

# Home Computing WEEKLY

An Argus Specialist Publication

Britain's leading weekly magazine for software reviews

No. 48  
Feb 7-13, 1984

40p

Great St. Valentine's Issue

Heart-felt games to type in for: VIC-20, Spectrum, BBC/Electron, Commodore 64

Software reviews for: BBC, Spectrum, Commodore 64, Dragon, Oric and Texas

PLUS: listings for Oric, Atari, Texas...

AND: your letters, U.S. scene, One Man's View, latest news, software charts

Win Arcadia, the chart-topper from **Imagine**. We've got 182 tapes to give away



## Bosses in COMX rescue mission

Two bosses from a Hong Kong computer makers made a flying visit to London to rescue the reputation of their micro, the COMX 35.

And they are also seeking a new distributor for a re-launch next month, following the collapse of Moranbrook, trading as Computers for All.

COMX was badly hit by a report in Home Computing Weekly that 55 per cent of the computers failed CFA tests and that 600 had been recalled from dealers.

On his UK visit, Thomas Yu, general manager of COMX World Operations, said: "The first we knew about it was when we saw the article."

Continued on page 5

## Micros make you vote

Micros can now help make sure you vote, thanks to a £10 program.

It was written by Norman Collins-Tooth and tested in a council by-election in Berkshire.

Mr Collins-Tooth, treasurer of Wokingham Liberals, set up two Orics with his Polling Day software.

He said it would not only replace the tedious manual work in party committee rooms but also provide up-to-the-minute predictions of the outcome.

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**NEW RELEASE**

**The Guardian**

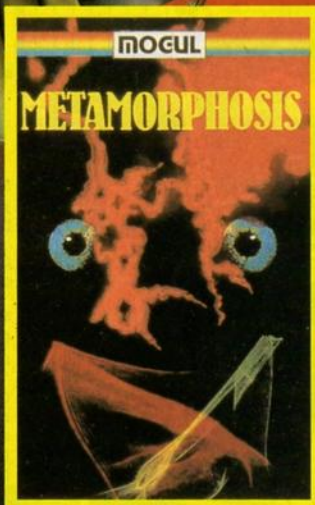
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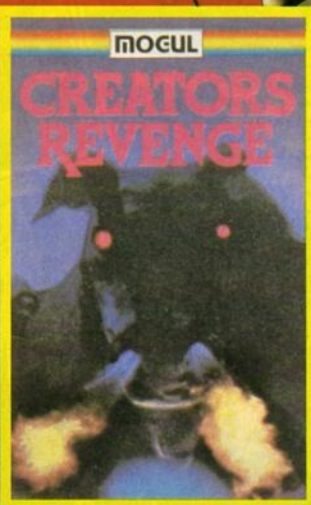
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## THE HOTWARE PEOPLE



### METAMORPHOSIS

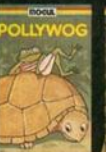
You stumbled into the nest of the **Cyglorx** and find yourself fighting off robot tanks guarding the **Cyglorx** eggs. You think you have everything under control and then the eggs start **hatching**. Commodore 64 version features 4 different screens.  
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Speakeasy, a speech synthesiser for most popular home micros, is the first product from Jamar, a new company formed to specialise in add-ons. Priced at £29.95, it is to be available now for the BBC micro, Commodore 64, VIC-20, Oric, Sharp, Colour Genie, Dragon 32 and Memotech with others to follow.

*Jamar, 17 Station Rd, Mirfield, West Yorks WF14 8LN*

A free membership club for owners of Aquarius computers has been set up. The Aquarius Users' Club says members will get a newsletter including special offers, advance information and programs. Membership is free until February 29.

*Miss L. Leboff, Aquarius Users' Club, 4th Floor, Hyde House, The Hyde, London NW9 6LG*

Adventure specialists Richard Shepherd Software has brought out Super Spy, originally written for the Spectrum, in a Dragon 32 version and Transylvanian Tower, already on sale for the Spectrum and Dragon, for the Commodore 64. Both cost £6.50.

*Richard Shepherd Software, 23-25 Elmshott La, Cippenham, Slough, Berks*

R.NEST, a new Commodore 64 game from Audiogenic, features a workman with toolbox who has to jump from cube to cube on a pyramid to change all the cube colours. Price: £6.95

*Audiogenic, P.O. Box 88, Reading, Berks RG1 2SN*

A new company has been formed by Radofin, makers of the Aquarius computer, and Custom Cables International, which makes software and interfaces. Add-On Electronics is to supply support for the Aquarius in Europe and software and add-ons for all home micros. Its products include 26 Aquarius software titles, 24 for the Spectrum, 16 for the VIC-20 and five each for BBC, Dragon, Oric and Commodore 64.

*Add-On Electronics, Units 2, 3, 4, Shire Hill Industrial Estate, Saffron Walden, Essex CB11 3AQ*

# Home Computing WEEKLY

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



It's St Valentine's Day next week so we've included four specially-written fun games in this issue, giving you plenty of time to type them in. They start on the following pages: Commodore 64, page 10; BBC/Electron, page 17; Spectrum, page 22; VIC-20, page 34



Give your Atari programs titles to be proud of — just type in the program which starts on page 48



A maze game with a difference for Oric owners starts on page 42



There's seven pages of software reviews in this issue, including five for the Dragon on page 27

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No. \_\_\_\_\_ for the following game for the  
\_\_\_\_\_ computer.

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2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

**COMX mission***From front page*

He said they had traced the source of the problem in the first batch of 2,000 which Comx had produced.

The failures were caused by faulty hermetic seals on two ICs — supplied by an outside company — which allowed in humidity.

It was a fault which may not show for several weeks, so it was not spotted by quality control inspectors.

Mr Yu said: "We want to set the record straight and clear up the mess. The damage has been done, but we want the public to know what is happening."

"Ever since then everything has been back to normal."

Mr Yu said Comx now had less than two per cent returns. And technical director Dr Ken Tracton, who designed the COMX 35, said that only about .4 per cent had "true" faults.

Mr Yu spoke of the difficulty COMX had in getting information from Computers for All which had left them in the dark about the cause of the failures.

He said: "We are selling very well in other parts of the world — except the UK."

Among the 10 countries where the micro was on sale were Holland, Sweden, Israel, Australia, New Zealand, Greece, Turkey, India and China, where it was used as an educational tool.

Sales would soon start in Germany and Italy.

Production was running at 6,000-7,000 a month with a maximum output of 10,000 a month.

Mr Yu said: "Our mission is to tell our story. We want people to know that we are a responsible company which will look after them. We will replace any faulty computer without question. They can write to me in Hong Kong or wait until we have a U.K. distributor."

The COMX 35, named for its

35K of RAM, will be re-launched at £119, including free software.

It is unusual for two reasons: the keyboard has a small joystick to the right and the computer uses the 1802A processor.

Dr Tracton explained his decision to use it by saying that it was reliable — being used in satellites and the Space Shuttle — and used CMOS technology so it needed less power and could cope with power fluctuations.

It ran cooler and needed a much smaller power supply.

The COMX 35, with 31K available for programs, has a built-in editor and programs in Extended BASIC are semi-compiled on running which, said Dr Tracton, makes for faster operation.

It measures about 11½in by 6¼in by 1¾in, has 55 moving keys, built-in speaker and joystick. Display 40 columns by 24 lines text and 240 by 216 pixels. There are 64 upper case ASCII characters, 64 user-programmable graphics, eight colours and eight octaves of sound in 16 volume steps, plus special effects. ROM occupies 16K.

Comx has a list of 118 of its own software on cassette at present, including 74 games, 27 educational and six business and personal, plus FORTH and Pascal.

The company has its own 40-column thermal printer — using paper rolls about 4½in wide — and an interface for RS232 and Centronics devices.

Due in April is an interface for Shugart-standard 5¼in floppy disc drives, including disc operating system, and a drive for 3½in Hitachi discs is on the cards.

In the early summer Comx is planning a re-styled version of the COMX 35 with a typewriter-style keyboard and, to replace the joystick, four cursor keys.

Comx, which also designs business computers, has about 65 employees and the COMX 35 is produced by a sister company. Both are owned by the Wo Kee

Hong Group, which has more than 3,000 employees and a turnover of £60m a year.

● South-end-based solicitors Booth White & Co have called a meeting of creditors of Moranbrook for February 17 at the Civic Centre, Southend. A spokesman said the company was insolvent and had ceased trading and that there would be a proposal to liquidate the company.

*Comx World Operations, 15th Floor, Wo Kee Hong Building, 585-609 Castle Peak Road, Kwai Chung, N.T., Hong Kong*

**Micro votes***From front page*

This meant that not only would parties know how the opposition was doing but party workers could be directed to the right areas to call on their voters.

Polling Day is at present available for the 48K Oric-1, 48K Spectrum and BBC model B micros.

Mr Collins-Tooth sells Polling Day through his home-based business, CT Software (Wokingham), with his wife Margaret.

*CT Software (Wokingham), 1 Rook Close, Wokingham, Berks*

**ELECTION DAY MENU**

Actual turnout so far xxxxx	(xx%)
Number of definites xxxxx	Number voted so far xxxxx
1 = TELLER RETURNS	
2 = DEFINITES/POSSIBLES BY ROAD	
3 = PRINT KNOCK UP LIST BY ROAD	
4 = CALCULATE RESULT BASED ON CANVASS RETURNS	
5 = PREDICT RESULT ON ACTUAL TURNOUT SO FAR	
6 = PRINT A FULL REGISTER	
7 = DISPLAY CAR CALLS	
8 = KNOCK UP RETURNS	
How Polling Day looks on the screen	

**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



The COMX 35 — re-launch planned for next month

## Briefly

Pilot and air traffic controller Mike Male has added new features to his flight simulator program. Now called Nightflite II, publishers Hewson Consultants says it is even more realistic. Nightflite II runs on either model of the Spectrum and costs £7.95.

*Hewson Consultants, 60A St Mary's St, Wallingford, Oxon OX10 0EL*

Two detective-type programs on one cassette are said by Widgit Software to be suitable for children from those just starting to read to the age of 10. In the Humpty-Dumpty Mystery the player has to find the culprit by questioning or observation and in the second, Who Killed Cock Robin?, logical thinking is needed to find out when, where and by whom the deed was done. The tape is for the 48K Spectrum and costs £6.25.

*Widgit, 48 Durham Rd, East Finchley, London N2 9DT*

Did you know geeps were over-worked computer fanatics or that moby mublage is important chatter? These are two of the definitions in The Hacker's Dictionary, a glossary of computer jargon compiled in America by Guy L. Steele Jr. Price is £3.50 from Harper and Row.

*Harper and Row, 28 Tavistock St, London WC2E 7PN*

Magazine columnist Tony Bridge has written a two-part book on playing and writing adventure games. Atari Adventures looks at the history of adventures — from text only to computer versions — and the second part gives a listing for a graphic-text adventure called The Eye of the Star Warrior, which will run on any Atari. Due out in 10 days, the book costs £5.95 from Sunshine.

*Sunshine, 12/13 Little Newport St, London WC2R 3LD*

Scope, a computer graphics language for the 48K Spectrum, is being launched for the Commodore 64. Designed for graphics animation and sound, Scope uses 31 plain English words and programs are then converted into machine code. Publishers ISP say several companies are, by agreement, using Scope to help produce arcade-style and adventure games.

*ISP Marketing, Crown House, 38B High St, Godalming, Surrey GU7 1DZ*

Some copies of Imagine's new graphics adventure, Alchemist, have gold coloured cassettes and cases to emphasise the theme of the game — turning base metal into gold. Written by Ian Weatherburn, the task is to find a scroll which is in four separate pieces. Stonkers is a new arcade strategy game featuring military strategy written by John Gibson, author of Molar Maul and Zoom. Computer and player start with equally-balanced forces in an area similar to the north European coast. Both games run on the 48K Spectrum and cost £5.50.

*Imagine, 5 Sir Thomas St, Liverpool L1 6BW*

TV's Chris Tarrant, of Tiswas and OTT, is to present a new documentary on video tape called The World's Greatest Computer Games. It is to include extracts from 20 games with hints on how to play them and demonstrations. It is due on sale in the spring from TVC Video.

*TVC Video, 38 Mount Pleasant, London WC1X 0AP*

Skull, a 3D maze adventure, has been released for the 48K Spectrum by Games Machine. Price: £6.95.

*Games Machine, Bessemer Dr, Stevenage, Herts SG1 2DX*

Microsoft's Multiplan, claimed to be the world's best-selling spreadsheet program, is now available for the Commodore 64 at £99.95.

*Kobra Micro Marketing, 1-7 Broomfield Rd, London W13 9AP*

Two cross compilers for serious Commodore programmers have been brought out by Oxford Computer Systems. Portspeed compiles source programs on the 8000 series to run on the 64 and X-64 is an integer compiler which compiles on the 8000 series giving machine code executable on the 64. OCS says an average program will cross compile in about two minutes. Price: £125 each.

*Oxford Computer Systems, The Signal Box, Hensington Rd, Woodstock, Oxford OX7 1JR*

Oric-Calc, a spreadsheet program at £14.50, is now available for the Oric-1 and Atmos computers.

*Tansoft, Techno Park, Newmarket Rd, Cambridge*

## All that glitters...

If you set out to buy an LP and the sales assistant hands it over in a package the size of a car wheel, you might be less than happy — particularly if you are travelling by bus.

Why is it, then, that no-one seems to blink an eyelid at the equally generous packaging methods of some software companies?

Recently I purchased a cartridge which was presented in a box with a volume some 15 times larger than its contents. Why all the extra space?

To be fair to the company concerned, in this case, an explanatory manual was also included which accounted for some of the redundant dimensions. However, the whole thing could have been packaged more efficiently.

Turning my measuring stick to another recent purchase, I see that a games cassette arrived in a flashy display box which is exactly 10 times too large by volume. This turns out to be particularly galling, as no instructions or explanations of how to play the game are included. Presumably the marketing budget ran out after paying for all the expensive artwork on the carton.



And talking about artwork, isn't it time that software producers and magazine editors began to toe the line? Some of the pictures on cassette covers or in journals bear little resemblance to the contents of the game. Surely this is blatant misrepresentation, if not outright fraud?

Now, no-one wishes to stifle creative licence. Using semi-clothed models to promote sales is all part of accepted commercial practice. Even T-shirts which encourage the world and his wife to "Byte Me" amuse as well as promote. However, everyone knows that the girl doesn't come with the modem, or that the T-shirt invitation shouldn't be taken too literally. But in the case when barely discernible screen characters display no resemblance whatsoever to the clear-cut images in the glossy artwork, the public is being conned. Cassette covers and articles should always show a picture from the actual game. By all means let's continue with the creative illustrations, but if, for instance, a photograph of a cowboy accompanies a game then a screen dump should also be shown (HCW take a bow).

Perhaps it is no coincidence that more advertisements by the Advertising Standards Authority (ASA) are appearing in home computer magazines. Anyone who feels that they have been ripped off by a company using over-imaginative methods of presentation should write to the ASA at Brook House, 2-16 Torrington Place, London WC1E 7HN, and complain.

With the introduction of Top 30 charts, the software producers move ever closer to the pop-music industry. Let us hope that they adopt only the good things such as enterprise, innovation and energy, but leave behind the less savoury practices like payola and chart rigging which have done so much to tarnish the image of music producers.

**Mike Hussey  
Birmingham**

● This space is for you to sound off about the micro scene, to present bouquets, to hurl brickbats, or just to share your opinions or experiences. Send your contributions to Paul Liptrai, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB.

## COMPETITION

Three top names in computer games wrote Imagine's chart-topper, Arcadia — and now we're giving away 182 tapes in this week's competition.

It was designed by Imagine directors Dave Lawson and Mark Butler and coded by head programmer Eugene Evans.

Arcadia is available for the Commodore 64, either Spectrum and the unexpanded VIC-20, and we've got all three versions as prizes.

Imagine is one of the best-known names in home computer software and its games live up to its reputation.

Here's a taste of what you can expect if you're among the winners:

*You are in command of the starship Arcadia, which means you have the most sophisticated space technology under your control — including the mind shattering Ion Thrust and the awesome power of dual Plasma Disrupter guns.*

*The Atarian empire has been growing — engulfing smaller planets — and is now poised to enslave the entire galaxy.*

*Only you and your starship can repel the Atarian hordes. Wave after wave, they attack the Arcadia, each wave lasting a set period.*

*If you manage to destroy the entire fleet within the time limit another will attack. If an alien race fails to destroy the Arcadia during this time a different race will resume the attack.*

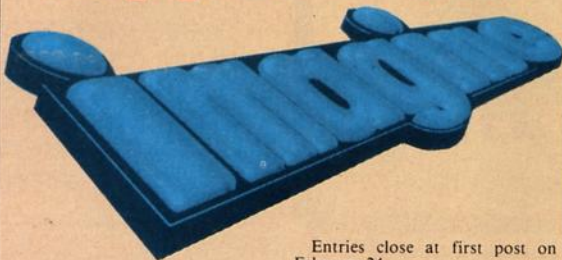
*Each new onslaught is by more sophisticated and deadly craft than the last. Can you save civilisation?*

Can you spot all the differences between our two cartoons?

Like all competitions in Home Computing Weekly, entry is easy and free — just follow carefully the guidance in the How to Enter section.

Closing date is first post on February 24 and the winners will be

# 182 chances to win a great chart-topper from



you wish, but each entry must be on the official coupon and cartoon — not a copy — and sealed in a separate envelope.

The winners will be the first 182 correct entries opened at random, regardless of computer.

The prizes will arrive from Imagine within 28 days of the publication of the issue containing the names of the winners.

Important: please follow carefully the guidelines above. Any entries which are not complete cannot be considered.

### The rules

The first 182 correct entries opened after the closing date, first post on February 24, 1984, will win the prizes. They will be selected at random, regardless of computer owned.

Entries which do not follow the guidance in the How to Enter section cannot be considered.

Entries will not be accepted from employees of Argus Specialist Publications, Imagine Software and Alabaster Passmore & Sons. This restriction also applies to employees' families and agents of the companies. The editor's decision is final and no correspondence will be entered into.

Entries close at first post on February 24.

You may enter as many times as

the first 182 correct entries opened at random and regardless of which computer is marked on the coupon.

### How to enter

Examine the two cartoons carefully — there are several differences between them.

Circle the differences on cartoon B and then fill in your name, address, the number of differences you found and the computer you own — Commodore 64, Spectrum or VIC-20.

Seal the coupon and cartoon B in an envelope and write clearly on the back of the envelope the number of differences you found.

Post your entry to Imagine competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB.

## Imagine competition

### Entry Coupon

Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

Number of differences found \_\_\_\_\_

Computer \_\_\_\_\_

Complete clearly and fully — if you are a prizewinner, this will act as a label. Post to: Imagine Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Closing date: first post, February 24, 1984. Do not forget to follow carefully the guidelines in the How to Enter section.



**Goodness Gracious  
CBM 64 £6.95**

Beyond, Farndon Rd, Market Harborough, Leics LE16 9NR

A very tame game, reminding me of Duck Shoot. The plot has been dressed up a bit, though. You are a dinosaur guarding a gem from creatures which appear the other side of the screen. To kill them you spit fireballs by pressing the space bar.

The time held down determines the length of the shot when released. You have three chances to hit the creature before it snatches the gem. If you hit the creature another appears.

The inlay says there are six screens of creatures, but I lost interest after killing three or four. I did not like the way the

fireball went up on a gentle arc but on reaching its zenith fell vertically. In this respect it's worse than Duck Shoot. With practice and counting in time to the background noise with the space bar held down scoring became routine.

Graphics were not outstanding and animation slowed whenever the space bar was down. It is by no means a classic and will rank near the bottom of my list.

L.C.

instructions	50%
playability	40%
graphics	50%
value for money	40%



**Gold Rush  
Spectrum  
£6.95**

Thorn EMI, Upper St., Martin's Lane, London WC2H 9ED

Your mission in this novel game is to mine gold. However, goldmining is a little unusual in the planet Oron, where you have unaccountably arrived, because Oronian mines are bottomless caverns with gold falling from the roof!

There is a large supply of girders which you can place on the playing grid to deflect the gold into one of your two pots. You must avoid the demons of the mine, who move the girders around, and the falling gold. I found it safest to place the girders at the base of the grid, but since you get points for every girder hit

by the gold you score more points if you spread girders around the grid.

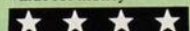
The difficulty in striking a balance between security and scoring adds greatly to the game's interest.

The graphics are smooth, but surprisingly no sound is used. Even the easiest of the five skill levels is difficult, particularly because the keyboard control is so awkward — all the control keys are on one line.

This game is recommended, if you are able to take advantage of the Kempston or Sinclair joystick option.

S.E.

instructions	100%
playability	60%
graphics	75%
value for money	80%



**Cosmic  
Combat  
32K BBC £6.95**

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

A two-player space combat game using high-resolution mode 4, which offers only two colours, so you have the choice of black and white or two-colour display.

There are six battle scenes to choose from. The player who zaps the other's ship the most number of times in 100 seconds wins. You choose the effective range of the bullets, thus giving the option of long or close range combat. The option of a border or wrap-around is also available. Action is smooth and sound effects (reminiscent of

Acornsoft's Planetoids) good.

Control keys could have been better chosen, and a joystick option would be useful. The twinkling stars art an irritation as stars do not twinkle in space, and having to go through the instructions to start each game is annoying. A more serious fault allows bullets to pass harmlessly straight through ships on occasions. The game could also be improved by a choice of skill levels controlling the speed of the ships and an option to play against the computer.

D.H.

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



**Another trip  
to the  
arcade**

**These games challenge you to mine gold, repair robots, hurl fireballs, rescue sunken treasure and bounce around. Our reviewers tell how they performed**

**Diver  
TI-99/4A Ex  
BASIC £4.95**

Warwick, 40 Kingsway, Newby, Scarborough YO12 6SG

You have to recover treasure from the seabed in the least possible time. As each item is retrieved it must be carried up to the salvage vessel, continually traversing the surface. Control of diver is keyboard or joystick.

Like all divers you have limited oxygen. When this falls to 20 kg a helicopter drops a new bottle.

Other hazards include two white sharks which swim across the screen, and an octopus which disappears and reappears in different locations.

One peculiarity is the way the diver is equally able to "swim" in

the sky as the water. This may not be used to advantage as you will be penalised by a dramatic reduction in oxygen and a time.

There are five skill levels. On each the ship moves faster and the predators become more aggressive.

Having struggled to win you may, however, be disappointed. You "best time" is not updated from 999, the maximum.

J.W.

Note: Warwick says this bug does not appear in production on versions.

instructions	100%
playability	55%
graphics	75%
value for money	60%



**Bouncer  
TI-99/4A Ex  
BASIC  
Joysticks £7.95**

Endless Software, from Timeless, 3 Bridgend, Faud- house, West Lothian EH47 9HF

If you're the owner of TI joysticks then you might as well forget about Bouncer — it promises to be both a waste of your time and money.

The object of the game is to move your Bouncer, which resembles a rubber ball with legs, around a series of trampolines, each bounce gaining points. The configuration of the trampolines varies with each screen completed.

Success depends on precise timing of the Bouncer's jumps so

as to avoid arrows continually shooting across the screen. Should an arrow pierce your little Bouncer he gradually disintegrates, whereupon you start again.

The movement of the Bouncer relies heavily on diagonal positioning of the joysticks. With the TI models not only is this difficult, to say the least, but they are additionally disadvantaged by being slow to respond. These shortcomings are admitted at the end of the supplier's instructions. American by the way, which also state that third party hardware tested by them performed satisfactorily.

J.W.

instructions	90%
playability	25%
graphics	70%
value for money	40%





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WAITING TO GET

OUT



\* **WHEELIE** (48K Spectrum)

As proud owner of the ultimate racing motorbike, you find yourself in a strange world — a world full of double-decker buses to leap and where even the hedgehogs are out to get you! Your only hope of escape is to find the elusive ghost rider and then beat him in a life-or-death race.

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"Fun, fun, fun to play..." (Home Computing Weekly 27/9/83)

**OMNICALC** (48K Spectrum)

The best Spectrum spreadsheet you can buy. Written in machine code, to be faster, to give you more space for data, and to include more features, it is guaranteed uncrashable. Complete with comprehensive manual £9.95

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**EVOLUTION** (48K Spectrum)

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Available at good computer shops everywhere, or by mail order from MICROSPHERE, 72, Rosebery Road, London N10 2LA (Tel: 01-883 9411)



# COMMODORE 64 PROGRAM

```

857 PRINT "          "
860 POKEV+16,(PEEK(V+16)OR3)AND251
870 POKEV,72:POKEV+2,72:POKEV+1,222
875 FORN=6TO15:POKEV+N,0:NEXT
880 POKEV+3,214:POKE863,0
885 POKE861,76:POKE862,1
890 POKE2023,160:POKE56295,0
895 POKE2042,251:POKEV+4,22:POKEV+5,222
898 RETURN
899 REM*SCREEN 2*
900 POKE2042,246:POKE863,1
910 FORN=4TO14STEP2:POKEV+N,249:NEXT
919 REM*[CLR][BLUE].
920 PRINT "X" "
930 POKEV+16,PEEK(V+16)AND252
940 POKEV+1,238:POKEV+3,232
950 POKEV,28:POKEV+2,28
960 POKE861,24:POKE862,0:RETURN
970 DATA 180,90,4,180,60,4,180,30,4,180
975 DATA 90,5,152,60,5,71,30,5,71,45,4
980 DATA 180,45,4,180,60,4,180,30,4,180,90
985 DATA 9,104,60,12,143,40,12,143,20
990 DATA 12,143,60,,20,9,104,60,14,24,30
995 DATA 11,48,30,12,143,30
1000 DATA 165,197,201,64,208,16,169,
1010 DATA 141,96,3,169,1,141,92,3,169,3
1020 DATA 141,91,3,96,201,34,208,35
1030 DATA 238,96,3,173,96,3,201,7,208,14
1040 DATA 169,,141,92,3,141,91,3
1045 DATA 169,6,141,96,3,96
1050 DATA 169,2,141,91,3,169,1,141,92,3
1060 DATA 96,162,,142,96,3,201,37,208,19
1070 DATA 169,,141,90,3,173,91,3,41,1
1080 DATA 141,91,3,169,,141,92,3,96
1090 DATA 201,42,240,1,96,169,4,24
1100 DATA 144,229,-1,-1
1110 DATA 162,,173,92,3,240,26,173,91,3
1120 DATA 201,3,208,6,169,251,141,248,7
1130 DATA 96,169,250,24,109,90,3,24
1140 DATA 141,248,7,24
1150 DATA 144,23,173,91,3,24,105,1,24
1160 DATA 41,1,141,91,3,24,105,240,24
1170 DATA 109,90,3,24,141,248,7,162,
1180 DATA 173,90,3,240,50,173,93,3,24
1190 DATA 105,4,144,15,24,141,93,3
1200 DATA 173,94,3,73,1,141,94,3,24
1210 DATA 144,72,141,93,3,173,94,3
1220 DATA 240,64,173,93,3,56,233,78
1230 DATA 144,57,24,169,76,141,93,3
1240 DATA 162,1,24,144,43,173,93,3,56
1250 DATA 233,4,176,14,141,93,3,173,94,3
1260 DATA 73,1,141,94,3,24,144,23
1270 DATA 141,93,3,173,94,3,208,15
1280 DATA 173,93,3,56,233,24,176,7
1290 DATA 169,24,141,93,3,162,1,24
1300 DATA 173,93,3,141,,208,141,2,208
1310 DATA 173,16,208,41,252,24
1320 DATA 109,94,3,24,109,94,3,24
1330 DATA 109,94,3,24,141,16,208,96
1340 DATA -1,-1,-1,-1
1350 DATA 173,95,3,208,1,96,169,4
1360 DATA 133,251,169,1,133,252,160,4
1370 DATA 185,1,208,24,101,252,24
1380 DATA 153,1,208,56,233,250,144,44
1390 DATA 24,169,,153,1,208,173,27,212
1400 DATA 24,105,70,144,15,24,153,,208
1410 DATA 173,16,208,5,251,141,16,208
1420 DATA 24,144,15,153,,208,173,16,208
1430 DATA 5,251,56,229,251,24,141,16,208
1440 DATA 230,252,24,6,251,24,200,200
1450 DATA 192,16,208,185,96,-1,-1
1460 DATA 173,95,3,240,1,96,173,27,212
1470 DATA 41,31,24,105,158,24,133,251
1480 DATA 169,7,133,252,169,32,160,,145,251
1490 DATA 160,40,145,251,173,27,212,41,31
1500 DATA 24,105,158,24,133,251,169,160
1510 DATA 145,251,160,,145,251,200
1515 DATA 145,251,160,41,145,251,96,-1
1520 DATA 32,,64,32,128,64,224,,240,3

```

```

1530 DATA 169,255,96,32,128,65,230,254
1540 DATA 165,254,41,31,208,3,32,,66
1545 DATA 169,,96,-1
1550 DATA 173,95,3,208,1,96,160,4,169,4
1560 DATA 133,251,185,1,208,41,248
1570 DATA 201,240,208,47,173,16,208
1580 DATA 37,251,240,2,169,1,205,94,3
1590 DATA 208,33,185,,208,41,248,133,252
1600 DATA 173,93,3,41,248,197,252,208,17
1610 DATA 152,56,233,10,144,3,169,1,96
1620 DATA 173,21,208,9,2,141,21,208
1630 DATA 24,6,251,200,200,192,16
1640 DATA 208,191,169,,96,-1,-1
1650 DATA 173,95,3,240,3,169,,96
1660 DATA 173,93,3,24,74,24,174,94,3
1670 DATA 224,,240,3,24,105,128,56
1680 DATA 233,12,24,74,24,74,24,105,152
1690 DATA 24,133,251,169,7,133,252
1700 DATA 160,,177,251,201,208,3
1710 DATA 169,,96,173,91,3,201,2,240,246
1720 DATA 169,1,96,-1
1900 DATA 49,128,,123,192,,255,224,
1910 DATA 255,224,,127,192,,127,192,
1920 DATA 63,128,,31,,14,,4,-1
1930 DATA 20,,62,,62,,28,,8,-1
2000 DATA 12,,12,,4,,12,,30,,
2010 DATA 101,,12,128,20,,18,,33,,
2020 DATA 32,128,,97,-1
2030 DATA 12,,12,,4,,12,,12,,30,,
2040 DATA 45,,12,,12,,18,,18,,55,-1
2050 DATA 12,,12,,4,,63,,204,192,
2060 DATA 12,,179,,64,128,1,-1
2070 DATA 28,,28,,8,,28,,62,,62,,
2080 DATA 93,,85,,20,,20,,20,,54,-1
2090 DATA 12,,12,,8,,12,,30,,
2100 DATA 45,128,76,,10,,18,,33,,
2110 DATA 65,,33,128,-1
2120 DATA 12,,12,,8,,12,,12,,30,,
2130 DATA 45,,12,,12,,18,,18,,27,-1
2140 DATA 12,,12,,8,,63,,204,192,
2150 DATA 12,,51,64,,64,128,32,-1
2160 DATA 68,,40,,84,,56,,16,,16,,
2170 DATA 16,,16,,124,,56,,16,-1
3000 X=PEEK(V+21)AND2:IFX=0THENRETURN
3009 REM*[BLUE][HOME].
3010 H=H+1:PRINT "SCORE=H*HEART";
3020 IFH<1THENPRINT"S";
3030 PRINT "
3040 FORN=1TO19
3050 POKES+4,0:POKES,B%(N):POKES+1,A%(N)
3060 POKES+5,11:POKES+4,33
3070 FORT=0TODX(N)*8:NEXT
3080 NEXTN
3090 POKEV+21,PEEK(V+21)AND253
3100 RETURN
3199 REM*[HOME]
3200 PRINT "3" "2ND LUCK!"
3230 FORN=0TO10
3240 POKES+4,0:POKES,B%(N):POKES+1,A%(N)
3250 POKES+5,11:POKES+4,33
3260 FORT=0TODX(N)*8:NEXT
3270 NEXTN
3290 IFPEEK(863)=1THEN3340
3300 FORN=222TO255STEP0,5
3310 POKEV+1,N:NEXT
3340 L=L-1:IFL=-1THEN3400
3350 GOSUB8000:POKEV+21,PEEK(V+21)AND253
3360 POKEV+16,PEEK(V+16)AND254
3370 POKE861,32:POKE862,0
3380 POKEV,32:GOTO6000
3399 REM*[CLR]...[RED]..
3400 PRINT "YOUR SCORE WAS"H*HEART";
3410 IFH<1THENPRINT"S";
3419 REM*[CRSR DOWN]*[BLUE]
3420 PRINT:POKEV+21,0
3430 PRINT "WANT TO WANT ANOTHER GO(V/N)?"
3440 GETA$:IFA$="N"THENEND
3450 IFA$=""THEN3440
3460 GOTO3000

```

## METAGALACTIC LLAMAS BATTLE AT THE EDGE OF TIME

A fast and original game for the unexpanded VIC. Challenging and colourful, with good sonics and a unique game action and design. This promises to be the most exciting new 3.5K VIC game since the introduction of GRIDRUNNER nearly a year ago. £5.50

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Available for Commodore 64 £7.50 and VIC-20 £6.



### MATRIX

Jeff Minter has taken Gridrunner - the game that topped bestseller charts in USA and UK - and created an awesome sequel. Graphically superb, it features multiple screens, new aliens and attack waves, mystery bonuses, renegade humanoids, deflexor fields, diagonal tracking, countdown/panic phase and much, much more.

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### HOVER BOVVER

A totally original arcade game for C64 featuring outstanding graphics and a sound track created by a professional Piano Wizard.



Gordon Bennett has borrowed his neighbour's Air-Mo lawnmower. Mow your way through as many of the 16 lawns as you can before the pursuing neighbour retrieves his mower. Set your dog onto the neighbour to help you out of tight spots and don't annoy the gardener. Try not to plough through the neat flower beds or overheat your mower!

£7.50

### ATTACK of the MUTANT CAMELS

Planet earth needs you! Hostile aliens have used genetic engineering to mutate camels from normally harmless beasts into 90 foot high, neutronium shielded, laser-spitting death camels!! Can you fly your tiny, manoeuvrable fighter over the mountainous landscape to weaken and destroy the camels before they invade the humans stronghold! You must withstand withering laser fire and alien UFOs. Game action stretches over 10 screen lengths and features superb scrolling, scanner 1/2 player actions and unbelievable animation! Play this game and you'll never be able to visit a zoo again without getting an itchy trigger finger! Awesome m/c action!

Available for Commodore 64 £7.50.

### ABDUCTOR

A classic new space game! ZAP the swirling alien hordes before they ram you - and abduct your humanoids! Survive the assault for long enough and you'll get an extra stage on your spaceship with double firepower! Awesome unexpanded VIC Action. £5.00

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# REVENGE

## OF THE MUTANT CAMELS

At last the long awaited sequel to Attack of the Mutant Camels is available. You are controlling a ninety foot high, neutronium shielded, lazer spitting death camel; leading a rebellion against your evil Zzyaxian overlords. The game features beautiful smooth scrolling graphics and no less than 42 different attack waves, more than any game in video history. The challenge of play will last for months as you battle to see what's on the next wave.

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| <input type="checkbox"/> Jet Pac | <input type="checkbox"/> Jet Pac - Expanded VIC 20 | <input type="checkbox"/> Atic Atac |                                   |

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Ashby de la Zouch,  
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# Make more use of your micro

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## Synther 7 Dragon 32 £10.95

Dragon Data, Margan, Port Talbot, West Glamorgan SA13 2PE

As this is written for a computer with precious little for a budding musician — only one sound channel and no real envelope control — I had very few expectations. But this tape is amazing!

The aim appears to be to turn the Dragon into an organ-type synthesiser of quite remarkable range. I refer to it as organ-like because the various controls of type of note are called stops and measured in feet giving a wide range of sound. There are also several voices.

You also have control over the attack and decay of the note besides the target volumes. The whole range of possible controls is very well laid out on screen and generally easy to use.

The only quibble I have is that it is extremely easy to enter an endless note which you have to press the panic key to clear away. I suppose I asked for it, but at least the program could cope once I found the panic button.

All told a very capable program which shows how good programming can overcome even severe hardware restrictions.

instructions	70%
ease of use	80%
display	80%
value for money	90%



## Dancing Feats CBM 64 £6.95

Artic, Main St, Brandsburton, Driffield, Yorks

By using a joystick it is possible to play music in various styles, accompanied by a splendid display of coloured bars that match the notes.

After loading the computer will play a demonstration tune automatically unless bypassed by use of the function keys. It is then menu options the style of music you wish to play.

Menu options include bass, beat, style, tempo and an ending. And within each category and five or six options, chosen using the joystick button. In normal format a musical accompaniment

instructions	V.R.
ease of use	85%
display	85%
value for money	90%
	75%



## Cattel IQ Test 48K Spectrum £12.95

Sinclair, Stanhope Rd, Camberley, Surrey GU15 3BR

Have you ever wondered how intelligent you really are? If you are aged over 12½, this tape — based on a test devised by Prof. R. B. Cattel — is devised to assess your intelligence quotient.

Your age is one of the factors used, so there is no excuse if you are 40-plus and want to compete against your offspring. You can always say they got their brains from you!

The test is in six parts: synonyms, pick the odd one out, opposites, analogy, replace missing words and inferences

which is to test reasoning. It is designed to last 90 minutes. If your result is above a certain level you are deemed suitable to apply for Mensa membership (Sir Clive belongs!). However, presumably as a sop to your vanity, if your score is lower the booklet says you shouldn't take the results too seriously! This test will not prove conclusively that you are a genius . . . or otherwise. You should have no problems with loading and I found no bugs. No . . . I'm not going to tell you what I scored.

instructions	100%
ease of use	100%
display	100%
value for money	85%



## Composer 48K Oric £6.50

Sector 7, PO Box 8, Newton Abbot, Devon

Composer is a remarkable package in several ways. It is fundamentally a music processor enabling you to write music for the computer to play in a most versatile fashion. It comes with three demonstration tunes which reveal the Oric's tremendous musical capabilities in a way that has to be heard to be believed. I knew Oric sound was good, but it takes software like this to bring it out to the full.

The three-part score can be displayed in hi-res graphics and the music is entered as bars using the three sound channels. Various options are available to build up to 80 bars. Each channel is

separately programmable for volume and decay rate and special options can be set globally, although I seemed to find a bug in controlling the volume of channel two.

Tunes can be saved and loaded separately from the main program which is written in completely self-contained Forth software — showing the versatility of that language for this type of program.

There is also a competition offering £100 and £50 for the best two productions.

instructions	P.S.W.
ease of use	85%
display	80%
value for money	85%
	90%



## Print utilities Spectrum £9.95

Sinclair, Stanhope Rd, Camberley, Surrey GU15 3BR

Although there were no problems with the actual loading of this tape, there was a problem once the tape had loaded.

The message on the screen asked me if there was a printer attached to the computer. On entering "no" the program immediately came to a halt. However, after taking out the offending line, a quick examination of the program showed me where to start again.

Apart from the normal 32 characters per line the utility provides 16,21 or 42 characters per line, with a choice of normal

or double height. Apart from the bug mentioned above, and the fact that the booklet's statements that CHR\$ 8 to move a character left, and CHR\$ 9 to move a character right are exceptions from the manual, I could find no other bugs.

However, this does not enhance the fact that is not a very useful utility as such, and certainly not worth the price charged. I have seen very similar routines printed in computer magazine.

instructions	75%
ease of use	80%
display	100%
value for money	40%



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## COMMODORE 64

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This game features Cupid's younger and, of course, less intelligent brother, Stupid.

After watching the way his brother can, using a single arrow, join the hearts of star-crossed lovers, he decides to have a go himself.

He has rather missed the point, however, and delights in simply shooting the hearts that Juliet throws, as they fall to be caught by her lover below the balcony.

Your aim is to steer Romeo to catch the hearts and so build up his lover's name on the ground below him. To do this you use the Z and X keys and for every heart you catch an extra letter is added to the name.

**How it works**

Line numbers are followed by names of PROCedures and their purpose.

- 160-440 INIT set up variables, characters etc
- 450-510 MOVEMAN move catcher
- 520-550 KEYS checks for key pressed and acts accordingly
- 560-640 MOVEHEART drops heart a line at a time
- 650-690 RESET sets heart to start from top again
- 700-720 CHECKHEART checks to see if caught
- 730-840 CATCHHEART adds to score, etc
- 850-900 BREAKHEART prints broken heart
- 910-980 FAIL failure message and offer of another go
- 990-1140 LOVE success message
- 1150-1250 GETNAME takes name of lover and checks it for length
- 1260-1340 ARROWS prints arrows across screen
- 1350-1660 BACKGROUND sets up screen
- 1700-1770 TUNE plays wedding march
- 1790-2040 INSTRUCTIONS first screen
- 2050-2120 EXPLODE explode heart if hit by arrow
- 2130-2210 PEOPLE sets up user defined characters and title message
- 2220-2280 READ(Z%) part of above routine
- 2350-2390 TITLE(Z%) prints title on each screen

# Hearts will name your loved one, if you foil Stupid Cupid

**Cupid's younger brother, Stupid, has got it all wrong. He's out to break hearts instead of joining them. Type this game into your 32K BBC or Electron micro and have some innocent fun, thanks to authors Dave Carlos and Jon Revis**

You can type your own beloved's name into the program. If you lover is called DI then you have an easier task than one called ESMERELDA. This provides a method of increasing difficulty, too.

Then you must decide how earnest your love has become. If it is very earnest then you will work harder to catch the hearts, so less are thrown before failure strikes.

I suggest you should not be too earnest to begin with.

For those ladies who would like to try catching the hearts of

their gallant gents it is very easy to change the program so that the men throw the hearts.

The modifications involve replacing four lines in the program with the following amended versions given.

The program has been tested on the BBC model B and Electron micros. On the Electron the progress is rather slow but the game is actually no easier.

If you BBC has discs then you should set PAGE = &1200 before loading.

The program has no REMarks in order to save memory and to

**Main variables**

- Integer:
- AY% arrow Y co-ordinate
- AX% arrow X co-ordinate
- CH% number of caught hearts
- CO% heart counter
- HY% heart Y co-ordinate
- HX% heart X co-ordinate
- LM% left margin of screen
- LO% loop counter
- LE% game level
- OX% old X co-ordinate
- OAX% old arrow X co-ordinate
- duration% length of note
- note% pitch of note
- reply% answer to another go?
- x% screen X co-ordinate
- y% screen Y co-ordinate
- String:
- DEVILS Cupid character
- DEWIPES wipe out Cupid
- HIMS male character
- HERS female character
- MES program title
- NAMES name of lover
- WIPES wipe out moving person
- a\$ multipurpose string
- Real:
- N loop counter

make things as fast as possible but the PROCEDURE names are supposed to be self explanatory and should help you to see what is happening.

The use of strings to change both graphics colours and to move around the screen is a little unusual.

They were used to make it easy to print the multi-coloured people, some of whom need seven actual characters to be printed. This technique can save a lot of memory if used wisely.

You will also search in vain for the program title. It is held as ASCII codes and read into the MES

Greatest care needs to be taken over typing the DATA lines — a single mistake here can be very hard to find and can have highly unpredictable results.



```

1 REM *****
2 REM STUPID CUPID
3 REM By Jon Revis &
4 REM Dave Carlos
5 REM For Home Computing
6 REM Weekly
7 REM January 1984
8 REM *****
10 MODE2
20 PROCINIT
30 PROCPEOPLE
40 PROCINSTRUCTIONS
50 PROCGETNAME
60 PROCBACKGROUND
70 PROCMOVEMAN
80 REPEAT
90 PROCKEYS
100 PROCARROWS
110 PROCMOVEHEART
120 UNTILCOX>LEX*LEN(NAME$)
130 PROCFAIL
140 GOTO10
150 END
160 DEFPROCINIT
170 VDU24,0,0:1279:1023:5
180 LMZ=284:XX=236:OX=X:Y=316:HYZ=775:CHZ=0:HXZ=RN
190 *32+LMZ:COX=0:AYZ=456:AXZ=220:OAXZ=AXZ
126 ENVELOPE1,4,90,-15,-15,10,20,20,126,0,0,-126,126,
126
200 VDU23,224,0,40,100,124,124,56,56,16
    
```

# BBC/ELECTRON PROGRAM

```

210 VDU23,225,0,34,99,115,103,50,38,20
220 VDU23,226,0,0,4,2,63,2,4,0
230 VDU23,227,144,20,198,22,44,106,6,192
240 VDU23,228,0,32,32,33,192,0,104,0
250 VDU23,229,0,0,40,60,60,24,0,2
260 VDU23,230,2,0,0,0,0,0,28
270 VDU23,231,0,0,0,0,0,0,28
280 VDU23,232,28,24,24,24,28,62,62,0
290 VDU23,233,56,120,80,64,192,0,0,0
300 VDU23,234,0,24,20,28,56,24,0,0
310 VDU23,235,14,0,0,0,0,0,0,0
320 VDU23,236,0,0,0,0,0,0,24,24
330 VDU23,237,16,24,24,0,0,0,0,0
340 VDU23,238,56,32,40,32,0,0,0,0
350 VDU23,239,1,1,0,24,24,24,24,28
360 VDU23,240,212,234,20,42,20,0,0,0
370 VDU23,242,0,0,56,52,60,48,48,48
380 VDU23,243,62,48,48,48,16,24,24
390 VDU23,244,108,40,0,0,128,128,128
400 VDU23,245,128,128,128,192,0,0,0,0
410 VDU23,246,0,0,0,0,0,2,1,5
420 VDU23,247,1,5,1,2,0,0,0,0
430 VDU23,255,255,255,255,255,255,255,255
440 ENDPROC
450 DEFPROC MOVEMAN
460 MOVE0X,X,Y,Z
470 PRINTWIPE#
480 MOVEX,X,Y,Z
490 PRINTIM#
500 OX=X,X
510 ENDPROC
520 DEFPROC KEYS
530 IF INKEY=98ANDX>LMX:XX=X-32:PROCMOVEMAN
540 IF INKEY=67ANDX<1104:XX=X+32:PROCMOVEMAN
550 ENDPROC
560 DEFPROC MOVEHEART
570 MOVEHX,X,H,Y,Z
580 VDU18,0,4,255
590 HY=HY-32
600 IFHY<340:PROCCHECKHEART
610 SOUND1,-15,HY/4,1
620 MOVEHX,X,H,Y,Z
630 VDU18,0,1,224
640 ENDPROC
650 DEFPROC RESET
660 HY=775
670 HX=RND(29)*32+LMX
680 COX=COX+1
690 ENDPROC
700 DEFPROC CHECKHEART
710 IF OX=HX-80:PROCCATCHHEARTELSEPROC BREAKHEART
720 ENDPROC
730 DEFPROC CATCHHEART
740 *FX15,0
750 SOUND1,-15,300,5
760 CHX=CHX+1
770 VDU4
780 COLOUR11
790 PRINTTAB(10-(LEN(NAME#)/2),30)LEFT$(NAME#,CHX)
800 VDU5
810 IFCHX=LEN(NAME#):PROCLOVE
820 PROCRESET
830 VDU5
840 ENDPROC
850 DEFPROC BREAKHEART
860 SOUND0,-15,4,2
870 MOVEHX,X,256
880 VDU18,0,1,225
890 PROCRESET
900 ENDPROC
910 DEFPROC FAIL
920 VDU4:COLOUR132:COLOUR3:CLS:PROCTITLE(960)
930 VDU4
940 PRINT"*****It appears that your love is doomed to
fail. I would go and get some rest now all this unrequi
ted love is very tiring.*****You could have another
go if you really want too!"
950 PRINT"Press SPACE for another go""or any oth
er key to END"
960 *FX15,1
970 reply%=GET:IFreply%<>32END
980 ENDPROC
990 DEFPROC LOVE
1000 *FX15,0
1010 VDU4,23;8202;0;0;0;
1020 COLOUR132:CLS:PROCTITLE(960):VDU4
1030 PRINTTAB(5,5)"Heartiest";TAB(2,7)"congratulations
";TAB(7,9)"to you";TAB(8,11)"and";TAB(5,13)"your love"
1040 PROCUNE
1050 VDU30
1060 COLOUR1
1070 FORNX=0TO31
1080 PRINTSTRING#(20,CHR#224);

```

```

1090 NEXT
1100 PROCTITLE(960)
1110 VDU4:COLOURS
1120 PRINTTAB(1,12)"PRESS SPACE FOR A";TAB(5,14)"NEW G
AME"
1130 reply%=GET:IFreply%=32:RUNELSEEND
1140 ENDPROC
1150 DEFPROC GETNAME
1160 VDU4:COLOUR132:COLOUR3:CLS:PROCTITLE(960)
1170 VDU4
1180 PRINT"*****What is the name of your true love"
1190 INPUTNAME#
1200 IFLEN(NAME#)>18:THENCOLOUR9:PRINT"Sorry but you
can't carve that on an apple tree.":COLOUR3:PRINT"W
hat nickname do you usually use":GOTO1190
1210 IFLEN(NAME#)<3:THENCOLOUR9:PRINT"Thats just a li
ttle too easy.":COLOUR3:PRINT"Type a longer name p
lease":GOTO1190
1220 COLOUR6:PRINT"*****How earnest is your love on a sca
le of 1 to 5"
1230 REPEAT:LEX=GET-48:UNTILLEX>0ANDLEX<6
1240 VDU(LEX+48),5:LEX=6-LEX
1250 ENDPROC
1260 DEFPROC ARROWS
1270 MOVEOAX,X,AY,Z
1280 VDU18,0,4,255
1290 MOVEAX,X,AY,Z
1300 VDU18,0,3,226
1310 IFABS(AX-HX)<40ANDABS(AY-HY)<20:THENPROC EXPLOD
E
1320 DAX=X,AX,Z
1330 AX=X,AX+32:IFAX>1216:AX=220
1340 ENDPROC
1350 DEFPROC BACKGROUND
1360 RESTORE1670
1370 MOVE0,0,0
1380 GCOL0,2
1390 MOVE0,256:PLOT85,1280,0:PLOT85,1280,256
1400 GCOL0,4
1410 MOVE0,256:MOVE0,1024:PLOT85,1280,256:PLOT85,1280,
1024
1420 GCOL0,7
1430 MOVE0,944:MOVE208,224:PLOT85,0,128:PLOT85,96,128:
MOVE208,224:MOVE0,944:PLOT85,208,656:PLOT85,48,992:PLOT
85,224,880:MOVE208,656:PLOT85,224,672
1440 MOVE0,128
1450 GCOL0,0
1460 FORNX=1TO19
1470 READX%,Y,Z
1480 DRAWX%,Y,Z
1490 NEXT
1500 MOVE144,680
1510 FORN=1TO10
1520 READX%,Y,Z
1530 DRAWX%,Y,Z
1540 NEXT
1550 MOVE144,784:MOVE144,710:PLOT85,176,848:PLOT85,195
,740:PLOT85,195,825
1560 MOVE145,775:PRINTHER#
1570 GCOL0,0
1580 MOVE112,358
1590 FORNX=1TO10
1600 READX%,Y,Z
1610 DRAWX%,Y,Z
1620 NEXT
1630 MOVE112,480:MOVE112,388:PLOT85,152,544:PLOT85,182
,428:PLOT85,182,522
1640 MOVE120,460:PRINTDEVIL#
1650 PROCTITLE(992)
1660 ENDPROC
1670 DATA96,128,208,224,208,656,224,672,224,880,48,992
,0,944,0,835,128,832,48,992,128,832,224,880,128,832,128
,608,208,656,128,608,0,608,96,608,96,128
1680 DATA144,784,176,848,210,816,210,720,144,680,144,7
10,195,740,210,720,195,740,195,825
1690 DATA112,480,152,544,192,512,192,408,112,358,112,3
88,182,428,192,408,182,428,182,522
1700 DEFPROC TUNE
1710 RESTORE1780
1720 FORNX=1TO24
1730 READnote%,duration%
1740 IFnote%=0:THENSOUND1,0,0,duration%:NEXT
1750 SOUND1,-15,note%,duration%
1760 NEXT
1770 ENDPROC
1780 DATA129,12,149,2,0,5,149,3,0,4,149,18,129,12,157,
6,145,6,149,18,0,4,129,12,149,9,169,3,0,2,169,12,165,9,
157,3,149,9,157,3,149,3,145,9,149,3,157,18
1790 DEFPROC INSTRUCTIONS
1800 VDU4,23;8202;0;0;0;
1810 COLOUR132
1820 CLS
1830 COLOUR1

```

## BBC/ELECTRON PROGRAM

```

1840 FORN%=1TO18
1850 PRINTTAB(NZ,1)CHR#224;TAB(NZ,30)CHR#224
1860 NEXT
1870 FORN%=2TO30
1880 PRINTTAB(18,NZ)CHR#224;TAB(1,NZ)CHR#224
1890 NEXT
1900 PROCTITLE(768)
1910 MOVE320,512:PRINHTIM#
1920 MOVE960,512:PRINTER#
1930 MOVE160,256:PRINT"Z=Left X=Right"
1940 a$=INKEY$(200)
1950 FORN%=896TO512STEP-32
1960 SOUND0,-15,NZ/4,1
1970 MOVE632,NZ
1980 PRINTDEWIPE#
1990 MOVE632,NZ
2000 PRINTDEVIL#
2010 NEXT
2020 PROCTUNE
2030 a$=INKEY$(200)
2040 ENDPROC
2050 DEFPROCEXPLODE
2060 SOUND0,1,5,10
2070 MOVEHXX,HYZ
2080 VDU18,0,4,255,8,18,0,1,227,8,18,0,5,228
2090 TX=TIME:REPEATUNTILTIME-TX>10
2100 VDU8,18,0,4,255
2110 PROCRESET
2120 ENDPROC
2130 DEFPROCPEOPLE
2140 RESTORE2290
2150 PROCREAD(29):DEVIL$a$
2160 PROCREAD(6):DEWIPE$a$
2170 PROCREAD(30):HIM$a$
2180 PROCREAD(24):HER$a$
2190 PROCREAD(7):WIPE$a$
2200 PROCREAD(11):ME$a$
2210 ENDPROC
2220 DEFPROCREAD(ZX)
2230 a$=""
2240 FORLO%=0TOZX
2250 READCX
2260 a$=a$+CHR$(CX)
2270 NEXT
2280 ENDPROC
2290 DATA18,0,5,242,8,18,0,1,244,8,18,0,3,246,10,8,18,
0,5,243,8,18,0,1,245,8,18,0,3,247
2300 DATA18,0,4,255,11,8,255
2310 DATA18,0,5,234,8,18,0,0,238,8,18,0,6,236,10,8,18,
0,5,235,8,18,0,6,237,8,18,0,0,239,240
2320 DATA18,0,5,229,8,18,0,3,233,8,18,0,2,231,10,8,18,
0,5,230,8,18,0,2,232
2330 DATA18,0,4,255,10,8,255,255
2340 DATA8,64,85,60,73,68,224,67,85,80,73,68
2350 DEFPROCTITLE(ZX)
2360 VDU5
2370 GCOL0,1:MOVE240,ZX:PRINTME#
2380 GCOL0,3:MOVE260,ZX:PRINTME#
2390 ENDPROC
    
```

### Amendments for women players

```

2170PROCREAD(30):HIM$a$
2180PROCREAD(29):HER$a$
2310DATA18,0,5,229,8,18,0,0,233,8,18,0,6,231,10,8,18,0,5,230,8,18,0,6
,232,8,18,0,0,32,240
2320DATA18,0,5,234,8,18,0,3,238,8,18,0,2,236,10,8,18,0,5,235,8,18,0,2
,237,8,18,0,0,239
    
```



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## Jump Jet Dragon 32 £7.95

Dragon Data, Margam, Port Talbot, West Glamorgan SA13 2PE

It would be very easy to assume from the title that this is yet another flight simulator but not so. It is a strategic flying and shooting game where you take off in your Harrier jumpjet then increase altitude to attack enemy fighters and bombers which appear over the horizon to shoot you or your planes on the ground.

A fair amount of manoeuvring it possible with control for speed and height, though I tended to stay at one altitude and let the planes come to me, firing my cannon all the time!

This I found to be one of the

best plays especially if you could stay to the left of the screen.

The screen is well laid out and there are enough levels for a range of ages to enjoy the game, including a very simple level for children (or reviewers!). The side scroll action is a little slow but this may be due to hardware rather than software difficulties.

The only quibble I do have is that the jumpjet can accelerate off the right of the screen to reappear on the left. I would have expected the scroll routine to move faster. Exciting and quite addictive.

D.C.

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



# Follow the stars for good games

**Bananas, a Harrier jump-jet, potatoes and assorted insects — they are all in this batch of new games.**

## Naanas Spectrum £5.95

Mikro-Gen, 24 Agar Cres, Bracknell, Berks

I think the name Naanas is based on that long yellow fruit, eaten by chimpanzees. This suspicion is confirmed when the game begins.

Your pet chimp is knocking fruit down from the trees above and you are dashing about below trying to catch it in your bag, while avoiding coconuts and jumping the fallen bananas.

The skill level is variable, the graphics are good, as is the sound. In addition, there is a hall of fame feature, but I could find no way of user defining the keys as advertised on the cassette insert.

This simple game plot can cause some hoots of laughter

when played in a group.

But for solo play, I would have thought that something a little more sophisticated would be needed to sustain the interest of the dedicated games player.

Really, this game is more suitable for younger players who would appreciate the simplicity of operation and the hilarious cartoon characters, together with the wacky sound effects.

In conclusion, I would be surprised if this game found its way into the list of "arcade classics".

M.B.

instructions	80%
playability	75%
graphics	90%
value for money	75%



## Beetle TI-99/4A £6

Stainless, 10 Alstone Rd, Stockport, Cheshire SK4 5AH

An original game in which you play the unusual role of a beetle.

The local gardener has carelessly stuck his spade through your nest. It is your job to collect the eggs and take them to a second nest.

You start off in a cavern with several articles of food, as well as rocks and eggs. There are also invisible spider traps which, when trodden on, cause a spider to spin a web that may trap you to cut off your escape.

As you move around you run out of energy. This is why you must eat the food. The eggs must be pushed to the next level underground. This is done by

landing on them. When you have pushed as many eggs as you want onto the next level you must crawl through a hole at the top of the screen to join them.

Although this game is enjoyable to play at first, it loses due to the slow speed of TI BASIC.

It is a great pity that the TI-99/4A is not equipped to use this original idea to the full.

J.J.

instructions	90%
playability	60%
graphics	80%
value for money	70%



## Spude TI-99/4A £4.95

Christine Computing, 6 Florence Close, Watford, Herts

This game is let down, as usual, by the slowness of TI BASIC, and some poorly-thought-out keyboard routines. There is also the additional irritation that even if you are successful you don't get anywhere; the machine still tells you "Bad Luck". There is no documentation and all instructions are in the program — which can be exasperating where there's a lot to remember. The aim is to go "tater-pickin'" at various seasons and to see how many points you can amass.

You are advised to start with summer, as the days are longer. As the sun sets, a shadow is cast gradually over your potato field, and it is curtains for you if it falls

on you or you walk into it. On top of this if you try to retrace your steps at all, you fall into a trench and die.

There are two kinds of potato, one worth extra points, and a timer ticks away at the bottom of the field. You can slow this timer down and gain valuable minutes. There seems little purpose to this game and players will soon tire of it.

P.B.

instructions	90%
playability	60%
graphics	75%
value for money	30%



## Creepy Crawler Spectrum £5.95

Mikro-Gen, 24 Agar Cres, Bracknell, Berks

After it had constantly crashed on the instructions screen, I established that my Cambridge Computing Intelligent Joystick was not compatible with the program.

It was a relief to finally see the Giant Centipede rattling its way through the mushroom forest. With the offending unit unhitched, loading was error-free.

After selecting keyboard, or Mikro-Gen joystick, instructions alternated with scoring until the game is started by choosing one or two players. The player moves to

and fro, halfway up and down shooting mushrooms and the centipede, with the score kept bottom left.

A spider bounces around placing more mushrooms, helped by a bug — both attempting to eat the player. If the centipede is removed all colours change and a new centipede appears.

Graphics, colour and movement are pleasingly simple and the response to the keys very good — though no user defined keys as the insert promises. Each animal has its own sound when moving and when killed. I found it simple, pleasing and addictive!

T.W.

instructions	75%
playability	85%
graphics	65%
value for money	70%



# Roses for your true love. But beware... evil Harry is out to stop you

"How could I forget that today is Valentine's day? My true love will never forgive me if I don't get her a dozen red roses. Now I've left it so late all the shops are shut; she'll probably reject me, and go with that awful Harry. Oh what can I do?"

That's the problem facing our hero in this piece of old-fashioned melodrama for all Spectrum owners.

## How it works

70-120 define UDG's  
500-750 title  
1005 set level of difficulty  
1010-1110 set the scene  
1120-1150 place Harry on screen  
1170-1190 set clock and score to zero  
1200-1210 print score and time  
1215-1260 move Harry  
1300-1400 move "our hero" if a key is pressed and check if a rose is picked  
2000-2020 end check  
2500-2520 Harry has caught you!  
3000-3020 play a tune subroutine  
3200-3230 you ran out of time message  
3500-3520 "Well done" message  
3800-3850 "another game?"  
4000-4010 print Harry subroutine  
4200-4220 set a direction for Harry  
4400-4410 print "our hero" subroutine  
6000-6260 data for the tunes  
8000-8070 select difficulty subroutine

The solution our hero decides upon is to visit his local park, where red roses are in abundance.

While taking roses from a public park isn't the sort of thing normally expected of a hero, if it smooths the path of true love, then we should excuse him that slight indiscretion just this time.

Unfortunately, our hero's rival, the evil Harry has got wind of his plans, and is lying in wait in the park to thwart his ideas. Like all good villains, he is the character dressed in black, at the bottom right of the screen at the start of the game.

As it is after dark, and the gates to the park are closed, our hero has to leap over the wall; this he will do moments after the scene is set on the screen.

You control the movements of our hero by pressing the cursor keys (5 to 8) to guide him round the park, trying to collect a dozen red roses; there are 20 roses scattered around the park.

**You forgot it's St Valentine's Day. Now all the shops are shut where are you going to get red roses for your true love? That's the challenge in David Nowotnik's program for either model of the Spectrum**



```

10 REM 'Valentine's Day
20 REM 'Chase
30 REM
40 REM by David Nowotnik
50 REM January, 1984
60 REM
70 REM Initialise
80 FOR i=0 TO 23: READ a
90 POKE USR "a"+i,a: NEXT i
100 DATA 8,28,62,28,8,8,8,16
110 DATA 62,62,54,54,54,54,119
120 DATA 28,62,28,127,93,93,93
130 LET w#=""
140 LET roses=20
500 REM Title
510 BORDER 2: INK 0: PAPER 7: CLS
520 PLOT 80,100
530 DRAW 40,20,-PI
540 DRAW 40,-20,-PI
550 DRAW -40,-50
560 DRAW -40,50
570 FOR i=1 TO 2
580 LET x=225-64*i: LET y=205-64*i
590 FOR j=1 TO 3: PLOT x,y
600 DRAW -30,-30: LET x=x+1
610 LET y=y-1: NEXT j: NEXT i
620 LET x=68: LET y=46
630 FOR i=1 TO 6
640 PLOT x,y: DRAW 2,10
650 PLOT x,y: DRAW 10,2
660 LET x=x+1: LET y=y-1
670 NEXT i
680 LET x=160: LET y=140
690 FOR i=1 TO 6
700 PLOT x,y: DRAW 0,6
710 PLOT x+3,y-3: DRAW 6,0
720 LET x=x-1: LET y=y-1
730 NEXT i
740 PRINT AT 2,6: PAPER 1: INK 6:" VALENTINE'S DAY "
750 PRINT AT 17,12: INK 2: FLASH 1:" CHASE "
760 RESTORE 6000: GO SUB 3000

```

## Main variables

a,b READ variables  
in, st indicator flags  
x,y co-ordinates to print roses  
rivx, rivy Harry's co-ordinates  
xdir,ydir Harry's direction  
hx, hy hero's co-ordinates  
xd, yd hero's direction  
wS park wall  
roses number of roses printed  
diff degree of difficulty  
score score (what else!)  
tim time, in seconds  
x1, y1 temporary co-ordinates,  
used to check that Harry and  
'hero' are about to step on!  
att, att1 attributes, denoting  
what they have stepped on!

However, the evil Harry is out to stop you. The horrid man will travel on any roses he finds, limiting your choice, and he may chase after you. If he catches you, he'll knock the flowers from your hands, and destroy them.

You are also limited by time — you have two minutes to collect all 12 roses before the park keeper discovers your ploy, and removes you from the park.

There are five levels of difficulty with this game. At level one, Harry has great difficulty seeing you in the gloom of the night, and he will wander around at random. By level five, his eyesight will have improved to an extent that you will find it very difficult to shake him off.

As you play the game, you'll notice three tunes. Lara's Theme introduces the game, to set a romantic tone to the program. The tunes played if you win or lose will reflect our hero's feelings on the outcome!

My apologies to female Spectrum owners who may think this game a little sexist.

But, in these days of equal opportunity, there is no reason why it should not be a girl who is collecting roses for her boyfriend! So, if you want to change the sex of the characters, substitute these numbers in the data line 110 in the program:

28,28,62,62,127,127,20,54

Note that user defined graphic characters appear in lines 1100, 4000, and 4400.

# SPECTRUM PROGRAM

```

1000 REM Park chase
1005 GO SUB 8000
1010 PAPER 4: INK 7: BORDER 4: CLS
1020 PRINT INK 3;w$;AT 21,0;w$;
1030 FOR i=1 TO 20
1040 PRINT INK 3;AT 1,0; " ":AT 1,31; " "
1050 NEXT i
1070 FOR i=1 TO roses
1080 LET x=INT (RND*30+1): LET y=INT (RND*20+1)
1090 IF ATTR (y,x)=34 THEN GO TO 1080
1100 PRINT AT y,x; INK 2;"A"
1110 NEXT i
1120 LET rlvx=30: LET rlvly=19
1130 IF ATTR (rlvy,rlvx)=34 OR ATTR (rlvy+1,rlvx)=34 TH
EN LET rlvly=rlvy-1: GO T
O 1130
1140 GO SUB 4000
1150 GO SUB 4200
1170 POKE 23672,0: POKE 23673,0
1180 LET st=0: LET score=0
1190 LET hy=1: LET hx=1
1200 LET tim=INT ((PEEK 23672+256*PEEK 23673)/50+.5)
1210 PRINT AT 0,8; PAPER 3; INK 0;"Score=" ;score; "
";tim;" secs"
1215 IF RND<diff THEN LET ydir=SGN (hy-rlvy): LET xdir
=SGN (hx-rlvx)
1220 LET y1=rlvy+ydir: LET x1=rlvx+xdir
1230 LET att=ATTR (y1,x1): LET att1=ATTR (y1+1,x1)
1240 IF att=35 OR att1=35 OR y1<1 THEN GO SUB 4200: GO
TO 1300
1245 IF att=38 OR att1=38 THEN LET in=1: GO SUB 2500
1250 PRINT AT rlvly,rlvx; " ":AT rlvly+1,rlvx; " "
1260 LET rlvly=y1: LET rlvly=x1: GO SUB 4000
1270 IF tim<2.5 THEN GO TO 1200
1280 IF st=0 THEN LET st=1: GO SUB 4400
1300 LET z#=INKEY#: IF z#<"5" OR z#>"8" THEN GO TO 200
0
1310 LET z=VAL z#
1330 LET xd=0: LET yd=0
1340 IF z=5 THEN LET xd=-1
1350 IF z=6 THEN LET yd=1
1360 IF z=7 THEN LET yd=-1
1370 IF z=8 THEN LET xd=1
1380 LET x1=hx+xd: LET y1=hy+yd
1390 LET att=ATTR (y1,x1): LET att1=ATTR (y1+1,x1)
1400 IF att=35 OR att1=35 OR y1<1 THEN GO TO 1200
1410 IF att=34 OR att1=34 THEN LET score=score+1: GO T
O 1420
1415 IF att=34 AND att1=34 THEN LET sc=sc+2
1420 IF att=32 OR att1=32 THEN LET in=2: GO SUB 2500
1430 PRINT AT hy,hx; " ":AT hy+1,hx; " "
1440 LET hy=y1: LET hx=x1: GO SUB 4400
2000 IF score>11 THEN GO TO 3500
2010 IF tim>120 THEN GO TO 3200
2020 GO TO 1200
2500 REM He got you!
2510 FOR i=20 TO -5 STEP -.5
2520 BEEP .05,i: NEXT i
2530 LET score=0
2540 PRINT AT 0,6; PAPER 3;" "
2550 PRINT AT rlvly,rlvx; " ":AT rlvly+1,rlvx; " "
2560 IF in=2 THEN LET rlvx=30: LET rlvly=19: IF hy>18 A
ND hx>28 THEN LET rlvly=1
2565 IF in=1 THEN LET y1=19: LET x1=30: IF hy>18 AND
hx>28 THEN LET y1=2
2570 GO SUB 4000: RETURN
3000 READ a: IF a=99 THEN RETURN
3010 READ b: IF a=98 THEN PAUSE b: GO TO 3000
3020 BEEP a,b: GO TO 3000
3200 REM Out of time
3210 PRINT AT 12,4; FLASH 1; INK 0;" You ran out of ti
me "
3220 RESTORE 6200: GO SUB 3000
3230 GO TO 3800
3500 REM You did it!
3505 PRINT AT 0,8; PAPER 3; INK 0;"Score=" ;score; " "
";tim;" secs"
3510 PRINT AT 12,2; INK 0; FLASH 1;" Well done - you d
id it! "
3520 RESTORE 6100: GO SUB 3000
3800 BORDER 2: PAPER 7: INK 0: CLS
3810 PRINT AT 12,8;" Another game (y/n) "
3820 LET z#=INKEY#: IF z#="" THEN GO TO 3820
3830 IF z#="y" THEN GO TO 1800
3840 IF z#="n" THEN CLS : STOP
3850 GO TO 3820
3990 STOP
4000 PRINT INK 0;AT rlvly,rlvx;"C";AT rlvly+1,rlvx;"B"
4010 RETURN
4200 LET xdir=INT (3*RND)-1: LET ydir=INT (3*RND)-1
4210 IF xdir=0 AND ydir=0 THEN GO TO 4200
4220 RETURN
4400 PRINT INK 6;AT hy,hx;"C";AT hy+1,hx;"B"
4410 RETURN
5000 INK 0: PAPER 7
6000 REM Tune 1
    
```

```

6010 DATA 1,-3,.5,0,.25,8,.5,9
6020 DATA 98,20,.25,4,.25,7,.25,5
6030 DATA .5,0,.25,-1,1,-2,98,20
6040 DATA 1,-2,.5,0,.25,2,1,4
6050 DATA 98,20,.25,2,.25,0,.25,-1
6060 DATA 1,-2,1,7,2,5
6070 DATA 99
6100 REM Tune 2
6110 DATA 1,0,.5,5,98,5,.25,5
6120 DATA 98,5,1,5,98,20,1,0
6130 DATA .5,7,.5,4,1,5,98,20
6140 DATA 1,0,.5,5,.5,9,1,12
6150 DATA .5,9,.5,5,1,10
6160 DATA .125,9,.125,10,.5,9
6170 DATA .5,5,1,7,2,5
6180 DATA 99
6200 REM Tune 3
6210 DATA .5,-1,98,5,.5,-1
6220 DATA 98,2,5,.25,-1,98,2,5,1,-1
6230 DATA 98,5,.75,2,98,5,.25,1,98,1,.25,1
6240 DATA 98,10,.25,-1,98,2,5,.25,-1
6250 DATA 98,5,.5,-3,98,2,5,1,-1
6260 DATA 99
8000 BORDER 1: PAPER 7: INK 1: CLS
8010 PRINT AT 12,1;" Select level of difficulty"
8020 PRINT AT 14,2;" 1 to 5"
8030 LET z#=INKEY#
8040 IF z#="" THEN GO TO 8030
8050 IF z#<"1" OR z#>"5" THEN GO TO 8030
8060 LET z=VAL z#: LET diff=(z-1)/20
8070 RETURN
    
```



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## Top Ten programs for the Commodore 64

- |    |                        |                 |
|----|------------------------|-----------------|
| 1  | International Football | Commodore (-)   |
| 2  | Hungry Horace          | M. House (-)    |
| 3  | Forbidden Forest       | Centresoft (-)  |
| 4  | Space Shuttle          | Microdeal (-)   |
| 5  | Cosmic Convoy          | Tasket (-)      |
| 6  | The Hobbit             | M. House (-)    |
| 7  | Frogger                | Interceptor (9) |
| 8  | Escape MCP             | Rabbit (-)      |
| 9  | Road Toad              | Audiogenic (-)  |
| 10 | Poo Yan                | Centresoft (-)  |

Compiled by Websters

## Top Ten programs for the Spectrum

- |    |                   |                |
|----|-------------------|----------------|
| 1  | Chequered Flag    | Psion (-)      |
| 2  | Atic Atac         | Ultimate (1)   |
| 3  | Death Chase       | Micromega (-)  |
| 4  | Lunar Jetman      | Ultimate (8)   |
| 5  | Manic Miner       | Bug Byte (-)   |
| 6  | Ant Attack        | Quicksilva (5) |
| 7  | Flight Simulation | Psion (-)      |
| 8  | Stonkers          | Imagine (-)    |
| 9  | Alchemist         | Imagine (7)    |
| 10 | Kong              | Ocean (4)      |

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## Top Ten programs for the ZX81

- |    |                       |                |
|----|-----------------------|----------------|
| 1  | = Asteroids/Defenders | Quicksilva (-) |
| 3  | Invaders              | Quicksilva (-) |
| 4  | Skramble              | Quicksilva (-) |
| 5  | Centipede             | Dk'tronics (-) |
| 6  | Invaders              | Bug-Byte (-)   |
| 7  | Krazy Kong            | PSS (3)        |
| 8  | ZX D.B.               | Bug-Byte (10)  |
| 9  | Hopper                | PSS (7)        |
| 10 | ZX Forth              | Sinclair (8)   |

Compiled by Websters

## Top Ten programs for the Dragon

- |    |                       |                |
|----|-----------------------|----------------|
| 1  | Eight Ball            | Microdeal (-)  |
| 2  | Dragonchess           | Oasis Soft (-) |
| 3  | SAS                   | Peaksoft (-)   |
| 4  | Space Shuttle         | Microdeal (-)  |
| 5  | Devil Assault         | Microdeal (-)  |
| 6  | Cuthbert goes Digging | Microdeal (-)  |
| 7  | UGH                   | Softek (4)     |
| 8  | Dreambug              | Kemfig (-)     |
| 9  | Intergalactic Force   | Microdeal (-)  |
| 10 | Tiger Grand Prix      | Tiger (-)      |

Compiled by Websters

## BEST SELLERS

# Top 30

- |    |                        |                            |               |
|----|------------------------|----------------------------|---------------|
| 1  | Hunchback              | Ocean                      | Spectrum (5)  |
| 2  | Manic Miner            | Soft Projects/<br>Bug-Byte | 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          | Quicksilva                 | 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                      | 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 (21)   |
| 22 | Mini Kong              | Anirog                     | VIC-20 (-)    |
| 23 | Hunchback              | Superior                   | BBC (12)      |
| 24 | Hover Bover            | Llamasoft                  | CBM 64 (-)    |
| 25 | Jetpac                 | Ultimate                   | VIC-20 (29)   |
| 26 | Skramble               | Solar                      | VIC-20 (-)    |
| 27 | Mined Out              | Quicksilva                 | BBC (-)       |
| 28 | Crazy Kong             | Interceptor                | CBM 64 (-)    |
| 29 | Twin Kingdom Valley    | Bug-Byte                   | CBM 64 (30)   |
| 30 | Snooker                | Visions                    | 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 for the fortnight ended February 21

## Top Ten programs for the VIC-20

- |    |                            |                |
|----|----------------------------|----------------|
| 1  | Wizard and the princess    | M. House (3)   |
| 2  | Snooker                    | Visions (-)    |
| 3  | Amok                       | Audiogenic (-) |
| 4  | Computer Wars              | Thorn (-)      |
| 5  | 4 Gates to Freedom         | Phoenix (-)    |
| 6  | Arcadia                    | Imagine (1)    |
| 7  | Sargon II Chess            | Commodore (-)  |
| 8  | Lazer Bone                 | Llamasoft (-)  |
| 9  | Supervaders/<br>Bomber run | K-Tel (-)      |
| 10 | Escape MCP                 | Rabbit (-)     |

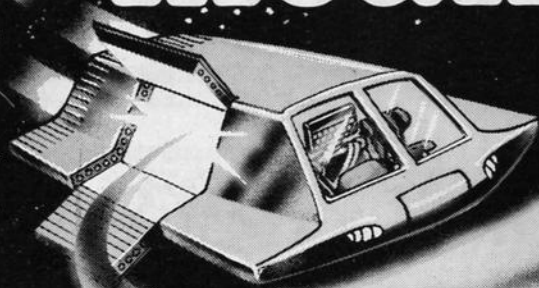
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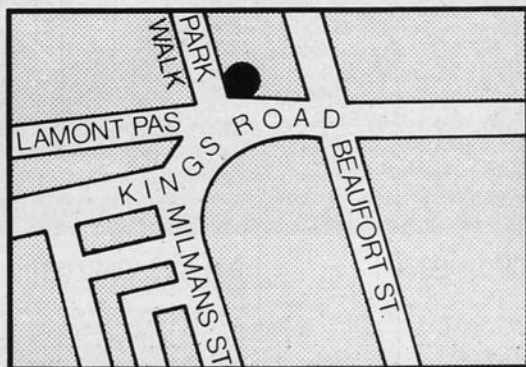
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## Bloc Head £7.95

Dragon Data, Margam, Port Talbot, West Glamorgan SA13 2PE

For those who frequent the arcades, this is a little like Q-Bert, involving a little man with a large nose jumping about a pyramid. Here the pyramid is missing. Instead there is simply a rectangle of the familiar hexagonal prisms for Bloc Head to jump on.

As usual, however, the shapes change colour and the aim is to colour them all in before you are squashed by bouncing balls or caught by springs. There are also Bus Stops which, if jumped upon, transport you to the top of the screen. As this is rectangular the effect can be unpredictable.

The screen is fairly attractive, though I found the figures shapes indistinct on TV. The spring was almost invisible. Control was not all it might have been, either. The joysticks were very slow to respond, spoiling many of my best moves! The other features were all fairly standard.

Originality is very hard to come by but should be encouraged. Here Dragon has done the opposite.

D.C.

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



## Ultrapede £7.95

Softek, 12/13 Henrietta St, London WC2E 8LH

No prizes for guessing what kind of arcade game this is. It has all the features you expect: mushroom fields, spiders, snails and a large and fleet footed Ultrapede. Each mushroom takes three shots to clear and, as the pede cannot go through them, it has to change direction.

What is rather unexpected, and also a biological impossibility, is that a pede segment which has been hit by your missile changes into a mushroom. Thus the game is somewhat livelier than other versions, as this often causes the rest of the insect to descend upon

you from a great height, with consequent loss of a life.

The game plays well and has enough levels for beginner and expert to enjoy. One suggestion is that restart should be easier. At present you have to press either three keys or fire button and two keys. This is a pain if you are some way from the console with a joystick and is a design fault. A good basic game but with few surprises.

D.C.

instructions	80%
playability	70%
graphics	90%
value for money	75%



## Shaft £7.95

Dragon Data, Margam, Port Talbot, West Glamorgan SA13 2PE

One of the most original game ideas I have seen for some time. The scenario is for you, a secret agent, to get to the top of a building to solve the case. Simple enough, until you see the killer elevators (OK, lifts to you and me) whose shafts you have to cross to ascend each level. If the lift cage touches you in any way you are squashed.

This means there are elements of planning, speed, skill and dexterity. Survival is not simple. Graphics are good and have enough speed to make the game interesting. There could have been more colour — the screen is

too bright. Control, via joysticks, is fairly precise but it is possible to make mistakes accidentally. Movement gets more difficult the higher you climb due to the lessening room and time for manoeuvre.

There is little in the form of extra diversions. I could have imagined invisible lifts or safe ones flashing for short periods and, most galling of all, you are not allowed to get into one for a ride.

D.C.

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



# Have fun with your Dragon

Our reviewers are hard to please. Read what they thought of these five arcade-style games for the Dragon 32

## Android Invaders £5.95

Lyversoft, 66 Lime St, Liverpool

What can one say? This is a game of space invaders. Just in case any Dragon owner has spent the last 10 years in Antarctica, you have to try to shoot down the aliens before they land or shoot you.

What is different about this version is that the aliens are robot-like creatures, hence Android Invaders. What is even more surprising is that the author is so unsure about you wanting to kill his electro-mechanical inventions that he actually gives you the chance to change them to the standard characters at the beginning.

Control can be either joystick or keys and there are eight levels of difficulty each of seven screens. These comprise combinations of visible/invisible invaders and shields/no shields, besides speed.

Being written in machine code the game is fast and furious but has little in the way of new twists or originality. For that reason it will appeal to those who want a Space Invader game but won't attract those who have another version already.

D.C.

instructions	60%
playability	70%
graphics	90%
value for money	60%



## Shuttlezap (joystick) £12.95

Dragon Data, Margam, Port Talbot, West Glamorgan SA23 2PE

The insert says this is a fast-action game that talks. If this is the sort of game you are after then keep on looking.

The object is to launch your shuttle from its underground silo and destroy as many sputniks as possible before returning to base. You have no weapon although the sputniks can shoot at you. The way to capture them is to land on them or to boost up from below. Avoid the cosmic cloud.

At the start there is a shuttle control display when you can test

your joystick. There are two difficulty factors of time and fuel. Once you have successfully launched your shuttle and after each screen an in-flight report shows such things as height, speed fuel and time left.

I have not yet managed to translate all the speech that is generated during the game. I can only distinguish simple phrases such as ready and OK.

Adequate instructions are included in a booklet and I had no difficulty in loading. This is not a game that appeals to me.

J.E.M.

instructions	60%
playability	25%
graphics	60%
value for money	20%



## LETTERS

### Apeman's too fast

I typed in the Apeman program for the Spectrum (HCW 41) but it failed to run. It appears line 1301 FOR n=1TO20 should be 1TO16. The program will run perfectly with this alteration. Up to now I have failed to get any shipwrecked mariners anywhere near the village — Apeman is much too fast.

M. H. Mottram, Beeston, Nottingham

### Slow? It's anything but

I would like to correct a mistake in your review of our BBC/Electron Maths Invaders (HCW 45).

Your reviewer comments several times on the slowness of this program. Didn't he notice the choice of 50 speed levels? I challenge him to last more than two minutes at level 50.

Our tests in schools and exhibitions have shown that children find this program anything but slow and boring — they love it, and it is one of our best sellers.

Neil Stelling, Stell Software, Whalley, Lancs

### Turtle's tremendous

I am the proud owner of a VIC-20 and I also have your magazine delivered every week (what more could anyone want?).

If first started taking your magazine when the issue numbers were still very much into single figures. I chose it because of the quality of the programs and the excellent software reviews.

However, I too have noticed the latter becoming less and less frequent for the VIC. Thank you for explaining (HCW 44) why this is so.

I would like to recommend two excellent games: Gridrunner for the unexpanded VIC and Star Defence, by Anirog, for the 16K VIC.

Back onto the subject of program listings; I must confess that I often wait for someone else to write in, praising a program, before typing it in myself.

But I couldn't resist typing in the Turtle Graphics program, by Alan Wilburn, in HCW 41. It was fantastic! I found designing hi-res pictures, drawing graphs and circles just as addictive as any arcade games. Congratulations!

**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**



Please keep up this quality of program and don't forget the software reviews. Justin Saunders, Macclesfield, Cheshire

*Forgive our blushes!*

We pointed out to another reader that our reviews reflect what is being released and that software companies seemed to be turning their attention to the Commodore 64.

Our statement then still stands: VIC-20 software is available for review from software houses, as are programs for all other home computers.

### Aquarius sounds good

I am a proud owner of a Mattel Aquarius computer and have recently bought the mini-expander to go with it.

Having previously been told that the expander gives you two extra sound channels, I was surprised to be told by one of the technical advisors at Mattel in London that in fact what you get is not two extra sound channels, but two extra octaves of sound.

I had originally telephoned Mattel to ask if they could tell me what the command was to obtain the other two sound channels. The reply I got was that they didn't know themselves, but they recommended a book by Ian Sinclair called How to get the Most from your Aquarius, which explains all about the sound channels.

I have now obtained this book and I must say it is as good as Mattel said it would be and has helped me tremendously with the sound channel and I would recommend it to all Aquarius owners.

I am at present having difficulty finding the command to use my joypads on my programs instead of the keyboard. So if any Aquarius-owning readers can help me I would be very grateful.

All in all, I have enjoyed every moment with my Aquarius and I think it is one of the best computers on the market.

John Wilson, Bilton Grange, Hull

### Games Pak pricing

Your reviewer (HCW 43) asked for the Games Pak III package for the TI-99/4A had been broken down and if so why?

The answer is no, Extended Software Company of Cincinnati U.S.A. market the three programs mentioned separately at \$15 each and the complete Games Pak III for \$27. The packaging for each separate program is the same as that for the Games Pak III, but is clearly labelled with the name of the program supplied. This is due to the expense of the multi colour artwork.

Finally, at the time "Kong" was submitted for review the price was £8.95. This has now been lowered to £7.95 as it is now produced in the U.K. Games Pak III is now available for £14.95 from Timeless Software. Considering the U.S. prices quoted above we feel that our prices represent a considerable saving.

Ian Martin, Timeless Software, West Lothian, Scotland

### Commodore owes it to us

With reference to F. E. Wilke's letter, After Sales Shock, regarding the strange attitude of Commodore towards things going wrong outside its "warranty" period. While I'm not an expert on consumer law, correct me if I am wrong, but doesn't the purchaser deal only with the retailer and not the manufacturer?

Also, I think the law infers that an item must be in functioning order for a reasonable period of time, which for most things is taken as being a year. An electronic component such as a RAMpack, unless it is "abused", should last and be expected to last for longer than the 12 month "warranty" period. As only a "few" (perhaps only 10 per cent) have been returned to Commodore as being faulty surely it could be magnanimous and exchange the item in question, as its warranty is not legally binding.

P. M. Volsing, St Neots



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# Venturing into some adventures

You are alone in a castle/a forest/a space ship... That's how adventures begin. Our reviewers freed themselves to bring you these reports

## Cimeeon Moon Dragon 32 £7.95

Dragon Data, Margam, Port Talbot, West Glamorgan SA13 2PE

A 3-D graphic adventure set in space. You are in an alien slavership and are at last freed from your cell. Your object is to leave the ship. The crew has disappeared but there are Fembots' roaming around whose aim is to prevent you from escaping. An assortment of objects has left behind. You must discover those you need as you search the levels and chambers. Movement is by the arrow keys. There are several commands, most of which can be reduced to a single letter.

Most of my travels have so far ended in rooms I cannot leave as the door is locked — most frustrating.

Graphics are fairly pleasant and the cassette is well presented in a video type box. The booklet of instructions is adequate.

If you enjoy frustrating adventures you may find this to your taste. I must confess that I abandoned hope after being trapped in a locked room for the umpteenth time. It will be a long time before I try again.

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



J.E.M.

## Star Trek Adventure 32K BBC £7.95

Superior, Dept BM1, 69 Leeds Rd, Bramhope, Leeds

A text adventure set on the Starship Enterprise. You take the place of Captain Kirk, alone on the deserted and damaged ship. Your mission is to rescue Mr Spock from the evil Klingons. The usual set of commands is available and, again, you work out the rest. Looking at the listing commands is not much help, as the display is in mode 7, and has a scrolling lower area for commands and an upper window for descriptions. Unfortunately, in the review

copy there was a bug which caused the program to crash after several turns. Assuming later editions will be bug-free, the adventure is fairly complex and includes sound effects and a range of problems.

One intriguing feature was a command SWIM. Not the sort of thing you would expect to find a to be killed, you are given a score and rating.

This would probably suit more experienced adventures as it is slightly removed from the usual style.

instructions	50%
playability	65%
graphics	n/a
value for money	65%



D.A.

## Lost City 32K BBC £7.95

Superior, Dept BM1, 69 Leeds Rd, Bramhope, Leeds

A text adventure set in a valley in the wilderness. The object game is to find the Diamond of Zandor which is in a city hidden somewhere in the valley.

Mode 7 is used for the display, and it makes good use of colour for a clear display. There are even several Teletext-style graphic pictures and sound effects scattered throughout. The standard set of commands — North, South, etc — are used. The rest must be picked up as you go along. A function key label is provided for the basic commands.

Some short sentences are

allowed, such as Walk North to the trees, and there is even a help command for times of trouble. If necessary, it is possible to cheat by examining the listing, but this may spoil your enjoyment as there are many puzzles to solve and obstacles to overcome.

Objects are scattered around to help in your quest, including such unlikely things as a teddy bear and a workman's drill. To say more would give the game away.

Easy for experienced adventurers, but novices will find it a challenging and absorbing game which will take days to solve.

instructions	70%
playability	85%
graphics	n/a
value for money	90%



D.A.

## Castle Frankenstein 32K BBC £7.95

Epic, 10 Gladstone St, Kibworth Beauchamp, Leicester LE8 0HL

Your task: seek and destroy Frankenstein's monster and return to the inn — in one piece. Display is in mode 7, colour is used to good effect and machine code makes responses very fast.

Like all adventures, it helps to make a map which is quite easily care but are not difficult. After a few hours I had scored over 2,000 out of an 8,000 total and had made four maps.

There were a few frustrating aspects — you are not given any obvious exits and need to try all possibilities which, in some cases,

leads to death. So save the game before moving when you reach such stages.

Some responses are annoying by not allowing you to remove articles which, in normal circumstances, would be perfectly accessible. Such quirks are often found in adventures. There are not bugs but inconsistencies in the logic.

The insert says it is disc compatible but downloads itself in memory before running so the save game feature defaults to tape users — a minor inconvenience for disc

instructions	I.W.
playability	90%
graphics	85%
value for money	n/a



I.W.

## Crystals of Zong CBM 64 + Joystick

PSS, 452 Stoney Stanton Rd, Coventry CV6 5DG

This is what could be called a real time arcade adventure, although it ends up being a kind of glorified Pac-man.

There are nine inter-connected rooms, each occupying one screen. They resemble a Pac-man maze, complete with snakes or spiders or whatever to chase you.

In each there is a key and a sword. Picking up the sword means you can kill whatever is chasing you, picking up the key means you can open the treasure chest that corresponds to its colour.

Some treasures have particular properties. When you have collected all the keys and some treasure you go up a level where there are different things chasing you, but the things are basically the same.

The graphics are reasonable and there are comprehensive instructions. I found the game did not have the additive appeal of some that will draw you back time and time again.

instructions	80%
playability	40%
graphics	80%
value for money	60%



M.D.R.

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Author: **Indescomp**

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*Battle the Ants in the soft  
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### 48K SPECTRUM

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**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

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Author: **Indescomp**

*Action beneath the  
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Fearless Fred the Intrepid  
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'Tootiecarmoon' for the  
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HCW48



# Another boom year for home computers

As my regular readers will know, I recently reported from the Consumer Electronics Show in Las Vegas. What you don't know is that I got home with more than three shopping baskets full of product literature and press information, and am still in the process of sorting it out. It always takes a while to recover from the big shows, and this one was no exception.

In the meantime, here are a few tid-bits:

- Richard Thomas, head economic correspondent for Newsweek magazine, feels that consumer electronics is in for another boom year so watch for expansion in all areas. He feels it is safe to expect the entire market to expand by 10 per cent, which means that home computers should do far better than that.

- Koala Technologies, manufacturers of low cost high quality graphics input tablets, has gone into the low cost high quality light pen business. By using the light pen in conjunction with the graphics tablet, many people who do not have the time, ability, or inclination to learn programming in order to do computer graphics but would like to become involved with computer graphics will be able to do so. As expected, the light pen will first become available for the Apple IIe, but other versions have been announced including those for the IBM PC and PCjr and the Commodore machines. The price is expected to be under \$300 with full support and all peripheral/interface devices included.

- Hoping it will take them where no software company has been before, HES has signed Leonard Nimoy, better known as Mr. Spock, to be their spokesman. Beam me up HESware.

- Feeling the pinch in the entertainment software market, Datasoft has introduced eight new products for home computers. These include versions of the arcade games Nibbler and Lost Tomb, both of which were based on the cinematic adventures of Bruce Lee, the martial arts legend. The firm is also planning to market a game based on the (in)famous TV show Dallas and on the cartoon character Heathcliff the cat. These games are said to feature more detailed play and graphics and better sound.

- A firm called Chalk Board has just announced a graphics tablet and a host of assorted related software. The tablet is called the PowerPad, and consists of a square foot of touch-sensitive material that connects directly to your Commodore, Atari, IBM or Apple. Accompanying the pad is a group of software called Leonardo's library. There are about 35 programs or so in the library, including such programs as PowerPad Programming Kit, a set of utilities in BASIC, Leo's Links, a game in which you design and then play on your own electronic golf course, Leonardo's LOGO, which is designed to make LOGO TurtleGraphics even easier to use, and Leonardo's Llectric Paintbrush, the electronic equivalent of finger-painting. The company has indicated that not all programs will be available for all computers, but it seems to me that they are making a wide range of useful educational and graphics packages available. You can write to them for more details: Chalk Board Inc., 3772 Pleasantsdale Road, Atlanta, Georgia, (404) 496-0101.

- The Basicare Persona, originally scheduled to be first available for the Sinclair 1000, has been made to run on the Commodore 64. This stand-alone expansion device should be available in April for a retail price of approximately \$200. The device provides four cartridge expansion slots as well as software additions to BASIC and the assembler. It also allows the user to apply any of the other Basicare modules of which 11 are currently available. These include a three-voice synthesizer, a unit that can control devices attached to the house mains wiring, and a memory mapping device. No word yet on pricing of the individual program modules.

In this business, the difficult is done instantly while the impossible takes a bit longer — about two years in this case.

This example of "they said it couldn't be done" relates to the introduction of a low cost ink-jet printer by Docutel-Olivetti. The Model PR 2300 is a small, fast, and extremely quiet ink-jet printer, the first such to be decoupled for the micro market at less than \$600.

Ink-jet printers, for those of you who are unfamiliar with the concept, produce a print-out in a unique manner. The head moves across the paper, moving, in some cases up to seven times, across and back to produce a single line.

Each time a point is to be produced, a jet of dry ink is literally blasted onto the paper by a tough piezoelectric sparking mechanism made of tungsten.

Because of this mechanism, sound is virtually eliminated, except for a slight crackling noise. Use of this mechanism also eliminates the need for ribbons.

The new printer will handle single sheets, rolls, or standard computer paper. The quality rivals that of a daisy wheel, and the head is adjustable, allowing the use of carbon copy forms.

The dry ink comes in low cost snap in tubes which are completely leak proof. Ink is available in a wide variety of colors and grades. For example, a black letter quality grade ink cartridge is expected to retail for approximately \$3 in single quantities.

This would amount to about half the cost of an equivalent ribbon for a daisy wheel and about a three quarters savings compared with many dot-matrix ribbons.

An ink cartridge can be expected to print about 50,000 characters. At the user's option, a wet-ink cartridge can be purchased which will offer letter quality print which cannot be told apart from a standard daisy wheel output.

The throughput of the printer, which can print in both directions, varies between 90 and 110 cps, depending on type style. Switches inside the printer allow settings for normal, compressed or expanded, double height or width characters and single or double underlining. On board hardware also allows the selection of reserve image and double image printing.

The unit has a built-in power supply but does not need a fan or any special cooling. Type spacing can be set for 10, 12 or 15 pitch, and vertical spacing can be set for one sixth or one eighth inches or can be controlled by the software.

The unit comes with a large 1 K buffer and performs hand-shaking. It uses the standard Centronics parallel interface. Graphics-wise, the unit prints 110 points per inch horizontally and 216 vertically. This exceeds the graphics resolution of most dot-matrix printers.

It weighs only about 12 pounds, is about 5 inches high, 11 inches deep, and 15 inches wide. Display lights indicate on/off, open case, low ink, and on/off line status.

Keys are offered for on/off line, setting the top of the form, and line feed, all of which are also available under software control as expected.

The alarm, indicative of failure modes, is a buzzer. Use of the off line switch to halt operations in order to change a cartridge or for some other reason will not result in any data loss.

The maker indicates that versions are now available for North American and European power supplies, and can be purchased with different font ROMs including French, German, Japanese, italics, and even British (!) at extra cost.

Speaking of cost, the printer is now being offered free of charge if purchased with an Olivetti computer, but it is also being sold separately for the incredible price of \$560, including the unit itself, the interface hardware, the pin feed mechanism, and all other necessary paraphernalia. I'm contemplating purchasing one myself.

**Bud Izen**  
Fairfield, California

## VIC-20 PROGRAM

# Her heart is yours... but can you avoid her father?

Your girlfriend is trying to drop hearts to you from a ledge. But her father is out to stop you — he believes his daughter deserves better than you.

### How it works

100-290 main game routine  
100-1095 you lose  
2000-2090 you win  
5000-5070 another game?  
9000-9047 initialise variables etc  
9050-9180 set up user-defined graphics  
9200-9350 play tune, data  
9500-9990 instructions  
10000-10098 set up screen

If you can catch five hearts, without missing more than two, and keep away from her father then the two of you will live happily every after.

The father will walk towards you all the time and the consequences could be painful if you meet.

### Hints on conversion

This program should be quite easy to convert. The special POKEs on the VIC are:

36879,8 sets screen to black  
36878,15 sets volume full on  
36874, 36875 and 36876 are sound channels  
36877 is white noise  
198,0 clears keyboard buffer

**Your girlfriend must be keen on you, or why would she drop hearts to you? Alan Blackham wrote Valentine Capers for the VIC-20, plus 3K of extra RAM**



### Main variables

AS inputs  
CLS clear screen  
DOS cursor down  
FM father's movement  
WM woman's movement  
YM your movement  
Y you  
F father  
W woman  
SC score  
LI lives  
NC number of hearts caught  
H hearts position  
I, J, C, and R counters and loops

If you go to the side of the screen you'll reappear on the other side, so if you get your timing right you will reach the falling heart before your girlfriend's father.

Valentine Capers runs on the VIC-20 with an additional 3K.

Note: control characters in the listing are explained in lines above. These REMs should not be typed in.

```

4 REM *****
5 REM *
6 REM * VALENTINE CAPERS *
7 REM *
8 REM * BY ALAN BLACKHAM *
9 REM *
10 REM * JAN 1984 *
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245 IF H=0 THEN 290
247 IF HC,Y AND HC,Y-22 AND HC,Y-44 THEN 260
250 POKEH,32:H=0:SC=SC+LI*10:NC=NC+1:POKE 36876,130
252 IF NC=5 THEN 2000
255 GOTO 290
260 IF H<3164 THEN 270
262 LET LI=LI-1:IF LI=0 THEN 1000
263 FOR T=1 TO 100
264 POKE 36877,220:POKE 36877,128
265 POKEH,4:POKEH,0
266 NEXT T
267 POKE 36877,0:POKEH,4:H=0:GOTO 290
270 POKE H,32
275 IF RND(8)>.5 THEN LET H=H+22
280 POKE H,0
290 GOTO 100
1000 REM
1005 REM ***** YOUR DEAD *****
1005 REM
1007 POKE 36878,15
1008 POKE 36877,128
1010 FOR I=1 TO 110
1015 POKE 36876,220:POKE 36876,0
1020 POKE H,0:POKE H,7
1022 POKE H,7:POKE H,0
1030 POKE V,0:POKE V,7
1035 POKE V-22,0:POKE V-22,7
1040 NEXT I
1045 POKE 36877,0
1050 PRINTCL:
1055 POKE 36869,240
1060 PRINT:PRINT:PRINT:PRINT
1062 REM ** [GREEN] **
1065 PRINT"BAD LUCK!"
1067 REM ** [WHITE] **
1070 PRINT:PRINT"YOUR DEAD"
1075 FOR R=1 TO 300:NEXT R
1080 FOR I=220 TO 128 STEP -.5
1085 POKE 36874,I:NEXT I
1090 POKE 36874,0
1095 GOTO 5000
2000 REM
2003 REM ***** YOU WON *****
2005 REM
2010 FOR I=1 TO 5
2020 FOR J=128 TO 220:POKE 36876,J:NEXT J
2025 NEXT I:POKE 36876,0
2030 POKE F,32:POKE F-22,32
2032 POKE V,2:POKE V-22,1
2034 POKE W,32:POKE W-22,32:POKE W-44,32
2040 POKE Y+1,3:POKE Y-21,1
2045 POKE Y+30721,1:POKE Y+30721-22,1
2050 FOR R=1 TO 300:NEXT R
2060 GOSUB 9200:REM ** PLAY TUNE **
2070 FOR I=1 TO 200
2072 REM ** [HOME][CURSOR DOWN][IRV][GREEN] **
2075 PRINT"*****CONGRATULATIONS!"

```



**Cranky Dragon 32**  
**£10.95**

Dragon Data, Margam, Port Talbot, West Glamorgan SA13 2PE

Unlike ASK's other education programs, I am less than satisfied that this is worthy of the title educational. It is a computer implementation of a reasonably good number puzzle of a long history.

You chose, or have given, two single digit numbers and have to form a whole range of other numbers from them in order to save Cranky's circuits from the rain.

The idea has been used in schools for some time but not with such a range of numbers to find. There are just too many to

provide interest for younger children.

There is very little teaching or error correction, although it is very well error trapped. I really cannot see how anyone would want to subject a child to such a boring treatment of such a simple idea. Mathis is an exciting subject and should be taught as such.

I would advise parents to be very sure their children need plenty of number crunching practice before using this program. Very disappointing from such a forward-thinking software house.

D.C.

instructions	80%
ease of use	60%
display	70%
value for money	30%



**Let's Count Dragon 32**  
**£10.95**

Dragon Data, Margam, Port Talbot, West Glamorgan SA13 2PE

A suite of four nicely graded programs for the three-six age group although they could be used by others.

Pirate Ships is simple one-to-one matching. Key presses are very simple, usually involving only the space bar. Space Stations is number recognition — matching windows on the rocket to the number on the station to which it flies. Roll a Ball needs number sequencing skills too and has no margin of error. A single mistake means starting again. In Which Way the child must

compare groups of objects and see which is the larger to decide which track to send them down.

In all, very well thought-out and programmed, both educationally viable and progressive. Unfortunately, it is seriously let down by documentation. ASK, which wrote the program, usually has excellent colour manuals, but this is not true of the Dragon package. At least two pages of instructions are missing making it rather difficult to use. This should be dealt with by Dragon immediately!

D.C

instructions	30%
ease of use	90%
display	90%
value for money	90%



**Cassette 10**  
**BBC 32K £11.95**

Schoolsoft, 62 Middle Lane, Headly Heath, Birmingham B38 0DY

This set is also available individually at £3 each. The compilation is very good value for money and the best way to buy. All use a standard form of presentation and teacher (parent) control which make them very easy to use.

Titles are: **Monster**, basic mental arithmetic practice; **Wordsort**, practice in alphabetisation of word lists; **Shoot, Shoot 2 and Shoot 3**, all use the same format of a space invader game to cover the four levels of number; **Signs**, practice in greater than, less than and equality of equations; **Whichword**, recognition of

homophones; **Estimate**, involving estimate of length against a standard; **Hanganman** a rather poor graphic version; **Treasure**, a very flexible co-ordinate game.

All have some educational merit through I feel they could be more exciting. I am still searching for the educational program that children beg to play. These they will appeal to parents, however, and form a good first purchase for most parents and cover a wide range of skill and abilities.

D.C.

instructions	85%
ease of use	90%
display	60%
value for money	80%



# Class will come to order...

**Five new educational programs are give their marks by our examiners. Are they worthwhile for use in your family?**

**Time**  
**BBC 32K £7.95**

Stell, 36 Limefield Avenue, Whalley, Lancs BB6 9RJ

Claimed to be a step-by-step guide to learning to tell the time, there are three steps, starting with the time on a digital clock. Each is further divided into demonstration and then at least one type of question: typing in time shown, stopping the clock at a particular time and adding an hour onto the time when stopping the clock.

Screen displays are pleasant if uninspiring although on occasions they seem a little cluttered. There are nursery tunes at the beginning and you collect mice for each right answer.

Stopping the clock on a particular time is not all that easy, however, and tolerance is not adjustable, so very young children could become frustrated easily.

My other major criticism is that the examples are too long and lack variety. One expects a program or teacher for at least the first few sessions, so there is no real need for long explanatory sections. Adults should have read the documentation and tried the program themselves first.

D.C.

instructions	85%
ease of use	70%
display	60%
value for money	70%



**Magnets**  
**48K Spectrum**  
**£9.95**

Sinclair, Stanhope Rd, Camberley, Surrey GU15 3BR

The aim is to give an understanding of the basic principles of magnetism. That's as maybe, but the result is a very playable game too.

Each player starts with 10 'pawn' magnets on the grid, each having a magnetic strength of 1, with a reserve bank of 25 'pawns' of the same strength. Each also larger magnets, A,B,C,D and E, with magnetic strengths of 2,3,5,9 and 13 respectively. The north pole of one set is green and the other magenta, with the south pole of each set in white. Each 'pawn' can be moved up, down,

left or right, and rotated 90 degrees at a time through 360 degrees.

This means poles can be orientated for either attraction or repulsion and if another magnet is attracted the two strengths are added. If you repel your opponent's larger magnets off the board then that adds to your collection.

I am certain younger players will find it fascinating. Instructions are given in a booklet supplied. Compared with games of a similar calibre this one is overpriced, but it's unique. **B.B**

instructions	100%
playability	100%
graphics	80%
value for money	75%





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# Ready for some more zapping?

We asked our reviewers to exercise their zapping fingers and thumbs on your behalf. Here are their verdicts on five new games

## Fairground 32K BBC £7.95

Superior, Dept BM1, 69 Leeds Rd, Bramhope, Leeds

An original and amusing variation on conventional shooting games. Instead of aliens dropping from space, cartoon shapes move across while a fairground tune plays.

You control a base at the foot of the screen and have a limited supply of bullets with which to hit all the target shapes which move to and fro. Hitting certain numbered targets gives extra bullets, and it is also possible to gain bonus points by spelling out the game title from letter targets hit in the correct order.

Purple faces called Smileys hop about at the top of the screen,

and will sometimes drop down and steal vital bullets. However, it is possible to shoot them in the act for more points.

There are five stages of difficulty, with a bonus stage between each in which the object is to hit a goliwog figure and prevent it from reaching the edge.

Graphics and sound are used very well, but the sound can be irritating after a while. It is possible to reduce it slightly at the cost of a bullet.

Anyone looking for an amusing and slightly different arcade style game need go no further. D.A.

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



## TNT TI-99/4A EX BASIC £7

SP Software, from Stainless, 10 Alstone Rd, Stockport, Cheshire SK4 5AH

A fast-moving action game in which a bomb must be defused before time runs out.

The screen displays an 11 by 11 grid on which appear skulls, flags, the bomb and your man. Using the keyboard to control movements the man may be moved up, down, left or right. As each square is crossed it is blanked out and may not be crossed again unless "slid" over. Sliding, however, may only be done left or right. Landing on a square with a flag scores bonus points, on one with a skull loses a life.

As the game starts a digital

display on the TNT square begins the countdown. When a total of five have been disarmed a bonus screen is entered. Here your man zooms rapidly across and down a grid, on the bottom line of which are skulls, except for one square where there's a flag. This must be reached to save a life.

The game continues on a different "sheet" which has even more skulls and on the fifth there's also a stamping boot to avoid!

A sufficiently high score qualifies you to enter the Hall of Fame, among those other greats such as Popeye and — Bagpuss?

instructions	J.W.
playability	100%
graphics	80%
value for money	80%
	75%



## Devil Assault Dragon 32, joystick £8

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

If your trigger finger's getting a little rusty, here's an excellent new shoot-'em game to give it exercise.

The concept is simple — if it moves, shoot it, before it bombs, burns or crushes you. You start with a couple of screens of bomb-laden vultures, which at higher levels have a nasty habit of splitting into two when hit, then move on to trigger-happy robots. And if you've been quick enough on the draw the final delight is Microdeal's answer to Zebedee, the Springs. Oh, and there's the

Devil himself, armed with a cauldron of flaming oil.

Graphics and sound are very good, joystick control excellent and instructions clear and comprehensive, though a magnifying glass would be handy for the small print. You have a choice of three screen colours and six levels of difficulty, the lowest of which was quite hard enough for me.

The one slight bug I found was that the high-score has a habit of disappearing, but that's very minor fault. If you enjoy this kind of game then I can thoroughly recommend this one. M.N.

instructions	80%
playability	95%
graphics	90%
value for money	90%



## Cruise Attack 48K Spectrum £6.95

Mikro-Gen, 24 Agar Cres, Bracknell, Berks

A "missile command" game, that loaded quickly, auto-ran and displayed basic instructions, but would have benefited from improved instructions and insert information.

The latter says our city is under torpedo and bomb attack, an unknown, but limited number of missiles can be fired from two are used (untrue).

Key 's' started the game, with outline diamond torpedoes and cities falling from screen top to six are destroyed by manoeuvring cross-sights in front of them, so a

missile explodes as the enemy reaches it.

Upon game completion a screen of missiles appears momentarily — part of the Hall of Fame appears. It was eventually apparent that destroyed bombs score 50 and torpedoes with bonuses for destroying a wave.

Control reaction is good, but graphics and sound are dull, but basic. Much fuller instructions and better use of the Spectrum's potential could be expected at the price. A very flat game.

instructions	T.W.
playability	40%
graphics	70%
value for money	40%
	45%



## Mothership CBM 64 £6.95

Artic Main St, Brandesburton, Drifffield, Yorks

A game for one or two players requiring a joystick. Different levels can be set for each player.

The scenario has three phases. The aim is to destroy the Mothership which in the first phase sends 12 drones towards you. You must destroy them before entering the Mothership.

Here you must reach the control pod, avoiding mutant meannies, jumping over breaks in the floor, and using an elevator. A further hazard, a scanner, may also appear. But, like the meannies it cannot harm you. Shooting them adds to your points.

When you reach the pod you move onto the third phase, the Mothership's home base, where you have to destroy the planet's generators. Energy pods must be disposed of first. Beware of energy torpedoes! If successful, you return to first phase at a higher difficulty level.

Good use is made of sound, graphics and movement but essentially this is an amalgam of all the old favourites.

instructions	V.R.
playability	80%
graphics	75%
value for money	75%
	70%



## How it works

10-40 print title, instructions  
50 screen colours  
74 sets user graphic A  
80 print planet surface  
110-142 plays first tune  
150-220 main loop  
2000-2100 plays second tune  
2200-2400 print score, replay option  
9999 DATA

Lander is a game which calls for careful movement. One slip will result in disaster.

You are in control of 24 spaceships and you have to land as many as possible on the craggy, cratered planet surface.

## Variables

z counter for graphics, current spaceship, score  
a row position of ship, also used in playing tunes  
p column position of ship  
B number of times opening tune is played  
a\$ check if ship has landed or crashed, also used to hold DATA for tunes  
W,Q used in playing second tune

# Move with care around the rugged rocks...

Gently does it... that's the way to win with William Mitchell's game of Lander for either Spectrum. There's 24 spaceships to bring down, and it's not easy

## Hints on conversion

The program should run on a 16K ZX81 if the following alterations are made:

Delete lines 10, 50, 74, 105, 110, 120, 130, 140, 141, 142, 180, 190, 200, 2000, 2100 and delete the colour commands in line 20.

Add:  
160 PRINT AT a,p;  
161 IF PEEK (PEEK 16398 + 256 \* PEEK 16399) = CODE "" THEN GOTO 5000  
162 IF PEEK (PEEK 16398 + 256 \* PEEK 16399) less than or greater than CODE "" THEN GOTO 2000  
5000 PRINT AT a,p: "A"  
5100 NEXT Z

Control is by the 5 and 8 keys and the game will work on either Spectrum.

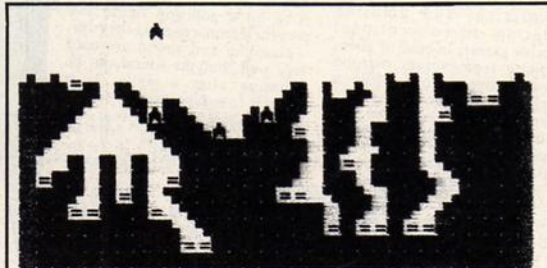
Note: solid square in line 80 is achieved by pressing A in graphics mode.

```

1 REM ++++++
2 REM +
3 REM + W MITCHELL
4 REM +
5 REM + HISCORE=15
6 REM +
7 REM + by GOEY
8 REM +
9 REM ++++++
10 REM
11 REM
12 REM
13 REM
14 FOR a=0 TO 7: READ b: POKE
  USA "b"+a,b: NEXT a
15 PAPER 2: BORDER 0: CLS
20 PRINT PAPER 1: INK 4:
  
```

# LANDER

30 PRINT INK 7: "The object of the game is to pilot your fleet of rockets to the landing pads "=" the game is over when a ship crashes the control is by the 5 and 8 keys"  
40 PRINT AT 21,9: "PRESS ENTER"  
50 PAUSE 0  
50 INK 6: PAPER 1: BORDER 0: CLS  
74 FOR z=0 TO 6: POKE USA "a"+z,BIN 01111111  
80 PRINT AT 10,0: "=====



Lander in action, with three spacecraft already safely down

```

90 LET p=15
105 FOR b=1 TO 2
110 LET a$=" ".0511.0511.8 16.021
  1.0215.0211.02151 20"
120 FOR a=0 TO 7: BEEP VAL a$(1
  TO 3): VAL a$(4 TO 5): LET a$=a$
  (6 TO ): NEXT a
130 NEXT b
135 FOR z=1 TO 24
140 BEEP .03,40: PAUSE 10
141 BEEP .03,40: PAUSE 10
142 BEEP .03,40: PAUSE 50
150 FOR a=0 TO 20
160 LET a$=SCREEN$(a,p)
170 PRINT AT a,p: INK 5: "A"
180 IF a$="" THEN NEXT z
190 IF CODE a$ < 32 THEN GO TO 2
  000
200 BEEP ((25-z)/300),a
210 PRINT AT a,p: ""
211 LET p=p+(INKEY$="8")-(INKEY
  $="5")
220 NEXT a
2000 LET a$="4 1 9 1 9 .759
  .259 1 13 .7511 .259 1 8
  .756 .254 1 5"
2100 FOR a=0 TO 10: LET q=VAL a$
  (1 TO 3): LET w=VAL a$(4 TO 6)/4
  : BEEP w,q: LET a$=a$(7 TO ): NE
  XT a
2200 CLS : PRINT AT 10,7: "PLAY A
  GAIN(y/n)": AT 15,9: "score=" z
2300 IF INKEY$="y" THEN GO TO 80
2301 IF INKEY$="n" THEN STOP
2400 GO TO 2300
9999 DATA BIN 00011000,BIN 00011
  000,BIN 00111100,BIN 01111110,BI
  N 01111110,BIN 01111110,BIN 0110
  0110,BIN 01000010
  
```



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# ORIC PROGRAM

```

1270 IF GH1=2 THEN GOSUB 1900
1280 IF GH1=3 THEN GOSUB 1990
1290 GH2=INT(RND(1)*4):IFGH2=0 THEN GOSUB 2000
1300 IF GH2=1 THEN GOSUB 2100
1310 IF GH2=2 THEN GOSUB 2260
1320 IF GH2=3 THEN GOSUB 2350
1330 PLOT 25,0,"T I M E "
1340 TIME=TIME-1
1350 TIME=LEFT$(STR$(TIME),3)
1360 PLOT 35,0,TIME#
1370 PLOT 10,0,"SCORE:"
1380 PLOT 20,0,STR$(0)
1390 A#=#EY#
1400 IFA#=#CHR$(8) THEN GOTO 600
1410 IFA#=#CHR$(9) THEN GOTO 800
1420 IFA#=#CHR$(11) THEN GOTO 1440
1430 GOTO 1160
1440 REM ***** UP *****
1450 IF SCRN(A,B-1)=ASC("h") THEN RETURN
1460 IF SCRN(A,B-1)=ASC("a") THEN RETURN
1470 IF SCRN(A,B-1)=ASC("p") THEN GOTO 2900
1480 IF SCRN(A,B-1)=ASC("d") THEN G=0+10:FR=FR+1
1490 IF PR=125 THEN GOTO 50
1500 PLOT A,B," :PLOT C,D," "
1510 B=B-2:D=D-2
1520 PLOT A,B,0:IF PLOT C,D,#
1530 GH1=INT(RND(1)*4):IFGH1=0 THEN GOSUB 1270
1540 IFGH1=1 THEN GOSUB 1810
1550 IF GH1=2 THEN GOSUB 1900
1560 IF GH1=3 THEN GOSUB 1990
1570 GH2=INT(RND(1)*4):IFGH2=0 THEN GOSUB 2000
1580 IF GH2=1 THEN GOSUB 2170
1590 IF GH2=2 THEN GOSUB 2260
1600 IF GH2=3 THEN GOSUB 2350
1610 PLOT 25,0,"T I M E "
1620 TIME=TIME-1
1630 TIME=LEFT$(STR$(TIME),3)
1640 PLOT 35,0,TIME#
1650 PLOT 10,0,"SCORE:"
1660 PLOT 20,0,STR$(0)
1670 A#=#EY#
1680 IFA#=#CHR$(8) THEN GOTO 600
1690 IFA#=#CHR$(9) THEN GOTO 800
1700 IFA#=#CHR$(10) THEN GOTO 1160
1710 GOTO 1440
1720 REM ***** GHOST - LEFT *****
1730 IF SCRN(E-1,F)=ASC("a") THEN RETURN
1740 IF SCRN(E-1,F)=ASC("g") THEN RETURN
1750 IF SCRN(E-1,F)=ASC("h") THEN GOTO 2900
1760 PLOT E,F," :PLOT G,H," "
1770 E=E-2:G=G-2
1780 PLOT E,F,E#:#PLOT G,H,R#
1790 PLOT E+2,F,"bc":PLOT G+2,H,"de"
1800 RETURN
1810 REM ***** GHOST - RIGHT *****
1820 IF SCRN(E+2,F)=ASC("a") THEN RETURN
1830 IF SCRN(E+2,F)=ASC("h") THEN RETURN
1840 IF SCRN(E+2,F)=ASC("j") THEN GOTO 2900
1850 PLOT E,F," :PLOT G,H," "
1860 E=E+2:G=G+2
1870 PLOT E,F,E#:#PLOT G,H,R#
1880 PLOT E-2,F,"bc":PLOT G-2,H,"de"
1890 RETURN
1900 REM ***** GHOST - DOWN *****
1910 IF SCRN(G,H+1)=ASC("a") THEN RETURN
1920 IF SCRN(G,H+1)=ASC("f") THEN RETURN
1930 IF SCRN(G,H+1)=ASC("j") THEN GOTO 2900
1940 PLOT E,F," :PLOT G,H," "
1950 F=F+2:H=H+2
1960 PLOT E,F,E#:#PLOT G,H,R#
1970 PLOT E,F-1,"de":PLOT G-2,H,"de"
1980 RETURN
1990 REM ***** GHOST - UP *****
2000 IF SCRN(E,F-1)=ASC("a") THEN RETURN
2010 IF SCRN(E,F-1)=ASC("h") THEN RETURN
2020 IF SCRN(E,F-1)=ASC("j") THEN GOTO 2900
2030 PLOT E,F," :PLOT G,H," "
2040 F=F-2:H=H-2
2050 PLOT E,F,E#:#PLOT G,H,R#
2060 PLOT G,H+1,"bc":PLOT G,H+2,"de"
2070 RETURN
2080 REM ***** GHOST-2- LEFT *****
2090 IFSCRN(I-1,J)=ASC("a") THEN RETURN
2100 IFSCRN(I-1,J)=ASC("g") THEN RETURN
2110 IFSCRN(I-1,J)=ASC("k") THEN GOTO 2900
2120 PLOT I,J," :PLOT K,L," "
2130 I=I-2:K=K-2
2140 PLOT I,J,E#:#PLOT K,L,R#
2150 PLOT I+2,J,"bc":PLOT K+2,L,"de"
2160 RETURN
2170 REM ***** GHOST-2- RIGHT *****
2180 IFSCRN(I+2,J)=ASC("a") THEN RETURN
2190 IFSCRN(I+2,J)=ASC("f") THEN RETURN
2200 IFSCRN(I+2,J)=ASC("j") THEN GOTO 2900
2210 PLOT I,J," :PLOT K,L," "
2220 I=I+2:K=K+2
2230 PLOT I,J,E#:#PLOT K,L,R#
2240 PLOT I-2,J,"bc":PLOT K-2,L,"de"
2250 RETURN
2260 REM ***** GHOST-2- DOWN *****
2270 IF SCRN(K,L+1)=ASC("a") THEN RETURN
2280 IFSCRN(K,L+1)=ASC("h") THEN RETURN
2290 IFSCRN(K,L+1)=ASC("j") THEN GOTO 2900
2300 PLOT I,J," :PLOT K,L," "
2310 J=J+2:L=L+2
2320 PLOT I,J,E#:#PLOT K,L,R#
2330 PLOT I,J-1,"de":PLOT I,J-2,"bc"
2340 RETURN
2350 REM ***** GHOST-3- UP *****
2360 IF SCRN(I,J-1)=ASC("a") THEN RETURN
2370 IF SCRN(I,J-1)=ASC("h") THEN RETURN
2380 IF SCRN(I,J-1)=ASC("j") THEN GOTO 2900
2390 PLOT I,J," :PLOT K,L," "
2400 J=J-2:L=L-2
2410 PLOT I,J,E#:#PLOT K,L,R#
2420 PLOT K,L+1,"bc":PLOT K,L+2,"de"
2430 RETURN
2440 END

```

```

2450 REM ***** REDEFINE *****
2460 FOR A=0 TO 155:READ:POKE 46000+A*(8*ASC("a")),D:NEXT A
2470 REM ***** DATA DUMP *****
2480 DATA 63,33,33,33,33,33,63
2490 DATA 0,0,0,0,0,0,3,3
2500 DATA 0,0,0,0,0,0,48,48
2510 DATA 3,3,0,0,0,0,0,0
2520 DATA 48,48,0,0,0,0,0,0
2530 DATA 63,63,63,63,63,63,63,63
2540 DATA 63,63,63,63,63,63,63,63
2550 DATA 63,63,63,63,63,63,63,63
2560 DATA 63,63,63,63,63,63,63,63
2570 DATA 300,15,15,63,63,51,51
2580 DATA 48,48,60,60,63,63,15,15
2590 DATA 51,51,63,63,12,12,60,60
2600 DATA 15,15,63,63,12,12,15,45
2610 DATA 3,3,15,12,60,60,63,63
2620 DATA 48,48,60,56,59,59,63,63
2630 DATA 63,48,32,48,63,15,15,3
2640 DATA 63,3,3,63,60,60,48
2650 RETURN
2660 REM ***** INSTRUCTIONS *****
2670 CLS
2680 PLOT 1,1,"THE OBJECT OF THE GAME IS TO EAT THE"
2690 PLOT 1,3,"DOTS BEFORE THE TIME RUNS OUT OR "
2700 PLOT 1,5,"BEFORE THE GHOSTS EAT YOU. "
2710 PLOT 1,9," YOU ARE ORCHMAN..... jk "
2720 PLOT 1,9," "
2730 PLOT 1,11," THE GHOSTS ARE .....no "
2740 PLOT 1,12," "
2750 PLOT 1,14," GUIDE ORCHMAN THROUGH THE MAZE BY "
2760 PLOT 1,16," THE CURSOR KEYS "
2770 PLOT 1,18," THE GHOSTS LAY DOTS WHILE RUNNING "
2780 PLOT 3,20," REMEMBER YOU HAVE ONLY 23 ZOLDS "
2790 PLOT 3,22," TO EAT THE DOTS
2800 PLOT 5,24," PRESS ANY KEY "
2810 PLOT 4,24,0:PLOT 3,24,18:PLOT 20,24,0
2820 FOR A=1 TO 20
2830 READ B
2840 PLAY 7,0,0,0
2850 MUSIC 1,3,8,10:WAIT 20
2860 PLAY 0,0,0,0:NEXT A
2870 DATA 3,5,1,3,5,6,8,6,5,3,6,5,3,1,5,6,8,10,6
2880 GET V#
2890 RETURN
2900 REM ***** FINALE *****
2910 CLS
2920 PLOT 10,13," YOU ARE DEAD"
2930 PLOT 10,14," YOU ARE DEAD"
2940 PLOT 10,13,10
2950 PLOT 10,14,10
2960 FOR X=1 TO 21
2970 READ A,B
2980 PLAY 7,0,0,0
2990 MUSIC 1,3,4,10
3000 WAIT B*10
3010 NEXT X
3020 DATA 1,3,3,5,3,6,3,1,3,1,4,6,3,8,3,9,3,5,3,6,3,1,3,6,1,8,1,1
3030 DATA 1,4,5,3,6,3,10,3,10,3,6,3
3040 PLAY 0,0,0,0
3050 PLOT 10,25," DO YOU WANT ANOTHER GO ?"
3060 INPUT V#
3070 IF V#=#Y THEN RUN
3080 END

```

## Micro Tip

## TI-99/4A

### Clean up your contacts

Two TI owners recently contacted me with news of problems with modules not communicating with the console.

Dirt and tarnish on the contacts were suspected, but cleaning with pure alcohol either gave only very brief or no results.

These two owners solved their problems in an interesting manner. Inside the module slot, just before the PCB enters the socket, many consoles have a black foam strip, through which the PCB passes.

In these two cases, the strip (which was intended to remove dirt from the PCB contracts) had become extremely soiled and of course, after cleaning the contacts, passing them through very dirty foam was not helping matters.

One owner removed the strip, cleaned it, and reinserted it. The other owner just removed it... and as there are some TI consoles without it, that is not harmful to the console.

Removing the strip should not be attempted by the average owner, however. An experienced dealer or electronic technician should be entrusted with the task.

If owners choose to clean the PCB contracts, they should only use ethyl alcohol on cotton wool tipped cleaners. Metal must not be used, and care should be taken not to touch the PCB contacts with the fingers etc.

Stephen Shaw

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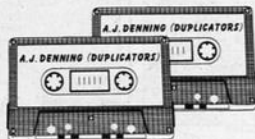
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## TI-99/4A PROGRAM

Are you ready to save the world again? Texas Invaders' Revenge is a more sophisticated follow-up to my earlier program, published in HCW and called Texas Invaders (what else?).

### How it works

- 10-20 clear screen, colour it black
- 30, 410-580 define characters
- 40-160 define colours
- 170-370 set up title screen
- 380-400 830-850 set up variables
- 590-660 instructions?
- 670-820 clear screen, position characters
- 860 randomise
- 870 position laser base
- 880-1070 detect key presses, randomise invader movement and mother ship firing
- 1080-1120 1130-1170 move laser base up, down
- 1180-1280 invader hit routine, rest variables for invader movement and laser range, print score
- 1290-1330 shorten laser range if invader moves forward, check if invader is same column as you
- 1340-1370 sound if invader is in same column, go to game end routine
- 1380-1450 mother ship fire routine
- 1460-1610 hit by mother ship routine, go to end routine
- 1620-1690 another mothership fire routine
- 1700 stop until "break" encountered
- 1710-1800 another game?
- 1810-1880 sound for negative answer, end
- 1900-2100 instructions, return to main program

It runs on the standard TI-99/4A.

You control a laser base at the extreme left of the screen and you can only move up and down.

The invader starts off on the right and moves up and down at random, slowly advancing on you.

It is under the protection of its mother ship which occasionally takes pot shots at you with one of its two powerful lasers.

# It's your turn to save the world... again

**Do you remember Eric Liddell's Texas Invaders program in HCW? Here's the follow-up, a more sophisticated program called (guess what?) Texas Invaders' Revenge. It runs on the unexpanded TI-99/4A**

```

10 CALL CLEAR
20 CALL SCREEN(2)
30 CALL CHAR(128,"30082425599A100C")
40 CALL COLOR(1,5,2)
50 CALL COLOR(2,10,2)
60 CALL COLOR(3,6,2)
70 CALL COLOR(4,6,2)
80 FOR I=5 TO 8
90 CALL COLOR(I,14,2)
100 NEXT I
110 CALL COLOR(9,3,2)
120 CALL COLOR(10,5,2)
130 CALL COLOR(11,5,2)
140 CALL COLOR(12,16,2)
150 CALL COLOR(13,7,2)
160 CALL COLOR(16,10,2)
170 A$="          TEXAS"
180 P=4
190 GOSUB 290
200 A$="          INVADERS"
210 P=6
220 GOSUB 290
230 A$="          REVENGE"
240 P=8
250 GOSUB 290
    
```

### Hints on conversion

TI BASIC is fairly standard with two main exceptions. Single statement lines are used and sub-routines 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 once

If you get in its way it's tough luck, the world's doomed. But you can always play again.

Your laser has an automatic range adjuster so the invader is never out of range.

If you score a hit you get 10 points and the invader returns to its side of the screen and starts again. If you allow it to reach the same column as you then it's tough luck for you.

Keys E and X move up and down respectively and you fire with the full stop or greater than symbol keys.

### Variables

- SC score
- R your position on screen
- A,F variables for laser range
- C column of invader
- X row of invader

```

260 FOR I=1 TO 400
270 NEXT I
280 GOTO 390
290 FOR I=1 TO LEN(A$)
300 CALL HCHAR(P,I,ASC(SEG$(A$,I,1)))
310 NEXT I
320 FOR I=1 TO 30 STEP 3
330 CALL SOUND(-1,110,I,220,I)
340 CALL HCHAR(20,I,128)
350 CALL HCHAR(20,I,32)
360 NEXT I
370 RETURN
380 SC=0
390 X=12
400 R=16
410 CALL CHAR(33,"103E63F8F633E1C")
420 CALL CHAR(96,"00000FFFF")
    
```

```

430 CALL CHAR(97,"0000000000FF")
440 CALL CHAR(98,"0000FF")
450 CALL CHAR(104,"070F1F3D30C")
460 CALL CHAR(105,"00000300D1F0F07")
470 CALL CHAR(106,"C070F0F8FC7E3F1F")
480 CALL CHAR(107,"1F3F7EFCF8F0E")
490 CALL CHAR(108,"1F0F0707070F0703")
500 CALL CHAR(109,"03070F0707070F1F")
510 CALL CHAR(110,"0000F0F1FCFFFFFF")
520 CALL CHAR(111,"FFFFFFFCF1F0C08")
530 CALL CHAR(112,"FF7F3E10103E7FFF")
540 CALL CHAR(120,"000001818")
550 CALL CHAR(121,"00003C24243C")
560 CALL CHAR(122,"007E424242427E")
570 CALL CHAR(123,"FF818181818181FF")
580 CALL CHAR(152,"F80C0E0F0E0C0F8")
590 A$=" DO YOU WANT INSTRUCTIONSEY/NJ?"
    
```

## TI-99/4A PROGRAM

```

600 FOR I=1 TO LEN(A#)
610 CALL HCHAR(12,I,ASC(SEG$(A#,I,1)))
620 NEXT I
630 CALL KEY(0,K,S)
640 IF S=0 THEN 630
650 IF K=ASC("Y") THEN 1890
660 IF K=ASC("N") THEN 670 ELSE 630
670 CALL CLEAR
680 CALL HCHAR(1,8,83)
690 CALL HCHAR(1,9,67)
700 CALL HCHAR(1,10,79)
710 CALL HCHAR(1,11,82)
720 CALL HCHAR(1,12,69)
730 CALL VCHAR(2,1,152,23)
740 CALL HCHAR(10,30,104)
750 CALL HCHAR(10,31,106)
760 CALL HCHAR(11,31,108)
770 CALL HCHAR(11,32,110)
780 CALL HCHAR(16,30,105)
790 CALL HCHAR(16,31,107)
800 CALL HCHAR(15,31,109)
810 CALL HCHAR(15,32,111)
820 CALL VCHAR(12,32,112,3)
830 A=28
840 C=28
850 F=25
860 RANDOMIZE
870 CALL HCHAR(R,2,33)
880 CALL KEY(0,K,S)
890 CALL HCHAR(X,C,40)
900 CALL HCHAR(X,C,32)
910 X=INT(RND*24)+1
920 IF X=12 THEN 1290
930 IF X=13 THEN 1380
940 IF X=22 THEN 1620
950 IF X<1 THEN 910
960 CALL HCHAR(X,C,128)
970 CALL SOUND(-1,X*8000,0,7000,0)
980 IF S=0 THEN 880
990 IF K=ASC("E") THEN 1080
1000 IF K=ASC("X") THEN 1130
1010 IF K=ASC(",") THEN 1020
1020 CALL HCHAR(R,3,96,F)
1030 CALL SOUND(-10,-1,0)
1040 CALL HCHAR(R,3,32,F)
1050 CALL GCHAR(R,A,S)
1060 IF S<>32 THEN 1180
1070 GOTO 880
1080 IF R=3 THEN 880
1090 R=R-1
1100 CALL HCHAR(R,2,33)
1110 CALL HCHAR(R+1,2,32)
1120 GOTO 880
1130 IF R=23 THEN 880
1140 R=R+1
1150 CALL HCHAR(R,2,33)
1160 CALL HCHAR(R-1,2,32)
1170 GOTO 880
1180 FOR I=3 TO 16
1190 CALL COLOR(13,I,2)
1200 CALL SOUND(-200,110+I,I)
1210 NEXT I
1220 SC=SC+10
1230 CALL HCHAR(X,C,32)
1240 S$=" "&STR$(SC)
1250 FOR I=1 TO LEN(S$)
1260 CALL HCHAR(1,I,ASC(SEG$(S$,I,1)))
1270 NEXT I
1280 GOTO 830
1290 C=C-2
1300 F=F-2

```

```

1310 A=A-2
1320 IF C=2 THEN 1340
1330 GOTO 880
1340 FOR I=1100 TO 110 STEP -110
1350 CALL SOUND(-200,I,0)
1360 NEXT I
1370 GOTO 1710
1380 CALL HCHAR(10,3,97,27)
1390 CALL SOUND(-200,110,0)
1400 CALL SOUND(-200,113,0)
1410 CALL SOUND(-10,120,0)
1420 CALL GCHAR(10,2,S)
1430 CALL HCHAR(10,3,32,27)
1440 IF S<>32 THEN 1460
1450 GOTO 880
1460 FOR I=3 TO 16
1470 CALL COLOR(1,I,2)
1480 CALL SOUND(-90,900+I,0)
1490 NEXT I
1500 FOR I=120 TO 123
1510 CALL HCHAR(R,2,I)
1520 FOR D=1 TO 20
1530 NEXT D
1540 NEXT I
1550 CALL HCHAR(R,2,32)
1560 FOR I=1100 TO 110 STEP -110
1570 CALL SOUND(-200,I,0)
1580 NEXT I
1590 FOR I=1 TO 100
1600 NEXT I
1610 GOTO 1710
1620 CALL HCHAR(16,3,98,27)
1630 CALL SOUND(-200,300,0)
1640 CALL SOUND(-200,305,0)
1650 CALL SOUND(-90,310,0)
1660 CALL GCHAR(16,2,S)
1670 CALL HCHAR(16,3,32,27)
1680 IF S<>32 THEN 1460
1690 GOTO 880
1710 CALL CLEAR
1720 SC=0
1730 A$=" DO YOU WANT ANOTHER GAME(Y/N)?"
1740 FOR I=1 TO LEN(A$)
1750 CALL HCHAR(12,I,ASC(SEG$(A$,I,1)))
1760 NEXT I
1770 CALL KEY(0,K,S)

```



## TI-99/4A PROGRAM

```

1780 IF S=0 THEN 1770
1790 IF K=ASC("Y") THEN 670
1800 IF K=ASC("N") THEN 1810 ELSE 1770
1810 CALL CLEAR
1820 FOR N=1 TO 3
1830 FOR I=0 TO 4
1840 CALL SOUND(-200,110,I,110+N,I)
1850 CALL SOUND(-9,110,I,220,N)
1860 NEXT I
1870 NEXT N
1880 END
1890 CALL CLEAR
1900 I$="  I N S T R U C T I O N S "
1910 P=1
1920 GOSUB 2060
1930 I$="      USE E TO MOVE UP"
1940 P=5
1950 GOSUB 2060
1960 I$="      USE X TO MOVE DOWN"
1970 P=7
1980 GOSUB 2060
1990 I$=" USE THE FULL STOP KEY TO FIRE"
2000 P=10
2010 GOSUB 2060
2020 FOR I=1 TO 200
2030 NEXT I
2040 CALL CLEAR
2050 GOTO 670
2060 FOR I=1 TO LEN(I$)
2070 CALL HCHAR(P,I,ASC(SEG$(I$,I,1)))
2080 NEXT I
2090 CALL SOUND(-1,5000,0)
2100 RETURN
    
```

### Micro Tip

### TI-99/4A

#### Secrets of the system

Here are some little-known system variables for the Atari.

POKE 82,0 gives you a full 40 column editing screen.

POKE 77,0 inside a main program loop stops the Atari going into attract mode in a joystick control program.

POKE 580,1 causes SYSTEM RESET to cold start the computer when pressed.

POKE 559,47 gives interesting results.

Before saving a program to tape, it is advisable to LPRINT beforehand, as there is a bug in the tape operating system similar to the one in early BBC operating systems.

Instead of using SETCOLOR to alter colour on the screen, altering the contents of COLOR0 to COLOR4 (708 to 712) using the formula  
colour number \* 16 + hue  
will provide the desired results.

Mark Bullen

### Micro Tip

### Commodore 64

#### Cursor control

Owners of the Commodore 64 may find the following few POKES useful for controlling the cursor.

POKE 204, 0 before a GET will produce a flashing cursor (which is turned off with POKE 204, 1).

POKE 207, 1 before an INPUT will switch off the cursor until a key is pressed.

A repeat on all keys (not just the cursor keys and space bar) can be achieved with POKE 650, 128, POKEing this location with zero will return things to normal.

David Gristwood

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CVG2

Have you ever wanted to write a simple title page to your program and just couldn't remember how many letters across or how many lines down graphics 1 or 2 has, and you couldn't visualise where to start the first line? Then this program is for you.

It will allow you to select graphics 1 or 2. The selected screen is then displayed with text window for prompts and the lines numbered.

### Hints on conversion

POKE #,X. The # is the memory address and X = COLOR\*16+LUM

In GRAPHICS mode 1 and 2 the following POKEs apply:

- 708 colour register 0 (SETCOLOR 0)(CAPITALS)
- 709 colour register 1 (SETCOLOR 1)(lowercase)
- 710 colour register 2 (SETCOLOR 2)(inverse CAPITALS)
- 711 colour register 3 (SETCOLOR 3)(Inverse lowercase)
- 712 colour register 4 (SETCOLOR 4) (Background)

Take for example a statement SETCOLOR 1,5,8. This would equal COLOR 5\*16+LUM which in this instance is 8. So 5\*16+8=88, therefore POKE 709,88 would be the same.

You can then choose the background hue and brightness. You can do the same with each setcolor-uppercase, lowercase, uppercase inverse, and lowercase inverse.

At this point the computer asks what you wish to write to the screen. If the text is within the range of the graphic mode it will be printed, and you can delete it if you wish.

# Give your program a title to be proud of

**Smarten up the title pages of your programs with Writline, which makes it easier to handle graphics and colour. It was written by Terry Davies for any Atari**



### How it works

- 1-3 title page (I used WRIT-LINE to write it)
- 4 sound routine
- 6 rotates colours
- 7 checks to see if START has been pressed
- 9-11 asks which GRAPHICS you wish to write your title page
- 30-37 displays requested GRAPHICS and DIMensions strings
- 38 GOSUB to set colours
- 39-1100 requests and displays text

At each stage the correct instructions are displayed under the title, program line, for you to make a note of and incorporate into your own program.

This program is fairly well trapped so anyone would have to work pretty hard to make it fail, except for one thing, SETCOLOR 1 luminance setting also sets the text window. Writing brightness, SETCOLOR 3, luminance, also sets the brightness of the text window.

So if both are similar the text won't show, if this occurs press N and RETURN to reset SETCOLOR 3, luminance.

The program itself is a fairly simple one, not using very sophisticated routines.

But, for all that, I believe it will be a very useful one, especially for those starting to write programs requiring a title page and for beginners to grasp the working of the SETCOLOR command.

### Variables

- ES text
- ANS answers
- R line to write on
- ST start position of text
- CO colour
- LUM luminance
- G graphics

```

1 REM **WRITLINE BY TERRY DAVIES OCT 198
2
3 GRAPHICS 1+16:SETCOLOR 4,3,3:SETCOLOR
0,15,12:SETCOLOR 1,3,12:SETCOLOR 2,6,6:
ETCOLOR 3,10,8
4 POSITION 5,4: ? #6;"WRITLINE":POSITION
8,7: ? #6;"by":POSITION 3,10: ? #6;"Terry
daves":FOR W=1 TO 700:NEXT W
5 FOR T=0 TO 30:SOUND 0,30,6,8:FOR W=1 T
0 70:NEXT W:SOUND 0,0,0,0:NEXT T
6 POSITION 4,16: ? #6;"PRESS START"
7 POKE 708,PEEK(709):POKE 709,PEEK(710):
POKE 710,PEEK(711):POKE 711,PEEK(708)
8 ? FOR W=1 TO 500:NEXT W:IF PEEK(53279)<
6 THEN 6
9 TRAP 10
10 GRAPHICS 0:SETCOLOR 2,4,6:SETCOLOR 1,6
,0
11 ? CHR$(125): ? : ? : ? "WHAT GRAPHICS
DO YOU WANT TO WRITE YOUR TITLE PAGE
IN, GRAPHICS 1 OR 2";:INPUT G
    
```

```

11 IF G<1 OR G>2 THEN 10
30 GRAPHICS G:SETCOLOR 4,2,0:DIM E$(20),
AN$(5):W=0:Q=0:POKE 710,32
35 POSITION 0,Q: ? #6;W:Q=Q+1:W=Q:IF G=1
THEN D=20
36 IF G=2 THEN D=10
37 IF Q<D THEN 35
38 GOSUB 2000
39 POSITION 5,2: ? #6;" "
40 TRAP 300: ? CHR$(125): ? "ON WHAT LINE
DO YOU WANT TO WRITE";:INPUT R
50 IF G=1 AND R>20 THEN 300
60 IF G=2 AND R>10 THEN 300
70 ? "WHAT START POSITION 0-19 ";:INPUT
ST:IF ST>19 THEN 70
100 ? " " RIGHT OH!":FOR T=1 TO
100:NEXT T
200 ? "WHAT DO YOU WANT TO WRITE
";
210 INPUT E$:IF LEN E$<20-ST THEN POSIT
    
```



## ATARI PROGRAMMING

```

ION ST,R: ? #6;E$:GOTO 1000
250 ? CHR$(125):? CHR$(253):? "OUT OF RANGE OR INVERSE":FOR T=1 TO 500:NEXT T:GOTO 200
300 ? CHR$(125):? CHR$(253):? "OUT OF RANGE OR INVERSE":FOR T=1 TO 500:NEXT T:GOTO 40
1000 ? " PROGRAMME LINE "
1001 ? "POSITION ";ST;";R;":PRINT";E$;";":? "IS THAT ALRIGHT? (Y/N)":? INPUT AN$
1002 IF AN$(1,1)="Y" OR AN$(1,1)="y" OR AN$(1,1)="Y" OR AN$(1,1)="y" THEN 40
1100 POSITION 0,R: ? #6;":POSITION 0,R: ? #6;R:GOTO 40
2000 TRAP 2000: ? ? "WHAT COLOUR BACKGROUND 0-15 ":INPUT CO:IF CO>15 THEN 2000
2010 TRAP 2010: ? ? ? "WHAT LUMINANCE 1-14":INPUT LUM:IF LUM>14 THEN 2010
2012 SETCOLOR 4,CO,LUM: ? " PROGRAMME LINE ":? " ** SETCOLOR 4,;CO;";;LUM; " **"
2015 ? : ? ? " IS THAT ALRIGHT? (Y/N)":? INPUT AN$:IF AN$(1,1)<>"Y" THEN 2000
2020 E$="A B C D":POSITION 5,2: ? #6;E$
2021 TRAP 2021: ? ? ? "WHAT COLOUR OF LETTER A 0-15": ? "(UPPER CASE)":INPUT CO: ? :IF CO>15 THEN 2021
2022 ? : ? ? "WHAT LUMINANCE OF A 0-14":INPUT LUM:IF LUM>14 THEN 2022
2023 SETCOLOR 0,CO,LUM: ? " PROGRAMME LINE ":? " ** SETCOLOR 0,;CO;";;LUM; " **"
2024 ? : ? ? " IS THAT ALRIGHT? (Y/N)":? INPUT AN$:IF AN$(1,1)<>"Y" THEN 2021
2026 TRAP 2026: ? ? ? "WHAT COLOUR OF LETTER b 0-15": ? "(LOWER CASE)":INPUT CO: ? :IF CO>15 THEN 2026
2027 ? : ? ? "WHAT LUMINANCE OF b 0-14":INPUT LUM:IF LUM>14 THEN 2027
2028 SETCOLOR 1,CO,LUM: ? " PROGRAMME LINE ":? " ** SETCOLOR 1,;CO;";;LUM; " **"
2029 ? : ? ? " IS THAT ALRIGHT? (Y/N)":? INPUT AN$:IF AN$(1,1)<>"Y" THEN 2026
    
```

```

2030 TRAP 2030: ? ? ? "WHAT COLOUR OF LETTER C 0-15": ? "(INVERSE UPPER)":INPUT CO: ? :IF CO>15 THEN 2030
2032 ? : ? ? "WHAT LUMINANCE OF C (0-14)":INPUT LUM:IF LUM>14 THEN 2032
2034 SETCOLOR 2,CO,LUM: ? " PROGRAMME LINE ":? " ** SETCOLOR 2,;CO;";;LUM; " **"
2035 ? : ? ? " IS THAT ALRIGHT? (Y/N)":? INPUT AN$:IF AN$(1,1)="N" THEN POKE 710,0:IF AN$(1,1)<>"Y" THEN 2030
2036 TRAP 2036: ? ? ? "WHAT COLOUR OF LETTER d 0-15": ? "(INVERSE LOWER)":INPUT CO: ? :IF CO>15 THEN 2036
2038 ? : ? ? "WHAT LUMINANCE OF d (0-14)":INPUT LUM:IF LUM>14 THEN 2038
2040 SETCOLOR 3,CO,LUM: ? " PROGRAMME LINE ":? " SETCOLOR 3,;CO;";;LUM; "
2049 ? : ? ? " IS THAT ALRIGHT? (Y/N)":? INPUT AN$:IF AN$(1,1)<>"Y" THEN 2036
2055 RETURN
    
```



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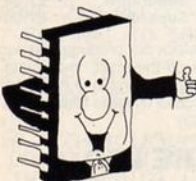
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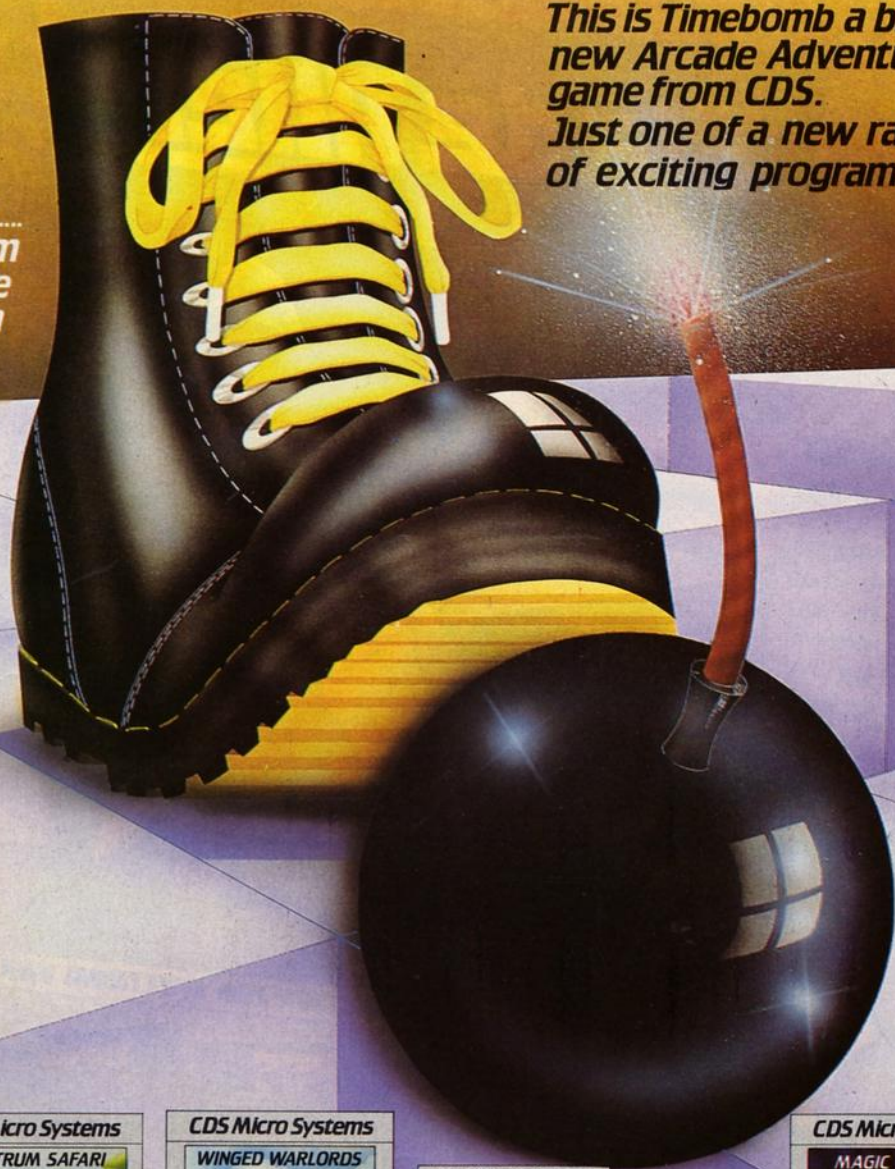


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