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An Argus Specialist Publication
September 6-13, 1983 No. 27

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Commodore 64,
Oric, ZX81,
TI-99/4A,
VIC-20,
Spectrum,
TRS-80

Full reports on
the latest
shows



Joystick with new tricks

A new idea in joysticks came about almost by accident.

The result is Trickstick, available for the Spectrum at the end of the month from East London Robotics.

Designer Mark Vellacott — who runs the company with his brother Roger — made a prototype of a mechanical joystick designed to last longer.

For fast action and greater control he used phototransistors progressively shielded from a light emitting diode.

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Cash crisis causes club to crash

The Microcomputer Software Club, set up to offer cut-price quality software to its members, has closed down due to cash problems.

John Durrant, co-director of the company that ran it, said: "The club got far bigger than we anticipated and required investment which we could not raise."

The club had been running for about eight months and had 32,000 members on its computer.

Mr Durrant said: "They are still pouring in daily, which is very frustrating. I should think we'll end up with about 40,000."

"It's not really possible to

Continued on page 3



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Continued from front page

write to each of our members individually — it would cost £4,000. We want to apologise to them for closing the club and say that we still hope to find some means of re-starting it."

Mr Durrant and Dr Roger Bilboul are co-directors of Yewacre and met through their jobs in book publishing. Mr Durrant said they had been looking at the possibility of a book club for some time and their children's interest in home computers encouraged them to set up a "book club" for computer users.

The Microcomputer Software Club sent a 48-page magazine to its members called Soft Words in which a team of reviewers rated software. Products which reached six out of 10 or more were offered at a 10 per cent discount and the highest-rated program was reduced in price by 20 per cent.

He said: "We are still selling software and we are planning to publish the reviews in book form. And we are still looking at software publishing."

He said: "It was going quite well with a small trading income but it was not paying the interest back. We had a stock of several thousand cassettes and the orders came in very slowly in July and August — half the usual amount."

"It was enough to take what cash we did have. We could have seen it through, but the poor summer neatly hit us for six."

"We did not foresee the expansion. We thought we would get 10,000 members in the first three months. In fact it was 10,000 in three weeks."

"We miscalculated. We have both worked 24 hours a day for the last nine months and we have lost money. It started small and grew and grew like Topsy."

"We have had a few investors look at it, but the amount of money needed would be £¼m."

"We have not given up hope of finding money. We are hoping that some parts can continue trading and find someone who wants to run it as a joint venture."

Although Yewacre would continue, Mr Durrant said they had been so busy with the club there had been no time for other activities.

Microcomputer Software Club, Yewacre, A.R.C. Industrial Site, Besselsleith Road, Abingdon, Oxon

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SOFTWARE SUPERMARKET



● ZX81 owners: there are two programs for you to type in. They're on pages 9 and 14



● After the show was over... read our two page Microfair report. It starts on page 40



● What has drink to do with computers? Michelle Brant is toasting the success of her show stand



● She's trying a new game for the BBC micro. Find out about them on page 7

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READ-OUT



Continued from front page

Joystick

While working on it he began playing with the device by shielding the phototransistors with his fingers — and it worked.

The production version of the Trickstick, which is about a foot long, has four phototransistors.

When gripped, the thumb moves between the two on the top for left-right movement and the index finger controls two more for up and down. There are two fire buttons.

The Vellacott brothers say Trickstick, priced at £28, allows proportional speed control as well as greater accuracy when playing computer games.

It is compatible with software that uses Kempston-type joysticks and up to eight players can take part at one time.

A third brother has produced a device which shows heart-beat and body temperature on screen with the Spectrum.

Clive Vellacott, 38, a consultant anaesthetist, said: "People are interested in the way they

function."

Tickertrac, also due out by late this month, consists of a module which plugs into the back of the Spectrum and three electrodes for wrists and body.

It picks up the heart's tiny electrical signals and amplifies them enough for screen display. To show temperature, one of the probes is placed in the armpit.

Dr Vellacott said the only connection with the Spectrum was an infra-red beam inside the module — which made Tickertrac safe to use.

He said: "It's obviously not a full medical diagnostic electrocardiograph — the ones I use cost £1,000-plus — but it will be of general interest."

Tickertrac, costing £39, will come with educational and health-monitoring software which, says East London Robotics, will teach users about how the heart works and enable them to compare week by week how the heart responds to exercise.

East London Robotics, No. 11 Gate, Royal Albert Dock, London E16



Search with Chris

School leaver Chris Cannon is writing an adventure for the 48K Spectrum which he says will be even harder than his first, The Castle.

Chris, 16, who had just joined Liverpool software house Bug-Byte, wrote The Castle while still at school.

It has 30 rooms to search through, but his new program has around 100 through which players have to search to find and piece together a staff for an alchemist.

Bug-Byte is bringing out games for the Commodore 64 from the end of October. The first will be a

re-written version of its Manic Miner, at present available for the Spectrum.

It is a multi-level cavern game in which Miner Willy faces hazards like mutant telephones, killer penguins and man-eating toilets.

At the end of this month Bug-Byte is launching two £5.95 arcade games for the Spectrum — Cavern Figher and an as-yet unnamed racing game — and a graphics and text adventure for the BBC micro, costing £9.50.

Bug-Byte, Mulberry House, Caning Place, Liverpool L1 8JB

The mouse that will roar victory?

The two-wheeled box held by these three 15-year-olds is one of the UK hopefuls off to Madrid next week.

It is one of our entries in the European micro-mouse competition in which computer-controlled devices have to make their way through a maze.

This one is sponsored by CRL. The black-painted metal box is

4½in square, sports the CRL logo proudly on its side and travels at 5mph.

The makers are (from left), Eddie Forrester, Mike Geaney and Jay Derrett, along with Andy Dukes and Matthew Hampson.

Inside the box is a 4K EPROM — the printer listing in hex stretches for more than 20ft — a 4K static RAM chip which memorises where it has been, a Z80A processor and a sound synthesiser for the victory tune.

CRL, 140 Whitechapel Road, London E1 1EJ



Hunch that turned sour

Manchester-based arcade machine specialists Century Electronics is waging a war against home-computer lookalike versions of its games. And the first casualty is Manchester firm Mr Micro.

Century said that a game Mr Micro was about to release, Hunchy, was a copy of its own game Hunchback.

Based on the story of the Hunchback of Notre Dame, the game involve rescuing the heroine, Esmerelda, from the clutches of Quasimodo.

Now Mr Micro has agreed to withdraw Hunchy, to place no further ads for it, and to destroy all copies of the artwork and the game. But Jim Gregory was unrepentant.

He said: "Hunchy did involve a hunchback and a maiden, but it's got different controls and a different scoring system. It's got extra features like catching hearts and leaping on to flying carpets.

"Our solicitors said we had a 99 per cent chance of preventing the injunction that Century took out against us, but it would have cost us thousands of pounds to do it. We're a small firm, and we don't have the time or the money to fight the case."

"We're sorry to have to disappoint the dealers and customers who were waiting for the game, but we will soon be able to offer them another game equally if not more enjoyable than Hunchy."

David Jones, managing director of Century, said: "The people who copy arcade games for home computers have had a heyday, but if we see anybody making a copy of any of our games we'll stop them."

"Home computer copies of our games could lose us a lot of business. It's hypothetical, of course — I don't know if it would damage us. But it might."

"Though we only produce games for arcade machines, we're currently talking to two companies who we'd like to produce Hunchback for us under licence for home computers."

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Race for Electron add-ons

Competition is hotting up to be among the first with software and peripherals for Acorn's new Electron. Paul Liptrot reports

It looks as if the race to provide the most-missed feature of Acorn's new Electron will be won by Cardiff-based **Sir Computers**.

In about four weeks — well ahead of Acorn — the company promises a Centronics-type parallel printer interface, costing around £30.

A prototype was on Sir's stand at the Acorn User show, but the finished version will be a slim unit designed to fit neatly into the rear of the Electron.

House in the same unit will be a four-channel analogue-to-digital interface for joysticks and other peripherals.

Sir has two more Electron products due out in the middle of next month.

A ROM board will have space for about eight ROMs, allowing the use of chip-based software like word processors and spreadsheets.

And Sir's teletext adaptor will add display mode 7, omitted when the Electron was designed as a "cut down" BBC micro.

The Electron, priced at £199, was officially launched at the show along with 12 tapes, ranging in price from £9.20 to £11.50, by the company's software arm, Acornsoft.

Cliff Michelmores and Wendy Craig were at the press launch — sitting outside a mock house — to promote the Electron as a useful micro for the home.

In another move to promote the new computer, Acorn is sponsoring race driver David Hunt, 23, for a year in a £90,000 deal.

The money is intended to take Hunt, brother of ex-world champion James, into the British Formula Three Championship. He will be driving the Acorn-sponsored Ralt RT3 for Eddie Jordan Racing. With five cars and drivers it is said to be the largest Formula Three team in the UK.

Acorn, now a £42m company after five years, intends also to develop a computer model of European racetracks.

The Electron, with 32K of RAM and 32K of ROM holding the BASIC interpreter, is based on a 2MHz6502 processor — like its parent, the BBC micro, and others — and has a 56-key typewriter-style keyboard. Ten of them are also user-definable and there is single-key entry for key words in the same BASIC as the BBC micro.

Cassette loading is at 1,200 baud and there is a built-in loudspeaker.

● In another promotional exercise, Acorn prepared a special cocktail called Electron Fizz, which uses the company's colours, green and white. It com-

prises one-tenth of a bottle of Champagne, one-sixth gill midori (melon liqueur), one-third gill brandy, one-third gill Cointreau. Melon balls should be placed in the bottom of the glass and the rim sugared.

Simon Vout, who runs **Software Invasion**, finished his latest game just in time for the show. Attack on Alpha Centauri, priced at £7.95, features giant wasp-like beings swooping over a barren landscape.

Mr Vout, 28, who trained as a musician, says he got many of his ideas while sitting practising at the Royal College of Music.

Program Power, trading name of Micro Power, showed its first tapes featuring a new character called Felix — as announced in Home Computing Weekly. The company said it had gained £50,000-worth of software orders at the show.

Educational specialists **LCL** brought out two more cassettes, at £5.50 for the BBC micro and the Electron, called **Picture Puzzles** and **Million Mazes**.

The BBC itself has a new range due out at the end of the month, including **Dr Who: The First Adventure** (£10), a graphics game; an enhanced version of the **White Knight** (£11.50) chess program; **VU-Type** (£16.10), a touch-typing tutor; and **Record Keeper** (£13.80), aimed at householders and small businesses.

RH Software launched seven games cassettes — including two which contain three games — and a £45.95 light pen.

A selection of new products for the BBC micro was shown by **Watford Electronics**: a 13-ROM socket board for £35; the **Beebplotter** graphics tablet (£75); a ROM-based machine code monitor called **Beebmon** (£22); the **Beeb Speech Synthesiser** (£39); and **Disc Filing System 1.1** at £42. Coming soon: **Disc-Fix**, a

ROM for £19 designed to recover data from corrupted discs.

Publishers **Addison-Wesley** were quick off the mark with three books for the Electron: **Start Programming with the Electron**, **The Electron Book: BASIC**, **Sound and Graphics** and **Assembly Language Programming on the Electron**.

Cambridge Microcomputer Centre showed its **Advanced User Guide** for the BBC Micro, costing £12.95 and written by three members of Cambridge University.

Video tapes on the Electron and BBC micros have joined the range from **Master Class Video Cassettes**. Designed to teach programming, they are presented by David Redclift, who has been training programmers for 12 years.

AB Designers, run by former graphics designer Alan Burns, offered two sophisticated drawing programs, each incorporating more than 80 functions, for the BBC micro. One version, costing £35 on cassette runs in Mode 1 and the second, at £50.50 on cassette or £60.00 on disc, uses modes 0, 1 and 4.

Battlezone Six is a new space game costing £9.50 from **Kansas City Systems**.

And **Deskflair** produced a 3D graphics adventure called **The Quest** (£8.50) and an arcade game, **Bandits**, at £5.50. **Asky** had **Adlab** (£10), an address label and filing program, and **Cashbk** (£8), a cashbook program.

Eighteen-year-olds Chris Butler and Marcus Altman, who have just left school after "A"-levels, were up until 4 am making duplicates of their games for their first public appearance as **SoftSpot**.

Marcus said: "We managed to get a bank loan to get going. It took a long time and it's not very much."

"But we've got lots of ideas for

more games and there are two more coming for Christmas. We are hoping to bring out two every two months."

Chris wrote **Transistors Revenge** and Marcus produced **Heist** and both tapes cost £6.95.

Another new name in software is **Alligata**, which grew out of Sheffield computer dealers and duplicating house **Superior Systems**.

Managing director Mike Mahoney said the company had five full-time programmers and had spend £20,000 so far on setting up Alligata. He said: "We've been writing for more than six months so we would have a reasonable selection before release."

The company launched 11 BBC titles — a mixture of utilities and games — two for the Dragon and six for the Commodore 64. More are due out this week.

Two new adventures, **The Five Stones of Anadon** and **The Eye of Zolton**, costing £7-£8, are due out soon from **Brainstorm**, along with cribbage at about the same price.

Kay-Dee brought out **Millipede** and a maze game called **Up and Away**, both at £8.50, and is soon to launch a 3D adventure called **Tutankhamen**, at £10-£12, which will come with 3D glasses.

Broadway Electronics had a £4.95 tape called **Broadway Boogie and Classics** which plays **Boogie Boogie**, **Air on a G String** and a prelude by Bach, all accompanied by graphics.

Where to find them

Sir Computers, 91 Whitechurch Rd, Cardiff; **Acorn Computers**, Fulbourn Rd, Cherry Hinton, Cambridge CB1 4JN; **Software Invasion**, 50 Elborough St, Southfields, London SW18 5DN; **Program Power**, 8/8A Regent St, Chapel Allerton, Leeds LS7 4PE; **LCL**, 26 Avondale Ave, Staines, Middx; **BBC Publications**, P.O. Box 234, London SE1 3TH; **RH Electronics (Sales)**, Chesterton Mill, French's Rd, Cambridge CB4 3NP; **Watford Electronics**, Cardiff Rd, Watford, Herts; **Addison-Wesley**, 53 Bedford Sq, London WC1B 3DZ; **Cambridge Microcomputer Centre**, 153-4 East Rd, Cambridge; **Master Class Video Cassettes**, 172 Finney La, Heald Green, Cheadle, Cheshire; **AB Designs**, 81 Sutton Common Rd, Sutton, Surrey SM1 3HN; **Kansas City Systems**, Unit 3, Sutton Springs Wood, Chesterfield, S44 5XF; **Deskflair**, 71 Woodlands Rd, Hertford, Herts SG13 7JF; **Asky Computing**, 49 Sunydale Ave, Selsdon, Surrey CR2 8RR; **SoftSpot**, 29 South Cres, Prittlewell, Southend, Essex SS2 6TB; **Alligata**, 178 West St, Sheffield S1 4ET; **Brainstorm**, 103A Seven Sisters Rd, London N7 7QN; **Key-Dee**, 27 City Rd, Stoke-on-Trent; **Broadway Electronics**, 1 The Broadway, Bedford.

Spectrum games for you to think over

There's no shortage of Spectrum action games, but reflective types aren't left out either

Timeline/ Tasks £4.95

Gilsoft, 30 Hawthorn Road, Barry, South Glamorgan CF6 8LE

The first part of this two game package is Timeline, an adventure game where you are a time traveller who must trace your

Time Machine in order to return to the present.

The adventure is presented in screen text with no pictures. You converse with the computer by two word verb/noun phrases; more than two words and you risk misunderstanding.

The vocabulary is quite large and the game represents an interesting introduction to logical thinking, e.g. how can you use the sword if you haven't picked it up yet? In my first few games I

Backgammon £5.95

Hewson Consultants, 60a St Mary's Street, Wallingford, Oxon

My heart sank when I found that I had to review this game. I know how to play Space Invaders, but Backgammon is intellectual!

Not only the program instructions, but also the object and rules of the game have been fitted on to the cassette insert. You can play a single game or a series, or even bet money.

I decided to have a go after watching the demonstration mode first. It frightened me to death! It was so fast that I couldn't see who was doing what, to whom and with what! I took the plunge and started a single game.

Now some critics say that there isn't any point in putting board

games on a computer. You can buy the game for less than the program. That may be so, but you'll never find an experienced player as patient as your Spectrum and one who will explain your mistakes in such detail.

At the same time, as you gain in skill and cunning you can raise the level of play. What more could you want?

This game could be criticised for not having ultra-mega-amazing graphics and sound, but these are more than made up for by the skilled programming that prevents you from crashing the game and breaking the rules.

D.M.

instructions	100%
playability	95%
graphics	60%
value for money	95%



Vanquisher 48K £5.20

Elephant Software, 41 Haymill Road, Burgham, Berks SL1 6NE

With a name like Vanquisher you might expect a dramatic combat game, or maybe a blood-thirsty adventure, but this game is more original than either of these.

Its idea is quite simple. The word 'vanquisher' is anagrammatised and the player has to reorder the letters correctly. However, only one letter at a time can be moved, and letters have to be guided through a complex network of routes and boxes.

I was not able to solve the puzzle. But I'm afraid the real reason for not doing so is that I found it tedious.

Undoubtedly the idea is excellent. Presentation also is good. But response time is terribly slow, and messages are flashed up too quickly. Though error trapping is good, actual manipulation of the keyboard is minimal and unexciting — you don't feel as if you are involved in the game, and the task of completing it does not seem worth the effort.

All in all it feels like a game better played with pencil and paper, like many word and maze games. The average player does not have the motivation to be patient with a game like this. N.W.

instructions	60%
playability	65%
graphics	80%
value for money	65%



Detective £6.50

ASP Software, 145 Charing Cross Road, London WC2H 0EE

Board gamers will find Detective familiar. Throw computer dice, move round room grid, guess whodunnit, where, how and why, deduce solution from yes/no answers.

A code system stops opponents 'reading' your guesses, previous guesses are displayed each turn and one to six can play on two levels: Y/N answers in category order or Mastermind style. In the latter you're told how many guesses are correct but not which.

You can take less than the number of moves indicated by the dice throw, force guessed op-

ponents to jump rooms, but must reach the correct room before you can declare the solution.

Rooms are 'uncoded', so a 'yes' is readable by everyone. All players are Innocent Suspects, always allocated in the same order, which gives old hands an advantage. Daggers are duplicated in the weapons list.

A facility to input your own fictional detective name would provide more interest and allow a greater permutation. Initially great fun, but not a long lasting favourite.

D.C.

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



Corn Cropper 48K £5

Cases Computer Simulations, 14 Langton Way, London SE3 7TL

In this excellent game you are a small farmer trying to make your farm worth £¼ million.

You estimate each month the effects of frost, drought, labour

costs etc and decide whether to plant harvest, buy or sell on the basis of weather forecasts and farm and financial progress.

These are clearly displayed each month with advice on the implications of your choices, and a monthly summary shows what you have done to your farm and your bank account.

The displays are very good,

and even the detailed and realistic financial information is easy to follow.

The program is a model user-friendly game, loads easily, has clear on-screen and insert instructions, optional sound, is well mug-trapped and allows restart without loss of the game.

The excellent presentation and five levels of difficulty make it

good fun to play whether you want to think everything through or just have a go. Recommended.

H.C.

instructions	100%
playability	90%
graphics	60%
value for money	85%



It's fast, tough and mean . . . you'll really earn your booty

Caverns of Marz must be the fastest, toughest, meanest lander game ever written in ZX81 Basic.

It needs 100 per cent concentration and allows the player unique customising. It is surprising that the game is not sluggishly slow. And with four on-screen gauges this game is very addictive.

The object is to smuggle 20 intergalactic freighters onto the planet Psorbia, laden with weapons to support the Psorbian Rebels.

How it works

5 clear screen
20-60 main variables
70-160 choose keys and gravitational power
170-180 clear screen and go into fast mode
190-400 draws screen display (landscape, fuel pods, space mines, shaft, fuel gauge and goes into slow mode)
410 gauges Note: 31 spaces between quotes

However, the Psorbian police are cracking down on your little operation and have laid space mines which hover in the atmosphere.

You must land each waiting ship down a shaft just the width of your ship avoiding the perilous rocks beneath you.

When the game has been typed in and RUN has been executed, the ZX81 asks you to choose your own control keys for up, left and right. You ship will move down automatically.

The speed of the craft's descent is controlled by inputting the planet's gravitational power. Five is idiot speed, 10 is average, 15 is impossible. Then the fun starts.

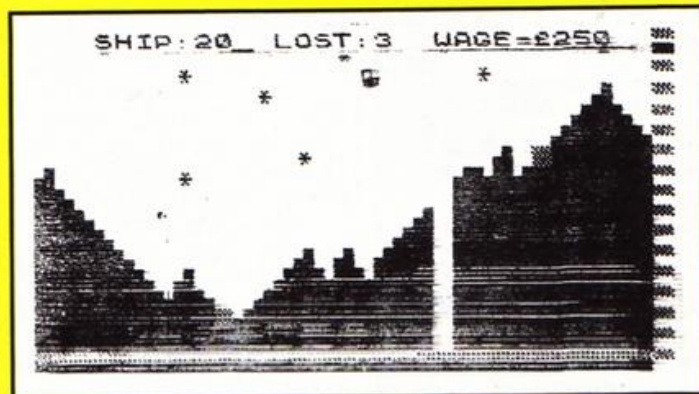
To draw the landscape of space-mines, ground and the perilous shaft, the ZX81 goes into fast mode. I have included a typical screen display.

Your ship will start at the top of the screen and work its way down according to the gravitational power you have input, and steered according to your chosen keys.

If a chosen key is pressed (e.g. right), your ship will keep moving in that direction until another is pressed. At first it will seem impossible to make the ship descend vertically down, permitting a safe landing.

If you land your ship successfully you are awarded £50 bonus plus money back on the ra-

You're cast as a space smuggler in M. P. Hargreaves' Caverns of Marz game for the 16K ZX81. You might win a bonus . . . or blast yourself into oblivion



How the screen looks during a game

```

5 CLS
10 REM CAVERNS OF MARZ BY
M.P. HARGREAVES JUN. 83.
20 LET A=10
30 LET B=20
40 LET C=250
50 LET D=3
60 LET D$=""
70 PRINT AT 4,7;"ENTER KEY FAC
ILITY"; AT 6,14;"UP"
80 INPUT A$
90 PRINT AT 6,13;"LEFT"
100 INPUT B$
110 PRINT AT 10,13;"RIGHT"
120 INPUT C$
130 PRINT AT 13,8;"GRAVITY STRE
NGTH"; AT 14,12;"(5 TO 15)"
140 INPUT E
150 IF E<5 OR E>15 THEN GOTO 14
160 LET E=E/10
170 CLS
180 FAST
190 FOR F=0 TO A
200 PRINT AT RND*11,RND*30;CHR$
23
210 NEXT F
220 LET G=13
230 FOR H=0 TO 30 STEP 1
240 LET I=INT (RND*30)
250 LET G=G+(I>15 AND G<18)-(I<
15 AND G>1)
260 IF I>15 THEN PRINT AT G,H;C
HR$ 130
270 IF I<15 THEN PRINT AT G,H;C
HR$ 129
280 IF I>20 THEN PRINT AT G,H;C
HR$ 8
290 FOR J=20 TO G+1 STEP -1

```

Hints on conversion

The ZX81 has a 32 by 21 screen area. FAST moves the ZX81 into a mode four times faster, but loses the screen-display.

I have used CHR\$ to avoid printing errors. You may use your own, or maybe put in some user-defined-graphics.

The variable P makes the ship hit obstacles. POKE 16424,35 makes the screen display shudder. Take out the surrounding FOR-NEXT loop and replace with your own explosions.

maining fuel. The ZX81 will then go into fast mode and draw another random landscape, increasing the number of space-mines and giving one less ship to land.

However, if your ship hits a space-mine or crashes on the rocks the whole screen will shake violently with explosions.

At the top of the screen you will be told what happened. You will then lose one life from a total of three, have £50 deducted from your wage and return to complete the landing. The same applies when you run out of fuel, except you lose £70 and a new screen is drawn.

You have four gauges to monitor at the top of the screen: SHIP tells you how many more ships you must land; LOST tells you how many lives you have left; WAGE keeps track of your earnings and spending.

The fuel gauge is in the form of a vertical bar on the right hand side of the screen. Your fuel is constantly diminishing, but to completely re-fuel you must hit a fuel pod. They are randomly scattered across the planet's surface.

At the end of the game the ZX81 neatly displays your wage and asks if you wish to play again.

To begin with you will find this game very hard, but after three or four attempts it becomes more interesting and addictive.

Variables

A quantity of space-mines (10)
B ships to land (20)
C wage to begin with (£250)
D lives (3)
E select gravitational power — you also choose A\$, B\$ and C\$
M total fuel (21)
N height of ship (1)
O horizontal axis of ship (random)
P routine to hit obstacles
ES Yes/No facility at end of game

ZX81 PROGRAM

```

300 PRINT AT J,H;CHR$ 126;AT 21
H;CHR$ 136
310 NEXT J
320 NEXT H
330 FOR K=20 TO 0 STEP -1
340 PRINT AT K,I;CHR$ 0
350 NEXT K
360 SLOW
370 FOR L=0 TO 21
380 PRINT AT L,31;CHR$ 9
390 NEXT L
400 LET M=21
410 PRINT AT 0,3;"SHIP:";B;TAB
12;"LOST:";D;TAB 20;"WAGE=E";C;A
T 1,0;"
";CHR$ 9
420 LET N=1
430 LET O=INT (RND*30)
440 PRINT AT N,0;
450 LET P=PEEK (PEEK 16398+PEEK
16399*256)
460 IF P=128 OR P=129 OR P=130
THEN GOTO 610
470 IF P=23 THEN GOTO 630
480 IF P=6 THEN GOTO 370
490 PRINT CHR$ 139;AT N,0;CHR$
0

```

```

500 IF INKEY$<>" " THEN LET D$=I
NKEY$
510 IF D$=A$ THEN LET N=N-2
520 LET N=N+E
530 LET O=O+(D$=C$)-(D$=B$)
540 IF N>20 THEN GOTO 650
550 LET M=M-O.3
560 IF D$=A$ THEN LET M=M-O.3
570 PRINT AT M,31;CHR$ 0
580 IF M<0 THEN GOTO 670
590 IF D$="" THEN GOTO 440
600 GOTO 440
610 PRINT AT 1,6;"SMASHED ON TH
E ROCKS"
620 GOTO 690
630 PRINT AT 1,6;"YOU HIT A SPA
CE-MINE"
640 GOTO 690
650 PRINT AT 1,10;"GOOD LANDING
"

```

```

660 GOTO 760
670 PRINT AT 1,8;"RAN OUT OF FU
EL"
680 GOTO 820
690 FOR Q=0 TO 100
700 POKE 16424,35
710 NEXT Q
720 LET D=D-1
730 LET C=C-50
740 IF D=0 THEN GOTO 920
750 GOTO 410
760 LET B=B-1
770 LET A=A+0.5
780 LET C=C+50+M
790 IF B=0 THEN GOTO 900
800 PAUSE 100
810 GOTO 170
820 LET B=B-1
830 LET A=A+0.5
840 LET D=D-1
850 IF D=0 THEN GOTO 920
860 IF B=0 THEN GOTO 900
870 LET C=C-70
880 GOTO 170
890 CLS
900 PRINT AT 10,2;"ALL 20 SHIPS
LANDED SAFELY";AT 12,8;"YOUR WA
GE=E";C+M+20;AT 21,9;"AGAIN (Y/N
)"
910 GOTO 940
920 CLS
930 PRINT AT 5,6;"ALL SHIPS DES
TROYED";AT 7,10;"END OF GAME";AT
9,8;"YOUR WAGE=E";C;AT 14,9;"AG
AIN (Y/N)"
940 INPUT E$
950 IF E$="Y" THEN GOTO 5
960 GOTO 940

```

ONE MAN'S VIEW

Programmers of Britain, unite!

As computer software becomes more and more complicated, the smaller firms in the computer business must be finding it difficult to compete.

Unless you launch yourself on to the unsuspecting market with flashy advertising in a blaze of publicity, your chances are very slim.

This may rid us of the 'here today — gone tomorrow' software companies, who are just in it for a fast buck, but it means that the programmer who is not happy with the deals some companies offer, such as being contracted to work for nobody else, and having to work 'in-house', is stuck.

• • •

The software houses themselves already have a group to watch over the trade, but who is there to watch over them? Of the programmers I have met, quite a few were interested in an independent software group for programmers. The group would not try and set programmers and software houses against each other, but rather make sure no-one is ripping anyone off.

I have heard of one software company that signed a programmer up on what seemed like a good deal, got him working in-house, and then proceeded to rip him off left, right and centre. If a programmer could go to an independent group in cases like this, the sharks of the software world would be soon found out.

The group could run along the same lines as the Computer Trade Association, but obviously the aims would be different. Meetings would be around the country, but membership would not be strictly necessary. The things the group could check up on could include contracts, rights and advertising.

• • •

I myself have written a number of books and have been very displeased with the contract and the amount of advertising. The book has not yet been advertised, or reviewed in any publication, and the publishers seem very complacent about it.

My contract also says that the publishers are supposed to account for the sales and pay my royalties 'no later than six months from the date of publication'. But the royalties are overdue, and the publishers say they will not be able to pay me till October.

I would not like to see this happen to anyone else so I am enthusiastic about the idea of a programmers group, which, incidentally, was not totally my idea, but rather an outcome of many frustrated programmers.

An author of home computer books and software

• This space is for you to sound off about the micro scene, to present bouquets or hurl brickbats. Share your views by sending them to Paul Liptrot, Opinion, Home Computing Weekly, 145 Charing Cross Road, London WC2H 0EE. Please include your occupation and your interest in computing

CALL KEY (key unit, k,s)
Equivalent of INKEYS in
other computers, returns code
if key pressed in variable k.

Pressing 1 moves the turret to

890-1760 this long section sets up the numerous arrays and user defined characters and explains the game's theme

```

970 A(L+4)=L+4
980 B(L)=L
990 NEXT L
1000 GOTO 1007

```

```

1350 DATA 00,C0C0C0C0C0C0C0,F0F0F0F0F0F0F0,F0F0F0F0F0F0F0,FFFFFFF0F0F0F0,FFFFFFF0F0F0F0
FF
1355 FOR L=152 TO 156
1360 READ #
1370 CALL CHAR(L,#)
1380 NEXT L
1390 RESTORE 1400
1400 DATA 8,16,2,2,2,8,6,2,2,2,2,2,2,2
1410 FOR L=1 TO 15
1420 READ G
1430 CALL COLOR(L,G,2)
1440 NEXT L
1450 CALL COLOR(16,7,10)
1460 CALL CLEAR
1470 FOR L=1 TO 12
1480 GOTO
1490 J=INT(RND*4+10)
1500 Z=SEG$(Z$G),J,20\SEG$(Z$G),J-1)

```

The array `F()` is not strictly necessary but is used to store the characters that are `GCHARed`. It is quicker to access this array than to use `GCHAR` more than once.

When the space bar is pressed four laser bolts are fired, hopefully smashing the alien into little pieces.

```

1510 PRINT (TAB(3);Z0(G);
1520 NEXT L
1530 CALL VCHAR(23,20,31,196)
1540 CALL VCHAR(23,5,31,4)
1550 CALL VCHAR(23,6,31,2)
1560 CALL VCHAR(1,27,31,2)
1570 CALL VCHAR(23,27,31,4)
1580 FOR L=0 TO 7
1590 FOR Q=0 TO 1
1600 G=K*2+Q
1610 CALL HCHAR(G-3,G+1,L*8+24)
1620 CALL HCHAR(G-3,32-G,L*8+25)
1630 CALL HCHAR(28-G,G+1,L*8+23)
1640 CALL HCHAR(28-G,32-G,L*8+24)
1650 NEXT Q
1660 NEXT L
1670 SC=0
1680 EN=40
1690 CALL HCHAR(24,12,156,10)
1700 S=0
1710 J=0
1720 D=INT(RND*#0)
1730 F(16,12)=#0
1740 X=16
1750 Y=12
1760 G=0
1770 FOR L=0 TO 15
1780 FOR Q=0 TO 1
1790 G=K*2+Q
1800 CALL HCHAR(G-3,G+1,L*8+24)
1810 CALL HCHAR(G-3,32-G,L*8+25)
1820 CALL HCHAR(28-G,G+1,L*8+23)
1830 CALL HCHAR(28-G,32-G,L*8+24)
1840 NEXT Q
1850 NEXT L
1860 FOR L=0 TO 15
1870 FOR Q=0 TO 1
1880 G=K*2+Q
1890 CALL HCHAR(G-3,G+1,L*8+24)
1900 CALL HCHAR(G-3,32-G,L*8+25)
1910 CALL HCHAR(28-G,G+1,L*8+23)
1920 CALL HCHAR(28-G,32-G,L*8+24)
1930 NEXT Q
1940 NEXT L
1950 FOR L=0 TO 15
1960 FOR Q=0 TO 1
1970 G=K*2+Q
1980 CALL HCHAR(G-3,G+1,L*8+24)
1990 CALL HCHAR(G-3,32-G,L*8+25)
2000 CALL HCHAR(28-G,G+1,L*8+23)
2010 CALL HCHAR(28-G,32-G,L*8+24)
2020 NEXT Q
2030 NEXT L
2040 FOR L=0 TO 15
2050 FOR Q=0 TO 1
2060 G=K*2+Q
2070 CALL HCHAR(G-3,G+1,L*8+24)
2080 CALL HCHAR(G-3,32-G,L*8+25)
2090 CALL HCHAR(28-G,G+1,L*8+23)
2100 CALL HCHAR(28-G,32-G,L*8+24)
2110 NEXT Q
2120 NEXT L
2130 FOR L=0 TO 15
2140 FOR Q=0 TO 1
2150 G=K*2+Q
2160 CALL HCHAR(G-3,G+1,L*8+24)
2170 CALL HCHAR(G-3,32-G,L*8+25)
2180 CALL HCHAR(28-G,G+1,L*8+23)
2190 CALL HCHAR(28-G,32-G,L*8+24)
2200 NEXT Q
2210 NEXT L
2220 FOR L=0 TO 15
2230 FOR Q=0 TO 1
2240 G=K*2+Q
2250 CALL HCHAR(G-3,G+1,L*8+24)
2260 CALL HCHAR(G-3,32-G,L*8+25)
2270 CALL HCHAR(28-G,G+1,L*8+23)
2280 CALL HCHAR(28-G,32-G,L*8+24)
2290 NEXT Q
2300 NEXT L
2310 FOR L=0 TO 15
2320 FOR Q=0 TO 1
2330 G=K*2+Q
2340 CALL HCHAR(G-3,G+1,L*8+24)
2350 CALL HCHAR(G-3,32-G,L*8+25)
2360 CALL HCHAR(28-G,G+1,L*8+23)
2370 CALL HCHAR(28-G,32-G,L*8+24)
2380 NEXT Q
2390 NEXT L
2400 FOR L=0 TO 15
2410 FOR Q=0 TO 1
2420 G=K*2+Q
2430 CALL HCHAR(G-3,G+1,L*8+24)
2440 CALL HCHAR(G-3,32-G,L*8+25)
2450 CALL HCHAR(28-G,G+1,L*8+23)
2460 CALL HCHAR(28-G,32-G,L*8+24)
2470 NEXT Q
2480 NEXT L
2490 FOR L=0 TO 15
2500 FOR Q=0 TO 1
2510 G=K*2+Q
2520 CALL HCHAR(G-3,G+1,L*8+24)
2530 CALL HCHAR(G-3,32-G,L*8+25)
2540 CALL HCHAR(28-G,G+1,L*8+23)
2550 CALL HCHAR(28-G,32-G,L*8+24)
2560 NEXT Q
2570 NEXT L
2580 FOR L=0 TO 15
2590 FOR Q=0 TO 1
2600 G=K*2+Q
2610 CALL HCHAR(G-3,G+1,L*8+24)
2620 CALL HCHAR(G-3,32-G,L*8+25)
2630 CALL HCHAR(28-G,G+1,L*8+23)
2640 CALL HCHAR(28-G,32-G,L*8+24)
2650 NEXT Q
2660 NEXT L
2670 FOR L=0 TO 15
2680 FOR Q=0 TO 1
2690 G=K*2+Q
2700 CALL HCHAR(G-3,G+1,L*8+24)
2710 CALL HCHAR(G-3,32-G,L*8+25)
2720 CALL HCHAR(28-G,G+1,L*8+23)
2730 CALL HCHAR(28-G,32-G,L*8+24)
2740 NEXT Q
2750 NEXT L
2760 FOR L=0 TO 15
2770 FOR Q=0 TO 1
2780 G=K*2+Q
2790 CALL HCHAR(G-3,G+1,L*8+24)
2800 CALL HCHAR(G-3,32-G,L*8+25)
2810 CALL HCHAR(28-G,G+1,L*8+23)
2820 CALL HCHAR(28-G,32-G,L*8+24)
2830 NEXT Q
2840 NEXT L
2850 FOR L=0 TO 15
2860 FOR Q=0 TO 1
2870 G=K*2+Q
2880 CALL HCHAR(G-3,G+1,L*8+24)
2890 CALL HCHAR(G-3,32-G,L*8+25)
2900 CALL HCHAR(28-G,G+1,L*8+23)
2910 CALL HCHAR(28-G,32-G,L*8+24)
2920 NEXT Q
2930 NEXT L
2940 FOR L=0 TO 15
2950 FOR Q=0 TO 1
2960 G=K*2+Q
2970 CALL HCHAR(G-3,G+1,L*8+24)
2980 CALL HCHAR(G-3,32-G,L*8+25)
2990 CALL HCHAR(28-G,G+1,L*8+23)
3000 CALL HCHAR(28-G,32-G,L*8+24)
3010 NEXT Q
3020 NEXT L
3030 FOR L=0 TO 15
3040 FOR Q=0 TO 1
3050 G=K*2+Q
3060 CALL HCHAR(G-3,G+1,L*8+24)
3070 CALL HCHAR(G-3,32-G,L*8+25)
3080 CALL HCHAR(28-G,G+1,L*8+23)
3090 CALL HCHAR(28-G,32-G,L*8+24)
3100 NEXT Q
3110 NEXT L
3120 FOR L=0 TO 15
3130 FOR Q=0 TO 1
3140 G=K*2+Q
3150 CALL HCHAR(G-3,G+1,L*8+24)
3160 CALL HCHAR(G-3,32-G,L*8+25)
3170 CALL HCHAR(28-G,G+1,L*8+23)
3180 CALL HCHAR(28-G,32-G,L*8+24)
3190 NEXT Q
3200 NEXT L
3210 FOR L=0 TO 15
3220 FOR Q=0 TO 1
3230 G=K*2+Q
3240 CALL HCHAR(G-3,G+1,L*8+24)
3250 CALL HCHAR(G-3,32-G,L*8+25)
3260 CALL HCHAR(28-G,G+1,L*8+23)
3270 CALL HCHAR(28-G,32-G,L*8+24)
3280 NEXT Q
3290 NEXT L
3300 FOR L=0 TO 15
3310 FOR Q=0 TO 1
3320 G=K*2+Q
3330 CALL HCHAR(G-3,G+1,L*8+24)
3340 CALL HCHAR(G-3,32-G,L*8+25)
3350 CALL HCHAR(28-G,G+1,L*8+23)
3360 CALL HCHAR(28-G,32-G,L*8+24)
3370 NEXT Q
3380 NEXT L
3390 FOR L=0 TO 15
3400 FOR Q=0 TO 1
3410 G=K*2+Q
3420 CALL HCHAR(G-3,G+1,L*8+24)
3430 CALL HCHAR(G-3,32-G,L*8+25)
3440 CALL HCHAR(28-G,G+1,L*8+23)
3450 CALL HCHAR(28-G,32-G,L*8+24)
3460 NEXT Q
3470 NEXT L
3480 FOR L=0 TO 15
3490 FOR Q=0 TO 1
3500 G=K*2+Q
3510 CALL HCHAR(G-3,G+1,L*8+24)
3520 CALL HCHAR(G-3,32-G,L*8+25)
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3540 CALL HCHAR(28-G,32-G,L*8+24)
3550 NEXT Q
3560 NEXT L
3570 FOR L=0 TO 15
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3630 CALL HCHAR(28-G,32-G,L*8+24)
3640 NEXT Q
3650 NEXT L
3660 FOR L=0 TO 15
3670 FOR Q=0 TO 1
3680 G=K*2+Q
3690 CALL HCHAR(G-3,G+1,L*8+24)
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3710 CALL HCHAR(28-G,G+1,L*8+23)
3720 CALL HCHAR(28-G,32-G,L*8+24)
3730 NEXT Q
3740 NEXT L
3750 FOR L=0 TO 15
3760 FOR Q=0 TO 1
3770 G=K*2+Q
3780 CALL HCHAR(G-3,G+1,L*8+24)
3790 CALL HCHAR(G-3,32-G,L*8+25)
3800 CALL HCHAR(28-G,G+1,L*8+23)
3810 CALL HCHAR(28-G,32-G,L*8+24)
3820 NEXT Q
3830 NEXT L
3840 FOR L=0 TO 15
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3910 NEXT Q
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3940 FOR Q=0 TO 1
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3960 CALL HCHAR(G-3,G+1,L*8+24)
3970 CALL HCHAR(G-3,32-G,L*8+25)
3980 CALL HCHAR(28-G,G+1,L*8+23)
3990 CALL HCHAR(28-G,32-G,L*8+24)
4000 NEXT Q
4010 NEXT L
4020 FOR L=0 TO 15
4030 FOR Q=0 TO 1
4040 G=K*2+Q
4050 CALL HCHAR(G-3,G+1,L*8+24)
4060 CALL HCHAR(G-3,32-G,L*8+25)
4070 CALL HCHAR(28-G,G+1,L*8+23)
4080 CALL HCHAR(28-G,32-G,L*8+24)
4090 NEXT Q
4100 NEXT L
4110 FOR L=0 TO 15
4120 FOR Q=0 TO 1
4130 G=K*2+Q
4140 CALL HCHAR(G-3,G+1,L*8+24)
4150 CALL HCHAR(G-3,32-G,L*8+25)
4160 CALL HCHAR(28-G,G+1,L*8+23)
4170 CALL HCHAR(
```


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How you can order those keys about

Commodore does very silly things occasionally, as those who have had many dealings with the company will know. The Commodore 64 has a set of potentially useful function keys to the right of its keyboard — but Commodore, in its infinite wisdom, has decided to make them virtually inaccessible for any practical purpose.

I was pondering on this problem, and thought to myself: "If Acorn can provide useful function keys for the BBC micro, why can't it be done with the Commodore 64?" Six hours later I came up with this program, which gives the 64 a total of 16 user-defined function keys.

This is done as follows. f1, f3, f5 and f7 become the four normal function keys. f2, f4, f6 and f8 become shifted f1 to f7. f9, f11, f13 and f15 become f1 to f7 used in conjunction with the Commodore key. f10, f12, f14 and f16 become f1 to f7 used with the CTRL key.

This program will take up no user memory for BASIC, because

it sits in memory locations C000 to D000. But though this memory space is not used by BASIC, it might be used by a machine code program, so check before using

CTRL function table

Key pressed (with control)	Function
@	this will totally stop the system. After these key are pressed the computer will stop; the only keys it will recognise are ctrl and , which will return the system to normal, and the usual stop/restore. So if the Klingons are destroying the world and you fancy a cup of tea then press ctrl-@
A	this will make all keys on the keyboard repeat, not just the cursor control keys
D	this disables the repeat key so no keys will repeat
C	this will make only the cursor control keys repeat, as normal
F	escape from quote mode. So when a "" has been typed and the cursor controls do not work and produce those funny codes, ctrl-F will get you out of it and back to normal
W	escape from insert mode. When the inst key has been pressed a number of times then the situation is the same as for quote mode, and ctrl-W has the effect of cancelling the inst mode

It is also worth mentioning the CTRL- functions of the '64 that normally exist as I have not seen them documented anywhere.

'Normal' CTRL functions for the Commodore 64

Key pressed (with control)	Function
E	same as WHT or ctrl-2
H	disables the shift/commodore lowercase/uppercase shift
I	enables the shift/commodore lowercase/uppercase shift
M	same as return key
N	switch to lower case
Q	same as cursor down
R	same as rvs on
S	same as home
T	same as delete
£	same as RED or CTRL-3
up arrow	same as GRN or CTRL-6

These are not in the Commodore 64 manual either. When will Commodore learn?

Ever cursed those useless function keys on the Commodore 64? Mike Roberts has come up with a way to make them do your bidding

Hints on conversion

Converting this program to other systems is fairly hard. Without going into too much detail, the way it works is by driving a wedge into the IRQ routine, which gets executed once every 1/60th of a second, and checks the keyboard to see if anything is happening. If it is, then a check is made to see if a function key has been pressed, and if so then the appropriate action is taken.

The program is totally relocatable, so should convert to a VIC-20 simply by changing a few vectors.



another program in case it crashes the computer. Strings of characters up to 200 characters long can be used.

As well as the function keys, the program adds a number of control functions which are accessed by pressing CTRL in conjunction with another key. A list of these functions is given in Figure 1.

When the BASIC loader program has been run, you are given the option of saving the program in machine code format on tape. This means that when it loads in next time, it will load faster. Unlike the BASIC loader, it can also be loaded in without destroying a BASIC program already in the computer.

The machine code program must be loaded in with the instruction LOAD "",1,1 and then initialised with the instruction SYS 49152. You can't change the function key definitions by changing the array statements at the beginning of the program, as you can with the BASIC loader.

The system can be returned to normal at any time by executing PRINT USR (1), and the function keys can be reenabled by executing PRINT USR (0).

```

00070 DIM FK$(16)
10080 FK$(1)="RUN"+CHR$(13)+REM F1 & RETURN
10090 FK$(2)="LIST"+REM F3
10100 FK$(3)="CONT"+CHR$(13)+REM F5 & RETURN
10110 FK$(4)="LIST"+CHR$(13)+REM F7 & RETURN
10120 FK$(5)="POKE"+REM F2
10130 FK$(6)="PEEK"+REM F4
10140 FK$(7)="FOR"+REM F6
10150 FK$(8)="NEXT"+REM F8
10160 FK$(9)="LEFT"+REM F9
10170 FK$(10)="RIGHT"+REM F11
10180 FK$(11)="NIDB"+REM F13
10190 FK$(12)="CHR"+REM F15
10200 FK$(13)="POKE50"+REM F10-REPEAT CONTROL
10210 FK$(14)="POKE3280"+REM F12-BACKGROUND COLOUR
10220 FK$(15)="POKE53281"+REM F14-BACKGROUND COLOUR
10230 FK$(16)="53248"+REM F16-LOCATION OF START OF VIC2 CHIP

10240 SL=49152
10250 READB:IFB=9999THEN10270
10260 POKESL,B:SL=SL+1:GOTO10250
10270 FORB=1TO16:FF=FF+1
10280 FORC=1TOLEN(FF):POKESL,ASC(MID$(FF,C,1)):SL=SL+1:NEXTC:POKESL,0
10290 SL=SL+1:NEXTD
10300 SYS49152:POKE251,SL+(INT(SL/256)*256)+POKE252,INT(SL/256)
10310 PRINT:INPUT>DO YOU WANT TO SAVE N/C VERSION? (A)=LEFT(1),1)=1"THENEND
10315 POKES253,1:INPUT>DISK OR TAPE (D/T )? (A)=LEFT(1),1)=1"THENPOKE253,0
10320 POKES14,PEEK(4)+POKE45,PEEK(46)
10325 POKES4,0:POKE45,152:POKE46,PEEK(251)+POKE46,PEEK(252)
10330 SAVE"N/C USRKEYS",PEEK(253)
10340 POKES4,1:POKE44,8:POKE45,PEEK(814)+POKE46,PEEK(815)
10360 END

10370 DATA60,0,185,142,193,32,189,192,200,192,29,208,245,173,13,220,72
10380 DATA169,0,141,13,220,12,209,194,142,20,3,162,192,142,21,3,162,192,142,17
10390 DATR3,162,193,142,18,3,162,0,142,19,3,162,1,134,45,162,8,134,46
10400 DATA160,0,177,45,230,45,208,2,230,46,201,0,208,244,177,0,208,242
10410 DATR230,45,208,2,230,46,177,45,208,232,230,45,208,2,230,45,104,141
10420 DATR3,220,96,165,197,201,3,48,122,201,7,16,118,174,19,3,224,0
10430 DATR208,108,166,157,224,0,240,182,162,255,142,19,3,201,3,208,2,169
10440 DATR7,56,233,4,78,141,2,144,6,24,105,4,76,161,192,78,141,2,144,6
10450 DATR234,105,78,141,2,144,3,24,105,12,162,201,134,251
10460 DATR162,193,134,252,160,0,178,177,251,201,0,208,5,224,0,240,0,202,0
10470 DATR230,251,208,2,230,252,76,172,192,208,177,251,201,0,240,20,201
10480 DATR3,240,9,32,209,192,76,192,192,108,39,162,1,134,198,141,119
10490 DATR2,76,49,234,162,0,142,19,3,173,141,2,41,2,240,241,162,0,189
10500 DATR12,193,197,197,240,8,201,0,240,228,232,76,236,192,138,10,170,189
10510 DATR19,193,133,251,232,188,193,133,252,108,251,0,46,21,9,20,10
10520 DATR18,0,3,113,193,193,61,193,68,193,76,193,84,193,173,0,220,72
10530 DATR169,2,141,0,220,173,1,220,201,187,208,249,104,141,0,220,76,49
10540 DATR234,162,0,134,212,76,49,234,162,0,134,216,76,49,234,162,0,142
10550 DATR138,2,76,49,234,162,255,142,138,2,76,49,234,162,96,142,138,2
10560 DATR76,49,234,32,139,193,192,0,208,3,76,162,192,173,12,20,72,169,0
10570 DATR141,13,220,162,49,142,20,3,162,234,142,21,3,104,141,13,220,160
10580 DATR60,185,171,193,32,209,152,208,192,29,208,245,189,3,0,85,83
10590 DATR162,32,68,69,78,76,85,66,76,69,32,75,69,69,32,13,69
10600 DATR76,65,66,76,69,68,0,85,83,69,82,32,68,69,70,73,78,65,66,76
10610 DATR69,32,75,69,89,83,32,13,68,73,68,65,66,76,69,68,0,0,999

```


Munchy-Man is a ZX81 version of the popular arcade game, Pac-man. But here the ghosts are really mean. So mean in fact that they can even go through the maze walls!

At the beginning, you are given the choice of four skill levels, the higher, the harder and the more points you score. You move around the maze with the usual cursor keys.

There are four power-pills giving you a power of 15, and you may get revenge on the ghosts if your power is more than 0, by eating them.

There is on-screen scoring, high score, level of difficulty, power and amount of lives left shown on screen.

You have three lives to begin with, but they are hard to keep, so beware.

Variables

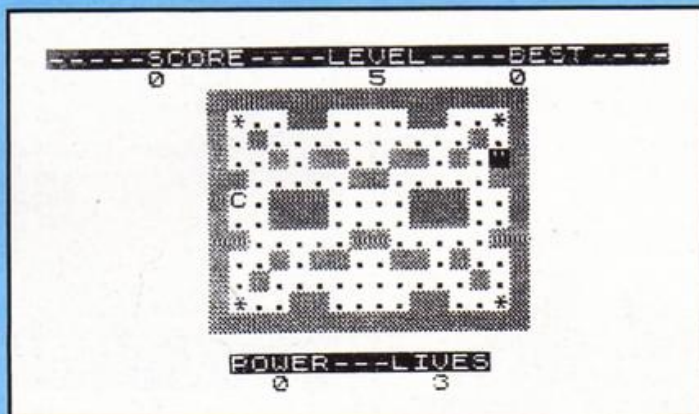
X,Y position of Munchy-Man (C)
XX,YY position of ghost
SK skill level chosen
LI lives left
K amount of dots eaten
SC score
PO power
AS used to set up maze
BE best score
N used for loops
BS, CS PEEKing variables for Munchy-Man and ghost

Hints on conversion

To work on a Spectrum I am afraid that the BS and CS PEEK lines will have to be changed, but apart from that and sound, colour and better graphics it should be straight forward.

Beware... these ghosts are really mean

You've got three lives. How long will you survive in Conrad Jagger's game for the 16K ZX81?



How Munchy-Man looks at the beginning of the game

How it works

- 1-40 set up variables and print maze and on-screen details, i.e. score, lives etc
- 50-51 deduct one point of power or, if power is smaller than 0, than keep power as 0
- 52 rub out the 0 off 10 when power changes from 10 to 9
- 53-54 print and update score, lives, high score, power and print the skill level
- 56 checks if ghosts has caught Munchy-Man or not
- 57-60 allow Munchy-Man to move
- 62-63 set up PEEKing variables
- 65-69 check where Munchy-Man and ghosts are
- 70 print Munchy-Man and replaces ghost with part of the maze it was on, if Munchy-Man is on same level as ghost and if so going to the ghost moving routine
- 78-79 a double check on line 56
- 81 prints Munchy-Man and ghost
- 90 goes to beginning of main game routine
- 1500-1520 small routine for eating a power-pill, update score (depending on skill level), then return to main game routine
- 2000-2280 routine for when ghost catches Munchy-Man and see if ghost can be eaten or if ghost does the eating
- 2500-2530 small routine for when Munchy-Man goes in maze walls, checks amount of lives when 1 is deducted and, if lives are smaller than 1, then goes to end of game routine
- 3000-4520 allow ghost to move depending on level of difficulty
- 5000-5040 end of game routine, asking if you want another game
- 7000-7050 routine for when a dot is eaten and adding point to score
- 9999 end of game

```

1 REM "MUNCHY-MAN"
2 LET BE=0
3 LET X=9
4 LET YY=22
5 LET K=0
6 LET Y=9
7 LET LI=3
8 PRINT AT 5,0;"WHAT SKILL LE
VEL? (2,3,4 OR 5)
(5 BEING HARDER)"
10 INPUT SK
11 IF SK<2 OR SK>5 THEN GOTO 1
12 LET SC=0
13 CLS
14 LET B$=CHR$(PEEK(16397+1+Y+(X*33)))
15 PRINT AT 2,0;"-----SCORE-----
16 PRINT AT 17,9;"POWER---LIVES
17 DIM A$(12,16)
18 LET XX=7
19 LET A$(1)="
20 LET A$(2)="*.....*
21 LET A$(3)="*.....*
22 LET A$(4)="*.....*
23 LET A$(5)="*.....*
24 LET A$(6)="*.....*
25 LET A$(6)="*.....*

```

```

26 LET A$(7)=A$(6)
27 LET A$(8)=A$(5)
28 LET A$(9)=A$(4)
29 LET A$(10)=A$(3)
30 LET A$(11)=A$(2)
31 LET A$(12)=A$(1)
32 LET PO=0
33 FOR N=1 TO 12
34 PRINT AT N+3,8;A$(N)
35 NEXT N
36 IF SC>BE THEN LET BE=SC
37 LET PO=PO-1
38 IF PO<0 THEN LET PO=0
39 IF PO<10 THEN PRINT AT 18,1
2; "
53 PRINT AT X,Y;" ";AT 18,11;P
0;AT 18,19;LI
54 PRINT AT 3,5;SC;AT 3,16;SK;
AT 3,23;BE
55 IF X=XX AND Y=YY THEN GOTO
57 LET X=X-(INKEY$="7")+ (INKEY
$="6")
58 LET Y=Y-(INKEY$="5")+ (INKEY
$="8")
59 LET B$=CHR$(PEEK(16397+1+Y+(X*33)))
60 LET C$=CHR$(PEEK(16397+1+Y+(X*33)))
61 IF B$="." THEN GOSUB 7000
62 IF B$="*" THEN GOTO 1500
63 IF B$="█" THEN GOTO 2000

```


ZX81 PROGRAM

```

68 IF B$=" " THEN GOTO 2500
69 IF C$="C" THEN GOTO 2000
70 PRINT AT X,Y;"C";AT XX,YY;"
$(XX-3,YY-7)
75 GOTO 3000
76 IF Y=YY THEN GOTO 4500
77 GOTO 4500
78 IF XX=X AND YY=Y THEN GOTO
2000
79 IF X=XX AND Y=YY THEN GOTO
2000
81 PRINT AT X,Y;"C";AT XX,YY;"
90 GOTO 40
1500 LET PO=PO+16
1510 LET SC=SC+(SK*5)
1520 GOTO 67
2000 IF PO>=1 THEN GOTO 2250
2010 LET LI=LI-1
2015 IF LI=0 THEN GOTO 5000
2016 LET Y=9
2017 PAUSE 300
2019 CLS
2020 LET X=9
2025 LET K=0
2030 LET YY=22
2040 GOTO 15
2050 LET SC=SC+(SK*10)
2060 LET XX=7
2070 LET YY=22
2080 GOTO 81
2090 LET LI=LI-1
2091 IF LI=0 THEN GOTO 5000
2092 LET X=9
2093 LET Y=9
2094 GOTO 40
3000 IF INT (RND*SK)=0 THEN GOTO
67
3010 LET XX=XX-(X<XX)+(X>XX)
4500 IF INT (RND*SK)=0 THEN GOTO
67
4510 LET YY=YY-(Y<YY)+(Y>YY)

```

```

4520 GOTO 81
5000 PRINT AT 18,19;"0"
5010 PRINT AT 20,0;"FOR ANOTHER
GO PRESS ""A"" OR ""Z"" TO FINIS
H"
5020 IF INKEY$="Z" THEN GOTO 999
5025 IF INKEY$="A" THEN GOTO 504
5030 GOTO 5020
5040 CLS
5050 GOTO 3
7000 LET SC=SC+1..
7010 LET K=K+1
7020 IF K<92 THEN RETURN
7030 LET SC=SC+(SK*50)
7042 LET YY=22
7044 LET X=9
7046 LET Y=9
7048 PAUSE 300
7050 GOTO 13
9999 STOP

```



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Let's Count BBC 32K £9.95

ASK, London House, 68 Upper Richmond Road, London SW15

This program is an example of good practice in both the computing and educational fields. It is meant to give practice in the very early stages of number and covers one to one correspondence, symbol recognition, ordering and comparison.

All of these stages are of major importance to the pre-school and infant school child and they could do far worse than to practice using this program.

As with all software aimed at this level there should be an adult or an older child to read the early prompts and set the difficulty level, but this is extremely easy to do. One little criticism is that

there is no end to each game — they just carry on until the ESCAPE key is pressed.

There are four games in the program and all have excellent graphics and reasonable sound, which unfortunately you cannot turn off or even down! The instructions set new standards — just the right length.

One final quibble is that the BREAK key is set to flush memory. This seems rather drastic, but the standard of error trapping is otherwise excellent. This is one of very few programs I would recommend to parents and schools alike.

D.C.

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



Number Puzzler BBC 32K £9.95

ASK, London House, 68 Upper Richmond Road, London SW15

Another maths educational program, I groan as I open the box. This one is certainly glossier than most and has better instructions than most too.

But what of the program? Does it do anything which we could not do otherwise or does it improve vastly on the presentation of something we have done for years? The short answer to both these questions is a blunt no.

Based on a game of numerical noughts & crosses, the games are meant to encourage addition and subtraction. You are given two numbers and can either place

them on the board as they are or combine or decompose them to make other numbers still vacant. The overall aim is to win five games.

There is also a game of magic squares where both skills are used. The final option is a 'Self Test' where you answer ten questions against the clock.

If you feel that your child

needs practice in mental arithmetic then this program may be for you.

D.C.

instructions	95%
ease of use	80%
display	80%
value for money	60%



Hot Dot Spotter Spectrum £7.95

Longman/Micromega, Longman House, Burnt Mill, Harlow, Essex CM20 2JE

What superb title graphics! I was all a-quiver with expectation, and as the tape loaded — in several parts — and the impressive titles scrolled smoothly around the screen my appetite was well and truly whetted.

The game, an educational one, commenced. I was asked for my name, in nice big letters; duly entered "re" (wot no capitals!) and told to press P to play.

At the top of the screen were four large objects which looked like circles with four corners (or fat squares). One of these developed measles and fell, undulating, to the floor where, after counting its spots, an equally undulating hook appeared and dragged it off the screen. This repeated itself several times and then I was told that I scored O!

Oh alright, I'm being even more stupid than usual. I didn't take long to work out that as they dropped you had to press the key which had the same number as the spots on the falling "dice", and that you scored more points the quicker you pressed that key.

But really! £7.95 for a simple program to recognise simple numbers for infants/lower juniors. I'll buy some dominoes instead.

R.E.

instructions	80%
playability	25%
graphics	30%
value for money	5%



Countabout Spectrum £7.95

Longman/Micromega, Longman House, Burnt Mill, Harlow, Essex CM20 2JE

On loading this program I was greeted by the makers' names and logos followed by the chimpanzee mascot. Once completely loaded I was offered a choice between +, - or + and -. Always one to live dangerously, I took the + and - option.

A number of fish, hens, crocodiles or telephones (telephones? to allow elephants to make trunk calls?) slide into a central box.

To the right of the box is a banana tree with a monkey at the bottom. A curt instruction "MAKE (No.)" appears and an incomplete sum is shown at the bottom (e.g. 4 + ? = 9).

A correct answer receives a tick, a little tune, and the monkey climbs a little nearer to his banana breakfast. A wrong answer prompts for retry and, if still wrong, then the correct answer is given.

A fair idea, reasonably well done, graphics are good, animation adequate, and sound is used sparingly. This a drill/practice program of the type which other companies have done better and more cheaply.

Probably intended for pre-school, infants or lower junior school children who would benefit more from experience with "real" objects.

R.E.

instructions	70%
playability	19%
graphics	30%
value for money	8%



Building English (I) Dragon 32 £6.55

Panda Programs, PO Box 2, South Shields NE33 1EY

This is an English quiz which claims to be for seven to nine year olds, but the seven year old

on whom I tested it found it very difficult.

The cassette inlay does not indicate whether it is intended for school or home use, but it is presumably aimed mainly at schools.

The program, which is written in BASIC, loaded at the third attempt. There is a fairly lengthy instructions sequence at the beginning, which is necessary as the twenty questions which

follow do not all have the same format.

A correct answer scores one, two or three points, giving a maximum score for the test of 38 points, a number which must surely owe more to chance than deliberation. The questions may be answered by one child, or by two children taking turns.

There are around a hundred questions available, from which the twenty for each test are

selected randomly. They cover a considerable range of subject matter, including plurals, opposites, animal noises and occupations.

M.N.

instructions	80%
ease of use	50%
display	50%
value for money	30%



16K SPECTRUM PROGRAM

Based loosely on the popular TV game, Odd One Out is a family game for more than one player.

The object is to spot the odd item out of the four displayed. Some are easy and some are not so easy.

I have given a lot of examples in my listing, but the 16K Spectrum can hold many more. And owners of the 48K model could spend all night with a dictionary.

Each set of four items in blocks of 50 lines from 1000 to 8990 and additions are very easy, if you remember to change lines 720 and 730.

The game finishes when a player has scored 100, but this can easily be changed by altering line 9170. Line 9130 adds 10 for a correct score and line 9130 deducts five for a wrong answer.

Note: listing was produced on a Tandy four-colour printer/plotter.

How it works

10-290 start game, instructions
300-390 initialise player variables, names
500-590 display scores routine
600-660 draw game
700-740 collect game string variables
750-910 display game
1000-3590 game string variables
9000-9095 display is answer not known
9110-9190 score, check answer routine
9900-9970 music routines

Who'll be first to say: 'That's odd'?

All the family can join in and play Robert Perk's game for the 16K Spectrum. And it's easy to extend to make it even more challenging

```
10 REM **ODD ONE Out**
20 REM ** R.W.PERKS **
30 BORDER 2: PAPER 1: CLS : INK 7
40 PRINT AT 3,5;" JOL LLL LLL"
50 PRINT AT 4,5;" L L L L L L"
60 PRINT AT 5,5;" TTF TTF TTF"
70 PRINT AT 8,5;" JOL L L L"
80 PRINT AT 9,5;" L L L L L"
90 PRINT AT 10,5;" TTF L L L"
```

```
100 PRINT AT 13,5;" JOL LLL"
110 PRINT AT 14,5;" L L L L L"
120 PRINT AT 15,5;" TTF TTF TTF"
130 INK 7: PLOT 7,7: DRAW 241,0: DRAW 0
161: DRAW -241,0: DRAW 0,-161
140 GO SUB 9400
160 PAUSE 150
170 CLS : PAPER 6: INK 0: CLS
180 PRINT AT 3,9; PAPER 2; INK 7;" ODD ONE Out "
190 PRINT AT 6,0;"The object of the game is for a player to identify the odd item in a series of four items."
200 PRINT AT 10,0;"These four items will be shown on the screen,when the odd one is recognised press any key"
210 PRINT AT 14,0;"You score 10 for each correct answer and lose 5 for each incorrect answer"
230 PRINT AT 20,0;" Press any key to continue..."
290 PAUSE 0
300 CLS : PAPER 5: INK 1: CLS
310 PRINT "How many players are there ?"
320 INPUT a
330 DIM p(a)
```

```
340 DIM b$(a,11)
350 PRINT : FOR n=1 TO a
360 PRINT "What is your name,player no ";n
370 INPUT b$(n)
380 PRINT b$(n)
390 NEXT n
410 GO TO 700
500 CLS : PAPER 4: INK 0: CLS
510 PRINT
520 PRINT "Your scores are as follows:-"
530 PRINT
540 FOR n=1 TO a
550 PRINT b$(n) ( TO 11)
560 PRINT "You have scored ";p(n)
570 PRINT
580 NEXT n: PRINT "Press any key to continue..."
590 PAUSE 0: PAUSE 25: RETURN
600 CLS : PAPER 1: INK 7: BORDER 1: CLS
610 FOR n=168 TO 48 STEP -40
620 PLOT 7,n: DRAW 241,0: DRAW 0,-28: DRAW -241,0: DRAW 0,28
```

Hints on conversion

Odd One Out should convert very easily for the ZX81 with at least 16K, provided the graphics and colours are excluded. Owners of other computers should bear in mind that the Spectrum screen is 255 by 175 pixels. The only other problem will be the music.

BORDER,PAPER,INK are the Spectrum colour commands:

1 blue,2 red,5 cyan,7 white

CLS clears the screen

PRINT AT x,y means print down a line at vertical co-ordinate x (Spectrum maximum 21) and horizontal co-ordinate y (Spectrum maximum 31)

PLOT: the Spectrum's graphics consist of 255 x 175 pixels. The Spectrum needs to **PLOT** a point ready to **DRAW** a line from that point to the **DRAW** x,y co-ordinate

PAUSE is used to slow down the Spectrum and **PAUSE 0** stops the program until any key is pressed

INPUT uses only lines 22 and 23 on Spectrum and awaits a reply

DIM p(a) sets up an array called p with dimension a, or alternatively **DIM b\$(a,11)** sets up a 11 array of characters (a string!)

THEN may have to be replaced with **ELSE** in an escape condition

INT(RND*3) produces a random integer between 1 and 3

BEEP d,p is the Spectrum's voice with d being the duration and p the pitch

Variables

a number of players
b\$(n) name of players
c random line number x 1000
d random line number x 50
e correct word in string (value 1-4)
f input commands
h input guess
i finished game commands
k variable of each players' turn
p(n) scores
x length of each member of string w\$
w\$ four word string
y\$ reason for being correct

16K SPECTRUM PROGRAM

```

630 NEXT n
640 PRINT AT 2,2;"1";AT 7,2;"2";AT 12,2
;"3";AT 17,2;"4"
650 PRINT AT 20,0;"PLAYER NO ";k;"-";b$(
(k)
660 RETURN
700 FOR k=1 TO a
710 GO SUB 600
720 LET c=1+INT (RND*3)
730 LET d=1+INT (RND*12)
740 GO SUB (c*1000)+(d*50)
750 PRINT AT 2,INT ((31/2)-(x/2));w$( T
O x)
760 INPUT "Enter(1)next word(2)guess(3)
tell";f
770 IF f=3 THEN GO TO 9000
780 IF f=2 THEN GO TO 9100
785 IF f>3 THEN GO TO 760
790 PRINT AT 7,INT ((31/2)-(x/2));w$(x+
1 TO x*2)
800 INPUT "Enter(1)next word(2)guess(3)
tell";f
810 IF f=3 THEN GO TO 9000
820 IF f=2 THEN GO TO 9100
825 IF f>3 THEN GO TO 800
830 PRINT AT 12,INT ((31/2)-(x/2));w$(1
+x*2 TO x*3)
840 INPUT "Enter(1)next word(2)guess(3)
tell";f
850 IF f=3 THEN GO TO 9000
860 IF f=2 THEN GO TO 9100
865 IF f>3 THEN GO TO 840
870 PRINT AT 17,INT ((31/2)-(x/2));w$(1
+x*3 TO )
880 INPUT "Enter(2)guess(3)tell";f
890 IF f=3 THEN GO TO 9000
900 IF f=2 THEN GO TO 9100
910 GO TO 880
1000 LET x=6
1010 LET w$="TENNISMOWER COLLARBALL"
1020 LET e=4
1030 LET y$="lawn..."
1040 RETURN
1050 LET x=4
1060 LET w$="DEALMEALTEA ROOT"
1070 LET e=3
1080 LET y$="square..."
1090 RETURN
1100 LET x=5
1110 LET w$="CROWN CAP HAT BRIDGE"
1120 LET e=3
1130 LET y$="they are dentistry terms"
1140 RETURN
1150 LET x=9
1160 LET w$="NEW YORK LONDON PARIS
ROME"
1170 LET e=1
1180 LET y$="they are capital cities,"

```

```

1190 RETURN
1200 LET x=6
1210 LET w$="MAN CHILD MORTEMERIDIEM"
1220 LET e=2
1230 LET y$="post..."
1240 RETURN
1250 LET x=5
1260 LET w$="BEAM ARCH LIGHTSUSPENSION"
1270 LET e=3
1280 LET y$="types of bridges"
1290 RETURN
1300 LET x=5
1310 LET w$="MEM KAPPA BETAALPHA"
1320 LET e=1
1330 LET y$="the Greek alphabet..."
1340 RETURN
1350 LET x=8
1360 LET w$="SHUTTER DOOR LENS APE
RTURE"
1370 LET e=2
1380 LET y$="parts of a camera..."
1390 RETURN
1400 LET x=8
1410 LET w$="BORON PROTON NEUTRONELE
CTRON"
1420 LET e=1
1430 LET y$="parts of an atom..."
1440 RETURN
1450 LET x=6
1460 LET w$="VIOLET GREEN PANSYINDIGO"
1470 LET e=3
1480 LET y$="colours of the rainbow"
1490 RETURN
1500 LET x=13
1510 LET w$="PTERANODON TYRANNOSAURUS
TRICERATOPS DIPLODOCUS "
1520 LET e=1
1530 LET y$="land bound dinosaurs..."
1540 RETURN
1550 LET x=9
1560 LET w$="APOLLO POSEIDONAPHRODITE
JUPITER "
1570 LET e=4
1580 LET y$="Greek (not Roman!) Gods..."
1590 RETURN
2000 LET x=3
2010 LET w$="M1 ESP16W23"
2020 LET e=1
2030 LET y$="sequence of the alphabet(a=
1).. "
2040 RETURN
2050 LET x=4
2060 LET w$="3223411422241143"
2070 LET e=4
2080 LET y$="adds to 10 ,not 9..."
2090 RETURN
2100 LET x=6
2110 LET w$="LOMOND TAY NESS CRUMMOCK"

```


16K SPECTRUM PROGRAM

```

2120 LET e=4
2130 LET y$="loch....."
2140 RETURN
2150 LET x=6
2160 LET w$="RIBBLE CLYDE HULL TEESDALE
"
2170 LET e=2
2180 LET y$="English rivers..."
2190 RETURN
2200 LET x=4
2210 LET w$="FIREFOWLNET LIFE"
2220 LET e=3
2230 LET y$=" wild..."
2240 RETURN
2250 LET x=7
2260 LET w$="MARINERVIKING JUPITERDANE"
2270 LET e=4
2280 LET y$="American space satellites..
"
2290 RETURN
2300 LET x=6
2310 LET w$="CYMBAL DRUM ACHE LOBE"
2320 LET e=1
2330 LET y$="ear..."
2340 RETURN
2350 LET x=5
2360 LET w$=" REP FLOORACTORWALL"
2370 LET e=3
2380 LET y$=".....tiles"
2390 RETURN
2400 LET x=4
2410 LET w$="GOODJOKEDESKPAPER"
2420 LET e=2
2430 LET y$="...news...."
2440 RETURN
2450 LET x=3
2460 LET w$="111011211001"
2470 LET e=3
2480 LET y$="binary.."
2490 RETURN
2500 LET x=4
2510 LET w$="MOONSUN GOODTUES"
2520 LET e=1
2530 LET y$="...day"
2540 RETURN
2550 LET x=4
2560 LET w$="STOPTHENNEXTSTEP"
2570 LET e=3
2580 LET y$="symble shifted commands"
2590 RETURN
3000 LET x=4
3010 LET w$="LIVEGOODEVILVILE"
3020 LET e=2
3030 LET y$="the letters L-I-U-E..."
3040 RETURN
3050 LET x=4
3060 LET w$="WINEPORTFOREMIDSHIPS"

```

```

3070 LET e=1
3080 LET y$="parts of a dinghy..."
3090 RETURN
3100 LET x=6
3110 LET w$="SPHERECIRCLE CONE PYRAMID"
3120 LET e=2
3130 LET y$="three dimensional shapes..
"
3140 RETURN
3150 LET x=2
3160 LET w$="XUXXLXR"
3170 LET e=4
3180 LET y$="Roman numerals..."
3190 RETURN
3200 LET x=5
3210 LET w$="KILO POUNDMILLIMICRO"
3220 LET e=2
3230 LET y$="....gram"
3240 RETURN
3250 LET x=5
3260 LET w$="BAND PLANTBATONDINGHY"
3270 LET e=3
3280 LET y$="rubber..."
3290 RETURN
3400 LET x=5
3410 LET w$="CAVE HOUSEHEAD ABOUT"
3420 LET e=1
3430 LET y$="round..."
3440 RETURN
3450 LET x=5
3460 LET w$="SHAKETOOTHMOVE PUDDING"
3470 LET e=3
3480 LET y$="milk..."
3490 RETURN
3500 LET x=8
3510 LET w$=" ARCTIC ANTARTICATLANTICPAC
IFIC"
3520 LET e=2
3530 LET y$=".....ocean"
3540 RETURN
3550 LET x=4
3560 LET w$="RUSEBAD USERSURE"
3570 LET e=2
3580 LET y$="the letters U-R-S-E..."
3590 RETURN
9000 PRINT AT 2,INT ((31/2)-(x/2));w$( T
0 x)
9010 PRINT AT 7,INT ((31/2)-(x/2));w$(x+
1 TO x*2)
9020 PRINT AT 12,INT ((31/2)-(x/2));w$(1
+x*2 TO x*3)
9030 PRINT AT 17,INT ((31/2)-(x/2));w$(1
+x*3 TO )
9040 PRINT AT 20,0;" was the odd one,t
he link was,.."
9050 PRINT AT 21,0;y$
9060 GO SUB 9400
9070 PAUSE 150

```


16K SPECTRUM PROGRAM

```

9080 GO SUB 500
9090 IF k=a THEN LET k=0
9095 NEXT k
9110 INPUT "What is your guess-1,2,3,or 4
?";h
9120 IF h<>e THEN PRINT AT 20,0;"Sorry,
you were wrong";: PAUSE 50
9130 IF h<>e THEN LET p(k)=p(k)-5: GO S

```

```

UB 600: GO TO 750
9140 LET p(k)=p(k)+10
9150 GO SUB 9460
9170 IF p(k)>=100 THEN GO TO 9200
9190 GO TO 9000
9200 CLS : GO SUB 600
9210 GO SUB 9400
9220 PRINT AT 2,2;"THE GAME HAS BEEN WON
BY"
9230 PRINT AT 7,2;"Player no. ";k;"...";
b$(k)
9240 PRINT AT 12,2;"Press 7 to see the s
cores"

```

Symbolic

```

9250 PRINT AT 17,2;"Press 8 to play agai
n"
9260 PRINT AT 20,0;"Press 9 to end the g
ame"
9270 INPUT i
9280 IF i<7 OR i>9 THEN GO TO 9260
9290 IF i=7 THEN GO SUB 500: GO TO 9200
9300 IF i=8 THEN RUN
9310 GO SUB 9400

```

```

9320 CLS : STOP
9400 BEEP 0.3,0: BEEP 0.3,6: BEEP 0.3,3:
PAUSE 10
9410 BEEP 0.3,0: BEEP 0.3,6: BEEP 0.3,12
: PAUSE 10

```

```

9420 BEEP 0.3,15: BEEP 0.3,12: BEEP 0.3,
9: BEEP 0.3,12: BEEP 0.1,9: BEEP 0.1,6:
PAUSE 10

```

```

9430 BEEP 0.1,3: BEEP 0.1,0: PAUSE 10
9440 BEEP 0.3,6: PAUSE 5: BEEP 0.3,3: PA
USE 5: BEEP 0.3,0
9450 RETURN
9460 BEEP 0.3,6: PAUSE 5: BEEP 0.3,3: PA
USE 5: BEEP 0.3,0
9470 RETURN

```

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SINCLAIR USER FEBRUARY 1983

➡ **Although I'm** no great football fan, I really enjoyed playing this game — *excellent use is made of colour and user-defined graphics. The game is very logically put together, so that the development of strategy and tactics has a real effect. For example, one of my teams got through to the fourth round of the F.A. Cup where it was beaten by a second division side. This upset morale and meant that our promotion bid failed. Perhaps I should have given up the F.A. Cup run and held some good players back — the possibilities are endless. Brian Clough had better watch out!*
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Gold Digger 48K Spectrum £5.95

Blaby Computer Games,
Crossways House, Lutterworth
Road, Blaby, Leicester

This offering is a tunneling game in which you must dig through rock, collecting gold nuggets as you go. Your progress is impeded by three gnashers that follow you through the tunnels and eat you if they catch you.

When you have managed to feed three miners to the gnashers, the game is ended. Additional features are that you can block tunnels by dislodging underground rocks, or drop the rocks onto the gnashers to gain bonus points.

The whole game is a sort of underground PacMan, where gold bars take the place of the fruit and the gnashers double for

the ghosts. I think that the random tunnels produced by this game are an improvement on PacMan's fixed grid/maze.

A high score feature is provided, as is a variable speed (1-9). On Speed 1, it's extremely fast. Speed 9 is provided specifically for young children.

The graphics are good and it's fun to play, but one disappointing aspect of the game is that it is possible to find a screen position where the gnashers never find you. You can just sit there and watch the stupid creatures explore every tunnel except the one you are in.

M.B.

instructions	80%
playability	90%
graphics	85%
value for money	85%



Pakacuda Commodore 64 £5.99

Rabbit, 380 Station Road, Harrow HA1 2DE

Pakacuda is based on a PacMan-style arcade game with the variation of an underwater theme.

The maze is made from the standard characters obtainable directly from the keyboard — nothing special here!

The four octopuses, which take over from the traditional ghosts, and your Pakacuda are sprites, neither of which are of a high display standard.

The sound effects are very poor. They are more likely to

Cuthbert Goes Walkabout Dragon £8

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

Cuthbert? Why do most microcharacters have such soppy names? Regardless, this is one of those maddeningly simple games which you can't put down.

A line grid of seven by five is drawn and you control Cuthbert in his rambling around the grid. Each square you complete is coloured in. Colour all 35 squares and you move onto the next sheet.

You start with five lives and get a bonus life for each sheet completed. This would be fine, except for the Moronians who chase Cuthbert around the screen, three on the first sheet increasing by one for successive

sheets. You can jump over Moronians but contact destroys both you and them.

Graphics and colour are used effectively and sound is also used, but I found it irritating after a few plays — thank goodness you can turn it down.

The cassette insert is colourful with detailed instructions and background, the program loaded easily and has an option for black and white TV and a joystick. A high score hall of fame is provided for scores of 500 plus. Excuse me, just going for a walkabout.

R.E.

instructions	100%
playability	97%
graphics	88%
value for money	96%



And All Because... Dragon £6.95

B&H Software, Dept C1, 208 King St, Cottingham, Hull

The only clue to the object of this game was the title — and I couldn't wait to find out what lay behind it.

It turns out to be based on a highly original theme (for com-

puter games anyway), of trying to deliver a box of 'Milky Chocs' before the lady returns home.

Unfortunately, though, it's not quite as simple as that, as various hazards have to be overcome and time is always running short!

The hazards employ some very amusing hi-res graphics and are in nine stages, with varying levels of difficulty. I found cross-country horse riding, hang gliding, swinging from ski-lifts

and motor-cycle jumping particularly hard to master!

Only four keys are needed, although why the arrow keys for left and right movement were not used is a mystery.

Apart from this and one or two minor spelling errors, this is a highly entertaining game for all the family. There is also a high score table feature to encourage competition, although B & H Software always starts off in the top ten positions!

E.C.

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



Action games with a difference

Here our review panel takes a look at some new faces, plus some old faces in new guises

give you ear-ache than add any excitement to the game.

I am a great fan of PacMan and have seen many versions of the game. This version did not manage to hold my attention for more than a total of 10 minutes.

This program is not, in my opinion, worth considering if you're looking for an action game. I found it deadly boring and as dull as could be.

The instructions were very

brief to say the least — I found them printed on the cassette inlay card. I will say one thing for the game though, it loaded perfectly.

K.I.

instructions	10%
playability	30%
graphics	25%
value for money	25%



Invaders Revenge Dragon £8

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

A neat twist to the Invaders theme making you the sole survivor now battling against the dreaded humans. Best played with joysticks.

This version contains some of the best sound effects yet to accompany such a game. Bombs dropping, lasers evading, enemy colliding, a sometimes confusing screen filled with action.

Your aim is to destroy the human ships prowling the space lanes and avoid that laser base. There is a two player option which greatly enhances the competitive aspect. Those suffering from sore fire-button thumbs can rest up when hitting the 'P' key which freezes the screen.

Highly addictive, fast and in all respects as near to arcade standard as makes no difference.

M.P.

A new arcade-type game, with hi-res graphics and superb sound, guaranteed to keep you at it for hours.

You, a little yellow flying saucer, have to wipe out the blue laser base and the ordinary ships and the red mother-ship. As you are the last space-invader then obviously the other ships are the humans.

All in all I think it's a very good game and it really deserves its five star rating — I thoroughly enjoyed it.

M.P. jr. (aged 8)

instructions	100%
playability	90%
graphics	100%
value for money	100%



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Home Computing Weekly 3/5/83

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Sinclair User June 1983

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DRAGON		ENCLOSURE

One of the all-time arcade favourites, Bomber, is brought to the Commodore 64 by Rossa Phelan

Manhattan is my version of the arcade favourite in which you have to bomb buildings so your original aircraft can land.

Here are a couple of hints on play: try to drop two bombs per pass from the outset and don't worry about the high buildings until you have to.

The control symbols in lines 20-50, 850-880 and 1000-1050 are alternately reverse on and reverse off.

Bomb your way to a safe landing

```
3 B(1)=0:Z=40:X=205
5 POKE54276,0:POKE54277,0:POKE54278,0:POKE54279,0:POKE54280,0:POKE54281,0:POKE54282,0
7 POKE 54298,0:POKE54299,0:POKE54300,0:POKE54301,0:POKE54302,0:POKE54303,0:POKE54304,0:POKE54305,0
10 PRINT"J":POKE53281,7:PC(53280,0)
15 PRINT"*****"
20 PRINT"*****"
30 PRINT"*****"
40 PRINT"*****"
50 PRINT"*****"
```

```
60 PRINTS C(4)*"*****DO YOU WANT INSTRUCTIONS (Y/N)?"
70 GETA:IF A="Y" THEN 80
73 IF A="N" THEN 200
75 GOTO 70
80 PRINT"J":SPC(10)*"*****"
90 PRINTSPC(7)*"YOU ARE THE PILOT OF"
100 PRINTSPC(8)*"A CRIPPLED AEROPANE"
110 PRINTSPC(9)*"WHICH HAS TO LAND"
120 PRINTSPC(12)*"URGENTLY"
130 PRINTSPC(12)*"UNFORTUNATELY THE MANHATTAN"
140 PRINTSPC(12)*"LINE LIES BETWEEN YOU"
150 PRINTSPC(12)*"AND SAFETY"
160 PRINTSPC(12)*"YOU ARE LOSING HEIGHT"
170 PRINTSPC(12)*"THE ONLY WAY DOWN IS"
180 PRINTSPC(12)*"TO BOMB THE SKYLINE"
190 PRINTSPC(12)*"TO THE GROUND"
200 PRINT"J":SPC(4)*"*****"
210 GETA:IF A="Y" THEN 130
220 PRINT"J":SPC(4)*"*****"
230 GETA:IF A="Y" THEN 130
240 PRINT"J":SPC(4)*"*****"
250 GETA:IF A="Y" THEN 130
260 PRINT"J":SPC(4)*"*****"
270 GETA:IF A="Y" THEN 130
280 PRINT"J":SPC(4)*"*****"
290 GETA:IF A="Y" THEN 130
300 PRINT"J":SPC(4)*"*****"
310 GETA:IF A="Y" THEN 130
320 PRINT"J":SPC(4)*"*****"
330 GETA:IF A="Y" THEN 130
340 PRINT"J":SPC(4)*"*****"
350 GETA:IF A="Y" THEN 130
360 PRINT"J":SPC(4)*"*****"
370 GETA:IF A="Y" THEN 130
380 PRINT"J":SPC(4)*"*****"
390 GETA:IF A="Y" THEN 130
400 PRINT"J":SPC(4)*"*****"
410 GETA:IF A="Y" THEN 130
420 PRINT"J":SPC(4)*"*****"
430 GETA:IF A="Y" THEN 130
440 PRINT"J":SPC(4)*"*****"
450 GETA:IF A="Y" THEN 130
460 PRINT"J":SPC(4)*"*****"
470 GETA:IF A="Y" THEN 130
480 PRINT"J":SPC(4)*"*****"
490 GETA:IF A="Y" THEN 130
500 PRINT"J":SPC(4)*"*****"
```

Hints on conversion

It should be fairly easy to convert to a VIC-20 with memory expansion, bearing in mind that it uses the 64's 40-column screen and sound.

Because of the number of POKEs, owners of other computers would be better advised to use the idea and start from scratch.

How it works

3-180 instructions
183-203 two routines for skill level to place aircraft on one of three ranks
400-660 main routine
700-898 crash routine, option to replay
900-1010 win routine, option to replay

```
185 IF S="2" THEN D=2:GOTO200
187 IF S="3" THEN D=3:GOTO200
189 GOTO 185
190 PRINTSPC(10)*"A KEY TO PLAY"
193 GET A:IF A="Y" THEN 210
195 GOTO 193
200 PRINTSPC(5)*"ENTER SKILL LEVEL(1-3)"
201 GETA:IF A="1" THEN D=1:GOTO 200
202 IF A="2" THEN D=2:GOTO200
203 IF A="3" THEN D=3:GOTO200
204 GOTO 201
205 PRINT"*****"
206 GET A:IF A="Y" THEN 210
210 POKE53281,15:POKE53280,15:PRINT"J"
215 B=0:BN=1947:BC=56219
```

```
220 PRINT"J":PRINTSPC(23)*"SCORE:"
230 FOR W=0TO39:POKE1984+W,150:POKE56256+W,5:NEXT W
235 FORK=0TO33
236 POKE 54296,15
237 POKE 54277,190
238 POKE 54278,240
239 POKE 54276,17
240 X=INT((10-2)*RND(1))+2:B=B+1
241 C=INT(((X-2)-2)*RND(1))+2:Z=INT(((X-2)-4)*RND(1))+4
242 IF X=2 THEN Z=1
243 IF X=3 THEN Z=2
244 IF X=4 THEN Z=3
245 IF X=5 THEN Z=4
246 IF X=6 THEN Z=5
247 IF X=7 THEN Z=6
248 IF X=8 THEN Z=7
249 IF X=9 THEN Z=8
250 IF X=10 THEN Z=9
251 IF X=11 THEN Z=10
252 NEXT K
253 POKEB+K,102:POKEB+K+40,65:POKEB+K+80,9:POKEB+K+120,9
254 POKE 54296,15
255 POKE 54277,190
256 POKE 54278,240
257 POKE 54276,17:POKE 54273,3:POKE 54272,54
258 GOTO 269
259 POKEB+K,102:POKEB+K+40,102:POKEB+K+80,65:POKEB+K+120,9:POKEB+K+160,9:POKEB+K+200,9
260 POKE 54296,15
261 POKE 54277,190
262 POKE 54278,240
263 POKE 54276,17:POKE 54273,4:POKE 54272,73
264 GOTO 269
265 FORP=0 TO 2:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
266 FORP=0TO3:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
267 POKE 54296,15
268 POKE 54277,190
269 POKE 54278,240
270 POKE 54276,17:POKE 54273,5:POKE 54272,100
271 GOTO 269
272 FORP=0 TO 3:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
273 FORP=0TO4:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
274 POKE 54296,15
275 POKE 54277,190
276 POKE 54278,240
277 POKE 54276,17:POKE 54273,6:POKE 54272,147
278 GOTO 269
279 FORP=0 TO 4:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
280 FORP=0TO5:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
281 POKE 54296,15
282 POKE 54277,190
283 POKE 54278,240
284 POKE 54276,17:POKE 54273,7:POKE 54272,215
285 GOTO 269
286 FORP=0 TO 5:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
287 FORP=0TO6:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
288 POKE 54296,15
289 POKE 54277,190
290 POKE 54278,240
291 POKE 54276,17:POKE 54273,8:POKE 54272,307
292 GOTO 269
293 FORP=0 TO 6:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
294 FORP=0TO7:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
295 POKE 54296,15
296 POKE 54277,190
297 POKE 54278,240
298 POKE 54276,17:POKE 54273,9:POKE 54272,459
299 GOTO 269
300 FORP=0 TO 7:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
301 FORP=0TO8:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
302 POKE 54296,15
303 POKE 54277,190
304 POKE 54278,240
305 POKE 54276,17:POKE 54273,10:POKE 54272,611
306 GOTO 269
307 FORP=0 TO 8:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
308 FORP=0TO9:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
309 POKE 54296,15
310 POKE 54277,190
311 POKE 54278,240
312 POKE 54276,17:POKE 54273,11:POKE 54272,763
313 GOTO 269
314 FORP=0 TO 9:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
315 FORP=0TO10:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
316 POKE 54296,15
317 POKE 54277,190
318 POKE 54278,240
319 POKE 54276,17:POKE 54273,12:POKE 54272,915
320 GOTO 269
321 FORP=0 TO 10:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
322 FORP=0TO11:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
323 POKE 54296,15
324 POKE 54277,190
325 POKE 54278,240
326 POKE 54276,17:POKE 54273,13:POKE 54272,1067
327 GOTO 269
328 FORP=0 TO 11:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
329 FORP=0TO12:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
330 POKE 54296,15
331 POKE 54277,190
332 POKE 54278,240
333 POKE 54276,17:POKE 54273,14:POKE 54272,1219
334 GOTO 269
335 FORP=0 TO 12:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
336 FORP=0TO13:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
337 POKE 54296,15
338 POKE 54277,190
339 POKE 54278,240
340 POKE 54276,17:POKE 54273,15:POKE 54272,1371
341 GOTO 269
342 FORP=0 TO 13:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
343 FORP=0TO14:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
344 POKE 54296,15
345 POKE 54277,190
346 POKE 54278,240
347 POKE 54276,17:POKE 54273,16:POKE 54272,1523
348 GOTO 269
349 FORP=0 TO 14:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
350 FORP=0TO15:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
351 POKE 54296,15
352 POKE 54277,190
353 POKE 54278,240
354 POKE 54276,17:POKE 54273,17:POKE 54272,1675
355 GOTO 269
356 FORP=0 TO 15:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
357 FORP=0TO16:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
358 POKE 54296,15
359 POKE 54277,190
360 POKE 54278,240
361 POKE 54276,17:POKE 54273,18:POKE 54272,1827
362 GOTO 269
363 FORP=0 TO 16:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
364 FORP=0TO17:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
365 POKE 54296,15
366 POKE 54277,190
367 POKE 54278,240
368 POKE 54276,17:POKE 54273,19:POKE 54272,1981
369 GOTO 269
370 FORP=0 TO 17:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
371 FORP=0TO18:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
372 POKE 54296,15
373 POKE 54277,190
374 POKE 54278,240
375 POKE 54276,17:POKE 54273,20:POKE 54272,2135
376 GOTO 269
377 FORP=0 TO 18:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
378 FORP=0TO19:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
379 POKE 54296,15
380 POKE 54277,190
381 POKE 54278,240
382 POKE 54276,17:POKE 54273,21:POKE 54272,2289
383 GOTO 269
384 FORP=0 TO 19:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
385 FORP=0TO20:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
386 POKE 54296,15
387 POKE 54277,190
388 POKE 54278,240
389 POKE 54276,17:POKE 54273,22:POKE 54272,2443
390 GOTO 269
391 FORP=0 TO 20:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
392 FORP=0TO21:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
393 POKE 54296,15
394 POKE 54277,190
395 POKE 54278,240
396 POKE 54276,17:POKE 54273,23:POKE 54272,2597
397 GOTO 269
398 FORP=0 TO 21:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
399 FORP=0TO22:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
400 POKE 54296,15
401 POKE 54277,190
402 POKE 54278,240
403 POKE 54276,17:POKE 54273,24:POKE 54272,2751
404 GOTO 269
405 FORP=0 TO 22:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
406 FORP=0TO23:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
407 POKE 54296,15
408 POKE 54277,190
409 POKE 54278,240
410 POKE 54276,17:POKE 54273,25:POKE 54272,2905
411 GOTO 269
412 FORP=0 TO 23:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
413 FORP=0TO24:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
414 POKE 54296,15
415 POKE 54277,190
416 POKE 54278,240
417 POKE 54276,17:POKE 54273,26:POKE 54272,3059
418 GOTO 269
419 FORP=0 TO 24:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
420 FORP=0TO25:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
421 POKE 54296,15
422 POKE 54277,190
423 POKE 54278,240
424 POKE 54276,17:POKE 54273,27:POKE 54272,3213
425 GOTO 269
426 FORP=0 TO 25:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
427 FORP=0TO26:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
428 POKE 54296,15
429 POKE 54277,190
430 POKE 54278,240
431 POKE 54276,17:POKE 54273,28:POKE 54272,3367
432 GOTO 269
433 FORP=0 TO 26:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
434 FORP=0TO27:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
435 POKE 54296,15
436 POKE 54277,190
437 POKE 54278,240
438 POKE 54276,17:POKE 54273,29:POKE 54272,3521
439 GOTO 269
440 FORP=0 TO 27:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
441 FORP=0TO28:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
442 POKE 54296,15
443 POKE 54277,190
444 POKE 54278,240
445 POKE 54276,17:POKE 54273,30:POKE 54272,3675
446 GOTO 269
447 FORP=0 TO 28:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
448 FORP=0TO29:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
449 POKE 54296,15
450 POKE 54277,190
451 POKE 54278,240
452 POKE 54276,17:POKE 54273,31:POKE 54272,3829
453 GOTO 269
454 FORP=0 TO 29:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
455 FORP=0TO30:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
456 POKE 54296,15
457 POKE 54277,190
458 POKE 54278,240
459 POKE 54276,17:POKE 54273,32:POKE 54272,3983
460 GOTO 269
461 FORP=0 TO 30:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
462 FORP=0TO31:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
463 POKE 54296,15
464 POKE 54277,190
465 POKE 54278,240
466 POKE 54276,17:POKE 54273,33:POKE 54272,4137
467 GOTO 269
468 FORP=0 TO 31:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
469 FORP=0TO32:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
470 POKE 54296,15
471 POKE 54277,190
472 POKE 54278,240
473 POKE 54276,17:POKE 54273,34:POKE 54272,4291
474 GOTO 269
475 FORP=0 TO 32:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
476 FORP=0TO33:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
477 POKE 54296,15
478 POKE 54277,190
479 POKE 54278,240
480 POKE 54276,17:POKE 54273,35:POKE 54272,4445
481 GOTO 269
482 FORP=0 TO 33:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
483 FORP=0TO34:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
484 POKE 54296,15
485 POKE 54277,190
486 POKE 54278,240
487 POKE 54276,17:POKE 54273,36:POKE 54272,4599
488 GOTO 269
489 FORP=0 TO 34:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
490 FORP=0TO35:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
491 POKE 54296,15
492 POKE 54277,190
493 POKE 54278,240
494 POKE 54276,17:POKE 54273,37:POKE 54272,4753
495 GOTO 269
496 FORP=0 TO 35:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
497 FORP=0TO36:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
498 POKE 54296,15
499 POKE 54277,190
500 POKE 54278,240
501 POKE 54276,17:POKE 54273,38:POKE 54272,4907
502 GOTO 269
503 FORP=0 TO 36:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
504 FORP=0TO37:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
505 POKE 54296,15
506 POKE 54277,190
507 POKE 54278,240
508 POKE 54276,17:POKE 54273,39:POKE 54272,5061
509 GOTO 269
510 FORP=0 TO 37:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
511 FORP=0TO38:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
512 POKE 54296,15
513 POKE 54277,190
514 POKE 54278,240
515 POKE 54276,17:POKE 54273,40:POKE 54272,5215
516 GOTO 269
517 FORP=0 TO 38:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
518 FORP=0TO39:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
519 POKE 54296,15
520 POKE 54277,190
521 POKE 54278,240
522 POKE 54276,17:POKE 54273,41:POKE 54272,5369
523 GOTO 269
524 FORP=0 TO 39:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
525 FORP=0TO40:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
526 POKE 54296,15
527 POKE 54277,190
528 POKE 54278,240
529 POKE 54276,17:POKE 54273,42:POKE 54272,5523
530 GOTO 269
531 FORP=0 TO 40:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
532 FORP=0TO41:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
533 POKE 54296,15
534 POKE 54277,190
535 POKE 54278,240
536 POKE 54276,17:POKE 54273,43:POKE 54272,5677
537 GOTO 269
538 FORP=0 TO 41:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
539 FORP=0TO42:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
540 POKE 54296,15
541 POKE 54277,190
542 POKE 54278,240
543 POKE 54276,17:POKE 54273,44:POKE 54272,5831
544 GOTO 269
545 FORP=0 TO 42:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
546 FORP=0TO43:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
547 POKE 54296,15
548 POKE 54277,190
549 POKE 54278,240
550 POKE 54276,17:POKE 54273,45:POKE 54272,5985
551 GOTO 269
552 FORP=0 TO 43:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
553 FORP=0TO44:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
554 POKE 54296,15
555 POKE 54277,190
556 POKE 54278,240
557 POKE 54276,17:POKE 54273,46:POKE 54272,6139
558 GOTO 269
559 FORP=0 TO 44:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
560 FORP=0TO45:POKEB+K+40,102:NEXTP:POKEB+K+120,65:POKEB+K+160,9:POKEB+K+200,9
561 POKE 54296,15
562 POKE 54277,190
563 PO
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COMMODORE 64 PROGRAM

```

790 GOTO 720
795 FOR L=1 TO 100: NEXT L
800 POKE 53281,8:POKE 53280,8:PRINT "J"
805 PRINTSPC(15);"*****HARD LUCK!!**"
810 PRINTSPC(11);"YOU SCORED 'S: 'POINTS'"
820 PRINTTAB(13);"HIT 2/F 1/3 TO PLAY"
830 PRINT " "
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900 FOR L=1 TO 100: NEXT L
910 POKE 53281,7:POKE 53280,7
920 PRINT "J"
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ADVENTURES

for

ATARI 400/800 32K **BBC** 32K
COMMODORE 64 **LYNX** 48K
NASCOM 32K **ORIC** 48K
SPECTRUM 48K **380Z** 32K

These games are very much bigger than normal adventures that you can buy. They cost £9.90 each and may well take you months to solve!

1) Colossal Adventure

The classic original "Adventure" with all the original puzzles plus a complete new Master Game.

2) Adventure Quest

An epic puzzle journey through Middle Earth.

3) Dungeon Adventure

A truly massive game with over 100 puzzles to solve.

Dealer
Enquiries
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— Popular Computing Weekly, 12 May & 23 June

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208 Aigburth Rd, Aigburth, Liverpool L17.051 727-7267

Killer Gorilla BBC B £7.95

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

Put on your hard hat and wellies, rush along to the building site and rescue the fair maiden from the clutches of King Kong's brother.

You'll need quick reactions to play Program Power's version of this game that sends your hero climbing about a partly built skyscraper, gathering the young lady's dropped possessions as he goes.

Just to make life more interesting, the gorilla keeps throwing down a constant barrage of building site debris to obstruct the rescuer's climb.

Points are awarded for a speedy rescue and the number of reclaimed possessions. As with

most games of this type, completion of one level is rewarded by being placed in an even more difficult situation for the next.

Excellent graphics and sound effects with good use of colour. I think the effect is better if the interlace is turned off, though, as this stops the screen judder. J.W.

instructions	90%
playability	90%
graphics	100%
value for money	90%



Red Devils Oric-1 £4.95

Pennant, 29 Hounds Road, Chipping Sodbury, Bristol BS17 6EQ

The name of this program is also the nickname of Manchester United football team, and they

share in common the tactic of obstructing the opponent!

Little red men multiply rapidly on the screen blocking your way as you travel between the castles at the four corners of the screen, where you pick up points.

If you become surrounded, you might be able to use an escape hole, otherwise all you

can do is to give up by pressing 'ESC'.

The instructions provided are very limited, but as the game is simple, this proved no real problem.

The display is colourful, and a variety of sound effects add interest to the game. However, the all-BASIC program may be a lit-

tle slow-moving for arcade game enthusiasts. D.N.

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



Crazy Painter TRS-80 Models I & III £12

Microdeal, 41 Truro Road, St. Austel, Cornwall PL25 5JE

The advertisement for this game does not, in my opinion, do the product justice. The object of the game is to paint the screen of the TRS-80 white, using the arrow keys or a joystick if available.

There is a dog that occasionally appears on the right of the screen and walks across your paintwork leaving black paw-prints. There is also a puppy that holds a turpentine bucket, a snake and a turpentine bucket

that you can only eliminate when it is not flashing.

In addition to the normal process of gaining points for stopping the dog, leading the snake into the turpentine bucket and painting the screen white, the game has the additional features of sound, pausing a game while in play and very fast action.

To me the game has a touch of Pac Man about it and would probably appeal to those who liked that game. One or two people may play on a variety of skill levels.

	D.B.
instructions	30%
playability	80%
graphics	50%
value for money	50%



Pearl Diver TI-99/4A (Extended BASIC) £8

Lantern Software, 4 Haffenden Road, Tenterden TN30 6QD

Pearl Diver must be the underwater version of Frogger. Two divers must dive to the sea bed and gather pearls, before their air runs out. But that's not all — they also have to avoid the sea creatures that swim across their path.

When the diver's air supply is running short, a siren sounds and a red flag is raised. Failure to return within the warning time means the end of the hapless diver. The game ends when no divers are left.

Control of movement is by the keyboard. It's disappointing that there is no option for a joystick.

A choice of two skill levels make this quite enjoyable to play, but it is certainly overpriced. J.W.

instructions	100%
playability	85%
graphics	90%
value for money	60%



Bombs Away TI-99/4A (Extended BASIC) £8

Lantern Software, 4 Haffenden Road, Tenterden TN30 6QD

There are no instructions with this 6K city-bombing-type program, but initially the task is to

raze to the ground 23 variable-height Empire State Buildings in order to land your aircraft safely.

Having performed this successfully you are then taken through a range of nine other scenarios, each involving the destruction of obstacles to your landing.

When you complete the tenth, you are invited to go round again

at a greater degree of difficulty. (I would have expected more than ten scenarios.) It can be quite frustrating when simple mistakes force you to begin afresh!

A running score of the destruction is displayed, being higher according to the degree of difficulty selected at the game's beginning (1: easiest, 10: hardest).

Colourful use of graphics is made, and despite the speed

limitations of even Version 110 Extended BASIC, movement is not too slow.

	P.B.
instructions	0%
playability	75%
graphics	70%
value for money	30%





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The double life of Stainless Software's supremo

Most TI-99/4A owners seem to agree that theirs is a wonderful machine — but the big problem is, you can't get software for it easily.

Stephen Shaw is a great fan of the TI, whose solution to the software shortage was to set up his own company to get hold of some. Stainless Software, the UK's largest independent supplier of TI programs, was the result.

Stainless's current catalogue lists 71 programs. Of these, 26 are written by UK programmers under the Stainless label. The other 45 are imported from a selection of North American TI software companies. There's something in there for all tastes: arcade games, mind games, utilities, adventures, even a typing tutor.

Stephen and his wife Cathy run the software business from a corner of the dining room in their 1920s semi at 10 Alstone Road, Stockport. From this modest base they deal with orders, do some duplicating, and produce the Stainless catalogue — which also acts as a kind of newsletter, with information on cassette care, and details of the TI User Group.

During the day, they both work as bank clerks — Stephen at Williams and Glyns, and Cathy at Barclays.

But though they both work in banks, they aren't exactly laughing all the way to one on the proceeds from Stainless. Their

Britain's biggest independent TI software dealer is a dining-room business. Candice Goodwin talked to Stephen Shaw, who's a bank clerk by day and runs Stainless Software in the evening

turnover is "big enough to register for VAT" — more than £18,000 — but in the first quarter of 1983, Stephen says Stainless made a small loss.

"With only 20,000 TI-99/4A owners in the UK, even my most popular game won't sell more than a couple of thousand copies," he explained. "Fortunately, my interest is in the TI — the sales are really just to support the user. I'm not in it for the money, so I sell at the best price I can — I deliberately keep my profit margins low." Thus speaks a true enthusiast.

Stephen's interest in com-

puting was first awakened 10 years ago when Commodore announced the PET. He said: "I've a fascination for science and maths, and though I'm not an academic sort, I like to apply logical principles. I saw computing as a way to do that."

He sent off for details of the PET — and was "decisively ignored" by Commodore. But Texas Instruments had a store in Manchester where Stephen saw a forerunner of the present TI-99/4A. He borrowed the machine at weekends, and wrote to TI to find out more. "Unlike everyone else, TI did respond to letters", he recalls.

He was attracted to the TI machine on several counts. "It's easy to program it — the BASIC's well arranged. It's easy to hook it up to peripherals. For example, other computers have a difficult disc filing command. It's very easy to use on the TI. And the computer itself is neat and attractive. It sits in the dining room very nicely." In October 1981, he finally got his hands on a TI of his own.

But despite being a charter member of the 99er, an American magazine for TI owners, and a founder member of the TI User Group, Stephen found there was "a lot of information but no software" for the TI.

After sending off to the US for programs for his own use, he decided to try and distribute US software in the UK himself. When he signed his first contract in June last year, with Not Polyoptics, there were a mere 100 TIs in this country.

With numbers like that, large software stocks just weren't on. So Stephen arranged to produce copies from a master tape supplied by the software company, and pay them a fixed percentage of the US price per copy — an arrangement which he still uses to-day.

But he finds that "the price difference is a problem" in selling software from the US, where consumers are used to paying \$26-27 per program. Sometimes Stephen ends up selling programs for less than their selling price in the US.

Though he's sticking to his existing US suppliers, Stephen is now trying to get hold of more material from UK software writers. He currently has two regular programmers and about 10 or 11 others, most of which he's got in contact with through the appeal for programs in his catalogue.

Stephen has one regular dealer, Galaxy Software, but he's wary of retailers on the whole because he says: "They want huge discounts. Whereas in the US they'll take 30 per cent of the selling price, over here 50-60 per cent is the norm. In order to keep prices down, I can't afford to give much discount."

"And I think the TI-99/4A itself is oversold by dealers — they don't warn customers that you can't run arcade-type games in TI BASIC. Whereas in my mail-order catalogue, I can warn people that TI BASIC games will be slow."

"My biggest problem is the TI itself. It's very good at what it does, but the unexpanded machine won't do what people often buy it for — playing arcade games."

To help people see the light about this much misunderstood computer, Stephen is currently writing a book for Phoenix Publishing describing the TI. Though he's only written about 60,000 words so far, he plans to have it finished for Christmas, and says it will contain "a lot of information which isn't available elsewhere."

He's also looking forward to the new TI computer, which he "definitely will" be selling software for. A TI fan to the last, he believes this machine "will be superior to the BBC — after all, it will be faster, have more features, and more RAM. If they can bring it out by Christmas, it could wipe the English market clean."



Stephen Shaw — a true TI enthusiast

Who Killed Cock Robin? ZX81 £4.95

JRS Software, 19 Wayside Avenue, Worthing, Sussex BN13 3JU

I always thought we knew who killed Cock Robin but according to this program there is more than one alternative. It might have been the sparrow, then again it could have been the swan, or the crow, or the eagle, or the owl or perhaps the wren! Not only that but the murder could have taken place in one of six different locations and at one of six different times.

This is all a variation of the old guessing game. You know, the computer sets up a combination of three unknowns, in this case who killed Cock Robin, where and when, and you have to guess the three variables to get the

computer's praise. Difficulty is controlled by the number of options in each group so you select from three to six options for each unknown.

Time was when this style of program was considered very clever ("How does the machine remember the answer?"), but somehow I get the feeling that we've seen it all before.

The program is written exclusively in BASIC, runs well and is bug free. The graphics are clean, uncluttered and very good.

One excellent feature is the JRS fastLOAD system.

I.H.

instructions	80%
playability	55%
graphics	85%
value for money	60%



Blast It T199/4A £3.50

Christine Computing, 6 Florence Close, Watford, Herts

Blast It is a game of strategy for one player. With the aid of a remote controlled robot you have to disarm bombs. You have

to plan a route to enable the robot to link all the bombs in numerical sequence.

The robot cannot cross the laid down wire and it must not stay stationary for very long. Depending on the skill level a number of bombs are randomly plotted and a time limit is set.

Bombs detonate if you exceed the time or try to disarm a bomb

It's your brain against the electronic brain

... In these games of logic and strategy, tested out for you by our reviewers

out of sequence. Be careful not to trap the robot inside a bomb or within the wire.

Each game is different and with five skill levels there is plenty of scope for player improvement. If your score is high enough you qualify for the Blast It Hall of Fame.

The instructions, which also detail the scoring system are included in the program. These are very clear. The tape loads easily and the program runs smoothly

but there is some delay in plotting bombs in the higher levels. The display is well thought out and the use of colour is good.

I enjoyed playing this game, which is good value for any T1 user's money.

C.E.

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



Vanquisher Oric-1 £6.50

Elephant Software, 41 Haymill Road, Burnham, Berks SL1 6NE

The title may lead you to expect an arcade action game, but Vanquisher is actually a word puzzle.

You are presented with the word 'vanquisher' jumbled up; the object is to transport the 10 letters of the name along a series of tracks to a large box. You have to fill this box with the letters in the right order to produce the name of the program.

There are smaller boxes embedded in the tracks which are used as temporary stores for the letters. You have to shuffle the letters between these boxes to get the eventual order right.

The instructions, which appear in the program, are not very

helpful, and the spelling is atrocious!

But, once you get that feel for the game, the object becomes to complete the puzzle in the minimum number of moves.

The program loaded successfully first time (a refreshing change from a lot of Oric software), and the use of colour, sound, and graphics is good.

However, I doubt whether the program will have any lasting appeal. After all, once you have completed the puzzle a few times, what else is left to achieve?

D.N.

instructions	30%
playability	60%
graphics	70%
value for money	40%



Paragram Spectrum £4.95

Elephant Software, 41 Haymill Road, Burnham, Berkshire SL1 6NE

An original puzzle from Elephant.

The computer generates a four by four grid on which it randomly places the first sixteen letters of the alphabet. The idea is to rearrange the letters into the correct sequence by rotating four letters at a time.

These instructions were fully given at the start of the program and full marks to Elephant here — when I began I knew exactly what I was doing.

The Spectrum does not lie when it announces "I'm thinking up a hard one for you", since I've yet to complete the puzzle. The fact that the program was

written in BASIC makes no difference — the computer responds very quickly. This is important when one is engrossed in a "If I rotate that and that then that will be there" strategy.

Graphics are used adequately to present the relevant information. My only criticism is that the grid huddles at the left of the screen and the whole program lacks that final professional touch.

Incidentally, I wonder which tape duplication service Elephant are using. The tape loaded first time but there was lots of unpleasant hash in the background. This noise may worry people new to computing.

T.B.

instructions	100%
playability	55%
graphics	45%
value for money	60%



Tumble Towers ZX81 £4.95

JRS Software, 19 Wayside Avenue, Worthing, Sussex BN13 3JU

A word of praise for the JRS fastLOAD system which downloads this large program every time, without fail, and in under 40 seconds flat!

Tumble Towers invites you to move a blob up a tower of ladders until the top is reached. Once at the top you've won and the blob celebrates by diving from the topmost ladder into a small pool making a large splash.

A split screen shows the tower on the left of the screen and the questions you have to answer are generated screen right.

These questions can be tricky! You are presented with a series of letters or numbers or graphics

characters and it's up to you to find the next in the series. Of course, you're penalised if you take too long and your score is shown at the end of each RUN.

The program is menu driven, RUNs well, is bug free, is written completely in BASIC and uses tons of PRINT AT statements. The Menu shows the options open to you: instructions, demonstration, and three levels of difficulty.

A clever idea, thoughtfully presented and addictive in play.

I.H.

instructions	85%
playability	85%
graphics	85%
value for money	90%



Before long most home computer users want to do something more constructive than play games and my Database program makes micros useful.

Use it as a tool to store everyday information. It could be an address book — with space for birthdays — or keep track of your record or tape collections.

If you do not own a printer omit lines 1180, 1190, 1200, 1210, 1220, 1940 and 1950 to 3050 and alter line 30 to a blank REM.

How it works

5-60 set up, DIMension arrays
70-220 prompts to format data fields
230-420 menu
430-550 option to enter/add
560-670 option to replace items
680-1150 search routine
1160-1360 print routine
1370-1920 save on tape routine
1930-3050 option to print, machine code

Before RUNning enter as a direct command POKE25,6:NEW. This has the effect of PCLEAR0, giving 31215 bytes free to use.

If all is successful you will be greeted with the question: "NEW FILE OR TAPE INPUT N/T?" Enter N to the prompt and the following line will appear: TITLE OF 1ST DATA FIELD".

This is the heading under which the information is stored and you would enter NAME or SONG TITLE or any other heading of your choice.

Do the same for the other three fields.

If you were using the program to store names and addresses the first field would be NAME, the second would be ADDRESS, you would enter TEL No. for the

Make your micro do some useful work

Keep tracks of every-day information with Alan Gray's database program for the Dragon

third and BIRTHDAY for the fourth.

After you have entered this format the main menu will appear. It is self-explanatory except, perhaps, for SKIPF/MOTOR ON/OFF.

This enables you to manipulate the cassette recorder to find any data file on tape.

If you have a printer I have included a machine code screen dump which can only be used during the search routine. When you find an entry you want printed press the space bar. This will execute the machine code routine and then return for the next item.

Line 1990 and the same expres-

```
1 REM BEFORE LOADING POKE25,6:NEW
5 CLEAR 55,32600
10 GOTO30
20 POKE&HFFD6,0:MOTOR ON:SOUND120,20:CSAVE"DATABAS
E":GOTO5
30 GOTO3000
40 REM DATABASE A.GRAY 1983
50 FL=0
60 CLEAR20000:DIM S$(200),T$(200),G$(200),W$(200)
70 REM ENTRY
80 CLS
90 POKE&HFFD7,0:CLS
```

```
100 PRINT@11,"DATABASE";
110 PRINT@43,"===== ";
120 IF FL=1 THEN 250
130 PRINT@258,"NEW FILE OR TAPE INPUT N/T ?"
140 NF$=INKEY$:IF NF$="" THEN140
150 IF NF$="T" THEN GOSUB 1540 ELSE 170
160 IF FL=1 THEN240
170 CLS1:INPUT"TITLE OF 1ST DATA FIELD":SS$
180 INPUT"2ND DATA FIELD":GS$
190 INPUT"3RD DATA FIELD":TS$
200 INPUT"4TH DATA FIELD":WS$
210 SP$=" "
220 SS$=SS$+SP$:GS$=GS$+SP$:TS$=TS$+SP$:WS$=WS$+SP$
230 FL=1
240 CLS:GOTO100
250 PRINT@132,"(1) INPUT ITEMS ";
260 PRINT@164,"(2) REPLACE ITEMS ";
270 PRINT@196,"(3) ADD ITEMS ";
280 PRINT@228,"(4) SEARCH FOR ENTRY ";
290 PRINT@260,"(5) LIST ALL ITEMS ";
300 PRINT@292,"(6) SAVE ITEMS ON TAPE ";
310 PRINT@324,"(7) LOAD ITEMS FROM TAPE ";
320 PRINT@356,"(8) STOP ";
330 PRINT@388,"(9) SKIPF/MOTOR ON/OFF ";
340 PRINT@458,"INPUT (1-9)";
350 Z$=INKEY$
360 IF Z$="" THEN 350
370 M=ASC(Z$)-48
380 IF M=0 OR M=9 THEN SOUND150,1
```

```
390 IF M (0 OR M) 9 THEN250
400 ON M GOSUB 430, 560, 450, 680, 1160, 1370, 1540, 1770,1800
410 GOTO70
420 REM
430 REM INPUT/ADD ITEMS:Q=1
440 Y=1
450 CLS:PRINT@8,"INPUT/ADD ITEMS":Q=1
460 PRINT@34,"PRESS [ENTER] WHEN FINISHED"
470 PRINT:PRINT"ITEM"Y
480 PRINT SS$:INPUT$(Y):SOUND150,1
490 IF$(Y)="" THENRETURN
500 PRINT GS$:INPUT$(Y):SOUND150,1
510 PRINT TS$:INPUT $(Y):SOUND150,1
520 PRINT WS$:INPUT$(Y):SOUND150,1
530 Y=Y+1
540 GOTO470
550 REM
560 REM REPLACE ITEMS
570 N=0:Q=1
580 CLS:PRINT@9,"REPLACE ITEMS"
590 PRINT@34,"PRESS [ENTER] WHEN FINISHED"
600 PRINT:INPUT"ITEM NO. TO REPLACE":N:SOUND150,1
610 IF N=0 THEN RETURN
620 PRINT SS$:INPUT$(N):SOUND150,1
630 PRINT GS$:INPUT $(N):SOUND150,1
640 PRINT TS$:INPUT $(N):SOUND150,1
650 PRINT WS$:INPUT $(N):SOUND150,1
660 GOTO560
670 REM
```

Main variables

FL flag for entry to program
NF\$ remember new file
SS\$, GS\$, TS\$, WS\$ titles of data fields
SP\$ space + colon
Z\$ get input
M value of Z\$
Q flag for new data entry
Y entry counter
SS, GS, TS, WS data
N replace entry counter
CS\$ get input
C value of CS\$
AS\$ get input for target string
LPS line print prompt

sion in line 3002 clears the printer buffer before any printing is done.

Note: there are 32 spaces between the quotes in line 1330.

Hints on conversion

The program is written in Dragon's Microsoft BASIC — with a short machine code routine for copying off the screen — so conversion should pose few problems.

SOUND150,1 makes a short beep POKE &HFFD&,0 speeds up the Dragon and POKE &HFFS&,0 turns it off

PRINT @ on the Dragon: top left of screen is 0 and bottom right is 511

CHRS(10) is a blank line

Data files on the Dragon are stored separately from the main body of the program, so Spectrum owners will have to write their own routines to replace lines 1360-1750.

Lines 1800-1900 are commands for cassette recorder control from the keyboard.

The machine code screen dump can, on the Spectrum, be replaced by the copy command. Owners of other computers will have to re-write this routine — or do without it.


```

680 REM SEARCH
690 CLS:PRINT"SEARCH FILE";:PRINT
700 PRINT@139,"SEARCH BY":PRINT@199,"(1)";SS$:P
RINT@263,"(2)";GS$:PRINT@327,"(3)";TS$
710 C$=INKEY$
720 IFC$=""THEN710
730 C=ASC(C$)-48
740 IFC(10RC)3THEN710
750 ON C GOTO760,890,1020
760 PRINT:PRINT SS$:INPUT A$:SOUND150,1:CLS
770 FORX=1 TO Y-1
780 IF MID$(A$,1,2)=MID$(S$(X),1,2) THEN PRINT@64,
SS$:S$(X)
790 IF MID$(A$,1,2)=MID$(S$(X),1,2) THEN PRINT@160
,GS$:G$(X)
800 IF MID$(A$,1,2)=MID$(S$(X),1,2) THEN PRINT@224
,TS$:T$(X)
810 IF MID$(A$,1,2)=MID$(S$(X),1,2) THEN PRINT@288
,WS$:W$(X)
820 IF MID$(A$,1,2)(>)MID$(S$(X),1,2) GOSUB 1920
830 IF MID$(A$,1,2)=MID$(S$(X),1,2) GOSUB1930
840 NEXT X
850 PRINT@360,"ENTRY NOT FOUND"
860 PRINT@485,"PRESS [ENTER] TO RETURN"
870 INPUTZ$:SOUND150,1
880 RETURN
890 PRINT:PRINT GS$:INPUT A$:SOUND150,1:CLS
900 FORX=1TOY-1
910 IF MID$(A$,1,2)=MID$(G$(X),1,2) THENPRINT@64,S
S$:S$(X)
920 IF MID$(A$,1,2)=MID$(G$(X),1,2) THENPRINT@160,
GS$:G$(X)
930 IF MID$(A$,1,2)=MID$(G$(X),1,2) THENPRINT@224,
TS$:T$(X)
940 IF MID$(A$,1,2)=MID$(G$(X),1,2) THENPRINT@288,
WS$:W$(X)
950 IF MID$(A$,1,2)(>)MID$(G$(X),1,2) GOSUB1920
960 IF MID$(A$,1,2)=MID$(G$(X),1,2) GOSUB1930
970 NEXT X
980 PRINT@485,"PRESS [ENTER] TO RETURN"
990 PRINT@360,"ENTRY NOT FOUND"
1000 INPUTZ$:SOUND150,1
1010 RETURN
1020 PRINT:PRINTTS$:INPUT A$:SOUND150,1:CLS
1030 FORX=1TOY-1
1040 IF MID$(A$,1,2)=MID$(T$(X),1,2) THENPRINT@64,
SS$:S$(X)
1050 IF MID$(A$,1,2)=MID$(T$(X),1,2) THENPRINT@160
,GS$:G$(X)
1060 IF MID$(A$,1,2)=MID$(T$(X),1,2) THEN PRINT@22
4,TS$:T$(X)
1070 IF MID$(A$,1,2)=MID$(T$(X),1,2) THEN PRINT@28
8,WS$:W$(X)
1080 IF MID$(A$,1,2)(>)MID$(T$(X),1,2) GOSUB1920
1090 IF MID$(A$,1,2)=MID$(T$(X),1,2) GOSUB1930
1100 NEXTX
1110 PRINT@360,"ENTRY NOT FOUND"
1120 PRINT@485,"PRESS [ENTER] TO RETURN"
1130 INPUTZ$:SOUND150,1
1140 RETURN
1150 REM
1160 REM PRINT ITEMS
1170 CLS
1180 PRINT"LINE PRINT Y/N?"
1190 LP$=INKEY$:IF LP$=""THEN1190
1200 IF LEFT$(LP$,1)="Y"THEN GOSUB1950 ELSE1220
1210 GOTO70
1220 CLS
1230 FOR X=1 TOY-1
1240 PRINT@352,"ND ";X
1250 PRINT SS$:S$(X)
1260 PRINT GS$:G$(X)
1270 PRINT TS$:T$(X)
1280 PRINT WS$:W$(X)
1290 PRINTCHR$(10);CHR$(10)
1300 PRINT@482,"PRESS [ENTER] TO CONTINUE"
1310 INPUT C$:SOUND150,1
1320 IFC$="X" THEN RETURN
1330 PRINT:PRINT@352,"
"
1340 NEXT X
1350 RETURN
1360 REM
1370 POKE&HFFD6,0
1380 CLS1:PRINT@135,"SAVE ITEMS ON TAPE"
1390 PRINT@234,"POSITION TAPE"

```

```

1400 PRINT@294,"PRESS PLAY & RECORD"
1410 PRINT@388,"PRESS [ENTER] WHEN READY"
1420 Q=0
1430 INPUT R$:SOUND150,1
1440 MOTOR ON :FOR Z=1 TO 100:NEXTZ
1450 OPEN"O",-1,"LIST"
1460 FOR X= 1 TO Y-1
1470 PRINT#-1,SS$:GS$:TS$:WS$

1480 PRINT#-1,S$(X)
1490 PRINT#-1,T$(X)
1500 PRINT#-1,G$(X)
1510 PRINT#-1,W$(X)
1520 NEXT X
1530 CLOSE#-1:RETURN
1540 FL=1
1550 POKE&HFFD6,0
1560 CLS1:PRINT@136,"LOAD ITEMS FROM TAPE"
1570 PRINT@235,"REWIND TAPE"
1580 PRINT@300,"PRESS PLAY"
1590 PRINT@388,"PRESS [ENTER] WHEN READY"
1600 INPUT R$:SOUND150,1
1610 OPEN"I",-1,"LIST"
1620 Y=1
1630 IF EOF(-1) THEN 1750
1640 INPUT#-1,SS$
1650 INPUT#-1,GS$
1660 INPUT#-1,TS$
1670 INPUT#-1,WS$
1680 INPUT#-1,S$(Y)
1690 INPUT#-1,T$(Y)
1700 INPUT#-1,G$(Y)
1710 INPUT#-1,W$(Y)
1720 PRINT SS$,GS$,TS$,WS$,S$(Y),T$(Y),G$(Y),W$(Y)
1730 Y=Y+1
1740 GOTO1630
1750 CLOSE#-1:RETURN
1760 REM
1770 M$="":CLS:IF Q=1 THEN PRINT "NEW DATA ENTERE
D HAS NOT BEEN SAVED ON TAPE PRESS 'S' TO SAVE":
INPUTM$
1780 IFM$="S"THEN1370 ELSE1790
1790 POKE&HFFD6,0:CLS:PRINT"BYE":END
1800 CLS:PRINT@134,"SKIP (1)"
1810 PRINT@198,"MOTOR ON (2)"
1820 PRINT@262,"MOTOR OFF (3)"
1830 Z$=INKEY$
1840 IF Z$=""THEN1830
1850 Z=ASC(Z$)-48
1860 IFZ(0 OR Z)3 THEN1830
1870 IF Z=1 THEN POKE&HFFD6,0:SKIPF
1880 IF Z=2 THEN MOTOR ON
1890 IF Z=3 THEN MOTOR OFF
1900 RETURN
1910 STOP
1920 RETURN
1930 Z$=INKEY$:IFZ$=""THEN1930
1940 IF Z$=CHR$(32)THEN PRINT#-2,CHR$(24): EXEC 32
600
1945 RETURN
1950 POKE&HFFD6,0:CLS:PRINT"IS PRINTER READY?"
1960 Z$=INKEY$:IF Z$=""THEN 1960
1970 IF LEFT$(Z$,1)="Y" THEN 1980 ELSE 1950
1980 FORX=1 TO Y-1
1990 PRINT#-2,CHR$(24)
2000 PRINT#-2,"ND ";X
2010 PRINT#-2,SS$:S$(X)

2020 PRINT#-2,GS$:G$(X)
2030 PRINT#-2,TS$:T$(X)
2040 PRINT#-2,WS$:W$(X)
2050 PRINT#-2,CHR$(10);CHR$(10)
2060 NEXT X
2070 RETURN
3000 REM M/CODE SCREEN PRINT
3002 POKE155,80:POKE328,0:PRINT#-2,CHR$(24)
3005 FORI=0 TO 51
3010 READ A$:A$="&H"+A$
3015 POKE32600+I,VAL (A$)
3020 NEXT I
3030 GOTO40
3050 DATA 86,0D,8D,80,0F,8E,04,00,10,8E,02,00,A6,8
0,81,7F,22,0E,81,20,22,04,8A,60,20,06,81,60,25,02,
84,BF,8D,80,0F,1F,10,C4,1F,26,05,86,0D,8D,80,0F,31
,3F,26,DA,39,39

```


COMPETITION

£1,000



software to win — just find the words for your share

THERE are 25 chances to win in another free, easy-to-enter competition from Home Computing Weekly.

We're giving away £1,000-worth of software for the Spectrum and Dragon from CRL, the new force in home computer software.

And all you have to do is to find words hidden in this issue of HCW and put them together to form a sentence.

Each of the 25 prizes is software to the value of around £40 for the Dragon or for the 48K Spectrum.

If you're a Dragon owner these are the great titles you could win:

DragArt	Key to Wrath
Handicap Golf	St George and the Dragon
Froglet	Laser Racer

And winners with 48K Spectrum will get a selection from the following titles:

Crawler	Lunar Rescue
Caveman	Zaraks
Test Match	Alien Maze
Galactic Patrol	Derby Day
Rescue	Jackpot
3D Desert Patrol	Stargazer Secrets

As a special bonus to HCW readers there's a 10 per cent discount voucher on this page which you can use for any CRL product if you order direct from CRL. It means you gain even if you're not among the winners this time.

But please remember: send the competition entries to us and any orders direct to CRL. The vouchers will not be accepted in shops.

How to enter

Scattered throughout this issue of Home Computing Weekly are several words, set in **this type**.

You have to find all the words, build a sentence from them and then write the sentence in the space provided in the coupon. Fill in the rest of the coupon, including the words Dragon and Spectrum, depending on which set of prizes you would like.

Copies of the coupon will not be accepted. And you must write in large letters on the back of the envelope the number of words you have found (treat hyphens as spaces).

Entries which do not meet these conditions will not be considered.

Post your entry to: CRL Competition, Home Computing Weekly, 145 Charing Cross Road, London WC2H 0EE.

You have until first post on Friday September 23 to get your entry to us and the solution and the names of the winners will be published in the news columns of Home Computing Weekly.

The winning entries will be the first 25 correct entries we open. The prizes will arrive from CRL within 28 days of the judging.

The small print

The first 25 correct entries drawn at noon on Friday September 23, 1983, will win the prizes.

Coupons which are not fully completed and envelopes without the number of words found on the back will not be considered.

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

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



CRL Competition

Entry Coupon

Name _____

Address _____

post code _____

Computer: _____

Your sentence: _____

Post to CRL Competition, Home Computing Weekly, 145 Charing Cross Road, London WC2H 0EE. Closing date: first post Friday September 23

Arcade action to take home

**Zap...pow...splat...it's all
happening in these arcade
lookalikes, played and rated
for you by our reviewers**

Cosmic Debris 48K Spectrum £4.95

Artic, 396 James Reckitt Ave,
Hull HU8 0JA

Cosmic Debris is a version of Asteroids. I have always enjoyed this arcade classic more than space invaders and Artic's version lives up to my expectations. The graphics are excellent and

smooth and the sound effects have true arcade tone.

If you get in the way of an asteroid, which happens quite frequently, your spacecraft explodes and a series of radial lines expand outwards and bounce off the sides of the screen. This striking visual effect is coupled with a lot of noise and the overall effect is quite spectacular.

An occasional alien craft appears shooting haphazardly, to make life more difficult for you.

control. With a joystick you still needed the return and shift buttons for the bombs and laser.

Once you have crossed the surface of the planet (this gives you a little control practice) you enter the caverns with their restricted space for manoeuvring. If you lose a life here you go back to the beginning of the cavern not back to the beginning of the game.

Even if you still have all five lives when you enter the caverns, it's not easy to get through them. I found this not as compulsive as some other games but enjoyable all the same.

B.P.

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



Interceptor Micros, Lindon House, The Green, Tadley, Hants

You are the pilot of a space ship and you have to travel across the planet and into the caverns of this hostile and alien world.

Your fuel is limited. It can be supplemented by destroying the force field projection dishes but beware of the heat seeking missiles determined to blast you off the screen.

You have bombs and laser with which to defend yourself and destroy the dishes.

The instructions are clear but my fingers were not nimble enough to cope with keyboard

Scramble 64 Commodore 64 £7

Space Fighter 32K BBC £7.95

Superior Software, 69 Leeds Road, Bramhope, Leeds

This arcade-style game is based on features found in Defender and Scramble. Your spaceship whizzes over the surface of a planet while you mete out justice to six types of nasty, making sure to hit the occasional fuel dump to keep your supply topped up.

The aliens have different characteristics. The Baiters move towards your ship, the Trimorts must be shot three times before they go down and you can only kill the Baryons with a smart bomb, of which you have three. After that, you just avoid them.

The game has six levels and you can select which one to start with — very useful if you haven't quite managed to work your way

through to the different stages. The program loaded perfectly and the screen display and graphics are excellent, although I would have liked to see the aliens explode when hit rather than just vanish.

There are no humanoids to save or corridors to navigate and although it may not be as completely fair to call it a poor man's Defender, the lack of such features limits the number of times you will come back to play it.

Why is BBC software more expensive than that for other micros? Prices for such games as these should now be £5-£6.

I.W.

instructions	100%
playability	90%
graphics	90%
value for money	75%



When you have managed to write off three spaceships, your overall score is displayed and gets into the "Hall of Fame" if it's one of the highest since play commenced.

The only disappointing feature of this program, is that you are not asked to input name or initials along with your score. But that does not seriously detract

from the game as a whole. My family found it so addictive that I had a struggle to get a turn at the keyboard.

M.B.

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



Defender Atari 400/800 £30 (Cartridge)

From Atari Stockists

There is only one question to be answered here — is the BBC version better?

The answer is yes — and no. Graphically speaking, the BBC version has a slight edge. The bombers, baiters, swarms and pods, along with the deadly mutants, are closer to the arcade.

In play however, the Beeb is left standing. Ship control is from the joystick, with the space bar for smart bombs and any other key for hyperspace.

The game plays well, but I felt slightly that the attacking types lacked conviction — the swarms sometimes wander off, whilst the baiters can change course for no apparent reason.

Despite this, it is definitely not a game for people with less than three hands.

M.F.

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



Avenger VIC-20 £20 (Cartridge)

From Commodore dealers.

Hiding somewhere in most software catalogues is that classic among computer games, Space Invaders. Seldom is it immediately apparent which of the listed titles is the invaders clone,

as most publishers are somewhat bashful about admitting that their games are not all new and original. Is it Alien Attack? Is it Space Blitz? No, folks, it's Avenger!

This cartridge contains a fast and graphically precise copy of the old favourite; "blip-blip-blip" go the aliens as they shuffle across the screen. "zap-zap-KAPPOW" goes the laser cannon as it trundles to and fro...

Die-hard traditionalists may like this game but the rest of us gimmick-starved hedonists probably won't. This cartridge is spectacularly over-priced.

T.D.

instructions	70%
playability	40%
graphics	60%
value for money	10%



Bamby SOFTWARE



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Four short games on tape consisting of Blackjack, Maths Test (5 levels of difficulty) Guess the Number, and Layers, a game in which you try to survive a year in the farming business. Text. **£5.95**

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You are the Captain of a Starship. You have to buy a cargo, and attempt the inter-stellar jump to your destination. But beware, meteors and space pirates are out to get you. Text. **£5.95**

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DRAGON TI-99/4A for SPECTRUM 48

DATABASE: (DRAGON)

A personal filing system we can modify to suit your own requirements. Please ask for quote. **Approx. £15.95**

SURPRISE: (DRAGON)

Regain the magic ring, but to do so you must first find the key to the Tower, avoid robbers, and more. Then bewitch the Dragon, and you're home and dry — almost. Hi-res graphics and text. **8.45**

SCANNER 13: (DRAGON)

Set in the City of the future, this game combines the best elements of both arcade and adventure games. Destroy the evil Drones before they destroy you and your City. Three levels of difficulty. Hi-res graphics and text. **£8.45**

BOPSWIZZLE: (DRAGON)

A splendid fun game! Beat the ghastly Gloops and the yucky Yerkies, amongst other nefarious nasties. Collect pearls at the same time! Low and hi-res graphics and text. **£5.95**

AMAZING: (DRAGON)

Series of five mazes specially for the under 5's ranging from quite simple to fairly complex. An excellent way to amuse pre-school children, and they learn from it too. Hi-res graphics. **£5.95**

ALONE AT SEA: FOR THE TI99/4A (TI-99/4A)

Try and escape the sinking ship, but don't forget your supplies which are hidden somewhere. Text **£6.50**

K-64 (TI-99/4A)

A mind-bender. Cover the squares once only using the knight and its valid moves. Easy?! Full graphics. **£6.50**

MYSTERY MANOR: FOR THE SPECTRUM (SPECTRUM)

Find the murderer before he (or she) finds you and your career as Detective Solvit! Graphics and text. **£6.50**

MASTER CODE: FOR THE SPECTRUM (SPECTRUM)

Based on the famous game. Try your skill against the computer. You CAN beat it... Graphics and text. **£6.50**



Are your finances driving you mad?

Do you find that working out your finances makes your head buzz? Do you see red?

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Our fabulous range of 'O' level programs with revision notes still available. Send for price list. PHYSICS, MATHS, CHEMISTRY, BIOLOGY, COMPUTER STUDIES.

Prepare for battle — the enemy subs are on their way

You are in command of a nuclear submarine, cruising the Mediterranean on routine patrol. Suddenly a message comes through from base: "Enemy Fleet sighted at vector 14/13 in Sector Stigma. Preparing to launch attack on Horne Base. Your mission — to seek out and destroy the enemy. Message ends."

You immediately set a course for Sector Stigma and prepare for battle.

How it works

10 set up colour for instructions
20-30 set up title
90-94 display title character by character BEEPing between each character
100 set up UDGs from DATA on lines 9000-9020
110 set up auto-scroll
120-140 print instructions. Graphics: 140 A,CD,EFG,HJK
160-200 set up position of enemy ships. Graphics: 170 HI-JK,176EFG,182CD,188A
355-440 input of X,Y co-ordinates
1000-1020 check if hit, miss
1030-1100 display hit ship, increase score. Graphics: 1050H,I,J,K
2000-2020 give up routine
2100 display positions of enemy ship
2520 win routine (if all ships are hit), display score with bonus
3000-3100 replay routing
9000-9020 data for UDG

On arrival, you switch on your targeting computer showing the grid of the enemy zone. Your job is to locate and destroy all of the enemy's 20 ships.

Seek out and destroy the hostile fleet — those are your orders in Peter Telfer's exciting game for the 48K Spectrum

```

10 BORDER 1: PAPER 1: INK 7: C
LS
20 LET Z$=""

"LE          BATT
30 LET Z$=Z$+"
PS          SHI
& PETE TELF
ER 1983"
40 LET END=2000
90 FOR a=1 TO LEN Z$
92 IF Z$(a)="" THEN PRINT " "
;: NEXT a
94 BEEP .01, CODE Z$(a)-100: PR
INT Z$(a);: NEXT a
100 FOR a=144 TO 154: FOR b=0 T
O 7: BEEP .01,30: READ C: POKE U
SR CHR$ a+b,C: NEXT b: NEXT a: P
OKE USR CHR$ 156,255: FOR a=1 TO
6: POKE USR CHR$ 156+a,129: NEX
T a: POKE USR CHR$ 156+7,255
110 POKE 23692,255: PRINT AT 21
,0;
120 PRINT "INSTRUCTIONS"
You aim by entering two letters.
First the across co-ordinate
(A-Y)

```

Main variables

Z\$ Battleships title
AS position of enemy ships
BS input of X,Y co-ordinates
X down co-ordinates of target computer
Y across co-ordinates of target computer
End end of game routine
S score
AMO ammunition
Hit number of hits on ships
Point score for particular hit
A + B FOR...NEXT loops

Hints on conversion

The POKE on line 100 switches the Spectrum to auto-scroll. If your computer doesn't have this feature, then the screen could be displayed by having a pause/wait followed by CLS between each page.

The POKE in line 320 switches the caps-lock on (upper case letter).

The input of the X,Y, co-ordinates works using the ASCII code of the letter pressed (ie the letter A = 65, the letter B = 66 and so on). If the character code of your computer is different then alter the (-64) in line 370 and 410 to suit your computer.

Paper x where x is the background colour of a character square.

INK x where x is the colour of the character.

BORDER x where x is the border.

Spectrum colour codes: 0 black, 1 blue, 2 red, 3 magenta, 4 green, 5 cyan, 6 yellow, 7 white. FLASH1 (on line 1070) alternates PAPER and INK colours.

```

& then the down co-ordinate (A-D)
;:"Press (SPACE) to give up"
130 PRINT "PRESS ANY
KEY": PAUSE 0
140 PRINT "POINT TABLE"
+ = 20 Points. " " = 40 P
oints. " " = 60 Points. " "
= 100 Points. " " Plus Bonus
points for
nition.
160 DIM a$(15,25)
162 FOR a=1 TO 3
164 GO SUB 200: IF a$(x,y TO y+
3)<>" " THEN GO TO 164
170 LET a$(x,y TO y+3)="":
NEXT a
172 FOR a=1 TO 5
174 GO SUB 200: IF a$(x,y TO y+
2)<>" " THEN GO TO 174
176 LET a$(x,y TO y+2)="": N
EXT a
178 FOR a=1 TO 9
180 GO SUB 200: IF a$(x,y TO y+
1)<>" " THEN GO TO 180
182 LET a$(x,y TO y+1)="": NE

```

```

XT a
184 FOR a=1 TO 5
186 GO SUB 200: IF a$(x,y)<>" "
THEN GO TO 186
188 LET a$(x,y)="": NEXT a
190 GO TO 300
200 LET x=INT (RND*15)+1: LET y
=INT (RND*22)+1: RETURN
300 PRINT AT 21,0:"Press any ke
y to play": PAUSE 0: PAPER 5: FO
R a=1 TO 22: PRINT " ": NEXT a: B
ORDER 5: PAPER 5: INK 0: CLS
310 FOR a=1 TO 15: PRINT AT a,1
;"": NEXT a
320 POKE 23658,0: LET HIT=0: LE
T amo=300: LET s=0: LET x=1: LET
y=1
330 FOR a=65 TO 89: PRINT AT 0,
a-64: PAPER 7: CHR$ a: AT 15,a-64:
CHR$ a: NEXT a
340 FOR a=65 TO 79: PRINT AT a-
64,0: PAPER 7: CHR$ a: AT a-64,26:
CHR$ a: NEXT a
350 PRINT #1: AT 1,1: " SCORE=";S
; " "; AT 1,17: " AMUNITION=";AMO;

```


SPECTRUM PROGRAM

```

352 IF HIT=46 THEN GO TO 2500
355 PRINT AT 20,1;"Enter across
>"; LET b$=INKEY$; IF b$="" THE
N GO TO 350
357 IF INKEY$="" THEN GO TO EN
D
360 IF CODE b$>89 OR CODE B$<65
THEN GO TO 350
370 LET y=(CODE b$)-64: PRINT A
T 20,15;b$
380 BEEP .1,6
385 IF INKEY$<>"" THEN GO TO 38
5
390 PRINT AT 21,1;"Enter Down
>"; LET b$=INKEY$; IF b$="" THE
N GO TO 390
395 IF INKEY$="" THEN GO TO EN
D
400 IF CODE b$>79 OR CODE B$<65
THEN GO TO 390
410 LET x=(CODE b$)-64: PRINT A
T 21,15;b$
420 PRINT AT x,y;"X"
430 GO SUB 1000
440 PRINT AT 20,15;" ";AT 21,1;
" ";GO TO 350
1000 IF amo<=0 THEN PRINT #1;AT
1,7;FLASH 1;"OUT OF AMUNITION";
BEEP 1,-6: FOR A=-6 TO -30 STEP
-1: BEEP .05,A: NEXT A: GO TO 2
000
1010 FOR a=5 TO -30 STEP -5: BEE
P .05,a: PAUSE 10: NEXT a
1020 LET amo=amo-1: IF a$(x,y)="
" THEN RETURN
1030 LET HIT=HIT+1: PRINT AT x,y
;PAPER 7;BRIGHT 1;a$(x,y)
1040 LET point=20:
1050 IF a$(x,y)=" " OR a$(x,y)="
" OR a$(x,y)=" " OR a$(x,y)=" "
THEN LET point=25
1060 LET s=s+point
1070 FOR B=-40 TO -30: FOR A=0 T
O 7: BORDER A: BEEP .05,B: NEXT
A: NEXT B: PRINT AT x,y;FLASH 1
;PAPER 2;INK 6;" "
1080 IF HIT=46 THEN GO TO 2500
1100 BORDER 5: RETURN

```

```

2000 PRINT #1;AT 0,0;FLASH 1;"
DO YOU REALLY WANT TO GIVE UP "
2010 IF INKEY$="Y" THEN GO TO 21
00
2015 IF INKEY$="N" THEN BEEP 1,3
0: PRINT #1;AT 0,0;PAPER 5;"
";
GO TO 350
2020 GO TO 2010
2100 FOR A=1 TO 15: FOR B=1 TO 2
5: BEEP .05,A+B: PRINT AT A,B;P
APER 5;INK 0;A$(A,B): NEXT B: N
EXT A
2110 GO TO 3000
2500 FOR A=1 TO 5: FOR B=1 TO 7:
BORDER B: BEEP .01,A*10: NEXT B
NEXT A
2510 FOR A=16 TO 21: PRINT AT A,
0;" ";NEXT A: PRINT #1;AT 0,0;"
";
2520 PRINT AT 17,2;"CONGRATULATI
ONS YOU'VE HIT THE LOT,
AND SCORED ";s;" WITH A BON
OUS OF ";amo;" GIVING YOU
";amo+s;" POINTS"
2550 GO TO 3000
3000 PRINT #1;AT 0,0;"Do you wan
t to play again. "Yes.
No
3010 IF INKEY$="Y" THEN POKE 236
92,255: GO TO 120
3020 IF INKEY$="N" THEN POKE 236
92,255: GO TO 3050
3030 GO TO 3010
3050 FOR A=0 TO 5: FOR B=0 TO 7:
BEEP .01,A*5: BORDER B: PAPER B
: CLS: NEXT B: NEXT A
3060 INK 0: PRINT "OK. Tha
nk you for playing

```

```

L E S H I P S B A T
"....." This program
will self destruct" in 1
0 seconds."
3070 PAUSE 10: PRINT AT 10,3;" "
: FOR a=9 TO 0 STEP -1: PRINT AT
10,10;a: BEEP .01,-20: PAUSE 40
: NEXT a
3100 NEW
9000 DATA 0,0,0,24,24,255,126,60
,40,157,73,58,170,109,26,255: RE
M single ship + explosion
9010 DATA 1,1,1,3,3,63,127,255,1
28,0,0,192,192,252,254,255: REM
sub

```

```

9020 DATA 0,48,14,14,255,255,255
,127,15,10,15,15,255,255,255,255
,0,6,56,56,255,254,252,248: REM
battle ship
9030 DATA 62,42,62,62,255,255,25
5,127,0,32,62,20,255,255,255,255
,0,65,125,40,255,255,255,255,0,0
,240,160,255,252,248,240: REM a
c carrier
9999 STOP: SAVE "B.Ships" LINE
1: BORDER 0: PAPER 0: CLS: BEEP
.1,6: VERIFY ""

```

You could be on our pages

We welcome programs articles and tips from our readers.

PROGRAMS should, if possible, be computer printed to a width of 48 characters (use a new ribbon) and/or sent on cassette. 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 make 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, 145 Charing Cross Road, London WC2H 0EE

Top Ten programs for the Dragon-32

- | | | |
|----|-------------------------|----------------|
| 1 | Mountain | Dragon (-) |
| 2 | The King | Microdeal (1) |
| 3 | Frogger | Microdeal (4) |
| 4 | Android Attack | Microdeal (3) |
| 5 | Space War | Microdeal (2) |
| 6 | Nightflight | Salamander (5) |
| 7 | Shuttle | Microdeal (9) |
| 8 | Planet Invasion | Microdeal (6) |
| 9 | Ring of Darkness | Wintersoft (-) |
| 10 | Cuthbert Goes Walkabout | Microdeal (8) |

Compiled by Boots. Figures in brackets are last week's positions

Top Ten programs for the ZX81

- | | | |
|----|-------------------|------------------|
| 1 | Space Raiders | Sinclair (1) |
| 2 | Espionage Island | Sinclair (2) |
| 3 | Flight Simulation | Sinclair (3) |
| 4 | Fantasy Games | Sinclair (9) |
| 5 | 1K Games | Sinclair (7) |
| 6 | Defender | Quicksilver (8) |
| 7 | Scramble | Quicksilver (10) |
| 8 | Football Manager | Addictive (6) |
| 9 | Asteroids | Quicksilver (-) |
| 10 | The Ship of Doom | Sinclair (-) |
| 11 | History | Sinclair (4) |

Compiled by Boots. Figures in brackets are last week's positions

Top Ten programs for the VIC-20

- | | | |
|----|----------------|-----------------|
| 1 | Arcadia | Imagine (1) |
| 2 | Wacky Waiters | Imagine (2) |
| 3 | Skyhawk | Quicksilver (6) |
| 4 | Cosmic Crunch | Commodore (8) |
| 5 | Sargon 2 | Commodore (4) |
| 6 | Catcha Snatcha | Imagine (7) |
| 7 | Cosmiads | Bug Byte (3) |
| 8 | Panic | Bug Byte (5) |
| 9 | The Count | Commodore (-) |
| 10 | Asteroids | Bug Byte (-) |

Compiled by Boots. Figures in brackets are last week's positions

Top Ten programs for the Spectrum

- | | | |
|----|------------------------|----------------------|
| 1 | Jet Pac | Ultimate (2) |
| 2 | Flight Simulation | Psion (1) |
| 3 | Horace and the Spiders | Psion/M. House (4) |
| 4 | Football Manager | Addictive (-) |
| 5 | 3D Tanx | dk'tronics (-) |
| 6 | Hobbit | Melbourne House (-) |
| 7 | Horace Goes Skiing | Psion/M. House (-) |
| 8 | Transylvanian Tower | Richard Shepherd (8) |
| 9 | Chess | Psion (-) |
| 10 | Ah Diddums | Imagine (10) |

Compiled by W. H. Smith. Figures in brackets are last week's positions

U.S. SCENE

Improve your moves by micro

Being a chess player myself, I rarely miss reading a review of any new chess software. Recently I have come across an innovative chess program worthy of mention. The price seems to be right, and it certainly takes a new approach compared with most such programs. Its name is Cyberchess and it is made to run on the Tandy Models I and III, the LNW Models I and II, with versions soon to run on the Commodore, VIC-20 and 64. At present, it requires NEWDOS+ 2.1, TRSDOS 2.3, NEWDOS-80, TRSDOS 1.3, or NEW-DOS-80, 32K of RAM, and, without modification, two disc drives. It costs only \$29.95.

The novel approach that this program takes is that it does not program the computer to play chess! It instead makes the attempt to match its human opponent against some of the better players in the world. What the program does is play chess instructor by comparing your moves against those made by the winners of major chess competitions playing key games. It is not intended to teach beginners; you must know the basic moves already. Although the program as it comes requires two disc drives, this is not necessary if you can find someone to transfer the data from the data disc to the program disc.

To use the program, you will need a board and pieces; there is no screen display as such. When you run the program, you are presented a list of games from which to choose. Once you make a choice, the program give you further information on the game: its level of difficulty, opponent's names, game plan, and source. Three play modes are available. One is for instructional purposes. The other three offer time constraints and no analysis. After you select the game, you furnish the program your own level of ability. Ratings are given in the USCF rating system from unrated to 1650 (amateur), and from 1650 to over 2200 (professional). Once you choose either amateur or professional, you then rate yourself on a scale from 1 to 4 which affects how you are scored, but no the game itself.

The program then gives you the five opening moves, which you set up on your board. The screen displays the board as it should look. The screen display is updated every 10 moves to keep all in order. The screen displays the status of the game at all times. This includes the number of the game, level of difficulty, move number, and the game clock (when applicable). The cursor tells you how well you are doing. After a good move, it is moved toward winning, vice versa after a poor move. Moves are selected on a multiple-choice basis, one of six.

If you select the instruction mode, you get a point score depending on whether the program figures you to have made a more better, worse, or equivalent to the move made in the original game. That value is then added to or subtracted from your score. If a move is sufficiently disastrous, the game immediately terminates. If you wish, you can get a short analysis of each choice. If you selected one of the other modes, you play against time and receive no analysis.



As long as we are on the subject, here are some more bits and pieces that will be of interest to Tandy owners. If you plan to use Super Scripts with a non-Tandy printer you will need a printer driver to go with it. This is an assembly language program that provides control codes for the printer. You can buy a printer driver for most standard printers from American Small Business Computers, 118 S. Mill Street, Pryor OK 74361 (918) 825-4844 for only \$39.95. I highly recommend these people as a source of discount hardware and software for all Tandy machines.

Rumor has it that Tandy will be coming out with an IBM PC compatible computer in the not too distant future. It is expected to use the Intel 80186 processor comparable in power to the Motorola 68000.

That's it for this week
Bud Izen

Fairfield, California

ANIROG SOFTWARE



MISSILE DEFENCE

MISSILE DEFENCE

Brings the well known arcade game to life on the Spectrum screen in glorious colours. Defend your cities from the missile attack and smart bombs. 10 skill levels.

KB/JS 16K/48K £5.95

SLAP DAB

An exciting game based on the arcade game Painter which combines fast action with strategy. Giant insects hiding under the old paint surface are released by your paint brush. You require fast action and quick thinking to outwit them and finish the panel. The game is 100 percent machine code and Hi-RES. Graphics also includes Hi-score and running score.

KB/JS 16K/48K £5.95

GALACTIC ABDUCTORS

A stunning action packed game with superb large animated graphics. Giant Space Hawks whirl and weave in intricate patterns as they drop their deadly homing mines which will destroy your base on contact. While you are busy defending yourself the Hawks will feed on your helpless population returning only their skulls. All M.C. game complete with high score table that will blow your mind with its graphics and sound effects.

KB/JS 16K/48K £5.95

FROGRUN

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TRADE ENQUIRIES

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One more we bring you the best Microfair report. Paul Liptrot went to Alexandra Palace, where the next Microfair will also be held on December 3 and 4

All the

255 accounts and, with an adaptor, produces an 80-column print-out. OCP also has The Address Manager which, it says, can store more than 400 full names and addresses — or more than 1,500 individual items — on a 48K Spectrum with three-way in-

dexing and easy entry and editing.

More business program are to follow.

New educational tapes from **Poppy Programs** include Hidden Letters, priced at £5 for the Spectrum in which children from the age of five establish which letters are hidden by black spots. Parents and teachers can adjust the difficulty.

Telling the Time, written by 15-year-old Stephen Holland for children of three-10, has eight levels of difficulty. Due soon is Reading Readiness I, for the two-six age group, in which children match pictures to words. It will come with a keyboard overlay for small children so they need not find a particular key.

A clip-on Spectrum joystick was shown by **Barry Watson**. On sale this month for £9.95, it fits over the top row of keys and depresses the cursor keys.

Remsoft had £9.50 printer interface to link the Jupiter Ace with four-colour printer-plotters marketed by Tandy and other companies. And, for £2, the firm has a set of contact pads which fit under the keys and are designed to improve contact. Remsoft is also working on a text editor for the BBC micro.

Britannia Software brought out two new Spectrum arcade games for £4.95 — Home Runner and Stomping Stan. ▶

Teenager Joe Nicholson took time off from studying for GCEs to sell his self-written software — five tapes for the Spectrum and one for the Jupiter Ace.

Joe, 14, is the part-time proprietor of **JN Software** which he runs from his home in Didcot, Oxfordshire.

He bought his first computer, a ZX81, in 1980 and is now studying for 10 'O'-levels.

He said: "If it does get quite big I'd quite like to go into business — but I'm not sure if that's exactly what I want to do."

"My mum and dad think what I'm doing now is quite a good idea, but they think I should be spending more time studying."

Joe's Spectrum programs are Mysterious Island, a £5.95 adventure set on a lonely South Pacific island; Sanctuary, a space arcade game costing £4.95; Spectrum Voice, which creates music and speech on the Spectrum for £2.95; a £3.75 version of Star Trek; and a program for making back-up copies called Spectrum Reflex and priced at £2.50.

His Jupiter Ace tape, costing £5.95, is called 10 All-Time Greats and features versions of familiar games.

Joe's next release will be a Spectrum arcade game called 3D Trailer.

Your favourite programs can be available fast using ROM-SP, says **Camel** whose Spectrum add-on allows 8-16K of data to be read into either computer.

Priced at £34.44, the case opens to allow a 2764 or 27128 EPROM to be plugged in. Other add-ons can be plugged in at the back. Data is transferred to RAM with the PRINT USR command.

Camel, trade name of Cambridge Microelectronics, is soon bringing out a low-cost 2764 EPROM programmer.

Geoff Mathias, who set up his **Premier Software** in mid-May, has four Spectrum programs with three more promised for autumn release.

Kid's Korner, for children aged six-nine, is £4.95; Integer Compiler and Graphics Editor are £5.95 each; and Jason, an adventure based on mythology, is £7.95.

Coming soon are Dril Phab-



ble, a familiar-sounding name for a game which involves rounding up sheep; Andromeda, in which your space fleet is challenged to conquer the galaxy; and Tennis. A Spectrum amplifier costing £9.95 should be available from the end of the month.

Michael Belk, proprietor of **Kelwood Computer Cases**, was showing his Sound Power Base, costing £19.95, which fits under the Spectrum — tilting it forward 15 degrees — and contains a speaker with controls for load and save, clear screen and power and volume.

There is a £13.50 model with no sound generator and a battery powered amplifier for £7.

Oxford Computer Publishing launched a new range of software designed to help run small companies and clubs and for home management.

Finance Manager, costing £8.95, is said by writer Francis Ainley to be faster and better than its rivals because it is entirely in machine code. It can handle



best at the Microfair

◀ **Richard Shepherd Software**, best-known for adventures, launched *Invincible Island*, written by 26-year-old maths teacher Peter Cooke whose children convinced him it was worth sending to the company.

And Richard Shepherd himself has a new graphics adventure called *Devils of the Deep*. Both cost £6.50.

Just five months ago Liz and Alick Newman decided to produce educational software under the **Image** name... and their first four programs were on show.

Mrs Newman, 34, an art teacher and mother of children aged four and 12, said: "We started because we could not see anything suitable for bright children to get them going. They need something visually appealing to grab their attention."

Image's tapes are *Animal Anagrams* and *Spelling Bee*, both at £4.95 for the Spectrum, and *Multifont*, which offers a choice of six alternative character sets, also £4.95.

Haven Hardware, best-known for its range of add-ons, showed *Wonder Worm*, an adventure

costing £5.50 for the 48K Spectrum. More software is also due from the company under its newly-launched **Havensoft** trademark.

Alan Firminger brought out *All-Sort S-1*, a £15 Spectrum program which generates sophisticated sorting routines.

Microsphere's new *Train Game* puts you in charge of a rail network featuring two track layouts and seven levels of play. You have to pick up passengers — if they are kept waiting they will refuse to pay or hijack the train — and avoid driverless

trains. It costs £5.95 for either Spectrum.

Hewson Consultants brought out a new arcade game at £5.95 for the Spectrum: *3D Space Wars*. Dragon software is due soon from Hewson and in two months there will be the first four of a new range of BBC software.

Three new printer interfaces for the Spectrum were shown by **Hilderbay** at £45 for the Standard Interface, £55 for the de luxe package and £99 for the Professional Interface. All three will support printers which accept Centronics-type parallel input and include a word processor program.

Quicksilver is starting a club called the *Quicksilver Game Lords Club*, named after its slogan. For £1 a year members will get a quarterly magazine, discounts, competitions, and special offers on pre-release tapes and shows.

Drawmaster is a sophisticated utility from **Campbell Systems** for the 48K Spectrum, priced at £5.95, which allows picture drawing on the screen. Among the 50 commands are *FILL* and *RESCALE* and status and co-ordinates are constantly on display.

Stephen Hughes, 23, wrote *Bedlam*, a £4.95 Spectrum space game, for **AWA Software**.

Cyber Tanks, a new arcade game for the Spectrum at £5.50 was launched by **Star Dreams**.

Useful for programmers, *Pixel Pad* is 50 sheets on which to design graphics. Produced by **Computer Agencies**.

Treetop, which markets a case at £47.45 for Spectrum, printer and cassette player, is bringing out a new version which will hold a Microdrive instead of cassette player.

Telesound 84 is a "beep booster" for the Spectrum from **Compusound** which fits inside the computer — using three clip-on connectors — which feeds sound through the TV speaker. It costs £9.95, including a sound effects program.

Now available from **Fuller Micro Systems** is *RS-232* and *Centronics* interface for the Spectrum. And more software is out using the company's £54.95 three-channel sound and speech generator.

Barmy Burgers is the latest novel game from **Blaby**. You have to make hamburgers using baps, burger steaks, cheese and lettuce — not so easy when you are being chased by a fried egg and sausages. *Blaby's* other two new games are *Dodo* and *Killer Kong* and all three are priced at £5.95.

Vortex launched a ZX81 adventure called *Serpent's Tomb* and priced at £3.95. Three more games are promised for the next Microfair.

In the next few months **dk'tronics** is bringing out five new tapes — three of them its first for the Commodore 64 and the other two for the Spectrum, said managing director David Heelas. At the Microfair **dk'tronics** launched two Spectrum games: *Hard Cheese* (£4.95) and *Maziacs* (£6.95).

Where to find them

In order of appearance in article.

JN Software, 11 Latton C1, Chilton, Didcot, Oxon OX11 0SU; **Cambridge Microelectronics**, 1 Milton Rd, Cambridge CB4 1UY; **Premier Software**, 1 Hollington Rd, Upper Tean, Stoke on Trent ST10 4JY; **Kelwood Computer Cases**, Downs Row, Moorgate, Rotherham S60 2HD; **Oxford Computer Publishing**, Brimrod, 4A High St, Chalfont St Peter, Bucks SL9 9QB; **Poppy Programs**, Richmond House, Ingleton, via Carnforth, Lancs LA6 3AN; **Barry Watson**, 1 Whitehouse Cl, Chalfont St Peter, Bucks SL9 0DA; **Remsoft**, 18 George St, Brighton BN2 1RH; **Britannia Software**, 116 Woodville Rd, Cathays, Cardiff, S Glam CF2 4EE; **Richard Shepherd Software**, Elm House, 23 Elmshott La, Cippenham, Slough, Bucks; **Image Systems**, 185 Elm Rd, New Malden, Surrey KT3 3HX; **Alan Firminger**, 171 Herne Hill, London SE24 9LR; **Microsphere**, 72 Roseberry Rd, London N10 2LA; **Hewson Consultants**, 60A St Mary's St, Wallingford, Oxon OX10 0EL; **Hilderbay**, 8/10 Parkway, London NW1 7AA; **Quicksilver**, Palmerston Park House, 13 Palmerston Rd, Southampton SO1 1LL; **Campbell Systems**, 15 Rous Rd, Buckhurst Hill, Essex IG9 6BL; **AWA Software**, 50 Dundonald Rd, Didsbury, Manchester M20 0RU; **Star Dreams**, 17 Barn Cl, Seaford BN25 3EW; **Computer Agencies**, c/o Robert Gibson & Co, Station Maltings, Newport, Saffron Walden, Essex CB11 3PL; **Compusound**, 32 Langley Cl, Redditch, Wores B98 0ET; **Fuller Micro Systems**, ZX Computer Centre, 17 Sweeting St, Liverpool 2; **Blaby Computer Games**, Lutterworth Road, Blaby, Leicester; **Vortex Software**, 280 Brooklands Rd, Brooklands, Manchester M23 9HD; **dk'tronics**, Unit 2, Shirehall Industrial Estate, Saffron Walden, Essex.

Photograph Key

- 1 Michelle Brant with Compusound's Telesound 84 "beep booster"
- 2 Joe Nicholson — software and studying
- 3 Michael Belk with his £7 battery-powered Spectrum amplifier



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LETTERS

Tit for tat

I decided to start a club and wondered what to call it, so I decided to call in the Texas Instrument Tappers Society (or T.I.T.S. for short).

What prompted the name was one of your outstanding features on your front cover (or should I say two).

Anyone interested in becoming a T.I.T. (Texas Instrument Tapper) particularly in the Chester area.

Write to the address below — if we get enough response we will start a club.

Mrs J. A. Mendelsohn, 5 King Street, Chester, Cheshire CH1 2AH

Troll King gets cheaper

With regard to the review of our text-based adventure Troll King in HCW 24, I would like to make it clear that, as with all Lantern products, a full instruction sheet is provided with this cassette although sadly it was not possible to include in-program instructions due to the length and complexity of the program.

Secondly, although originally marketed at £8, Troll King now retails at £6.50 which I think you'll agree is not an unfair price for an adventure that accepts full sentences.

Your continued support of the TI-99/4A and your high standard of program reviews is greatly appreciated, not only by us, but by our customers who constantly refer to your magazine in their letters. Keep up the good work!

S. W. Sursbie, Lantern Software, Tenterden, Kent

Clubbing together in Bloxwich

We are Bloxwich Computer Club, and we meet at Frank F. Harrison school in Leamore Lane, Bloxwich, every Wednesday evening between 7 and 9 pm.

We have members with many makes of machine, as well as use of the school's BBCs and Tandy. We have a few VDUs available, but prefer members to bring their own.

We welcome experts and beginners, owners or otherwise. Admission is free. Details from myself at the address below.

M. Warden, 64 Nursery Road, Bloxwich, Walsall, West Midlands WS3 2DU

Send your letter to Letters, Home Computing Weekly, 145 Charing Cross Road, London WC2H 0EE. Don't forget to name your computer — the best letter could win £5-worth of software. Queries cannot be answered on this page



Cover girl controversy — 1

When my rather embarrassed newsagent handed me my copy of Home Computing Weekly No 23, the poor chap didn't know if the computing world had gone sex mad, or whether a sex mag had gone computerised.

While I am sure that sales of your mag are not declining, surely it is not necessary to resort to this level. No, I am not a prude — if I need titillating, then there are lots more mags on the market better able to do that.

Having read your publication from week one (my Mrs made me clear them out of the lounge only this week and rehouse them in a cupboard in the shed), I feel you are a good micro family mag that is above having to resort to sex to help it along.

How about more software reviews on other things except games? Are there educational programs for the not so young?

Please keep up the good work — and keep it clean.
Patrick Reith, Northfield, Birmingham

Cover girl controversy — 2

I feel I should protest most strongly at the way certain aspects of your publication are developing. I refer to the recent growth in the numbers of pictures of young ladies holding micros in strange positions.

As the chairman of a micro users' group, I am thrilled to see the number of women who attend and are keen to learn the intricacies of the machines. There are still not enough of them. But what are they to think if your publication suggests, by its visual content, that their only purpose is to decorate an ugly computer?

By all means show ladies, yes all manner of persons, using the machines sensibly, but I am in danger of cancelling my regular order if your

content continues in this manner. Surely you are able to provide more interesting photographs than these, or at least more relevant ones.

No more girly pics.
D. Ambrose, Leeds

Service with a smile from Salamander

I recently bought Salamander's Oric Trek from a shop called the Computer Discount Centre. The cassette was saved in fast mode and it would no load on to my computer.

I took the cassette back to the shop twice but they kept refusing to refund my money. So I decided to return the cassette to Salamander.

They returned the cassette within the week, along with a very nice letter apologising for the trouble caused. With the letter and cassette they sent me another copy of Oric Trek saved in slow mode.

I'd like to express through your pages my gratitude to Salamander for their help and their speedy service.

William Bailey, Hatfield, Herts

Extended complaint

As an HCW addict, I am writing to stand up for all us TI owners. Why is it that when you do review any TI games, you review the less-spectacular ones, which are almost inevitably in TI BASIC?

I recently discovered that the top-selling module for the TI-99/4A was Extended BASIC, so why not review some of the great games that are written using this module?

What about Up Periscope (Pewterware), Attackman, Cross Country Car Rally and Super Frogger (Norton), Battletar Attack and Operation Moon (Lantern), Laser Tank (Not Polyoptics) and PS Pesteroids and Space Rescue (PS Software), to name but a few?

Philip Longshaw, Packmoor, Stoke-on-Trent

Though the Extended BASIC module may be selling well, it is pretty expensive and most TI owners still don't have it yet. That's why we've concentrated on games in TI BASIC, and will continue to do so until more people have the EB module.

We do aim to include a reasonable amount of EB games, though, and more will be coming up in future issues.

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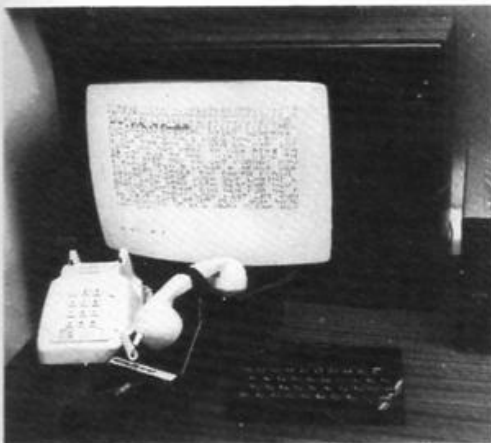
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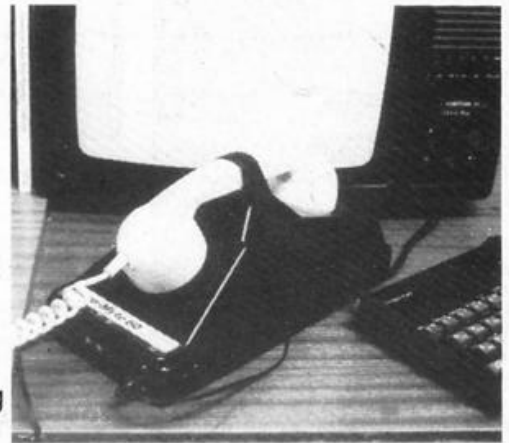


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