum range is achieved by using roof top optional antenna (not included).

Long Range Extension Phone

£249 + VAT = £286.35

Optional Rooftop Antenna

£45 + VAT = £51.75

MEDIUM RANGE TELEPHONE

Similar specifications to the above model but with operational range of 1/2 mile to 2 1/2 miles (with roof top antenna).

Medium Range Extension Phone

£179 + VAT = £205.85

Optional Rooftop Antenna

£45 + VAT = £51.75

SHORT RANGE TELEPHONE

This is a short range cordless telephone for use within the house or from the garden. You can receive and make calls from the hand set. Range approx. 600 feet.

Short Range Telephone .. £69 + VAT = £79.35

40 MILE RANGE CAR TELEPHONE

This mobile telephone fits into your car and enables you to receive and make calls to anywhere in the world from within 40 mile radius of your home or office (use rooftop antenna).

Car Telephone £1195 + VAT = £1374.25

FM WIRELESS INTERCOM

Touch sensitive Talk, Call and Lock controls. Just plug into mains, no installation needed, 3 speech channels (1500 and 2500 KHZ) on each unit. Phase locked loop FM circuitry give noise free operation, built in automatic squelch. Use as many stations as you like.

Price per station

£15 + VAT = £17.25

Price for set of two stations

£28 + VAT = £32.20

SHARP VIDEO RECORDERS AT BARGAIN PRICES

*VC9300 - Microprocessor controlled VHS video recorder with video search and still frame features.

Price £399 + VAT = £389.85

*VC9700 - Microprocessor controlled VHS video recorder with full remote control, 5 event/14 day timer, video search and still frame features.

Price £459 + VAT = £527.85

RECHARGEABLE BATTERIES

Code	Type	Capacity	Price
S401	AAA	200mAH	£1.15 + VAT = £1.32
S101	AA	500mAH	£0.75 + VAT = £0.86
C1200	C	1200mAH	£1.90 + VAT = £2.19
D1200	D	1200mAH	£2.09 + VAT = £2.40
RX22	PP3	110mAH	£3.60 + VAT = £4.14
BC2204	Universal Charger		£9.50 + VAT = £10.93

SILENT ALARM/POCKET PAGER



This is an individually coded 4 WATTS Radio transmitter and pocket pager receiver. The alarm system has connections for door contacts and vibration sensors. 2 vibration sensors are included. It has a range of 2 miles. Ideal for protection of vehicle or property. Power requirements for transmitter is 12V dc. Not licensible in UK.

Price £78 + VAT = £89.70

AKHTER INSTRUMENTS LTD.

DEPT CVG UNIT 19, ARLINGHYDE ESTATE, SOUTH ROAD, HARLOW, ESSEX. UK. CM20 2BZ
 TEL: HARLOW (0279) 412639 TELEX: 995801 - A18

ORDERING INFORMATION

All orders which accompany a cheque or cash are carriage FREE (UK only). On all other orders a carriage charge of 3% of invoice value is applicable.

Why not spend Christmas with the Genie Family!



Our ingenious range of small computers, accessories and software make ideal gifts for 1st time buyers or committed hobbyists!



Genie I

Tried and trusted! - The Genie I is still one of Britain's best-selling small computers, with over 14,000 sold, and it's easy to see why! Software compatibility with Level 2 BASIC means there are literally 1000's of programs on the market ready to run on the Genie, including educational, leisure and small business applications. It's easy to expand, with a vast range of accessories to perform many functions - you only have to read this ad!

Genie I is the ideal computer for the first time buyer, to use at home, at school or at work. The simple BASIC language enables you to write your own programs with ease, and the Microsoft Extended BASIC offers many powerful extra features.

So, if you are not lucky enough to own a Genie I, or if you have a less powerful small computer and want to upgrade, go along to your local Genie dealer, or phone us for advice. It could be your first step into the enthralling world of microcomputers.

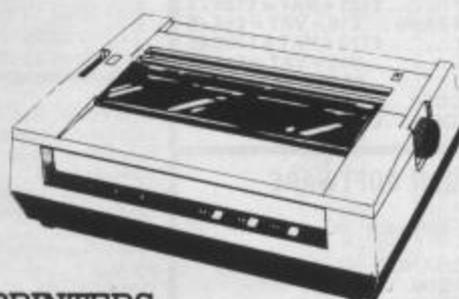


Genie II

Equally popular and totally reliable! - The Genie II is a breakthrough for small business computers. Harnessing all the advantages of the Genie I, including its low price, Genie II adapts perfectly to commercial functions with the addition of the following features:

★Numeric Keyboard ★Specific Business Commands ★Four User-Definable Function Keys ★Expandable via the same Genie peripherals ★Extension to BASIC.

Genie II is an ideal, first-entry, computer for the small business. Corner shops, professional practices and small manufacturers can all benefit from a Genie II business system. For further advice, see your local dealer, or contact us direct!



PRINTERS

The EG 3085 is quiet, fast and efficient. Printspeed is 100 characters per second and printing is bi-directional at 80 or 136 characters per line. Suitable for use with other systems, it has three tpestyles, adjustable pin or friction feed and single sheet or roll paper facilities. **£425 plus VAT.**

If you don't want to pay that much for a printer, consider the EG 603. It doesn't match the EG 3085 in certain areas, but you will still get 100 c.p.s. bi-directional, a range of character styles, forward and reverse feed and pin/friction feed, with 96 characters and 64 graphic patterns. **£235 plus VAT**



BROTHER HR-1 Daisywheel Printer

You can now buy a superior daisywheel printer for a price only previously associated with dot matrix models.

The Brother HR is an enticing addition to your system. It has a print speed of 16 cps, range of 8 typefaces, and a choice of two models with either parallel or RS232 interfaces.

Reliability, durability and attractive appearance make the Brother HR-1 probably the best printer buy this Christmas!

£650 - VAT

EQUIPMENT COVERS

Beat the dirt, coffee spills and sticky fingers when your computer and monitor are not in use with these top quality black leather covers.

Genie CV1 **£5 plus VAT.**
12" monitors CV6 **£6.20 plus VAT.**
9" monitors CV3 **£4.20 plus VAT.**

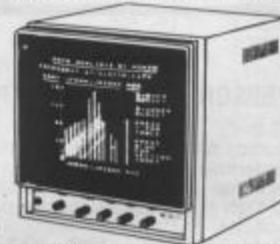


GENIE MONITORS

Two good performance, low priced 12" monitors, either to match your Genie or compatible with a wide range of other systems. Good resolution and band width and, of course, they free your television set for the other type of programmes you like to watch!

The EG 100 12" in black & white costs **£69 plus VAT.**

The EG 101 12" with green phosphor is **£79 plus VAT.**



A.V.T. MONITORS

Available in 9" and 12" sizes, with white, green or amber display, Lowe A.V.T. monitors are sturdy, attractive, easy to operate and feature an easy view screen with smoked anti-glare display filter. Compatible with most popular micros on the market. From **£75 plus VAT.**

HIGH RESOLUTION GRAPHICS

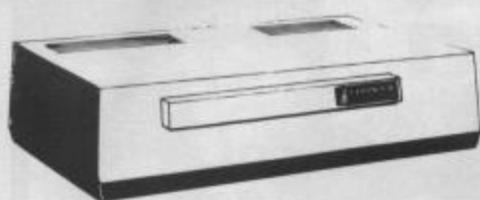
Increase graphic resolution capabilities on your Genie seventy-three fold with the LE18 HI-RES unit. It offers bit image graphics of 73,728 points, a resolution of 384 x 192, and uses a separate 16K of video memory to achieve its resolution. Graphics are intermixable with text or existing pixel graphics, and animation, reverse video displays and use of programmable graphic characters are possible. **£86 plus VAT.**

TECHNICAL MANUALS

Full technical details of Genie Hardware (all you ever wanted to know about Genie).

Genie I/II Technical Manual **£10 - No VAT.**

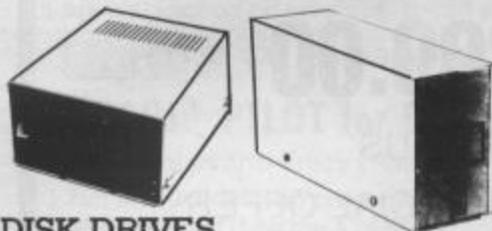
Expander and accessories (EG3014) **£10 - No VAT.**



EXPANDER BOX

The updated EG 3014 expander box allows for up to four disk drives with optional double density. It connects to a printer, or RS 232 interface, or S100 cards. Not bad value at **£190 plus VAT (16K version)** or **£200 plus VAT (32K version)**

*The EG 3014 will work with TRS 80 by using the EG 3023 Tandy Adaptor.



DISK DRIVES

If you want fast, reliable program storage, true random access file handling and access to many computer languages, we can meet your needs. The EG 400T provides storage of up to 184320 bytes per floppy disk and comes complete and tested, in a stylish colour matched cabinet. **£220 plus VAT.**

The EG 401 AT offers dual disk drive with 368640 bytes of useable storage and comes complete with a power supply ready to connect to an expander box. **£365 plus VAT.**

DOUBLE DENSITY ADAPTOR

Allows the use of standard minidisk drives in double density, with virtually double the storage capacity. The EG 3021 is equally at home in the Genie or TRS-80 expander boxes.

A double density disk operating system will be needed, such as smallDOS provides. **£72 plus VAT.**

smallDOS

Powerful, yet reasonably priced, the Genie smallDOS contains 21 library commands, 7 utilities, LBASIC, disk basic and bags of information, including a reference manual and 40 page beginners guide to disk usage. **£35 plus VAT.**

BUSINESS SOFTWARE

Specifically written for the Genie II computer, with disks and a suite of packages from the renowned house TRIDATA. The suite includes SALES LEDGER, PURCHASE LEDGER, PAYROLL and STOCK CONTROL. Each package is a very reasonable **£175 plus VAT.** Full details on request.

LOWE

electronics

Chesterfield Rd., Matlock,
Derbyshire DE4 5LE.

Tel: 0629 4995 Telex: 377482 Lowlec`G

EG 3203 TANDY-BASHER

If you are a TANDY user, read on! The EG 3203 is bus converted to allow Genie peripherals to be used with Tandy Model I computers. **£18.40 plus VAT.** (Just in case there might be a few strange souls who want to convert in the opposite direction, there is the 50/40 converter which generates a Tandy compatible 40 way bus from a Genie.) **£34 plus VAT.**

FRED MUSIC SYNTHESISER

Beethoven might well roll over at this stereo music synthesiser, it can produce six simultaneous notes over the whole audio range and provide sound effects. FRED comes complete with a software compiler, full instructions and a demo tune. It is simply plugged onto the Genie 50 way bus and has two outputs for an audio amplifier. **£51 plus VAT.**

EG 3016 PARALLEL PRINTER INTERFACE

The EG 3016 is a simpler interface allowing a Centronics parallel compatible printer (EG 603, EG 3085) to be connected directly to the Genie keyboard without the need for an expander box. **£38 plus VAT.**

BUS EXTENDER

A most useful accessory, allows two bus using devices to be connected simultaneously to the Genie - when using the Hi Res and expander for instance. **£21 plus VAT.**

EP1, EP3

Genie I and Genie II have ROMS offering 13.5K BASIC are custom written extensions contained in EPROMs. You can change these as follows:

EP1 Adds all Genie I software facilities to other Genies, lower case driver, machine language monitor, renumber facility, keyboard repeat and screen print.

EP3 Has HI-RES driver software with 10 extra HI-RES commands which prevent need to load HI-RES software from tape. All at **£12 plus VAT.**

For Video Genie Systems, the LE-19 connects direct to the Genie bus and allows one of these EPROMs to be fitted externally. **£26.50 plus VAT.**

SYSTEMS DESK

Even a compact modular computer system like the Genie benefits from being used on a custom designed system desk. The SD1 system desk is designed to accommodate a complete Genie System and has a special upper shelf to support the display monitor at the best level. The desk is flat packed for easy delivery and finished in attractive teak and charcoal colours. **£81.40 plus VAT.**



SPECIAL TECHNICAL GENIE
HOT - LINE ON 0629 4995
for all your technical advice and service back-up on any aspect of the Genie system direct from the experts!



ONLY £199
inc. VAT



Colour Genie is the latest piece of personal computer magic from Lowe Electronics. Remarkably compact in design, Colour Genie is a powerful piece of new technology which combines all the best features of the popular Genie I; 16K RAM, 16K BASIC ROM, and full size typewriter keyboard, with the addition of vivid colour, high resolution graphics, 3 channel sound and 40 x 24 screen format - a new dimension in home computing!

Put one in your living room, connect it to a standard colour T.V., and you will be amazed at the worlds that open up for you and your family!

For children and adults, Colour Genie provides an ideal introduction to computer programming. If you fancy a spot of intergalactic travel, or a battle for the planets, Genie will lay on the transport. When you get tired of the kids beating you at Space Invaders, you can always turn their attention to schoolwork. Genie makes that fun too! You can learn typing, a foreign language, or simply keep your household accounts in order.

Of course, Colour Genie is only one of a number of home computers you could consider buying; however, the £199 price tag gets rid of some of the opposition, as do the 64 present and 128 programmable graphic characters! 8 exciting colours leave a few more standing, and four function keys with a built in power supply put Colour Genie way out in front!

ACCESSORIES

Colour Genie can be supplemented by a large range of optional extras. There is an attractive matching cassette recorder on which to store your own programs, or play pre-recorded software. Joysticks are available for popular video games, and a position-detecting light pen to heighten your colour-graphic creations. If you want to put your machine to work in your business, it can be expanded by a 16K RAM card, and connected to a quality matrix printer via the printer interface and cable.

SOFTWARE

Colour Genie uses a Z80 central processing unit, and is fully programmable in Microsoft colour BASIC, the most popular home computer language in the Western World!

MUSIC

Colour Genie contains a FULL MUSIC SYNTHESISER, which will generate a remarkable range of musical sounds through your T.V. speaker, in a variety of pre-settable tempos.

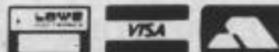
Please send me details of my nearest Genie dealer OR The following items:

I enclose 30p p & p for Genie Colour Brochure

Name _____

Address _____

Tel: _____



CVG 12.82

let the
DRAGON 32
fire your
imagination . . .



for only £199.50
Plus £5 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 6809E MICROPROCESSOR
- FREE 160 PAGE TRAINING MANUAL
- BRITISH MADE

Available now from:

ComServe

98 TAVISTOCK STREET, BEDFORD MK40 2RX.
TELEPHONE: BEDFORD (0234) 216749

NEW



COMMODORE 64
£299.00

PLUS

VIC 20 SPECIAL OFFER

VIC-20

THE FIRST FULL FEATURED COLOUR
COMPUTER AT **UNDER £170.00!!**

FEATURES

*Sound *Colour *5K Memory Expandable to 27K *Standard
PET Basic *Full size typewriter Keyboard *Graphics *Plug-in
memory expansion *Low-priced peripherals.

**SPECIAL OFFERS AVAILABLE WHEN ORDERING YOUR VIC 20
COMPUTER**

3K RAM CARD FREE
or 8K RAM CARTRIDGE £32.95 incl. VAT
or 16K RAM CARTRIDGE £54.95 incl. VAT

PLUS FREE PRESENTATION TAPE WITH
EVERY CASSETTE DECK ORDERED

THE FOLLOWING ITEMS NOW AVAILABLE

Commodore 64	£299.00
VIC 20 Colour/Sound Computer	£169.99 incl. VAT*
VIC Data Cassette Deck	£44.95 incl. VAT
VIC 3K RAM Cartridge	£29.95 incl. VAT
VIC 8 K RAM Cartridge	£44.95 incl. VAT
VIC 16K RAM Cartridge	£74.95 incl. VAT
VIC Joystick Control	£7.50 incl. VAT
Arfon VIC Expansion Unit	£97.75 incl. VAT*
Machine Code Monitor Cartridge	£34.95 incl. VAT
Programmers Aid Cartridge	£34.95 incl. VAT
"Avenger" ROM Games Cartridge	£19.95 incl. VAT
"Super Slot" ROM Games Cartridge	£19.95 incl. VAT
"Alien" ROM Games Cartridge	£19.95 incl. VAT
"Super Lander" ROM Games Cartridge	£19.95 incl. VAT
"Road Race" ROM Games Cartridge	£19.95 incl. VAT
Introduction to Basic (Part I)	£14.95 incl. VAT
Carriage & Ins. on items marked*	£3.45 incl. VAT

TOTAL

All prices Subject to Manufacturers Price Changes

437 Stoney Stanton Road,
Coventry, CV6 5EA
West Midlands
Tel: (0203) 661162

IBEK
SYSTEMS

Name:

Address:

Please charge my Barclaycard/Access No.

Signed:

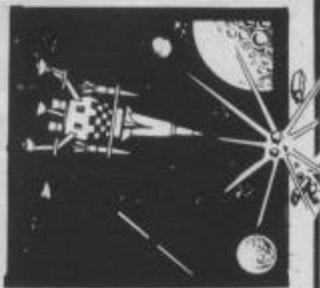
Or telephone order.

CVG12/82

Two great space games!

B.B.C. MICRO ASTEROID BELT MODEL A or B

A great new space game in which you find yourself trapped in an asteroid storm and your only chance of escape is to destroy the asteroids with your photon bolts or to move out of the path of destruction by rotating, thrusting or hyper-space'ing. The highest score obtained is always displayed.



£7.80 + VAT

B.B.C. MICRO SPACE HAWKS MODEL B

A cross between Space Invaders and Galaxians. The game features swooping Space Hawks armed with missiles which bombard your ground base. You have the ability to manoeuvre this ground base by joystick or keyboard. A fast moving game.

£7.80 + VAT

Both games are written in machine code for smooth action and fully utilise the high resolution graphics and sound effects.



**Professional B.B.C.
software for homes**

**COMPUTER
CONCEPTS**



**16 Wayside, Chipperfield,
Herts, WD4 9JJ. tel (09277) 69727**

Quantity discounts available - ask for details

New Generation Software

PROFESSIONALLY WRITTEN &
PRODUCED SOFTWARE FOR
THE HOME COMPUTER

From M.E. Evans the author of:-

**3D MONSTER MAZE
DEFENDER**

For the ZX81

comes a game for the **SPECTRUM**

ESCAPE

Can you find the axe to break down the exit door of the maze and ESCAPE. The maze is inhabited by 5 hunting dinosaurs including a TRICERATOPS who has the habit of hiding behind the hedges, and a PTERANODON that soars over the maze to swoop down on you.



*Trade enquiries welcome at
address below*

Send to NEW GENERATION SOFTWARE
FREEPOST, Oldland Common (no stamp reqd. in UK)
BRISTOL BS15 6BR
or for **INSTANT CREDIT CARD** sales ring 01-930 9232

PLEASE SEND ME A COPY OF ESCAPE FOR THE 16K
SPECTRUM. I ENCLOSE CHEQUE/P.O. FOR £4.95.

Mr/Mrs
Address

Dept CVG Post Code

ZX81 16K SPECTRUM 16/48 DRAGON TRS COLOR TANDY LEVEL 2 BBC A/B

FANTASTIC VOYAGE

(ZX81 16K 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 destroyed. Features a real vascular map. You will be attacked by lymphocytes which must be destroyed using arcade game type graphics. Everything you do uses up precious energy. Three display formats — a lateral and frontal body scan plus blood vessel name, a close-up scan and a laser-sight for fighting lymphocytes.

FOILKADE LTD

DEPT. PR5,
66 LITTLEDEAN,
YATE,
BRISTOL BS17 4UQ

**ALL GAMES £5.95 EACH, 2 FOR £9.95, 3 FOR £13.95
(ANY MIX) INCLUSIVE.**

AWARI

- ★ The ancient African game of logic. It takes 2 minutes to learn the rules but far longer to master the tactics.
- ★ Select the 'Goat-herd' level of play and it's an addictive game for children (8+) that exercises their minds — not their laser fingers.
- ★ Select the 'Witch-doctor' level and it's a threat 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, forest 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 'Foilcade Challenge' competition. Details with cassette or send SAE.

£1000 IN PRIZES

Electronequip

(Authorised BBC Dealer and Service Centre)

BBC1	BBC Micro Model A	299.00
BBC2	BBC Micro Model B	399.00
BBC3	BBC Model A Micro with 32K	338.30
BBC4	BBC Model A Micro 32K & VIA	345.00
BBC21	Upgrade Model A to B	115.00
BBC27	Disc Upgrade for BBC B	92.00
BBC30	14" Colour Monitor for BBC	287.50
BBC31	BMC 14" Colour Monitor	258.75
BBC33	BMC12A 12" Black/Green Monitor	90.85
BBC34	Karga 12" Black/Green Monitor	113.85
BBC35	Karga 12" Black/Ambre Monitor	113.85
BBC40	Cassette Recorder for BBC	29.90
BBC41	Single 5.25" Disc Drive 100K	265.00
BBC42	Single 5.25" Disc Drive 200K	328.90
BBC49	5.25" Discs for BBC 40/80 tracks	2.20
BBC50	Epson MX80T type 3 for BBC	373.75
BBC51	Epson MX80F/T type 3 for BBC	396.75
BBC70	Plinth/Stowage for BBC	29.90
BBC80	Cassette lead for BBC	4.60
BBC95	Printer lead for BBC	17.25
DRG1	Dragon 32K Micro	196.50
DRG50	Sekosa GP100A Printer for Dragon	228.75
DRG60	Joysticks for Dragon	19.95
DRGxx	Cartridges for Dragon	19.55
ATM2	Atom assembled 12kram	184.00
ATM11	Atom kit 12Kram	149.50
ATM26	New Atom 1.8A Power Supply	9.66
ATM41	5.25" Disc Drive for Atom (100K)	335.50

Large stocks. Prices inclusive of VAT.

All prices inclusive of postage except Micros £3.00

All upgrades etc. are fitted free of charge and the computer fully retested. Credit cards not accepted for BBC micro's.



Electronequip



128 West Street, Portchester (A27 opp. RUBY) Hants PO16 9XE Tel: 0705-325354

JOYSTICKS



The Video Command Hand Controller is shaped like a jet fighter joystick. It is rugged, reliable and comfortable with a very fast response. A rapid fire button is mounted on the side.

Use Type J3022 with our interfaces, parallel I/O Boards (eg ZX-81) or, as a direct replacement for Atari and Vic Joysticks.

Use Type J3001 with PET Computers.

Video Command Joystick £12.95

Joystick Interfaces

Sharp MZ-80K (MZ-80 I/O Not Req'd.)	£18.50
P.S.U. for MZ-80K Interface	£3.50
Acorn Atom (Kit incl. VIA & Connectors)	£15.50
ZX-81 (Assembled PCB)	£16.50
Apple II	£9.50
Sharp MZ-80A (available shortly)	£21.50

MZ-80K SOFTWARE TAPES — each £4.50

JOYSTICK SYSTEM: 3 games + M/C Routine for use in your own programs.

INSIDE INFO: Provides details about the MZ-80K not given in the manual (eg. Sound effects)

DICTIONARY: A text program to aid the conversion of programs written in Pet Basic to run on the MZ-80K.

Floppy Discs (10) inc free Lib. Case £18.50

Listing Paper (2000) 9" x 11 1/2" £17.50

Please add £1 p&p (tapes 50p) + VAT to all orders
Allow 21 days for Delivery

MICROSPEC LTD.

143 Balmalloch Road, Kilsyth G65 9PH.
Tel. (0236) 821473

GAMES CENTRE

THE LARGEST SELECTION OF GAMES IN THE WORLD

We stock the **BIG NAMES** in Computers including

ATARI 400/800
SINCLAIR ZX 81
ZX SPECTRUM
VIC-64
DRAGON MICRO
and a wide range of independent **SOFTWARE**

Main Computer Branches: 22 OXFORD STREET, London W.1.
439 OXFORD STREET, London W.1.
52 WESTERN ROAD, BRIGHTON.

Also at: 184 REGENT STREET, London W.1.
254 REGENT STREET, London W.1.

HENRY'S COMPUTER KIT DIVISION

404 EDGWARE RD, LONDON W2 1ED

TEL: 01-402 6822

RETAIL SALES & DEMONSTRATIONS

MICROTAN 65

Microtan 65 is the most advanced, powerful, expandable micro-computer available - it also happens to be the most cost effective!

HALF PRICE OFFER
KITS LIST PRICE
£79.95 incl.

OUR PRICE £39.95
incl. post paid

BUILT UNITS
£49.95 Incl.

STARTER KITS

MICROTAN 65 CONTENTS

High quality, plated thru hole printed circuit board, solder resist and silk screened component identification. 6502 microprocessor. 1K monitor TANBUG. Now with 'V' Bug. 1K RAM for user programme, stack and display memory. VDU alphanumeric display of 16 rows by 32 characters. MICROTAN 65 system file binder. 136 page, bound, users hardware software manual with constructional details and sample programmes. Logic and discrete components to fully expand MICROTAN 65. The MICROTAN 65 kit has won widespread acclaim for its superb presentation. We pay attention to detail!

Electronic Today International held a mammoth survey of kits. The result: Microtan 65 WINS COMPUTER CLASS!

DRAGON-32
COMPUTER
£199.00

inc. VAT Ex-stock.

Sinclair ZX81
in stock £49.95

DELIVERY EX-STOCK POST PAID MAIL ORDERS to:
11/12 Paddington Green, London W2.

NEW FROM MR MICRO

V.S.L. — You may be familiar with some of the many tune 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.S.L.** gives full control over the sound envelope of its attack, sustain and decay and volume. In fact, V.S.L. converts the Vic into a sound synthesizer. Once loaded the new fully tokenized command can be incorporated into other programs to make sound effects effective and music musical. The package includes versions for any expanded Vic, sample performances and instruction manual. **£10.95 Inc VAT.**

VIC TINY BASIC COMPILER — produces true 6502 code. Sub-set of BASIC supports all floating point operations. Compiler listing optional if you have memory (8k exp). Req. 3k-8k expander. **£15.95 Inc VAT.**

Mr Micro are pleased to announce the following new releases in our popular Vic Value Series.

VIC VALUE NO 2

Alphasquare, Switchback
Rayfection, Micromind — **£6.95 Inc VAT**

VIC VALUE NO 3

2 player chess and chess clock, Joygen
Alien Scanner, Martian Defence — **£6.95 Inc VAT**

Send SAE for our latest catalogue. For 24 hour telephone ordering service with Access or Visa ring 061 728 2282. Or send cheque/P.O to **MR MICRO LTD, 69 PARTINGTON LANE, SWINTON, MANCHESTER M27 3AL.**

WE ARE NOW A MEMBER OF THE SPECTRUM COMPUTER GROUP. OUR RETAIL SHOP IS NOW OPEN. WE LOOK FORWARD TO SEEING YOU THERE.

Acorn and B.B.C. Specialists

Commodore VIC-20 **VIC-20**

VIC-20 CPU	£135.00
VIC-20 C2N Cassette	£34.00
VIC Printer	£187.00
VIC Floppy Drive	£252.00
VIC Memory Exp. Board	£98.00
VIC 3k RAM Cartridge	£23.50
VIC 8k RAM Cartridge	£35.00
VIC 16k RAM Cartridge	£56.50
VIC Programmers Aid Cartridge	£27.00
VIC Super Expander High Res. Cart.	£27.00
VIC Joystick	£6.50
VIC Paddles (per pair)	£11.70

****10% off Vic Games Cartridges****

B.B.C. Hardware **BBC**

A to B Expansion and test	£90.00
Model A Computer	£270.00
Model B Computer	£355.00
RAM Expansion Kit	£22.00
Printer Interface Kit	£9.83
Bus Expansion Kit	£8.65
Analogue Input Kit	£9.90
B.B.C. Joysticks per pair	£16.90

B.B.C. Software

Super Beeb Invaders	£6.10
Games Pack 1 — Bomber, Crash, Spacebattle, Minefield and Music (Mod. A)	£5.70
Games Pack 2 — 3D Maze Monster, Dodgems and Cube (Mod. B)	£5.70
Educational Geographic Quiz — Capitals & Towns (Model B)	£5.70
Utility Program — Disassembler & Character Builder (Model A)	£5.00

Acornsoft, Bug Byte & Program Power Software in Stock — send for List

Books, Spares and Repair Service Send for Stock and Price Lists

*Please Add 15% VAT

*Orders Over £25 Post Free

*Orders Under £25 add 50p Postage

D. A. COMPUTERS LTD.
184, LONDON ROAD, LEICESTER, LE2 1ND
Tel: (0533) 549407

Acorn Atom

ATOM 8k + 2k Kit	£118.00
ATOM 8k + 2k Assembled	£148.00
ATOM 8k + 12k Assembled	£172.00
ATOM 12k + 12k Assembled	£195.00
ATOM Power Supply	£8.00
ATOM Disc Pack	£275.00
ATOM/BBC ROM (Nov.)	£43.00
ATOM Program Power Toolbox	£24.50
ATOM Econet	£70.00
2144 Memory Expansion chips	£0.89

****10% off Acorn and Bugbyte software**

Peripherals

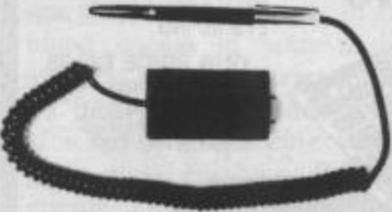
Printers — Atom or B.B.C.	
Epson MX80T/3	£299.00
Epson MX80FT/3	£340.00
Epson MX82FT	£330.00
Epson MX100/3	£440.00
Seikosha GP100	£192.00

Monitors B.B.C.

Sanyo 12" Black/Green Screen	£99.00
Microvitec Colour	£260.00
Ferguson Colour T.V.	£198.00

STACK FOR VIC-20 ACCESSORIES

VIC-20 LIGHT PEN + NEW LIGHT PEN GAMES



Hold the LIGHT PEN + like a normal pen, point it at your TV screen and the pen tells your VIC-20 what it sees! Instead of pressing keys, touch the screen with your LIGHT PEN + and move your man in CHESS, create LIFE, play OTHELLO, play GO. Point the pen at your man and move him to his new position. Many games are already available for the LIGHT PEN + and many more are being developed. You can write programs which allow you to read with your LIGHT PEN + from the TV screen or place images or words on the screen. e.g. From a long list on your screen use the LIGHT PEN + to choose the facts and figures you want. The well-known game CONCENTRATION is supplied on cassette tape FREE with every LIGHT PEN +.

only **£25.00** plus VAT
FREE GAME SUPPLIED!!

ANALOGUE JOYSTICK

Programming the VIC-20? Why not write your very own games! The ANALOGUE JOYSTICK will add another dimension to the games you write. It gives you full joystick control in ANY direction — and it fires too! Move your spaceship in a figure of eight or loop the loop — you are not restricted to up, down, right, left any longer!

only **£13.00** plus VAT

Light Pen Go (colour and sound)
The program allows two players to play this traditional and fascinating Oriental game placing and removing pieces using the LIGHT PEN +.

Light Pen Othello (colour and sound)
A two-player game placing and reversing pieces in this high strategy game using the LIGHT PEN +.

Light Pen Draughts (colour and sound)
The program allows two players to play against each other using the pen to move and take, including kings and blocking of illegal moves. Requires a 3K RAM pack.

Light Pen Concentration (colour and sound)
A two-player game in which a pack of cards are shown face down on the screen and turned over by the LIGHT PEN + in a search for pairs. Highest score wins.

Light Pen Life (colour and sound)
In this cult game pieces are placed in the universe and grow or die like bacteria colonies in life giving fascinating gliding or pulsing displays.

Cassette based games for use with STACKS' Commodore Approved LIGHT PEN +
only **£5.00** each plus VAT



ACCESS, BARCLAYCARD or AMEX welcome or send cheque including £1.72 p&p to:
STACK COMPUTER SERVICES LIMITED
290-298 DERBY ROAD, LIVERPOOL L20 8LN. TELEPHONE: 051-933 5511. TELEX: 627026.

PRO SOFTWARE

BBC MICRO (A & B)

- * NEW * SPACE ADVENTURE (Mode 1) Machine Code - Model B only £8
Our best selling game for the Atom now re-written and enhanced for the BBC. Intriguing mixture of Space Invaders, Maze and Adventure.
- MIDDLE KINGDOM (Mode 7) Basic 1. Machine Code. £8
Original real time adventure with over 300 rooms to find and explore. Fight (or avoid!) the many different monsters and retrieve the lost treasures of Hylem. Many different scenarios and characters.
- SPACE INVADERS (Mode 5) Machine Code. £8
Fast action, full-feature version of this popular game. Outstanding high resolution colour graphics plus sound.
- REVERSI and GOMOKO (Mode 5) Machine Code. £8
Response time under one second for the first 3 levels. Many features, graphic board, problem solving, etc. Both games are very absorbing and challenging.
- GAMES TAPE 1 (Mode 5) Machine Code. £8
Moving Wall Breakout, Snake and Hunt are fast moving addictive games, very colourful. Three quality games for the price of one.
- MICRO MAN (Mode 2) Machine Code - Model B only - Fast moving, excellent colour graphics with sound. £8

* NEW * Now available. Word Processor package only £19.95
Written in machine code for speed and versatility. Easy to use with full on-screen editing and justification (more useful and powerful than a text editor), insert, delete, move, copy, variable tab setting, margins plus many more features. Complete with instruction manual. Large SAE for further details.

All programs supplied on quality C-15 cassettes. All prices are inclusive, no extras. Buy any two cassettes and deduct £1 from total. SAE for Catalogue.

ATOM software also available. Space Adventure Invaders, Air Strike Only £6 each. SAE for details of our full range.

PRO SOFTWARE **BBC**

1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	

MAIL ORDER ONLY

LOWEST UK PRICES? ATARI VIC-20

ARCADE GAMES		TRICKY TUTORIALS	
K-Razy Shootout	E 80 £26.95	1. Display Lists	C 16K D 24K £10.75
K-Razy Kittens	E 80 £26.95	2. Hor. & Vert. Scrolling	C 16K D 24K £10.75
K-Star Patrol	E 80 £26.95	3. Page Flipping	C 16K D 24K £10.75
Pathfinder	D 32K £23.45	4. Basics of Animation	C 16K D 24K £10.75
Crossfire	C 16K £18.85	5. Player Missile Graphics	C 32K D 32K £16.95
Crossfire	D 32K £18.85	6. Sound	C 16K D 24K £10.75
Protector	C 32K £19.65	Tricky Tutorial 16 Package	C 32K £53.95
Protector	D 32K £19.65	Tricky Tutorial 16 Package	D 32K £53.95
Threator	D 40K £24.45	LANGUAGES	
Galactic Chase	C 16K £17.95	Basic A +	D 49K £46.95
Galactic Chase	D 32K £19.45	OS Forth	D 24K £46.95
Rastertastic	C 16K £18.65	Assembler	C 16K £17.95
Jawbreaker	C 16K £18.65	Inter-Lisp V2.0	D 49K £77.95
Jawbreaker	D 32K £18.65	UTILITIES	
Ghost Hunter	C 16K £17.95	The Next Step	D 32K £24.75
Bug Attack	C 24K £19.75	3D Supergraphics	C 40K £26.95
Bug Attack	D 40K £19.75	3D Supergraphics	D 40K £26.95
Canyon Climber	C 16K £19.75	Programming Aids Package 1	C 16K £ 8.95
Canyon Climber	D 16K £19.75	Filemanager 500	D 40K £55.45
Chicken	C 16K £19.65	K-Dos	D 32K £44.95
Chicken	D 24K £19.65	MISCELLANEOUS	
Turner Bugs	C 16K £13.45	Text Wizard	D 32K £52.95
Reversi	C 16K £13.45	Micro Painter	D 49K £23.75
Reversi	D 16K £13.45	File 2	D 49K £31.45
ADVENTURE GAMES		Floppy Disk pack of 10	£20.95
Zork I	D 32K £25.95	Digital C15 Blank	
Zork II	D 32K £25.95	Computer Cassette pack of 10	£ 5.50
Ulysses (Adv. 4)	D 40K £18.00	VIC	
Wizard & the Princess (Adv. 2)	D 40K £18.00	Adventuriland	E £23.95
Softport Adventure	D 40K £18.55	Pirate Cove	E £23.95
Deadline	D 40K £18.55	Mission Impossible	E £23.95
Adventuriland	C 32K £31.45	Voodoo Castle	E £23.95
Pirate Adventure	C 24K £13.45	The Court	E £23.95
Mission Impossible	C 24K £13.45	Sargon 2 Chess	E £23.95
Voodoo Castle	C 24K £13.45	Golf	E £23.95
The Count	C 24K £13.45	Omega Race	E £23.95
Strange Odyssey	C 24K £13.45	VIC	
Mystery Funhouse	C 24K £13.45	Adventuriland	E £23.95
Pyramid of Doom	C 24K £13.45	Pirate Cove	E £23.95
Ghost Town	C 24K £13.45	Mission Impossible	E £23.95
Savage Island Part 1	C 24K £13.45	Voodoo Castle	E £23.95
Savage Island Part 2	C 24K £13.45	The Court	E £23.95
Golden Voyage	C 24K £13.45	Sargon 2 Chess	E £23.95
		Golf	E £23.95
		Omega Race	E £23.95

KEY
C=Cassette, D=Disk, E=Rom Cartridge, 8K, 16K etc shows minimum memory requirement

VISA 24hr HOTLINE
01-773 1343

Hot Line or Mail Order Only
FORESHIRE LIMITED
LONDON INTERNATIONAL PRESS CENTRE,
SUITE 411, 76 SHOE LANE, LONDON EC4

SPECTRUM 48K ZX81 TRS80 VIDEO GENIE



FEATURES INCLUDE.....
★ 4 DIVISIONS ★ F.A. CUP ★ PROMOTION & RELEGATION ★ TRANSFER MARKET ★ TEAM SELECTION ★ SAVE GAME FACILITY ★ LEAGUE TABLE ★ AND MUCH MORE!

We're tired of telling you how good our game is..... let our customers tell you

I received F.M. about 10 days ago, and have played about 23 hours so far — addictive is the operative word. — D. BLAIR, FIFE

I think your game is fabulous since starting with Port Vale in the 4th Division, being promoted, winning the F.A. Cup, and being promoted again to the 2nd Division. — C. DICKENSON, CANTERBURY

I recently bought your F.M. program and was very pleased indeed. I found it very good value for money and played it all day the day it arrived — I own a ZX81 which is now only used for F.M. — Yours addicted, M. FRAMPTON, CANVEY ISLAND

I felt that I had to write and congratulate you on your program F.M. I found the game very compelling and exciting, really just like the real thing — keep up the good work and standard. — N. LAWRENCE, FULHAM

ORIGINALS CAN BE SEEN ON REQUEST

ALSO AVAILABLE AT BOOKSTORES & COMPUTER SHOPS INCLUDING BUFFER MICRO SHOP & MICROWARE 3D GRAPHICS ONLY INCLUDED IN SPECTRUM VERSION

HARDWARE REQUIRED

Spectrum 48K RAM	TRS80/Video Genie
ZX81 16K RAM	LEVEL II 16K RAM

To Order send Cheque/P.O. £7.95 made payable to:
ADDICTIVE GAMES
at: Dept. C.V.G. P.O. Box 278
CONNIBURROW,
MILTON KEYNES MK14 7NE
PLEASE STATE COMPUTER



YOU ARE INVITED TO SUBMIT YOUR ORIGINAL PROGRAMS* FOR COMMERCIAL CONSIDERATION

ALL MATERIAL SHOULD BE OF GOOD QUALITY AND OF MARKETABLE STANDARDS (I.E. BUG FREE!) SUBMITTED ON CASSETTE WITH OUTLINING INSTRUCTIONS.

IN RETURN FOR THE RIGHT PRODUCT THERE WILL BE SUBSTANTIAL FINANCIAL REWARDS WITH A SUPPLIER AGREEMENT FOR AN AGREED FIXED PERIOD. M/CODE PROGRAMMERS WILL BENEFIT FROM ADDED INCENTIVES.

IF YOU THINK THAT YOU CAN ACTIVELY CONTRIBUTE TO THE ABOVE FORWARD YOUR PROGRAM TO:

DATABASE SOFTWARE
97 DEFOE DRIVE, PARK HALL,
STOKE-ON-TRENT.
Tel. (0782) 330552

*Specialists in BBC, ATARI, SPECTRUM, ATOM, ZX & JUPITER ACE software.

GEMINI SOFTWARE

ZX81 (16K) SPECTRUM (48K) STARTREK

Features an 8x8 Galaxy, Klingons and Starbases, short and long range scans, Torpedoes and Phasers, Computer etc.
PLUS Normal or Hyperdrive: choose your speed but watch the energy level.
Galaxy Map: keep track of where you have been. Also, shows whether any Klingons remain there, and where the starbases are.
Visual display of Enterprise's position and movement.
Visual display of photon torpedo.
Messages from crew members.
5 levels of play. And much more.

Cassette plus full instructions.

ZX81 £4.95
Spectrum £5.95 (colour and sound too)
Sae for other programs.

Gemini Software
36 BADMINTON RD, LEICESTER LE4 7RQ.
TEL: (0533) 64915

*** NEW FROM LLAMASOFT! ***

TWO 100% MACHINE CODE ARCADE GAMES FOR UNEXPANDED VIC-20 FROM THE AUTHOR OF 'DEFENDA' AND 'TRAXX'

ONLY £6 EACH

GRID RUNNER

FINALLY: True arcade quality on the unexpanded VIC! Shoot down the segmented DROIDS invading the GRID. Beware of the PODS and ZAPPERS! The awesome SPEED, SOUND and GRAPHICS gives you the BEST BLAST AVAILABLE for unexpanded VIC. **ZAP the swirling alien hordes before they RAM you — and ABDUCT your Humanoids! SURVIVE the assault for long enough and you'll get an EXTRA STAGE on your spaceship with DOUBLE FIREPOWER! Awesome 3-5K action guaranteed!**

* **NEEDS JOYSTICK** *



ABDUCTOR

ARCADE QUALITY SOFTWARE FROM LLAMASOFT!!

by Jeff Minter

Spectrum ATARI 400/800

VIC-20

ZX81

SPECTRUM

GRAPHICS CREATOR (16K)
NOT just another character editor! This one allows you to define not only the 21 user definable characters, but also allows you to change the entire 96 character ASCII set. Creates BYTES files ready for you to load into your own programs. Includes advanced Reflect, Invert, Field commands etc. Complete with full documentation. If you are at all serious about SPECTRUM graphics, then bin the BIN statement and use Graphics Creator with its easy on-screen cursor editing. **£2.95 + 50p P&P.**

BOMBER (16K)
Yes, a full feature version of the popular game 'Blitz', supplied for the 16K or 48K Spectrum. **For only £2.95 + 50p P&P.**

ROX III (16K)
Blast the falling meteors as they invade your planet, cruise missiles are your only defence in this world of disaster. If they break through the crust of your planet then your life support systems will fail. A very addictive game with fast action and great graphics. 16K or 48K Spectrum **only £2.95 + 50p P&P.**

SUPERDEFLEX (48K)
The idea of this new game is to bounce "Sid", the space invader, around the screen into the power pods, keeping away of course from the devil who chases you around the screen. Steer with your Deflex shields, but beware the mines or you may be buried alive! Superb graphics and fantastic sound on the 48K Spectrum only. **Only £4.95 on cassette + 50p P&P.**

VIC-20
ANDES ATTACK
Fly your Ramjet fighter over the Andes mountain range and protect your llamas from kidnap by hostile UFOS. Features 5 kinds of UFO, controls include up, down, reverse, fire, thrust and smart bomb. Entirely in machine code. Requires 8K expansion and joystick. **£8.00 + 50p P&P.**

TRAXX M/C 8K + EXPANSION
This is the VIC 20 version of the brand new arcade game 'Amidar', a cross breed between the now famed 'Pacman' and the game 'Quix'. All in machine code, fast and fun with joystick controls, uses Hi-Res colour graphics. 8K or larger memory expansion needed. **Only £6.00 + 50p P&P complete with instructions.**

RATMAN!
Another amazing game from Llamasoft!! You are the man under attack by the deadly rats as they fall from the sky. You must dodge the arrows to get to the rats and then squash them with your hammer before they dig under the platform on which you stand, and mutate into devils. Fast action with really fun graphics to make an extremely addictive game. 8K or larger memory expansion needed. Uses Hi-Res colour graphics, in machine code. **Only £5.00 + 50p P&P complete with instructions.**

BREAKOUT/DEFLEX
Unexpanded package a full feature version of the popular arcade Breakout plus a new concept in computer games, Deflex!! Both programs on one cassette **only £3.95.**

BLITZKRIEG (3.5K)
As seen at the Commodore show and reviewed by the Daily Telegraph. Fly your Vulcan Bomber over the enemy city and destroy the buildings. 25 levels of play, uses Hi-Res colour graphics and plays Rule Britannia between waves. **Only £4.95 complete with instructions.**

GAME GRAPHICS EDITOR
Create your very own custom characters for the unexpanded VIC 20, up to 64 characters with facilities such as reflect and save on cassette etc.

SOFTKEY 24
This program, designed to run on the VIC 20 with any memory size gives you the facility of 24 key words on your function keys. Key words include peek, poke, run, save, list, for next etc. Both programs on one cassette **only £6.00 + 50p P&P with full documentation.**

ATARI 400-800
TURBOFLEX
Superb ultra-fast and totally new ball game unlike any you have seen before. Uses ATARI's unique features to the full. Incorporates superb colour/sound effects and uses Player/Missile graphics. Tables top 10 scores along with Scorer's name. **£6.00 + 50p P&P.**

GRAPHICS/CHARACTER CREATOR
Now you can define your very own custom character sets, or edit the existing sets. Results are fully displayed on screen in modes 0, 1, 2. Special features include reflect, invert, save character sets etc. Supplied on cassette with data sheet **only £8.00 + 50p P&P.**

ZX81
CENTIPEDE (16K ZX 81)
The ORIGINAL game from the ORIGINAL author. This is the identical program to that being sold by other companies for three times our price. The game has received ecstatic reviews in the computing press. Program has 30 speed levels and ever increasing Centipede hordes. Tables top 10 scores and their names. Why wait to pay more? **Only £1.95 + 50p P&P.**

LLAMASOFT SOFTWARE



Dept. CV4,
49 Mount Pleasant
Tadley, Hants
RG26 6BN.
Tel: 07356-4478
Trade enquiries
welcome.

Please add 50p P&P with all orders

**IF THE CLOUDBOPPERS,
WASPS, SPIDERS, METEORS,
OR SATELLITES DON'T
BEAT YOU...**

**...RENAISSANCE
WILL**



CLOUDBURST
meteor run
Renaissance
SPIDERS OF MARS
Satellites
and meteorites

**5 More great
VIC Cartridge games from Audiogenic**

Available from all VIC dealers or direct from Audiogenic Ltd. PO Box 88, Reading, Berks. (0734 586334) Credit cards accepted. Meteor Run, Renaissance, Spiders of Mars, Satellites and Meteorites £24.99, Cloudburst: £19.99 (inclusive of VAT and p&p). All titles copyright UMI INC represented in Europe by Audiogenic. Send for full catalogue.

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.

MOTIFS/T-SHIRT COLOUR

Pacman/White, Pacman/Tan, Asteroids/Black, Missile Command/Blue (not 10-12), Space Invaders/Black (not 10-12), Donkey Kong/White, Tempest/Black (not kids or small), Frogger/White.

ONLY £4.50 (Inc. P&P) £4 (Inc.) Kids Sizes.

State alternative motif if possible.

Orders despatched within 3 days.

Cheque/P.O. to:

NEIL HOW, 3 VICTORIA ROAD, LEAMINGTON SPA, WARWICKS.

ZX SPECTRUM HARDWARE

24 line programmable Input/Output Port

This new port has been designed exclusively for the ZX Spectrum and utilises MOS technology to minimise bus loading.

The main features are:

- 3 x 8 bit ports
- Port mapped using IN and OUT commands
- 3 basic modes of operation
- Direct Bit Set/Reset capability
- Outputs capable of sourcing 1mA at 1.5 volts
- Access via 3 x 16 pin DIL sockets and 28 way edge connector



The port is available fully built together with a set of detailed instructions and suggested control applications. The port can either be used with our new Motherboard thus allowing a further card to be used, or with a stackable connector. Either way, it means that Micro-Drives, Printers etc. will run happily with the port.

ZX Spectrum PPI Port	£16.50
ZX 2 Slot Motherboard	£16.95
ZX Stackable Connector	£5.50

The prices are inclusive of VAT but postage must be added at 70 pence for a single item (100 pence for 2 or more items).

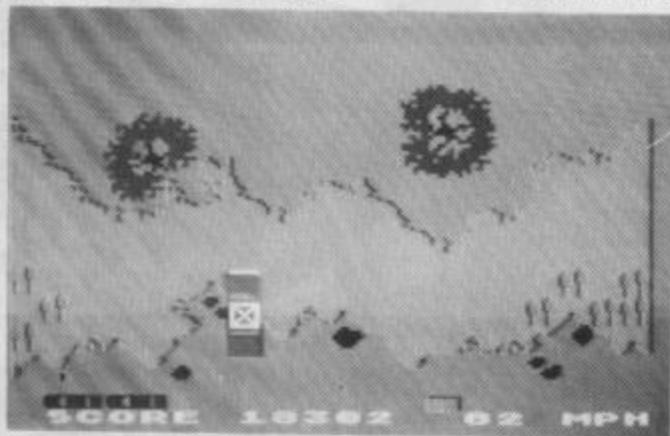
KEMPSTON ELECTRONICS

PRICE BREAKTHROUGH
Spectrum Joystick
complete with boxed
interface together with
instructions for use in
BASIC £19.50 incl VAT

180A BEDFORD ROAD, KEMPSTON,
BEDFORD, MK42 8BL.
TEL: (0234) 852997

Arcade type games now available — SAE for further information.

more for * * ATARI



"HAZARD RUN"

If you've wanted to join those good old country boys and drive the General Lee through Hazard County...

NOWS YOUR CHANCE

In HAZARD RUN, you must make the treacherous run through Crooked Canyon, past Bryan's Pond to the jump at Hazard Creek and safety.

For 16K Atari 400 & 800. Needs a joystick. On cassette.

Also still available BETA FIGHTER. A1 or 2 player game set on a realistic 3D Martian Landscape. For 16K Atari 400/800.

Joysticks required. On cassette at £15.50 (inc VAT).

Manufactured in the U.K. by:

ALLRIAN DATA SERVICES
1000a, Uxbridge Road,
Hayes, Middx.
UB4 0RL.

£21.50 (INC. VAT + P&P Free)
(£21.70 on disc)

Artworx
PRODUCT

SIR COMPUTERS LTD

Agents for Torch and Oric Computers
ORIC I IN STOCK FROM DECEMBER 1ST

BBC MICROCOMPUTERS

Model A	£299.00
Model A + 32K Ram	£339.00
Model B	£399.00
Model B + disk interface	£479.00
Upgrade of your Model A to Model B	£100.00

BBC compatible TEAC disk drives	
Single disk drive	£249.00
Dual disk drive	£459.00

Connect Four	£5.99
--------------------	-------

ACORN ATOM

8K Rom + 2K Ram	£149.50
8k Rom + 12K Ram	£179.00
12k Rom + 12K Ram	£229.00
1.8A power supply	£8.50
Atom disk pack	£345.00

All prices are inclusive of VAT. Please add £7.50 for delivery by Interlink.

SIR COMPUTERS LTD

38 Dan-y-Coed Road,
Cyncoed, Cardiff,
Tel: (0222) 759015

Mysterious Adventures



WE PROUDLY PRESENT, FOR THE VIC 20

THE INTERNATIONALLY SUCCESSFUL MYSTERIOUS ADVENTURES

These superbly written, Machine Code Adventures have been enjoyed by TRS80-VIDEO GENIE owners in Britain for well over a year now and are currently taking the U.S. by storm. The Author has now implemented these absorbing programs on the COMMODORE VIC 20 FITTED WITH 8K RAM PACK.

ALL ADVENTURES IN THIS SERIES INCLUDE:

Split screen display, Ultra fast Machine code response, Save game to cassette feature, Simple two word command entry, approx. 70 Locations to visit, 30 Objects to manipulate, 20 or more "problems" to overcome.

ADVENTURES PRESENTLY AVAILABLE:

- 1) THE GOLDEN BATON — venture into a strange province of danger and evil magic to retrieve the stolen Baton of King Ferrenuil.
- 2) THE TIME MACHINE — As a newspaper reporter you have been sent to the old house on the moors to investigate the eccentric Dr. Potter...
- 3) ARROW OF DEATH (Part 1) — In the first part of this epic Adventure you must find and destroy the source of the evil blight which has befallen your homelands.

These are the first three of a series which could ultimately total more than 20 Adventures.

WARNING! — Only supreme courage and low cunning can ensure eventual success on these dangerous missions.

SEND CHEQUE OR P.O. FOR JUST £9.95 INC. VAT + 50p POST & PACKING TO:

AVAILABLE SOON

- Escape from Pulsar 7
- Arrow of Death Part 2
- Circus
- Feasibility Experiment

ALSO RAM CARTRIDGES

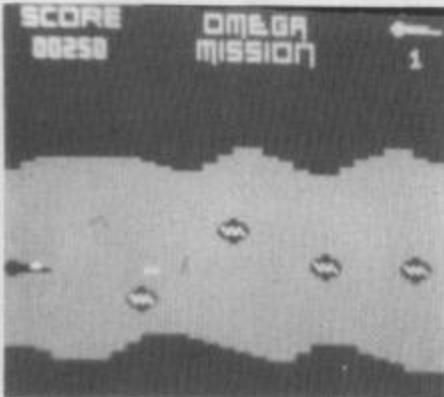
- 3K £16.50
- 8K £32.50
- 16K £56.50 + 50p P&P Inc. VAT.



BLACKPOOL COMPUTER STORES

Leisuronic

64 Abingdon Street,
Blackpool,
Lancashire FY1 1NH
Telephone (0253) 27091



OMEGA MISSION £7

The first and only version of the superb Scramble Arcade game. Moving landscape! Fly over mountains, through caves and tunnels. 5 different stages. Ground to Air Missiles, Fire Balls, Space Craft, Mutants and the narrow twisting Tunnel. Movement in 8 directions, laser cannon. Excellent COLOUR graphics (give Black & White on monochrome T.V.) mode 3a, Sound Effects. Top score.

THE PROTECTOR £7

The most realistic version of this amazing Arcade game available for the Atom. Defend your humanoids from mutation and destroy the Aliens in this hyper fast, action packed game. Moving planetary surface, repeating lasers and smart bombs, thrust, sapce, increasing Attack Waves, 6 types of Aliens, Sound Effects. Top score and excellent mode 4 graphics are some of the features in this exciting game.

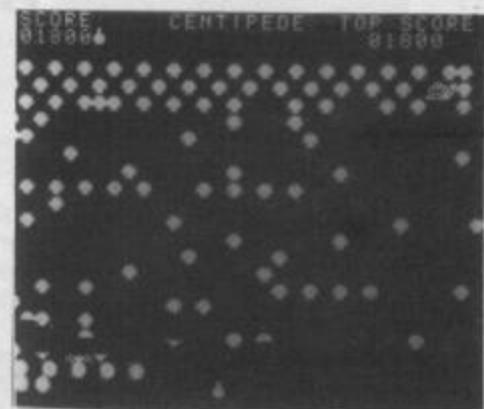


ATOM

ACTION PACKED M/CODE ARCADE GAMES



ALL 12K RAM
PRICES INCLUDE P&P. FAST 2 DAY DESPATCH
micromania
14 LOWER HILL RD. EPSOM. SURREY.

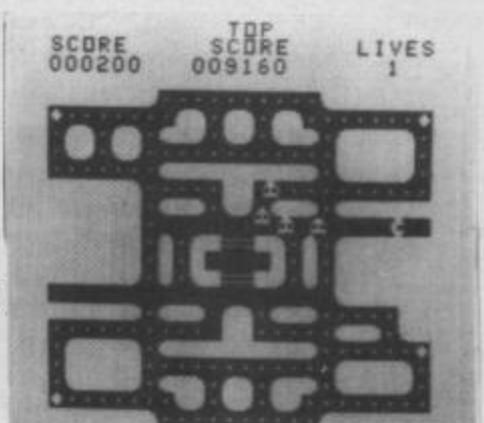


CENTIPEDE £6

The first and only version of this popular Arcade game for the Atom. Shoot down the splitting centipede as it swirls through the mushroom field. Also inhabiting the game are Spiders, Bugs and Snails. The action increases until only skill and quick thinking can save you. Excellent high speed mode 4 graphics. Sound Effects and Top score.

PUCKMAN £5

One of the best versions of this popular Arcade maze chaser game. Eat all the dots in the maze but watch out for the hungry ghosts! Eat an Energy Blob and the chase reverses. Each maze cleared brings a new one with faster ghosts. Excellent high speed mode 4 graphics, Sound Effects and Top score.





ROMIK SOFTWARE

24 Church Street, Slough, SL1 1PT. Telephone: Slough (STD0753) 71535

ROMIK
PROMISE A
MINIMUM OF ONE
NEW GAME EVERY
MONTH

BRITAIN'S LEADING GAMES SOFTWARE HOUSE ARE PROUD TO ANNOUNCE OUR NEW RANGE OF EXCITING GAMES & OTHER SOFTWARE FOR THE VIC 20

(GAMES FOR:- BBC, DRAGON, SPECTRUM & ATARI AVAILABLE SOON)

ALL ACTION GAMES CARRY A FREE ENTRY TO NATIONWIDE COMPETITIONS WITH FANTASTIC PRIZES

MARTIAN RAIDER

FOR UNEXPANDED VIC 20

Skim as close as you dare to the surface of the planet, devastating the Martian cities, destroying ammunition dumps (gaining more time), shooting down the ground to air missiles and U.F.O.s, dodging or blasting the meteorites.

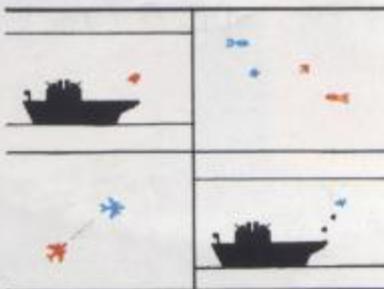


"A REAL ACTION SHOT OF THE GAME"

AIR-SEA ATTACK

FOR EXPANDED VIC 20
YOU CAN USE 3K, 8K OR 16K RAM

Can you pilot a modern jet fighter? Take off from your aircraft carrier and engage enemy aircraft in battle. Shoot them down and then drop your bombs on the enemy aircraft carrier. Watch out — the enemy fighter is trying to do the same! If he gets past your air defence you are left to defend your own carrier with sea-air missiles. You each have 3 jets.

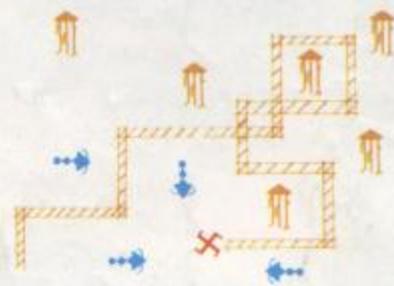


"A REAL ACTION SHOT OF THE GAME"

SHARK ATTACK

FOR UNEXPANDED VIC 20

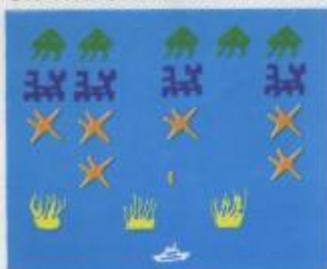
You are in shark infested waters after being thrown overboard from a pirate ship. Your only protection being an atomic net which you trail behind you, trying to cover all the visible ocean and ensnare the sharks at the same time. Beware of stopping or covering your tracks for too long, if you do, then the sharks will escape and come after you. Watch out for the ever increasing deadly octopi (sometimes the sharks will eat part or all of one!).



"A REAL ACTION SHOT OF THE GAME"

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 crabs, starfish, & octopi!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

MIND TWISTERS

FOR UNEXPANDED VIC 20
FOUR GAMES TO STRETCH YOUR BRAIN

Blackjack, Decipher, Four Thought and Teaser are our computerised versions of very popular home games and will test your mental agility and skill for many a long hour.

BLACKJACK:-
You start with £1,000, the objective being to break the bank, to do this you have to win (including your starting money) £20,000.
Instructions: You have to score nearer (but not over) 21 than the computer does. The computer deals your first card, you then place your bet and hit the return key, the computer then deals your second card. If you want another card hit the "C" key, if not, hit the "S" key.
Points: Ace = 1 or 11, Jack, Queen, King = 10.
Scoring 21 points with 2 cards — you automatically win.
Scoring 21 points or less with 5 cards — you automatically win.
Draw — the computer wins.
Your kitty is automatically adjusted win or lose. If you lose all your kitty — game over.

DECIPHER:-
You have to guess what combination of colours the computer has selected — to enter a colour just hit the colour button on the computer, when you have entered your 5 choices of colour, the computer will display (A) Nothing at all — None right, (B) Black or White Squares or Both — For every black square you will have a correct colour in the correct position, for every white square you will have a correct colour in the wrong position. If you cannot find the complete combination, it will be displayed when you have had twelve attempts.

FOUR THOUGHT:-
You have to make a line of four squares — horizontally, vertically or diagonally BEFORE the computer does, taking turns to take a square (squares can only be placed at the bottom of the grid, or on top of another square). **Keys:** Hit the number key of the column you want your square dropped in then hit the return key.

TEASER:-
The aim of the game is to score "15" BEFORE the computer does, using any combination of 3 boxes. If you cannot score "15" then you must try and stop the computer from doing so and force a draw. **Keys:** Hit the number key of the box that you want (you can only select an empty box).

MOONS OF JUPITER

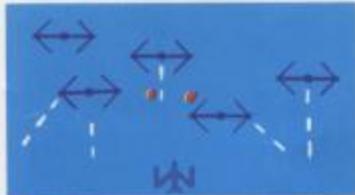
FOR EXPANDED VIC 20, 3K, 8K OR 16K



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 "U.F.O's"... Watch out for the 'Gologs', 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 wave after wave of various alien space ships

MULTISOUND SYNTHESIZER

FOR THE UNEXPANDED VIC 20

The Vic Multisound Synthesiser is very flexible and can be played in more 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 "F3", then key "9" and enjoy the added effect. Now hit "+", listen to the difference. For a surprise — hit "-". Now add a melody over the top — hit key "8" then "7" — now play a melody, or experiment. *Have fun!*

Our games are available from all good home computer shops, including: all Laskys branches, Micro C, inside Currys at: Birmingham (233 1105), Leeds (446601), Luton (425079), Nottingham (412455), Southampton (29676), inside Bridgers at: Bristol (650501), New Malden (01-949 2091), and at: Leicester (546224), London (387 9275), Manchester (834 0144), Micro-C, Chromasonic Electronics, 48 Junction Road, Archway, London N19 5RD (01-263 9493 263 9495, Telex 22568), Maplin Electronic Supplies Ltd, P.O. Box 3, Rayleigh, Essex (0702 552911/554155), Gemini Electronics, 50 Newton Street, Off Piccadilly, Manchester M1 2EA (061-236 3083), Gamer, 24 Gloucester Road, Brighton (698424), Vic Centre, 154 Victoria Road, Acton, London W3 (01-992 9904), Metyclean, 137 The Strand, London WC2 (01-240 2321), Metyclean, 177 London Road, Croydon (01-686 8626), Metyclean, 92 Victoria Street, London SW1 (01-828 2511).

A.C. Systems, Exeter... Microtrading, Birmingham... Super-soft, Harrow... Anirog Computers, Horley, Surrey (346083)... Ozwise Computers, Harrow (429 1060)... Cavendish Data Systems, South Norwood (656 8941)... Software Master, 30 Lincoln Road, Birmingham... Tomorrows World, Dublin... Algray Software, Barnsley (83199)... Computer & Business Systems, Nelson, Lancs. (0282 601191)... Dyad Developments, Oxon. (08446 729)... Leisureonics Blackpool Computer Stores (0253 27091)... Carlow Radio Ltd, Bedford (60447)... Byte Shop Computerland, Glasgow (221 7409), Nottingham (40576), Manchester (236 4737)... First Byte Computers, Main Centre, Derby (365280)... Simmons Magee Computers Ltd, Twickenham (891 4477)... Capital Computer Systems, Ilford (553 3026)... A.O.M. Business Systems, L.V.E. Building, Leicester (548923)... Jutea Ltd, Bridge, Near Canterbury, Kent (0227 830083)... Twickenham Computer Centre (01-892 7896)... Kent Microcomputers, Maidstone (0622 52784)... J. S. Simnett Computers Ltd, The Computer Shop, Kingston (01-546 3793)... Chris Denning Ltd, Poole (0202 761859)... Yorkshire Micro Computers, Scarborough, Yorks (0723 78136).

ONE FULL TIME, FULLY EXPERIENCED MACHINE CODE PROGRAMMER WANTED URGENTLY



Travel into tomorrow with IMAGIC....and add a new dimension of excitement to your Atari Video Game System. Intriguing game concepts, advanced graphics, sensational sound effects, plus the ultimate in non-stop action for video entertainment. Enjoy the new generation of challenging cartridges from IMAGIC.



Contact us today for full details.

Distribution Centre: Hales Limited, Ripon Way, Ripon Road, Harrogate, North Yorks. HG1 2AU. Telephone 0423 501151/6 Telex 57953 Adam G

A Member of The Adam Leisure Group Limited