

# Home Computing WEEKLY

An Argus Specialist Publication

**No. 47**  
**Jan 31-Feb 6, 1984**

**40p**

Britain's leading  
weekly magazine  
reviews  
for software

**Commodore 64:**  
Using our  
**Extended BASIC**  
**AND** how how to  
make music

**Three pages of**  
**Spectrum**  
**software**  
**reviews, plus**  
**BBC, Texas...**

**Great games to**  
**type in for:**  
**VIC, Atari, TI**



**Two ZX81**  
**programs**

**Your Spectrum**  
**can read minds**  
**— just type in**  
**our listing**

**ANIROG**

**KONG**

COMMODORE 64  
K.B./J.S.  
£7.95

**ANIROG SOFTWARE**

Mail Order:  
8 HIGH STREET, HORSLEY, SURREY  
24 HOUR CREDIT CARD SALES: HORSLEY (02534) 4063  
PAYMENT BY CHEQUE P.O. ACCESS-VISA  
50p POST & PACKAGING

**FREE**  
competition

160 prizes of the  
latest arcade-  
adventure from  
**FANTASY**  
**SOFTWARE**

**3D SEIDAB**  
**ATTACK**  
HEWSON CONSULTANTS  
For the 16  
or 48K  
Spectrum

Acorn BBC B32K  
the software used in schools

Help with  
adding and subtracting  
for 5 to 7 year olds

**NUMBER**  
**KILLS 0-20**

**MOUNTAINS**  
**of KET**  
48K SPECTRUM ADVENTURE  
FROM INCENTIVE SOFTWARE LTD

**MIKRO-GEN**  
SENSATIONAL SOFTWARE FROM

**1984**  
A GAME OF  
GOVERNMENT MANAGEMENT

## CBM 64s to start 'talking'

Commodore is setting up a network, using phone lines, for users of the CBM 64, plus its new home micros.

Trials are due to start with access restricted to members of the Independent Commodore Products Users' Group and the plan is for public access in late summer.

Among the features it will offer: telesoftware, free and for sale, information about products, a query hotline and electronic mail. Dealers and ICPUG will be offered closed user group status.

It is now called the Commodore Information Tree but its public name will be Compunet. The host computer will be a London-based DEC 10 and there

*Continued on page 5*

## When will it all end?

How long have you got to live? Now there's a program for the Spectrum which will give you a prediction — and identify the danger areas in your life.

Author Dr Vernon Coleman, a GP for 10 years, provided the data for How Long Have You Got?, based on facts from research papers and books.

It asks questions about smoking, eating habits, exercise, drinking, sleeping and driving as well as asking if you enjoy your work, whether your mother lived to 80 and your sex.

But would users of the pro-

*Continued on page 5*

**ANIROG**

**Moon Buggy**

COMMODORE 64  
J.S. £7.95

**ANIROG SOFTWARE**

Mail Order:  
8 HIGH STREET, HORSLEY, SURREY  
24 HOUR CREDIT CARD SALES: HORSLEY (02534) 4063  
PAYMENT BY CHEQUE P.O. ACCESS-VISA  
50p POST & PACKAGING

# Your Best Source of Best Sellers

**We know what's selling**

As a leading distributor of home computer software, we know what's selling in retail outlets. We've also got the knowledge and capability to best service and supply the requirements of quality computer shops nationwide.

The 12 top games featured above are available now in

**John Menzies spectrum**

shops and other good computer shops supplied by Tiger Distribution.

Make sure of your stocks - and our support - by contacting your Tiger Distribution van-salesman - or by phoning our tele-salesgirls on 051-420 8888.

Tiger Distribution, Commercial House, 4 Victoria Road, Widnes, Cheshire, WA8 9QY.

# Your Best Source of Best Sellers

# BUY THIS SPACE

To advertise  
your latest products!  
Ring Coleen or Barry on  
01-437 1002 NOW!

## Briefly

Build a city within a time limit — but make sure you pay taxes and interest charges. That's the storyline in City, Terminal's third game for the 48K Spectrum. Priced at £6.95, it can be played by one — four players.

*Terminal, 28 Church Lane, Prestwich, Manchester M25 5AJ*

Software houses Gemini, Clares, Bourne Educational and BEEBUGSOFT — software arm of the BBC User Group — are planning to bring out software on Hitachi 3in discs, says the distributor of the drives, Advanced Memory Systems. They are to include games, utilities, and home and business packages.

*Advanced Memory Systems, Green Lane, Appleton, Warrington WA4 5NG*

You are the captain of an out-dated spaceship, with characters like Drones and Cellular beings as a crew, in Elephant's graphic strategy game Kosmik Pirate. It costs £5.65 and runs on the 48K Spectrum.

*Elephant, 41 Haymill Rd, Burnham, Bucks SL1 6NE*

Acorn says its new IEEE interface for the BBC micro can control up to 14 pieces of scientific and technical equipment, including oscilloscopes, voltmeters, spectrum analysers and frequency meters. It consists of a self-contained unit, a ROM which will accept plain English commands, and a 70-page manual. Price: £325

*Acorn Computers, Fulbourn Rd, Cherry Hinton, Cambridge CB1 4JN*

Learn to touch type in your own time and at your own pace, says the National Extension College which has just produced a typing tutor called All Fingers Go! It features 18 lessons on two tapes for the 32K BBC micro, showing the keyboard and fingers on the screen. The course costs £14.95 and a disc version is available.

*National Extension College, 18 Brooklands Ave, Cambridge CB2 2HN*

# Home Computing WEEKLY

News .....	5,6
£1,000 Fantasy Software competition .....	7
Spectrum software reviews .....	8
Spectrum program .....	10
Your micro can read your mind	
Software reviews .....	13
Educational programs for Spectrum and BBC	
Commodore 64 programming .....	15
Make our Extended BASIC work for you	
Spectrum software reviews .....	18
TI-99/4A program .....	21
Watch out for your glassware!	
Software reviews .....	24
New versions of favourites for TI, BBC, Spectrum	
Commodore 64 programming .....	27
How to program sound effects on your 64	
U.S. Scene .....	29
TI-99/4A software reviews .....	30
Letters .....	33
Spectrum software reviews .....	35
VIC-20 program .....	36
An arcade classic for the unexpanded VIC	
Software charts .....	39
Atari program .....	40
Grab what you can and you may survive	
ZX81 programs .....	43
A space game and teaching program, both in 1K	
One Man's View .....	44
Atari program .....	47

Editor:  
Paul Liptrot  
Assistant Editor:  
Candice Goodwin  
Designer:  
Bryan Pitchford  
Managing Editor:  
Ron Harris

Divisional Advertisement Manager:  
Coleen Pimm  
Acting Advertisement Manager:  
Ricky Holloway  
Assistant Advertisement Manager:  
Stuart Shield  
Classified Advertising:  
Debra Stuppel

Chief Executive: Jim Connell

Argus Specialist Publications Ltd.  
No.1 Golden Square, London W1R 3AB. 01-437 0626

Home Computing Weekly is published on Tuesdays. Distribution by Argus Press Sales and Distribution Ltd, 12-14 Paul Street, London EC2A 4JS. Printed by Alabaster Passmore & Sons, Ltd, of London and Maidstone, Kent. Design and origination by MM Design and Print, 145 Charing Cross Rd., London WC2 0EE

I'm An  
**URBAN  
UPSTART**  
Are You?  
RICHARD SHEPHERD SOFTWARE



Your Spectrum can read your mind. Type in our program on page 10 and try it



Try the TI program on page 21 — then turn to the software reviews on page 30

We've got 160 copies of Dooomsday Castle, Fantasy Software's great new adventure, to give away to the winners of this week's competition. Turn to page 7



Make more of your Commodore 64 with the programming advice on pages 15 and 27



Educational software for the BBC micro and the Spectrum is reviewed on page 13



There are two programs for the unexpanded ZX81 on page 43

# ANIROG SOFTWARE

PILOT YOUR SPACE CRAFT THROUGH THE SIX DEFENCE SECTORS AND DESTROY THE COMMAND MODULE OF THE COBRON EMPIRE. ALL M/C BLOCKBUSTER,

AVAILABLE FOR COMMODORE 64 & VIC 20

J.S. £7.95

## SKRAMBLE

DESTROY THE BASE BEFORE YOU RUN OUT OF FUEL.

CITY WITH HIGH RISE BUILDINGS.

GUIDE YOUR SHIP WITH DEXTERITY THROUGH THE MAZE.

RAMMING MISSILES HURTLE TOWARDS YOU.

FIGHT COBRON QUASER ION SHIPS.

DODGE THE FIREBALLS, BECAUSE YOU CAN'T SHOOT THEM DOWN.

*Trade Enquiries:*

29 WEST HILL DARTFORD KENT (0322) 92513/8

*Mail Order:*

8 HIGH STREET HORLEY SURREY

24 HOUR CREDIT CARD SALES HORLEY (02934) 6083

PAYMENT BY CHEQUE P.O. ACCESS/VISA

50p POST & PACKAGING

## 64 network

From front page

will be local access at 14 points in the UK, cutting phone costs.

Next month a viewdata modem to use the network goes on sale. Sold as a plug-in black box, it will cost £75 or £100 with a year's free membership of Compunet.

Software on ROM will allow software to be downloaded and screen dumps to a black and white printer or to Commodore's MCS801 colour printer, the Seikosha GP 700 with the Commodore badge.

It will also handle file transfers between 64s, with error checking. The modem will be available from Commodore by mail order.

The reason given is that each will have a unique identity so that when Commodore software is downloaded it will run only on that user's micro, using the modem as a security device.

Subscription will be £30 a year with a connect-time charge on weekdays between 9am and 6pm. It is expected to be less than Prestel charges.

Other features will include storage of data — charged per K per day — auto-billing and payment by credit card.

John Collins, special software project manager, said links could be made to other databases by third parties and users could start their own bulletin boards. Commodore planned to use it to link its UK offices in Slough with its Corby plant.

Eventually European users could dial in too.

Mr Collins said that although a Commodore network was in operation in America, little material — apart perhaps from some software — would be transferred to the UK network.

● Commodore's Magic Voice Speech Module, numbered C64850, should be on sale next month at about £50. Programmable in BASIC and machine code, it has 235 built in words or word-parts and more can be added. It will work only on the Commodore 64 and its portable model, the SX64. Two talking cartridges will be available, Gorf and Wizard of Wor, with others to be added.

● Also coming soon, the C1542 disc drive — a re-styled 1541 — offering 170K of storage on a 5¼in floppy. The SFS 481 Fast Disc Drive for the new Commodore micros is also on the way. Prices have not been fixed.

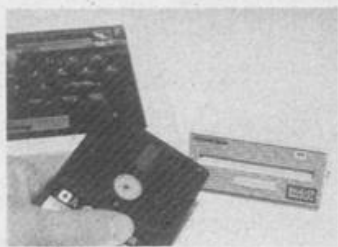
● Commodore's UK general manager expects demand for home micros to increase — along with increasingly fierce com-

petition. He was speaking after an announcement of world-wide sales of \$1 billion, more than double the previous year. This, says Commodore, means it is producing more computers than the next two largest companies combined.

Howard Stanworth said that, with 750,000 Commodores in use in the UK, the company would be seeking to concentrate on software and peripherals, which would account for 75 per cent of UK sales by the end of the year.

● In a bid to increase sales to schools, Commodore is offering £170 off a package comprising Commodore 64, 1541 single floppy disc drive, the LOGO educational language and Simons BASIC I.

Commodore, 675 Ajax Ave, Slough, Berks SL1 4BG



The new Micro Pulse 3in disc drive and the BBC micro

## New 3in BBC drive

Micro Pulse is a new 3in disc drive for the 32K BBC micro costing £194.

It comes with a double sided 100K utility disc. Northern Computers says software on cassette or 5¼in disc can be easily transferred using Micro Pulse Mirror software.

Northern Computers, Churchfield Rd, Frodsham, Ches WA6 6RD

□ □ □

## Now it's a computer

CBS Electronics is offering to turn Colecovision games players into the new Adam computer.

The Expansion Module 3, expected to be priced at about £500, plugs into the console to add a keyboard unit and printer. A word processing program is built in.

The Adam, now in production in America, is not yet on sale in the UK.

CBS Electronics, Headley Rd East, Woodley, Reading, Berks

## When will it end?

From front page

gram worry if they had a low "score"?

Dr Coleman, 37, said: "I'm not trying to worry people; I'm trying to make them understand and help them. I think the greatest cause of worry is ignorance, as I found when I was a GP."

"There were home doctor books way back in the 19th century. This is just bringing them up to date and reaching the market of people who do not read my books."

"Within the obvious limitations, explained in the introduction, it is accurate. You could always get run over by a No. 10 bus."

Programmer Graham Hill, 18, said: "I came out with a life expectancy of 79, but I'm a non-smoker and I don't drink. But I haven't lived long enough to have things like heart trouble, so it could be nothing like that."

The program is from Eastmead Computer Systems, a partnership of Dr Coleman, Mr Hill and another programmer, Russell Smith, 23.

On the same theme, Eastmead

has brought out a home and school program called The Complete Guide to Medicine which includes subjects like reproduction, anatomy, nutrition, exercise, early warning signs, emergencies and home treatment.

There are quizzes and graphics and movement to help explain in layman's terms how the body works.

A third program, First Aid, explains how to deal with emergencies and when to seek professional help.

An earlier program, called Home Doctor, is still on sale but it comes on seven cassettes, running on the VIC-20 and ZX81 and each cassette costs £6.

In the pipeline is an educational game for the 48K Spectrum based on how drugs affect the body. It should be out in a month.

How Long Have You Got, at £3.45 for either model of the Spectrum, should also be out soon for the Commodore 64.

The other two programs run on the 48K Spectrum. The medical guide costs £6.90 and First Aid is £4.60.

Eastmead Computer Systems, Eastmead House, Lyon Way, Frimley, Camberley, Surrey GU16 5EZ

## You could be on our pages

We welcome programs, articles and tips from our readers.

**PROGRAMS** must always be sent on cassette. Listings are helpful, but not necessary. Check carefully that they are bug-free. Include details of what your program does, how it works, variables you have used and hints on conversion.

**ARTICLES** on using home computers should be no longer than 2,000 words. Don't worry about your writing ability — just try to keep to the style in HCW. Articles most likely to be published will help our readers made better use of their micros by giving useful ideas, possibly with programming examples. We will convert any sketched illustrations into finished artwork.

**TIPS** are short articles, and brief programming routines which we can put together with others. Your hints can aid other computer users.

Competitive rates are paid.

Keep a copy of your submissions and include an SAE if you want them returned. Label everything clearly and give a daytime and home phone number if you can.

Paul Liptrot, Home Computing Weekly, No.1 Golden Square, London W1R 3AB

## Watchdogs rap adverts

Three companies, including Sinclair Research, have been rapped on the knuckles by advertising watchdogs over supplies of advertised products.

Two people complained to the Advertising Standards Authority about special offers from Sinclair.

One offered a ZX81 starter pack, saying a typical cassette included would be Chess or Backgammon, but that the actual title would vary with availability.

The complainant visited several stores but none had yet received supplies of the starter pack and he was told neither of the two cassettes would be included.

This complaint was upheld in part after Sinclair said multiple retailers had been supplied centrally with enough stock, but it had no control over distribution to individual stores.

A number of the packs included Backgammon, but none included Chess, although retailers might choose to include this.

The ASA reminded Sinclair that unless items were certain to be included they should not be mentioned.

The second complaint against Sinclair was upheld because Currys was named in an advertisement but was not taking part in a "printer plus paper" offer.

Southend-based Solidisk Technology failed to live up to a claim that its ZX81 RAMpack and optional extras would be delivered in seven days — two people waited more than three weeks.

Upholding the complaints, the ASA told Solidisk to amend its delivery claim, but that it should be no longer than 28 days.

Anik Microsystems, based in Northampton, offered a free 10-game cassette with its

California Gold Rush and Yahtzee games.

But a complainant said no free tape arrived with his copy of California Gold Rush. He was told one would be sent when Anik received stocks.

He contacted the ASA after waiting a further month.

The ASA upheld the complaint and its report comments: "The advertiser failed to respond to the authority's approaches and media organisations were warned accordingly."

*Advertising Standards Authority, Brook House, Torrington Place, London WC1E 7HN*

## Board games on micros

Three well-known board games — Cluedo, MasterMind and Scrabble — will be on Commodore 64 cassettes by mid-April, with Spectrum, BBC and Oric versions to follow.

The deals were signed after months of talks, said Peter Deutsch, 31, managing director of a new company, Winchester Holdings, which will market the games under the name Leisure Genius.

The first agreement was made by Jon Baldachin, 32, the company's software development director, for Scrabble and they then decided to approach others.

Mr Baldachin said the policy

would be to link good quality software with established names whose owners wanted to break into the software market.

Mr Deutsch said: "They are all good names and all have been through the test of time. They will convert nicely."

The cassettes will cost £9-£15 and discs, at first for the Apple and Commodore 64, will be £19-£25. Scrabble will not be produced for the Spectrum because Psion has the licence.

Later in the year the company plans a range of educational software under the name Little Genius in conjunction with Waddingtons Games, owners of Cluedo.

*Winchester Holdings, 3 Montagu Row, London W1H 1AB*



"Spaceman" Alan Hobbs, of Microdeal

## 'Spaceman' stirs shoppers

This man caused something of a stir when he walked along Tunbridge Wells High Street and other town centres.

It is all part of a publicity campaign by Microdeal to promote its Space Shuttle game. The man in the space suit is Microdeal's van sales manager Alan Hobbs.

*Microdeal, 41 Truro Rd, St Austell, Cornwall PL25 5JE*

## Briefly

Dates for your diary: the first Sinclair Education Exhibition, March 28-30, Central Hall, Westminster; C.R.S. Computer Club computer fair, 11am-5pm March 3, Norton School, Letchworth; fifth London Computer Fair, held by the Association of London Computer Clubs, April 19, 21 and 23, Central Hall, Westminster; Acorn User Exhibition, August 16-19, Olympia; PCW Show, September 19-24, Olympic 2, formerly the Empire Hall, recently occupied by a carpet retailer and now re-styled.

### Texas TI99/4A

**ARENA III** (EXT. BASIC) **£4.95**  
Space war. Defend your ship from attacking aliens. Battle your way to Arga. To land, you *must* blast out a landing strip. Descend from ship through treacherous meteor storms. Laser cannon, neutron bombs, space walks. This game has the lot.

**PINBALL + CUBITS** (EXT. BASIC) **£4.95**  
Two games on one tape. A realistic pinball machine. All the excitement of the real thing. Cubits: A test of skill and memory for those who like a challenge.

**POSTMANS KNOCK** (BASIC) **£4.95**  
"ON YOUR BIKE" says the Boss. Wobble through dense countryside. Post letters; empty postboxes; pick up parcels. Have you time to do it, before the post office does the sorting? Ride the regulation bike (with bell). It is not easy! Extra screen for High Scores, unless you are sacked first!  
DEALER ENQUIRIES WELCOME

Send cheque or P.O. to Lizard Games, Orders post free.  
**14 Bridgwood, Brookside, TELFORD, Shropshire TF3 1LX.**

## COMPETITION

You've got 160 chances to win a great new arcade-adventure from Fantasy Software in this week's free competition.

It's called Domsday Castle, runs on the 48K Spectrum and is a follow-up to the best seller, Pyramid. Both were written by Fantasy Software co-director Bob Hamilton.

Your mission is to find and collect six ancient stones and use their force against the evil Scarthax to destroy Doomsday Castle, hopefully escaping yourself before the final cataclysmic explosion.

You will have to battle your way through a complex labyrinth of 74 inter-connected halls and passages.

On the way you'll meet beautifully animated characters like the Garthrogs, the Orphacs, Kamikaze Urks, the nasty Googly Bird and many others.

Doomsday Castle is compatible with all leading joysticks and — if you are not among the winners — costs £6.50 in the shops.

Fantasy Software has set itself the policy of offering value-for-money real-time adventures. And to ensure high standards, the company says it will only release a few top-quality games each year — not several dozen tapes which are only “so-so.”

● Next month Pyramid will be available for the Commodore 64 at £5.50.

Closing date for the competition is Friday February 17 — but why not send your entry off to us today?

## How to enter

Look carefully at the two cartoons on this page to find the differences between cartoon A and cartoon B. Circle the differences on cartoon B with a ballpoint pen.

Then fill in the coupon with your name and full address and the number of differences you found.

**Enter now:  
There's 160  
chances to  
win a great  
new arcade-  
adventure  
from**

The logo for Fantasy Software, featuring the word "fantasy" in a stylized, rounded blue font with a white outline, and the word "SOFTWARE" in a smaller, plain blue font below it.

Remember, the coupon will be used as a label if you're a winner, so write very clearly.

Cut around the broken lines and seal both cartoon B and the coupon in an envelope — and write clearly on the back the number of differences you found.

Post your entry to Fantasy Software Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB.

Entries close at first post on Friday February 17. The winning entries will be 160 correct entries opened at random.

You may enter as many times as you wish, but all entries must be on the official coupon and cartoon — copies will not be accepted — and in separate envelopes.

The solution and the names of the winners will be published in Home Computing Weekly and the prizes will arrive from Fantasy Software within 28 days of the publication of that issue.

**Important note:** please follow carefully the guidance in this How to Enter section. Entries which do not abide by the guidelines cannot be considered.

## The rules

The 160 winners of copies of Domsday Castle, for the 48K Spectrum, will be those whose correct entries are chosen at random after the closing date, first post on Friday February 17, 1984.

Coupons and copies of cartoon B which are not completed correctly and envelopes without the number of differences found on the back will not be considered.

Entries will not be accepted from employees of Argus Specialist Publications, Fantasy Software and Alabaster Passmore & Sons. This restriction also applies to employees' families and agents of the companies.

The winners' names and the solution will appear in Home Computing Weekly. The editor's decision is final and no correspondence will be entered into.

## Fantasy Software Competition

## Entry Coupon

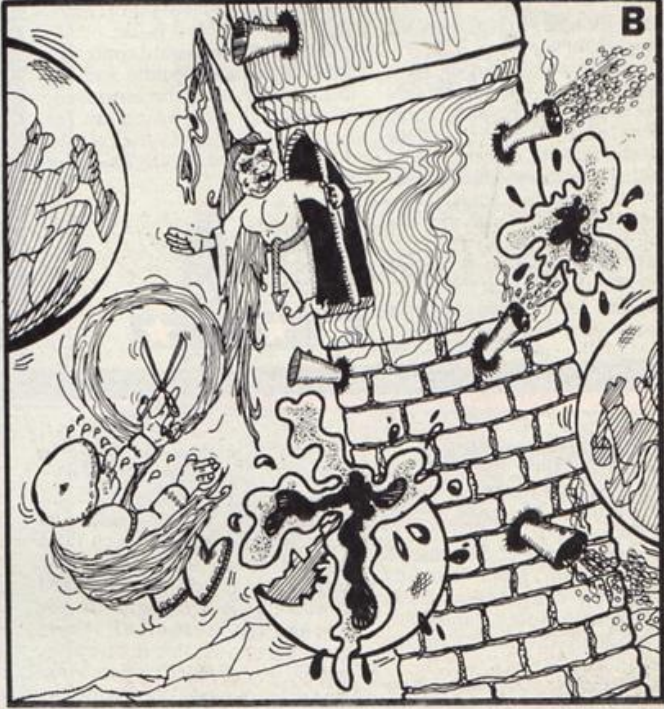
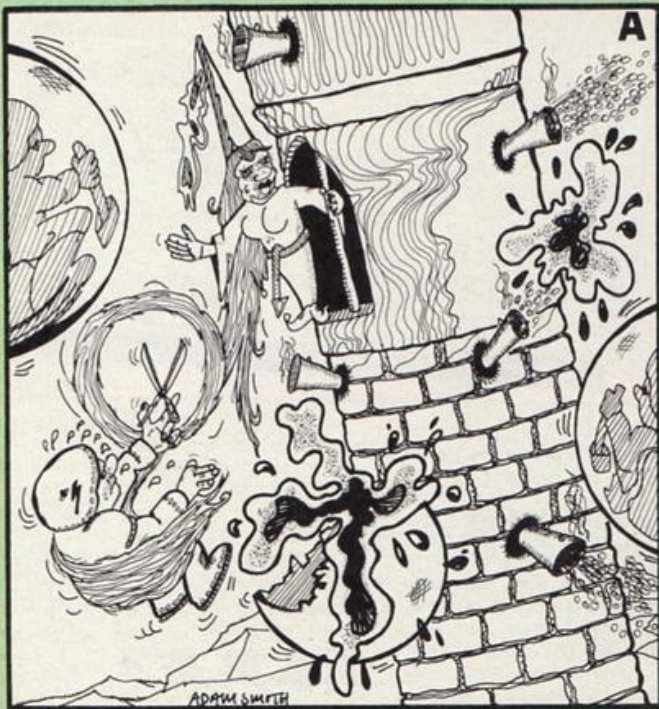
Name \_\_\_\_\_

Address \_\_\_\_\_

post code\_\_\_\_\_

## Number of differences found

Complete clearly — this coupon will be used as a label if you are among the winners. Don't forget to follow exactly the guidelines in the How to Enter section. Post to: Fantasy Software Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Closing date: Friday February 17



# Into the computer arcade

**Our reviewers star-rate five new arcade-style releases for the 48K Spectrum. Read before you buy**

## Deffendar £6.95

Mikro-Gen, 24 Agar Cres, Bracknell, Berks

Mutant aliens are at it again, intent upon abducting any human witless enough to wait around on mountains. Only your spacefighter and laser stand between Earth's destruction and billions of assorted alien ships.

This time, Earth's in big trouble, because you are your spacecraft are past their best. Your speed is slow, your laser lazy and explosions could be mistaken for TV static. Even the aliens seem apathetic, and the humans are apparently indifferent to danger.

You may gather I was not overly impressed. Nor was my teenage expert and, looking at the spectacular explosions, speed, graphics and sound on his

favourite versions, this one fell even lower in my regard.

Houses issuing new versions of old themes should not assume everyone knows how to play. Cassette instructions (also showing the keys used before you load) would be welcome. And display loading instructions, always. Remember, there are new Spectrum owners every day.

You can, and have, done better, Mikro-Gen.

D.C.

instructions	5%
playability	50%
graphics	50%
value for money	30%



## 3D Seiddab Attack £5.95

Hewson Consultants, 60A St Mary's St, Wallingford

In the shops, this program may be called 3D Space Wars or War of the Worlds as all three titles were on the review copy. But 3D Seiddab Attack looks like the latest version.

The 3D does not mean you have to wear those uncomfortable specs supplied with some "three dimensional" games. You command a drone, something like a tank, which has to shoot down waves of advancing ships. They are small to begin with (in the distance) and larger as they get closer. The effect is quite reasonable and it means the aliens are hardest to hit when they can cause you least damage.

They also move from side to side, but so can your turret, and the whole drone can be steered around the city following a small maze-like map in the display.

Graphics are some of the best I've seen in this kind of game for the Spectrum and movement of gunsight and ships is quite convincing. The overall effect is a little like the 3D tank battles so popular in arcades in far off days, and very playable it is too.

I found the keyboard controls a little difficult to handle and the instructions could be improved. However, there is an option for Kempson-style joysticks and these are needed to fully enjoy the game.

N.W.

instructions	40%
playability	80%
graphics	95%
value for money	80%



## Exterminator £5.50

Torg Software, Orchard End, Furzehill, Wimborne, Dorset BH21 4HT

Annihilating unarmed, defenceless spacefreighters, carrying innocent war victims, who can only ram you in retaliation, must be the most tasteless scenario ever! You crave promotion from Cadet to Space Admiral — Level 12 and, since score is affected by time taken, must complete your murderous task quickly.

Your nine lives are lost by failing to complete missions in the time limit or, presumably, being rammed, and latest rank is displayed at each mission end. Mysteriously, the life display gained a life or lost several for no apparent reason and runs past nil to 98. Space bugs?

Directional movement uses Q.

3, 4 and 5 — thrust, fire and reverse are on O, I and M, a combination which, as the instructions gleefully point out (twice), will be difficult to master and carry the suggestion that, if you can't get the knack, you should throw out your Spectrum.

With my programmable joystick, and ignoring thrust and reverse, I reached Space Admiral, Level 1, with ease and retired to less boring occupation.

The high-resolution 3D graphics are excellent. A pity that obvious expertise is wasted to gain the doubtful distinction of simultaneously pleasing both sadists and masochists. Even for them it will not be a long lasting pleasure.

D.C.

instructions	80%
playability	50%
graphics	90%
value for money	50%



## Paradroids £5.95

Mikro-Gen, 24 Agar Cres, Bracknell, Berks

You have the task of defending a nuclear reactor from invading 'droids, by operating a laser, which you can move up and down a column in the centre of the screen.

There are various platforms up each side of the screen, off which

the 'droids parachute, falling to the bottom of the screen, where they are whipped round a circuit in the reactor, to be transmuted into flying plus signs which float up and down, shooting at your laser base. If you can shoot the droids while they are in the parachute stage of their metamorphosis, this is desirable, since it prevents them from turning into nasty plus signs.

Selectable difficulty and hall of fame are included, as are multiwave attacks. However, I could not find any user-definable keys as promised by the cassette insert and I was a little disappointed to find each new wave attack was much the same as the one before.

On the plus side, good use was made of colour and sound, and the game balance of progress

versus defeat was about right. The plot is also fairly original.

M.B.

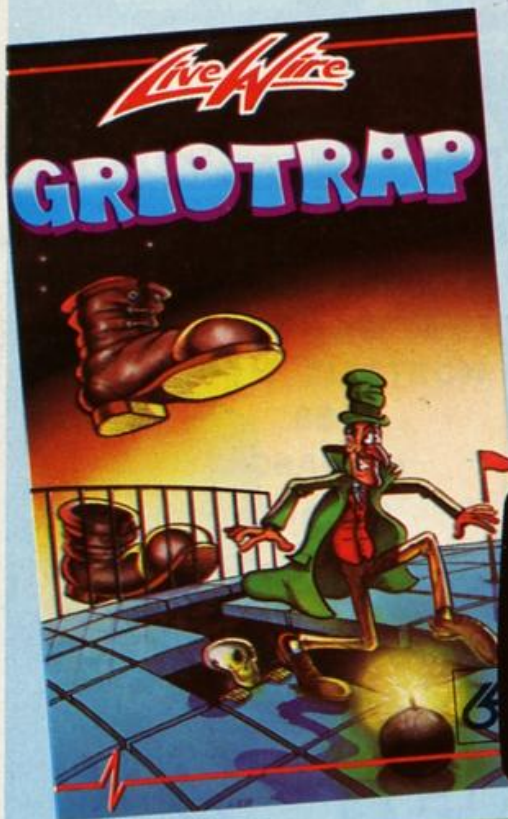
instructions	80%
playability	80%
graphics	80%
value for money	75%



# THREE EXCITING NEW GAMES IN THE *LiveWire* SERIES FOR THE

## FROM **SUMLOCK** MICROWARE

# 64



## GRIDTRAP 64

We promise you won't be able to turn it off! It's a real skill tester and loads of fun to play!

Play with the Keyboard or Joystick. Choose your own operating keys with our **User Definable System**. Compete with an opponent by selecting **Two Player Mode**... Great graphics, super sound effects in the *LiveWire* tradition including a selectable Melody Mode where the tune is available at the touch of a key and Melody On is indicated by a quaver graphic.

Program No. LW04 £8.95



## JUMPIN JACK 64

Not just a game... an Experience!  
**IT HAS IT ALL!...EXCITEMENT.. HUMOUR.. STRATEGY**

Jumpin' Jack leaps into a totally new look for the 64 created by **Three Dimensional Graphics** giving **Full Perspective** to the game... PLUS... hosts of features never seen before!

*Submerging Turtles — Snakes — Crocodiles — Otters — Lady Frog — Dragonfly!!!*

It's Fun \*\*\*  
IT'S **FROGRIFFIC** \*\*\*

Program No. LW02 £8.95



## TRIAD 64

**NEVER BEFORE HAS A COMPUTER GAME LOOKED SO EXCITING...  
...FELT AND PLAYED SO EXCITING...**

Watch astonished as the Triad hurl themselves towards your craft in a remorseless battle against your intrusion.

Feel the heat blast of their anti-matter fields.

Your pulse laser will have to turn white hot before this encounter is over...

Featuring:-

A new **DIMENSION...**  
Into the realm of **TOTAL PERSPECTIVE GRAPHICS...**

Program No. LW03 £8.95



## MAKE THE MOST OF YOUR *LiveWire* GAMES WITH THE NEW ALL BRITISH PRO ACE **COMPETITION JOYSTICK**

£12.95

- Complete with TWO YEAR WARRANTY.
- Fits snugly into either hand.
- Robust purpose designed switches.
- Instant action — left or right fire button.
- Centre fire button.
- Non scratch grip pads.



**PRO ACE**



Clip the coupon below and return to Sumlock Microware Dept. HCW-F1/4  
198 Deansgate, Manchester M3 3NE.  
or Telephone: 061-834 4233



Please send me the following Software

I enclose Cheque/P.O. for £ \_\_\_\_\_ inc. P + P U.K. only.

To: Name \_\_\_\_\_

Address \_\_\_\_\_

Post Code \_\_\_\_\_

Also available from good computer dealers and bookshops nationwide. HCW-F1/4

# SUMLOCK

MICROWARE

198 Deansgate, Manchester M3 3NE.

I have long been fascinated by so called computer intelligence and I have seen and even written programs which try to simulate human responses.

### Hints on conversion

- 10 the POKE sets the Spectrum's keyboard to CAPS LOCK — omit. Separate the two LET commands into two lines 10/15
- 20 write in capitals, create a new line 25 GOSUB 200
- 40 amend the display to suit, the "" is a newline command
- 70 separate the two commands, create a line 75 GOSUB 1000
- 130 separate the commands, make a new line
- 150 separate the three commands, note each line must start with IF...
- 155 omit FLASH, separate commands
- 220 separate the two commands
- 1000 separate the three commands
- 1015 separate two commands, remember to start with IF's
- 1050 separate two commands

# Make your micro read your mind

**Not only does your Spectrum think, but with Ray Elder's program it can tell you what's going through your mind, too**

However, in this program I've gone one step further: your computer will read your mind!

All you have to do is to think of a number between 1 and 63 inclusive and then, when the computer displays a sequence of

numbers, just tell it if it appears.

There are only six cards or groups of numbers and the computer will unerringly pick the correct one from the 64 possible numbers after only six clues!

I wrote this program on the Spectrum but it will easily transpose to the ZX81 or any other computer. The notes will help you to convert the program.

Actually this is not based on Extra Sensory Perception at all, but on a very simple mathematical process. See if you can work out why and how it works, thinking in Binary helps.

Nevertheless unless you know the secret, this little program is quite fascinating and will amaze your Mum, Dad, Auntie and friends.

```

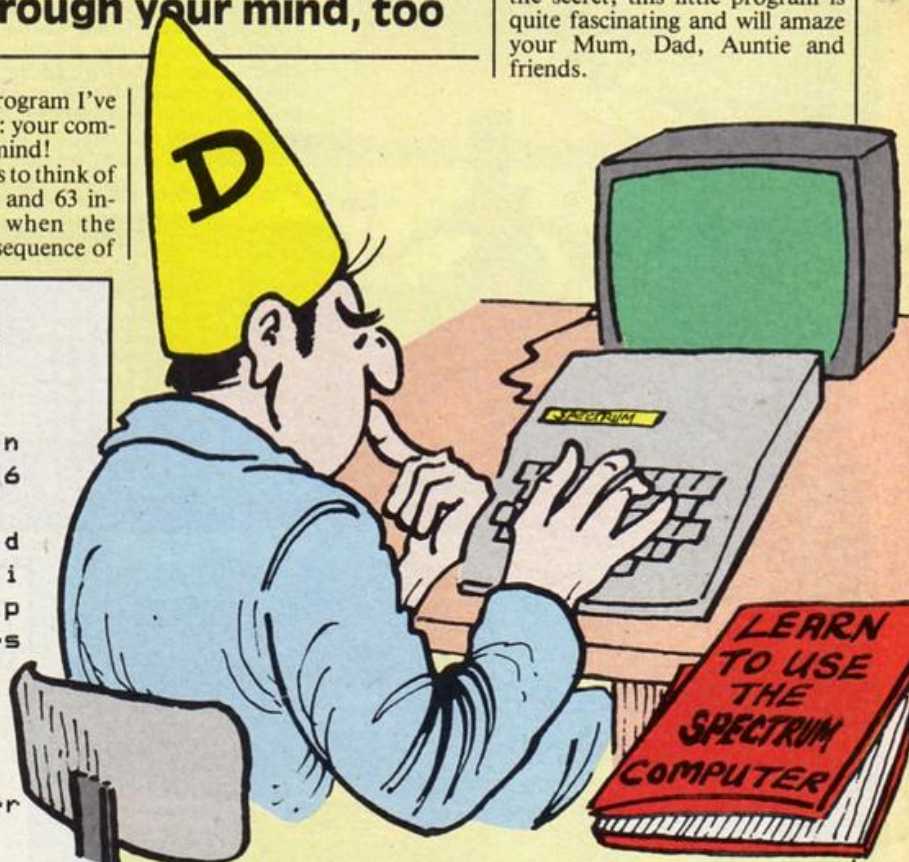
9 REM Set up variables
10 POKE 23658,8: LET x=0: LET
b=1
19 REM Instructions
20 PRINT AT 8,2;"Think of a n
umber between"; AT 10,2;"1 and 6
3": GO SUB 200
40 PRINT AT 8,0;"I will now d
isplay six sets of""numbers, i
f your number is among""them p
ress Y, if it isn't then""pres
s N"
50 GO SUB 200
69 REM main loop
70 CLS : GO SUB 1000
80 PRINT ""Is your number her
e ? (Y or N)"
90 LET i$= INKEY$
100 IF i$ <> "Y" AND i$ <> "N"
THEN GO TO 90
110 IF i$="Y" THEN LET x=x+b
120 IF b=32 THEN GO TO 150
130 LET b=b*2: GO TO 70
149 REM solved !
150 CLS : IF x=0 THEN PRINT A
T 8,0;"You made a mistake or che
ated !!": GO TO 160
155 PRINT AT 10,0;"You were th
inking of the number": FLASH 1:
PRINT AT 12,15;x: FLASH 0
160 PRINT AT 16,0;"Press any k
ey for another go"
170 GO SUB 205
180 RUN
199 REM S/R to wait for key
200 PRINT ' TAB 2;"Press any ke

```

```

y to continue."
205 IF INKEY$ <> "" THEN GO
TO 205
210 IF INKEY$="" THEN GO TO
210
220 CLS : RETURN
999 REM Print number lists
1000 LET c=1: LET n=b: LET s=1
1010 PRINT (" " AND n<10)+" ";n;
" ";
1015 IF s=8 THEN LET s=0: PRINT
...
1020 IF n >= 63 THEN RETURN
1030 LET n1=n+1+(b AND c=b)
1040 IF c=b THEN LET c=0
1050 LET c=c+1: LET n=n1: LET s=
s+1
1060 GO TO 1010

```



# WANTED

## PROGRAMS

Top Quality Machine Code Games Programs  
for All The Home Micros, including:-

**ZX SPECTRUM**  
**COMMODORE 64**  
**ACORN ELECTRON**  
**BBC**  
**DRAGON**  
**VIC 20**  
**ORIC**  
**etc**



*We also require freelance M/C Programmers.*

We distribute throughout the U.K.,  
U.S.A. and Europe.

Write in confidence to:  
THE SOFTWARE DEVELOPMENT MANAGER

**NOW!**

**THOR** (Computer Software) Co. Ltd.

Erskine Industrial Estate  
Liverpool  
L6 1AP

OR TELEPHONE:  
051 - 256 7666

**HUGE**



# REWARD

# AGF

## PROGRAMMABLE JOYSTICK INTERFACE for Spectrum or ZX81

ONLY  
32.95  
+£1.00pp

NOW  
AVAILABLE  
from  
SELECTED  
RETAILERS

### PROGRAMMABLE INTERFACE

The AGF Programmable Joystick Interface is a unique design offering the use of any Atari-compatible joystick with absolutely all software, whether it is cassette or ROM cartridge, with the Sinclair Spectrum or ZX81.

The hardware programmable interface requires no additional software and accurately replicates the keys of the computer in a manner which is responsive to absolutely ALL key reading methods, both BASIC and Machine Code.

The interface does not interfere with key operation and can therefore be used simultaneously with the keyboard.

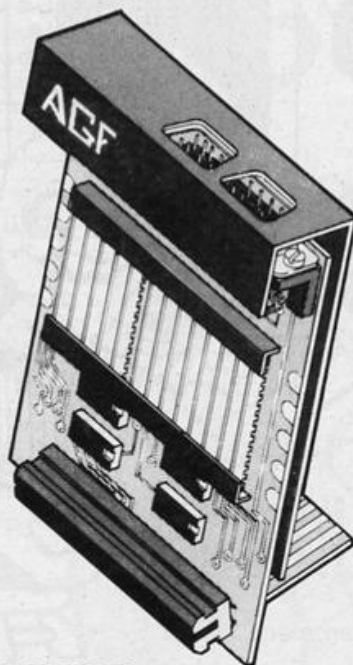
There is no need to remove the interface once fitted as the rear extension connector will accommodate further expansion, i.e. printers or RAM packs etc. This important feature avoids excessive wear to the expansion port.

The key replication principle pioneered by AGF means that your own programs can use eight directional joystick movement by utilising simple key reading BASIC.

Two joystick sockets are provided which share the same keys, for use with the majority of two player games. Several interfaces may be used on the same computer for multiple joystick applications.

The interface is programmed by a two digit code, which is looked up on a programming chart supplied, for each direction and firing button. The two numbers are then selected on a pair of leads which are clipped onto appropriately numbered strips on the interface.

Once configured this can be marked on a Quick Reference Programming Card for storing with the game. As the programming is not power dependent the interface retains the last configuration made and can be immediately used when next switched on.



### KEY FEATURES

- ★ Programmable design gives TOTAL software support.
- ★ Accepts Atari, Competition Pro, Wico, Starfighter, Quick Shot, Le Stick etc.
- ★ Rear extension connector for all other add-ons.
- ★ Free demo program and instructions.

### PACKAGE CONTENTS SUPPLIED

- Programmable Interface Module as illustrated, complete with clip-on programming leads.
- Self adhesive programming chart detailing how to define which key is simulated by UP, DOWN, LEFT, RIGHT, and FIRE. This can be fixed on to the case of your computer or if preferred the protective backing can be left on. The chart is made of a very durable reverse printed plastic and is extremely easy to read.
- One pack of ten Quick Reference Programming Cards for at-a-glance setting to your games requirements. The card allows you to mark the configuration in an easy to read fashion with space to record the software title and company name.
- Video Graffiti demonstration program which is written totally in BASIC to illustrate how all eight directions and fire can be read. This is also a useful high resolution drawing program.
- 12 months guarantee and full written instructions.

## JOYSTICKS

### CONTROLLERS

FOR USE WITH OUR INTERFACE  
Module or VIC 20, Commodore 64,  
Atari VCS, Atari 400, Atari 800

If you require extra Joysticks for our  
original interface module mark order  
'OLD' Joysticks

ONLY £7.54 inc VAT + P&P

ALL ORDERS CONFIRMED

PLEASE ALLOW 28 DAYS FOR DELIVERY

FROM: MR/MRS/MISS			
ADDRESS			
SEND C.W.O. (NO STAMP NEEDED) TO: A.G.F. HARDWARE, DEPT.			
FREEPOST, BOGNOR REGIS, WEST SUSSEX, PO22 9BR			
QTY	ITEM	ITEM PRICE	TOTAL
	PROGRAMMABLE INTERFACE	33.95	
	JOYSTICK(S)	7.54	
	PACK(S) QUICK REFERENCE CARDS	1.00	
ONE	VIDEO GRAFFITI	FREE	
ZX81 <input type="checkbox"/> ZX SPECTRUM <input type="checkbox"/> Please tick		FINAL TOTAL	
DEALER ENQUIRIES WELCOME		EXPORT PRICES ON APPLICATION	

# Classrooms on tape

**Silence in class as our examiners give out the marks for the latest batch of educational programs**

## Launching Logic BBC 32K £14.95

Shiva, 4 Church La, Nantwich, Cheshire CW5 5RQ

This is Logic 1 in a set and is part of the First Maths Programme for young children. The whole foundation of this program is that children should be familiar with the logic blocks schools have used

for some years now to teach logic.

They are probably the only tools most schools have for use in this area and are probably very under used. This program should change this.

But there is still a basic flaw in the concept of these programs. I find it very hard to believe that it is better to teach ideas like this using a computer than by using the objects themselves. If the children have to be familiar with them to use the programs then

why not carry on using them for the bulk of the teaching and leave the computer alone?

Having said all that, the programs on the tape do a very good job at laying the foundations for the work on sets that will follow. The graphics are good and simple enough for children to understand easily.

It would be nice if those games requiring two sequential key

presses could indicate which key had already been pressed. At the moment there is no recognition of the input whatsoever. D.C.

instructions	75%
ease of use	80%
graphics	80%
value for money	70%



## Lift Off With Numbers BBC 32K £14.95

Shiva, 4 Church La, Nantwich, Cheshire CW5 5RQ

This is the first package of a major project of software publishing called The First Maths Programme. All together there will be 11 software packages on numeracy and logic aimed at children aged five to eight.

The claim is that the whole scheme is carefully graded to provide a thorough grounding in skills required to become numerate. For this reason it is hard to decide whether a particular pack has contributed, but I do assure you that the ideas and contents of this package can certainly do no harm, especially if used in a supportive and careful way.

Each of the packs comprises five or more programs and this contains the following: Washing teaches one-to-one correspondence and sorting into colour and shape sets, Cakes brings concept of cardinality while Rockets has an ordinal component.

Bingo involves recognition of numbers 1-6 and Ladybirds the numbers bonds to 10 as well as ordinal and cardinal concepts.

In all this is the beginning of a well planned set of programs for young children just starting to get to grips with numbers. Documentation is very good with plenty of extra activities suggested too.

The price is a little too high.

instructions	D.C. 95%
ease of use	80%
graphics	80%
value for money	70%



## Number Skills 0-99 BBC 32K £9.95

Longman, Burnt Mill, Harlow, Essex

Like its sister program, Number Skills 0-20, this may best be described as an animated text book full of sums for the user to answer. It does, however, have one extra facility: the ability to give help if needed or requested.

As the title suggests, the problems all involve numbers less than 100 and it covers both addition and subtraction.

The help given involves the display of the sum using counters in boxes to represent the columns of place value, and the regrouping or exchange of values as required. This is a good technique and is in line with modern practice in schools.

But, as with all software of this type, I would advise parents to seek the advice of the children's teachers before using the program. Months of school work can end in confusion if this is not done. There is a need to do this to find out the subtraction method your child uses too, as the program, wisely, provides two methods.

Unlike the sister program, this one does not allow you to get a problem wrong forever, it only gives three attempts before moving on to the next program. A good but unexciting program overall. D.C.

instructions	65%
ease of use	60%
graphics	40%
value for money	60%



## Number Skills 0-20 BBC 32K £9.95

Longman, Burnt Mill, Harlow, Essex

If the idea of an animated text book of sums appeals to you and is your idea of the way to excite children with numbers then this could be for you. It isn't mine and I intend to use this program in

very small doses indeed.

That said, what the program does it does very well and the help facility is an excellent feature. The program covers addition and subtraction only but has several difficulty levels and presentation/answer styles. It is possible to select numeral output or word output, eg either 3 + 6 or three + six, and to accept either for input also. This too is a nice feature.

Using the help facility means the number line at the bottom of

the screen is used to show the makeup of the answers. This is well done and gives the right sort of help. But there is a problem: if you get an answer wrong and then fail to get it right you are never allowed onto another problem. You spend all your time watching the explanation.

This is a programming mistake and should be remedied in some manner (my suggestion is that after, say, three attempts the program should stop until the

wayward child gets some human help).

Think carefully before use and be prepared to step in to help when using this program. D.C.

instructions	65%
ease of use	40%
graphics	30%
value for money	40%



# NEW FROM THE GAME LORDS!

## SIX GREAT NEW GAMES FROM QUICKSILVA...

### COMMODORE 64

**STING 64 £7.95** ☐

Author: **Anton Hinxman**

Hive-cave action!  
Bertie Bee needs help  
defending the hive. Fight off  
the invading swarms, battle  
the bees and defend your  
Queen!

**COMMODORE 64  
BUGABOO (THE FLEA)  
£7.95** ☐

Author: **Indescomp**

Itchy action!  
Jump your way out of the  
caves with Bugaboo the flea  
but beware of the fearsome  
Dragon as you jump around  
the exotic vegetation.

**48K SPECTRUM  
RAYMOND BRIGGS'  
THE SNOWMAN £6.95** ☐

Author: **David Shea**

An enchanting game based  
around episodes of Raymond  
Briggs' amazingly successful  
book.

**48K SPECTRUM  
ANT ATTACK £6.95** ☐

Author: **Sandy White**

Battle the Ants in the soft  
solid 3D city of Anteschier.

**48K SPECTRUM  
DRAGONS BANE £6.95** ☐

Authors: **M. Preston,  
P. Hunt, R. Rose,  
D. Moore.**

A mythical graphic  
adventure in the dark and  
deadly halls of Earthstone  
Castle. Battle Dragons,  
Vampires, Sphinx, Zombies,  
Skeletons, Gryphons and  
other legendary beasts to  
rescue the beautiful Princess  
Paula.

**48K SPECTRUM  
FRED £6.95** ☐

Author: **Indescomp**

Action beneath the  
Pyramids!  
Fearless Fred the Intrepid  
Archaeologist searches the  
creepy catacombs below the  
torrid tomb of  
'Tootiecarmoon' for the  
terrible treasures amidst  
monstrous mummies,  
ghastly ghosts, bats  
and rats!

...NOW OFFERING  
AN EVEN GREATER  
RANGE!

### SPECTRUM PROGRAMS

**ANT ATTACK\*** 6.95 ☐

Sandy White

**GAMES DESIGNER\*** 14.95 ☐

John Hollis

**BUGABOO\*** 6.95 ☐

Indescomp

**TRAXX\*** 6.95 ☐

Jeff Minter/Salamander

**GRIDRUNNER\*** 6.95 ☐

Jeff Minter/Salamander

**SMUGGLERS COVE\*** 6.95 ☐

John Keneally

**VELNOR'S LAIR\*** 6.95 ☐

Derek Brewster

**3D STRATEGY\*** 6.95 ☐

Freddy Vachha

**XADOM\*** 6.95 ☐

Mike Moscoff

**AQUAPLANE\*** 7.95 ☐

John Hollis

### ZX-81 PROGRAMS

**QS DEFENDA** 3.95 ☐

Nick Lambert

**QS ASTEROIDS** 3.95 ☐

John Hollis

**QS INVADERS** 3.95 ☐

Dave Edwards

**QS SCRAMBLE** 3.95 ☐

Dave Edwards

### COMMODORE 64

**PURPLE TURTLES\*** 7.95 ☐

Mark & Richard Moore

**AQUAPLANE\*** 7.95 ☐

John Hollis & Steve Hickman

**RING OF POWER\*** 7.95 ☐

Mc Clement & Fred Preston

**QUINTIC WARRIOR\*** 7.95 ☐

T.P. Watts

**ULTISYNTH\*†** 14.95 ☐

Nalin Sharma

### BBC PROGRAMS

**THE GENERATORS\*** 6.95 ☐

Dave Mendes

**MINED OUT\*** 6.95 ☐

Ian Andrew & Ian Rowlings

**BEEB ART\*†** 14.95 ☐

Dave Mendes

**PROTECTOR** 7.95 ☐

Andy Green

**WIZARD** 6.95 ☐

A.R. Buckley

**MUSIC PROCESSOR** 14.95 ☐

Andy Williams

### VIC20 PROGRAMS

**TORNADO**

CHARTEC

**SKYHAWK**

CHARTEC

**TRADER\*†** 14.95 ☐

PIXEL

**PIXEL POWER** 7.95 ☐

PIXEL

### ATARI PROGRAM

**MAGIC WINDOW**

M. Walker

8.95 ☐

### DRAGON PROGRAM

**MINED OUT** 5.95 ☐

I. & C. Andrew

**ELECTRON PROGRAM**

**MINED OUT\*** 6.95 ☐

### \* NEW RELEASES

† SUPPLIED IN A

BOX WITH BOOKLET

Quicksilva games are available from:

Boots, W.H. Smiths, J. Menzies,

Microdealer, HMV, Hamleys, John

Lewis, Computers for All and

all reputable specialist

computer stockists.

# QUICKSILVA

All games marketed exclusively by Quicksilva Limited.

Please send me the games I have ticked.

I enclose cheque/P.O. for \_\_\_\_\_

Send to Quicksilva Mail Order,

P.O. Box 6,

Wimborne, Dorset BA21 7PY.

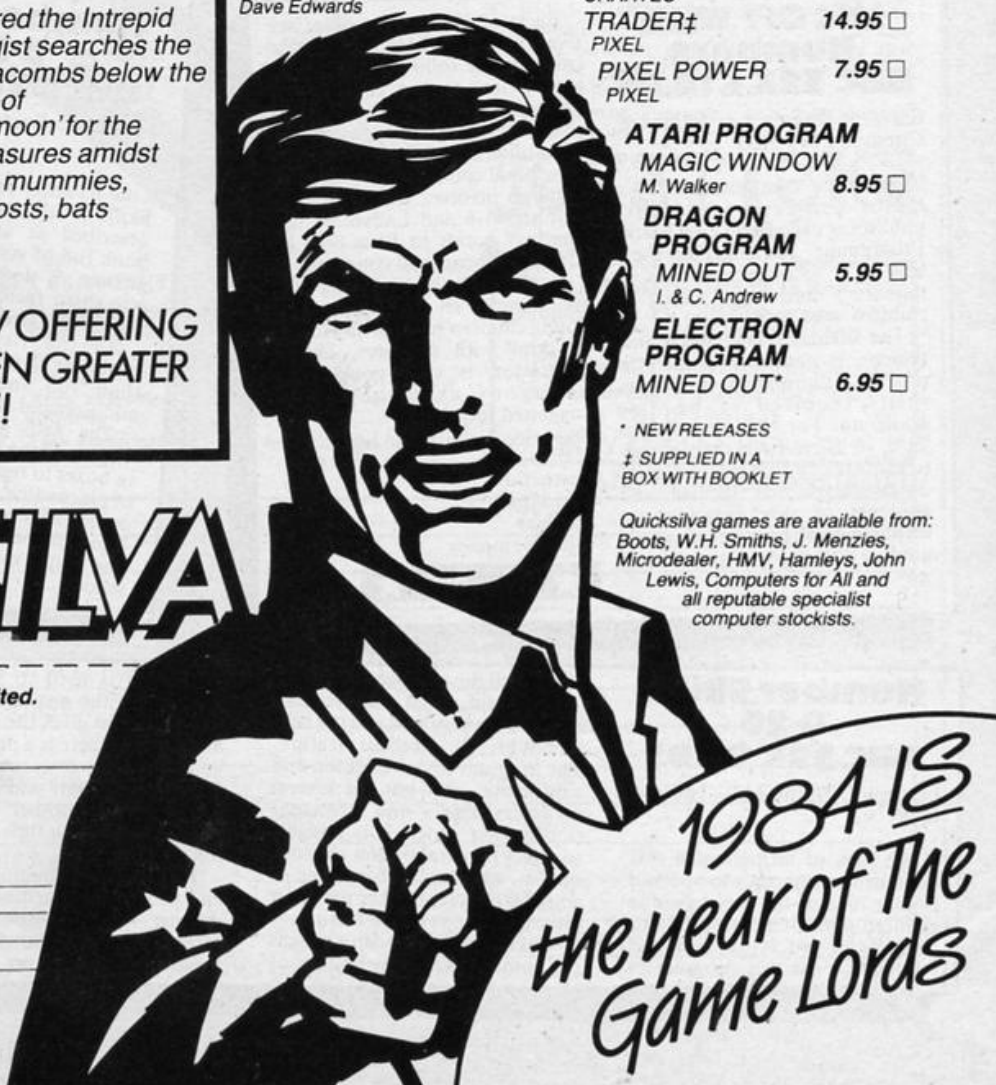
Telephone: (0202) 891744

Name \_\_\_\_\_

Address \_\_\_\_\_



WARNING: These programs are sold according to  
QUICKSILVA Ltd's terms of trade and conditions of sale.  
Copies of which are available on request.



## Our Extended 64 BASIC: How to make it work for you

This final part of Extended BASIC gives some example programs showing how to use the commands well.

**Polar Graphs** can draw most polar functions at any magnification, through a range of zero to 2pi (this can easily be changed), and apart from its educational value, its main advantage is that it is the easiest way to draw a good heart on a computer (St Valentine beware!).

**Teletext** draws a replica of the Ceefax-type screen to show the versatility of the command and how it can be used well. As the text command is so complex and non standard, it is not worth converting it for other computers.

**British Isles** is the most useful program, as it provides an accurate (error is one per cent) database for drawing maps of this area.

The program is fairly simple

**If you typed in the listings from the last two issues, you will now have a powerful Extended BASIC for your Commodore 64.**



and is easily convertible to other machines with high resolution graphics. Also, the database should be useful and is easy to expand (most of Europe can be digitised with positive numbers).

For those wishing to expand the map, the following details will be useful.

The map used was a Conical Equidistant Projection of Europe, scale 1:16 million. (0,0) is at 18 degrees 20 minutes west, 60 degrees north. (400,400) is at 5 degrees east, 49 degrees 17 minutes north.

The program can be made to draw a section of Britain to any sensible magnification, and gives the scale as it would appear on a 14 inch television.

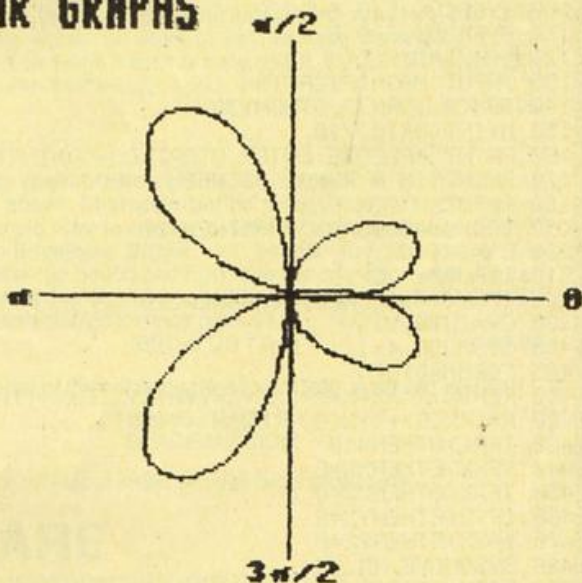
Finally, for all those wishing to convert the programs for other computers, all the commands are standard except those of Extended BASIC (these begin with SYS). The simplest way to convert these is to look in last week's part, where full details are given.

**Polar Graphs — will draw most polar functions**

```
5 REM*POLAR GRAPH DEMONSTRATION*
6 REM* BY DAVID REES *
10 MODE=51828:GCOL=51770:PO=51334
20 GMOVE=52039:LINE=51754:GTEXT=52657
30 SYSGCOL,5,0:SYSGCOL,6,0
100 SYSGCOL,0,0,1
110 SYSGCOL,1,1
120 SYSGMOVE,159,17
130 SYSLINE,2,159,183
140 SYSGMOVE,76,99
150 SYSLINE,2,242,99
197 REM* M SETS RADIUS OF 1 UNIT *
198 REM*IF THE GRAPH WILL NOT FIT*
199 REM* ON THE SCREEN REDUCE M *
200 M=25
210 Y=99-M:SYSP0,2,158,Y:Y=99+M:SYSP0,2,160,Y
220 X=159-M:SYSP0,2,X,100:X=159+M:SYSP0,2,X,98
300 SYSGTEXT,31,12,230,0,48
310 SYSGTEXT,8,12,230,0,94
320 SYSGTEXT,18,1,230,0,94
325 SYSGTEXT,19,1,230,0,47
330 SYSGTEXT,20,1,230,0,50
340 SYSGTEXT,18,23,230,0,51
345 SYSGTEXT,19,23,230,0,94
350 SYSGTEXT,20,23,230,0,47
355 SYSGTEXT,21,23,230,0,50
400 A$=" POLAR GRAPHS "
410 FORN=0TO13
420 C$=MID$(A$,N+1,1):C=ASC(C$)
430 C=C+64*((C>64)+(C>128))
440 SYSGTEXT,N,0,226,2,C
450 NEXT
899 REM*DEFINE THIS FUNCTION*
900 DEFFNX(X)=2*SIN(2*X)-SIN(3*X)
950 L=80/M:N=0
960 R=FNX(N):S=SGN(R):A=ABS(R)
970 IFA>LTHENR=L*S
980 XZ=R*M*SIN(N)+159:YZ=R*M*COS(N)+99
```

```
990 SYSGMOVE,XZ,YZ
1000 FORN=0TO2.001*PI STEP PI/32
1010 R=FNX(N):S=SGN(R):A=ABS(R)
1020 IFA>LTHENR=L*S
1030 XZ=R*M*SIN(N)+159:YZ=R*M*COS(N)+99
1040 SYSLINE,2,XZ,YZ
1050 NEXT
1100 GETA$:IFA$=""THEN1100
1110 SYSGMOVE,6,0,0:PRINT"
```

### POLAR GRAPHS



Screen dump of how Polar Graphs looks

# COMMODORE 64 PROGRAMMING

Teletext — for a Ceefax-style screen

```
2 REM* DEMONSTRATION OF TELETEXT*
10 MODE=51828:GCOL=51770:GMOVE=52039
20 LINE=51754:GTEXT=52657
30 POKE51,0:POKE52,31:POKE55,0:POKE56,31
40 SYSGCOL,5,0:SYSGCOL,6,0
100 SYSMODE,0,0,1
110 A$=" 1198 64'— 000 1UE 27 -EC "
120 C=16:X=0:Y=0:H=0:CH=1:R=0:GOSUB1000
200 A$=LEFT$(TI$,2)+": "+MID$(TI$,3,2)+"/"
210 A$=A$+RIGHT$(TI$,2):C=80:X=32
220 Y=0:GOSUB1000
300 A$=" THIS IS COMMODORE 64 TELETEXT "
310 C=46:Y=2:X=4:H=1:CH=0:R=1:GOSUB1000
400 A$="  NEW MODE FOR THE COMPUTER "
410 C=110:Y=5:X=5:H=0:CH=1:R=1:GOSUB1000
500 A$=" DEVELOPED BY  X-  USING THE NEW"
510 C=224:Y=7:X=1:H=0:CH=1:R=0:GOSUB1000
600 A$="XTENDED BASIC PROGRAM IN HOME"
610 A$=A$+" -COMPUTING"
620 C=224:Y=8:X=0:H=0:CH=1:R=0:GOSUB1000
650 A$="EEKLY."
660 C=224:Y=9:X=0:H=0:CH=1:R=0:GOSUB1000
700 A$=" MORE FROM 64'— IF YOU PROGRAM IT "
710 A$=A$+"!"
720 C=114:Y=24:X=0:H=0:CH=1:R=0:GOSUB1000
790 C=80:X=32:Y=0:CH=0:H=0:R=0
800 K=V:V=INT(VAL(TI$)/60)
810 IFK=VTHEN880
820 A$=LEFT$(TI$,2)+": "+MID$(TI$,3,2)
830 X=32:GOSUB1000
880 A$=RIGHT$(TI$,2):X=38:GOSUB1000
900 GETA$:IFA$=""THEN880
909 REM*...[CLR HOME]*
910 SYSMODE,6,0,0:PRINT"Q"
998 END
999 REM*PRINT ROUTINE*
1000 A=INT((SAND1)+2*(HAND1)):L=LEN(A$):Y=INT(Y)
1030 FORN=1TOL:B$=MID$(A$,N,1):B=ASC(B$)
1040 D=B+32*(2*(B>63)+2*(B>191)):X=X-1+N
1050 D=D+128*(R+256*CH:SYSGT,X%,Y%,A,D)NEXT
1060 RETURN
```

British Isles — most of Europe can be drawn, too

```
9 REM*BRITISH ISLES"
10 MODE=51828:GCOL=51770:GMOVE=52039
20 LINE=51754:GTEXT=52657
30 SC=4360000:E=319:F=199:G=-10:H=340:I=220
100 SYSGCOL,5,0:SYSGCOL,6,0
110 SYSMODE,6,0,0
120 PRINT"Q"
130 INPUT"MAGNIFICATION (0.1-9.9)":M
140 IFM<0.1ORM>9.9THEN130
150 M=INT(M*10)/10
160 PRINT"PLEASE ENTER START CO-ORDINATES"
170 PRINT"IN A RANGE BETWEEN -4000 AND 4000"
180 INPUT"X":CX
190 IFCX<-4000ORCX>4000THEN180
200 CX=INT(CX)
210 INPUT"Y":CY
220 IFCY<-4000ORCY>4000THEN210
230 CY=INT(CY)
400 SYSMODE,4,1,1
405 FORMM=0T07
410 READX,Y:X%=X*M+CX:Y%=Y*M+CY:IFX=-1THEN610
420 R=(X%G)+(Y%G)+(X%H)+(Y%I)
430 IFR<0THEN410
440 IFX%>0THENX%=E
450 IFX%<0THENX%=0
460 IFY%<0THENY%=8
470 IFY%>0THENY%=F
480 SYSGMOVE,X%,Y%
500 FORN=0T0999
510 READX,Y:X%=X*M+CX:Y%=Y*M+CY:IFX=-1THEN610
520 R=(X%G)+(Y%G)+(X%H)+(Y%I)
```

```
530 IFR<0THENK=1
540 IFX%>0THENX%=E
550 IFX%<0THENX%=0
560 IFY%<0THENY%=8
570 IFY%>0THENY%=F
580 IFK=1THENK=0:SYSGMOVE,X%,Y%:GOTO600
590 SYSLINE,3,X%,Y%
600 NEXTN
610 NEXTMM
620 V=INT(SC/M/10000)*10000
800 A$="1:"
810 B$=STR$(V):L=LEN(B$):A$=A$+RIGHT$(B$,L-1)
820 X=0:GOSUB900
830 A$="SHIFT: X="+STR$(INT(CX))
840 X=16:GOSUB900
850 A$="Y="+STR$(INT(CY))
860 X=32:GOSUB900
870 GETA$:IFA$=""THEN870
880 SYSMODE,6,0,0:PRINT"Q"
899 END
900 L=LEN(A$):C=230
910 FORN=1TOL:C$=MID$(A$,N,1):D=ASC(C$)
920 IFD>63THEND=D-64
930 X%=X+N-1:SYSGTEXT,X%,0,C,1,D:NEXT:RETURN
1000 DATA300,325,310,325,315,320,325,330
1010 DATA325,337,315,340,314,343,300,350
1020 DATA290,345,275,347,260,343,262,345
1030 DATA267,349,262,351,252,349,262,345
1040 DATA260,343,250,350,230,350,215,355
1050 DATA214,360,208,365,200,360,190,355
1060 DATA180,370,175,365,170,367,165,365
1070 DATA180,350,190,345,192,335,200,335
1080 DATA200,330,225,332,225,325,235,324
1090 DATA240,322,245,314,240,318,226,320
1100 DATA221,325,213,325,207,317,200,320
1110 DATA202,316,200,310,193,311,189,315
1120 DATA187,315,182,310,185,308,182,302
1130 DATA205,295,207,285,207,274,209,274
1140 DATA209,273,210,272,208,273,207,272
1150 DATA206,273,200,275,195,273,202,270
1160 DATA205,265,200,265,200,255,205,255
1165 REM
1170 DATA210,260,205,265,229,260,231,262
1180 DATA231,260,233,261,234,260,232,258
1190 DATA235,255,233,253,235,250,237,232
1200 DATA235,233,222,219,237,205,232,204
1210 DATA230,208,229,213,226,212,215,210
1220 DATA210,210,205,215,198,207,195,213
1230 DATA190,200,205,183,192,170,192,165
1240 DATA191,165,191,170,188,185,185,184
1250 DATA186,170,193,145,189,152,175,155
1260 DATA180,150,178,145,176,146,186,125
1270 DATA184,120,170,115,180,105,190,120
1280 DATA190,100,200,100,200,90,202,90
1290 DATA205,75,225,79,245,75,241,85
1300 DATA225,100,227,105,220,115,235,110
1310 DATA242,112,260,112,265,120,243,155
1320 DATA253,165,231,169,235,170,242,166
1330 DATA263,185,265,200,270,218,280,221
1340 DATA290,235,292,236,291,237,295,255
1350 DATA290,253,300,265,300,270,293,275
1360 DATA300,280,305,275,320,276,327,284
1370 DATA330,293,326,300,325,305,317,309
1380 DATA319,311,317,313,321,315,310,322
1390 DATA300,325,-1,-1
1400 DATA195,236,200,227,207,220,207,229
1410 DATA195,235,-1,-1
1420 DATA187,104,190,96,187,92,187,85
1430 DATA185,77,185,87,187,104,-1,-1
1440 DATA157,107,165,106,161,115,157,107,-1,-1
1450 DATA157,115,160,115,160,125,157,125
1460 DATA157,115,-1,-1
1470 DATA240,70,242,58,252,60,250,72
1480 DATA240,70,-1,-1
1490 DATA275,43,276,32,270,31,272,24,285,5
1500 DATA286,15,275,43,-1,-1
1510 DATA160,290,135,290,124,302,95,310
1520 DATA85,306,95,300,75,302,85,295
1530 DATA75,293,87,285,75,285,85,280
```

# COMMODORE 64 PROGRAMMING

```
1540 DATA85,275,100,270,85,270,100,245
1550 DATA110,245,110,240,95,238,85,242
1560 DATA98,228,90,228,90,218,120,216
1570 DATA130,210,118,202,130,190,150,185
1580 DATA175,190,185,217,165,230,170,265
1590 DATA155,285,160,290,-1,-1
```

1:8720000 SHIFT: X= 60 Y= 8

THE  
BRITISH  
ISLES



The British Isles, created with Extended BASIC and this week's program

## Micro Tip

### Graphics designer

Here's a tip for those of you who currently design their user-defined graphics using little scraps of paper.

It's a re-usable user-defined graphics pad, which can be made from Formica offcuts from the local DIY shop, from ICI white perspex (about £5 a square foot), or simply from one side of a white plastic ice-cream container.

You'll need a square about five inches per side. On the plastic, mark a grid of eight by eight blocks using a freezer pen or other indelible marker. Or you can do as I did and use thin strips of black tape.

Leave plenty of room at the top of the grid to write on — about an inch.

Now to mark in the bit values at the top. Starting with the top left hand corner, write 128 above that square with the indelible pen.

Move to the square to the right and label it 64. Then over the following squares, moving from left to right, mark in 32, 16, 8, 4, 2, 1.

To use the graphic designer, you just fill in the blocks on the grid to make the graphic character you want, using a washable pen. Start at the top line of squares and add up the values of the coloured squares, using the numbers at the top. Then jot them at the side of the grid, again using washable pen.

Do the same for each line in the grid. This will give you the data you need for your UDG. When you have finished, rub a damp cloth over the grid to clean it off.

Peter Doggett

## GEM SOFTWARE NEW RELEASES

**OH MUMMY!!** Your party of archaeologists enter the pyramid in search of the mummies of the pharaoh's household. There are five burial chambers containing treasure, secret scrolls, keys, royal mummies and some nasty surprises. To pass from one chamber to the next, you must find the key and royal mummy, but beware, you may uncover a guardian, who will chase your group to avenge your desecration!! A Machine Code game for those with nerves of steel and great courage.

Price (LYNX) £7.95  
Price (ZX81 and SPECTRUM) £4.95

**TANK ATTACK.** A machine code game for 1/2 players, defending supplies against computer controlled tanks. This game will stretch your reflexes to the limit as you battle with the enemy tanks. They won't be able to shoot back until they have supplies, but when they do, look out!! Joysticks required.

Price (BBC-B OS 1.0+) £7.95

**CHRISTMAS SPECIAL OFFER** (mail order only for DRAGON 32). Choose any three of the following titles for £15.90. A saving of £7.95

GAMES PACK I  
ALIEN BLITZ

GAMES PACK II  
GOLF

GAMES PACK III  
SPACE MISSION

All prices include postage and packing. All cassettes despatched within 48 hours of receipt of order. Access orders welcome.

**SPANNERMAN.** Pete the Plumber has his work cut out! He's stuck in the boiler room and the pipes are leaking! Unless he can fix the leaks and stop the water rising, he'll meet with a watery doom. To make matters worse, all sorts of nasties keep coming out of the woodwork!! A fantastic machine code game, that stretches you and your Lynx to the limit!!

Price (LYNX) £7.95

**UTIL 1.** Two very useful programs for your BBC-B. Both tested on OS 1.0 and above. **Character Define** gives you a very comprehensive and simple way to quickly create all manner of user defined characters. **Envelope Editor** will enable you to unravel the complexities of the Sound and Envelope commands, so that you can produce exactly the sound you require. The ship!! In SUB CHASE you must depth charge the wolf pack.

Price (BBC-B OS 1.0+) £9.95

## GEM SOFTWARE

UNIT D, THE MALTINGS, STATION ROAD, SAWBRIDGEWORTH, HERTS

Telephone (0279) 723567/723518

# Give these some thought

**Games that tax your mind  
rather than your reactions.  
Adventure and strategy games  
rated for you. All are for the  
48K Spectrum**

## Usurper £6

Assassin, 10 Ash Rd, Leeds LS6 3JF

Usurper is claimed as the first multi-player adventure game, with one-10 players on 48K and one-six with 16K.

If you enjoy an adventure game where you just press keys to enter different locations, and have a report on the screen after each

move then this game is quite exciting. The object is to overthrow a king, putting yourself in his place. You have 100 days, each move you make being a day. However on your journey you will be meeting the usual problems: fighting trolls, giants, thieves, sand sharks etc. Locations are arrived at by just pressing its initial i.e. i-inn-v-village and so on.

You all start the journey, with the same advantages, strength,

gold, provisions, spirit and one follower. On the journey you may have to replenish either and of course this sets into your gold reserve, but you may also be blessed by a priest in the temple who can be very helpful at times.

There is also a second game, played using a large map provided with the cassette. Instructions for both come on the tiniest piece of paper, with extremely small type.

On-screen scoring should keep interest going.

You will at times get sound effects after a fight and flashing on the screen should you win.

instructions	45%
playability	45%
graphics	n/a
value for money	75%



N.W.

instructions	80%
ease of use	90%
display	80%
value for money	95%



## 1984 £5.50

Incentive, 54 London St, Reading RG1 4SQ

Here is a game of a different kind. If you're tired of gobbling power pills, alien-bashing or killing trolls, you might like to try your hand at governing the country for a while.

1984 is partly a fun game and partly a serious economic simulation. It is not detailed enough to be a full working model of the economy, but is far too complicated for me to succeed with. You take the role of Prime Minister for three terms of office. The best I could manage was one term and then I had a yearly rating of minus six, inflation running at 20 per cent and income tax at 43 per cent. Maggie, I take it all back.

It requires a great deal of thought but no real knowledge of government or economics. If you attempt absurd strategies you will usually be told off. If you receive too many of these yellow cards then the country gives you a red one and you have to resign.

The game is as compulsive as any arcade fodder and also mildly educational, though I do not think enough principles are explained and some of the mechanisms are rather too simple, in particular the pure guesswork used in wage bargaining.

instructions	80%
ease of use	90%
display	90%
value for money	95%



N.W.

## Battle 1917 £6

C.C.S., 14 Langton Way, London SE3 7TL

"The computer age's answer to chess" boasts the blurb on the inlay of Mark Lucas' game.

In my view nothing can beat the classic board game of chess, and this did not change my opinion, although well programmed and entertaining.

A 21x32 board shows a map (which unlike chess changes at the beginning of each game). Two generals each have artillery, infantry, tanks and a king at his command. The object is, surprise surprise, to capture the enemy's king.

As each player moves the changing battlescene is displayed. I find it easier to move chess pieces than grapple with

Spectrum keys. Minefields, barbed wire and what looks like water form other hazards, and these do add to the game: now and again it is necessary to make a tactical retreat across a minefield and risk being blown up.

Well designed and quite entertaining when played by bitter rivals, but for me the most engaging part was the excellent animated instruction sequence. However, even after I had read them it took me a while to discover what I was supposed to be doing.

It's good to see a program with a lot of thought behind it, and this should keep wargamers happy.

instructions	70%
playability	75%
graphics	70%
value for money	75%



T.B.

## Valhalla £14.95

Legend, 1 Milton Rd, Cambridge CB4 1UY

Other adventures advertise "with graphics" — this is graphics "with adventure". Castles, huts, plains, forests and mountains, in high resolution, form beautiful

backdrops, against which sprite representations of you and the "cast of thousands" enter, move, eat, drink, fight and die.

I'm uncertain the location with the cricket sight screen is in period but perhaps I'm mistaken. Watching is fascinating but six quests await.

Instructions manual is explicitly simple, without revealing all and helpfully condenses all

vocabulary and other necessities into a two page 'crib'.

Some objects are invisible but what lists and points to all available items. Where describes locations and present exits, who names the characters. List has the usual effect and Help might.

There are goodies and baddies, of varying strength and intelligence. You must persuade the more stupid to give you food.

drink and useful items, or fight battles for you.

Pawn your Microdrive for this and start saving for their next.

D.C.

instructions	95%
playability	95%
graphics	95%
value for money	75%



# A great line up of 17 NEW titles... direct from CANADA

FOR ZX81, SPECTRUM, VIC 20, C64, ATARI

Just run your eyes over these new titles now available through "SOFTCHOICE LTD" the U.K. subsidiary of the well-known Canadian Software House HOWARD GLADSTONE ELECTRONICS INC. Purchase with confidence superb EDUCATIONAL, UTILITY and GAMES SOFTWARE!

## EXCITING NEW GAMES FOR FAMILY FUN AND LEARNING FOR ZX81 and SPECTRUM



**adding**  
16K 16K  
ADDING MACHINE  
Additional facts for  
ages 5-9 yrs.  
For Spectrum.  
Cassette £6.95



**TAKE AWAY ZOO**  
16K  
Subtraction facts for  
ages 5-9 yrs.  
For Spectrum.  
Cassette £6.95



**TINY LOGO**  
16K  
The key to  
understanding and  
learning real  
computer  
programming!  
For ZX81.  
Cassette £5.95



**SIGNALS & CODE**  
16K  
See and hear the  
letters and numbers  
in order! On demand,  
randomly, in  
messages, in score  
tests! For ZX81.  
Cassette £4.95



**WRATH OF KONG**  
16K  
Only great agility and  
cunning will outwit  
Kong - Climb quickly  
or Jane will perish!  
For ZX81 &  
Spectrum.  
Cassette £5.95



**SPEED SNAKE**  
16K  
Slither around mazes.  
10 different mazes to  
challenge your skill!  
Deadly!  
For ZX81.  
Cassette £4.95



**MR MUNCHIE**  
16K  
Race through 3  
mazes, avoid the  
Trolls! Exciting action  
with graphics!  
For ZX81.  
Cassette £4.95

## CHILDRENS' & HOME EDUCATIONAL GAMES for the VIC 20, COMMODORE 64, ATARI 400/800 DISKS Only, at £14.95 each incl.



**THE ALPHABET FACTORY**  
Two arcade-style  
games that teach  
children the alphabet!  
Ages 3-8 years.



**MATCH UP**  
These high interest  
games make learning  
to read fun!  
Ages 3-10 years.



**THE WORD BIRD**  
Three different games  
each designed to  
increase a child's  
reading vocabulary!  
Ages 3-10 years.



**TIME ZONE**  
Two activity games  
that develop the  
needed language  
skills for successful  
reading!  
Ages 3-10 years.



**BRIDGE**  
For all the family.  
Sharpen your skills  
with the computer's  
bidding!  
Cassette £9.50

## GREAT UTILITY AND BUSINESS SOFTWARE for ZX81, SPECTRUM, VIC 20, COMMODORE 64, ATARI



**FASTWORD**  
Fast, versatile and  
complete word processing  
package by Dr Pearson.  
For ZX81.  
Cassette £7.50



**FASTLOAD**  
Learn any  
programme up to 6  
times faster than  
normal! By Dr G.  
Pearson.  
For ZX81.  
Cassette £7.50



**DIET**  
Gain control over  
your eating  
patterns. By Dr M.  
Minsky.  
For ZX81 &  
Spectrum.  
Cassette £5.95



**CALC-PRO**  
A great tool for home  
or business!  
For VIC 20, C64, Atari.  
Cassette £9.50 + Disk  
£14.95



**GRAPH-IT**  
An easy to use tool  
to produce  
graphical displays.  
For VIC 20, Atari.  
Cassette £9.50

**HOW TO ORDER. BY TELEPHONE (01) 431 2494**  
If you are a Barclaycard or Access holder, please  
telephone and give your Card No., Name, Address  
and item required for immediate despatch.

**BY POST.** To purchase any of the items listed above,  
simply fill in the coupon below, write your Name,  
Address, enclose your cheque or P.O. made  
payable to: SOFTCHOICE LTD and post to us.

Post to: SOFTCHOICE LTD.  
52 PLATT LANE, LONDON NW3 7NT

Please send me the following items:  
(Use separate sheet if space allocated not sufficient)

NO.	REQ.	TITLE	TOTAL COST
			£
			£
			£
			£

I enclose my cheque/P.O. for £

I prefer to pay by ACCESS/BARCLAYCARD  
(Delete which ever is not applicable)

Card No.  
Signature  
Name  
Address

Please allow 7 to 14 days for delivery.  
Card holders' address must be the same as coupon.

2x 3/84



**SOFTCHOICE LTD.**  
52 PLATT LANE, LONDON NW3 7NT.  
TEL: (01) 431 2494. TELEX: 923753

# THE FABULOUS CASSETTE 50

FROM **Cascade**

**ONLY £9.95**  
(INC. P&P and VAT)

**VALUE that's out of this world**

## 50 GAMES ON ONE CASSETTE

DRAGON BBC A/B Spectrum Apple ATARI ORIC-1 ZX81 VIC 20

It is impossible to tell you everything about the 50 games on CASSETTE - 50 but they include many types such as maze, arcade, missile, tactical and logic games, to suit most tastes in computer game playing. CASSETTE - 50 will appeal to people of all ages and the games will provide many hours of entertainment for all the family at a fraction of the cost of other computer games.

### EXPRESS DELIVERY-ORDER NOW

Name \_\_\_\_\_

Address \_\_\_\_\_

Post Code \_\_\_\_\_

Country \_\_\_\_\_

Dealers & Stockists enquiries welcome.

Please send me by return of post, Cassette 50 at £9.95 per tape. I enclose a cheque/postal order for £ \_\_\_\_\_ made payable to Cascade Games Ltd.

Please debit my ☐ No. \_\_\_\_\_

SPECTRUM ☐ ORIC-1 ☐ ZX 81 ☐ VIC 20 ☐  
BBC A/B ☐ DRAGON ☐ ATARI ☐ APPLE ☒

Cascade Games Ltd.,  
Suite 4, 1-3 Haywa Crescent, Harrogate,  
North Yorkshire, HG1 5BG, England.  
Telephone: (0423) 504526.

**LUNAR JETMAN** – For the 48K Sinclair ZX Spectrum  
**LUNAR JETMAN** – The Ultimate Intergalactic G.A.S. (Graphic Arcade Simulation) Adventure Space Battle.

**LUNAR JETMAN** – Arcade standard, 100% machine code, incredible sound effects, amazing smooth high resolution graphics, the totally new addictive concept and all those extra features you expect from the **ULTIMATE** games people.

Design – The **ULTIMATE PLAY THE GAME** design team.

**PSSST** – 19/48K ZX Spectrum



**JET PAC** – 16/48K ZX Spectrum or 8K Expanded VIC 20

These games should be available from **W.H. SMITHS, BOOTS, JOHN MENZIES, LASKYS, SPECTRUM CENTRES**, other large department stores and all good major software retailers. Alternatively, send the coupon to **ULTIMATE PLAY THE GAME** for immediate dispatch by return, subject to availability.

**£5.50** each including VAT, first class postage and packing within UK.

**LUNAR JETMAN** – 48K ZX Spectrum



**ATIC ATAC** – 48K ZX Spectrum

**COOKIE** – 16/48K ZX Spectrum



**TRANZ AM** – 16/48K ZX Spectrum

**ATIC ATAC** – For the 48K Sinclair ZX Spectrum

**ATIC ATAC** – The super spooky 3D horror G.A.S. (Graphic Arcade Simulation) Adventure Game

**ATIC ATAC** – Arcade standard, 100% machine code, incredible sound effects, amazing smooth high resolution graphics, the totally new addictive concept and all those extra features you expect from the **ULTIMATE** games people.

Design – The **ULTIMATE PLAY THE GAME** design team.

Dealer enquiries welcome. Phone (0530) 411485

Post this coupon to:  
**ULTIMATE PLAY THE GAME**, The Green, Ashby de la Zouch, Leicestershire, LE6 5JU

Please rush me the following:

☐ **LUNAR JETMAN**

☐ **ATIC ATAC**

☐ **JET PAC**

☐ **COOKIE**

☐ **TRANZ AM**

☐ **PSSST**

☐ **JET PAC (8K Expanded VIC 20)**

Enclose cheque/PO for £.....

Name.....

Address.....

.....

.....

Post Code.....

# falling fruit! Watch out for your glassware

There's never been a game with hazards like this: cherries, ice cubes and olives. G. W. Hartley wrote it for the standard TI-99/4A

Save the glasses from the fruits that are falling or some of your best crystal will be smashed.

This program runs in TI BASIC with no expansion needed. The object is to catch all the fruit that is descending onto your glasses.

## Variables

**HS** holds the name of the player with high score  
**SC** score  
**CV** bats left  
**X** horizontal position of bat  
**A** horizontal position of fruit  
**MS** holds the message for PRINT AT routine

## How it works

**100-150** REMs  
**160-230** clear screen, set colours  
**240-310** define characters  
**320-400** sets variables  
**420-550** set up red bands on screen  
**610-680** set variable MS to the screen messages  
**690-830** movement of fruit and bat  
**840-890** lose a life routine  
**900-1060** win points and change fruits  
**1070-1100** set MS to "Game over"  
**1110-1120** time delay  
**1130** clear screen  
**1140** check to see if hi-score is beaten  
**1180-1220** print congratulations message, asks for player's name  
**1290-1320** PRINT AT routine  
**1330-1520** display instructions  
**1530-1540** wait until a key is pressed  
**1570-1680** ask for level of play

The game starts by asking you for the level (1-3), then the screen is set up with seven glasses on the bottom band.

You must start to catch the fruits. These include cherries, ice cubes and olives.

The fruit that will drop first will be the cherry, then at 140 points the ice cubes will fall and at 900 points the olives.

You have four lives to waste at the start of the game. So good luck...

## Hints on conversion

TI BASIC is fairly standard with two main exceptions. Single statement lines are used and subroutines for graphics and sound are available, prefixed with CALL, as detailed below.

**CALL CLEAR** clears screen

**CALL SCREEN** defines screen colour

**CALL CHAR** defines a character with a 16-digit hex string from an eight by eight grid. Other machines will use a different method

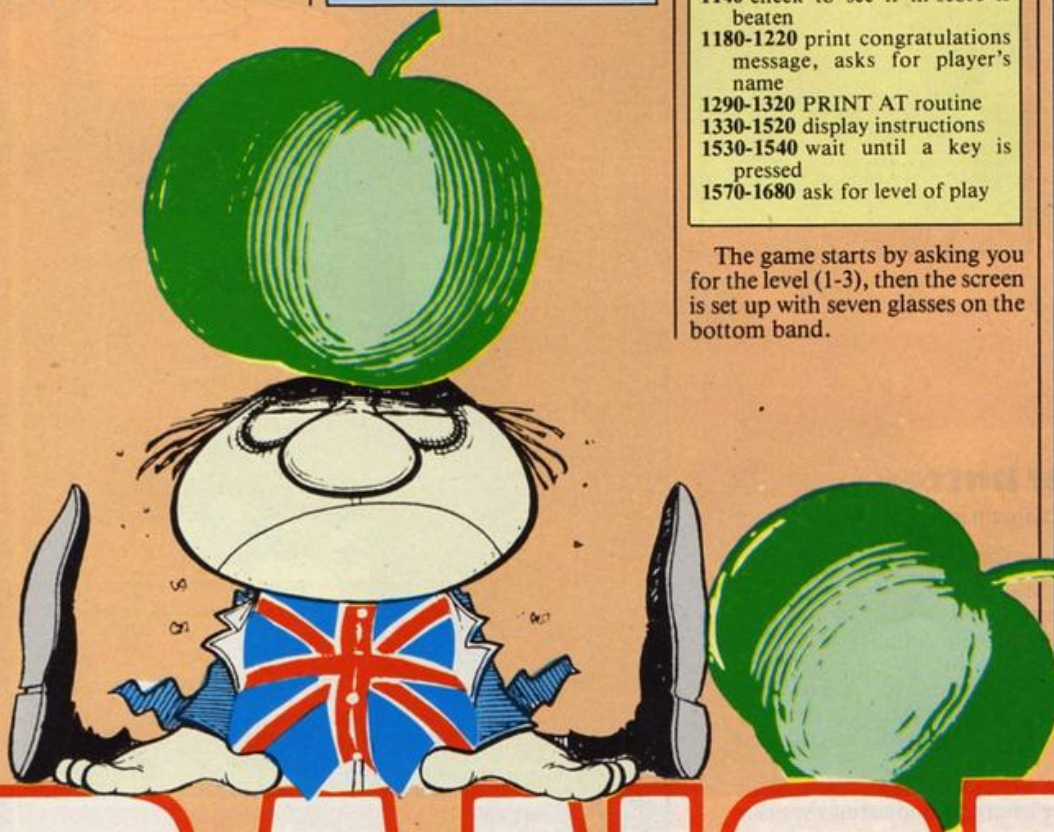
**CALL COLOUR** (character set, foreground, background) sets colour of character

**CALL HCHAR** (row, column, character code, number of repeats) places character on screen at co-ordinates specified and optionally repeats character horizontally

**CALL VCHAR** similar to HCHAR but repeats character vertically

**CALL GCHAR** (row, column, variable) similar to a screen PEEK on other machines. Gives the ASCII code at the given screen co-ordinates

**CALL SOUND** (D,F,V) gives sound of duration D, frequency F and volume V. Three sounds can be produced at



# DANGER

# TI-99/4A PROGRAM

```

100 REM *****
110 REM * FRUIT COCKTAIL *
120 REM *****
130 REM
140 REM BY G.W.HARTLEY
150 REM
160 CALL CLEAR
170 CALL SCREEN(2)
180 FOR I=1 TO 12
190 CALL COLOR(1,16,2)
200 NEXT I
210 CALL COLOR(13,9,2)
220 CALL COLOR(14,16,2)
230 CALL COLOR(15,9,2)
240 CALL CHAR(128,"FFFFFFFFFFFFFF")
250 CALL CHAR(126,"9F31F0F07030101")
260 CALL CHAR(137,"FCFCF0F0E0C0000")
270 CALL CHAR(138,"0101010101010F3F")
280 CALL CHAR(144,"000040070F0F060")
290 CALL CHAR(139,"00000000000F0FC")
300 CALL CHAR(140,"056775036370975")
310 CALL CHAR(141,"0101FF")
320 S0="000000070F0F060"
330 H0="77777777"
340 GOSUB 1330
350 CALL CHAR(144,50)
360 CALL COLOR(15,9,2)
370 GOSUB 1570
380 SC=0
390 CV=4
400 X=16
410 REM
420 FOR N=2 TO LN
430 CALL HCHAR(N,1,120,32)
440 NEXT N
450 FOR N=10 TO 23
460 CALL HCHAR(N,1,120,32)
470 NEXT N
480 P=9
490 FOR I=1 TO 7
500 CALL HCHAR(16,P,136)
510 CALL HCHAR(17,P,130)
520 CALL HCHAR(16,P+1,137)
530 CALL HCHAR(17,P+1,139)
540 P=P+2
550 NEXT I
560 REM
570 H0="HI-SCORE BY: "H0
580 II=24
590 OR=6
600 GOSUB 1290
610 H0="HI-SCORE: "STR$(H0)
620 II=1
630 OR=10
640 GOSUB 1290
650 H0="SCORE: "STR$(SC)
660 II=1
670 OR=2
680 GOSUB 1290
690 RANDOMIZE
700 R=INT(RND*11)+9
710 FOR I=10 TO 14
720 CALL KEY(0,R1,R2)
730 IF R1<0 THEN 750
740 X=X+1

```

```

750 IF R1<0 THEN 770
760 X=X+1
770 CALL VCHAR(1,0,144)
780 CALL VCHAR(1,0,142)
790 CALL HCHAR(15,X-1,32)
800 CALL HCHAR(15,X,141)
810 CALL HCHAR(15,X+1,32)
820 IF (I=14)&(X=X) THEN 900
830 NEXT I
840 CALL SOUND(450,-6,2)
850 CALL HCHAR(16,0,140)
860 CALL HCHAR(14,0,32)
870 CV=CV+1
880 IF CV=0 THEN 1070
890 GOTO 650
900 CALL SOUND(100,550,0)
910 CALL SOUND(100,450,0)
920 CALL SOUND(100,500,0)
930 CALL HCHAR(1,0,140)
940 CALL HCHAR(1,0,32)
950 IF SC=0 THEN 1000
960 IF SC=120 THEN 990
970 SC=SC+10
980 GOTO 650

```

```

990 CALL COLOR(15,0,2)
1000 CALL CHAR(144,"FF0101010101FF")
1010 SC=SC+20
1020 GOTO 900
1030 CALL COLOR(15,4,2)
1040 CALL CHAR(144,"0C7EFFFFFFFF7C")
1050 SC=SC+40
1060 GOTO 900
1070 H0="GAME OVER"
1080 II=12
1090 OR=11
1100 GOSUB 1290
1110 FOR I=1 TO 1000
1120 NEXT I
1130 CALL CLEAR
1140 IF SC=0 THEN 1170
1150 INPUT "ANOTHER GAME? "D0
1160 IF SC<0 OR (I=1)&"Y" THEN 350 ELSE 1230
1170 H0=SC
1180 PRINT "CONGRATULATIONS!! YOU HAVE ATTAINED THE "HIGH SCORE, PLEASE ENTER YOUR NAME:"
1190 INPUT "NOT MORE THAN 7 LETTERS "H0
1200 IF LEN(H0)>7 THEN 1190
1210 CALL CLEAR
1220 GOTO 1150
1230 CALL CLEAR
1240 PRINT TAB(2);""BETTER LUCK NEXT TIME""
1250 FOR I=1 TO 500
1260 NEXT I
1270 CALL CLEAR
1280 END
1290 FOR N=1 TO LEN(H0)
1300 CALL HCHAR(11,N,OR,ASC(STR$(H0,N,1)))
1310 NEXT N
1320 RETURN
1330 H0="FRUIT COCKTAIL"
1340 II=12
1350 OR=9
1360 GOSUB 1290
1370 H0="*****"
1380 II=13
1390 OR=9
1400 GOSUB 1290
1410 H0="G.W.HARTLEY"
1420 II=15
1430 OR=10
1440 GOSUB 1290
1450 FOR N=1 TO 1000
1460 NEXT N
1470 PRINT TAB(10);"INSTRUCTIONS"
1480 PRINT TAB(10);"-----"
1490 PRINT "CATCH THE FRUITS THAT ARE FALLING BEFORE IT SMASHES"THE GLASS.
1500 PRINT "USE 'S' FOR LEFT"THE FRUIT VALUES:"CHERRY-----10 POINTS"ICE C
1510 PRINT "OLIVES-----40 POINTS"
1520 PRINT "PRESS ANY KEY TO CONTINUE.."
1530 CALL KEY(0,R1,R2)
1540 IF R2=0 THEN 1530
1550 CALL CLEAR
1560 RETURN
1570 CALL CLEAR
1580 PRINT "LEVELS: "1,-----EASY"2,-----HARD"3,-----VERY HARD"
1590 INPUT "LEVEL 1-3? "D0
1600 CALL CLEAR
1610 IF (D0)>3 & (D0)<1 THEN 1590
1620 IF D0<1 THEN 1640
1630 LN=2
1640 IF D0<2 THEN 1660
1650 LN=4
1660 IF D0<3 THEN 1680
1670 LN=6
1680 RETURN

```

## Micro Tip

## TI-99/4A

### Date your battery

The modules for the TI-99/4A contain in coded form the place and date of manufacture.

This is not an idle piece of information: the Mini Memory Module contains a battery, and that has a limited life. Although the battery is said to last for two years, that period does not start from the date you buy the module.

The life of any battery starts with the date the battery is manufactured, as some small current passes through the internal resistance of the battery. When a battery is soldered into the mini memory module, it is immediately 'on load' and running down.

The date is coded in the form week number/year, and either prefixed or suffixed with a three letter code indicating the place of manufacture.

In an early edition of (the now defunct) 'Tidings', Robin Frowd of Texas Instruments indicated that ATA was Almelo (Holland). Sorry, it isn't!

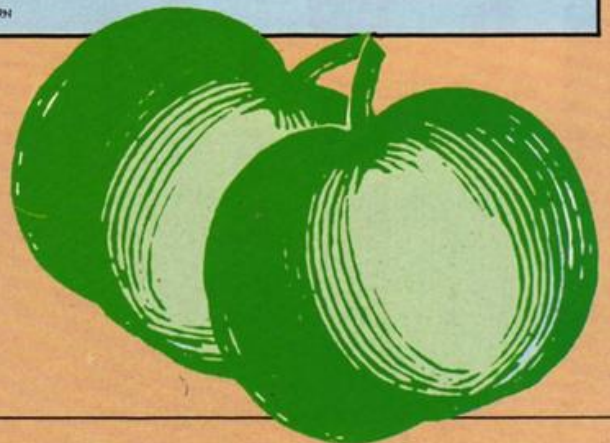
ATA appears to be AUSTIN, Texas. LTA is LUBBOCK, Texas.

HOLLAND is ACH, while ITALY is RCI.

Modules from other parties are not so encoded. I have modules from Milton Bradley (same style as TI's), Funware (similar to TI's but lacking the sliding protection plate at the back) and Romox (quite different in style: no PCB protection either, but the tracks are gold plated!).

Audiogenic have taken over the distribution of Funware modules in the UK. Watch out for them: if not cheap, they are good value for money.

Stephen Shaw

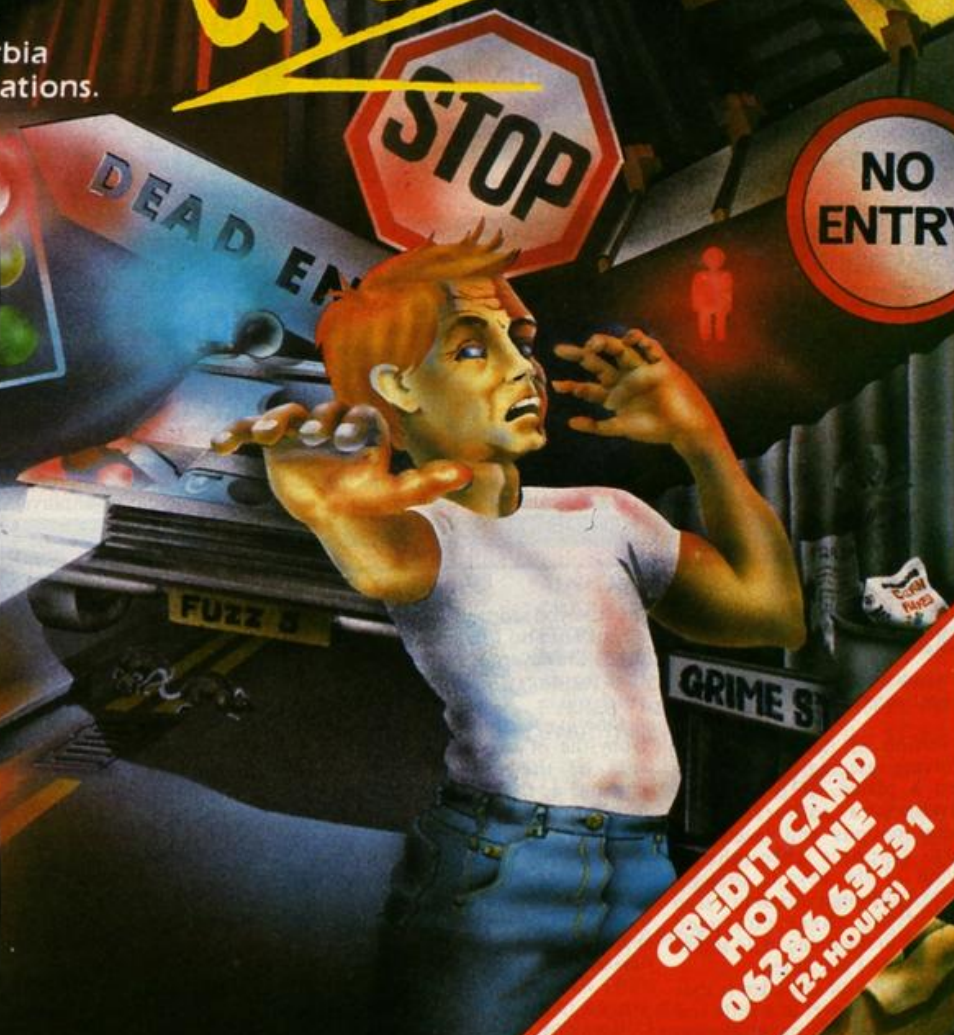


# "ADVENTURES INTO IMAGINATION"

## "ADVENTURES INTO IMAGINATION"

### URBAN UPSTART

An adventurous escape  
from 20th Century Suburbia  
with over 90 graphic locations.



**CREDIT CARD  
HOTLINE  
06286 63531  
(24 HOURS)**

#### **Your Quest: To escape from Scarthorpe!**

Scarthorpe is the sort of town where even the dogs carry flick knives! Where there's only one road in, and that's a one way street! The sort of town where rebuilding means a new coat of paint, and where people queue up to queue up for a job! Not many people come to Scarthorpe, and even fewer leave. The church bells chime three in the morning ... the streets are deserted ... now is your chance to Escape from Scarthorpe! 48k Spectrum £6.50

## RICHARD SHEPHERD SOFTWARE

ELM HOUSE, 23-25 ELMSHOT LANE, CIPPENHAM, SLOUGH, BERKS.

## Qimon TI-99/4A £4.50

Byteware, Unit 25, Hanyside,  
Newcastle upon Tyne NE1 4PZ

There are two games on this cassette, both versions of the popular electronic game in which the player has to repeat the sounds and lights made by the computer.

In game one, the computer flashes a light and plays a note and you must press the corresponding key. If correct the computer will add an extra note to the sequence, and once again you must press the correct keys. An extra note is added until you either press the wrong key, or the computer finishes the sequence. At this point the program stops, apparently due to a bug — a bad line number.

Game two is the same, except that you add a note of your choice after completing the sequence.

At the beginning of each game you may choose whether you would like 10, 20, 30 or 40 notes in the sequence.

Unfortunately, the instructions are not very clear at first, as the author rather carelessly failed to include punctuation.

Overall, I found this game was reasonably enjoyable to play, as well as being a pleasant change from Space Invaders.

J.J.

instructions	50%
playability	65%
graphics	25%
value for money	60%



## Sam Spade Spectrum £5.95

Silversoft, London House, 271/  
273 King St, London W6

Space Panic was a coin-op game which used to gobble up my loose change. Now I don't have to put another penny into the machine.

Sam Spade, a cute little fellow who, for reasons beyond his control or my understanding, is trapped in a square cavern with maniac monsters for company.

Understandably, Sam is a little annoyed at being outnumbered and so rushes up and down ladders and along walkways frantically digging traps. A sharp tap on the head with his spade sends them to their doom. Un-

fortunately, if a nasty is left too long in a trap it frees itself and mutates into more hostile form.

All these are the ingredients of an addictive game, and Sam Spade is as compulsive as its arcade counterpart. The relatively small size of the TV screen simply adds to the atmosphere, as do the well-programmed sound effects. The monsters are not particularly intelligent, but if they were the game would be unplayable.

I was hooked. The only criticism is of the annoyingly long, if rather flash, ending to each game. I simply could not wait to play again.

T.B.

instructions	65%
playability	100%
graphics	80%
value for money	85%



## Zarm 32K BBC £7.95

Program Power, 8/8a Regent St,  
Chapel Allerton, Leeds LS7 4PE

A version of the arcade game involving rescuing stranded men from a planet. It is very fast moving and colourful with several options and levels and good graphics throughout. Layout of the keys is straightforward although this didn't stop me getting them confused regularly in my panic to do something before I got killed.

My one major criticism is that even the start level is a little too difficult for an old stager like me (over 21 I mean). It's not that I can't do it, it's simply that I can't do it fast enough. But that applies to many fields nowadays!

Scoring is quite complicated

because you score not only for the rescue but also for speed and fuel used. However, you won't have time to worry about that, will you?

One novel feature, missing from the other versions I have seen, is the "invisible" key. During a flight back to the mothership you can opt to become invisible and therefore avoid the devences (alien ships) the planet pits against you. Unfortunately it uses a great deal of fuel and has to be used sparingly. A worthy implementation of an exciting game.

D.C.

instructions	70%
playability	80%
graphics	95%
value for money	80%



## Nemesis 32K BBC £7.95

Program Power, 8/8a Regent St,  
Chapel Allerton, Leeds LS7 4PE

A souped-up version of the old arcade favourite Centipede. But rather than blasting a centipede you are in combat with convoys of Earth's deadliest adversaries: The Vogons. Successive waves of the creatures, strung together in their convoys, hurtle towards you and must be destroyed using the fire power of your shuttle craft.

The Vagon convoys snake their way down from the top, changing direction if they encounter an asteroid and splitting in two if you zap them in the middle. If that's not enough, additional hazards — Chargers, Crushers and Crawlers — appear as the game progresses.

Choice of keys to control the shuttle is adequate but I would have preferred the left square bracket to the colon key to control upward movement. Joystick option is available and sound on/off is useful.

Although the Teddy Bears' Picnic ditty is amusing initially, it does seem inappropriate and tends to wear thin. Another minor criticism is the lack of a hall of fame.

As a variation on an old theme this program stands up well and is certainly fun to play.

D.H.

instructions	80%
playability	80%
graphics	90%
value for money	80%



## Space Shuttle Simulator 32K BBC £8.95

Microdeal, 41 Truro Rd, St.  
Austell, Cornwall PL25 5JE

As the title suggests, a flight simulator — but for a complete space flight, from launch to landing with an inflight satellite recovery mission. Each phase is

scored and should you fail to attain a good window then the program will auto pilot you onto the next stage.

The flight manual gives the necessary data and is logically laid out. The displays for the various stages are in hi-res black and white and well planned. The instruments are also well positioned and easy to read. The controls are either joysticks or keyboard. I found using the keys

that the controls were quite responsive and flight control was good.

Unlike most flight simulators this multi mission format added to the enjoyment and I spent many hours crashing into the ground.

The only minor niggle is, like the other Microdeal software I've seen, is that it came in a smart looking box with a polystyrene inner but no library case. This I

find annoying as eventually the box will become tatty. A fun filled game.

J.H.

instructions	85%
playability	85%
graphics	85%
value for money	85%





# TRACKS



**FAST  
MAIL  
ORDER  
SERVICE**

**HOME ENTERTAINMENT CENTRE**

**POST  
FREE!**

**HEAD OFFICE (MAIL ORDER DEPT.)  
5 KING STREET, MELTON MOWBRAY,  
LEICS LE13 1XA  
TEL: (0664) 68223/62517**

**SOFTWARE FROM £4.95 FOR THE  
SPECTRUM, BBC, ATARI 600XL/800XL,  
VC2600, COMMODORE 64, VIC-20, ORIC,  
DRAGON AND TEXAS COMPUTERS.**

## SPECIAL OFFER!

QUICKSHOT JOYSTICK	£7.50
QUICKSHOT II JOYSTICK	£8.95
ATARI JOYSTICK	£6.95

## SPECTRUM

**ULTIMATE - PLAY THE GAME**  
(All Games £5.45)

JET PAC	£5.45
LUNAR JET MAN	£5.45
COOKIE	£5.45
TRANSAM	£5.45
PSST	£5.45
ATIC-ATAC	£5.45

## IMAGINE

(All Games £5.45)

ARCADIA	£5.45
MOLAR MAUL	£5.45
ZOOM	£5.45
SCHIZOIDS	£5.45
ZIP-ZAP	£5.45

## QUICKSILVA

AQUAPLANE	£7.45
ASTRO BLASTER	£4.95
CHESSE PLAYER	£6.95
FRENZY	£4.95
GAMES DESIGNER	£6.95
GRID RUNNER	£6.95
MINED OUT	£4.95
VERNONS LAIR	£6.95
3D STRATEGY	£7.45

## EDUCATIONAL SOFTWARE

We stock a large selection for all ages. From Mr Men to 'A'-Level Maths! inc. Astro Maths/Jungle Maths, Mr T Tells the Time, Mr T Money Box.

## ATARI 600/800 XL

(Cartridges)

DONKEY KONG	£28.95
CENTIPEDE	£28.95
DEMON ATTACK	£31.95
GALAXION	£28.95
JUMBO JET PILOT	£28.95
SUPER COBRA	£33.95
RIVER RAID	£28.95
SOCCER	£23.95
MOON SWEEPER	£31.95
E.T.	£28.95
FATHOM	£31.95
LORD OF THE RINGS	£33.95
Q-BERT	£33.95
TUTANKHAM	£33.95

(Cassette)

DARTS	£14.95
FIGHTER PILOT	£6.95
POOL	£14.95
SCRAM	£19.95
SNOOKER	£14.95
VAULTS OF ZURICH	£19.45
WORD HANGER	£4.95
XENON RAID	£14.95
BLACK JACK	£14.95
DATA BASE	£19.95
DRAW PIC	£23.95
MAGIC WINDOW	£8.95
PILOT	£14.95
VENUS VOYAGER	£14.95

**JUST £48.95 FOR THE  
ATARI PROGRAM RECORDER!**

## BBC

ARCADIANS	£9.95
BEEB TREK	£6.95
FROGGER	£7.95
HUNCHBACK	£7.95
MUSIC PROG	£14.95
PLANETOID	£9.95
SNOOKER	£8.95
3D-SPACE	£7.95
BATTLEZONE 2000	£6.95
BEYOND BASIC (Book)	£7.25

## VIC-20

ALIEN ATTACK	£5.95
CRAZY KONG	£6.95
FROGGER	£6.95
PURPLE TURTLES	£7.95
SIREN CITY	£6.95
EVEREST ASCENT	£6.45
STAR TREK	£6.95

## COMMODORE 64

ARCADIA	£5.45
CRAZY KONG	£6.95
FROGGER	£6.95
PURPLE TURTLES	£7.95
SIREN CITY	£6.95
EVEREST ASCENT	£6.45
SNOOKER	£8.95
STAR TREK	£6.95
GALAXIAN 64	£7.95
JUPITER LANDER (ROM)	£9.95
SEA WOLF (ROM)	£9.95
FALCON PATROL	£7.95
INTRODUCTION TO BASIC 1&2	£14.95

**Many more available! SAE for lists.**

**Please find enclosed Cheque/PO or debit my Access/Visa Card**  
**No. \_\_\_\_\_ for the following game for the**  
**\_\_\_\_\_ computer.**

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

**NAME** \_\_\_\_\_

**ADDRESS** \_\_\_\_\_

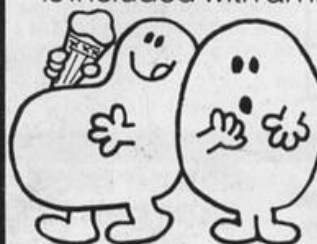
# More than fun and games!

## FIRST STEPS with the Mr. Men

by Primer Educational Software

**T**he ever-popular Mr. Men help prepare young children for reading with four simple and absorbing games designed to exercise essential skills as well as entertain.

An easy-to-use, colour-coded key guide is included with an illustrated introductory book, featuring the Mr. Men. For ages 4 to 8 years. Available now on cassette for the BBC B, Spectrum 48K and Electron. **£8.95**



## QUICK THINKING!

by Widge Software

**T**wo mind-stretching, space-age games to test mental arithmetic and nimble fingers.

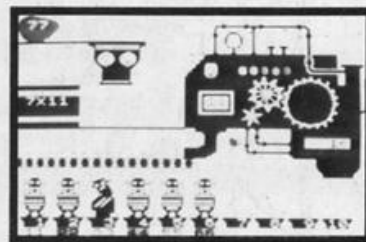
In **Sum Vaders** alien robots invade the earth. Only quick thinking and fast reactions can prevent them. Several levels of difficulty and a two-player game with a handicap option make Sum Vaders equally testing for all family members, from 8 years to adult.

**Robot Tables** challenges the young player to make a series of perfect robots.

Knowing your multiplication tables is the key to controlling the robot-making machine. With a learning mode and a testing mode, Robot Tables is a fun way

for early learners, and more advanced children, to master an important and often neglected skill.

Available now on cassette for the Spectrum 48K, and Commodore 64, BBC B and Electron. **£6.95**



## CAESAR THE CAT

by Andromeda Software

**M**eet Caesar, a cheeky young cat on duty in a well-stocked larder. He's kept busy chasing a gang of hungry mice eating the family's food. Playing against the clock, you guide Caesar along crowded shelves to pounce on the mice.

A fast, colourful, all-action, arcade-style game with catchy music and a best-score record. Challenging for high-scoring arcade addicts as well as great fun to play for the novice.

Available on cassette for the Commodore 64

**£8.95**



Prices include VAT and post and packaging. MIRRORSOFT programs are available from selected branches of W.H. Smith and Boots, and other leading software stockists. Trade enquiries welcome: phone 01-822 3580.

# MIRRORSOFT

## SOFTWARE FOR ALL THE FAMILY

To MIRRORSOFT, PO Box 50, Bromley, Kent BR2 9TT

Please send me the following (enter number required of each item in the space provided):

	Price	Spectrum 48K (01)	BBC B (03)	Electron (04)	CBM 64 (05)
First Steps with the Mr. Men (MM01)	£8.95				
Quick Thinking (QT01)	£6.95				
Caesar the Cat (CC01)	£8.95				

I enclose a cheque/PO for £..... made payable to "Readers' Account: Mirror Group Newspapers Ltd".

Or please debit my ACCESS/BARCLAYCARD for the sum of £..... card no.....

HC 5

I understand that my remittance will be held on my behalf in the bank account named above until the goods are despatched.

Signature.....

Name.....

Address.....

Postcode.....

Offer applies to Great Britain and Eire only. Please allow up to 28 days for delivery in the UK. MIRRORSOFT is a registered trade mark of Mirror Group Newspapers Ltd. Co. Reg. No: 168660. Reg. Office: Holborn Circus, London EC1.

Thanks to a chip known as SID, the Commodore 64 has powerful and well-known sound effects.

Many magazine listings — including those in HCW — have helped programmers make use of this chip and the wide range of sounds it is capable of producing.

However, very little has been said on how you might incorporate these into a program, along with graphics and the usual collection of cosmic bug-eyed invaders.

Ideally, it would be nice to start the chip off playing a tune, or a series of sound effects, and leave it to carry on by itself, leaving the program free to deal with other tasks which are not time-dependent.

It sounds too good to be true, but it is if the music is interrupt driven, which means that every one-sixtieth of a second the interrupt, as well as the updating clock, flashing the cursor and so on, plays a bit of music.

My program does all the work for you — simply tell it which notes to play, and it does.

The diagram gives a look at the parts of the SID memory map that the program uses. Of the three voices available, we will use just one, which has seven associated registers.

When using the program, only registers five and six need to be set, defining the envelope of the voice. If, however, the waveform is going to be pulse, registers two and three must be set also.

The volume must also be set, normally to its maximum, by POKE 54296, 15.

Scroff's Music IRQ also has some registers which must also be set before it is activated.

Although these must be initialised, they may also be changed during the program, though care should be taken with registers 251 and 252.

The start pointers point to the address in memory — 1 where the

## Music as you RUN... how to make SID play by itself

**There's a useful chip inside the Commodore 64 called SID which will play music or create sound effects while your program gets on with what it's doing. David Gristwood explains how to use it in your programs**

notes are stored.

These notes are in the form of high/low byte pairs to indicate the frequencies of each note. The user manual, appendix M, gives a list of these pairs and their corresponding musical notes.

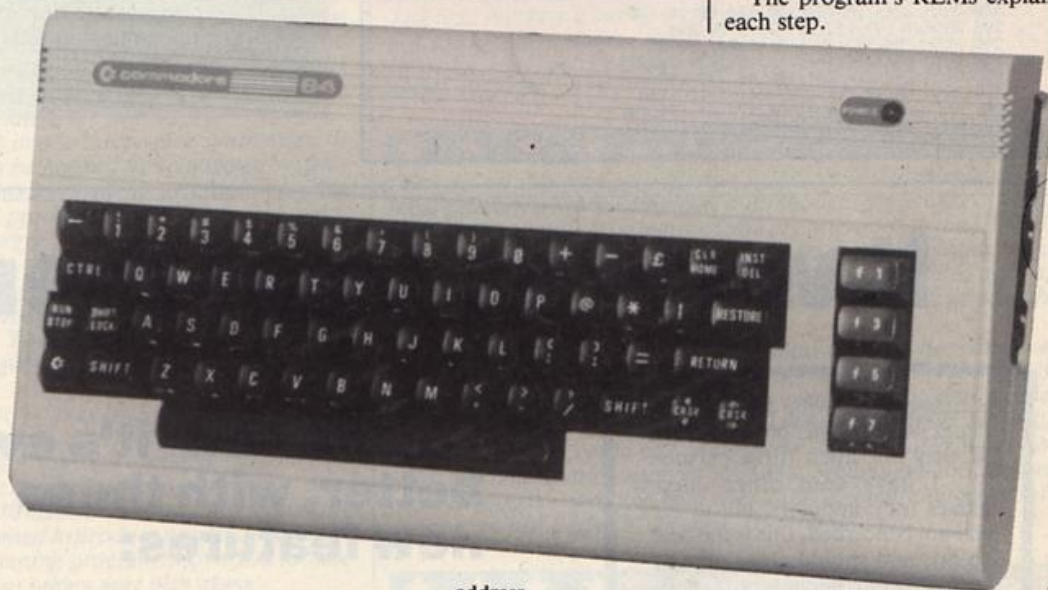
The machine code routine will continue through these pairs until it finds a note with a value of 255 for the high byte.

This is taken as a signal to carry on playing the notes that are pointed to by the repeat pointer. This means it can move to a new piece, or replay the current piece, depending on the value of the repeat pointer.

Typing in and running the program will result in a short tune (!) being played repeatedly. Adjusting the speed, waveform, envelope and so on will give an indication of how useful this program can be, and how little effort is needed to produce sound effects.

SYS 49152 is used to activate the whole IRQ routine. And SYS 49170 deactivates.

The program's REMs explain each step.



address	description		register number
54272	low byte	frequency control of oscillator 1	0
54273	high byte		1
54274	low byte	pulse width (duty cycle) of pulse wavelength (range 0 to 4096)	2
54275	* high byte		3
54276	waveform control register		4
54277	attack nibble (0-15)	decay nibble (0-15)	5
54278	sustain nibble (0-15)	release nibble (0-15)	6

**SID control registers.** A nibble is four bits (half a byte) — see Programmer's Reference Guide for full details

address	description	
49216	speed of music played	1 = fastest, 2 = slowest
49217	countdown to next note played	
49218	continue playing or halt	0 = continue, 1 = halt
49219	waveform control 129 = white noise, 65 = pulse, 33 = sawtooth, 17 = triangle	
251	low byte	pointer to start of music/ current position updated continually (points to byte before note)
252	high byte	
253	low byte	pointer to repeat — upon repeat, start pointer changed to this location
254	high byte	

**Scroff's Music IRQ registers**

# COMMODORE 64 PROGRAMMING

```

10 REM *****
15 REM * SCROFF'S MUSIC IRQ *
20 REM * BY DAVID GRISTWOOD *
25 REM *****
30 REM
40 REM LOAD MACHINE CODE
50 FOR T=49152 TO 49184:READ A:POKE T,A:NEXT T
60 FOR T=49232 TO 49328:READ A:POKE T,A:NEXT T
63 REM LOAD MUSIC
65 FOR T=828 TO 898:READ A:POKE T,A:NEXT T
90 REM
100 REM SET UP SID CHIP
120 SID=54272
125 POKE SID+2,200:REM PULSE FREQ
130 POKE SID+5,12:REM A/D
140 POKE SID+6,15:REM S/R
145 POKE SID+24,15:REM VOL
150 REM
160 REM INITIALISE FOR M/C IRQ
170 POKE 49216,29:REM SPEED OF MUSIC
200 POKE 49218,0:REM 0=MUSIC ON, 1=OFF
240 POKE 49219,65:REM WAVE-SAWTOOTH
250 POKE 251,59:POKE 252,3:REM POINTER START (LO,HI)
280 POKE 253,59:POKE 254,3:REM POINTER REPEAT (LO,HI)
300 REM
310 REM SWITCH IRQ ONTO MUSIC
340 : SYS 49152
350 REM IRQ OFF - SYS 49170
360 REM ONCE SYS 49152 IS CALLED, THE
370 REM ROUTINE WILL START TO PLAY THE
380 REM FREQUENCIES FOUND AT (POINTER
390 REM START+1) - THESE MUST BE IN
400 REM HI,LO COMBINATIONS. IF THE HIGH
410 REM VALUE IS 255, THEN THE ROUTINE
420 REM STARTS PLAYING MUSIC AGAIN, BUT
430 REM AT (POINTER REPEAT+1). IF THE TWO
440 REM POINTERS ARE THE SAME, A 'LOOP'
444 REM WILL BE PLAYED REPEATEDLY.
450 REM ANY OF THE LOCATIONS THAT WERE
460 REM INITIALISED MAY BE ALTERED AT
465 REM ANY TIME, TO CHANGE THE SPEED,
470 REM WAVEFORM, ETC.
475 REM ONLY S.I.D. VOICE ONE IS USED.
480 REM
490 REM DATA FOR M/C
500 DATA 234,234,234,120,169,88,141,20
520 DATA 3,169,192,141,21,3,88,234
540 DATA 234,96,120,169,49,141,20,3
560 DATA 169,234,141,21,3,88,234,96,234
600 DATA 234,234,234,173,66,192,240,4
620 DATA 76,49,234,234,206,65,192,208
640 DATA 247,234,234,234,173,64,192,141
660 DATA 65,192,234,230,251,208,2,230
    
```

```

680 DATA 252,234,160,0,177,251,201,255
700 DATA 240,40,234,234,234,234,160,0
720 DATA 141,1,212,230,251,208,2,230
740 DATA 252,234,177,251,141,0,212,173
760 DATA 67,192,72,169,0,141,4,212
780 DATA 184,141,4,212,234,234,76,49
800 DATA 234,234,234,165,253,133,251
820 DATA 165,254,133,252,76,180,192,0
840 DATA 234
900 REM
910 REM DATA FOR MUSIC (HI,LO)
920 DATA 57,172,0,0,57,172,0,0,51,97,57,172,64,188,0,0
940 DATA 51,97,57,172,64,188,0,0,57,172,51,97,57,172,0,0
960 DATA 51,97,45,198,45,198,0,0,43,52,0,0,38,126,43,52,0,0
980 DATA 38,126,0,0,38,126,38,126,0,0,43,52,34,75,38,126,0,0,0,0,255
    
```

## Micro Tip

Oric

### Expand your screen

I have discovered that the system variables at addresses 621 and 622 store the start of the Oric's printable display file. Initially it contains 48000.

Also, address 623 stores the number of lines that are displayable. Initially it is 27 (in TEXT mode).

This can be used to increase the size of the screen to include the top line (normally used for messages) by entering:

POKE 621,47960

POKE 623,28

CLS

The screen can also be partially protected from scrolling by reducing the number in 623.

H. S. Lim

# It was the best then...

Chess-players with a 48K Spectrum will find this program ideal if they are stuck for a partner.

I have seen other chess games for computers, but as far as I am concerned, this is the best so far, and should give hours of enjoyment to the chess buff. B.B.

instructions	95%
playability	100%
graphics	75%
value for money	100%



Ten levels of play ★ graphic display of board ★ can change sides or level in midgame ★ board can be set to any position  
history of moves ★ copy display & history to printer at any time  
★ can save game at any point ★ displays your moves and computer's

## ...and now it's even better, with these new features:

- ★ Unique digital chess clock. Automatically records time taken by player and computer
- ★ On-screen indication of total possible moves
- ★ Interrupt facility - forces computer to play current best move
- ★ Opening book of over 5,000 moves!



FOR 48K  
SPECTRUM  
ONLY

# Masterchess - the game for the real player £6.95



PHONE YOUR VISA  
OR ACCESS  
NUMBER

Available from leading retailers  
or direct from Mikro-Gen (please  
make cheque/PO payable to Mikro-Gen  
& add 40p post & packing per order)

Tel: Bracknell (0344) 4 27317

# MIKRO-GEN

MIKRO-GEN, 1 Devonshire Cottages, London Rd, Bracknell RG12 2TQ

# Boffins get to work on True BASIC

Here's one from the Reinvented Wheel Dept. The two men who invented BASIC, Thomas Kurtz and John Kennedy, are back at it for a revision. Forming a company called True BASIC, the professors are in the process of, in their opinion, establishing a "new standard in the industry."

True BASIC will require a micro to have at least 128K of RAM, and is targeted at the educational market. True BASIC is expected to use advanced control structures, compiled procedures, a built-in editor, and faster graphics.

According to the company president, Russ Walker, True BASIC will have all the advantages of Pascal but be easier to learn and have better graphics capabilities than Logo. I wonder how well it will be accepted when it has to go head to head against the de facto standard BASIC marketed by Microsoft.

Lotsa luck fellas...

I have just run across a very interesting application program for the Commodore 64 now being developed. Called MusiCalc I, it should be available by the end of next month.

The author of the program, Bill Moulton, of Waveform Corporation, in Berkeley, California, feels interested in reversing the process of learning music. Traditionally, one must learn skills and practice a lot before one can have fun with music. By taking advantage of the music-generating ability of the 64, it is possible to have fun first and acquire skills later.

The program turns the 64 into a three-voice synthesizer. It allows the computer (which can be hooked up to a stereo system, external music amplifier, or mixing system) to imitate various musical sounds such as those produced by a flute, accordion, drums, hammer dulcimer, organ, or other less traditional instruments.

Along with these basic music production abilities, the program will be marketed with several demonstration discs of various types of music that can be created. The program will also allow the computer to be used as a sequencer for you electronic music savants.

It also includes the capability of play background music while you play foreground (lead). Special effects such as echo, delay, reverb, equalization, and phase shift are also available. Of course, it will be possible to save the music created with this program on disc. Each disc can hold up to about 30 minutes' worth. Each key on the keyboard can also be reprogrammed to produce a series of notes for added versatility and speed. A tuning program allows you to tune MusiCalc to other instruments so others may play along.

If all this motivates you to learn more about music, a special screen display can be selected which shows which notes are being played. Future products are expected to include a program that will allow written music to be printed out. The company is gambling that such a creative product can be as appealing to the consumer as products that are more productive in nature.

Perhaps products such as this one will narrow the perceived division between computer science and the arts. I hope they succeed. The success of the 64 has certainly made a believer out of me. If the quality and variety of application programs continues to improve I may end up buying one myself.

If you have recently purchased a Commodore 64 and have started to wonder what to do with it, this product may help. It is called I am a C-64, and is designed for those folks who would rather learn how to do something by using their hands rather than by just reading a manual.

The product actually consists of two programs. Volumes 1-3 are found on one disc; volumes 4-6 on another. The first three programs cover an introduction to the machine, sprite graphics, sounds, keyboard, and BASIC. The topics on the second disc cover

advanced BASIC techniques, sprite graphics, music and sound effects.

Documentation for these programs is almost non-existent, but that was the point in the first place. Each program is essentially self-documenting. Error handling is excellent; the program could not be made to bomb. Both the introductory volumes and the advanced ones are easy to use and do the job well. They are certainly well worth the \$29.95 per disc list price. The programs are published by Creative Software, 320 East Carribean Drive, Sunnyvale, California 94089. Phone (408) 745-1655.

I think the most aggravating system failures are those caused by static electricity. As a writer, I know of little that is more infuriating than to be writing away when a co-worker shuffles up to my word processor and touches something critical only to have a blast of the old static wipe out the last few minutes work. I am sure that most of you have been plagued with similar problems.

Well, a firm called ACL Incorporated can help. If you write nicely, it will send you a free eight-page colour booklet which contains quite a few tips on controlling static and static-proofing. The firm markets a line of static control products, so its interest is not solely humanitarian, yet it is still worthwhile. Write to: ACL Incorporated, 1960 East Devon Avenue, Elk Grove Village, Illinois 60007. (312) 981-9212.

It isn't exactly a home computer, but I thought you might be interested. I don't know how many of you are interested in the IBM PC and all its various clones, but you might be briefly interested in the latest computer claiming to be PC compatible. It is called nothing less than the Great Wall 100 and comes from (you guessed) the People's Republic of China.

Without boring you with too many details, the computer comes with 256K of RAM, 40K of ROM, two 320K 5 1/4 in floppies, and a green screen monitor, not to mention a parallel printer output. All for the mere sum of 30,000 yuan (about \$15,000). Hardly what you could call competitive. On the other hand, the IBM machine cannot support CCDOS, which contains, among other things, the ability to read over 7,000 Chinese characters into memory in just under 20 seconds. How about that!

Here's a few of the results of a recent Harris poll. Forty-five per cent of those polled indicated that they know how to use a personal computer. One in 10 own a computer. An additional 39 per cent expect to by one in the coming five years. Of those who know how to use a computer, 62 per cent are under 30 and 10 per cent are over 65. About 70 per cent of the computer literates have a four-year college degree while only about 16 per cent have not completed high school. About 67 per cent of those whose incomes exceeded \$35,000 per year can operate a computer, while only 23 per cent of those having incomes less than \$7,500 can claim that ability. This serves to underline the difference between the haves and have-nots, as I have touched upon in previous columns. Furthermore, about 77 per cent of those surveyed are worried about privacy invasion by computer. This statistic is up from 64 per cent when the same question was asked five years ago. Most of those polled thought the three main offenders in this regard were credit bureaux, loan companies, and insurance firms. I'm not surprised to learn about this increase. After all, this is 1984.

See you next week.  
Bud Izen  
Fairfield, California

## A B M Control EX BASIC, Joystick £6.95

Fantasia 99, from Christine Computing, 6 Florence Close, Watford, Herts

A B M, or Anti-Ballistic Missile Control, sets one or two players the formidable task of defending four cities and three missile bases from destruction by bombs, bombers and cruise missiles, all in various formations.

By centring a sight on the target and pressing the fire button an A B M is launched from the player's nearest operational base. The game continues for as long as one city remains, the computer's attacks coming in successive waves.

At the end of each successful defence a score is given calculated on bonuses obtained during that round multiplied by the number of screens survived. After this score has been added to the total, the display changes colour combinations and the game continues at a more advanced level.

Although this is a very good game I was staggered at the price. In the same batch for review came this same program by Fantasia, from a different distributors which was offering it with another game for less!

J.W.

instructions	n/a
playability	80%
graphics	80%
value for money	50%



## System Trader Typing Test £4.55

Solway, 6 Curzon St, Maryport, Cumbria CA15 6LL

System Trader comes complete with a Flight Manual and Trading Regulations. It's all about buying and selling commodities through

the Solar System to make a fat profit before returning to headquarters.

There's more to it than wheeling and dealing, however, as you must also take command of your spaceship, the Dragon-slayer.

On landing or take off the screen displays instrument readings for fuel, altitude, velocity and thrust. Using the

numeric keys, and spacebar in emergencies, thrust is controlled to achieve launch and, hopefully, safe landings. Correct handling of the thrust takes some getting used to — most of my descents sent me to hospital!

When you've finally worked your way round the planets you're given a comment, varying from unsuitable managerial material to Trader of the Year!

Typing Test is an entertaining program to speed up your skill at

locating letters on the keyboard. You may choose a delay factor from 0-500. After a test of 10 letters you are given a score and told the lowest highest and average delays in response. J.W.

instructions	100%
playability	70%
graphics	50%
value for money	100%



## Builder/ Minefield £4.95

Lantern, 4 Haffenden Rd, Tenterden TN30 6QD

Two simple yet entertaining games which are loaded together then selected from menu. Versions are provided for both keyboard and joystick.

The object of Builder is to pick up bricks and lay them on a concrete strip. As you steer your truck round the site, puddles must be avoided as should the oily trail left behind. You may have either a static or moving truck, where moving means continually travelling in the direction last input.

In the keyboard version, however, the truck can be stopped by any key other than those

controlling direction — an oversight which allows cheating! The game ends either when all bricks have been successfully laid or if you cause so much damage that you are sacked.

In Minefield you steer a tank from the left to right avoiding mines in your path, the number of which is increased with each traverse. If this wasn't enough, a howitzer periodically fires, blocking your way even more. When the tank crashes three times the game ends, showing yards of territory gained. When this becomes too easy, you can get opt for invisible mines and then you're in trouble!

J.W.

instructions	70%
playability	75%
graphics	70%
value for money	90%



## Astrowars £5

Stainless, 10 Alstone Rd, Stockport, Ches Sk4 5AH

A game which will be familiar to everyone as there is a version for just about every computer and game console.

You control a spaceship in the centre of the screen and you spin the ship, using the S and D keys, to fire at asteroids and alien spacecraft coming at you from all angles.

This cassette, however, is written in BASIC — it has to be for the standard TI — and

although it has all the ingredients of the game it is let down badly by the speed of the language.

Instructions on screen and the controls are easy to operate making the game suitable for the younger enthusiast.

Graphics and colour are used well. As already mentioned, however, the speed of the action is too slow for this sort of game and I feel therefore that the price quoted is a little high. D.B.

instructions	70%
playability	60%
graphics	70%
value for money	50%



## Bob Sleigh/ Bio-rhythms £4.50

Byteware, Unit 25, Handyside Arcade, Newcastle-upon-Tyne NE1 4PZ

The object of Bob Sleigh is to steer along the track for as far as you can without crashing.

There are four courses, ranging

from "very easy, flat" to "impossible, no kids" — little does the author know that "kids" are usually best at these.

When the game is played, you discover that the different skill levels only alter the width of the track, but there are four speeds at which the course may be attempted.

The sounds and graphics were just about acceptable, but not really anything special — indeed,

I was amazed to find that one graphics character was taken straight out of the TI manual!

Bio-rhythms are cycles that start on the day you are born. There are three types: physical, every 23 days; psyche, every 27 days; and intellectual, every 33 days.

This program is designed to plot three graphs, as well as an average, for the next 30 days, giving an idea of how you will feel

and shape up during this time.

Even though Bob Sleigh became rather boring after a while, I thought Bio-rhythms made up for this. Good value for money. Ratings are averaged between the two. J.J.

instructions	80%
playability	70%
graphics	65%
value for money	80%





# DITTO DATA LTD

ATTENTION ALL TOP PROGRAMMERS ! !

YOUR BEST AND ONLY THE BEST MACHINE CODE GAME PROGRAMS FOR COMMODORE 64 — VIC 20 — B.B.C. AND SPECTRUM.

WE WILL ENSURE YOUR PROGRAM HAS MAXIMUM SALES SUPPORT, WITH OUR LARGE DEALER AND MARKETING NETWORK.

OUR OWN LARGE INHOUSE DUPLICATING OF TAPES AND DISCS.

Contact: **NEW PROJECTS DIRECTOR  
DITTO DATA LTD.  
CORNER HOUSE  
6-8 THE WASH  
HERTFORD  
SG1 4IPX**

Telephone: **HERTFORD 554474/554484**

## ORIC-1

AT LAST

EDUCATION

A TRUE EDUCATIONAL PROGRAM FOR YOUR ORIC-1

Designed for the 4 to 8 years age group, it also provides useful revision for older children, including as it does:

- ★ **FULL RANGE OF MULTIPLICATION TABLES** — With a random test of each table requiring a verbal answer from the pupil. This can speed up response time and improve retention.
- ★ **THREE LEVELS OF TABLE TESTS** — Requiring an input answer — Demands accuracy
- ★ **FOUR LEVELS OF ADDITION** — Requiring input answers
- ★ **FOUR LEVELS OF SUBTRACTION** — Requiring input answers
- ★ **FOUR LEVELS OF DIVISION** — Requiring input answers
- ★ ★ **HIGH RESOLUTION DRAWING FACILITY** — Enables older children to use skill and imagination designing their own drawings directly on to the screen, no programming is required. The drawing can even be animated using only four basic commands — Hours of fun. For the younger children a 'Draw by Numbers' helps with counting.

This program makes good use of the computer as a teaching aid. Multiplication Tables (the very basis of all school maths) can be learnt much more quickly and pleasantly than by conventional methods.

**THE COMPUTER NEVER LOSES ITS TEMPER OR PATIENCE.**

**'TEACHER/MATHS' • SUPPLIED ON CASSETTE • WITH FULL INSTRUCTIONS £5.95**

ALSO:	HARRIER ATTACK (Arcade)	£6.95	ENCOUNTER (Adventure)	£7.50	
	SUPERTRECK (Arcade)	£6.95	GRAIL (Adventure)	£6.95	
	DONKEY KONG (Arcade)	£6.95	ORICADE (Technical)	£8.50	
	JOGGER (Arcade)	£6.95	CHESS	£9.95	FROM:

**EVANS SYSTEMS,**

**Kilstay Bay, Drummore, Stranraer DG9 9QT**

## LETTERS

### Commodore: a neat trick

The Commodore manuals tell you how to abbreviate BASIC keywords so you only need to press two keys for any single command.

What they do not tell you is that if you abbreviate the commands you can get more than the standard number of characters per line — a technique used by HCW authors, including David Rees in his Extended BASIC for the Commodore 64.

So if you have a line which is too long to fit you can squeeze it in by turning all the keywords to tokens.

NEXT becomes N (shifted) E, for example. This technique will work on all Commodore computers, from BASIC 2.0 PETs to the 700 series, including VICs and 64s.

If you are tight on memory it is particularly useful as each line number alone occupies two bytes.

Remember, though, that the extra bits squeezed in cannot be edited and if you hit RETURN over the extra line separately you may get an error.

Simon Rockman, London W1

### Spectrum 'name' change

On purchasing Home Computing Weekly No. 44, I was delighted to find a "names and addresses book" program for the Spectrum.

However, after typing it into my machine and storing a few names to test the system, I discovered that the program would not re-search after listing the first name. It just came up with "search complete".

After closer examination of the program I realised that by pressing "n" to continue the search, Z\$ was being given another value which was then substituted for its original value in the search loop lines 2160 to 2190.

Interested readers may care to note that by altering line 3100 to GOSUB 800 and making these changes:

```
3110 IF OS="c" THEN
COPY
```

```
3120 IF OS="n" THEN
GOTO 2190
```

```
3130 IF OS<>"a" THEN
GOTO 3100
```

and inserting a line 800 LET OS=INKEY\$: RETURN, then that part of the program will work.

However, the same thing happens again when an amendment has to be made so alter the following lines:

```
3150 GOSUB 900
3160 IF p$<"I" OR p$>
```

**Send your letter to Letters,  
Home Computing Weekly, No.1  
Golden Square, London W1R  
3AB. Don't forget to name your  
computer — the best letter  
could win £5-worth of  
software. Got a problem with  
your micro? We'll soon be  
starting a queries page, so send  
your technical questions to  
Queries at the above address**



```
"7" THEN GOTO 3150
3180 PRINT p$
3190 LET I=15*VAL p$-14
and insert line 900:
900 LET p$=INKEY$:
RETURN
```

The otherwise very well written program will now work.

A. G. Bird, Ripley, Derby

### End the squabbles

Why don't you put an end to the squabbles over your software reviews?

Don't print the letters of complaint — after all, it's only one person's view of a program. Also, why waste space printing the "my high score is" letters? The page is for queries and information isn't it?

By the way, to enter the lowest dungeon in Halls of the Things without getting the rings, may be done by pressing 2 followed by the space bar. It's my favourite game as well.

J. Harris, Fishponds, Bristol

★ *Software winner*  
In true democratic tradition, we're throwing the debate open to you, our readers. Let's have your letters saying what you think.

### Save your Oric keys

Many thanks for a super mag — it's the only one I buy now, as you keep reviewing Oric-I software, and printing listings. We've typed them all in now, the latest one being Can You Catch the Secrets, by G. Bailey (HCW 39).

This program is very good, using user-defined graphics. But one annoying thing we found is that to move your "man", you have to "rattle" the keys. To overcome this problem (and save the keyboard) I used this routine which replaces

the lines involved:  
110 P=PEEK(520)  
115 IF P=172 THEN X=X-1: IF X<8 THEN X=7  
120 IF P=188 THEN X=X+1: IF X>31 THEN X=32

If you now type in those lines and run the program you get a "man" that moves effortlessly across the screen.

Keep up the good work.  
Corporal P. Lyall, RAF Wildenrath, BFPO 42

### Cavern code numbers

In his letter about Manic Miner (HCW 45), G. Holding mentioned that you have to enter the code 603 1769. But he didn't give the codes (20 of them) for the different caverns, so here they are:

- 1 Central Cavern: 6
- 2 The Cold Room: 61
- 3 The Menagerie: 62
- 4 Abandoned Uranium Works: 621
- 5 Eugene's Lair: 63
- 6 Processing Plant: 631
- 7 The Vat: 632
- 8 Miner Willy Meets Kong: 6321
- 9 Wacky Amoebatrions: 64
- 10 The Endorian Forest: 641
- 11 Attack of the Mutant Telephones: 642
- 12 Return of the Kong Beast: 6421
- 13 Ore Refinery: 643
- 14 Skylab Loading Bay: 6431
- 15 The Bank: 6432
- 16 The 16th Cavern: 64321
- 17 The Warehouse: 65
- 18 Amoebatrions' Revenge: 651
- 19 Solar Power Generator: 652
- 20 The Final Barrier: 6521

I hope these will help other Spectrum users try other screens instead of trying to get to a different screen from the first cavern.  
Stephen Holland, Market Drayton, Shropshire

### Circle suggestion

I was interested to read Geoff Turner's article on circle-drawing on the BBC micro.

May I suggest that both he and some of your readers should look at something called a Grafpad which comes from a company called Central Trade Exchange in Dunstable. (0582 64334)

With it I can draw circles, triangles, rectangles and do free-hand drawing, and lots of other things.

Gerald Roll, Harlow, Essex

# ANIROG SOFTWARE

COMPUTER GAMES  
OF TOMORROW  
AVAILABLE

NOW!

AS SEEN ON  
T.V.!



HEXPERT



MOON BUGGY



SKRAMBLE



3D TIME TREK

KONG K.B./J.S. £7.95

4 SCREENS WITH BRILLIANT ANIMATED GRAPHICS

SKRAMBLE J.S. £7.95

6 SECTORS TO TEST YOUR SKILL

HEXPERT J.S. £7.95

TRAIN BERT TO BE HEXPERT ON THIS 3D HEXAGONAL PYRAMID

MOON BUGGY J.S. £7.95

MANOEUVRE YOUR PATROL CRAFT OVER GIANT POT HOLES AS  
YOU DEFEND THE MOON BUGGY FROM ALIEN ATTACK.

FROG RUN K.B./J.S. £5.95

A POPULAR ARCADE GAME. FUN FOR THE WHOLE FAMILY.

3D TIME TREK K.B./J.S. £5.95

SPECTACULAR 3D GRAPHICS STAR TREK GAME.

DUNGEONS K.B. £6.95

ENTER THE REALMS OF FANTASY IN THIS ROLE PLAYING GAME.

DARK DUNGEONS K.B. £6.95

2ND IN THE SERIES OF FOUR. DEFINITELY NOT FOR THE FAINT  
HEARTED

COMMODORE



NEW

GALAXY

AVOID CAPTURE BY THE ALIEN  
MOTHER SHIPS TRACTOR BEAM AS  
THE FIGHTERS DIVE BOMB YOU  
100 SCREENS WITH A TWO PLAYER  
OPTION. K.B./J.S. £7.95

NEW APPROVED GAMES FOR  
THE STACK LIGHT RIFLE

INDIAN ATTACK £5.95

COSMIC COMMANDO £5.95

VENGEANCE OF ZENO £5.95

24 HR. CREDIT CARD SALES HORLEY (02934) 6083  
PAYMENT BY CHEQUE, P.O., ACCESS/VISA  
8 HIGH STREET HORLEY, SURREY.  
Overseas 50p post & packaging

TRADE ENQUIRIES WELCOME

29, West Hill, Dartford, Kent. (0322) 92513/8

## Multi-Coloured Sprite Graphics 48K £6

B. Sides, 4 Willesden Rd, Cefn-Glas, Bridgend, S. Wales

If sprite graphics mean nothing to you then look at Ultimate's games. Its great graphics are the result of using sprites, and with this package you can and sprites of equal standard to your BASIC and machine code programs.

The package contains three programs: first, three demonstration routines showing just how attractive and effective well manipulated sprites can be. The second allows you to define your own sprites (up to full screen size with each character given it's own

attributes) and save them to tape. Section three explains how to use your creations, including a ready-made collision checking routine, essential for games.

Perhaps the most interesting and useful are the machine code routines enabling use of sprites.

For the initiated, this package will no doubt be well received and well used. However, not much thought is given to the novice. A small manual accompanying the game would have been helpful. My only other criticism is that the instructions on use were on-screen, and I had to laboriously copy them for reference while the computer was in use.

T.B.	
instructions	50%
ease of use	70%
display	90%
value for money	90%



## Master Tool Kit £9.95

Oxford Computer Publishing, 4a High St, Chalfont St Peter, Bucks SL9 9QB

Most toolkits provide Renumber, Merge, Delete, Move or Copy Lines, Rem Kill, Search/Find and Substitute Strings, Variable

Listing, Trace, Change of Case and Memory Free. Mine does all this in 357 bytes, so what extra does OCP offer that takes up 7½K?

The clock/alarm and graphic memory map can be erased, giving back 600 bytes. LIST, CLS and Syntax Check and already available in BASIC, although Syntax here adjusts hidden binary

# Make your micro work

Useful software to help you  
with your own programs, filing  
and, possibly, earn the price of  
your Spectrum . . . .

forms and may decide to replace your repeated constants with variables, possibly a mixed blessing.

Change RAMTOP without Variable loss and Error Trap are useful although I'm undecided about the Function Keys.

The Star features — Pack and Compress — claiming savings of up to 20 per cent of program length, with flow preserved — are a Catch 22. Toolkit in and

hogging the last 7½K; you can't get near memory end, when they would be useful. And, being only useable on fully debugged, working programs, and unalterable afterwards, any space saved cannot be used.

D.C.	
instructions	90%
ease of use	45%
display	n/a
value for money	45%



## Data Genie £9.95

Audiogenic, PO Box 88, Reading, Berks

This file system comes in very glossy packaging, the 16-page instructions are well-written and easy to follow, and the program is so user-friendly as to be positively gushing!

Using keys 6 and 7, you move a coloured cursor line down the main menu, pressing 8 when it covers your selection and a mini-menu, with further options, is then overprinted. Similar selection here may lead to yet more mini-menus. At times, the screen overflows with menus, but a thoughtful CLS option handles this.

Normal functions are covered:

Set Up File, Enter Record, Print Record, Search and Storage. Search is particularly powerful and will find any word in any field. Up to 15 fields are available per record, length 10-20 characters and an alternative type-face is provided.

A very easy package to use but exiting back through each menu to reach the main menu is a little wearying. The number of records available range from 146, with fields 10 characters long, to 73 with maximum length, and I question if a file of such limited size has real practical use.

D.C.	
instructions	95%
ease of use	85%
display	85%
value for money	50%



## Typeset £5.60

Micro-Kraft, 48 Seacourt, Clontarf, Dublin 3, Eire

One of the Spectrum's many useful features is the ability to relocate the character set in RAM. If you have the time and the patience, plus the know how, you can create your own character set for use in your own programs.

With Typeset, all you need is a few minutes, and you could load all, or any, of the 12 character sets provided.

You will have no trouble loading either side of the tape, but first, though, you must load side one. This is not just because there are demonstrations of the character sets on it, but because the programmer has a delightfully impish sense of humour. Included on side one are instructions for

using the 50 characters per line character set, along with a demonstration screen.

Side two holds the 12 character sets, and the instructions are easy to follow. The inlay card gives full instructions, and explanations, so you can't go wrong. Although I cannot vouch for their authenticity, Greek and Hebrew are included.

A very useful well presented utility. I can certainly find a use for it, and I look forward to seeing anything from this stable.

B.B.	
instructions	100%
ease of use	100%
display	100%
value for money	100%



## Blackjack £6

Chipmunk, 52A The Vale, London NW11

Is there anything the Spectrum cannot do? Now, according to this program, it can be used to win money in the casinos.

The computer plays a fair game, and good fun it is too. But the most interesting part are the

playing tips in the superb manual, written by an expert who explains the British and American casino rules, pointing out the strengths and weaknesses of each.

Above all, it outlines seven strategies. Six fail to beat the house, but one — the card count strategy — amazingly shows an overall profit of just over one hundredth. Finding this claim difficult to swallow I used the strategy against the computer

and, sure enough, I came out with a tiny overall win.

However, I haven't yet put the program to the test in a casino — I'll wait for somebody else to do that. There is a clause at the end of the manual warning that use of the technique in casinos is at your own risk.

Nevertheless, I unreservedly recommend this marvellous program, which anybody can use. In fact I recommend all casino

addicts buy a Spectrum just for this program — the computer should soon pay for itself.

T.B.	
instructions	90%
playability	90%
graphics	n/a
value for money	100%



## VIC-20 PROGRAM

# Don't leave them standing

You must kill or be killed! Unless every building in the city is destroyed you will die, and so will your country.

In one of the buildings below you are a spy with information which will cripple your country's defenses and leave you vulnerable to attack.

### How it works

100-210 instructions  
300-390 define graphic characters  
400-440 data for graphic characters  
500-540 initialise variables  
600-640 wait until ready to continue  
700-920 set up screen  
1000-1070 move plane, check for hit building  
1080-1155 move bomb, check for hit building  
1160-1199 has plane landed? pause  
back to start of movement routine  
2000-2040 drop bomb  
3000-3100 plane landed  
4000-4300 destroy plane. Another go?

To complicate matters, you have only once chance. You are running low on fuel due to damage from anti-aircraft fire, and losing power and altitude very quickly.

If even one building is left standing you will crash.

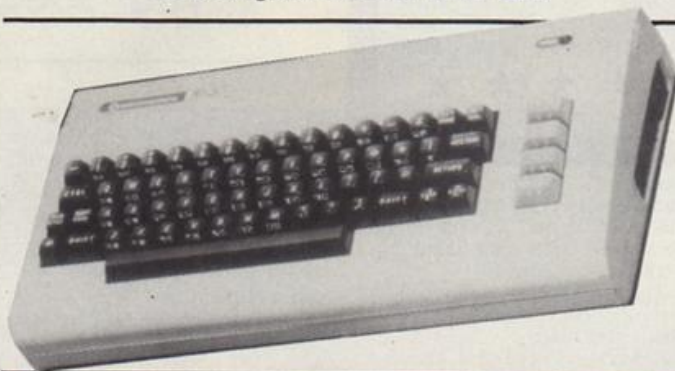
### Hints on conversion

If you want to convert this program for another computer (other than a Commodore 64 or PET), it will need almost totally rewriting as it uses various VIC control characters for the movement of the cursor around the screen, as well as numerous POKES.

For conversion to a CBM or PET the following POKES will have to be changed according to the machine used: 36878 (volume), 36874, 36875, 36876 (sound channels), 36877 (white noise), 7680-8185 (screen locations), 38400-38905 (screen colour locations), 36869 (the 6561 control register which controls the start of the character matrix).

```
310 LET A=7168
320 LET B=7175
330 FOR C=1 TO 5
340 FOR D=A TO B
350 READ E
360 POKE D,E
370 NEXT D
380 LET A=A+8:LET B=B+8
390 NEXT C
400 DATA 0,0,0,0,0,0,0
410 DATA 255,153,153,255,255,153,153,255
420 DATA 16,24,156,255,255,156,24,16
430 DATA 0,0,0,0,0,40,16,16
440 DATA 146,84,0,198,0,84,146,0
500 REM ** SET VARIABLES **
510 DIM H(30)
520 LET F=0
530 INPUT " DIFFICULTY (1-10) ";D
540 IF D<1 OR D>10 THEN GOTO 530
```

This version of the popular Bomber game, written by Ian Goldsack, will fit into the unexpanded VIC-20



```
10 REM *****
20 REM *
30 REM * BOMBER *
40 REM *
50 REM * BY *
60 REM *
70 REM * I.GOLDSACK *
80 REM *
90 REM *****
100 REM
110 REM ** INSTRUCTIONS **
120 PRINT "BOMBER"
130 PRINT:PRINT "YOU MUST LEVEL THE"
140 PRINT:PRINT "CITY WITH YOUR BOMBS"
150 PRINT:PRINT "IN ORDER TO LAND"
160 PRINT:PRINT "SAFELY."
170 PRINT:PRINT "10 POINTS WILL BE"
180 PRINT:PRINT "AWARDED FOR EACH HIT."
190 PRINT:PRINT:PRINT "BOMBS ARE RELEASED BY"
200 PRINT:PRINT "PRESSING THE SPACE"
210 PRINT:PRINT "BAR."
300 REM ** DEFINE CHARACTERS **
```

### Main variables

A,B,C,D,E dummy during initialisation  
AS keyboard input dummy  
I,ZZ,T dummy for FOR...NEXT loops etc  
B bomb position  
P plane position  
F is bomb dropping?  
XX has bomb hit building?  
H(x) building position

In this game for the unexpanded VIC there are 10 levels of difficulty, from one (easy) to 10 (hard). This controls the number of buildings and the speed of the game.

Bombs are released by pressing the space bar.

### Control characters

120 clear home, reverse text, blue text  
130 red text  
610 red text, reverse text, reverse text off  
3006 clear home  
3020 SHIFT: Y,L,S,S,P  
3050 SHIFT: W,Y,L  
3060 SHIFT: A,G  
4120 clear home  
4140 SHIFT: Y,H,F,A  
4150 SHIFT: D,Y  
4160 SHIFT: C,L,C  
4170 cursor up, SHIFT: O,S  
4200 clear home, cursor down, SHIFT: W,Y,L  
4210 SHIFT: A,G  
4270 clear home

Continuous depression of the space bar can lead to corruption of the graphics. If this happens there is no need to switch off the computer. Just leave the program running until the plane crashes. Press Y for another go and the graphics will be restored.

The maximum possible score is 640 points, but a score of 500 or over is very uncommon as the chance of the screen containing this number of buildings is extremely low.

```
590 POKE 56,29:POKE 52,29
600 REM ** CONTINUE **
610 PRINT "PRESS SPACE"
620 GET AS
630 IF AS=" " THEN GOTO 700
640 GOTO 620
700 REM ** SET UP SCREEN **
701 POKE 36878,15
710 PRINT " "
720 POKE 36869,255
730 POKE 36879,29
740 FOR F=1 TO 10*DI
745 LET X=INT(RND(1)*22)
750 POKE 8164+X,1
760 POKE 38884+X,0
770 NEXT F
780 FOR G=1 TO 3*DI
790 LET H(G)=INT(RND(1)*22)
800 NEXT G
810 FOR I=1 TO 20
815 IF PEEK(8164+H(I))<>1 THEN 840
```

## VIC-20 PROGRAM

```

820 POKE 8142+H(I),1
830 POKE 38862+H(I),0
840 NEXT I
850 FOR I=1 TO 20
855 IF I=20 THEN GOTO 915
860 LET K=INT(RND(1)*22)
870 IF PEEK(8142+K)<>1 THEN NEXT I
880 POKE 8120+K,1
890 POKE 38840+K,0
910 NEXT I
915 LET ZZ=INT(RND(1)*5000)+1
920 FOR T=1 TO ZZ:NEXT T
1000 REM ** PLAY **
1010 POKE 7680+P-1,0
1020 POKE 7680+P,2
1030 POKE 38400+P,6
1040 P=P+1
1045 IF PEEK(7680+P)=1 THEN GOTO 4000
1050 GET A$
1060 IF A$=" " THEN GOSUB 2000
1070 IF F=0 THEN FORT=1T050:NEXT:GOTO 1160
1080 POKE 7680+B,0
1090 LET B=B+22
1100 IF PEEK(7680+B)=1 THEN XX=1
1110 IF XX=0 THEN POKE 7680+B,3
1120 IF XX=1 THEN POKE 7680+B,4
1125 IF XX=1 THEN POKE 36877,200:POKE 36877,0
1130 POKE 38400+B,2
1135 IF B>506 THEN F=0
1140 IF XX=1 THEN F=0
1150 IF XX=1 THEN POKE 7680+B,0
1155 IF XX=1 THEN SC=SC+10
1160 LET XX=0
1170 IF P=505 THEN GOTO 3000
1990 FOR I=1 TO 150-D*15:NEXT
1999 GOTO 1000
2000 REM ** RELEASE BOMB **
2010 IF F=1 THEN RETURN
2020 LET B=P+21
2030 LET F=1
2040 RETURN
3000 REM ** LANDED **
3005 FOR T=1 TO 5000:NEXT
3006 PRINT "J"
3010 POKE 36869,242
3020 PRINT " YOU LANDED SAFELY CORING ";SC" DINTS"
3030 FOR I=1 TO 5000:NEXT
3040 PRINT:PRINT
3050 PRINT "WOULD YOU LIKE"
3060 PRINT "ANOTHER IO ?"
3070 GET A$
3080 IF A$="Y" THEN RUN 300
3090 IF A$="N" THEN 4270
3100 GOTO 3070
4000 REM ** HIT BUILDING **
4010 POKE 7680+P-1,0

```

```

4110 POKE 36878,0
4120 PRINT "J"
4130 POKE 36869,242
4140 PRINT:PRINT " YOU HAVE LAILED AND"
4150 PRINT:PRINT "DESTROYED YOUR"
4160 PRINT:PRINT "COUNTRIES LAST CHANCE"
4170 PRINT:PRINT "IF SURVIVAL !!"
4180 PRINT:PRINT
4190 FOR J=1 TO 5000:NEXT J
4200 PRINT "WOULD YOU LIKE"
4210 PRINT:PRINT "ANOTHER IO ?"
4230 GET A$
4240 IF A$="Y" THEN RUN 300
4250 IF A$="N" THEN GOTO 4270
4260 GOTO 4230
4270 PRINT "J"
4280 POKE 36869,240
4290 POKE 36879,27
4300 END

```



## SOFTWARE FOR SPECTRUM AND ZX81

### OUR POLICY

We aim to create programs which you will keep on using until your computer wears out. You won't find our programs in the top ten and you will look in vain for colour adverts and fancy packaging. Nevertheless we have built up a solid following of discerning users in all parts of the world. Read the reviews of our programs if you can find them. We have been consistently praised for quality, originality and value for money.

### WHAT DO YOU GET?

The bulk of our cassettes are now made by the factory which produced the Horizons tape. Programs are recorded twice and carry on the reverse side an audio narrative to supplement the operating instructions. Where appropriate, cassettes are accompanied by a comprehensive and clearly written instruction manual.

### 48K SPECTRUM

#### "Day of the Match" £5.00

Fascinating and realistic simulation of an entire football season. Name your own teams if you wish (English league provided on cassette). Rate each team from one to nine in various success categories such as attack, defence, manager, etc. Watch the season unfold. Includes knock-out cup option.

#### "Ball by Ball" £5.00

Simulates a test match series or one day international series. Set up your own teams and pool of players (England v Australia provided). Rate each player's capabilities as batsman and bowler on a one to nine scale for qualities such as talent, effort, etc. Pick your teams and play the match. Electronic scoreboard shows progress of a match. Full supporting score card and series averages.

#### "Superplan Generator" £12.00

Spreadsheet type program with variable column width and variable number of columns. Lets you sacrifice columns you don't need to get more lines.

#### "Superplan Pack 1". Business Applications £7.00

Ready-made applications programs for sales day book, purchase day book, cash book and petty cash book.

#### "Superplan Pack 2". Home Computing £7.00

Ready-made applications programs for home budgeting, nutrition tables, car running costs and bank statements.

#### "Superview" £5.00

Simple but effective information display. Up to 42 pages of text and low-res graphics. Access pages on demand or run in perpetual 'slide-show' mode. Full facilities to create your own pages and build up an information library on cassette.

### 16K SPECTRUM

#### "Superdraw" £5.00

Create full colour high-res pictures and store them on cassette for use as titles or background screens in other programs. Or just have fun doodling and build up a cassette library of your creations. Slide show option allows you to review pictures stored on cassette.

### 16K ZX81

Here is a selection of titles still available for ZX81. Send s.a.e. for illustrated catalogue. These are the ZX81 equivalents of the Spectrum programs described above. Although similar in concept the specifications fall short of the descriptions given for the Spectrum.

#### "FOOTBALL-LEAGUE" Forerunner of "Day of the Match" £4.00

#### "TEST-MATCH" Forerunner of "Ball by Ball" £4.00

#### "VIDEO-PLAN" Forerunner of "Superplan" £7.00

#### "VIDEO-AD" Forerunner of "Superview" £7.00

#### "VIDEO-SKETCH" Forerunner of "Superdraw" £7.00

Many independent computer shops now stock our products but we continue to supply by mail order on an off-the-shelf, immediate delivery basis. Prices include VAT, post and packing in U.K. Add a bit for postage if you live in Outer Mongolia. (Note: "Day of the Match" not available until late October 1983).

## VIDEO SOFTWARE LTD.,

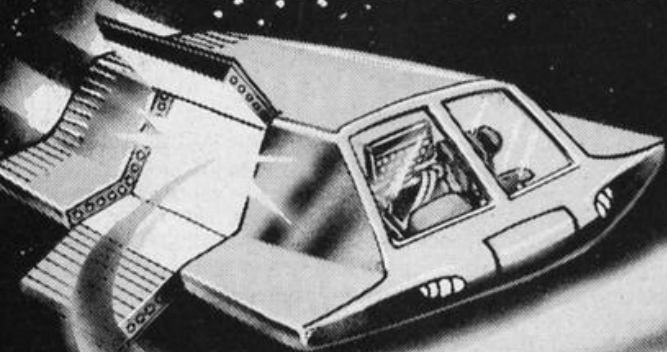
Stone Lane, Kinver, Stourbridge, West Midlands.

Telephone: 0384 872462

# R&R

## SOFTWARE

# means value



At R&R we believe that value comes first, and we make it our business to ensure that we provide good quality programs at realistic prices ... for your enjoyment.

ALL ARCADE GAMES NORMALLY HAVE CHOICE OF KEYBOARD OR JOYSTICK CONTROL. Should you have difficulty in obtaining our products from your local Dealer please send cheque or Postal Order indicating titles required, for return of post service.

### CHOPPER X-1

(For any ZX Spectrum)

You command the Spectrum Chopper X-1 Gunship—Your mission is to repel invading forces and save the earth. An action packed original game in full machine code.

R.R.P. £5.50

### GALAXY WARLORDS

(For any ZX Spectrum)

A fast action machine code space game in which you defend your position as Galaxy Warlord against attacking enemy starships. Both your patrol ship and rockets are steerable. The enemy never seem to give up! Full colour action graphics and sound for just

R.R.P. £5.50

### JUNIOR ARITHMETIC

(For any ZX Spectrum)

An excellent educational program for 6-9 year olds. The fun way to learn and practice Addition, Subtraction, Multiplication and Division. Mistakes are corrected and explained, along with a running total of correct answers. Terrific value at just

R.R.P. £4.95

### SPECTIPEDE

(For any ZX Spectrum)

Enjoy the thrill of this full machine code arcade game. Battle to keep the Spectipede at bay but watch out for a very unpredictable spider which is out to get you. For 1 or 2 players with top score and on-screen high score feature.

R.R.P. £5.50

### GOLF

(For any ZX Spectrum)

Enjoy a game of golf in the comfort of your own home! With the choice of a 9 or 18 hole course and the challenge of Fairway, Rough, Trees, Bunkers, Water & Green. Displays are in realistic colour graphics with full score cards. No two games are alike!

R.R.P. £3.75

### GNASHER

(For any ZX Spectrum)

The 'famous' arcade maze game with fast machine code action, excellent graphics, colour and sound. Eat-up all the dots before the Ghosts eat you, or beat them to an energy pill which will allow you to eat them! Hours of addictive fun with on-screen scoring and high-score tape-save capability for just

R.R.P. £4.95

### STAR TREK

(For 48K Spectrum only)

One of the original computer space games, but this program has many up-dated features normally only found on larger computer versions. Test yourself as Starship Commander as your mission takes you to the outer reaches of the Galaxy to protect Federation Space, the Starship and yourself! Excellent value at

R.R.P. £4.95

### OTHER COMPUTERS?

Send S.A.E. for a full list of our growing range of software now available for ZX81 and Oric-1 Computers.

# R&R

## SOFTWARE

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

CALLING ALL PROGRAMMERS...

WANTED New, Quality Software.  
Send us your latest Program  
for evaluation - NOW.

## AVAILABLE FROM LEADING DEALERS NATIONWIDE

# MR CHIP SOFTWARE

## SPECTRUM GAMES

### SPECTRUM DARTS (48K)

Five games of darts for 1-5 players, 501, Cricket, Killer, Round the board, Noughts and Crosses, four levels of play per game, take on the computer or friends at these games of skill and judgement.....£5.50

### WHEELER DEALER

As for the Commodore 64, but now available for the 48K Spectrum, Texas TI99/4A and Dragon.....£5.50

## VIC-20 GAMES AND UTILITIES

### JACKPOT

This is it, the ultimate Fruit Machine for the VIC with nudge, hold and respin 100% machine code. "Overall Jackpot is a beautifully written simulation giving superb graphics, animation and use of colour. In fact, this program makes Commodore's Fruit Machine cartridge look unbelievably cheap and nasty." Home Computing Weekly No. 20 19/7/83.....£5.50

### KWAZY KWAKS

Accuracy and speed are required for this Shooting Gallery, superb use of colour and graphics in this new and challenging game from the author of Jackpot. 100% machine code, joystick or keyboard control.....£5.50

### PACMANIA

Choose your own game from the following options — difficulty 1-3 speed 1-3, size of maze 1-3, visible or invisible maze, still or moving power pills, define your own key controls, any combination, if this is your type of game, then this is the one for you, for the 3K expand VIC.....£5.50

### BUGSY (Joystick Only)

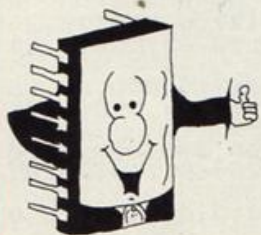
This is a Minefield with a difference as you step on the stones whilst collecting purple boxes which give your both time and points, they disappear from beneath your feet. DO NOT DESPAIR! "BUGSY" will randomly replace the stones but avoid bumping into him or its sudden death! An original compulsive and challenging game.....£5.50

### MINI-ROULETTE — PONTOON — HI-LOW

Three great games of chance for the VIC, try to beat the computer, hours of fun, full colour, sound effects and tunes.....£5.50

**DATABASE** — create your own files and records on tape.....£7.50

**SUPER BANK MANAGER** — A full feature version any memory size, but needs 3K expansion.....£7.50



## COMMODORE 64 GAMES AND UTILITIES

### JACKPOT 64

At last its here, specially written for the 64, by the author of "JACKPOT" the ultimate Fruit Machine program for the VIC.....£5.50  
(available from 1st Nov)

### WESTMINSTER

A game for up to four players, can you lead the party of your choice and win the general election, you tour the 60 constituencies (seats) buying votes, when you can, (just like the real thing), this must be one of the first board type games specially written for the computer. Why play on your own, have fun with your family and friends playing WESTMINSTER.....£5.50

### RED ALERT

A game for 1-4 players, with sound and graphics. Make money in casinos, commit robbery, hide from the police, hire secret agents, (some of whom can be treacherous), negotiate for weapons, find and attack the secret rocket base to launch the missile, and watch the havoc and destruction caused. There's no turning back from "RED ALERT".....£5.50

### WHEELER DEALER

A game for two to twenty players, become a tycoon of the motor trade, you must obtain gearboxes, tyres and engines to produce cars for sale. Form syndicates, buy and exchange parts, buy dealerships, but be careful, you may become bankrupt and have to liquidate, find out what you are made of, have you got what it takes to become a WHEELER DEALER.....£5.50

### LUNAR RESCUE

Our new version, avoid the asteroid belt, to rescue the stranded scientists, then fight your way back to the mother ship, fast reactions are required to safely land and dock your lunar module.....£5.50

### PURCHASE LEDGER

Easy to use, single entry, handles 400 invoices per month, Gross/Nett purchases, V.A.T.....£14.50  
Disk Version.....£17.00  
(available from 1st Nov)

**SALES LEDGER** — As Above.....£14.50  
Disk Version.....£17.00

**CHIPMON** — Contains a one- or two- pass Assembler, Disassembler and Monitor. A programming aid for the development of machine code programs and routines on the CBM 64.....£12.50

**BANK MANAGER** — As our Super Bank Manager, but for the 64.....£7.50  
Now available on disc with added facilities.....£10.00  
Full documentation with all utility programs.

Other software available for the VIC and Commodore 64, send for free brochure, including RABBIT SOFTWARE at £5.50 each. Send Cheques/PO's to:

## MR CHIP SOFTWARE

Dept HCW, 1 NEVILLE PLACE, LLANDUDNO, GWYNEDD LL30 3BL.

Tel: (0492) 79026

Wanted: High quality software, of all types, for export and UK distribution.

All programs now available on disc please allow £2.50 extra.

DEALER ENQUIRIES WELCOME



## ATARI PROGRAM

The last person to insult an Orion asteroid minder left the space station rather unexpectedly — without a spacesuit.

The miners are worse than ever these days, since the treaty with the Kral was broken. The horse-shoe-shaped aliens now attempt to attack the miners as they use magno-grabs to catch the hurtling chunks of Herculeum ore-bearing asteroids.

### How it works

155-290 character set redefinition  
300-510 main game. Note the REMS indicating where inverse characters are used  
520-610 front page  
620-890 there are four end of game routines: 1 successful sheet, 2 too many misses, 3 hit object, 4 alien invades

The latest turn of events is that the asteroid belt has been seeded with impact mines — and the miners know precisely who to blame. In retaliation and self defence they have taken to crushing the aliens with their magno-grabs.

You are a rookie miner, having only a few credits to your name. Older miners are billionaires, but as the miners' motto says...

# Grab what you can — it's the only way to survive

**They're an evil lot on Orion — both the attackers and the attacked. The older asteroid miners say you haven't a chance. Will you prove them wrong? Type in Marc Freebury's game for the Atari 800 and risk it**

### Variables

CHK checksum which must equal 5195, or you have problems  
DIFF, DELAY, EFLAG main arguments passed to and from machine code  
LIVES, SCORE, BONUS obvious  
SCRN indicates top left and bottom left screen corners, to save the machine code doing the maths

"You'll never survive".

The game is written as 90 per cent machine code, and is difficult even at the lower levels.

Use your joystick to move your mining ship. Press the button to grab an asteroid or crush an alien, but **only** when it is directly between the jaws. Closing too early too often will result in game termination, as will crushing or hitting mines.

If an alien lands you will be eliminated utterly. Other forms of termination will lead to the loss of one of your three lives.

Each time 10 asteroids have been gathered, your score will be shown and a new level entered.

The game was designed on a disc-based system, and thus may be saved to disc or cassette. 32K is required to run it.

```
100 REM *****
110 REM *
120 REM * ORION MINER! *
130 REM * BY M.FREEBURY *
140 REM *
150 REM *****
155 REM CHARACTER SET DATA
160 DATA 7,24,60,90,153,255,231,195,195,
195,32,0,56,96,64,64,96,56,15
170 DATA 40,0,28,6,2,2,6,28,240,48,56,4
1,255,129,174,254,90,36
180 DATA 64,15,28,60,120,112,56,28,15,7
2,240,56,28,14,14,28,56,240
190 DATA 776,129,66,60,36,36,60,66,129
200 A=(PEEK(106)-8)*256:5CRN=PEEK(88)+P
EEK(89)*256
205 REM MACHINE CODE CONSTANTS
210 EFLAG=16838:DIFF=EFLAG+2:CATCH=DIFF
+1:ALIENS=CATCH+1:MISSES=ALIENS+1:DELAY
=MISSES+1
220 RESTORE 230:FOR I=0 TO 31:READ N:PO
KE 1536+I,N:NEXT I
225 REM CHARACTER SET RELOCATER
230 DATA 104,104,133,204,104,133,203,10
4,133,206,104,133,205,162,4,160,0
240 DATA 177,203,143,203,136,208,249,23
0,204,230,206,202,208,240,96
250 X=USR(1536,57344,A)
260 RESTORE 160:READ NUMBER
270 FOR I=1 TO NUMBER:READ ADDR:FOR J=0
TO 7
280 READ Z:POKE A+ADDR+J,Z:NEXT J:NEXT
I
290 GRAPHICS 18:SETCOLOR 4,0,15:7 #6;"
* LOADING M/C *"
295 REM MAIN GAME MACHINE CODE
300 DATA 104,32,33,64,32,62,64,32,239,6
4,174,204,65,172,200,65,136,208,253,202
,208
310 DATA 247,32,239,64,173,198,65,201,0
,240,228,96,169,0,141,199,65,141,198,65
,141,198,2,141,201,65,141
320 DATA 202,65,141,203,65,169,125,141,
251,2,32,170,246,96,165,88,133,0,165,89
,133,1,160,1
330 DATA 173,10,210,203,200,65,144,27,1
73,10,210,41,15,201,8,176,5,169,97,76,1
05,64,201,15
```

```
340 DATA 176,5,169,6,76,105,64,169,3,14
5,0,200,192,99,208,216,173,0,6,133,0,17
3,1,6
350 DATA 133,1,160,0,177,0,201,97,240,1
1,201,6,240,7,201,3,240,3,76,181,64,72,
169,0
360 DATA 145,0,160,40,177,0,201,128,240
,19,201,4,240,15,201,5,240,11,201,8,240
,7,201,9
370 DATA 240,3,76,178,64,169,3,141,198,
65,104,145,0,198,0,165,0,201,255,208,2,
198,1,165
380 DATA 1,197,89,208,181,165,0,197,88,
208,175,173,2,6,133,0,173,3,6,133,1,160
,40,177
390 DATA 0,201,3,208,8,169,4,141,198,65
,76,233,64,169,0,145,0,200,192,80,208,2
33,96,173
400 DATA 132,2,201,0,240,96,169,0,172,1
99,65,145,0,200,200,145,0,152,24,105,38
,168,169,0
410 DATA 145,0,200,145,0,200,145,0,173
,120,2,201,11,208,13,173,199,65,201,0,24
0,23,206,199
420 DATA 65,76,53,65,201,7,208,13,173,1
99,65,201,35,240,6,238,199,63,76,53,65,
172,199,65
430 DATA 169,4,145,0,200,200,169,5,145,
0,152,24,105,38,168,169,72,145,0,200,16
9,128,145,0
440 DATA 200,169,74,145,0,96,172,199,65
,173,2,6,133,0,173,3,6,133,1,169,8,145,
0,200
450 DATA 200,169,9,145,0,152,24,105,38,
168,169,72,145,0,200,169,128,145,0,169,
74,200,145,0
460 DATA 172,199,65,200,177,0,201,97,20
8,8,169,3,141,198,65,76,193,65,201,6,20
8,18,238,201
470 DATA 65,173,201,65,201,10,208,33,16
9,1,141,198,65,76,193,65,201,3,208,6,23
8,202,65,76
480 DATA 193,65,238,203,65,173,203,65,2
01,100,208,5,169,2,141,198,65,169,0,145
,0,96,0,0
490 DATA 240,0,0,0,48,0,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
```

## ATARI PROGRAM

```

500 RESTORE 300:CHK=0:FOR I=0 TO 479:RE
AD B:POKE 16384+I,B:CHK=CHK+B:NEXT I
510 IF CHK<>51952 THEN GRAPHICS 0:?"M/
C ERROR":STOP
515 REM MACHINE CODE VARIABLES
520 SCRN=SCRN+960:POKE DIFF,254:POKE DE
LAY,200
530 POKE 1536,SCRN-(INT(SCRN/256)*256):
POKE 1537,INT(SCRN/256)
540 SCRN=SCRN-80:POKE 1538,SCRN-(INT(5C
RN/256)*256):POKE 1539,INT(SCRN/256)
545 REM FRONT PAGE
550 GRAPHICS 18:SETCOLOR 2,0,0:SETCOLOR
4,10,4:POKE 756,A/256
560 POSITION 7,2:?"#6;\"ORION\":POSITION
7,4:?"#6;\"MINER\":POSITION 9,6:?"#6;\"#":
POSITION 9,7:?"#6;\"&\":START=0
565 REM PREVIOUS LINE, '&' IS INVERSE
570 POSITION 4,9:?"#6;\"PRESS START"
580 SOUND INT(RND(1)*4),RND(1)*255,RND(
1)*15,8:FOR I=0 TO RND(1)*50:POKE 710,R
ND(1)*255
590 IF PEEK(53279)=6 THEN I=51:START=1
600 NEXT I:IF NOT START THEN 580
610 FOR I=0 TO 3:SOUND I,0,0,0:NEXT I
615 REM MAIN GAME LOOP
620 LIVES=3:SCORE=0:FUEL=0:SHEETS=1:POK
E DIFF,254:POKE DELAY,200

```

```

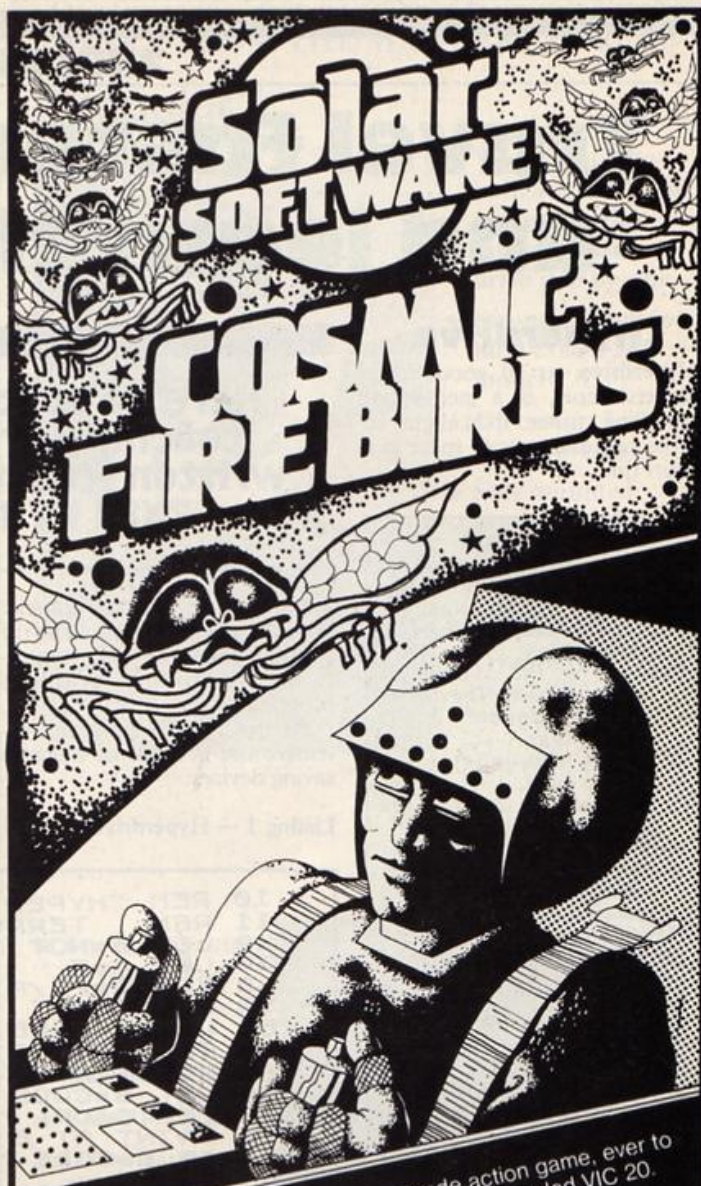
A/256
640 POKE 752,1:POSITION 13,10:?"PLAY P
LAYER 1":POSITION 14,12:?"LIVES ":LIVE
5:POSITION 16,14:?"SHEET ":SHEETS
645 REM 'PLAY PLAYER 1' ALL INVERSE
650 FOR I=149 TO 0 STEP -1:POKE 755,(PE
EK(755)=0)*2:SOUND INT(RND(1)*3),I,10,8
:NEXT I
660 FOR I=1 TO 200:NEXT I:FOR I=0 TO 3:
SOUND I,0,0,0:NEXT I
670 X=USR(16384)
680 ON PEEK(EFLAG) GOTO 690,740,750,820
690 ? CHR$(125):POSITION 14,10:?" BONU
5 x 100":BONUS=SHEETS*10+PEEK(ALIENS)*1
00
700 POSITION 18,12:?"BONUS:SCORE=SCORE+
BONUS+100:POSITION 17,14:?"SCORE":POSI
TION 18,16:?"SCORE
705 REM 'SCORE' INVERSE
710 POKE DIFF,PEEK(DIFF)-2:POKE DELAY,P
EEK(DELAY)-5:SHEETS=SHEETS+1
720 FOR I=1 TO 800:NEXT I
730 GOTO 630
740 SCORE=SCORE-100:IF SCORE<0 THEN SCO
RE=0:GOTO 750
750 SETCOLOR 1,0,15
760 FOR I=0 TO 150 STEP 4:POKE 709,15-I
NT(I/10)

```

```

770 FOR J=0 TO 3:SOUND J,I,0,8:NEXT J:N
EXT I
780 FOR I=1 TO 100:NEXT I:FOR I=0 TO 3:
SOUND I,0,0,0:NEXT I
790 ? CHR$(125):POKE 709,10
800 LIVES=LIVES-1:IF LIVES=0 THEN 860
810 GOTO 630
815 REM GAME HAS 4 ENDINGS...ALL HERE
820 GRAPHICS 18:SETCOLOR 2,0,0:SETCOLOR
1,5,8:POKE 756,A/256
830 POSITION 10,10:?"#6;\"&\":FOR I=0 TO
9:POSITION 10,I:?"#6;\" ":POSITION 10,I+
1:?"#6;\"#";
840 FOR J=1 TO 30:NEXT J:NEXT I:POSITIO
N 0,0:?"#6;\"***** BEATEN!! *****"
850 FOR I=1 TO 700:NEXT I:GOTO 860
860 GRAPHICS 18:SETCOLOR 2,0,0:?"#6;\"
FINAL SCORE:"
870 POSITION INT((20-LEN(STR$(SCORE)))/
2),5:?"#6;SCORE
880 FOR I=1 TO 1000:NEXT I
890 GOTO 550

```



This must be the most spectacular arcade action game, ever to be produced on cassette for the 8 or 16k expanded VIC 20.

As captain of a star ship lost in space, you encounter a miraculous force of winged creatures, known to the galaxy as the COSMIC FIRE BIRDS. They loop the loop. They figure of eight. They swoop. They dive. can YOU survive. Full screen display, 99 progressive levels of play, 5 lives, Bonus ship at 5,000 points, swarms, bombers, leaders, hawks.

This is arcade action like it's never been seen before. 100% M/C. Superb colour graphics and sound.

**£7.95**

P&P Inc.

Available mail order from  
51 Meadowcroft, Radcliffe,  
Manchester. M26 0JP  
Tel: 061 724 8622

Also available from all good computer outlets.

Scrambler	M/C	£5.00	Munch Man	M/C	£5.00
Galaxions	M/C	£5.00	Gun Fight	M/C	£5.00
Super Breakout	M/C	£5.00	Asteroids	M/C	£5.00
Cavern Raider	M/C	£6.00	Galaxions M/C	£7.95 for Comm-64	

ALL ORDERS SENT BY RETURN POST. TRADE  
ENQUIRES TO PCS DARWIN, CENTRESOFT  
WEST MIDLANDS, LEISURESOF NORTHAMPTON

# Travel faster than light — and learn the keyboard

## Hyperdrive

Hyperdrive, as all good Space Cadets know, is a method of travelling faster than light to cross vast distances of space in a short time.

### How it works

- 20-30 sets up the 'escapes and misses' counters
- 40 sets up the main loop. The character within quotes is the graphics 5 key
- 50-60 sets up the co-ordinates for the Star Gate. The character within quotes is the graphics O key
- 70 keys within quotes are graphics 7,6,4
- 80 keys within quotes are graphics 6,7,2
- 90-100 set up the co-ordinates for the spacecraft. The character within quotes is the graphics S key
- 110 this is the spacecraft
- 120 this line tests the position of the spacecraft. If it is beyond the entry of the Star Gate it jumps to the misses counter and adds 1 to this
- 130 the spacecraft is blanked out every loop so that a trail of spacecraft is not left behind
- 140 C is the column co-ordinate and this line adds one to C, moving the position to the right
- 150 moves the position of the spacecraft up or down
- 160 this line decides if the spacecraft has successfully entered hyperdrive
- 170 this line decides if the spacecraft has crashed
- 180 if the spacecraft has not reached the Star Gate go back to beginning
- 200-260 increases the 'Escape counter' by one and displays the success message on the screen
- 270 end of main loop (maximum five)
- 400-420 increases the misses counter by one and displays the message 'crashed' in inverse video
- 500-520 displays the score at the end of the game

There are several ways of attaining hyperdrive, and the method used in this Space Academy computer simulation boosts the craft off into hyperspace if the Star Gate is negotiated accurately.

You must steer your craft up or down using keys 1 and 0. The computer will give your score after five attempts. Space Academy graduates must score five out of five.

This program is a simple

## Here's a space game and a teaching program, both written for the unexpanded ZX81 by Terry Dean

application of moving graphics and, for a beginner, could be the starting point for more sophisticated moving graphics programs.

As this is a 1K program, extensive use is made of memory saving devices.

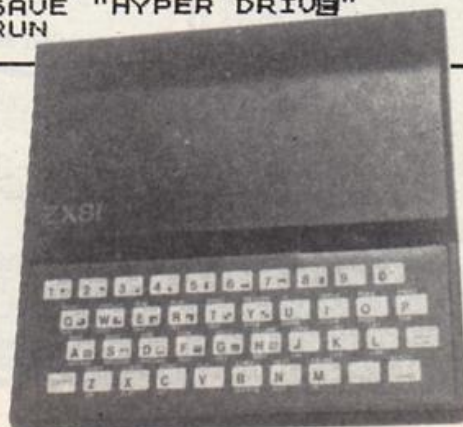
### Main variables

- E escapes counter
- J FOR/NEXT loop
- X column position of Star Gate
- M misses counter
- A line position of Star Gate
- B,C position of spacecraft

### Listing 1 — Hyperdrive

```

10 REM "HYPER DRIVE"
11 REM TERRY DEAN 1983
20 LET E=NOT PI
30 LET M=E
40 FOR J=PI/PI TO CODE "I"
50 LET A=INT (RND*CODE "I")
60 LET X=CODE "<"
70 PRINT AT A,X;" "
80 PRINT AT A+2,X;" "
90 LET B=CODE " "
100 LET C=VAL "2"
110 PRINT AT B,C;"<O>"
120 IF B=CODE "<" OR C=X THEN GOTO 410
130 PRINT AT B,C;" "
140 LET C=C+PI/PI
150 LET B=B+(INKEY$="1")-(INKEY$="0")
160 IF C=X AND B=A+PI/PI THEN GOTO 200
170 IF C=X AND B=A OR C=X AND B=A+VAL "2" THEN GOTO 400
180 GOTO 110
200 LET E=E+PI/PI
220 PRINT "ESCAPED VIA"
230 PRINT "HYPER DRIVE"
240 PRINT AT B,C;" "
250 PAUSE 100
260 CLS
270 NEXT J
280 GOTO 500
400 PRINT "CRASHED"
410 LET M=M+1
420 GOTO 250
500 CLS
510 PRINT E;" ESCAPES"
520 PRINT M;" MISSES"
1000 SAVE "HYPER DRIVE"
1010 RUN
    
```



### Hints on conversion

As there are no PEEKS and POKES, the program could be easily adapted for the Spectrum.

Spectrum users could sharpen up the graphics and make good use of colour. With a larger memory the program could be made more user-friendly, with on-screen instructions and on-screen scoring.

For other computers, the INKEY\$ functions would have to be substituted for the appropriate command.

Also, the PRINT AT command would have to be substituted for the appropriate commands to position the display.

## ABC

This program for the ZX81 in 1K is intended for young children who perhaps have not yet used a computer.

It simply displays two letters of the alphabet in sequence and invites the user to key in the next letter. An on-screen score is kept.

### How it works

- 20-30 sets the hit and miss counters to 0
- 40 dimensions AS
- 50 defines AS
- 60-90 set up the screen display
- 100-130 decides which letters to display
- 140-170 prompt the input and prints it on the screen
- 180 decides if the input is correct
- 190-200 prints "right" and adds one to the hits counter and displays the result
- 230-250 prints "wrong, try again" adds one to the misses counter
- 260 goes back to the start

The program could be used as a keyboard familiarisation routine. Another application might be to help dyslexic children who have difficulty in remembering sequences.

ABC uses the Sinclair BASIC slicing techniques as described in the ZX81 manual. With more memory available the program could be made more user-friendly.

### Main variables

- M misses counter
- H hits counter
- AS the alphabet
- X random number used to select the first letter to be displayed
- BS the part of AS to be displayed
- CS the answer required. This will be compared with the input
- DS the user's answer

## ZX81 PROGRAMS

### Listing 2 — ABC

```

10 REM "ABC"
20 LET M=0
30 LET H=M
40 DIM A$(26)
50 LET A$="ABCDEFGHIJKLMNOPQRSTUVWXYZ"
60 PRINT AT 5,17;"HITS  MISSES"
70 PRINT AT 7,19;H;" " " " ;M
80 PRINT AT 5,5;" " " "
90 PRINT AT 7,1;" "
100 RAND 0
105 LET X=INT (RND*24)
110 LET B$=A$(X TO X+1)
120 LET C$=A$(X+2)
130 PRINT AT 5,5;B$;" (?) "
135 PRINT AT 7,1;" "
140 INPUT D$
150 PRINT AT 5,6;D$
160 IF D$<>C$ THEN GOTO 210
170 PRINT AT 7,1;" ++RIGHT++"
180 LET H=H+1
190 PRINT AT 7,19;H
200 GOTO 80
210 PRINT AT 7,1;"WRONG..TRY AG
AIN"
220 LET M=M+1
230 PRINT AT 7,25;M
240 GOTO 140

```

### Micro Tip

### Atari

#### Sounding out your Atari

While waiting for a program to load from the Atari's tape unit, you'll probably find the rest of the household starts to complain about the primeval burps and whistles issuing from your TV set.

If you don't want to keep fiddling about with the TV volume control, a little-known system variable called the Noisy I/O Flag is the answer.

A simple poke, and your Atari has been subdued to a noise level as low as the Spectrum's (sorry, Sir Clive!)

POKE 65,0 to silence, and POKE 65,3 to restore.

On the subject of sound, I'll bet that at least one Atari owner among you has accidentally put his or her favourite music into the tape unit, with startling results. If you haven't, give it a try and see.

After about 20 seconds of music, your Atari joins in with its own chorus and then promptly shuts down. If you could stop it doing this, you could listen to your favourite music while typing in a program from HCW.

Again a little known system variable comes to the rescue. This one is called PACTL or Port A Control Register, and poking this will allow you to use the facilities of your Atari cassette unit.

POKE 54018,52 turns it on. POKE 54018,60 turns it off.

All you have to do is insert the tape, press PLAY and away you go! Now comes the really interesting bit. If you combine your new knowledge with the fact that your Atari operates a stereo tape system, you will have guessed that you can have music while you load!

The left hand channel on the tape system is used for general audio, while the right is used for your program.

The tricky part is to get the right noises on the right channel, and because of the variety of hi-fis on the market, I won't try to go into all the methods that can be used. Your local electrical shop will be able to advise you on the right leads to use.

Once you have mixed the sounds on to your tape unit, you must use the POKE above to turn off the loading noises.

Finally, when you are taping your music, don't stop the tape in the middle of a program, or you may corrupt one of the blocks.

Mark Bullen

## DIRECT FROM THE MANUFACTURERS

### "Popular"



- ★ Wide enough to hold any model of computer with tape and disc drive side by side
  - ★ Strong enough to hold even a 26" model T.V.
  - ★ On castors for easy movement
  - ★ Side mounted attachment for manual or magazine
  - ★ Cassette rack
  - ★ Overall size 36H x 28D x 27 1/2 W
- £49.95

### "Companion"



- ★ For use in front of your T.V. or across lap
  - ★ Inclined veneered top
  - ★ Cassette rack
  - ★ Overall size 10H x 12D x 27 1/2 W
- £18.95

Strong metal frames in matt black or cream.

Choice of veneers — Black or Oak

Price includes VAT and P&P.

Supplied flat packed.

Send cheque/PO made payable to "Teleplus Ltd." stating name, address and choice of model, frame and veneer to:

**TELEPLUS LTD.**

P.O. Box No. 407

Malden, Essex CM9 8UR

TRADE ENQUIRIES WELCOME

Telephone enquiries/orders —

Swaffham (0760) 24394

ACCESS AND BARCLAYCARD WELCOME

Please allow 28 days for delivery.

**SEE US AT THE ZX MICROFAIR,  
ALEXANDRA PALACE**

Stand N1 — February 4th 1984

# CHRISTINE COMPUTING Ltd

6 Florence Close, Watford, Herts.  
(0923) 672941

## TI-99/4A HARDWARE

32K Stand alone ram	£125
Arcade quality joystick	£22
Cassette interface leads - single	£5.40
- dual	£6.90
Compatible cassette recorder	£25.95
Rec + single lead	£30.95
Rec + dual lead	£31.95
Atari/Commodore to TI joystick interfaces	
single	£6
dual	£8.50

## SOFTWARE

We are able to offer our own range as well as selected items from Stainless Software, Tomputer, Fantasia 99 and many more.

For full list send 50p (refund 1st order) or cheque/PO with order to above address.  
Please add 50p p&p to any order under £10.

**THANK YOU.**

## ONE MAN'S VIEW

# Don't burn your TI

After two years experience with calculator programming, my introduction to computing proper came in May 1980 when I bought an NTSC TI-99/4A with a modified colour TV, for which I paid the princely sum of £1,300 (including credit charges), which I could ill afford.

I soon learned that I could not do all the things I'd wanted to, but I found this more a challenge than a disappointment. I've since sold all but my soul in order to expand my system and I've recently added a 99/4A, which is allowing me to indulge myself further in my favourite pass-time of playing detective with regard to the operating system.

I have invested a great deal in the machines, having been involved in TIHOME, the now-defunct user group, answering queries, writing for its sorely-missed newsletter, the first of several books (due out Feb. 16th), software reviews for HCW, reviewing software submissions, writing a series of mini-articles to be published soon, trying to set up a local user group, taking an occasional class in computing, trying to make time to visit owners, criticising the machines' bad points, praising the good ones, and generally boring to death anyone who stands near me long enough.



Despite TI's decision to withdraw totally from the home market (all current and forth-coming hardware, and eventually software), and despite publishers' resultant waning of interest (not that it was ever waxing, in some quarters), there is no way that I am going to 'drop' my machines. The TI-99 is, in spite of its faults, an excellent introduction, albeit only now that the price is so low, and I sincerely hope TI will not discourage third-party hardware suppliers beginning to emerge in the UK, and who could, ironically, make the 99/4A a much-sought-after machine in the future.

There are rumoured to be 200,000 - 500,000 machines still to be sold, and I have written to TI with some suggestions. Whether these are sensible/practical/acceptable remains to be seen, especially as I have since been told the outstanding consoles are almost entirely NTSC, and therefore probably unsuitable for use in Europe.

I am still relatively active, being a (back-seat) member of TIHOME's successor, the Texas Instruments Home Computer Users' Club.



The worst thing that could happen would be for grieving owners to have a small funeral pyre at the bottom of the garden. If you are such an owner, and you have yet to join an independent user group, then I would urge you to take the plunge. The longer you have your machine, the more experience you will gain, the more you're going to want to do and, most importantly, the more you're going to want to talk about it.

Magazines like Home Computing Weekly which support the TI are very rare birds, so support them with your best programs/articles/letters, etc. Keep up any contacts you may make. Whatever you do, be it buy another micro or emigrate, don't throw your TI in the loft.

If you really can't bear to have the machine in the house, donate it to a local school/youth club/any disabled person.

**Peter Brooks,  
Oxford**

Letters to Peter Brooks about the TI Home Computer users' Club will be passed on.

● This space is for you to sound off about the micro scene, to present bouquets, to hurl brickbats. Share your views by sending them to Paul Liptrot, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Please give your occupation and your interest in computing.

# It's easy to complain about advertisements.

**The Advertising Standards Authority.** ✓  
If an advertisement is wrong, we're here to put it right.  
ASA Ltd, Brook House, Torrington Place, London WC1E 7HN

### Top Ten programs for the Dragon

1	Dragrunner	Cablessoft (-)
2	Cave Fighter	Cablessoft (-)
3	Cuthbert in the Jungle	Microdeal (-)
4	UGH	Softek (-)
5	Skramble	Microdeal (-)
6	Ring of Darkness	Wintersoft (7)
7	Frogger	Microdeal (-)
8	Space fighter	Microdeal (-)
9	Pinball	Microdeal (-)
10	Dragon Hawk	Microdeal (-)

### Top Ten programs for the VIC-20

1	Arcadia	Imagine (1)
2	Gridrunner	Llamsoft (3)
3	Wizard and the princess	M.House (5)
4	Crazy Kong	Interceptor (-)
5	Abductor	Llamsoft (-)
6	Golf	Audiogenic (-)
7	Plague/ Alien Demon	K-Tel (10)
8	Junior Maths and engine shed	Commodore (-)
9	Special Pack 11	Commodore (-)
10	Grandmaster Chess	Audiogenic (-)

### Top Ten programs for the Commodore 64

1	Hover Bover	Llamsoft (9)
2	Grandmaster	Audiogenic (-)
3	Matrix	Llamsoft (-)
4	Gridrunner 64	Llamsoft (10)
5	Introduction to Basic	Commodore (6)
6	Attack of the Mutant Camels	Llamsoft (7)
7	Arcadia	Imagine (-)
8	Goodness	Beyond (-)
9	Frogger	Interceptor (1)
10	Motor Mania	Audiogenic (4)

### Top Ten programs for the Spectrum

1	Atic Atac	Ultimate (1)
2	Jetpac	Ultimate (9)
3	Pyramid	Fantasy (3)
4	Kong	Ocean (-)
5	Ant Attack	Quicksilver (5)
6	Penetrator	M.House (6)
7	Alchemist	Imagine (4)
8	Lunar Jetman	Ultimate (2)
9	Pool	CDS (8)
10	Harrier Attack	Durrell (-)

## BEST SELLERS

### Top 30

1	Hunchback	Ocean	Spectrum (5)
2	Manic Miner	Bug-Byte/ Software Projects	Spectrum (1)
3	Harrier Attack	Durrell	Spectrum (15)
4	Lunar Jetman	Ultimate	Spectrum (8)
5	Jetpac	Ultimate	Spectrum (4)
6	The Hobbit	M.House	Spectrum (2)
7	3D Ant Attack	Quicksilver	Spectrum (6)
8	Kong	Ocean	Spectrum (7)
9	Zzoom	Imagine	Spectrum (9)
10	Falcon Patrol	Virgin	CBM 64 (13)
11	Penetrator	M.House	Spectrum (-)
12	The Hobbit	M.House	CBM 64 (10)
13	Atic Atac	Ultimate	Spectrum (19)
14	Valhalla	Legend	Spectrum (3)
15	Horace goes Skiing	Psion/ M.House	CBM 64 (14)
16	Cuthbert in the Jungle	Microdeal	Dragon (18)
17	Chequered Flag	Psion	Spectrum (26)
18	The King	Microdeal	Dragon (17)
19	Digger Dan	Ocean	Spectrum (-)
20	Chuckie Egg	A&F	Spectrum (28)
21	Arcadia	Imagine	VIC-20 (-)
22	Mini-Kong	Anirog	VIC-20 (-)
23	Hunchback	Superior	BBC (12)
24	Hover Bover	Llamsoft	CBM 64 (-)
25	Jetpac	Ultimate	VIC-20 (29)
26	Scrambler	Solar	VIC-20 (-)
27	Mined Out	Quicksilver	BBC (-)
28	Crazy Kong	Interceptor	CBM 64 (-)
29	Twin Kingdom Valley	Bug-Byte	VIC-20 (30)
30	Snooker	Visons	VIC-20 (-)

Compiled by PCS Distribution(0254 691211) and sanctioned by the Computer Trade Association. Chart is for retail sales in individual outlets in the UK and Northern Ireland

### Top Ten programs for the ZX81

1	Flight Simulation	Sinclair (-)
2	Football Manager	Addictive (-)
3	Crazy Kong	PSS (9)
4	Geography	Sinclair (-)
5	Maths	Sinclair (-)
6	History	Sinclair (-)
7	Hopper	PSS (-)
8	ZX Forth	Sinclair (-)
9	English Lit 1	Sinclair (-)
10	ZX Debug	Bug-Byte (-)

# - TOP SAVINGS -

## ★ ★ PRINTERS ★ ★

	PRICE EX VAT
<b>EPSON</b>	
RX 80T	£229.00
RX 80F/T	£256.00
FX 80	£335.00
MX 100F/T III	£375.00
FX 100F/T	£430.00

<b>SEIKOSHA</b>	
GP100A	£175.00
GP250X	£219.00
GP700A Colour	£349.00

<b>OKI MICROLINE</b>	
OKI 80A	£180.00
OKI 82A	£289.00
OKI 83A	£435.00
OKI 84A (P)	£655.00
OKI 84A (S)	£730.00
OKI 92P	£395.00
OKI 93P	£545.00
OKI 92S	£460.00
OKI 93S	£612.00

<b>MANNESMANN TALLY</b>	
MT80	£265.00
MT160	£495.00
MT180	£600.00
PIXY PLOTTER	£505.00

<b>QUME</b>	
9/45 RO	£1500.00
9/55 RO	£1780.00
11/40 RO	£1120.00
11/55 RO	£1250.00
SHEET FEEDER	£490.00

<b>TEC</b>	
STARWRITER F1040	£959.00
STARWRITER F1055	£1235.00
SHEET FEEDER	£459.00

<b>DIABLO</b>	PRICE EX VAT
630 RO SHEET FEEDER	£1699.00 £490.00
<b>RICOH</b>	
RP 1300S	£945.00
RP 1600S	£1165.00
RP 1600S SHEET FEEDER	£459.00
RP 1600S TRACTOR FLOWRITER	£138.00 £1249.00

## PRINTERS — OTHER

ANADIX DP6500 500cps	£1718.00
BROTHER HR15	£349.00
CANNON AP400KSR	£760.00
DRE 8925 240cps	£1495.00
JUKI 6100	£350.00
OLIVETTI ET121 + INTERFACE	£830.00
OLIVETTI INK-JET	£200.00
OLYMPIA ESW102	£675.00
PRINTRONIX P300 300lpm	£3683.70
SHINWA CP80	£240.00
SMITH CORONA TP1	£299.00
STAR DP510	£235.00
STAR DP515	£299.00

## ★ ★ MONITORS ★ ★

NEC JB1201ME	£185.00
NEC JC1201DE	£325.00
NEC JC1202DHE	£545.00
PHOENIX P12	£84.50
SANYO 14in Colour Hi-Res	£280.00
SANYO 14in Hi-Res	£84.50

## ★ ★ COMPUTERS ★ ★

<b>APRICOT</b>	PRICE EX VAT
256K 0.315MB	£1275.00
256K 0.315MB MONITOR	£1440.00
256K 315Kx2	£1445.00
256K 315Kx2 MONITOR	£1575.00

<b>SIRIUS</b>	
128K 1.2MB	£1675.00
128K 2.4MB	£2025.00
256K 2.4MB	£2165.00
256K 10MB	£2995.00
128K MEMORY EXPANSION	£225.00
256K MEMORY EXPANSION	£335.00
512K MEMORY EXPANSION	£473.00
WASP 40MB STREAM/HARDDISK	£4495.00

<b>OLIVETTI</b>	
160KB 2x320KB Disk Drives	£1995.00
160KB 2x640KB Disk Drives	£2395.00
160KB 10MB Hard Disk	£3995.00

<b>SPECTRUM</b>	
SPECTRUM 48K	£106.70

<b>COMMODORE</b>	
COMMODORE 64	£156.51
COMMODORE DISK 1541	£165.21
COMMODORE C2N CASSETTE	£36.51
COMMODORE 1525 PRINTER	£175.00
COMMODORE 64 INTERFACE	£28.69
IBEK 64/Parallel INTERFACE	£59.95
COMMODORE 1311 JOYSTICK	£6.09
COMMODORE 1312 PADDLES	£11.30
COMMODORE 8096	£735.00

<b>EPSON</b>	
HX20 EXECUTIVE	£575.00
HX20	£375.00
QX10	£1600.00

# MAYFAIR MICROS

5TH FLOOR 65 DUKE STREET LONDON W1 TEL 01-629 2487

## C&R COMPUTER SALES

33 BURTON RD, LINCOLN LN1 3JY  
(0522) 26699

Atari A600XL	£151.99	VIC 20	£94.99
Atari A800XL	£237.49	CBM 64	£217.55
Atari A800 (including programming kit)	£284.99	Oric 48K	£132.95
Atari 2600 (with free Pacman game)	£69.95	Sord M5 16K	£142.45
		Atari VCS 2600 (Basic Keyboard enhancer)	£33.95

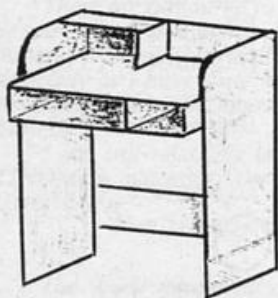
Please send large SAE for list of software and peripherals stating type of hardware you use.

**FREE Postage & Packing (UK only)**

Please send cheque payable to C&R computers with order. Please allow 21 days for delivery.

Software available for Spectrum, BBC, Dragon.

## HOME COMPUTER "CONSOLE"



In teakwood finish,  
simple, self-assembly,  
to house your:

computer • VDU/TV  
cassette player • tapes  
printer • magazines  
**SAFELY**

to order, send £49.00  
plus £6.00 p&p  
(delivery 21 days) to:

**FORDBURY PRODUCTS LTD.**  
P.O. BOX 20, HERTFORD SG14 2LW

# THE Ω MEGA RUN....

# ....is here

## Hints on conversion

Some special commands which are used in this program are listed below. Many computers have equivalents.

**ADR** returns the address of the specified string in the program  
**GRAPHICS** changes the graphics mode (the screen size)

**GRAPHICS 0** is 24 down by 40 across

**LOCATE** positions the cursor at the specified position and reads the contents under it

**POSITION** puts the cursor at the specified place on the screen

**STICK (0)** is a command to read the joystick port indicated

This game uses multi-coloured graphics characters and display lists so it may be difficult to translate to other machines. It will probably be easier if only the idea is used when writing this program for other machines.

You play the role of a rather weak sheriff who must go out into the badlands around the local town, pick up a bar of gold and deposit it safely in the vault of the bank.

Unfortunately the badlands are inhabited by several demons who hate sheriffs. They will hunt you down and kill you. Also, given the opportunity, they will raid the bank.

Fortunately, the sheriff is an avid cactus grower. He can transplant or destroy cacti at will. To move the cacti and the gold bars around the screen the sheriff must push the object in the desired direction.

Because the sheriff has not been attending the local body-building classes, he can only move one object at a time. To compensate for this weakness the sheriff can move around the back of the screen in a "wrap-around" fashion.

To score one point the sheriff must push a gold bar into the bank.

# The hazards you'll face for a few gold bars

**Demons in the Wild West? They're lurking among the cacti in David Ryan's game for any Atari, plus joystick. Can you beat his high score of eight gold bars?**

```
0 REM *****
1 REM **
2 REM ** THE GOLD RUN **
3 REM ** -by- **
4 REM ** David Ryan **
5 REM **
6 REM ** N. IRELAND **
7 REM ** 20/08/83 **
8 REM **
9 REM *****
10 GRAPHICS 0:TOT=0:LVS=3:GOSUB 32000:P
OKE 752,1:SETCOLOR 3,0,15
20 SETCOLOR 0,2,10:SETCOLOR 1,12,14:SET
COLOR 2,8,2:SETCOLOR 4,2,6
100 REM SET UP VARIABLES
110 DIM DX(3),DY(3):L=1:HOME=0:BAR5=5
120 MAN=33:CACTUS=34:DEMON=35:BANK=36:G
OLD=37:HI=0
200 REM SET UP DISPLAY
210 FOR A=1 TO 3:DX(A)=0:DY(A)=0:NEXT A
220 REM CACTUS
```

Unfortunately, the demons do not like this; they can hyperspace around the screen at will and occasionally walk through a cactus if the square on the opposite side is clear.

## Variables

**TOT** total bars home  
**LVS** lives  
**DX(3), DY(3)** demon positions  
**L** level  
**HOME** bars home  
**MAN, CACTUS, DEMON, BANK, GOLD** ATASCII codes for specified character  
**HI** hi-score  
**BX, BY** bank positions  
**MNX, MNY, MX, MY** man positions  
**Z, DX, DY, DQX, DQY** etc random variables

To move the sheriff insert a joystick into port 0 (far left at the front of the computer). To cut down a cactus hit the fire button (this will only work occasionally and in an area close to the sheriff).

Note: cutting down a cactus may frighten a demon into hyperspace. During play, to advance to a new level, hit any key.

One strategy to use in play is to build a wall of cacti around the bank to protect it. The wider the wall the safer the bank.

You lose a life if a demon touches you or the bank. My hi-score is eight gold bars!

## How it works

**1-450** set up game display  
**500-600** man movement  
**1000-1140** demon movement  
**2000-2990** demon bumps into cactus  
**3000-3850** end of game  
**4000-4090** move cactus  
**5000-5240** more gold  
**6000-6060** new level  
**7000-7070** cut down cactus  
**31999-32180** redefine character set  
**32400-32600** set up display lists

```
230 FOR A=1 TO 225-L*25:GX=INT(RND(0)*3
8)+1:CY=INT(RND(0)*21)+1:LOCATE CX,CY,Z
:IF Z<>32 THEN 250
240 SOUND 0,100,10,10:POSITION CX,CY:7
CHR$(CACTUS):SOUND 0,0,0,0
250 NEXT A
260 REM BANK
270 BX=INT(RND(0)*38)+1:BY=INT(RND(0)*2
1)+19:LOCATE BX,BY,Z:IF Z<>32 THEN 270
280 FOR E=1 TO 200 STEP 10:SOUND 0,E,10
,10:POSITION BX,BY:7 CHR$(BANK):NEXT E:
SOUND 0,0,0,0
290 REM MAN
300 MX=INT(RND(0)*38)+1:MY=INT(RND(0)*6
1)+1:LOCATE MX,MY,Z:IF Z<>32 THEN 300
310 FOR E=200 TO 1 STEP -10:SOUND 0,E,1
0,10:POSITION MX,MY:7 CHR$(MAN):NEXT E:
SOUND 0,0,0,0
320 REM DEMONS
330 MAX=2-INT(L/4):IF MAX<1 THEN MAX=1
340 FOR A=1 TO MAX
```

```
350 DX(A)=INT(RND(0)*38)+1:DY(A)=INT(RN
D(0)*11)+10:LOCATE DX(A),DY(A),Z:IF Z<>
32 THEN 350
360 POSITION DX(A),DY(A):7 CHR$(DEMON)
370 FOR Q=15 TO 0 STEP -1:SOUND 0,Q,10,
Q:SOUND 0,Q,8,Q:NEXT Q:SOUND 0,0,0,0
380 POSITION DX(A),DY(A):7 CHR$(DEMON):
SOUND 0,0,0,0:NEXT A
390 REM GOLD
400 FOR A=1 TO BAR5
410 GX=INT(RND(0)*38)+1:GY=INT(RND(0)*2
1)+1:LOCATE GX,GY,Z:IF Z<>32 THEN 410
420 FOR E=1 TO 250 STEP 20:SOUND 0,E,12
,10:POSITION GX,GY:7 CHR$(GOLD):NEXT E:
SOUND 0,0,0,0:NEXT A
430 POKE 87,1:POSITION 0,1:7 #6;CHR$(15
6):POSITION 0,1:7 #6;"_PRESS_FIRE___HI:
":POSITION 17,1:7 #6;HI
440 IF STRIG(0)=0 THEN POSITION 0,1:7 #
6;CHR$(156):GOSUB 32540:GOTO 500
450 GOTO 440
```

# ATARI PROGRAM

```

500 REM MAN MOVEMENT
510 POKE 77,0:POKE 764,255:GOSUB 1000:I
F STRIG(0)=0 THEN 7000
515 IF PEEK(764)<>255 THEN POKE 764,255
:GOTO 6000
520 JS=STICK(0):IF JS<>14 AND JS<>11 AN
D JS<>19 AND JS<>7 THEN 500
530 MNX=MX+(JS=7)-(JS=11):MNY=MY+(JS=13
)-(JS=14)
532 IF MNX<1 THEN MNX=38
534 IF MNX>38 THEN MNX=1
536 IF MNY>21 THEN MNY=1
538 IF MNY<1 THEN MNY=21
540 LOCATE MNX,MNY,Z
550 IF Z=DEMON OR Z=DEMON+128 THEN 3200
:REM END OF GAME
560 IF Z=CACTUS OR Z=CACTUS+128 THEN 40
00:REM REM MOVE CACTUS
570 IF Z=BANK OR Z=BANK+128 THEN FOR E=
15 TO 0 STEP -1:SOUND 0,10,8,E:MNX=MX:M
NY=MY:NEXT E:SOUND 0,0,0,0:GOTO 500
580 IF Z=GOLD OR Z=GOLD+128 THEN 5000:R
EM MOVE GOLD
590 SOUND 0,10,10,10:POSITION MNX,MNY:?
CHR$(MAN):POSITION MX,MY:? " ":MX=MNX:
MY=MNY:SOUND 0,0,0,0
600 POSITION BX,BY:? CHR$(BANK):GOTO 50
0
1000 REM DEMON MOVEMENT
1010 FOR A=1 TO MAX
1020 IF DX(A)>MX THEN DX=DX(A)-1
1030 IF DX(A)<MX THEN DX=DX(A)+1
1040 IF DY(A)<MY THEN DY=DY(A)+1
1050 IF DY(A)>MY THEN DY=DY(A)-1
1060 LOCATE DX,DY,Z
1070 IF Z=CACTUS OR Z=CACTUS+128 THEN 2
000
1080 IF Z=BANK OR Z=BANK+128 THEN 3000:
REM END OF GAME
1090 IF Z=GOLD OR Z=GOLD+128 THEN DX=DX
(A):DY=DY(A)
1100 IF Z=MAN OR Z=MAN+128 THEN 3000:RE
M END OF GAME
1110 IF Z=DEMON OR Z=DEMON+128 THEN 200
0
1120 IF DX(A)=DX AND DY(A)=DY THEN 1140
1130 POSITION DX,DY:? CHR$(DEMON):POSIT
ION DX(A),DY(A):? " ":DX(A)=DX:DY(A)=DY
1140 NEXT A:RETURN
2000 REM DEMON BUMPS INTO CACTII
2010 RESTORE 2990:FOR W=1 TO INT(RND(0)
*8)+1:READ QX,QY:NEXT W
2020 DQX=DX(A)+QX:DQY=DY(A)+QY
2030 IF DQX<1 THEN DQX=1
2040 IF DQX>38 THEN DQX=38
2050 IF DQY<1 THEN DQY=1
2060 IF DQY>21 THEN DQY=21
2070 LOCATE DQX,DQY,Z
2080 IF Z=BANK OR Z=BANK+128 THEN 3000:
REM END OF GAME
2090 IF Z=GOLD OR Z=GOLD+128 OR Z=DEMON
OR Z=DEMON+128 THEN 1140
2100 IF Z=MAN OR Z=MAN+128 THEN 3000:RE
M END OF GAME
2110 IF Z=CACTUS OR Z=CACTUS+128 THEN 1
140
2120 DX=DQX:DY=DQY:GOTO 1130
2990 DATA -1,-1,0,-1,1,-1,-1,0,1,0,-1,1
,0,1,1,1

```

```

3000 REM END OF GAME
3010 LV5=LV5-1:IF Z=BANK OR Z=BANK+128
THEN 3500
3020 FOR Q=1 TO 10:SOUND 0,150,10,10:PO
SITION DX,DY:? CHR$(DEMON):POSITION DX(
A),DY(A):? CHR$(MAN)
3030 FOR W=1 TO 10:NEXT W:SOUND 0,250,1
0,10:POSITION DX,DY:? CHR$(MAN):POSITIO
N DX(A),DY(A):? CHR$(DEMON)
3040 FOR W=1 TO 10:NEXT W:NEXT Q:SOUND
0,0,0,0
3050 FOR Q=250 TO 0 STEP -10:POKE 87,1:
POSITION 19,1:? #6;"lives:";LV5:SOUND 0
,Q,10,10:SOUND 1,Q,8,10
3060 POSITION 19,1:? #6;" " :SOUND
0,Q,10,10:SOUND 1,Q,8,10:NEXT Q:SOUND
0,0,0,0:SOUND 1,0,0,0
3070 IF LV5=0 THEN 3750
3080 BARS=BARS-HOME:POSITION 0,0:GOSUB
32540:POSITION MX,MY:? " "
3090 MX=INT(RND(0)*38)+1:MY=INT(RND(0)*
6)+1:LOCATE MX,MY,Z:IF Z<>32 THEN 3090
3100 FOR E=200 TO 1 STEP -10:SOUND 0,E,
10,10:POSITION MX,MY:? CHR$(MAN):NEXT E
:SOUND 0,0,0,0
3110 POSITION MNX,MNY:? " ":POSITION DX
,DY:? " ":POSITION BX,BY:? CHR$(BANK):G
OTO 430
3200 LV5=LV5-1:IF Z=BANK OR Z=BANK+128
THEN 3500
3220 FOR Q=1 TO 10:SOUND 0,150,10,10:PO
SITION MX,MY:? CHR$(DEMON):POSITION MNX
,MNY:? CHR$(MAN)
3230 FOR W=1 TO 10:NEXT W:SOUND 0,250,1
0,10:POSITION MX,MY:? CHR$(MAN):POSITIO
N MNX,MNY:? CHR$(DEMON)
3240 FOR W=1 TO 10:NEXT W:NEXT Q:SOUND
0,0,0,0:GOTO 3050
3500 FOR Q=1 TO 10:SOUND 0,50,10,10:POS
ITION DX,DY:? CHR$(DEMON):POSITION DX(A
),DY(A):? CHR$(BANK)
3510 FOR W=1 TO 10:NEXT W:SOUND 0,150,1
0,10:POSITION DX,DY:? CHR$(BANK):POSITI
ON DX(A),DY(A):? CHR$(DEMON)
3520 FOR W=1 TO 10:NEXT W:NEXT Q:SOUND
0,0,0,0
3530 GOTO 3050
3750 REM NEW GAME ?
3760 POKE 87,1:POSITION 0,0:? #6;" g
ame over " :POSITION 0,1:? #6;" ANOTHE
R GO ? (Y/N)"
3770 POKE 764,255
3780 PZ=PEEK(764)
3790 IF PZ=43 THEN 3820
3800 IF PZ=35 THEN NEW
3810 GOTO 3780
3820 LV5=3:L=1:HOME=0:BARS=5:POKE 764,2
55:? #6;CHR$(125):POKE 539,0:GOSUB 3240
0
3830 SETCOLOR 0,2,10:SETCOLOR 1,12,14:5
ETCOLOR 2,8,2:SETCOLOR 4,2,6
3840 IF TOT>HI THEN HI=TOT
3850 TOT=0:GOTO 200
4000 REM MOVE CACTUS
4010 CX=MNX:CY=MNY
4020 CNX=CY-(JS=14)+(JS=13):CNX=CNX+(JS=
7)-(JS=11)
4030 IF CNX<1 THEN CNX=38
4040 IF CNX>38 THEN CNX=1

```

# ATARI PROGRAM

```

4050 IF CNY<1 THEN CNY=21
4060 IF CNY>21 THEN CNY=1
4070 LOCATE CNX,CNY,Z
4080 IF Z<>32 THEN MNX=MX:MNY=MY:FOR E=
15 TO 0 STEP -1:SOUND 0,150,10,E:SOUND
1,10,8,E:NEXT E:GOTO 500
4090 POSITION CNX,CNY:7 CHR$(CACTUS):GO
TO 590
5000 REM MOVE GOLD
5010 GX=MNX:GY=MNY
5020 GNY=GY-(J5=14)+(J5=13):GNX=GX+(J5=
7)-(J5=11)
5030 IF GNX<1 THEN GNX=38
5040 IF GNX>38 THEN GNX=1
5050 IF GNY<1 THEN GNY=21
5060 IF GNY>21 THEN GNY=1
5070 LOCATE GNX,GNY,Z
5080 IF Z=BANK OR Z=BANK+128 THEN 5200
5090 IF Z<>32 THEN MNX=MX:MNY=MY:FOR E=
15 TO 0 STEP -1:SOUND 0,150,10,E:SOUND
1,10,8,E:NEXT E:GOTO 500
5100 POSITION GNX,GNY:7 CHR$(GOLD):GOTO
590
5200 FOR Q=1 TO 3:FOR W=1 TO 250 STEP 2
0:SOUND 0,W,10,10:SOUND 1,W,8,10:NEXT W
:NEXT Q
5210 FOR W=15 TO 0 STEP -1:SOUND 0,50,1
0,W:SOUND 1,50,12,W:NEXT W:SOUND 0,0,0,
0:SOUND 1,0,0,0:HOME=HOME+1
5220 TOT=TOT+1:IF HOME=5 THEN HOME=0:GO
TO 6000:REM NEW LEVEL
5230 POKE 87,1:POSITION 0,1:7 #6;"bars
home:"TOT:POKE 87,0
5240 GNX=GX:GNY=GY:GOTO 590
6000 REM NEW LEVEL
6010 FOR R=1 TO 2:FOR S=1 TO 4:FOR E=15
TO 0 STEP -2:SOUND 0,(250/R)/5,10,E:SO
UND 1,(50)*5,10,E-1
6020 NEXT E:NEXT S:NEXT R:SOUND 0,0,0,0
:SOUND 1,0,0,0
6030 POKE 87,1:POSITION 0,0:7 #6;CHR$(1
56):POSITION 0,0:7 #6;" A NEW LEVEL
":FOR Q=1 TO 1000:NEXT Q
6040 L=L+1:BARS=5
6050 7 #6;CHR$(125):GOSUB 32540
6060 SETCOLOR 0,2,10:SETCOLOR 1,12,14:5
ETCOLOR 2,8,2:SETCOLOR 4,2,6:GOTO 200
7000 REM CUT DOWN CACTUS
7010 RESTORE 2990:FOR Q=1 TO INT(RND(0)
*8)+1:READ CX,CY:NEXT Q:GX=MX+CX:CY=MY+
CY
7015 IF CX<1 OR CX>38 OR CY<1 OR CY>21
THEN 500
7020 LOCATE CX,CY,Z
7030 IF Z=CACTUS OR Z=CACTUS+128 THEN 7
050
7040 FOR E=15 TO 0 STEP -1:SOUND 0,100,
12,E:NEXT E:SOUND 0,0,0,0:GOTO 500
7050 FOR Q=100 TO 0 STEP -5:SOUND 0,Q,6
,10:SOUND 1,Q,8,10:POSITION CX,CY:7 " "
:POSITION CX,CY:7 CHR$(CACTUS)
7060 NEXT Q:POSITION CX,CY:7 " ":SOUND
0,0,0,0:SOUND 1,0,0,0:GOTO 500
31999 REM REDEFINE CHARACTER SET
32000 POKE 106,PEEK(106)-5:GRAPHICS 0:5
T=(PEEK(106)+1)*256:POKE 751,1:POKE 756
,57/256
32010 DIM XFR$(38):RESTORE 32050:FOR A=
1 TO 38:READ C:XFR$(A,A)=CHR$(C):NEXT A

```



```

32020 Z=USR(ADR(XFR$)):RESTORE 32100
32030 READ X:IF X=-1 THEN RESTORE :GOTO
32400
32040 FOR Y=0 TO 7:READ Z:POKE Y+X+57,Z
:NEXT Y:GOTO 32030
32050 DATA 104,169,0,133,209,133,205,16
9,224,133,206,165,106,24,105,1,133,204,
160,0,177,205,145,209,200,208,249
32060 DATA 230,204,230,206,165,206,201,
228,208,237,96
32070 REM MAN
32100 DATA 8,48,32,48,48,184,48,48,204
32110 REM CACTUS
32120 DATA 16,0,32,34,34,42,32,32,32
32130 REM DEMON
32140 DATA 24,0,60,235,215,215,60,0,0
32150 REM BANK
32160 DATA 32,0,64,255,255,150,150,150,
150
32170 REM GOLD
32180 DATA 40,102,102,102,102,102,102,1
02,102,-1
32400 REM SET UP KEY DISPLAY LIST
32410 RESTORE 32495
32420 FOR A=1536 TO 2000:READ D:IF D=-1
THEN 32435
32430 POKE A,D:NEXT A
32435 POKE 539,0:POKE 1540,PEEK(88):POK
E 1541,PEEK(89):POKE 560,0:POKE 561,6:P
OKE 559,34
32440 SETCOLOR 0,2,10:SETCOLOR 1,12,14:
SETCOLOR 2,8,2:SETCOLOR 4,2,6
32442 POKE 87,2:POSITION 5,0:7 #6;"THE
KEY":POSITION 5,1:7 #6;"-----"
32444 POKE 87,1:POSITION 4,3:7 #6;"the
MAN is":POKE 87,0:POSITION 19,2:7 CHR$
(33)
32446 POKE 87,1:POSITION 4,7:7 #6;"a D
EMON is":POKE 87,0:POSITION 19,4:7 CHR$
(35)
32448 POKE 87,1:POSITION 4,11:7 #6;"a C
ACTUS is":POKE 87,0:POSITION 19,6:7 CHR
$(34)
32450 POKE 87,1:POSITION 4,15:7 #6;"the

```

## ATARI PROGRAM

```
BANK is":POKE 87,0:POSITION 19,8:7 CHR
$(36)
32452 POKE 87,1:POSITION 3,19:7 #6;"a G
OLD BAR is":POKE 87,0:POSITION 19,10:7
CHR$(37)
32460 POSITION 0,0:FOR A=1 TO 11:7 #6;"
":NEXT A
32470 7 #6;" HIT any KEY":POKE 764,255
32480 FOR A=1 TO 255:SOUND 0,A,10,10:50
UND 1,255-A,12,10:SOUND 2,A/10,8,10
32485 SETCOLOR 4,INT(RND(0)*16),INT(RND
(0)*16)+1:IF PEEK(764)=255 THEN NEXT A:
GOTO 32480
32490 SOUND 0,0,0,0:SOUND 1,0,0,0:SOUND
2,0,0,0:POKE 764,255:7 CHR$(125):POKE
559,0
32495 DATA 112,112,112,71,0,0,7,6,6,4,6
.6,4,6,6,4,6,6,4,6,6,4,7,7,4,65,0,6,-1
32500 REM SET UP GAME DISPLAY LIST
32510 RESTORE 32600:FOR A=1536 TO 2000:
READ D:IF D=-1 THEN 32530
32520 POKE A,D:NEXT A
32530 POKE 559,0:POKE 1540,PEEK(88):POK
E 1541,PEEK(89):POKE 560,0:POKE 561,6:P
OKE 559,34
32540 POKE 87,1:POSITION 4,0:7 #6;"the
gold run":POSITION 0,1:7 #6;"bars home:
";TOT
32550 POSITION 13,1:7 #6;"lives: ";LV5:P
```

```
OKE 87,0:RETURN
```

```
32600 DATA 112,112,112,70,0,0,6,4,4,4,4
.4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,65
.0,6,-1
```

### Micro Tip

### Dragon

#### Moveable machine code

I use this short machine code routine as an extension to the (CLSn) command in BASIC on the Dragon.

It is entered as shown, but can be relocated in any part of user RAM. To do this, change the value of (I).

When the BASIC program has been entered and run, the machine code may be called using EXEC 32001.

```
10 CLEAR 200,32000
20 FOR I=32001 TO 32018
30 READ AS
40 POKE I,VAL("&H"+AS)
50 NEXT I
60 DATA 8E,04,00,86,DF,A7,80,4F,86,C6,A7,80,8C,06,00,
26,F2,39
```

If you want to relocate this, then the CLEAR statement in line 10 must also be altered to stop BASIC using this part of memory.

It is possible to change the data statement in line 60 to give a different effect when the machine code is executed. Do this by changing the hex value DF in line 60.

To do this, decide on the graphic character (CHRS) that you want to use, find its value (including colour), convert this into hex and put it in place of mine.

J. H. Lincoln

# At last, a magazine that gets to the core of it.



As the proud owner of an Apple, you know that really helpful magazines don't grow on trees.

But now there's Orchard Computing. Orchard is a brand new quarterly put together specifically to suit the Apple user.

It brings you the very best in useful routines, business and games software. And not a word of it that isn't directly relevant to you.

So if you like an Apple a day, take Orchard quarterly.

It's just what the doctor ordered.

**Orchard**  
**COMPUTING**  
Britain's best buy for Apple users

## NATIONWIDE SHOPS & DEALERS

### BEDFORDSHIRE

#### SOFTWARE CENTRE

##### MEMOTECH COMPUTERS PLUS

THE LARGEST RANGE OF  
SOFTWARE IN BEDFORD.  
SPECIALISTS IN  
EDUCATIONAL  
SOFTWARE.

SAE FOR LISTS.

52A BROMHAM ROAD,  
BEDFORD MK40 2QG

Tel: Bedford 44733

**ADVERTISE  
IN OUR  
NATIONWIDE  
GUIDE AND SEE  
YOUR BUSINESS  
GROW. PHONE  
NOW FOR  
DETAILS ON  
01-437 0699**

### CORNWALL

#### FAL-SOFT COMPUTERS

8 St. Georges Arcade, Falmouth,  
Cornwall. Tel: 0326 314663.  
We are stockists of BBC, Sinclair,  
Commodore, Dragon, Oric, Colour Genie,  
MPS-2 and Comex-35.

### ESSEX

#### BBC ★ COMMODORE 64 SPECTRUM ★ DRAGON 32

Extensive range of software/  
hardware/books always in stock.  
ESTUARY SOFTWARE PRODUCTS  
261 Victoria Avenue, Southend,  
Essex. Tel: 0702 43568.

**HCW —  
COMPATIBLE  
WITH ALL  
POPULAR HOME  
COMPUTERS:**

### LONDON

#### ADD-ONS FOR YOUR COMPUTER

##### FOR YOUR SPECTRUM

Sinclair Interface 2	£19.50
Kempston Interface	£13.99
Protek Interface	£14.50
Currah Speech Synthesiser	£28.95
Cheetah Sweet talker Synthesiser	£28.95
Quickshot Joysticks	£7.99
Stack Light Rifle	£28.95

TOP QUALITY BLANK C15 TAPES  
45p each. £4.20 per 10.

##### FOR YOUR COMMODORE

Adman VIC-20 Speech Synthesiser	£47.95
Vixen Switchable RAM pack (3K-16K)	£34.95
Stack Light Rifle	£28.95
Quick Shot Joysticks	£7.99

TOP QUALITY BLANK C15 TAPES  
45p each. £4.20 per 10.

#### NOW AVAILABLE TWO MUSTS FOR YOUR COMMODORE 64

International Soccer only £9.75 ★ Manic Miner only £7.75  
WRITE OR PHONE:

#### ARMCHAIR ACTION COMPUTERS

41 Drayton Green Road, Ealing,  
London W13. Tel: 01-567 1944

#### DAVID SHACK SOFTWARE

Over 150 games for the Spectrum and  
100 for the VIC-20. Also BBC, CBM  
64, Dragon, Atari, software sold at  
discount prices. SAE for lists to:

294 Romford Road,  
Forest Gate E7. Tel: 01-555 9303

#### HCW YOUR SOFTWARE SUPERMARKET.

### LANCASHIRE

#### LANCASHIRE MICROS

BBC, Sinclair, Commodore, Dragon and  
Lynx personal computers.  
Also the widest range of software, books and  
accessories in the area.  
51 QUEEN STREET, MORECAMBE.  
LANCS. Tel: (0524) 411435.  
ALSO OPEN SUNDAYS



#### LEIGH COLOUR LABORATORY LTD.

87 Chapel St, LEIGH, Lancs.  
Tel: Leigh (0942) 607661

Open: Monday - Friday 9.00 - 5.30  
and most Saturdays 10.00 - 4.00.

- Be Wise, Use The Specialists -

### SUSSEX

#### The Micro Store HOME COMPUTER CENTRE

We carry a large selection of  
hardware/software/accessories  
for BBC, ORIC, SPECTRUM,  
CBM 64, VIC-20, ATARI 400,  
600 & 800, DRAGON &  
MEMOTECH.

13B West Street,  
Horsham, W. Sussex  
Tel: 0403 52297

### STAFFS

#### Computerama- The Midlands Home Computer Specialists

#### FOR BBC, SPECTRUM & ALL LEADING MICRO'S

STAFFORD: 59 FOREGATE ST  
TEL: 0785 41899

STOKE-ON-TRENT:  
MARKET SQUARE ARCADE  
TEL: 0782 268620



24 The Parade  
Silverdale, Newcastle  
Tel: 0782 636911

Official dealers for  
Commodore, Sinclair &  
Acorn. BBC service and  
information centre

Huge range of hardware and software  
backed up by sophisticated service  
department.

New Memotech Computers now in Stock.

### SURREY

#### COMPUTASOLVE LTD.

8 Central Parade, St. Marks  
Hill, Surbiton, Surrey KT6 4PJ.  
Tel: 01-390 5135.

Open 9.30-18.30 Mon-Sat

Over 600 different software  
titles in stock. We are pleased to  
demonstrate any program  
before you buy.

We stock all leading home micro's

### SOMERSET

#### PHOENIX SOFTWARE CENTRE

A large range of software in stock for  
ATARI, BBC, DRAGON, ORIC-1,  
SPECTRUM, COM 64 & VIC-20.

Also stockists of BBC &  
SPECTRUM COMPUTERS.

Open Mon - Sat 9am - 6pm.  
Access & Barclaycard accepted.

88 Huish, Yeovil, Somerset  
Tel: (0935) 21724

### SCOTLAND

#### THE GAMES SHOP AND COMPUTER SOFTWARE CENTRE TEL. NO. 0224-643740

3 Waverley Place, Aberdeen AB1 1XH.  
Stockists of Spectrum, Dragon, VIC-20  
and Commodore 64 software. Extensive  
selection of books and magazines.

**READ OUR  
DEALER  
DIRECTORY AND  
FIND OUT THE  
LOCATION OF  
YOUR NEAREST  
COMPUTER  
SPECIALIST.**

Please include my business details in the next available issue of Home Computing Weekly

Business Name: .....

Address: .....

Tel. No.: .....

Open Hrs: .....

Contact (Office Use Only): .....

Post To: H.C.W. (Shops & Dealers), 1 Golden Square, London W1R 3AB



# HOME COMPUTING WEEKLY CLASSIFIED

Lineage:

35p per word

Semi display: £6.00 per single column centimetre  
Ring for information on series bookings/discounts.

All advertisements in this section must be prepaid.  
Advertisements are accepted subject to the terms and conditions printed on the advertisement rate card (available on request).



01-437 0699  
EXT 341.

Send your requirements to:  
**Debra Stuppel**  
**ASP LTD.**  
1 Golden Square,  
London W1R 3AB

## RECRUITMENT

### COMPUTER SOFTWARE

#### — WANTED —

You don't have to be a programmer to turn your ideas into money. Software house entering the high street retail market seeks either **Program Specifications** or complete **Programs** on BBC model B, Commodore 64, Dragon and Spectrum for **Educational and Non-Games** subjects. Payment on royalty basis for both specifications and programs. Phone:

**PANDASOFT**  
0606 45564 or  
056589 3210

## ADD ONS

### FLOPPY DISC INTERFACE for Spectrum

FDC-1 interface card, with Disc operating system in EPROM, and a utility disc.

£70.00 ex. VAT. £81.50 inc VAT, P&P.

FDC-1 Mk2. As Mk1 but with a Spectrum edge connector for further Cards, e.g. printer interface.

£85.00 ex. VAT. £98.75 inc VAT, P&P.

Centronics interface for Spectrum — £29.00 plus VAT.

We also sell disc drives for above interface. Further details available from:

**TECHNOLOGY RESEARCH LTD.**,  
356 Westmount Road, London SE9 1NW  
Tel: 01-856 8408

## BOOKS & PUBLICATIONS

**Popping, Break dancing.** Teach yourself. Loose stamp for details. Dance Publications, 136 Monkhill Lane, Pontefract WF8 1RT.

## CLUBS

**Part exchange** your old software for brand new cassettes. S.A.E. for details. State machine type. C, 12 York Close, Bury, Lancs. MK45 4QB.

**HCW YOUR SOFTWARE SUPERMARKET.**

## COURSES

### NEW TO COMPUTING?

We are here to help you gain skills in computing. Ring:  
**COMPUTER WORKSHOP**  
on 01-318 5488  
4 Lee High Road, Lewisham,  
London SE13 5LQ

## GIFTS

### Micro-Users SOFTWARE T-SHIRTS and SWEATSHIRTS

1 Apple	6 I'm User Friendly
2 Spectrum	7 Have you seen my
3 Oric 1	Peripherals?
4 Epson	8 Z80A
5 Invader	9 6502

100% Cotton T-shirts in white, red or sky £3.25 each inclusive.

Poly-cotton Sweatshirts in white or grey £5.50 each inclusive, small, medium, large and extra large sizes.

Mail Order only from:  
One Per Cent Screens, Unit 12, Star Lane Estate, Great Wakering, Essex.

### HCW CLASSIFIED OFFERS YOU THE LATEST SOFTWARE FOR YOUR MICRO.

## FOR HIRE

**Oric Software Library.** Two weeks hire £1. Annual Membership £5. Stamp for list. Les Wilson, Penallick, Tintagel, Cornwall.

**To Hire a Computer from ZX81 upwards,** ring or write to: Business and Computer Services, 292 Caledonian Rd., N1 1AB. Tel: 01-607 0157.

**VIC-20 Software Hire.** Free Membership 60p per week, S.A.E. for Membership Kit to: VSH, 12 Clipstone Avenue, Nr. Peel Street, Nottingham.

## LIBRARIES

### COMMODORE 64 GAMES LIBRARY

Over 230 titles, all originals. Hire of first two games absolutely free. Life membership only £6. Join now on money back approval.

Send for details to:  
**Commodore 64 Games Library**  
c/o Yorkshire Software Library,  
13 Park Top, Pudsey, West Yorks.  
Cheques/PO's to  
"Yorkshire Software Library"

## REPAIRS

**ZX81 — Spectrum.** We can now offer out-of-guarantee repairs by our Computer Dept. Our engineers have had over three years experience servicing Sinclair Computer products. Price including p&p. ZX81 — £11.50; 16K Ram — £9.95; Spectrum — £18.75. Send with cheque or PO. T.V. Service of Cambridge, French's Road, Cambridge CB4 3NP. Phone (0223) 311371.

### REPAIRS & SERVICE

COMPUTERS  
(Business & Personal)  
DISC DRIVES (5 1/4 & 8")  
VDU's ★ MONITORS  
PRINTERS ★ S100 BOARDS  
EPROM PROGRAMMING  
MAINTENANCE CONTRACTS  
48 hour service for alignment and test of disc drives  
**A. N. ELECTRONIC & COMPUTER SERVICES LTD**  
130B North Lane,  
Aldershot, Hants  
Tel: Aldershot (0252) 25608

## SOFTWARE APPLICATIONS

### PROBLEMS WITH YOUR MACHINE? SCAN OUR SERVICE/REPAIR SECTIONS.

### BREAKER BREAKER

For the Commodore 64, this revised 1984 version will make back-up copies of most popular cassette programs, rush £3.95 to:

**C. KENT, 26 Northcape Walk, Corby, Northants NN18 9DQ**

### ● COPYMATE 64 ●

A back-up utility for COMMODORE 64. Will make security copies of most cassette based software. Send £4.75 to:

**HORIZON SOFTWARE,**  
15 Bamburg Close, Corby,  
Northants NN18 9PA

## SPECTRUM KOPYKAT IMPROVED PERFORMANCE

Simply the best. Copying any program is now as easy as LOADING and SAVING your own programs. Any ZX Spectrum program can be backed-up onto a fresh tape. Even programs that cannot be stopped can now be copied. 100 per cent machine code. Prints file names. Copies headerless files. SPECTRUM KOPYKAT uses no program area so full size programs over 41.7K (9K for 16K machines) can be copied. PLUS FREE Header Reader program.

Despatched by first class return of post.

Send cheque/PO for £4.95 to:

**MEDSOFT**  
61 Ardeen Road, Doncaster,  
South Yorks DN2 5ER.  
IT CAN EVEN COPY ITSELF

## TAPE COPIER

Makes BACK-UP COPIES ALL types of SPECTRUM programs (incl. headerless, m/c unstoppable) easily with MANY unique features. MICRODRIVE COMPATIBLE. Plus a FULL MONEY BACK GUARANTEE if you are not satisfied.

★ LOADS in all program parts CONTINUOUSLY — even without pressing a key. Other copiers require many loadings — MASSIVELY saving you time and trouble!

★ MAXBYTES copies programs occupying the FULL 16K or 48K! Verifies. Repeat copies. Auto. Abort. STOPS and gives program names.

★ Full instructions, very user friendly. BREAK at any time (just save a header!), and copies all programs that we are aware of.

Cost only £4.49 1st c/post (+£1 Europe, £2 others).

5 STARS FROM THE HCW REVIEW, WITH THREE 100% RATINGS!

**LERM (DHC),**  
16 Stonepit Drive, Cottingham,  
Mkt Harborough, Leics.

## SERVICES

### ALL YOUR CASSETTE NEEDS

Blank cassettes C15 with case, 40p each.

Labels in Blue, White or Yellow, 20 for 36p. Inlay cards in Blue, Red or Yellow 20 for 60p. Library cases, 9p each.

Postage on each complete order 55p. Stonehorn Ltd, (HCW), 59 Mayfield Way, Barwell, Leicester LE9 8BL.

### HCW YOUR SOFTWARE SUPERMARKET.

The contents of this publication, including all articles, plans, drawings and programs and all copyright and all other intellectual property rights therein belong to Argus Specialist Publications Ltd. All rights conferred by the Law of Copyright and other intellectual property rights and by virtue of international copyright conventions are specifically reserved to Argus Specialist Publications Ltd and any reproduction requires the prior written consent of the company.

© 1984 Argus Specialist Publications Ltd

SSN0264-4991

## SOFTWARE GAMES

### TI-99/4A

FOR GUARANTEED, QUALITY SOFTWARE SEND S.A.E. FOR OUR LIST AND SAMPLE INSERTS.

**HARLEQUIN**  
Computing Limited,  
PO Box 44,  
Ilford IG1 3DV

## HCW CLASSIFIED OFFERS YOU THE LATEST SOFTWARE FOR YOUR MICRO.

### DISCOUNT SOFTWARE

Huge Discounts off most computers  
**SPECTRUM** RRP ORP  
Manic Miner (Bug Byte) ..... 5.95 4.95  
Ant Attack (Quicksilver) ..... 6.95 5.95  
Hobbit (Melbourne) ..... 14.95 11.99  
**COMMODORE 64**  
Everest Ascent (Shepherd) ..... 6.50 5.00  
**BBC**  
Night Flite (Hewson) ..... 6.95 5.95  
**ORIC**  
Asteroids (Artic) ..... 5.95 4.95  
**DRAGON**  
Maurice Minor (J. Morrison) . 6.95 5.95  
C.W.O. p&p 55p 1 tape, 2 or more, Post  
Free. SAE for 12 page catalogue of  
software for most computers to:  
**DISCOUNT SOFTWARE,**  
45 Brunswick, Bracknell, Berks.

Computer games, discount prices. Free catalogue. Send S.A.E. to: A. D. Software, 17 West Street, Wath on Dearne, Rotherham S63 7QU.

**TI-99/4A** New Year Special. Any three programs for £5. For list S.A.E. Binbrook Software, 10 Potterill Lane, Sutton-on-Hull HU7 4TF.

### LANTERN SOFTWARE TI99/4A

Discover our range of arcade games and utilities. High quality software at New Low Prices.  
Daddy's Hot Rod £5.95 Troll King £5.95  
Runner on Treiton £5.95  
NEW !! Builder/Minfield - Two great games for youngsters - £4.95  
The Black Tower - from the author of Troll King - £5.95  
Hunchback Havoc - 24 sheets of action - unequalled in speed and graphics - simply the best - £5.95  
For a full list of these, our Ext-Basic range and more send S.A.E. to: 4 Haffenden Road, Tenterden Kent TN30 6QD.

### MICROSONIC Programs for the unexpanded TI99/4A

Air Attack	£5.25
Alien Alert	£4.25
Grand Prix	£3.95
Galactic Zoo Keeper	£5.25
Space Vault	£4.50
Hangman and Masterbrain	£4.25

All prices are inclusive. Dealer enquiries welcome. Please send Cheque/PO's to: MICROSONIC, 85 Malmesbury Road, Chadle Hulme, Cheshire SK8 7QL.

### 4 FOR TEXAS!

TEXIGOLF Super golf game for the TI. Choose from 16 directions and 11 clubs. Lower your handicap! £3.50  
**HANGMOG** Save the nosey mog from the meat factory mincer with your knowledge of words! £3.20  
**FLASH** Save Earth Data Base from aliens! Zap robots as they land. Hunt Green Leader (Joysticks) £3.20  
**BANGER** Negotiate a stock-car track in your banger. Watch out for trees, wrecks etc! (Joysticks) £3.00  
Payments to **SoftTI** 14 STATION RD BROUGH N.H. LEICESTERS.

### TI-99/4A

STAINLESS SOFTWARE has a large catalogue of good quality programs for the TI-99/4A, with over 80 programs! For a copy, please send a large SAE to:

Dept. HCW, 10 Alstone Road, Stockport, Cheshire SK4 5AH  
(MAIL ORDER ONLY)

Why pay full price in the shops? When you can get your games from us for

### UP TO 50% OFF!

Send today for comprehensive free lists, stating computer and get our FREE INTRODUCTORY OFFER!

**ATLANTIS GAMES,**  
Dept. HCW, 28 Tile Kiln Lane, Hastings, East Sussex

Texas TI-99/4A software: 1. "Atlantis Invaded" - underwater adventure: 2. "Depth Charge Attack" - battleship hunts submarine: 3. "Caterpillar Crunch" - eat or be eaten: 4. "Fighter Pilot" - aim your gunsight. Prices - £4.95 any two programs: £5.95 any three: £6.95 all four. Send cheque or P.O. to P. M. Williams, 1 New Road, Melbourn, Royston, Herts.

**Spectrum 16/48K "Raquel"** presents her games collection for age 16 up only. (State age when ordering). Only £3.99. I. Brooks, 17 Malvern Flats, Coleman Street, Southend, Essex.

### INTRIGUE SOFTWARE TI-99/4A 16K BASIC

Hi-Res Graphics and Text Adventures. ADVENTUREMANIA - can you complete the ultimate quest. £5.95 (HCW reviewed Vol. 45). MANIA - superb graphics, can you escape to the corridors of time. £5.95. Sent by return. Cheque/PO to:

**INTRIGUE SOFTWARE**  
Cranbrook Road, Tenterden, Kent TN30 6UJ. Tel: 0580 64726

### TEXAS

<b>BASIC</b>	
Jellybeans	£4.95
Gold Miner	£5.40
Tri-Light	£6.75
<b>Ex. BASIC</b>	
King Tut's Tomb	£7.15
Death Trap II	£5.85
<b>Books</b>	
Kids and the TI	£14.35
How to Use the TI-99/4A	£2.85

Dust Cover £3.95; Joystick Adapter £9.95; Tac 2 Joystick £18.95; Starfighter Joystick £13.95; Quickshot Joystick £9.95.  
Send S.A.E. for Lists to:  
**LOADE ENTERPRISES,**  
c/o Ensemble (HCW) 35 Upper Bar, Newport, Shropshire TF10 7EH.

Tel No. (0952) 813667/814292

### UNEX-TI-99/4A GRAPHICS CREATOR & SCREEN EDITOR

CREATE up to 52 'on-board' graphics. DESIGN large screen layouts for your own programs. SAVE ALL of your work onto cassette tape. Commands incl. ROTATE, MIRROR, INVERT, IN-HEX, OUT-HEX, ACCIDENT REPAIR, and many more. Extremely USER-FRIENDLY throughout. Whether you're a BEGINNER or EXPERT this program enables you to produce many sets of good graphics - QUICKLY! Price includes full instructions, and 3 sets of Demo-graphics. Send £5.95 to:

**PikaDee Software**  
35 Parker St, Preston, Lancs  
Now wanted: Good original programs for the unex-TI. Good Royalties offered.

### TI-99/4A HIGH QUALITY GAMES

Take another look at these prices

RI-SKI - Break a leg. (Runs BASIC or Ex BASIC, joysticks optional, four skill levels, totaliser) £2.95

NUCLEAR PODS - Alien attack (Runs BASIC or Ex BASIC, no peripherals required, six skill levels, totaliser) £2.95

HOP-IT - Kamikaze amphibians (Runs Ex BASIC, joysticks required, speech synthesiser optional, six skill levels, totaliser) £4.95

To order any of these cassettes just send a cheque or postal order to the address below. Remember, all prices include post and packing and VAT.

We now have a catalogue of other good quality software available for the TI-99/4A. To obtain your copy just send us a large SAE.

**MICRO-BYTE SOFTWARE**  
11 Saint Mary's Avenue, Purley, Reading, Berkshire RG8 8BJ  
(MAIL ORDER ONLY)  
Prices include post, packing and VAT.

### KENILWORTH SOFTWARE TI-99/4A

Extended BASIC £51.50 including manual and p&p. Most TI software in stock. Cheques/PO's payable to:

**M. A. FAULKNER,**  
9 Dancer Drive, Knights Meadow, Kenilworth, Warks.

### LLAMASOFT!! awesome games software



VIC 20  
CBM 64  
ATARI  
SPECTRUM

NOW IN BOOTS, LASKEYS & MANY RETAILERS, OR FROM  
49 MT. PLEASANT, TADLEY, HANTS.  
TEL: 07356 4478

### SOFTWARE EDUCATIONAL

TI-99/4A 'O'-level Biology. Complete set of eight assessment programs covering whole syllabus. £10.00 only. F. Thornhill, 5 Highburgh Drive, Rutherglen, Glasgow G73 3RR.

## HCW - COMPATIBLE WITH ALL POPULAR HOME COMPUTERS.

### ISIS VIDEO

Specialists in Educational software, Software and text books. Software packages from ABC to A level. Many major publishing houses included in our comprehensive catalogue covering most popular home/school computers. Ring Fiona Brooks now on 01-541 0403 or write stating model to:

**ISIS VIDEO (HCW),**  
Crown Works, Church Road, Norbiton, Kingston, Surrey

### COMPUTER TUTOR

#### TI-99/4A

Division Tuition and Times Table Tuition £4.50 each. (£8 for two). Cheques/PO's to:  
**Jamieson, 8 Long Row, New Lanark ML11 9DD**

### UTILITIES

CBM 64 copier + header reader lets you make back-ups of most cassette software onto tape or disk. £5.95/£7.95. State tape/disk. G. J. Foreman, 82 Hazelton Road, Colchester, Essex CO4 3DY.

### USER GROUPS

TI99/4A. Yahtzee free. Details only when you join nationwide group. S.A.E. TI-users, 40 Barrhill, Brighton, BN1 8UF.

## PROBLEMS WITH YOUR MACHINE? SCAN OUR SERVICE/REPAIR SECTIONS.

### WANTED

#### PERSONAL COMPUTERS

All models bought for cash.  
**Morgan Camera Company**  
160 Tottenham Court Road  
London W1. Tel: 01-388 2562

Wanted: software authors for CBM 64 and MTX 512. Good commission paid. Genesis Software, 68 Galaxie Road, Coupland, Portsmouth PO89 AR.

Got a Program. Urgently required Games and Education programs for the ZX81, up to 50% Royalty paid, send on tape only. Hercules Software, 1 Hulton Close, Marton, Middlesbrough, Cleveland TS7 8PG.

# CLASSIFIED - RING 01-437 0699

# CLASSIFIED ADVERTISEMENT

## — ORDER FORM

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.
13.	14.	15.

### PREFERRED CLASSIFICATION

Please place my advert in Home Computing Weekly for \_\_\_\_\_ weeks.  
Please indicate number of insertions required.

Advertise nationally for only 35p per word (minimum charge 15 words).

Simply print your message in the coupon and send with your cheque or postal order made payable to Argus Specialist Publications Ltd to:

CLASSIFIED DEPT., HOME COMPUTING WEEKLY,  
145 Charing Cross Rd., London WC2H 0EE.  
Tel: 01-437 1002.

Name .....

Address .....

Tel. No. (Day) .....



--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

## T199/4A SOFTWARE

Three great games for the unexpanded TI-99/4A

### PILOT

£5.95

Flight simulation game for one player. Graphics display of landing strip and terrain map, plus updated instrument panel. Options for take-off, landing or in flight. Full instructions included. Graphics and sound.

### TI TREK

£5.95

Defeat the Klingon invasion fleet. Features include 5 skill levels, graphics quadrant display, galaxy map, phasors, photon torpedoes, long range scans, damage reports, shield control, impulse and warp drive. Eight by eight galaxy. Full instructions included. Graphics and sound.

### SORCERER'S CASTLE

£4.95

Can you rescue the captive princess from the clutches of the evil wizard? There are keys and weapons to aid your quest, but also trolls and goblins who view you as a tasty snack! Text.

### TEXAS PROGRAM BOOK

£5.95

35 programs for the unexpanded TI-99/4A, including 3-D Maze, Lunar Lander, Caterpillar, Horse Race, Invader, Morse Code and much more.

Send cheque or P.O. or telephone with Access/Visa for immediate despatch. Please add 50p p&p to orders under £7. Orders over £7 post free.

## APEX SOFTWARE

Swiss Cottage, Hastings Road,  
St. Leonards-on-Sea,  
E. Sussex TN38 8EA

TEL: Hastings (0424) 53283



## HIRE SPECTRUM SOFTWARE

### CHOOSE FROM OUR VAST RANGE

FREE 24 page CATALOGUE with full details of our range of over 220 different programs for the ZX SPECTRUM. All hired with the consent of the publishers. Whether you prefer to ZAP aliens, get lost in an adventure game, EDUCATE your children, CALCULATE the family finances or COMPILE machine code programs WE HAVE THE RIGHT TAPES FOR YOU TO HIRE.

### FAST SERVICE

We stock several manufacturers original copies of each tape, and can normally despatch your tapes the day we receive your order, and we always use first class post.

### LOWEST PRICES

We believe our prices are the lowest of any library, yet we offer the LARGEST range of titles. TWO WEEKS HIRE OF ANY TAPE COSTS JUST 80p (plus 40p p&p).

### FREE TAPE HIRE

For a limited period, we will send your first tape (your choice) FREE, so join our library now. You can't afford NOT to!!! If you've tried another library and are wary of our claims send a stamp and we'll gladly send you a copy of our catalogue - we're confident you'll join when you see it!!!



## NATIONAL SOFTWARE LIBRARY

200 Mulgrave Road,  
Cheam, Surrey SM2 6JT

I enclose cheque for £6.00 for LIFE MEMBERSHIP and I understand that my first tape hire will be FREE. If, within 28 days, I'm not delighted with your service you'll refund my membership fee.

Name .....

Address .....

HCW2

# 48K SPECTRUM OWNERS *Read This From* ...LET'S GET DOWN TO BUSINESS...

## ★ ★ ★ **FINANCE MANAGER** ★ ★ ★

Voted "the best value financial program available" by SINCLAIR USER

**FINANCE MANAGER** is a powerful, flexible and very fast MENU DRIVEN general purpose ledger package which includes both standing order and special forward planning features. The program will handle up to **255** separate accounts and 1800 transactions. The power of MACHINE CODE has enabled us to produce the very latest "on the page" presentation which lets you enter and edit data naturally, as if you were filling in a form.

These screens are just a sample to show the style of the program:

But that's not all, not by a long way. This program **automatically** raises a corresponding debit or credit for every entry, and will even open a new account if an entry features an unrecorded account name.

Information can be manipulated in various ways — you can call up your bank or credit card account, or analyse expenditure according to a variety of categories which you assign to the transactions. Instant Account balances can be listed at any time. A great time saving feature of this program is that account names and transaction descriptions need only be recorded **once**, as all the input fields will scroll existing files. There are many, many more features which make this the most powerful finance package around, we even include a test file for you to experiment with before getting started.



## ★ ★ ★ **ADDRESS MANAGER** ★ ★ ★

**ADDRESS MANAGER** utilises the same "on the page" presentation as **FINANCE MANAGER** and offers Spectrum owners a professional standard address filing, indexing and retrieval system. Below are examples of the screen presentations.

**ADDRESS MANAGER** has been carefully constructed to provide the user with a tool that is extremely friendly and easy to use, the speed and presentation of this program are second to none.



**ADDRESS MANAGER** features **MULTIPLE INDEXING** via our 3 way 3 character index, an ability to store over 400 full names and addresses or 1500 individual names/titles.

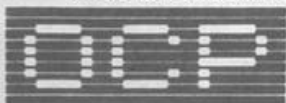
USES include storing and updating names, addresses and phone numbers, printing out Xmas card lists etc, mail order work, customer classification by type size, (doctors have used this program to catalogue patients by treatment).

## ★ ★ ★ **80 COLUMN-'PLUS 80' VERSIONS** ★ ★ ★

VERSIONS OF BOTH THESE PROGRAMS ARE NOW AVAILABLE FOR USE WITH AN 80 COL PRINTER. WORKING IN CONJUNCTION WITH THE KEMPSTON CENTRONICS INTERFACE THESE "PLUS 80" PROGRAMS CONTAIN ALL THE NECESSARY SOFTWARE AND CONTROL CODE FACILITIES TO OPERATE ANY KEMPSTON COMPATIBLE CENTRONICS PRINTER.

VISIT YOUR LOCAL SOFTWARE STORE NOW AND ASK FOR **FINANCE MANAGER** AND **ADDRESS MANAGER** BY NAME —

also available from selected branches of W. H. SMITH, BOOTS AND J. MENZIES



**SOFTWARE ★ ★ ★ SIMPLY THE BEST ★ ★ ★**

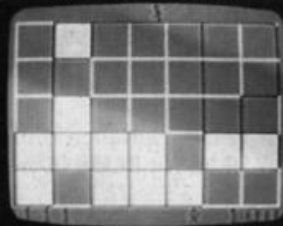
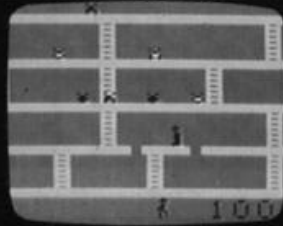
If you experience difficulty obtaining your copies of these programs send a cheque or postal order for £8.95 (£19.95 for **PLUS 80** versions) or telephone your details to (0753 888866):

**Oxford Computer Publishing Ltd.**  
4A HIGH STREET, CHALFONT-ST-PETER, BUCKS, ENGLAND

# MICRODEAL

PRESENTS A PANTOMIME

## Cuthbert <sup>in</sup> Boots



**On Cassette £8 each**

Selected titles of **MICRODEAL** games available from larger branches of Boots