Home Computing WEEKLY

An Argus Specialist Publication

1st birthday issue

No.52
March 6-12, 1984

40p

Three pages of Spectrum software reviews, **PLUS:** Dragon, Oric, BBC, Texas, CBM 64, Atari

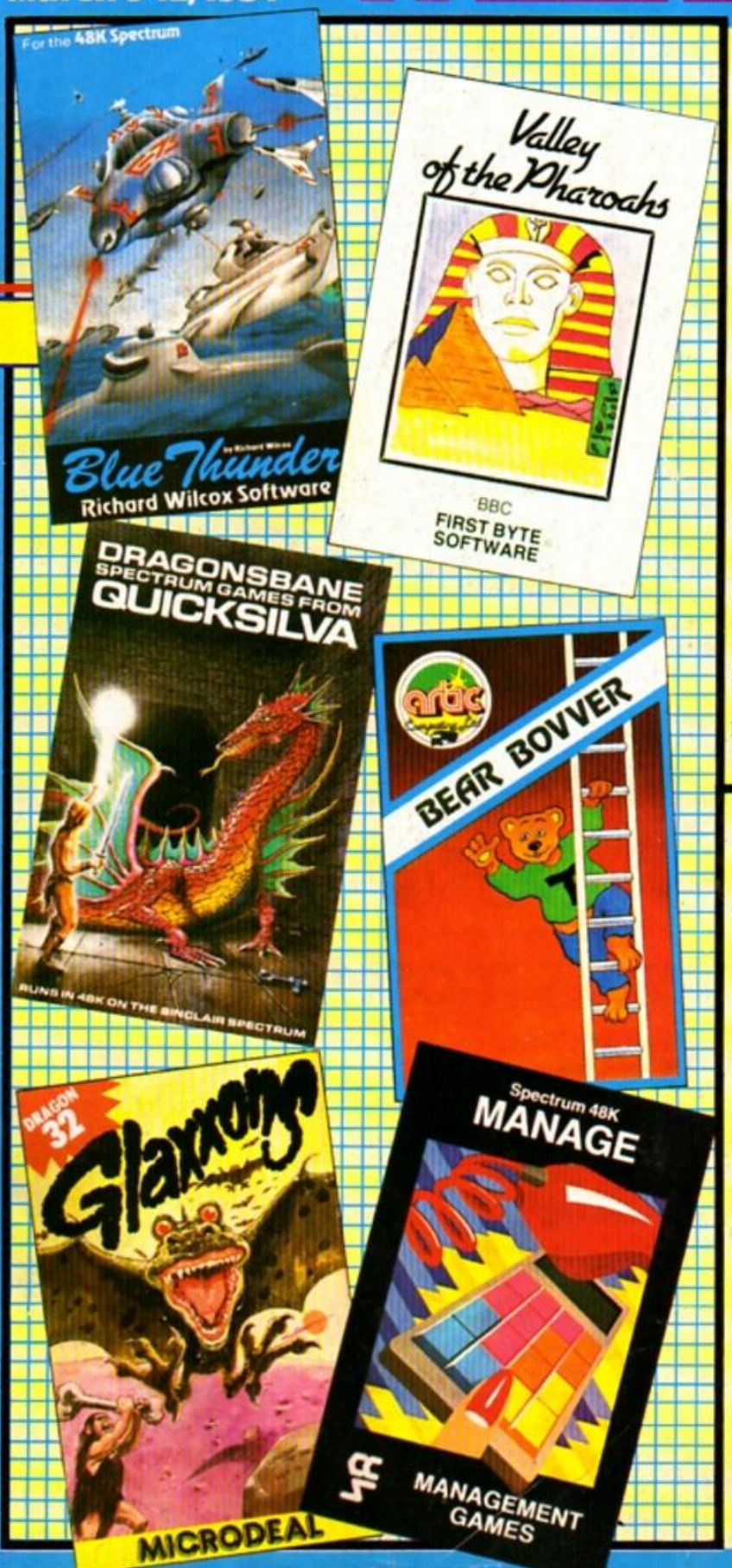
WIN ▸

Blue Thunder, a great new game from Richard Wilcox Software

Two games listings for the Dragon

AND programs for BBC, Texas, Commodore 64, Spectrum

ALSO: U.S. Scene, your letters, One Man's View . . .



X films on your computer

Feature films are to be turned into computer games by a new software company which will release its first game in the summer.

And some will be based on X-rated films, said the 29-year-old boss of Palace Software, Pete Stone.

He has been with Video Palace, the big Oxford Street video and computer software store, for two years. Palace Software is part of the Palace group, including Palace Video, which distributes to about 6,000 video shops, and film makers Palace Pictures.

This means that the new company has access to the non-theatrical rights of many major films — and talks are going on with other film companies too.

Mr Stone would not name the films on which he is planning to base games.

But Palace Video distributes horror titles like The Evil Dead,

Continued on page 5

Micros and the future

Eleven out of every 100 families now use a home computer — and this time next year it will be one in five.

Then the rise will slow down, according to Peter Stoddart, whose company has just published a report on home computers and software.

Next year, he said, a quarter of households would have a micro, rising to half in 1990.

At the time researchers questioned 2,000 families in January, the six leading models accounted for 87 per cent of all computers in use — **see table.**

And Mr Stoddart expects the dominance of these manufacturers to increase, unless their rivals can come up with better products.

The report says that the ownership of computers has grown from an insignificant one per cent in 1979. Last year 1.19m people bought micros — 40 per cent of them in the two pre-Christmas months.

Ownership was higher than

Continued on page 5

On a hostile planet deep in space
an earth patrol is marooned.
Only one person can save it.

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The galaxy's most lovable battle wagon.

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The ticket to Zon is £5.99 (RRP inc. VAT), and the journey starts at Boots, WH Smith, Rumbelows, or any intergalactic computer games shop.

Your Commodore 64 will love it to bits.

"Bits" he says. That's not the idea at all. But send the coupon for my catalogue anyway.

NAME

ADDRESS

Rabbit Software Ltd., The Warren (Unit 11), Forward Drive, Wealdstone, Middlesex HA3 8NU.

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You've moved into No. 10. How will you cope?

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More with your Sord

CGL, which markets the Sord 5, has introduced a new starter pack. Pay £149.95, and you will get the M5, a cassette recorder, BASIC I in a ROM cartridge, introduction to programming, manual and users' guide and two games on cassette. In addition all M5 purchasers become members of the M5 Users' Club.

CGL, Goldings Hill, Loughton, Essex IG10 2RR

• • •

You too can be Rommel

Hot from the man who gave you Up Periscope is Kriegspiel in which you become a tank commander. There is a choice of three different scenarios — normal, desert and mountain. You can play against a friend or against the computer. The winner is the first to take control of the opposing side's HQ. Kriegspiel runs on the Dragon 32 and costs £6.95.

Beyond Software, Durrant House, 8 Herbal Hill, London EC1R 5EJ

• • •

Date for your diary

The Manchester Home Computer Show will be held at the New Century Hall, Manchester, on April 5-7. The organisers say there will be a wide variety of stands showing the latest hardware and software. Admission is £2, half price for under-16s.

Home Computing Weekly is one of the sponsors of the show, which is organised by Argus Specialist Exhibitions.

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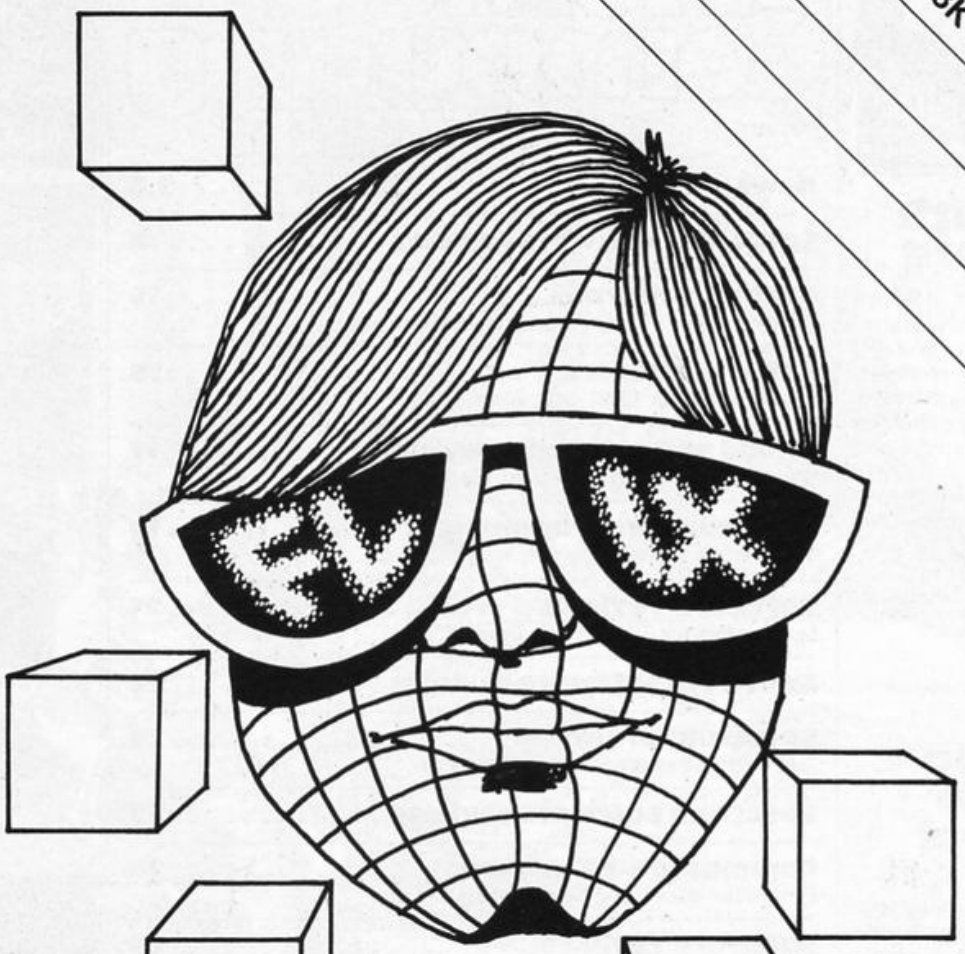
There are programs for all these computers this week — Dragon, pages 10 and 47; Spectrum, pages 18 and 24; BBC, page 36; Commodore 64, page 28; TI-99/4A, page 39

48K SPECTRUM



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X films

From front page

Basket Case and The Honeymoon Killers. Its comedies include That Sinking Feeling and Loose Connections — made by Bill Forsyth, who produced Local Hero and Gregory's Girl — and The Rutles and Whoops Apocalypse.

Others include the X-rated science fiction film Alphaville, An Unsuitable Job for a Woman, Diva, Merry Christmas Mr Lawrence — starring David Bowie and Tom Conti — The Moon in the Gutter, with Natassia Kinski, Fitzcarraldo, Pixote and Mephisto.

Its catalogue also has music video tapes and instructional and documentary releases.

Among them: Steve Davis on snooker, Jackie Genova on exercising, a cartoon video for children and four titles by Andy Warhol.

Mr Stone, who at present has two full-time programmers, said: "At present it looks like our first game will be based on a film. But until we know for certain that we've got a good game in the bag I don't want to commit myself."

Would he convert X-rated films into games?

He said: "Certainly not sex films. But half the Top 10 in the West End are X rated. We are talking about two different things. Take a shooting scene. That may make it an X-certificate film, but in computer games it's standard.

"I would not put out anything that would upset parents. I would not want to end up with X-rated games. Our games will be no more X-rated than any other computer games on the market."

Mr Stone sees Palace Software operating in two areas: in-house programs, in the early stages based on films, and publishers of software from freelance programmers.

He believes, however, that the days of the schoolboy programmer working at home are nearly over — unless he is a full-timer with a lot of talent — and that future software will be produced by teams.

He also believes that his company is well placed with its links with video and experience of marketing and distribution, for which a separate team is being set up.

A number of video rental shops were now selling computer software, although many had a lot to learn about the market .

Palace Software, 275 Pentonville Rd, London N1 9NL

From front page

average in households where the "male head of household" was aged 15-24 or 35-54.

The report says: "Commodore's market share has increased from 12 to about 22 per cent while Sinclair's has dropped marginally from 58 to 49 per cent.

"The BBC model B doubled its market share from five to 10 per cent, but Dragon must be disapointed that they failed to increase their share from five per cent in Janauary 1983."

The report, by Gowling Marketing Service, says the sale of software by mail order appears to be declining a that less than 15 per cent was bought in this way.

Last year computer users bought about 11.3m items of software — about five per user — and of these 70 per cent were arcade and adventure games and educational packages amounted to 23 per cent.

In 1984 Gowling predicts that sales could reach 12.6m with the games percentage rising to 74 per cent.

This year should also see "exciting" opportunities for makers of peripherals, says the report. It comments: "While it is dificult to estimate the value of this market, it is likely that micro users will spend at least the equivalent of the cost of the original machine on peripheral equipment — **see table.**

Under the heading of sales forecasts for 1984, Gowling says: "The major constraint facing this industry is the size of the total market available to it."

Most micros are owned by families with children and the total number of these in the U.K. ws 32.9 per cent, or about 6.5m. Just over half were aged 10-16.

So sales potential could be less than for video recorders and it could be expected to peak before that of videos.

Other factors included price. As prices came down demand would obviously increase, but growth for more expensive computers — like the BBC model B and the Commodore 64 — suggested the market was becoming more discriminating. The relatively high price of these machines could dampen demand.

Another factor was the growth in the second-hand market.

The report, Microcomputer End-User Research, costs £75.

Gowling Marketing Services, Britannia Buildings, Fenwick St, Liverpool L2 7NA

	% Jan 84	totals Jan 84	% Jan 83
Spectrum	28	6000,000	14.4
ZX81	21	450,000	43.4
VIC-20	13	275,000	12.4
BBC B	10	225,000	5.2
Commodore 64	9	200,000	—
Dragon	6	125,000	5.2
Acorn Electron	1		—
Atari (all)	1		1
Colour/Video Genie	1		1
Laser 2000	1		1
Lynx	1		1
Oric	1		—
Sharp (all)	1		3.1
TRS-80	1		1

How many own what — January 1983 compared with January this year. Percentages do not total 100 due to rounding. From Microcomputer End-User Research, by Gowling Marketing Services.

	% of micro owning households with equipment	Approx No. with equipment
joysticks	52	1.11m
expansion box	26	.55m
printer/plotter	20	.43m
extra RAM	11	.23m
disc drive	10	.21m
synthesiser	9	.19m
EPROM	7	.15m
light pen	7	.15m
graphic tablet	2	.04m
colour card	2	.04m

Ownership of peripherals — from Microcomputer End-User Research, by Gowling Marketing Services.

You could be on our pages

We welcome programs, articles and tips from our readers.

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

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

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

Competitive rates are paid.

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

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

NEWS

Parlez-vous French?

Tansoft has just announced Language Masterclass, the first computerised Link-Word foreign language learning system. Claimed to provide the ability to communicate in the learned language in less than 12 hours, Masterclass is aimed at students and British business men travelling abroad.

It is based on the Link Word method developed by Mike Runeberg whereby you link foreign words with similar sounding English words.

Supplied with a program cassette containing a 400 word vocabulary and a grammar tutor, a spoken vocabulary pronunciation cassette and instruction manual, Masterclass costs £12.95 for the Oric 1 and Atmos.

Tansoft Ltd, Units 1 and 2, Cambridge Technopark, Newmarket Road, Cambridge.

QL program — already!

Joe the Lion says it is the first with a range of programs for the Sinclair QL.

Spectrum Emulator comes on a Sinclair microdrive cartridge and allows you to load Spectrum machine code programs into the QL. Price: approx £25.

This high price is due to the fact that Microdrive cartridges can only be obtained from Sinclair and that the QL has no cassette port so this has to be provided as well. A similar emulator is also planned for the BBC micro.

Joe the Lion, 213/215 Market Street, Hyde, Cheshire SK14 1HF

40 winks with Optima

Latest games to come out of Optima include Bedbug and Omega Probe, both for the BBC computer.

Bedbug is a totally original game — you have to get to sleep. Preventing you is a horde of fleas and bed bugs which you have to combat, armed with only your false teeth and a jam buttie. Omega Probe is more civilised — you have to survive a space mission.

Optima Software, 36 St Peters Gate, Stockport SK1 1HL

A handful of Shards

Shards has launched six new games. For the Dragon 32 is The Mystery of the Java Star — a four-part educational adventure will puzzles, mysteries and information; Shaper, sound utility; and North Sea Oil — a real-life simulation.

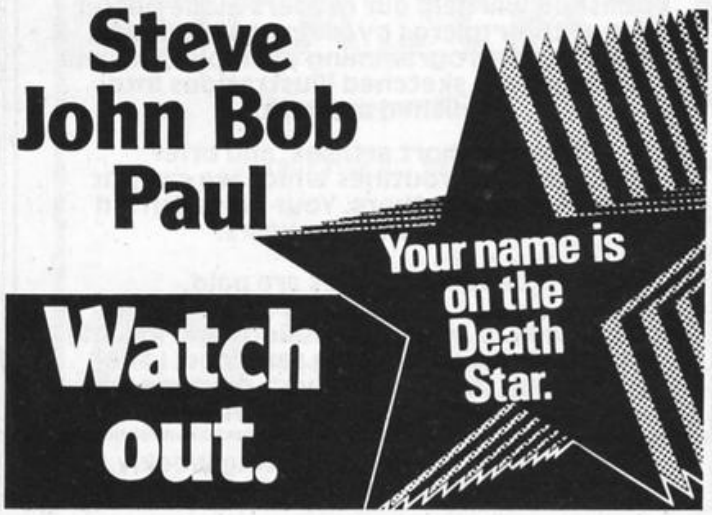
For the BBC Model B there is Laser Letters, an educational word game; and Pettigrew's Diary, the BBC version of Shards' Dragon adventure. Empire is an Electron version of the Dragon strategy game. Prices: £5.75-£9.95.

Shards Software, 189 Eton Road, Ilford, Essex IG1 2UQ

Cosmic Cable

Latest programs to be announced by Cable Software are Cosmic Bounce and Nursery Nightmare, both for the CBM 64 at £8.75 each.

Cable Software, PSL Marketing, Cape House, 52 Limbury Road, Luton, Beds LU3 2PL



ONE MAN'S VIEW

Roaring to my dream of wealth

I rolled down the window of my super-blown red racer and turned to view the glistening array of lights and gauges ahead of me. My fuel tank: full. I reach down and fumble for the ignition key. One turn and the massive engine thunders into life, the hypnotic whirr of the exhause, the rumble from the engine. I knew they would make me easy prey for the deadly Black Turbos.

I turn and a gruesome sight awaits my eyes — a Black Turbo, its exhausts spitting out power. The glowing suns fire their lethal rays which dazzle and sparkle on the Turbo's shiny body shell. A movement catches my eye. The driver, in his leather suit, winks at me and with devilish grace he lowers his visor. Our engines roar and we exchange glances. It is time.

I slam my foot down, almost through the floor. My head is jolted back and the wheeled monster is let loose. Immediately the Turbo snarls to life and makes straight for me. I grasp the cold, sweaty wheel and turn with all my might. He's still behind me. I glance at the control display and a sparkling catches my eye. I press the appropriate button and a cloud of black smoke billows out of my exhaust.

Despite my fear I manage a snigger, but it is cut short by a piercing screech. Again I glance down and wipe my visor.

My scanner shows a small, insignificant point flashing on and off. This small point represents a million dollars, or, if not collected, eight years imprisonment in the much-feared Doomsday Lair. The thought of the lair sends an icy shiver up my spine, so I cool down the speed and punch co-ordinates into the onboard computer.

It is time to relax and I sink into the padded leather seat. Victory is within a kilometre's journey. I dream of the wealth that is mine. Soon the mighty machine draws to a halt. I reach for the door handle and step out into this hostile environment. It's there! The idol of my dreams. The great Cup of Ultimate. I climb over the golden sand dune and hold its glistening handles.

With dreams in my mind I read the fabled inscription on the side: "TranzAm loading instructions. Connect the ear socket on your Spectrum to the..."

TranzAm — game or reality?

Paul Mulroy
Fallowfield, Manchester

●This space is for you to sound off about the micro scene, to present bouquets, to hurl brickbats, or just to share your opinions or experiences. Contributions from individuals earn a fee. Send your views to Paul Liptrot, Editor, Home Computing Weekly, No.1 Golden Square, London W1R 3AB

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Games for your Spectrum 1

A page of the latest 48K Spectrum games, all given the once-over by our reviewers

Pi-Balled £6

Automata, 27 Highland Rd, Portsmouth PO4 9DA

Another Automata winner! An extremely addictive Pyramid of Pi game using the Spectrum potential to its fullest, as well as machine code — with the added speed this gives where needed.

The program, compatible with the Kempston joystick, introduces the characters on the two loading screens, the second animated to include flashing stars of David. Is Burt, the star, Jewish, perhaps?

There are blocks on the side of the pyramid, which change colour to match that shown top right, as Burt moves across the side. The two Ball brothers, Bobby and Billy, try to prevent Burt doing so, assisted by one occasionally changing into Sid Snake and by Pixel Prince Col who changes the blocks back to the original colour. Burt is helped by Pixel Prince Jas changing blocks to the new colour and by a magic flying disc that allows him to lure Sid off the pyramid.

Scoring is neon-lit at top left, above jumping Burts showing how many lives are left, and is added to by moves, completed pyramids and by leading Sid astray. Unfortunately, I have not, as yet, completed all the 66 possible screens... but there is time yet!

T.W.

instructions	95%
playability	99%
graphics	99%
value for money	95%

★ ★ ★ ★ ★

The Snowman £6.95

Quicksilva, 13 Palmerston Rd, Southampton SO1 1LL

There can be very few people who haven't built, or at least helped to build a snowman. That's what this game, based on a charming book by Raymond Briggs, is all about — building a snowman and dressing it up.

First of the four stages is the actual building by picking up randomly-placed piles of snow and taking them to the site. Although classed as baddies, I found the gas flames enchanting little things, in spite of the fact that they melt your snow. You have to find the ultimate weapon against them — an ice lolly.

Remembering that prizes make points, you have to gather up all the goodies you find. One false step and you are floating gently downwards to a thoughtfully provided bed, dead of course.

Other stages require you to collect items to complete your snowman. I'm not going to tell you about that — I don't want to spoil it for you.

A slight bug may frustrate, but not stop, your play: at certain points left or right keypresses don't respond. It's the same for joystick as well, I'm afraid. However, this won't stop anyone under 110 enjoying this delightful game.

B.B.

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

★ ★ ★ ★ ★

3D Star Wars £5

CCI, Units 2, 3 & 4, Shire Hill Industrial Estate, Saffron Waldon BC11 3AQ

Written with Return of the Jedi in mind, you are cast as Luke Clearthinker (!) and — surprise, surprise — you take on the entire rebel fleet single-handed! Fortunately you have at your command one of the most up-to-date starfighters, equipped with long-and short-range scanners.

The damage status meter tells you the condition of the ship, and direction indicators show which way you are travelling. Warning neons indicate when the rebels are attacking and there is a large "aliens left" display. Fast and slow travelling proton bombs are available to blast these undesirables.

There are 10 sets of 18 aliens to be destroyed, all different in shape and power. The graphic display make this a truly three-dimensional mind-blowing game. There are meteorite storms which really do appear to be coming at you. Your proton bombs do seem to be travelling off into the distance. The program uses 700 defined graphics as well as good sound effects.

Instructions are in the program but appear on screen rather ponderously due to a rather involved teleprint-style format. There is a hall of fame, joystick option, and a hold/start facility.

C.B.

instructions	80%
playability	90%
graphics	100%
value for money	90%

★ ★ ★ ★

Zaxxan £5.50

Starzone, 74 Wallingford Rd, Shillingford, Oxon

A semi-3D version of the arcade game Scramble. I say semi-3D as only the bottom and left wall of the tunnel are displayed as it scrolls from top right to bottom left.

The idea is that you have to fly your plane low enough to make strikes on the fuel dumps, radar installations, rockets and planes, but then climb fast enough to avoid the cross walls of varying heights that are forever coming towards you. All this, plus dodging the ground-to-air missiles that are launched at you, makes for a difficult and tense game — especially as the 3D effect makes it very difficult to judge your exact position relative to the missiles and the gaps in the wall. The shadow of your plane helps — if you can keep your eye on it as well as everything else!

Good use is made of the Spectrum's graphics and sound capability. The only slightly disappointing thing about the game was that the scroll is by character squares, not pixels, making the action rather jerky. But still, a small price to pay for an original angle on an old favourite.

C.B.

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

★ ★ ★ ★

Laser Zone £6.95

Quicksilva, 13 Palmerston Rd, Southampton SO1 1LL

An unfortunate combination of paper and ink makes reading what's on the screen rather difficult. However, by studying the inlay, you can determine what is supposed to be happening. You have a choice of keyboard, or joystick, individual or team play.

The object is to destroy waves of aliens by manipulating two cannons. One lies at the bottom of the screen, and the other at the right. By using a combination of keys the cannon can be made to fore diagonally, as well as at right angles. This diagonal cross fire could destroy your own cannon, of course, so careful positioning is needed. If any aliens do manage to land on your plane they will march towards you and can only be destroyed by an electro bolt. You start with three of these bolts, and can collect up to four more. Later assault waves bring "pods", which you cannot destroy. They have a disturbing habit of suddenly exploding, and will destroy your cannons if they are in the path of any fragments.

I found the combination of keys tiring, and got the impression that the action didn't match my efforts on the keyboard. Altogether a disappointing experience.

B.B.

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

★ ★ ★

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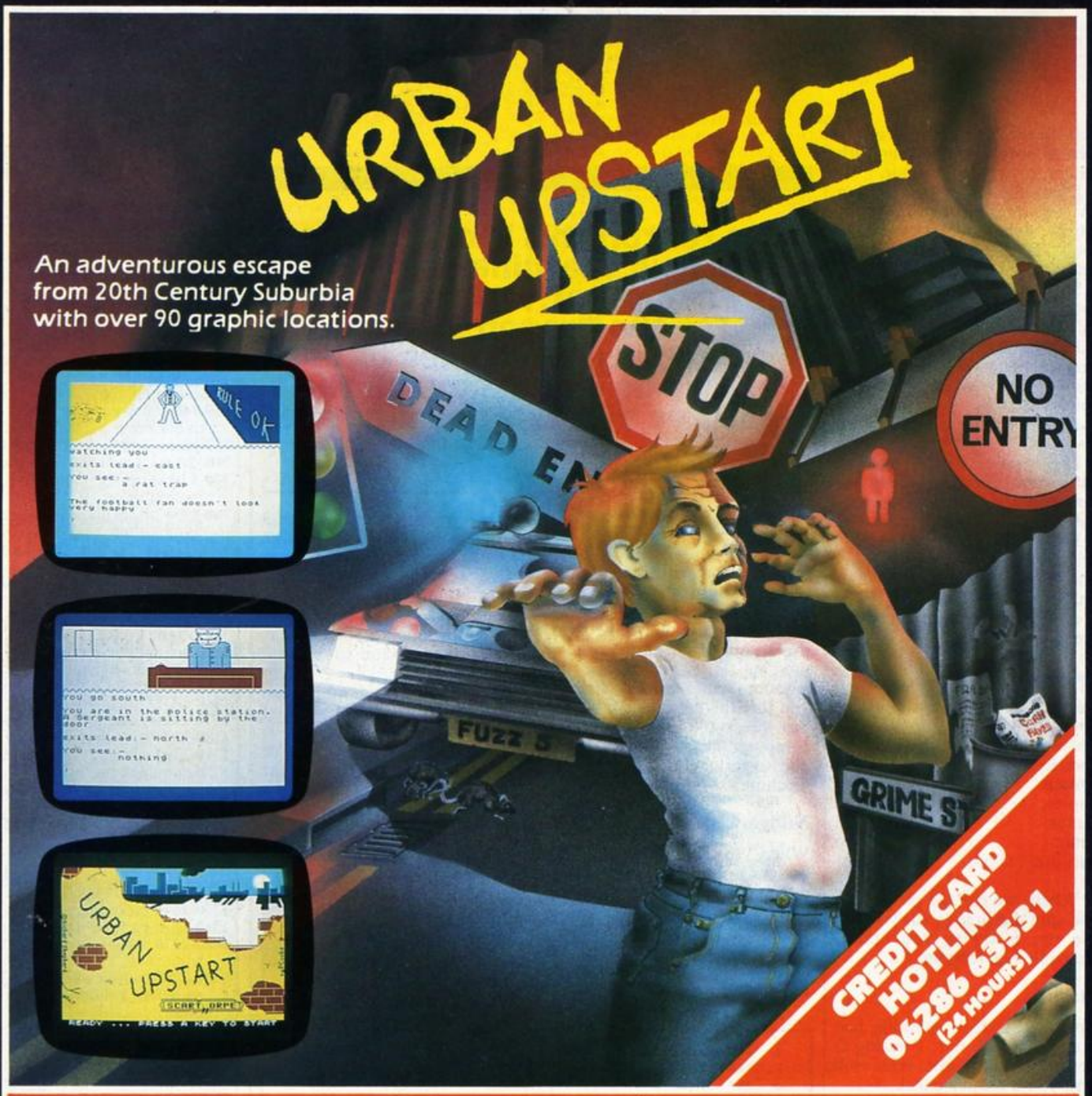
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RICHARD SHEPHERD SOFTWARE

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

Your chance to hit the jackpot... with no coin slot to feed

We reckon this is one of the best fruit machine games for any computer. It was written for the Dragon 32 by a contributor who likes to be known as just Klarzy. All the features of a real machine are included

Playing the fruit machine in my local almost always left me with little in my pocket but air.

I started thinking that feeding an innocent-looking, but greedy, slot with all the change I could lay hands on was no better than cleaning my shoes.

So I sat at home thinking, and cleaning my shoes due to a lack of money.

I decided that with me being a computer fanatic — as well as a good shoe cleaner — I was going to write my own fruit machine program for my Dragon 32.

This took a little longer to write than I thought — like two weeks longer. But the result, I feel, was worth the wait.

I tried to keep as close to the original as possible in the way that it gambles, nudges and so on.

All the features of the game are given below.

Payments

Two matching fruit in columns one and two	20p
Three matching fruit pay:	
cherries	30p
lemons	50p
apples	50p
plums	70p
pears	100p
bars and melons	£2 jackpot

When you run the program it will spin the first go for you but the rest is up to you and is controlled as follows:

Start

To start the reels spinning just press the space bar. Pressing Q before spinning the reels will give you a money check.

Holds

When the computer decides to give you the chance to hold any of the three columns the three rectangles below the columns will flash red and sound will be heard from your TV. The hold buttons are 1, 2 and 3, respective to each column, and the zero key will cancel holds.

Auto hold

If you are given two holds consecutively then the computer will automatically hold the column/s from the last hold unless changed or cancelled.

Gamble and collect

When a winning line appears the computer will go to the test screen on which is a list of all possible wins. Arrows will point to the amount you have won, the amount you could win by pressing the enter key and the amount you would collect if you lost the gamble. To collect just press the space bar. The computer will call you a coward and return you to the fruit machine.

Nudges

When the computer offers nudges a line will flash up and down on the left of the machine and emit sound. You then press the space bar to collect them. You will be given five nudges and the line shows the number left at any stage.

The program uses PMODE 3 and makes the most of the Dragon's colours and graphics. I reckon it's as good as all the commercial programs I've played. Even so, I've left room for improvement, such as random nudges and so on.

P.S. I don't spend money on fruit machines any more. I don't know whether this is because of the program or because my girlfriend has become my bank manager...

Hints on conversion

Plum's Up uses standard Microsoft BASIC so it will work on the Tandy Colour Computer if the keyboard PEEKs are changed.

It will adapt to most other computers if the graphics are altered.

```
1 '****************
2 '*** PLUMS UP ***
3 '***     BY     ***
4 '***   KLARZY   ***
5 '***     OF     ***
6 '*** CHORLTON ***
7 '****************
10 CLS
11 PRINT@64,"PLEASE WAIT A MINUTE"
12 PRINT@480,"     KLARZY";
20 S$="L1503GG#A04FP1503A04FP1503A04FP5"
30 T$="FGG#AFGAP15EGP15FP5"
40 U$="O4DCO3BO4DFAP12GEDGP5"
50 V$="O4FGG#AFGAP15FGP15AFGAP15FGP15"
60 Z$="AFGAP15EGP15F"
70 DIMB$(20):DIMC$(20):DIMD$(20)
80 RB=1:RC=6:RD=3
90 GOSUB2680
100 GOSUB1880
110 GOSUB2920
120 IFHB=5THEN440
130 X=40:Y=120:C=0:P=RB:T=0
140 C=C+1
150 T=T+1
160 IFC>18THENGOTO300
170 A$=B$(P)
180 GOSUB2770
```

20-60 defines variables for jackpot tune
70 defines variables for the three columns 90, 100, 110 GOSUB 2680, 1880, 2920
120 checks if column one is held
130-290 routine to spin first column
300-420 places chosen fruit in column one
430 places middle fruit into WB$
440 checks if column two is held
450-610 spinning routine for second column
620-740 places chosen fruit in column two
750 places middle fruit into WC$
760 checks if column three is held
770-930 spinning routine for column three
940-1060 places chosen fruit into column three
1070 places middle fruit into WD$
1090 takes 10p from current account
1120 checks if winning line, if so goes to win routine
1130 get nudge routine
1140 sets RH to random number (1-5) used for holding routine
1160 GOTO hold routine
1170 money check if asked for
1180-1200 start routine
1210-1390 winning routine which determines how much won, if jackpot goes to jackpot routine
1400-1740 gamble and collect routines. Adds winnings to account and sends you to jackpot routine if you reach £2
1750-1840 jackpot routine
1860-1870 back to start routine
1880-2670 drawing routine for fruit
2680-2760 routine to put 20 fruits to each column in corret order
2770-2850 routine to put fruit on screen
2860-2910 data for 3 by 20 columns of fruit
2920-3110 draw fruit machine
3120 determines whether to give hold. If yes, then hold routine
3130-3170 restore all hold variables and go back to hold routine
3180-3330 hold routine
3340-3350 decide whether to give nudges
3360-3440 routine to inform user that nudges are given
3450-3500 display number of nudges left
3510-3580 gets user's move for nudge and sends it to relevant column
3590 check if winning line. If so, then winning routine
3600-3640 goes back to begining of nudge routine if any left, else goes to start routine
3659-3720 money check routine

```
190 P=P+1
200 IFP>20THENP=1
210 IFP<1THENP=20
220 Y=Y-50
230 IFY<20THENY=120
240 IFT=3THEN260
250 GOTO140
260 P=P-2
270 T=0
280 IFP<1THENP=20
290 GOTO140
300 R=INT(RND(20))
310 X=40:Y=20
320 FORQ=R-1TOR+1
330 P=Q
340 IFQ<1THENP=20
350 IFQ>20THENP=1
360 A$=B$(P)
370 GOSUB2770
380 Y=Y+50
390 NEXTQ
400 SOUND60,2
410 IFR>20THENR=1
420 IFR<1THENR=20
430 WB$=B$(R):RB=R
440 IFHC=5THEN760
450 IFN=5THEN3590
460 X=108:Y=120:C=0:P=RC:T=0
470 C=C+1:T=T+1
480 A$=C$(P)
490 IFC>15THEN620
500 GOSUB2770
510 P=P+1
520 IFP>20THENP=1
530 IFP<1THENP=20
540 Y=Y-50
550 IFY<20THENY=120
560 IFT=3THEN580
570 GOTO470
580 P=P-2
590 T=0
600 IFP<1THENP=20
610 GOTO470
620 R=INT(RND(20))
630 X=108:Y=20
640 FORQ=R-1TOR+1
650 P=Q
660 IFQ<1THENP=20
670 IFQ>20THENP=1
680 A$=C$(P)
690 GOSUB2770
700 Y=Y+50
710 NEXTQ
720 SOUND70,2
730 IFR>20THENR=1
740 IFR<1THENR=20
750 WC$=C$(R):RC=R
760 IFHD=5THEN1090
770 IFN=5THEN3590
780 X=172:Y=120:C=0:P=RD:T=0
790 C=C+1:T=T+1
800 A$=D$(P)
810 IFC>15THEN940
820 GOSUB2770
830 P=P+1
840 IFP>20THENP=1
850 IFP<1THENP=20
860 Y=Y-50
870 IFY<20THENY=120
880 IFT=3THEN900
890 GOTO790
900 P=P-2
910 T=0
920 IFP<1THENP=20
930 GOTO790
940 R=INT(RND(20))
950 X=172:Y=20
960 FORQ=R-1TOR+1
970 P=Q
980 IFQ>20THENP=1
990 IFQ<1THENP=20
1000 A$=D$(P)
1010 GOSUB2770
1020 Y=Y+50
1030 NEXTQ
1040 SOUND80,2
1050 IFR>20THENR=1
1060 IFR<1THENR=20
1070 WD$=D$(R):RD=R
1080 IFN=5THEN3590
1090 W=W-10
1100 IFR>20THENR=1
1110 IFR<1THENR=20
1120 IFWB$=WC$THEN1210
1130 GOTO3340
1140 RH=RND(5)
1150 LINE(14,173)-(14,23),PRESET
1160 GOTO3120
1170 IFINKEY$="Q" THENGOSUB3650
1180 IFPEEK(345)<>223THEN1170
1190 SOUND65,2
1200 GOTO120
1210 FORD=1TO400:NEXTD
1220 N=0
1230 PLAY"L50O5ACDACEEEEE"
1240 FORD=0TO31:PRINT"*";:NEXTD
1250 IFW<0THENPRINT@35,"YOU OWE ME ";(W-W-W);" PENCE"
1260 IFW>=0THENPRINT@35,"YOU ARE ";W;"PENCE UP"
1270 FORD=0TO31:PRINT"*";:NEXTD
1280 FORD=1TO400:NEXT
1290 PRINT:FORD=200TO100STEP-50:PRINT"***";D;"*****":NE
XTD
1300 PRINT"***";70;"*****":PRINT"***";50;"*****"
1310 FORD=30TO10STEP-10:PRINT"***";D;"*****":NEXT
1320 IFWD$=WC$ THEN1350
1330 XW=331:S=50
1340 GOTO1400
1350 IFWB$="CHE" THEN XW=299:S=60
1360 IFWB$="LEM" OR WB$="APP" THENXW=267:S=70
1370 IFWB$="PLU" THENXW=235:S=80
1380 IFWB$="PEA" THENXW=203:S=90
1390 IFWB$="BAR" OR WB$="MEL" THEN1750
1400 RG=INT(RND(2))
1410 IFXW=139 THEN GOTO1750
1420 PRINT@XW,"_-_-_"
1430 SOUND5,1
1440 PRINT@(XW-32),"_";
1450 PRINT@(XW+32),"  ";
1460 IFPEEK(338)=191 THEN1520
1470 IFPEEK(345)=223 THEN1650
1480 SOUND5-10,1
1490 PRINT@(XW+32),"_";
1500 PRINT@(XW-32),"  ";
1510 GOTO1430
1520 IFRG=2THEN1580
1530 PLAY"L1504ACDCEL25DEL10E"
1540 PRINT@(XW),"      ";:PRINT@(XW+32),"      ";
1550 XW=XW-32
1560 FORD=1TO1000
1570 GOTO1400
1580 PLAY"L10O1G#O2BO1GO2BO1GL1E"
1590 PRINT@XW,"      "
1600 PRINT@XW-32,"   "
1610 PRINT@XW+32,"_-_-_"
1620 XW=XW+32
1630 FORD=1TO1000:NEXTD
1640 GOTO1670
1650 CLS0:PRINT@109,"coward";
1660 PLAY"L4O1ACL8FEL2C"
1670 IFXW=363THENW=W+10
1680 IFXW=331THENW=W+20
1690 IFXW=299THENW=W+30
1700 IFXW=267THENW=W+50
1710 IFXW=235THENW=W+70
1720 IFXW=203THENW=W+100
1730 IFXW=171THENW=W+150
1740 GOTO1850
1750 FORT=1TO3
1760 X=363+32
1770 FORS=100TO250STEP20:X=X-32
1780 PRINT@X,"_-_-_"
1790 SOUND5,1
1800 PRINT@(X+1),"     ";
1810 NEXTS
1820 NEXTT
1830 PLAY"XS$;XT$;XS$;XU$;XS$;XT$;XV$;XZ$;"
1840 W=W+200
1850 CLS
1860 PMODE3,1:SCREEN1,0
1870 GOTO1140
1880 'MELON
1890 DIMMEL(20,20)
1900 PMODE3,1
1910 PCLS
1920 CIRCLE(128,98),20,,.75
1930 CIRCLE(118,98),15,,1,.75,.25
1940 PAINT(118,98),2,4
1950 FORQ=1TO2
1960 FORT=1TO2
1970 IFQ=1THENE=0
1980 IFQ=2THENS=0
1990 IFT=1THENR=.5
2000 IFT=2THENR=.25
2010 IFT=1ANDQ=1THENS=.8
2020 IFT=2ANDQ=1THENS=.83
2030 IFT=1ANDQ=2THENE=.2
2040 IFT=2ANDQ=2THENE=.17
2050 CIRCLE(128,98),20,,R,S,E
2060 NEXTT
2070 NEXTQ
2080 GET(108,78)-(148,118),MEL
```

DRAGON 32 PROGRAM

```
2090 PCLS
2100 '
2110 DIMCHE(20,20)
2120 CIRCLE(128,93),10,4:PAINT(128,93),4,4
2130 CIRCLE(118,108),10,2:PAINT(118,108),4,2:CIRCLE(118
,108),10,1
2140 CIRCLE(138,103),10,4:PAINT(138,103),4,4:CIRCLE(138
,103),10,1
2150 COLOR3,1
2160 LINE(110,80)-(118,102),PSET
2170 LINE(110,80)-(133,98),PSET:LINE(110,80)-(124,86),P
SET
2180 COLOR4,1
2190 GET(108,78)-(148,128),CHE
2200 PCLS
2210 '
2220 PCLS
2230 DIMPLU(20,20)
2240 CIRCLE(128,98),15,3,.75:PAINT(128,98),3,3
2250 CIRCLE(128,88),20,4,.75,0,.15
2260 GET(108,78)-(148,118),PLU
2270 '
2280 DIMBAR(20,20)
2290 PCLS
2300 COLOR2,1:LINE(108,78)-(148,118),PSET,BF
2310 COLOR3,1
2320 DRAW"BM119,88;L8D20R8U8L1U1L1U1L2R2U1R1U1R1U8"
2330 DRAW"BM123,98;R8U10L8D20;B;R8;U10"
2340 DRAW"BM135,98;R8U10L8D20"
2350 LINE(135,98)-(143,108),PSET
2360 COLOR4,1
2370 LINE(108,78)-(148,84),PSET,BF
2380 LINE(108,112)-(148,118),PSET,BF
2390 GET(108,78)-(148,118),BAR
2400 PCLS
2410 '
2420 DIMLEM(20,20)
2430 CIRCLE(128,98),17,2,.75:PAINT(128,98),2,2
2440 CIRCLE(128,98),20,2,.3
2450 GET(108,78)-(148,118),LEM
2460 PCLS
2470 '
2480 DIMAPP(20,20)
2490 CIRCLE(128,98),15:PAINT(128,98),4,4
2500 COLOR1,1
2510 LINE(128,89)-(144,80),PSET
2520 LINE(128,89)-(115,80),PSET
2530 PAINT(128,87),1,1
2540 COLOR3,1
2550 LINE(128,89)-(135,80),PSET
2560 COLOR4,1
2570 GET(108,78)-(148,118),APP
2580 PCLS
2590
2600 DIMPEA(20,20)
2610 CIRCLE(128,103),10,2:PAINT(128,103),2,2
2620 CIRCLE(130,96),8,2,1.75:PAINT(134,92),2,2
2630 CIRCLE(130,96),8,1,1.75,.70,.80
2640 LINE(130,86)-(135,80),PSET
2650 GET(108,78)-(148,118),PEA
2660 PCLS
2670 RETURN
2680 FORI=1TO60
2690 C=I-20
2700 D=I-40
2710 READA$
2720 IFI<21THENB$(I)=A$
2730 IFI>20 AND I<41 THENC$(C)=A$
2740 IFI>40THEND$(D)=A$
2750 NEXTI
2760 RETURN
2770 PMODE3,1:SCREEN1,0
2780 IFA$="MEL" THEN PUT(X,Y)-(X+40,Y+40),MEL
2790 IFA$="BAR" THEN PUT(X,Y)-(X+40,Y+40),BAR
2800 IFA$="LEM" THEN PUT(X,Y)-(X+40,Y+40),LEM
2810 IFA$="CHE" THEN PUT(X,Y)-(X+40,Y+40),CHE
2820 IFA$="APP" THEN PUT(X,Y)-(X+40,Y+40),APP
2830 IFA$="PEA" THEN PUT(X,Y)-(X+40,Y+40),PEA
2840 IFA$="PLU" THEN PUT(X,Y)-(X+40,Y+40),PLU
2850 RETURN
2860 DATAMEL,CHE,PLU,LEM,CHE,BAR,APP,PEA,PLU,LEM
2870 DATAMEL,CHE,APP,BAR,LEM,PEA,PLU,CHE,MEL,APP
2880 DATACHE,BAR,PLU,MEL,PEA,APP,CHE,LEM,BAR,PLU
2890 DATAPEA,CHE,MEL,LEM,CHE,APP,PLU,BAR,CHE,LEM
2900 DATABAR,PEA,PLU,CHE,APP,LEM,CHE,MEL,APP,BAR
2910 DATACHE,LEM,MEL,APP,PLU,PEA,BAR,CHE,APP,LEM
2920 LINE(20,4)-(232,188),PSET,B
2930 FORS=173TO23STEP-30
2940 LINE(8,S)-(20,S),PSET
2950 NEXTS
2960 LINE(14,173)-(14,23),PRESET
2970 PAINT(128,98),2,4
2980 COLOR3,1
2990 LINE(32,12)-(222,168),PSET,BF
3000 COLOR2,1
3010 LINE(92,12)-(96,168),PSET,BF:LINE(156,12)-(160,168
),PSET,BF
3020 COLOR4,1
3030 LINE(232,172)-(247,180),PSET,BF
3040 LINE(237,35)-(247,180),PSET,BF
3050 COLOR3,1
3060 LINE(20,90)-(232,90),PSET
3070 LINE(50,173)-(70,181),PSET,B
3080 LINE(118,173)-(138,181),PSET,B
3090 LINE(182,173)-(202,181),PSET,B
3100 COLOR4,1
3110 RETURN
3120 IFRH>3THEN3180
3130 PAINT(60,177),2,3
3140 PAINT(128,177),2,3
3150 PAINT(192,177),2,3
3160 HB=0:HC=0:HD=0
3170 GOTO1180
3180 FORH=2TO4STEP2
3190 AA$=INKEY$
3200 IFHB=5THENPAINT(60,177),4,3:GOTO3220
3210 PAINT(60,177),H,3
3220 IFHC=5THENPAINT(128,177),4,3:GOTO3240
3230 PAINT(128,177),H,3
3240 IFHD=5THENPAINT(192,177),4,3:GOTO3260
3250 PAINT(192,177),H,3
3260 IFAA$="1"THENHB=5
3270 IFAA$="2"THENHC=5
3280 IFAA$="3"THENHD=5
3290 IFAA$="0"THENHB=0:HC=0:HD=0
3300 IFPEEK(345)=223THEN1190
3310 IFH=2THENSOUND200,1
3320 NEXTH
3330 GOTO3180
3340 RN=RND(10)
3350 IFRN>3 THEN 1140
3360 N=5
3370 RL=RND(150)
3380 SOUND100,1
3390 LINE(14,173)-(14,173-RL),PSET
3400 SOUND200,1
3410 LINE(14,173)-(14,173-RL),PRESET
3420 SOUND150,1
3430 IFPEEK(345)=223THEN3450
3440 GOTO3370
3450 RS=5
3460 G=150
3470 LINE(14,173)-(14,173-G),PSET
3480 FORZ=RS TO 1 STEP-1
3490 G=(15*(Z*2))
3500 LINE(14,173)-(14,173-G),PSET
3510 AA$=INKEY$
3520 IFAA$="A"THENR=RB-1:GOTO310
3530 IFAA$="Q"THENR=RB+1:GOTO310
3540 IFAA$="S"THENR=RC-1:GOTO630
3550 IFAA$="W"THENR=RC+1:GOTO630
3560 IFAA$="D"THENR=RD-1:GOTO950
3570 IFAA$="E"THENR=RD+1:GOTO950
3580 GOTO3510
3590 IFWB$=WC$THEN1210
3600 LINE(14,173)-(14,173-G),PRESET
3610 NEXTZ
3620 SOUND60,10:SOUND20,10
3630 N=0
3640 GOTO1140
3650 CLS
3660 PRINT@100,"MONEY CHECK"
3670 PRINT
3680 IFW>=0THENPRINT"YOU ARE";W;"PENCE UP"
3690 IFW<0THENPRINT"YOU OWE ME";(W-W-W);"PENCE"
3700 FORD=1TO1000:NEXTD:CLS
3710 PMODE3,1:SCREEN1,0
3720 RETURN
```

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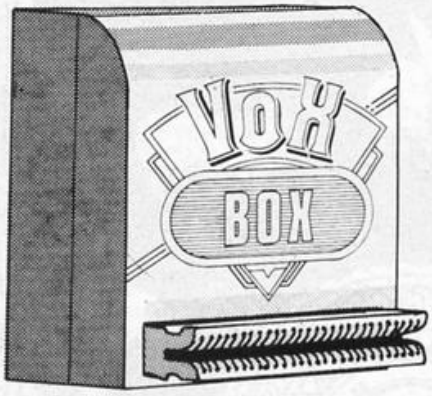

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Missile Control BBC £9.95

Gemini, 18a Littleham Rd, Exmouth, Devon

Another version of the classic Missile Command, but a very good one. It's loud and flashy, using the BBC's graphics excellently and giving a very attractive and exciting game. Play is hectic and can be controlled by keyboard or joystick with options for up to four players. The game features three missile bases, six cities, bombers and smart missiles with bonus cities for every 5,000 points. High scores are recorded but no table is given; you are simply told your position.

Although the programmer has tried hard to imitate the arcade original and to stretch the graphics to their limits I found one or two of the displays too harsh on the eyes. And I would have liked an option to switch off the deafening sound. I disliked the way it plays Congratulations if you score enough to have your score recorded. I suppose there may be someone who likes the tune!

The best version I have played at a price obviously chosen to match Acornsoft's equivalent. It would be nice, however, if someone could improve on the theme rather than producing yet another version. **N.W.**

instructions	80%
ease of use	90%
display	95%
value for money	85%

★ ★ ★ ★

Rat Splat 48K Oric £7.95

Tansoft, Units 1 & 2, Cambridge Techno-Park, Newmarket Road, Cambridge

You'll need a strong stomach to play this. And a peg for your nose might come in useful. The action is set in rat infested sewers into which you descend and set stinking cheese bait. Rats come squeaking and swarming in from all sides and you have to splat them with your hammer.

However there are two problems. Firstly there is a monster who has befriended the rats and attempts to defend them. Secondly the stench of the cheese builds up and eventually will overcome you. You can beat off the monster with an aerosol can but you have to work fast and splat enough rats before you faint.

The action is pretty furious and requires skilful keyboard operation. One feature I liked was the facility to allow you to select any control keys. Good sound effects were backed up by a nicely prepared, colourful display. There is only one basic screen display but different levels can be reached where bonus cheeses are set.

If you think you can face up to the revolting rodents and like a good up-and-down ladder chase, Rat Splat is the game for you. **P.S.W.**

instructions	90%
playability	85%
graphics	90%
value for money	75%

★ ★ ★ ★

Chuckie Egg Dragon 32 £7.90

A & F, Unit 8, Canal Side Industrial Estate, Woodbine St, Rochdale

Generally it's true that games converted for another computer are never as good as the original. Many are just quick conversions which get the program just running on the new computer without giving any thought to fully using the capabilities of the new computer. Thankfully, in this case, it is not true, A & F has produced an excellent, at least as good variant, of its Spectrum arcade game.

You must rescue the dozen eggs around the screen climbing up and down ladders, jumping gaps and hitching rides on the lifts. This must all be done while keeping clear of the hens and watching your time. If you take too long the duck will be let out of the cage and your hopes of success ruined.

I managed six full screens of action, all different in layout though the principle remains the same. The seventh seems well nigh impossible.

Despite the lack of variety, the game features quality graphics, multi-player options and you can redefine the keys. Altogether, a most enjoyable game. **C.G.**

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

★ ★ ★ ★

See-Saw Scramble Atari £9.99

Romik, 272 Argyll Ave, Slough, Berks

Padde deflectors moved horizontally by joystick are provided at the top and bottom of screen in this one- or two-player game.

The paddles are used to deflect richocheting discs toward a force-field composed of white hash characters. This runs horizontally across screen centre and is bound on either side of its length by dotted lines.

If a player succeeds in propelling his disc through a gap in the dotted line, he will score points for every hash the disc obliterates inside the force-field.

A section is coloured blue; should the disc make contact with that part a whirling blade will be released. If destroyed by using your paddle cannon, bonus points will result.

There are four levels of difficulty, mostly related to speed. Five lives are allowed. See-Saw Scramble takes us back to the era of paddle games. A brave if somewhat unlikely move. The graphics are rather limited. Nevertheless, the game can be fun for two to play. But only just. **T.A.**

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

★ ★ ★

Eagle Empire 32K BBC £7.95

Alligata, 178 West St, Sheffield S1 4ET

Another version of the birds-flying-at-you-while-you-try-to-shoot-them game and, to be truthful, I'm getting rather tired of them. This one features three screens. The first is the swarm; the second, eggs and eagles — which carry on flying even after you have shot both wings off — and the third is the master alien. You have left/right, fire and shield keys.

The game has plenty of action and good graphics, but there are no real surprises. One major criticism is about the ordering of screens and levels. This is fully explained on the inlay, but is illogical. It seems that only allowing a single shot on the screen at a time makes a game more difficult than allowing any number of them. But here the order is reversed so you have first to survive an attack with only one shot at a time them the next screen allows you several. It may be that this is done for a reason. If so, please explain it to me. If not, then it is both illogical and undesirable. **D.C.**

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

★ ★ ★ ★

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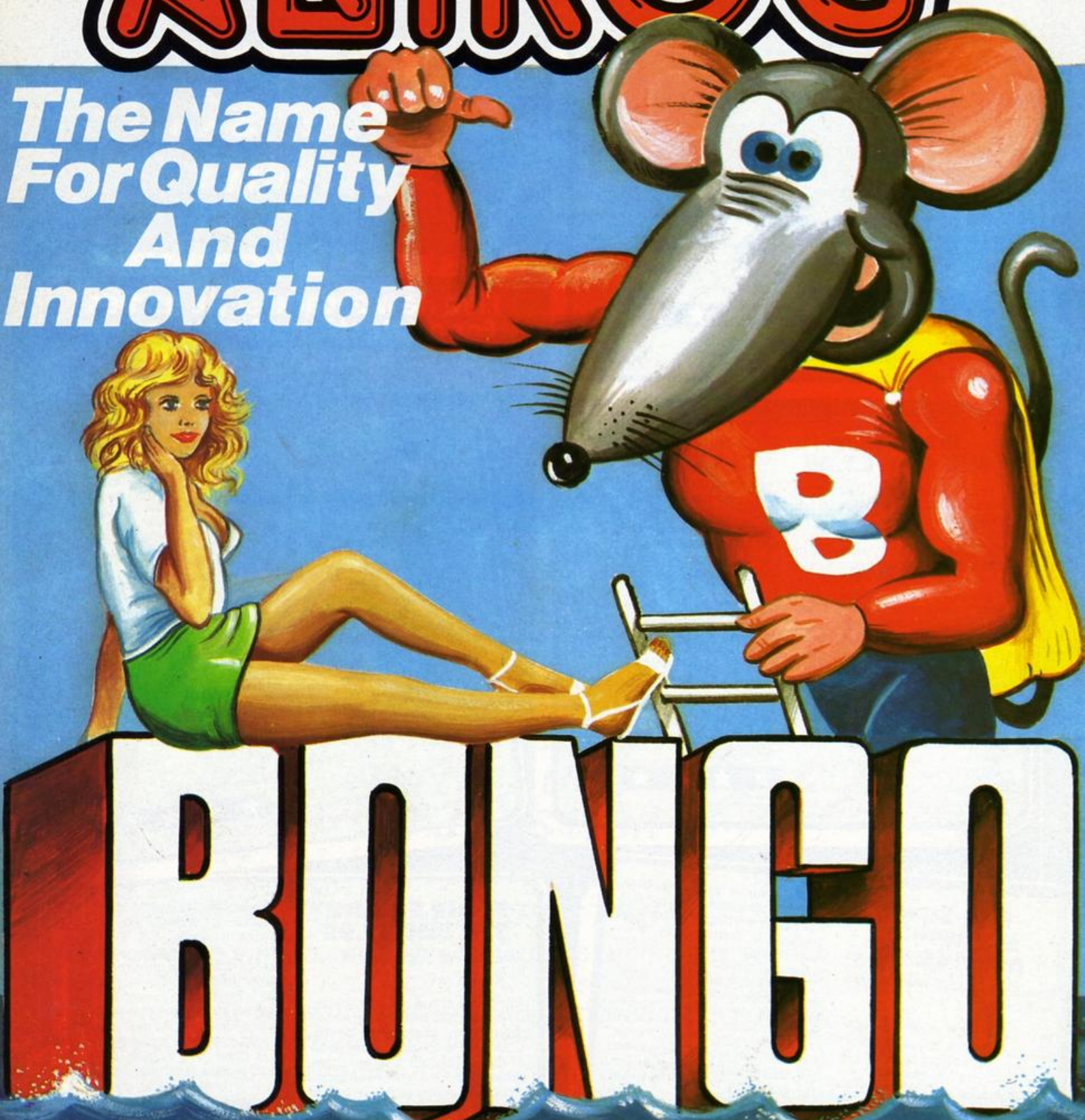

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Win... and face the challenge of Blue Thunder from Richard Wilcox Software

Your comrades are held captive behind enemy lines... and they are relying on you and your Jetcopter to bring them to safety.

That's the challenge in Blue Thunder, from Richard Wilcox Software, which runs on the 48K Spectrum and any Atari. And you could win the game in this week's spot the difference competition.

We've got £1,000-worth to give away.

The Spectrum version costs £5.95 and the version for the Atari is £9.95. So there will be between 100 and 168 winners, depending on how many users of each computer are among the winners.

Richard Wilcox is named after its 15-year-old proprietor, a fifth-former who wrote Blue Thunder with a friend, Trevor Perks, 16.

Richard is, however, being helped by his brother Steve, a computer retailer, and father Brian, who runs a business software company.

His aim, he says, is to produce a small number of high quality games each year. A Commodore 64 version of Blue Thunder is due out in April.

As he is studying for 'O'-levels, the next title will be in early autumn — after the summer holidays.

Blue Thunder, written in 100 per cent machine code, challenges you to pilot your Jetcopter through electronic storms, ground- and sea-based missiles, armoured barrage balloons and deadly jet fighters. Your only defence is a set of hyper-phase lasers.

And, as if that wasn't enough, you must destroy an unstable nuclear reactor before you can rescue your captive comrades.

There are five different missions, on-screen scoring and a high-score feature. Blue Thunder works with keyboard or joystick.

How to enter

Study the two cartoons below and try to find all the differences.

Mark the differences on cartoon B by circling them with a ballpoint pen and then fill in your name, full address, the words Spectrum or Atari, depending on which computer you have got, and give the number of differences you found.

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

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

Entries close at first post on Friday March 23.

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

The winners will be the senders of the first 100-168 correct entries opened until the value of prizes equals £1,000. In judging no distinction will be made between the owners of the two computers.

The solution and the names of the winners will appear in Home Computing Weekly and the prizes will arrive from Richard Wilcox Software within 28 days of the publication of that issue.

Important: please follow these guidelines carefully. Incomplete entries cannot be accepted.

The rules

Closing date is Friday March 23, 1984.

Correct entries will be drawn at random, regardless of computer named, until the value of the prizes equals approximately £1,000. The number of prizes awarded will be between 100 and 168.

Entries must be fully completed — including the number of differences written on the back of the envelope — and on the official coupon and cartoon, not copies.

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

Richard Wilcox Software Competition

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Computer: _____

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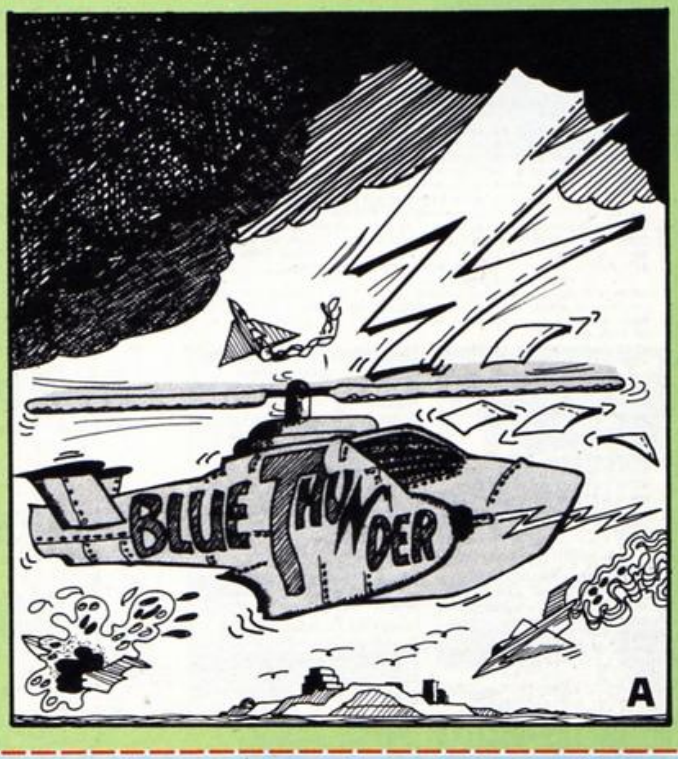
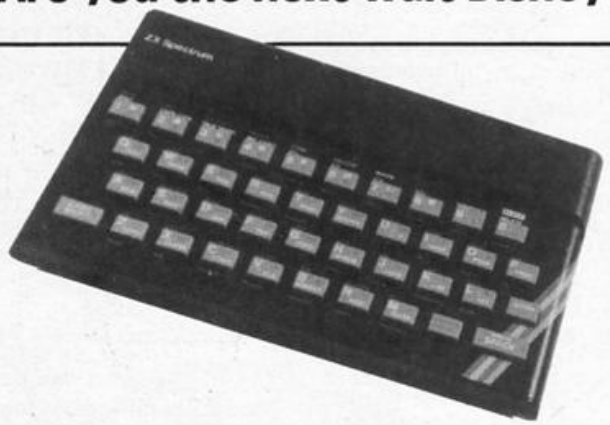
Complete clearly: if you are a winner this will act as a label for your prize. Post to Richard Wilcox Software Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Closing date March 23. Follow carefully the How to enter section.



Invisible screen to make moving pictures easier

Create your own on-screen animation with Ian McDonald's program for the 48K Spectrum. Are you the next Walt Disney?



How it works

140 protects the machine code from NEW, which is a quick way of getting rid of the BASIC loader

150-840 moves the DRAW, PLOT and PIXEL-ADD sub-routines from ROM to RAM

900-940 alters the sub-routines as necessary

1000-1040 transfers the pseudo screen to the real screen

2000-2040 tests to see that all the DATA has been correctly POKEd

4000-6000 demo program. Delete before using program above for your own DRAWings

Type in and RUN my program for the 48K Spectrum. Nothing will happen for about a minute and the demonstration routine will produce a smoothly rotating pyramid.

And you can draw many other shapes and animate them.

The program is a variation of the DRAW command. However, instead of DRAWing lines on the visible screen, it DRAWs them on an invisible pseudo screen, located higher up in memory.

When as many lines as are desired have been DRAWN on this pseudo screen, it is then copied to the real screen more or less instantaneously.

A new set of lines — a different picture, perhaps a new frame in an animation sequence — can then be computed invisibly and displayed when ready.

It works by copying various subroutines from ROM into RAM where they are altered to fool the computer into thinking that the screen RAM starts at decimal 56382 instead of 16384.

Here's how to use it.

When lines 140-2040 have been entered and RUN successfully, delete all the now unnecessary BASIC, either line-by-line or by typing NEW.

You have to know the co-ordinates of each end of the line you want to DRAW.

You can only DRAW straight lines — circles and arcs aren't possible.

For each line six POKEs are necessary. To draw a line from (a,b) to (c,d) type:

POKE 65011,a
POKE 65015,b
POKE 65017,ABS(c – a)
POKE 65018,ABS(d – b)
POKE 65020,SGN(c – a)
POKE 65021,SGN(d – b)

ABS is on key G and SGN is on key F.

RANDOMISE USR 65000 will DRAW the line on the pseudo screen. Nothing will appear on the real screen until you enter RANDOMISE USR 64900.

You can store as many lines as you like on the pseudo screen.

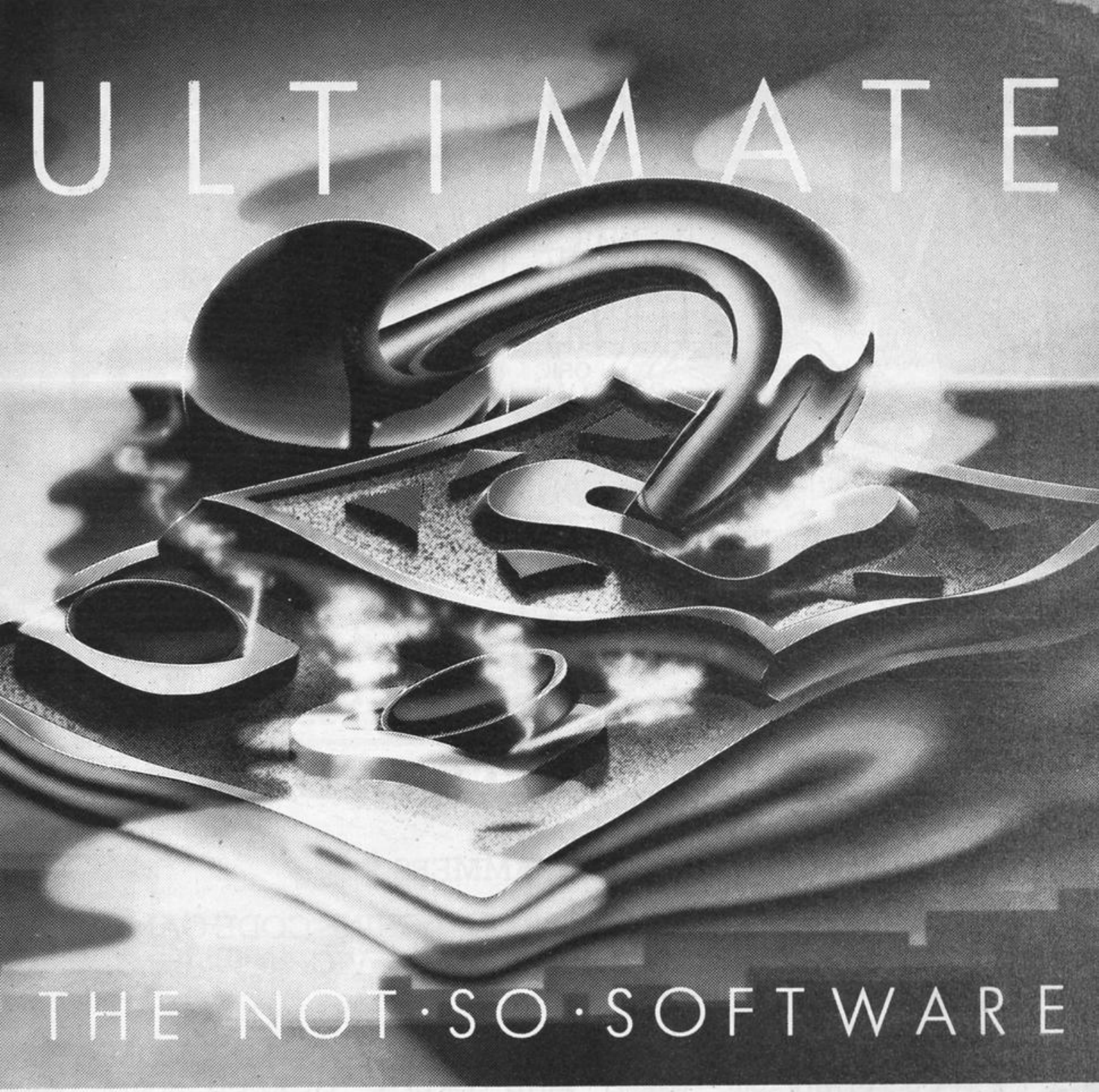
Hints on conversion

Restricted to the Spectrum because it uses the Spectrum ROM. Would probably fit on a 16K Spectrum, but many of the machine code jumps would need recalculating. Tricky. And the pseudo screen uses up 6K of RAM.

```
  140 CLEAR 56000
  150 FOR b=65000 TO 65028
  160 READ a
  165 POKE b,a
  170 NEXT b
  180 DATA 62,2,205,1,22,217,229,217,253,54,67,0,253,54,68,0,1,  250,170,17,1,1,2
05,0,0,217,225,  217,201
  199 REM ++++++++++++++++++++++++
  200 LET a=65029
  210 FOR b=9402 TO 9462
  220 POKE a,PEEK b
  230 LET a=a+1
  240 NEXT b
  299 REM ++++++++++++++++++++++
  300 LET a=65090
  310 FOR b=8933 TO 8979
  320 POKE a,PEEK b
  330 LET a=a+1
  340 NEXT b
  399 REM ++++++++++++++++++++++++
  400 LET a=65137
  410 FOR b=8074 TO 8091
  420 POKE a,PEEK b
  430 LET a=a+1
  440 NEXT b
  499 REM ++++++++++++++++++++++++
  500 FOR b=65155 TO 65161
  510 READ a
  520 POKE b,a
  530 NEXT b
  540 DATA 62,150,132,103,0,0,0
  599 REM ++++++++++++++++++++++++
  600 LET a=65162
  610 FOR b=8092 TO 8902
  620 POKE a,PEEK b
  630 LET a=a+1
  640 NEXT b
  799 REM ++++++++++++++++++++++++
  800 LET a=65180
  810 FOR b=8903 TO 8906
  820 POKE a,PEEK b
  830 LET a=a+1
  840 NEXT b
  899 REM ++++++++++++++++++++++++
  900 FOR n=1 TO 6
  910 READ a,b
  920 POKE a,b
  930 NEXT n
  940 DATA 65002,66,65003,254,   65095,113,65096,254,65023,5,    65024,254
  999 REM ++++++++++++++++++++++++
```

```
 1000 FOR b=64900 TO 64927
 1010 READ a
 1020 POKE b,a
 1030 NEXT b
 1040 DATA 17,0,64,33,0,222,1,0, 24,237,176,33,0,222,6,255,197,6,24,54,0,35,16,25
1,193,16,245,201
 1999 REM ++++++++++++++++++++++++
 2000 LET t=0
 2010 FOR b=64900 TO 65183
 2020 LET t=t+PEEK b
 2030 NEXT b
 2040 IF t<>22425 THEN PRINT "ERROR SOMEWHERE IN DATA!"
 2050 REM ++++++++++++++++++++++++
 2060 REM If there's no error          message, then NEW.          This will r
emove all the          unnecessary BASIC.          The machine code will still
     be intact, protected by the      CLEAR command in line 140
 3000 REM To "DRAW" a line from          a,b to c,d:
 3010 REM POKE 65011,a                  POKE 65015,b                  POKE 65
017,ABS(c-a)          POKE 65018,ABS(d-b)          POKE 65020,SGN(c-a)
          POKE 65021,SGN(d-b)
 3020 REM To store line in RAM          RANDOMISE USR 65000.          You can
 store as many          lines as you like.
 3030 REM To display your stored          lines,                          RANDOMI
SE USR 64900.
 4000 REM ++++++++++++++++++++++++          ** DEMONSTRATION      **          *******
++++++++++++++++
 4010 LET cx=128
 4020 LET cy=25
 4030 LET rx=120.5
 4040 LET ry=20
 4050 LET tx=128
 4060 LET ty=175
 4070 LET n=0
 4200 FOR a=1 TO 4
 4220 LET x1=cx+rx*SIN (n): LET y1=cy+ry*COS (n)
 4230 LET x2=cx+rx*SIN (n+PI/2): LET y2=cy+ry*COS (n+PI/2)
 4240 POKE 65011,x1: POKE 65015,y1: POKE 65017,ABS (x2-x1): POKE 65018,ABS (y2-y1
): POKE 65020,SGN (x2-x1): POKE 65021,SGN (y2-y1): RANDOMIZE USR 65000
 4250 POKE 65017,ABS (tx-x1): POKE 65018,ABS (ty-y1): POKE 65020,SGN (tx-x1): POK
E 65021,SGN (ty-y1): RANDOMIZE USR 65000
 4290 LET n=n+PI/2
 4300 NEXT a
 5000 RANDOMIZE USR 64900
 5020 LET ty=ty-3 AND SGN (ty-3)<>-1
 5030 LET n=n+PI/rx
 5040 LET rx=rx-1
 5042 IF rx=0 THEN LET rx=120
 5050 LET ry=ry+1
 5052 IF ry>53 THEN LET ry=1
 5060 LET cy=2*ry
 6000 GO TO 4200
```

ULTIMATE



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Out of this world...

...or are they earth-bound? Five arcade-style space games are put through their paces

Liberator Spectrum £5.95

Lyversoft, 66 Lime St, Liverpool L1 1JN

You command a gunsight on a spacecraft and the objective is to amass points by shooting down priate craft when they attack.

Following an attractively laid-out instruction sequence, the screen represents the view through the crosswires of the sight and you simply try to line up the centre with the attacking forces and blast away. Really that's all there is to the game. The aliens loom up quite convincingly "3D" style and if you miss them they never miss you.

I found the control key chosen W,X,A,D and S for up,down, left, right and fire to be so close together as to make their use very awkward and there is no joystick option referred to by Lyversoft. A correction to the inlay card instructions is needed as these give the wrong firing button. The screen instructions are correct, however.

Not a game to stretch the imagination, though if you want to develop manual dexterity you may like the game. One I shall quickly forget.

D.J.

instructions	65%
playability	60%
graphics	60%
value for money	40%

★★

Demon Raider TI-99/4A £5.50

Harmansoft

A rather disappointing photo-copied inlay bearing the name and a small illustration, together with instructions (printed upside-down!), confirmed my suspicions that this was another game based arund an over-used idea.

The "battle", if it can be called that, starts in the outer base, inside the martian moon, with your spacecraft making an un-impressive entrance to the cavern from the top.

At the bottom are about 40 power modules, with guns on a hill at either side. Scattered around are demi-mines, separated from the power modules by a force field, running from one hill top to the other.

Using the arrow keys, you move around firing your laser (which looks nothing like a laser) at the force field. When a hole has been made you can blast the power modules. Only after each shot do the aliens make a feeble attempt to destroy you. After the aliens have launched a missile, you have no control over your spacecraft and are unable to move from its path.

If you are destroyed, the computer cheekily and insultingly displays "Too tough for you ha!". What a joke! Overall, a pretty poor game, relying too heavily on luck as opposed to skill.

J.J.

instructions	95%
playability	25%
graphics	65%
value for money	20%

★★

3D Space Raider 32K BBC £7.95

Microbyte, 18 Hilgrove Rd, Newquay

Confirmed space invader addicts will enjoy this, with its excellent fast-moving graphics. I found it very difficult to fight my way far enough into the game to review all available levels. Even then I failed to destroy the base.

Good 3D screen effects and enough screen changes to maintain interest. The main object is to destroy the enemy base. Your spacecraft has to destroy, or dodge, squadrons of android craft and thread a path through asteroid belts. Points are given for craft destroyed and for each screen safely negotiated. A player is tempted to stay still and fight but unless you learn to shoot straight and dodge asteroids, energy levels soon fall.

The spaceship is protected by an energy shield and can attack with photon charges and a limited number of smart bombs. However, the ship also has a limited amount of energy which is quickly depleted by collisions. There are freeze action and hi-score facilities, and players have the option of joystick or key-board control.

An excellent game with very clear on-screen instructions.

J.H.D.

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

★★★★

Space Raiders Dragon 32 £8

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

Destroy the aliens which descend from the top of the screen. They attack in a formation of five by eleven and there are four protective guards at the bottom behind which you can hide. Movement, left or right, is controlled by joystick of keys.

You start with three lives. An extra life is obtained when the score appropriate to the skill level is achieved. If the invaders reach the bottom the game ends regardless of lives remaining. If you succeed in destroying a wave of invaders another takes its place, but lower down this time. At intervals a mother ship flies across the top and there are bonus points if you destroy it.

At the start of a session you can choose the background colour and at the beginning of each game you select from three skill levels. Current and highet score are displayed. Graphics are very good.

It's fairly easy to destroy a wave at the first level but extremely difficult at level three. I enjoyed playing at all levels. Full instructions are on the insert but the print should have been larger.

J.E.M.

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

★★★★

Glaxxons Dragon 32 £8

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

An arcade game that duplicates the original (note similarity of name) to as high a standard as the Dragon is capable which, in my opinion, is to about 75%. It's very much a space-zap game allowing you to kill off aliens as they swarm to attack your position.

Many recent games from Microdeal now offer three options on colour of background. However, once you have chosen you cannot change your mind without reloading. Green was best here. It gave a colourful and varied game.

Choice of colours apart though, there wasn't much variety in the game to make it addictive. Speed and manoeuvrability were required to dodge the descending hail of laser missiles and the aliens themselves which peeled off from the main formation. The speed of interaction was true to the arcade game and the joystick quite responsive. One problem you have is the limitation on your firepower — only one missile at a time. Pressing the fire button gives you a fresh missile but wipes the first one out. There are tactical advantages to this.

Quite difficult to play as it's fast moving.

M.P.

instructions	100%
playability	80%
graphics	90%
value for money	70%

★★★

Games for your Spectrum 2

A second page of software reviews for the 48K Spectrum. Read before you buy

Bear Bovver £6.95

Artic, Main St, Brandesburton, Driffield YO25 8RL

You've probably seen colour adverts with a bear standing on a ladder and waving. Here's what it's about.

You are Ted, who must climb ladders and platforms to get batteries for your new electric truck. You are pursued by Bovver Bears and a "Special Mystery Guest"! When Ted has collected all the batteries on one screen, he drives to the next, more challenging stage. There are two skill levels: "Baby Bear Mode" and "Big Bear Mode."

There are tunes and detail and animation are superb, cartoon-style, flicker-free and extremely realistic. The "attract screens" between games are even better than the game itself — the best I have seen for any game on any machine. There is a beautiful picture of Ted and several screen in large, rounded letters. For example, one offers four volume levels from "shh" to "unBEARable" and informing us we could press 5 to "PAWS".

Instructions are brief and to the point, without revealing the many surprises.

Bear Bovver should become a classic, like Arcadia, Jet Pac, Manic Miner and The Hobbit. It is a credit to the Spectrum. **M.T.**

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

★★★★★

Loony Zoo £5.95

Phipps Associates, 172 Kingston Rd, Ewell KT19 0SD

If you can't beat them, join them. That was the strategy used by the author of this game. Unfortunately, he hasn't joined them: this is a very much below par version of Manic Miner.

In this version you have to escape from a cage in an alien zoo. A button at the top of each cage must be pressed to open the door to the next. You climb to the top and down again to do this, while avoiding the occupants. Unlike Manic Miner, there are no collapsible and moving walkways, no poisonous stalagtites or bushes and only one type of alien in each cage. The platforms are just block graphics and all screens look pretty much the same except for colours and aliens.

The game lacks the wit of Manic Miner, the extra lives don't dance, there are no silly names and objects like "mutant Telephones", and nothing to touch the Monty Python boot and pedestal of the original.

Instructions are a separate program — a brief screen setting paragraph and control keys which, incidentally, are a little weird.

This isn't particularly bad, it just isn't a patch on the old block off which it is a chip.

M.T.

instructions	95%
playability	55%
graphics	55%
value for money	60%

★★★

Dinky Digger £6.95

Postern, PO Box 2, Andoversford, Cheltenham GL54 5SW

Postern certainly won't trouble the Advertising Standards Authority: the program is billed as "fast, furious and as mean as they come." It is, in fact, too fast, too furious and too mean!

The object is to clear the playing area of cherries and monsters — a feat I have never achieved. You have a crystal ball to throw at the monsters, but this may not always return immediately, so make sure every throw counts.

This sounds easy; I can assure you it isn't. You see, the monsters can move twice as fast and head for you along the passage you've just dug!

The graphics are nothing to write home about, only user-defined graphics. An awful off-key tune, played before each life, nearly drove me mad. Instructions were adequate: there's not much to write about such a simple game. I had some difficulty loading — it loads at a different volume level from all my other programs.

Dinky Digger is not original, but this is the only Spectrum version I have seen. You might like to add it to your program collection, but to me it's run of the mill.

M.T.

instructions	95%
playability	45%
graphics	50%
value for money	40%

★★★

Monkey Bizness £6.95

Artic, Main St, Brandesburton, Driffield YO25 8RL

King Kong walks — or throws things — again to ensure you cannot rescue the princess from the top of a scaffolding structure. To reach her you climb ladders while avoiding the burning barrels thrown by Kong. They can only be smashed by hammers found on the way up. Unfortunately they prevent you from climbing ladders and jumping barrels, and can only smash an unspecified number. When hit you lose one of your four lives, and umbrellas can be used to jump safely to earth.

When you reach the top of the first screen, the second starts as straightforward as the last. But the following six become more difficult; with stairs to be jumped, long jumps, flying barrels, showering barrels, disappearing and reappearing barrels and finally a requirement to knock out seven weak points in the scaffolding.

There is no hall of fame, the level numbers do not appear on screen and Kong looks like a Teddy Bear! Barrels smashed and levels completed add to the displayed score.

This reasonably addictive game has not used the sound potential beyond "beeps" and "boops" and the graphics are only at a basic level.

T.W.

instructions	85%
playability	75%
graphics	55%
value for money	55%

★★★

Fred £6.95

Quicksilva, 13 Palmerston Rd, Southampton SO1 1LL

The first thing that appealed to me was the option to re-define the five control keys — a feature, easy to incorporate, which should be included in every game.

We find Fred, an athletic explorer, inside a labyrinthian pyramid, trying to find his way out. With only six bullets he has to contend with an assortment of nasties, among them rats, skeletons, and acid dripping from the roof! Fred responds quite well, moving easily to right or left, and jumping when required.

One of the most fascinating talents is his skill in climbing ropes hanging from the roof. If you can see the end of the rope, then all well and good, you know in which direction to go. Quite often, though, this is not possible, and you are likely to find yourself on a fruitless journey to a blind alley, and there are plenty of those. Somewhere along the route is to be found sustenance and treasure and, once found, maps are displayed. I found movement between screens a little jerky, but this in no way put me off.

A fascinating, and addictive game and, though I think it's a little overpriced, well worth adding to your collection. The game is a Spanish import ... more please!

B.B.

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

★★★★★

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new.... Spectrum Arcade action

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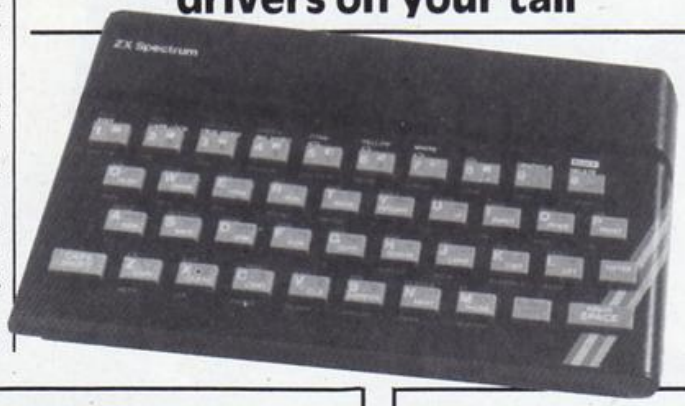
Hazards galore as you get behind the wheel of a racer...

Test your skill in the Monaco GP, Neil Hewitt's fast-moving game for the Spectrum. As well as the obstacles, there are other drivers on your tail



How it works

1-25 set up user-defined graphics, print instructions, screen colours, define variables
30-40 input difficulty level
50-180 main loop: prints cars, checks for movement, gears and crashes; prints scores and lives. Prints scenery and track
1000-1020 print opposing car
2000-2010 oil patch
2050-2060 log
2200-2300 road narrows
3000-3020 road works
3500-3700 re-fuel car
4000-4020 night driving
4500-5070 high score routine
8000-8030 crash routine
9000-9020 data

Monaco GP is for all those people who think they can win behind the wheel of a grand prix racing car.

Choose one of the nine skill levels and the game starts at once, with the trees and the track scrolling past.

Opposing cars start to appear, moving faster depending on the gear you have selected.

The drivers are very intelligent and lock onto your last co-ordinate, so you are dodging all the time.

Once you have finished driving through the night other obstacles appear — 3D logs, oil patches, road works, narrow roads, fuel depots and so on.

You steadily gain points and more are added as you pass each obstacle safely. Score and lives remaining are shown at the top of the track.

After a while you will need to refuel, so you must go through the fuel depots. If you do this safely you also gain extra points. If you don't then all your lives are lost.

There is a high-score table for the three best, which can easily be extended to more.

My game runs fast and will test your reflexes to the utmost. The beep in line 81, which gives a continuous sound, slows it down slightly.

To make the game trickier you could try playing it with just one life.

I think the graphics and the cars are very lifelike and the scrolling is fairly smooth.

The capital letters in quotation marks are user-defined graphics and should be entered in GRAPHICS mode.

This is what they represent: A-F, car, G, tree; H-K, oil; M-V, log.

Note: there should be a "greater than" symbol in line 3515 after IF j.

Variables

x,y co-ordinates of car
h1, h2, h3 high scores
s score
u difficulty level
n$ name string
a$ title strings
li number of lives
attr attribute number — this changes for driving in the dark
l how far down the opposing car is printed
a tells computer when to print a car
d,j control variables

```
  1 FOR f=USR "a" TO USR "u"+7: READ a: POKE f,a: NEXT
f
  2 CLS : PRINT AT 17,15; INK 2;"AB";AT 18,15; INK 2;"
CD";AT 19,15; INK 2;"EF"
  3 LET a$="         ↑↑↑MONACO GP↑↑↑          Welcome t
o the race track.You  the
 driver of your GP car must  follow the course missing
objects e.g.LMNOP,HI
                  QRSTU JK .You will also  have to dri
ve through the night, mis
s roadworks and watch for the road narrowing.At interva
ls you will also have to
fill your car up with petrol.The score is shown on the
left and the number of li
ves remaining is shown on the right.CONTROLS:>5<>LEFT >
8<>RIGHT.Keys 1,2,3 AND 4
 are the keys for the gears on your car.GOOD LUCK!!!!"
  4 PRINT AT 0,0;: FOR f=1 TO LEN a$: PRINT a$(f);: BE
EP .01,RND*60: BEEP .01,R
ND*60+3: NEXT f
  5 LET h1=40: LET h2=80: LET h3=140
  6 LET l=19
  7 FOR f=-30 TO 50: BEEP .01,f: BEEP .01,f+3: BEEP .0
1,f+6: NEXT f
  8 FOR f=0 TO 21: PAPER 0: INK 7: BORDER 0: RANDOMIZE
 USR 3280: NEXT f
  9 LET a=0: LET d=0: LET j=0: LET attr=60: PAPER 0: I
NK 7: BORDER 0
 25 LET li=3: LET x=16: LET y=10: LET s=0
 30 INPUT "LEVEL OF DIFFICULTY (6-15)       ::15=EASY::
6=HARD::";u;
 40 IF u<6 OR u>15 THEN  GO TO 30
 50 PRINT AT y,x; INK 2;" AB ": PRINT AT y+1,x; INK 2;
" CD ": PRINT AT y+2,x; I
NK 2;" EF "
 60 PRINT AT y-1,x;"     "
 70 PRINT AT 0,12;s;AT 0,17;"↑↑↑↑"( TO li)
 80 LET x=x+(INKEY$="8")-(INKEY$="5")
 81 BEEP .01,1/4
```

```
 85 IF ATTR (13,x)=attr THEN  GO TO 8000
 90 IF x=11 OR x=22 THEN  GO TO 8000
 91 IF a=2 OR a=4 OR a=6 OR a=8 THEN  PRINT AT 20,0;"G
 G G G G G "
 92 IF a=2 OR a=4 OR a=6 OR a=8 THEN  PRINT AT 20,23;"
G G G G G "
100 LET v=USR 3280
110 PLOT 100,0: DRAW 0,8: PLOT 180,0: DRAW 0,8: FLASH
0
115 IF li<=0 THEN  GO TO 4500
116 LET a=a+1
117 IF INKEY$="1" THEN  LET l=18: BEEP .01,3
118 IF INKEY$="2" THEN  LET l=17: BEEP .01,3
119 IF INKEY$="3" THEN  LET l=16: BEEP .01,3
120 IF INKEY$="4" THEN  LET l=15: BEEP .01,3
125 IF a=u THEN  GO TO 1000
135 IF s=20 OR s=200 THEN  GO TO 3000
136 IF s=140 OR s=50 THEN  GO TO 2000
137 IF s=70 OR s=10 THEN  LET j=0: GO TO 2050
138 IF s=90 THEN  GO TO 4000
140 IF s=160 THEN  GO TO 2200
150 IF s=120 THEN  GO TO 3500
160 IF s=1 THEN  GO TO 4000
170 LET s=s+.5
180 GO TO 50
1000 PRINT AT l,x; INK 4;" AB";AT l+1,x; INK 4;" CD";AT
 l+2,x; INK 4;" EF"
1001 PRINT AT 20,0;"G G G G G G"
1002 PRINT AT 20,23;"G G G G G"
1010 LET a=0
1020 GO TO 50
2000 PRINT AT 19,16; INK 4;"HI"
2001 PRINT AT 20,16; INK 4;"JK"
2002 LET s=s+5
2010 GO TO 50
2050 PRINT AT 19,17; INK 4;"LMNOP": PRINT AT 20,17; INK
 4;"QRSTU"
2060 LET s=s+10: GO TO 50
2200 INK 2: PLOT 120,0: DRAW 0,175: PLOT 160,0: DRAW 0,
```

SPECTRUM PROGRAM

```
175: INK 0
2201 IF x<13 OR x>19 THEN  GO TO 8000
2202 LET d=d+1: IF d=u*3 THEN  LET s=s+20
2300 GO TO 50
3000 INK 4: PLOT 180,10: DRAW -60,10: DRAW 5,20: DRAW 5
5,0: INK 0
3010 PRINT AT 17,16; FLASH 1; BRIGHT 1;"ROAD";AT 18,20;
 FLASH 1; BRIGHT 1;"UP"
3020 LET s=s+5: GO TO 50
3500 PLOT 140,0: DRAW 0,20: PLOT 160,0: DRAW 0,20
3510 IF j=1 THEN  PRINT AT 18,18;"F";AT 19,18;"U";AT 20
,18;"E";AT 21,18;"L"
3515 IF j=5 THEN  GO TO 3520
3517 GO TO 3530
3520 IF x<=15 OR x>=18 THEN  LET li=0: GO TO 3560
3530 LET j=j+1: IF j=20 THEN  LET s=s+10: LET j=0: LET
li=li+1
3550 LET a=2
3560 GO TO 50
4000 IF j<30 THEN  LET attr=4
4001 IF j<30 THEN  PAPER 0: INK 7
4002 LET j=j+.5
4009 IF j=30 THEN  LET attr=60
4010 IF j=30 THEN  LET s=s+10
4011 IF j=30 THEN  PAPER 7: INK 0: BORDER 7
4020 GO TO 50
4500 IF s<h1 THEN  GO TO 5040
4501 PAPER 7: BORDER 7: INK 0
4510 CLS : LET a$="Welldone you have attained a new
    high score. Please enter your
          name for next
 years GP  ↑↑↑↑↑"
4511 PRINT AT 10,0;: FOR i=1 TO LEN a$: BEEP .01,RND*30
+3: PRINT  INK RND*6; FLA
SH 1;a$(i);: NEXT i
4520 POKE 23658,8: INPUT n$: POKE 23658,0
5002 IF s>h1 AND s<h2 THEN  LET h1=s
5003 IF s>h2 AND s<h3 THEN  LET h2=s
5004 IF s>h3 THEN  LET h3=s
5010 CLS : PRINT AT 0,10;"HIGH SCORE TABLE": PRINT AT 5
,10;"1)",h3;AT 10,10;"2)"
,h2;AT 15,10;"3)",h1
5020 IF h2=s THEN  PRINT AT 10,23;n$
5021 IF h1=s THEN  PRINT AT 15,23;n$
5022 IF h3=s THEN  PRINT AT 5,23;n$
5030 FOR f=0 TO 600: NEXT f
5040 CLS : PRINT AT 10,10; INK RND*6; FLASH 1;"ANOTHER
GAME": BEEP .1,15
5050 IF INKEY$="" THEN  GO TO 5040
5060 IF INKEY$="y" OR INKEY$="Y" THEN  GO TO 6
5070 STOP
8000 FOR f=0 TO 300: OUT 16,38: OUT 38,16: NEXT f
8010 FOR f=0 TO 30: BEEP .01,f: BEEP .01,f+6: BEEP .01,
f*2: NEXT f
8011 FOR f=30 TO 0 STEP -1: BEEP .01,f+6: BEEP .01,-f:
BEEP .01,-f: NEXT f
8015 LET x=15: CLS
8020 LET a=0: LET li=li-1
8030 GO TO 50
9000 DATA 255,240,31,7,227,239,235,248
9001 DATA 255,15,248,224,199,247,215,31
9002 DATA 233,233,232,12,15,12,7,7
9003 DATA 151,151,23,48,240,48,224,224
9004 DATA 3,99,97,111,120,111,96,96
9005 DATA 192,198,134,246,30,246,6,6
9006 DATA 8,28,28,62,62,127,8,8
9007 DATA 0,7,15,31,31,17,53,117
9008 DATA 0,0,254,255,255,95,95,95
9009 DATA 117,113,127,127,63,31,0,0
9010 DATA 94,66,254,254,255,255,248,0
9011 DATA 0,0,0,0,31,35,91,107
9012 DATA 0,0,0,7,255,255,0,255
9013 DATA 0,0,15,255,255,240,15,255
9014 DATA 0,3,255,255,252,3,255,255
9015 DATA 0,248,252,254,7,255,255,3
9016 DATA 165,213,201,171,83,71,63,0
9017 DATA 255,0,255,255,0,255,240,0
9018 DATA 240,15,255,0,255,240,0,0
9019 DATA 3,255,192,63,248,0,0,0
9020 DATA 255,254,6,254,0,0,0,0
```

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

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REVIEWS

"Adventures which have a fast response time, are spectacular in the amount of detail and number of locations, and are available to cassette owners . . Simply smashing!" *– Soft, Sept 83*

"**Colossal Adventure** is included in Practical Computing's top ten games choice for 1983: "Poetic and tough as hell." *– PC, Dec 83*

"To sum up, **Adventure Quest** is a wonderful program, fast, exciting and challenging. If you like adventures then this one is for you" *– NILUG issue 1.3*

"**Dungeon Adventure** is recommended. With more than 200 locations, 700 messages and 100 objects it will tease and delight!"
– Educational Computing, Nov 83

"**Snowball** . . As in all Level 9's adventures, the real pleasure comes not from scoring points but in exploring the world in which the game is set and learning about its denziens . . this program goes to prove that the mental pictures conjured up by a good textual adventure can be far more vivid than the graphics available on home computers."
– Which Micro?, Feb 84

"**Lords of Time.** This program, writen by newcomer Sue Gazzard, joins my favourite series and is an extremely good addition to Level 9's consistently good catalogue . . As we have come to expect from Level 9, the program is executed with wonderful style – none of those boring "You can't do that" messages! Highly recommended." *– PCW, 1st Feb 84*

Make more use of your Spectrum

Draw and learn with your computer. Our testers report back on a new batch of five programs — how useful were they?

How Long Have You Got? £3.45

Eastmead Computer Systems, Eastmead House, Lyon Way, Camberley, Surrey

The title refers to your life expectancy! Like all the Eastmead Medical Series, this had severe loading problems, caused by poor quality recordings, and an overlong series of introductory SCREEN$ with impressive sounding titles.

Based on medical statistics, by asking question about your life-style and habits, together with weight etc, it gives an estimate as to how long you're likely to last! Each factor has a weighting in years, added or subtracted. The theory is that, for example, seeing how many years your 40 fags a day costs, will stop you smoking.

There are two versions on the cassette, for 16K or 48K, which prompts an interesting thought: Will you live longer with a 16K Spectrum?

Eastmead will pleased to know I only have nine years left on the basis of this program! But to be honest, I got so tired of trying to load this beast, I almost gave up. If you can get a copy that loads, and you are a believer in probabilities based on statistics, and you want to examine your life-style in terms of your longevity, then this could be for you.

D.M.

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

★★★★

Paintbox 48K £7.50

Print 'n' Plotter Products, 19 Borough High St, London SE1 9SE

For those who regard the Spectrum as a number cruncher, or an intergalactic battlefield, the demo side of the tape will raise eyebrows. A motor cycle, car, electric guitar — just three of the pictures shown. And, within the limitations of the Spectrum, they are in almost perfect proportions.

To guide you through the working side, a 28-page booklet gives all the information you are likely to need. Four banks of user-defined graphics are built into the program, each of 21 characters. Three are suitable for building into graphics for games, and the fourth is the alphabet A to U. Should you need to, any of the characters can be re-defined using the drawing board facility, including reverse, rotate and mirror image.

Although the high resolution plotter can be controlled by joystick, I found cursor controls quite adequate. By switching between facilities you can gradually build up your masterpiece, saving it, or recalling it, at any stage. There are a few of these utilities on the market, some having more than others. So it's really a question of paying your money and making your choice.

B.B.

instructions	100%
ease of use	90%
display	100%
value for money	90%

★★★★

Chess Tutor 1 48K Spectrum £9.95

Sinclair, Stanhope Road, Camberley, Surrey

Get this if you do not know the first thing about chess and you wish to learn. To give you an idea of how comprehensive it is, both sides are used. Starting with the positions of all the pieces, demonstrations are given of moves each can make. Even pawn moves are covered thoroughly, including en passant and promotion. At every stage you can participate in exercises, and you will be shown the solution should you make a wrong move.

From the beginning you are taught about rank and file, and the correct notation for recording moves. The basic tactics are well covered, with plenty of exercises. In particular, two exercises from the section dealing with knights will occupy you for quite a while. The first involves the capture of so many pawns in a certain number of moves. The second is the knights' grand tour: you have to move to every square, only one visit per square, and finish on the start square.

Very well thought out and well presented. The almost mandatory booklet from Sinclair tells you little about the program, but all the instructions are on screen. Highly recommended.

B.B.

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

★★★★★

The Complete Guide to Medicine 48K £6.90

Eastmead Computer Systems, Eastmead House, Lyon Way, Camberley, Surrey

This is not what the title claims it to be, but a long illustrated lesson in anatomy, a sort of workshop manual of the human body covering the skeleton, digestion, blood system, reproduction and so on. There is an enormous amount of information, structured in many independently loaded sections. This, of course, takes time — lots of it! Implementation on Microdrives would improve this markedly.

Remembering my biology lesson, the text appears accurate; it should be, it was written by a doctor. So if you are prepared to plough through it, you could learn a lot.

The graphics, however, are something else! Although the screen presentation is good, apart from some unwise colours for lettering, graphics are poor. Even the humble Spectrum gives a good programmer the opportunity to realistically show muscles contracting, blood moving.

Having been critical, it's fair to say a book with this amount of info would cost a lot, and the program might prove useful for teaching people a little more about their bodies. But "A complete Guide to Medicine"? No!

D.M.

instructions	70%
ease of use	70%
display	50%
value for money	80%

★★★★

Draw 15 £5

Fowler Software, Hendon Mill, Nelson, Lancashire BB9 8AD

Draw 15 is a utility, also available as a listing for £2, which allows you to design and colour shapes, using an almost unlimited number of character squares, store the shapes above RAMTOP and, using a BASIC routine listed, POKE them to the screen as required. In other words, you can move your own shapes about the screen.

You can, of course achieve the same using the internal UDGs, but the number is limited. Draw 15 gets round this.

The program isn't very user friendly, but comes with a detailed manual which goes through the whole thing. The provisional version was, however, confusing, in that it was produced on a typewriter which obviously has no 1 key, just an l. And you need both. It is also supplied with character design grids. All in all, you get a lot for your fiver, if you're prepared to stick at it.

The results, however, aren't very impressive as the POKE to the screen routine is slow and jerky. You can buy a Graphics Subroutine in machine code from Fowler and this will do the trick nicely. The trouble is that costs £10 which is far too expensive.

D.M.

instructions	80%
ease of use	65%
display	65%
value for money	65%

★★★

Eyes to the skies... and blast the bombers

It's World War Two again and you're in charge of an anti-aircraft battery. Taken from Winning Games on the Commodore 64, by Steve Colwill and Terry Barrett, just published by Ellis Horwood

Your base is undergoing a night-time air raid.

Use the searchlight to pick out the enemy bombers and then blast them out of the sky!

There is no moon to help you, but you do have three flares at your disposal if you cannot find your target.

Shoot down as many aircraft as you can before your base is bombed out.

Use the joystick to control the searchlight and shoot down aircraft. Flares are fired using the space bar.

● **Winning Games on the Commodore 64, published at £5.95 by Ellis Horwood, Market Cross House, Cooper St, Chichester, West Sussex PO19 1EB. As well as 21 games listings, the book explains how to make best use of the Commodore 64. A cassette of the programs is available at £5.95. Book and cassette costs £11.95. A disc version is due soon.**

```
1000 POKE53281,0:POKE53280,0
1010 PRINTCHR$(147):PRINTCHR$(158)
1020 PRINTTAB(5)"┌─┐                 │  │     │"
1030 PRINTTAB(5)"│ │                 │  │     │"
1040 PRINTTAB(5)"│ │                 │  │     │"
1050 PRINTTAB(5)"│ │                 │  │     │"
1060 PRINTTAB(5)"│ │                 │  o     │"
1070 PRINTTAB(5)"│ │                 │  │     │"
1080 PRINTTAB(5)"└─┘┌┐┌┐┌┐┌┐┌┐┌┐┌┐┌┐┌┐┌┐┌┐┌┐"
1090 PRINTTAB(5)"   ││ ││ ││ ││ ││ ││ ││ ││ ││"
1100 PRINTTAB(5)"   ││ ││ ││ ││ ││ ││ ││ ││ ││"
1110 PRINTTAB(5)"   ├┘└┐ ├┘  │  │ ├┘└┐ ├┘└┐ ├┘└┐"
1120 PRINTTAB(5)"   │  │ │   │  │ │  │ │  │ │  │"
1130 PRINTTAB(5)"   └──┘ └┘   └──┘ └──┘ └──┘ └──┘"
1140 PRINTTAB(5)"                          │"
1150 PRINTTAB(5)"                          │"
1160 PRINTTAB(5)"                        ┌─┘"
1170 PRINTTAB(5)"                        │"
1180 PRINTTAB(5)"                        │"
1190 PRINTTAB(5)"                        └─"
1200 PRINT:PRINT"<<PRESS ANY KEY TO PLAY>>"
1210 DIMX(6),D(6),P(6)
1220 V=53248:FORI=1TO5:D(I)=1:P(I)=14:NEXT
1230 FL=3:S=54272
1240 GOSUB2520:REM M/C JOYSTICK
1250 GETA$:IFA$=""THEN1250
1260 GETJ$:IFJ$<>""THEN1260
1270 GOSUB2160:REM SET UP SCREEN
1280 REM----READ SPRITE DATA----
1290 FORI=12288TO12350:READA:POKEI,A:NEXT
1300 FORI=12352TO12414:READA:POKEI,A:NEXT
1310 FORI=896TO958:READA:POKEI,A:NEXT
1320 FORI=12672TO12734:READA:POKEI,A:NEXT
1330 FORI=12736TO12798:READA:POKEI,A:NEXT
1340 REM----COLOR SPRITES----
1350 REM--SPRITE 0--
1360 POKEV+39,2:POKEV+37,7:POKEV+38,1
1370 REM--SPRITE 1-5--
1380 FORI=V+40TOV+44:POKEI,0:NEXT
1390 REM--SPRITE 6--
1400 POKEV+45,7
1410 REM--SPRITE 7--
1420 POKEV+46,2
1430 POKEV+28,128:REM SET MULTI COLOR
1440 REM----SET POINTERS----
1450 POKE2040,192:REM AIR EXP
1460 POKE2046,198:REM SEARCHLIGHT
1470 POKE2047,199:REM GROUND EXP
1480 REM----JOYSTICK LIMITS----
1490 POKE49152,0:POKE49153,0:REM X2 MIN
1500 POKE49156,113:POKE49157,1:REM X2 MAX
1510 POKE49160,0:POKE49161,0:REM Y2 MIN
1520 POKE49164,192:POKE49165,0:REM Y2 MAX
1530 POKE49168,0:REM SCAN RATE
1540 SYS49183:REM ENTER WEDGE
1550 REM----SET SEARCHLIGHT/DATA PRIORITY----
1560 POKEV+27,64
1570 REM----EXPAND SPRITES 6 & 7----
1580 POKEV+23,192:POKEV+29,192
1590 REM----INITIAL SEARCHLIGHT POSITION----
1600 POKE49169,41:POKE49170,1
1610 POKE49173,129:POKE49174,0
1620 REM-----TURN ON SPRITE 6----
1630 POKEV+21,64
1640 REM----BOMBER FORMATION----
1650 F=INT(RND(1)*3)
1660 IFF=0THENGOSUB2940:REM FORMATION 1
1670 IFF=1THENGOSUB2990:REM FORMATION 2
1680 IFF=2THENGOSUB3040:REM FORMATION 3
1690 FORB=1TO5:POKEV+2*B,X(B):NEXT
1700 POKEV+3,Y1:POKEV+5,Y2:POKEV+7,Y3:POKEV+9,Y4:POKEV+11,Y5
1710 POKEV+9,Y4:POKEV+11,Y5
1720 POKEV+21,PEEK(V+21)OR62:REM TURN ON BOMBERS
1730 REM----MAIN LOOP----
1740 C=C+1
1750 GOSUB3090:REM MOVE SEARCHLIGHT
1760 FORB=1TO5
1770 IFX(B)>254THEND(B)=-1:P(B)=193
1780 IFX(B)<1THEND(B)=1:P(B)=14
1790 POKEV+2*B,X(B)
1800 POKE2040+B,P(B)
1810 GOSUB3090:REM MOVE SEARCHLIGHT
1820 X(B)=X(B)+D(B):NEXT
1830 IFC/20=INT(C/20)THEN GOSUB3440
1840 IFEN=1THEN1890:REM CHECK FOR END
1850 IF(PEEK(V+21)AND62)=0THEN1640
1860 REM--FLARES--
1870 GETF$:IFF$=" "ANDFL<>0THENGOSUB4090
1880 GOTO1730:REM RESTART LOOP
1890 REM----END OF GAME----
1900 PRINTCHR$(147):REM CLEAR SCREEN
1910 POKEV+21,0:REM TURN OFF SPRITES
1920 REM--END MESSAGE--
1930 POKE53281,0:POKE53280,0
1940 PRINTTAB(3)"┌─                    ┌─"
1950 PRINTTAB(3)"│ │       │     │  ┌─┐  │"
1960 PRINTTAB(3)"│ │       │     │  │ │  │"
1970 PRINTTAB(3)"│ │       │     │  │ │  │"
1980 PRINTTAB(3)"│ │       │     │  │ │  │"
1990 PRINTTAB(3)"│ │       │     │  │ │  │"
2000 PRINTTAB(3)"│ │       │     │  │ │  │"
2010 PRINTTAB(3)"└─┐┌┐┌┐┌┐┌┐┌┐┌┐┌┐┌┐┌┐┌┐┌┐"
2020 PRINTTAB(3)"  ││ ││ ││ ││ ││ ││ ││ ││ ││"
2030 PRINTTAB(3)"  ││ ││ ││ ││ ││ ││ ││ ││ ││"
2040 PRINTTAB(3)"  ├┘└┐ ├┘  │  │ ├┘└┐ ├┘└┐ ├┘└┐"
2050 PRINTTAB(3)"  │  │ │   │  │ │  │ │  │ │  │"
2060 PRINTTAB(3)"  └──┘ └┘   └──┘ └──┘ └──┘ └──┘"
2070 PRINTTAB(3)"                          o"
2080 PRINTTAB(3)"                          "
2090 PRINT:PRINTTAB(8)"YOUR SCORE  ";VS
2100 PRINT:PRINTTAB(5)CHR$(129);"<<PRESS ANY KEY TO PLAY>>"
```

COMMODORE 64 PROGRAM

```
2110 SYS49208:REM DISABLE WEDGE
2120 REM--RESET SEARCHLIGHT POSITION--
2130 POKEV+12,41:POKEV+16,1:POKEV+13,129
2140 RUN1210
2150 END
2160 REM---SET UP THE SCREEN----
2170 PRINTCHR$(147):REM CLEAR SCREEN
2180 POKE53280,6:POKE53281,0
2190 PRINTTAB(6)CHR$(145);CHR$(158)"YOUR SCORE 0"
2200 PRINTTAB(25)CHR$(145)"FLARES";FL
2210 REM--GROUND--
2220 FORI=1944TO2023:POKEI,160
2230 POKEI+54272,11:NEXT
2240 REM--TOWER--
2250 FORI=1908TO1708STEP-40
2260 POKEI,106:POKEI+1,86:POKEI+2,116
2270 POKEI+54272,11:POKEI+1+54272,11
2280 POKEI+2+54272,11:NEXT
2290 POKE1629,66:POKE1629+54272,11
2300 POKE1669,66:POKE1669+54272,11
2310 REM---BUILDING ONE---
2320 FORI=1920TO1923:POKEI,160
2330 POKEI-40,160:POKEI+54272,11:POKEI-40+54272,11:NEXT
2340 POKE1879,233:POKE1884,223
2350 POKE1879+54272,11:POKE1884+54272,11
2360 REM--BUILDING TWO--
2370 FORI=1929TO1933:POKEI,160
2380 POKEI+54272,11:NEXT
2390 POKE1889,160:POKE1889+54272,11
2400 POKE1890,160:POKE1890+54272,11
2410 REM--OIL DRUMS--
2420 FORI=1939TO1943:POKEI,81
2430 POKEI+54272,11:NEXT
2440 FORI=1900TO1902:POKEI,81
2450 POKEI+54272,11:NEXT
2460 REM--STARS--
2470 FORI=1TO30
2480 P=INT(RND(1)*560)
2490 POKE1064+P,46:POKE1064+54272+P,1
2500 NEXT
2510 RETURN
2520 REM----B/L FOR M/C JOYSTICK----
2530 DATA120,173,20,3,141,29,192,173,21
2540 DATA3,141,30,192,169,71,141,20,3
2550 DATA169,192,141,21,3,88,96,120,173
2560 DATA29,192,141,20,3,173,30,192,141
2570 DATA21,3,88,96,173,27,192,205,16
2580 DATA192,240,3,76,65,193,169,255
2590 DATA141,27,192,162,0,160,0,185,2
2600 DATA220,141,28,192,169,224,153,2
2610 DATA220,185,0,220,72,173,28,192
2620 DATA153,2,220,189,8,192,221,21,192
2630 DATA189,9,192,253,22,192,144,18
2640 DATA189,8,192,157,21,192,189,9,192
2650 DATA157,22,192,104,74,72,76,162
2660 DATA192,104,74,72,176,13,222,21
2670 DATA192,189,21,192,201,255,208,3
2680 DATA222,22,192,189,21,192,221,12
2690 DATA192,189,22,192,253,13,192,144
2700 DATA18,189,12,192,157,21,192,189
2710 DATA13,192,157,22,192,104,74,72,76
2720 DATA207,192,104,74,72,176,8,254,21
2730 DATA192,208,3,254,22,192,189,0,192
2740 DATA221,17,192,189,1,192,253,18
2750 DATA192,144,18,189,0,192,157,17
2760 DATA192,189,1,192,157,18,192,104
2770 DATA74,72,76,1,193,104,74,72,176
2780 DATA13,222,17,192,189,17,192,201
2790 DATA255,208,3,222,18,192,189,17
2800 DATA192,221,4,192,189,18,192,253,5
2810 DATA192,144,18,189,4,192,157,17
2820 DATA192,189,5,192,157,18,192,104
2830 DATA74,72,76,46,193,104,74,72,176
2840 DATA8,254,17,192,208,3,254,18,192
2850 DATA104,74,176,5,169,1,153,25,192
2860 DATA200,232,232,224,4,240,3,76,91
2870 DATA192,238,27,192,108,29,192
2880 DATA35994:REM*CHECKSUM*
2890 FORI=49183TO49478
2900 READX:POKEI,X:CC=CC+X
2910 NEXT
2920 READX:IFXCCCTHEN PRINT"CHECKSUM ERROR."
2930 RETURN
2940 REM----FORMATION 1----
2950 X(1)=0:Y1=115:X(2)=96:Y2=90
2960 X(3)=24:Y3=75:X(4)=56:Y4=60
2970 X(5)=144:Y5=110
2980 RETURN
2990 REM---FORMATION 2----
3000 X(1)=0:Y1=58:X(2)=48:Y2=75
3010 X(3)=36:Y3=90:X(4)=70:Y4=60
3020 X(5)=96:Y5=90
3030 RETURN
3040 REM----FORMATION 3----
3050 X(1)=0:Y1=60:X(2)=48:Y2=90
3060 X(3)=96:Y3=120:X(4)=144:Y4=156
3070 X(5)=192:Y5=170
3080 RETURN
3090 REM--MOVE SEARCHLIGHT--
3100 X6=PEEK(49169)+256*PEEK(49170)
3110 Y6=PEEK(49173)+256*PEEK(49174)
3120 H6=INT(X6/256):L6=X6-256*H6
3130 IFH6=1THENPOKEV+16,PEEK(V+16)OR65:GOTO3150
3140 POKEV+16,PEEK(V+16)AND190
3150 POKEV+12,L6:POKEV+13,Y6
3160 REM--FIRE BUTTON--
3170 POKE49177,0
3180 FB2= PEEK(49177)
3190 IFFB2=1THENGOSUB3210:REM FIRE
3200 RETURN
3210 REM----FIRE ROUTINE----
3220 POKE(V+30),0:REM RESET COLL REGISTER
3230 L0=L6+12
3240 IFL0>255THENPOKEV+16,PEEK(V+16)OR1:L0=L0-255
3250 PV=PEEK(V+21)
3260 POKEV+21,PVOR1
3270 POKEV,L0:POKEV+1,Y6+11:FORI=1TO20:NEXT
3280 GOSUB3330
3290 POKE(V+21),PVAND(255-(PEEK(V+30)AND63))
3300 IFPEEK(V+21)<>PVTHENYS=YS+100:PRINTTAB(6)CHR$(145);"YOUR SCORE";YS:C=C-5
3310 IFC<0THENC=1
3320 RETURN
3330 REM--SOUND EFFECT #2--
3340 S=54272
3350 POKES+24,15
3360 POKES+6,128
3370 POKES+4,129
3380 POKES,75:POKES+1,3
3390 POKES+5,131
3400 FORI=15T00STEP-.4
3410 POKES+24,I
3420 NEXT
3430 RETURN
3440 REM----GROUND ATTACK----
3450 POKEV+15,192:REM SET Y COORD
3460 POKEV+16,PEEK(V+16)AND127
3470 A=A+1:ONAGOTO3480,3520,3560,3610,3650,3700,3740,3790,3850
3480 GOSUB3920
3490 POKEV+14,20:POKEV+21,PEEK(V+21)OR128:FORI=1TO70:NEXT
3500 POKEV+21,PEEK(V+21)AND127
3510 GOSUB4020:GOTO3910
3520 GOSUB3920
3530 POKEV+14,92:POKEV+21,PEEK(V+21)OR128:FORI=1TO70:NEXT
3540 POKEV+21,PEEK(V+21)AND127
3550 GOSUB4020:GOTO3910
3560 GOSUB3920
3570 POKEV+14,132:POKEV+21,PEEK(V+21)OR128:FORI=1TO70:NEXT
3580 FORI=1919TO1921:POKEI,32:POKEI-40,32:NEXT
3590 POKEV+21,PEEK(V+21)AND127
3600 GOSUB4020:GOTO3910
3610 GOSUB3920
3620 POKEV+14,252:POKEV+21,PEEK(V+21)OR128:FORI=1TO70:NEXT
3630 POKEV+21,PEEK(V+21)AND127
3640 GOSUB4020:GOTO3910
3650 GOSUB3920
3660 POKEV+14,44:POKEV+21,PEEK(V+21)OR128:FORI=1TO70:NEXT
3670 FORI=1629TO1909STEP40:POKEI,32:POKEI-1,32:POKEI+1,32:NEXT
3680 POKEV+21,PEEK(V+21)AND127
3690 GOSUB4020:GOTO3910
3700 GOSUB3920
3710 POKEV+14,188:POKEV+21,PEEK(V+21)OR128:FORI=1TO70:NEXT
3720 POKEV+21,PEEK(V+21)AND127
3730 GOSUB4020:GOTO3910
3740 GOSUB3920
3750 POKEV+14,220:POKEV+21,PEEK(V+21)OR128:FORI=1TO70:NEXT
3760 FORI=1929TO1933:POKEI,32:POKEI-40,32:NEXT
3770 POKEV+21,PEEK(V+21)AND127
3780 GOSUB4020:GOTO3910
3790 GOSUB3920
3800 POKEV+14,37:POKEV+16,PEEK(V+16)OR128
3810 POKEV+21,PEEK(V+21)OR128:FORI=1TO70:NEXT
3820 FORI=1939TO1943:POKEI,32:POKEI-40,32:NEXT
3830 POKEV+21,PEEK(V+21)AND127
3840 GOSUB4020:GOTO3910
3850 GOSUB3920
3860 POKEV+14,156:POKEV+21,PEEK(V+21)OR128:FORI=1TO200:NEXT
3870 FORI=1922TO1924:POKEI,32:POKEI-40,32:NEXT
3880 POKEV+21,PEEK(V+21)AND127
3890 GOSUB4020
3900 EN=1
3910 RETURN
3920 REM----SOUND EFFECT----
3930 S=54272
3940 POKES+5,96:POKES+4,17:POKES+24,15
3950 POKES+6,128
3960 FORI=50000TO14000STEP-500
3970 HF=INT(I/256):LF=I-256*HF
3980 POKES,LF:POKES+1,HF
3990 NEXT
4000 POKES+24,0
4010 RETURN
4020 REM----EXPLOSION----
4030 POKES+4,129:POKES,127:POKES+1,5
4040 FORI=15T00STEP-.05
4050 POKES+24,I
4060 NEXT
4070 RETURN
4080 END
4090 REM----FLARES----
4100 GOSUB3920:REM SOUND
4110 FL=FL-1:IFFL<0THENFL=0
4120 FORI=1TO10
4130 POKE53281,6:FORJ=1TO50:NEXT
4140 POKE53281,1:FORJ=1TO50:NEXT
4150 NEXT
4160 POKE53281,0
4170 PRINTTAB(25)CHR$(145)"FLARES";FL
4180 RETURN
4190 REM----DATA FOR AIR EXP----
4200 DATA0,0,0,0,0,0,0,16,0,0,0,0,4,16
4210 DATA0,3,2,64,1,56,128,12,255,144
4220 DATA1,238,40,5,151,0,11,121,0,1
4230 DATA183,0,25,214,96,0,236,48,6,24
4240 DATA152,3,98,0,8,51,0,0,96,128,0
4250 DATA64,0,0,0,0,0,0,0
4260 REM-----DATA FOR LEFT BOMBER----
4270 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
4280 DATA14,0,0,14,0,0,30,15,255,254
4290 DATA241,255,126,254,219,247,127
4300 DATA255,128,3,252,0,0,254,0,0,63
4310 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
4320 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
4330 REM----DATA FOR RIGHT BOMBER----
4340 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
4350 DATA112,0,0,112,0,0,120,0,0,127
4360 DATA255,240,126,255,143,239,219
4370 DATA127,1,255,254,0,63,192,0,127
4380 DATA0,0,252
4390 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
4400 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
4410 REM----DATA FOR SEARCHLIGHT----
4420 DATA0,0,0,0,126,0,1,255,128,7,255
4430 DATA224,15,255,240,31,255,248,31
4440 DATA255,248,63,255,252,63,255,252
4450 DATA127,255,254,127,255,254,63,255
4460 DATA252,63,255,252,31,255,248,31
4470 DATA255,248,15,255,240,7,255,224,1
4480 DATA255,128,0,126,0,0,0,0,0,0,0,0
4490 REM----DATA FOR GROUND EXP----
4500 DATA0,0,0,0,0,0,0,0,0,24,0,0,24
4510 DATA0,0,48,0,0,170,0,0,68,0,8,110
4520 DATA0,4,176,192,0,166,128,3,105
4530 DATA128,0,51,0,5,60,0,1,154,128,2
4540 DATA124,0,0,186,0,0,92,0,0,56
4550 DATA0,0,60,0,0,24,0,0
```

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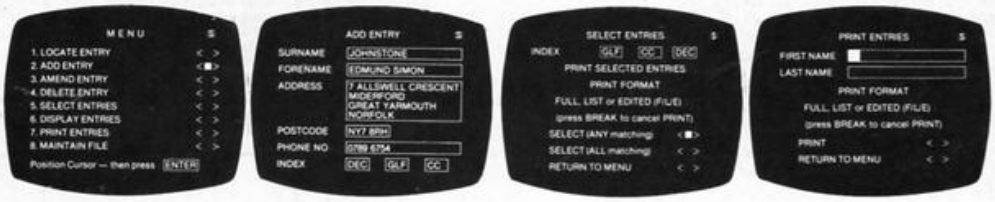

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First, there was the purely text adventure game. Next were text/graphic, and pure graphics adventure games. Examples of all have passed through my Spectrum, ranging from absolutely gripping, to pathetically boring.

This adventure, a text-graphics mixture, is somewhere in the middle. The graphics display the rooms, and contents, through which you are travelling. At top right is an indicator which shows direction of travel, and swings like a compass needle according to which cursor key you have pressed. Also displayed are objects collected, and current room number, a great help if you make maps. Among the indicators is one showing the proximity of the damsel you are trying to rescue.

Although you, the player, are not portrayed, you do get the feeling of actually moving through the game. This is what it's all about, this sense of involvement, and I found the screen part excellent. The let-down is the actual text. Not the plot, or theme, but the dialogue. Which is a pity. Closer attention to the finer details of dialogue and careful program structure, to achieve faster responses, would lift this program from the ordinary to the gripping. **B.B.**

instructions	100%
playability	50%
graphics	90%
value for money	50%

★ ★

Castle Blackstar 48K Spectrum £8.95

S.C.R. Adventures, 190 Shelbourne Rd, Tottenham, London N17

S.C.R. claims this game is a high quality adventure aimed at master player and novice alike. I have no quarrel with that, Castle Blackstar is very good indeed.

Having "woken from a sleep troubled by strange dreams", i.e. with a hangover, it seems that you have rashly promised the tall, willowy, blonde Lady Artemis that you will enter Castle Blackstar to reclaim an orb. In return she will let you keep anything else you may find. Not much of a bargain, I grant you, but that's blondes for you.

The game is text only and has a vocabulary of over 200 words of which only a few are known to you to begin with. Response time is good and you may use short sentences like "Take lamp and light it" or simple verb and noun combinations. As you search you face many and varied dangers, not least of which is getting lost if you do not keep a careful note. If you are killed, and you certainly will be, you are reincarnated outside the castle.

Castle Blackstar uses almost all available memory to provide maximum play potential and should offer long term interest. Highly recommended! **D.J.**

instructions	100%
playability	90%
graphics	n/a
value for money	85%

★ ★ ★ ★

Transylvanian Tower Commodore 64 £6.50

Richard Shepherd, Elm House, 23-25 Elmshott La, Cippenham, Slough, Berks

This is advertised as a spine-chilling adventure with spectacular 3D graphics. Well, it didn't chill my spine, and I don't see anything spectacular about a view of three walls of a room.

It is basically a maze game. The first stage is a very straightforward maze through which you have to find your way, with the assistance of a floor plan which you can look at as often as necessary. The next three stages are remarkably similar mazes, but a few complications start to creep in: there are various objects to find and vampire bats to kill, and views of the floor plan are not so readily available. On level two, shooting the bats is very easy, but it gets harder as you go on.

If you have the time and patience to find your way through four different mazes, then you are rewarded on level five with a chance to kill Count Kreepie and find his treasure. You'd have to be unusually keen on mazes to get this far, though.

M.N.

instructions	70%
playability	3030%
graphics	50%
value for money	40%

★ ★

Lords of Time 32K BBC £9.90

Level 9 Computing, 229 Hughenden Rd, High Wycmbe, Bucks HP13 5PG

First, my thanks to the company which thinks of the poor reviewer of adventure games and provides a useful help sheet. My lips are sealed!

This is a text adventure which contains over 200 locations and some of the most intriguing puzzles I've come across. There's so much to do and so many places to visit.

The plot involves travelling to nine time zones and collect the "symbolic objects" needed for the final victory. The booklet is the usual blend of hints and tantalising information but it does reveal that it is essential to get in the clock and travel to the various zones. Those that I have travelled to are well described and include many oddities and anachronisms, liberties which the author freely acknowledges.

It is a friendly game, allowing you to save and restore game positions. It also accepts complete phrases, thus allowing a more human dialogue. You can repeat previous commands with AGAIN, use LEFT and RIGHT instead of west and east. All these and many more make this a pleasure to play.

If you enjoy text adventures then this is not to be missed.

M.P.

instructions	95%
playability	90%
display	50%
value for money	90%

★ ★ ★ ★

Valley of the Pharoahs 32K BBC £7.95

First Byte, 10 Main St, Derby

The more adventures I review the more I feel they should have to declare certain features. The sort of thing I would like to see are details of how many locations, language used, i.e. machine code or BASIC, type of graphics, if any, and some indication of difficulty. That is not easy to assess at all, for what is difficult to one is frustrating for another and simple to a third.

This program is written in BASIC and, while being fairly attractive on the Mode 7 screen, is very small and slow to respond to your moves. It is also extremely frustrating with only two locations accessible at first, therefore I find it hard to believe that a beginner with adventures will enjoy this. You do like to get somewhere in the first few moves, I find. The story line is fairly standard and has been used many times before, notably by Acornsoft. The language understood comprises less than 50 words — I cheated and looked — which means some frustration in getting your message across. In common with other releases from this company there is no written documentation, only that seen on screen. **D.C.**

instructions	10%
playability	50%
graphics	n/a
value for money	30%

★ ★

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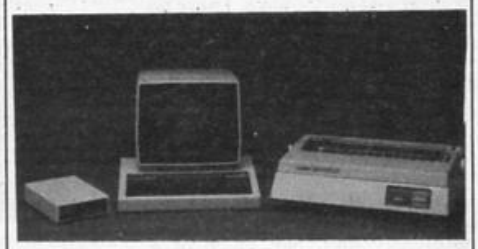

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MSX micros are caught in a vicious circle

Here's a little news about the standard that hasn't happened yet. Around the middle of last year a group of Japanese and American companies decided to establish a standard operating system for home computers to be called MSX. This was developed by our very own Microsoft, which seems to have its hand in everything these days from Apple's mouse to Zenith's operating system.

Although the Japanese firms which subscribed to the MSX standards are apparently doing well with them in Japan, the onslaught of 8-bit Japanese machines using MSX has yet to be felt over here. The anticipated flood is instead turning out to be a trickle. Industry experts are starting to wonder if indeed MSX machines could even penetrate the market at this point. One thing that a lot of us noticed at the recent Consumer Electronics Show in Las Vegas was the lack of MSX micros.

Even Microsoft's Far East rep mentioned his surprise at this, but felt that the hold-back was due to the reluctance of the Japanese firms to take on America before the Taiwanese, Korean, Hong Kong and Japanese markets were satisfied. Even though Microsoft says otherwise, it is also felt that the MSX standard is just a Japanese one.

Another drawback is that not one MSX machine has been approved for sale in the U.S. Before any computer for home use can be sold, its generated interference level must be acceptable to the Federal Communications Commission, which controls use of the airwaves.

Still another drawback is the old question of software. There are only about 150 titles of MSX software available in Japan, and hardly any in English. This situation is not likely to change soon. Activision, Sierra On-Line, and Spinnaker, which all agreed to the standard last year, are three manufacturers which are very reluctant to spend a significant amount of research and development money on software products that may never be hardware-supported.

There is also trouble trying to find domestic hardware support. To date, the first and only U.S. hardware company to support the standard is Spectravideo in New York. Its model SVI 728 is basically a CP/M machine having a decent keyboard and MSX in ROM. It also markets a larger machine, the SVI 328, for which a $50 MSX adapter will become available in spring.

Microsoft is hoping this will truly become a standard, so much so that it has even designed a 16-bit version called MSX-DOS which will be compatible with CP/M-80 programs but will be able to have colour and graphics capabilities too. MSX files wil be compatible with MS-DOS files. Microsoft hopes this will encourage users of MS-DOS at work to buy smaller and less costly machines to process the same files at home. Later this year it is planning to release rewritten versions of some of its existing applications programs such as Multiplan, and languages such as BASIC, FORTRAN, and COBOL.

Spectravideo is, of course, working hard to develop hardware that will support all this, in the obvious hope that it will be the leader of the pack, MSX-wise. It feels that its second generation machine, to be introduced in June at the summer Consumer Electronics Show in Chicago, will take the industry by storm. Two of the leaders of the low-cost computer market, Coleco and Commodore remain unimpressed. A spokesman for the former indicated that the main manufacturers have already adopted a wait and see attitude, while the Commodore spokesman was very forthright in stating that there was no point in adapting a hardware standard for which there was no software.

Bud Izen
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Dambusters 32K BBC £7.95

Alligata, 178 West St, Sheffield S1 4ET

This game has a new scenario, to me at least. You pilot a Wellington Bomber as part of the 617 Squadron in an attack on the Mohnesee Dam. This means you have not only got to try to bomb the dam but also keep off the enemy aircraft.

To help in this task you have both rear and front gun positions. This means that with up, down, accelerate, decelerate and release bomb there are seven control keys. This suggests one of two things: either the game is meant for Planetoid freaks, to whom the manipulation of hundreds of keys presents no problems, or that it is for those under the advanced age to which I now have to admit! Put in other words I found the game rather hard and I'm not even sure if there is a second more difficult screen yet.

The screen layout is a little lacking in colour but I'm certain this is for speed, of which this program does make good use. The moving graphics are very good indeed. Bomb aiming is fairly easy using the convergent light principle the actual bombers used. But mine kept hitting the island.

D.C.

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

★ ★ ★ ★ ★

Stock Market 48K Spectrum £6

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

If you're fed up with eating power pills and slaying dragons then this may be for you.

You have five days to maximise your investment in six companies. You are given £15,000 to start with and you can then buy or sell shares. Your cash level is constantly printed and you are allowed overdrafts. If you have over £15,000 you can bank some to gain interest.

Lots of detailed information is available, well presented and clear, with the option of well-drawn diagrams. Play is interspersed with newsflashes which affect prices and stability of the market. If a company has done very well you get bonus shares, but sometimes companies fail. There is a minor bug: when you have asked for company details at the beginning the program is aborted later. Type "GOTO 1" (not RUN), refuse these details and all will be well.

It prints a critical analysis of your tactics, for example: "On two occasions you held onto shares at high prices when they were falling." Several paragraphs are in the same vein. I like this idea; perhaps I should have asked the program to review itself!

M.T.

instructions	60%
ease of use	80%
display	95%
value for money	75%

★ ★ ★ ★

Bull Run Spectrum £5.95

Phipps Associates, 172 Kingston Rd, Ewell, Surrey KT19 0SD

Bull Run has nothing to do with the American Civil War battle of that name but is an amusing little game based on the quaint Spanish custom of releasing bulls into the streets for the braver or dafter locals to play with.

The screen nicely represents an aerial view of the town and you have to try and trap the bull — graded on three levels of bovine nastiness — in the arena. You chase around the town erecting fences and acting as live bait. Of course, the bull wants to gore you and often knocks over your fences. It stalks you in an exciting way and the action, while rather jerkey, is quite fast. Success is rewarded by the townsfolk with muchos pesetas and a commendable feature is that the bull has a rather better chance than in real life.

The game is one of those that keep you "wanting just one more go" until you have mastered it but this is quite quickly done and then there is little more on offer. Compared with the many multi-staged games on current release Bull Run is, I feel, rather over-priced.

D.J.

instructions	80%
playability	65%
graphics	70%
value for money	60%

★ ★ ★

Sub Spectrum £6.99

Romik, 272 Argyll Ave, Slough, Berkshire

Sub simulates a struggle between you, captain of the frigate Anachronous, and a Soviet submarine. How accurate it is I would not know as my naval warfare experience extends no further than the queue in the cafeteria on the Isle of Man ferry. But nevertheless Sub is intriguing and challenging.

The screen shows instruments for range, depth and direction of foe along with you speed, heading and rudder position. Also displayed is the depth setting and your depth charges. In the centre is the sonar display.

By varying course and speed you try to intercept and destroy the sub before he torpedoes you. My early efforts included being blown out of the water after less than a minute, likely to be an unbeatable record. If you win you get a brief rendering of Rule Brittania.

There are three ranks, promotion leading to a harder game, and five skill levels. Higher levels are certainly taxing. Selecting Russians as enemies seems somehow improper compared with fictitious planets. Definitely not one to improve East-West relations!

D.J.

instructions	90%
playability	80%
graphics	60%
value for money	85%

★ ★ ★ ★

Manage 48K Spectrum £6

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

A program for the budding entrepeneur or A-level business studies student. I had to engage the services of both to enable me to make head or tail of it.

The idea is to build up cash and plant so your opponent cannot compete successfully.

Each must make decisions: price of goods and marketing, production, research and development costs. Once you have typed in these numbers, the results are calculated. This is where my entrepeneur/business student came in: five pages of information were displayed, all double Dutch to me, even though the inlay stated: "No prior financial knowledge is required." The meaning of the jargon is not explained in the instructions — they don't explain much more than the rules.

However, once in the know, I found the information to be an essential part of the game, well displayed and easy to understand once you know what the headings mean. As a game I found it a little tedious to play, because of all the data players have to enter. However, it could prove useful as an educational aid. Nowhere does it tell you what you are supposed to be selling!

M.T.

instructions	45%
ease of use	50%
display	85%
value for money	60%

★ ★ ★

CHRISTINE COMPUTING

TI 99/4A

BLAST IT

Disarm bombs with a wire guided robot, bombs must be disarmed in order within a time limit. 5 levels of play, high score table. **£4.95**

CORE!

A three part game, move left and right as you descend through the clouds, birds and aeroplanes. On to the caves and caverns then through the 3-D maze to the Core. **£4.95**

FRUIT MACHINE

One arm bandit simulation featuring random hold, nudge and gamble. 'Reels' are fixed and can be learnt but motion is random. **£4.95**

UFO

Blast the aliens as they appear from hyper-space, features 3 levels of play, refuel etc. **£4.95**

SPUDZ

Score points as you collect potatoes without getting caught in the shadow cast by the setting sun or falling into your trench. **£4.95**

COMMODORE 64

MUNCHER

100% machine code game making good use of the sound and graphic facilities of the 64. Munch your way around the maze avoiding the ghosts, etc. **£6.95**

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Hop across the road... and watch the cars and snakes

Your skill at dodging cars and Sid the Snake will be tested in this variation on a popular game from Andrew MacMaster

Hints on conversion

PROCedures are similar to GOSUB except that they need no line number. The following PROCs are used:

PROCinit initialisation
PROCtitle title page
PROCunit roads(LEVEL) sets number of cars on roads depending on level
PROCscreen sets up games screen
PROCmove cars moves cars on road
PROCkey check checks if key has been pressed
PROCtime updates time countdown
PROClives(LV) prints number of lives left
PROCsnake moves snake in grass
PROCscore(S%) updates score
PROCcrash check checks if frog has been killed
PROCtune plays tune
Mode 2 sets up screen 20 rows by 32 columns or 1280 by 1024 pixels.
!&FE00=&10200A kills the cursor
?(&25A)=40 puts keyboard in upper case and keeps it there
+FXIS,1 clears keyboard buffers,
ADVAL(0) checks fire button and **ADVAL(1)** and **ADVAL(2)** check joystick movement.
VDU23,... defines user definable graphics.
ENVELOPE controls character of SOUND statement.
VDU28 sets text window.

In this game for the BBC Model B called Ribbet, you are a frog and you have to cross a main road with lots of cars.

You have five lives and there is also a clock at the top of the screen — dawdle too long and you run out of time and die. There is also a patch of grass near the road which hides Sid the Snake.

Get four frogs across safely and you get a chorus of Yankee Doodle Dandee and gon to the next level — there are five in all.

You can use joysticks in place of the keyboard. When the program says SPACE or FIRE to start the game press FIRE for the joystick selection.

The game takes up 6634 bytes of memory in MODE 2 leaving 2070 bytes free to shorten the program. Typing in Time, the title page, joystick routine and two tune sections could all be left out.

Variables

S% score
LV lives left
X1 X position of frog
Y1 Y position of frog
TT time left
HO$(4) river bank holes
L$ middle of road
R$(4) roads
RI$(4) river
LEVEL current level
A$ input
JOY joystick or not
AA middle point of frog

How it works

1000-1011 initialise and call title page
1020-1030 set road and set up screen
1040-2000 main program loop
3000-15140 subroutines
15300-15350 joystick test

```
1000 MODE2:!&FE00=&10200A
1005 S%=0:NL=0:HO=0:SC=1:DE=0:LV=5:SN=0:SK=0:X3=0
1006 RESTORE9200
1010 PROCinit
1011 PROCtitle
1012 VDU7:MODE2
1020 PROCinit_roads(LEVEL)
1030 PROCscreen
1040 PROCmove_cars
1045 SC=0
1050 PROCkey_check
1055 IFNL=1THENNL=0:X1=10:Y1=27:TT=100:MODE2:GOTO1020

1060 PROCcrash_check
1070 PROCtime
1071 PROClives(LV)
1072 IFDE=1THENDE=0:GOTO8000
1090 PROCsnake
1100 PROCscore(S%)
```

```
 2000 GOTO1040
 3000 DEFPROCinit
 3001 VDU23,244,0,129,129,66,66,36,24,0
 3002 VDU23,245,60,102,231,129,129,231,231,255:VDU23,24
6,255,255,255,255,255,255,255,255
 3003 VDU23,200,RND(255),RND(255),RND(255),RND(255),RND
(255),RND(255),RND(255),RND(255)
 3004 VDU23,201,RND(255),RND(255),RND(255),RND(255),RND
(255),RND(255),RND(255),RND(255)
 3005 VDU23,202,RND(255),RND(255),RND(255),RND(255),RND
(255),RND(255),RND(255),RND(255)
 3006 VDU23,243,0,1,129,73,85,85,85,34
 3010 VDU23,255,170,85,170,85,170,85,170,85
 3013 VDU23,230,0,2,5,3,7,7,23,63
 3015 VDU23,231,0,64,160,192,224,224,232,252
 3018 VDU23,232,63,63,31,31,15,15,8,28
 3020 VDU23,233,252,252,248,248,240,240,26,56
 3022 DIMHO$(4)
 3030 L$=STRING$(20,"-"):TT=100
 3033 SE$=STRING$(20,CHR$244)
 3040 VDU23,224,0,224,70,255,255,70,224,0
 3050 VDU23,225,0,231,66,127,127,66,231,0
 3060 VDU23,226,7,2,71,255,255,71,2,7
 3070 VDU23,227,0,231,255,255,255,255,231,0
 3075 VDU23,229,153,189,126,60,60,255,129,129
 3076 ENVELOPE1,1,0,0,0,0,0,0,126,-1,0,-3,126,126
 3080 DIMR$(4),RI$(4),L(6),LI$(4)
 3081 A=2:FORT=1TO4:FORX=1TOA:LI$(T)=LI$(T)+CHR$244:NEX
T:FORX=1TOA:LI$(T)=LI$(T)+CHR$246:NEXT:A=A+1:NEXT
 3085 RI$(1)=STRING$(5,LI$(1))
 3086 RI$(2)=STRING$(3,LI$(2))
 3087 RI$(3)=STRING$(2,LI$(3))
 3088 RI$(4)=STRING$(2,LI$(4))
 3090 FORX=1TO4:N=20-LEN(RI$(X)):RI$(X)=RI$(X)+STRING$(
N,CHR$244):NEXT
 3095 LEVEL=1
 3100 X=6:FORY=1TO5:L(Y)=X:X=X-1:NEXT
 3102 X1=10:Y1=27
 3104 ENDPROC
 3105 DEFPROCinit_roads(LEVEL)
```

```
 3110 S$=STRING$(L(LEVEL)," ")
 3115 LI=L(LEVEL)+1
 3120 V=224:FORX=1TO4:N=20 DIV LI:R$(X)=STRING$(N,S$+CH
R$V):V=V+1:NEXT
 3130 FORX=1TO4:N=20-LEN(R$(X)):R$(X)=R$(X)+STRING$(N,"
"):NEXT
 3140 FORX=1TO4:T=RND(10):FORY=1TOT
 3150 B$=MID$(R$(X),1,1):R$(X)=RIGHT$(R$(X),(LEN(R$(X))
-1)):R$(X)=R$(X)+B$:NEXT:NEXT
 3160 ENDPROC
 4000 DEFPROCscreen
 4010 CLS
 4015 !&FE00=&10200A
 4020 COLOUR2
 4030 PRINTTAB(0,1);:FORX=1TO20:PRINTCHR$255;:NEXT
 4040 FORT=2TO3:PRINTTAB(0,T);:FORX=1TO3:PRINTCHR$255;:
NEXT:FORX=1TO3:PRINT"  ";CHR$255;CHR$255;:NEXT:PRINT"
";:FORX=1TO3:PRINTCHR$255;:NEXT:NEXT
 4050 COLOUR132
 4060 FORX=4TO12:PRINTTAB(0,X);:FORT=1TO20:PRINT" ";:NE
XT:NEXT
 4062 PRINTTAB(0,4);SE$
 4064 PRINTTAB(0,6);SE$
 4066 PRINTTAB(0,8);SE$
 4068 PRINTTAB(0,10);SE$
 4069 PRINTTAB(0,12);SE$
 4070 COLOUR2:COLOUR128
 4075 PRINTTAB(0,13);:FORX=1TO20:PRINTCHR$255;:NEXT
 4080 PRINTTAB(0,14);:FORX=1TO20:PRINTCHR$255;:NEXT
 4090 PRINTTAB(0,15);:FORX=1TO20:PRINTCHR$255;:NEXT
 4100 PRINTTAB(0,27);:FORX=1TO20:PRINTCHR$255;:NEXT
 4110 COLOUR9:COLOUR128:PRINTTAB(0,21);L$
 4111 COLOUR2:FORX=1TO4:IFHO$(X)="F"THENA=(4*X)-1:PRINT
TAB(A,2);CHR$230;CHR$231:PRINTTAB(A,3);CHR$232;CHR$233
 4112 NEXT
 4113 ENDPROC
 4115 DEFPROCmove_cars
 4116 COLOUR128
 4120 COLOUR7:PRINTTAB(0,17);R$(1)
 4124 PROCcrash_check
```

```
 4125 COLOUR6:PRINTTAB(X1,Y1);CHR$229
 4130 COLOUR1:PRINTTAB(0,19);R$(2)
 4134 PROCcrash_check
 4135 COLOUR6:PRINTTAB(X1,Y1);CHR$229
 4140 COLOUR4:PRINTTAB(0,23);R$(3)
 4144 PROCcrash_check
 4145 COLOUR6:PRINTTAB(X1,Y1);CHR$229
 4147 COLOUR5:PRINTTAB(0,25);R$(4)
 4150 PROCcrash_check
 4151 COLOUR6:PRINTTAB(X1,Y1);CHR$229
 4152 COLOUR3:COLOUR132:PRINTTAB(0,5);RI$(1)
 4154 PRINTTAB(0,7);RI$(2)
 4156 PRINTTAB(0,9);RI$(3)
 4158 PRINTTAB(0,11);RI$(4)
 4159 COLOUR128:COLOUR6:PRINTTAB(X1,Y1);CHR$229
 4160 FORX=2TO4 STEP2:B$=MID$(R$(X),1,1):R$(X)=RIGHT$(R
$(X),(LEN(R$(X))-1)):R$(X)=R$(X)+B$:NEXT
 4170 FORX=1TO3 STEP2:B$=MID$(R$(X),LEN(R$(X)),1):R$(X)
=LEFT$(R$(X),(LEN(R$(X))-1)):B$=B$+R$(X):R$(X)=B$:NEXT
 4180 FORX=2TO4 STEP2:B$=MID$(RI$(X),1,1):RI$(X)=RIGHT$
(RI$(X),(LEN(RI$(X))-1)):RI$(X)=RI$(X)+B$:NEXT
 4190 FORX=1TO3 STEP2:B$=MID$(RI$(X),LEN(RI$(X)),1):RI$
(X)=LEFT$(RI$(X),(LEN(RI$(X))-1)):B$=B$+RI$(X):RI$(X)=B
$:NEXT
 4191 IFHO=0THEN4200
 4192 IFY1=5 OR Y1=9 THENX6=1
 4193 IFY1=7 OR Y1=11 THENX6=-1
 4194 COLOUR3:PRINTTAB(X1,Y1);CHR$246
 4195 X1=X1+X6:IFX1=0 ORX1=19THENHO=0:TT=0:ENDPROC
 4196 COLOUR6:PRINTTAB(X1,Y1);CHR$229
 4200 ENDPROC
 4210 DEFPROCkey_check
 4215 ?(&25A)=40
 4220 A$=INKEY$(30)
 4225 IFJOY=1THENPROCjoysticks
 4230 IFA$=""THENCOLOUR6:PRINTTAB(X1,Y1);CHR$229:ENDPRO
C
 4231 IFY1=27 OR Y1=13 OR Y1=15 THENS1$=CHR$17+CHR$2+CH
R$255:GOTO4235
 4232 IFY1=21THENS1$=CHR$17+CHR$9+"-":GOTO4235
 4233 IFHO=1THENS1$=CHR$17+CHR$3+CHR$246:GOTO4235
 4234 S1$=" "
 4235 PRINTTAB(X1,Y1);S1$:COLOUR6
 4236 IFHO=1THEN4260
 4240 IFA$="Z"THENIFX1>0THENX1=X1-1
 4250 IFA$="X"THENIFX1<19THENX1=X1+1
 4260 IFA$=":"THENY1=Y1-2:LO=0:S%=S%+5*LEVEL
 4270 IFA$="/"THENIFY1<>27THENY1=Y1+2:LO=0
 4271 IFY1<5 THEN 11000
 4272 IFNL=1THENENDPROC
 4275 PROCcrash_check
 4280 SOUND3,-7,200,2
 4285 *FX15,1
 4290 ENDPROC
 4300 DEFPROCcrash_check
 4305 IFSC=1THENENDPROC
 4310 A=31-Y1:Y2=A*32:X2=X1*64
 4320 AA=POINT(X2+32,Y2+16)
 4330 IFAA=6 OR AA=2 OR AA=0 OR AA=9THEN4350
 4335 IFAA=3THENHO=1:ENDPROC
 4340 DE=1
 4350 ENDPROC
 7200 DEFPROCtime
 7205 TT$=STR$(TT):N=3-LEN(TT$):TT$=TT$+STRING$(N," ")
 7206 PRINTTAB(0,0);" TIME LEFT ";TT$
 7210 TT=TT-2:IFTT<0THENDE=1:ENDPROC
 7230 ENDPROC
 8000 REM*DEATH*
 8005 HO=0:COLOUR7
 8010 VDU19,0,2,0,0,0:FORX=1TO200:NEXT:VDU19,0,0,0,0,0:
SOUND0,1,5,5
 8020 FORX=1TO20:FORY=200TO203:PRINTTAB(X1,Y1);CHR$Y;:N
EXT:NEXT:PRINTTAB(X1,Y1);CHR$245
 8030 RESTORE8100
 8040 FORX=1TO28
 8050 READA:READB:SOUND1,-5,A,B
 8055 A=0:B=1:SOUND1,0,A,B
 8057 NEXT
 8060 LV=LV-1:X1=10:Y1=27:TT=100:IFLV=0THEN9000
 8065 *FX15,1
 8070 GOTO1020
 8100 DATA 109,10,129,15,129,5,129,10,145,10,137,15,129
,5,137,10,145,10,129,10,129,10,145,10,157,10,165,30
 8110 DATA 165,10,157,15,145,5,145,10,129,10,137,15,129
,5,137,10,145,10,129,15,117,5,117,10,109,10,129,20
 8200 DEFPROClives(LV)
 8210 PRINTTAB(0,28);:FORX=1TOLV:PRINTCHR$229;" ";:NEXT
:PRINT"  "
 8215 COLOUR5:PRINTTAB(10,28);"LEVEL :";:COLOUR8:LV$=ST
R$(LEVEL):PRINTLV$
 8220 ENDPROC
 9000 REM*NEW GAME*
 9010 VDU28,1,27,18,5:COLOUR134:COLOUR15:CLS
 9030 PRINTTAB(6,1);"RIBBET"
 9040 COLOUR8:PRINTTAB(3,3);"BY A.MCMASTER"
 9050 COLOUR5:PRINTTAB(3,7);"ANOTHER GAME"
 9060 A$=GET$
 9070 IFA$="Y"THENCLEAR:GOTO1000
 9080 IFA$="N"THENCOLOUR1:PRINTTAB(2,10);"ALAS WE DEPAR
T":FORX=1TO2500:NEXT:MODE6:GOTO9095
 9090 GOTO9060
 9095 END
 9100 DEFPROCtune
 9110 TX=TX+1:IFTX=50THENRESTORE9200:TX=1
 9120 READA:READB:SOUND1,-5,A,B
 9130 ENDPROC
 9200 DATA149,10,149,5,149,2,149,5,141,2,137,5,149,2,16
9,5,177,2,185,5,185,2,185,5,177,2,169,10,169,5,169,2,15
7,5,157,2,157,5,165,2,169,5,165,2,169,5,157,2,149,5,157
,2,149,5,137,2,149,10,149,5,149,2,149,5,149,2,149,5,141
,2,137,5,149,2,169,5
 9210 DATA177,2,185,5,185,2,185,5,177,2,169,10,169,10,1
77,10,177,10,169,10,165,10,169,20
 9300 REM*ALL FROGS HOME
 9305 RESTORE9350
 9310 FORX=1TO27
 9320 READA:READB:SOUND1,-7,A,B
 9330 SOUND1,0,1,1
 9340 NEXT
 9342 *FX15,1
 9345 GOTO4272
 9350 DATA149,5,149,5,157,5,165,5,149,5,165,5,157,10,14
9,5,149,5,157,5,165,5,149,10,145,10,149,5,149,5,157,5,1
65,5,169,5,165,5,157,5,149,5,145,5,129,5,137,5,145,5,14
9,10,149,10
 9400 DEFPROCscore(SC)
 9405 COLOUR5
 9410 PRINTTAB(0,30);"SCORE :";S%
 9420 ENDPROC
 9600 DEFPROCsnake
 9610 IFSN=1THEN9640
 9620 RR=RND(3):IFRR=2THENSN=1:GOTO9610
 9630 ENDPROC
 9640 IFSK=1THEN9660
 9650 Y3=12+RND(3):SK=1
 9660 COLOUR2:PRINTTAB(X3,Y3);CHR$255:COLOUR5:X3=X3+1:I
FX3=19THENX3=0:SK=0:SN=0:ENDPROC
 9670 COLOUR5:PRINTTAB(X3,Y3);CHR$243:ENDPROC
11000 REM*HOME*
11005 H%=0:F%=0:HO=0
11100 IFX1=3 OR X1=4 THENH%=1
11110 IFX1=7 OR X1=8 THENH%=2
11120 IFX1=11 OR X1=12 THENH%=3
11130 IFX1=15 OR X1=16 THENH%=4
11135 IFH%=0THENTT=0:GOTO4275
11137 S%=S%+15*LEVEL
11140 IFHO$(H%)="F"THENTT=0:HO$(H%)="":GOTO4272
11150 FORX=1TO4:IFHO$(X)="F"THENF%=F%+1
11152 NEXT
11155 IFF%=3THENLEVEL=LEVEL+1:S%=S%+TT*2:FORX=1TO4:HO$(
X)="":NL=1:NEXT:GOTO11170
11160 HO$(H%)="F"
11170 COLOUR2
11175 IFLEVEL=6THENLEVEL=1
11180 IFH%=1THENPRINTTAB(3,2);CHR$230;CHR$231;TAB(3,3);
CHR$232;CHR$233
11190 IFH%=2THENPRINTTAB(7,2);CHR$230;CHR$231;TAB(7,3);
CHR$232;CHR$233
11200 IFH%=3THENPRINTTAB(11,2);CHR$230;CHR$231;TAB(11,3
);CHR$232;CHR$233
11210 IFH%=4THENPRINTTAB(15,2);CHR$230;CHR$231;TAB(15,3
);CHR$232;CHR$233
11310 X1=10:Y1=27:TT=100
11312 *FX15,1
11315 IFNL=1THEN9300
11320 GOTO4272
15000 DEFPROCtitle
15010 CLS:VDU19,0,3,0,0,0
15020 COLOUR4:FORX=1TO5:PRINTTAB(X,2);" RIBBET":FORT=1T
O600:NEXT:NEXT
15030 FORY=2TO4:PRINTTAB(X,Y);" RIBBET":NEXT
15040 COLOUR1:PRINTTAB(3,6);"BY A.MCMASTER"
15050 PRINTTAB(8,8);"1984"
15060 COLOUR2:PRINTTAB(4,11);"Z - LEFT"
15070 PRINTTAB(4,13);"X - RIGHT"
15080 PRINTTAB(4,15);": - FORWARDS"
15090 PRINTTAB(4,17);"/ - BACKWARDS"
15100 PRINTTAB(4,19);"ALSO JOYSTICKS"
15102 PRINTTAB(4,22);CHR$229;" - Franco Frog"
15104 COLOUR5:PRINTTAB(4,24);CHR$243;:COLOUR2:PRINT" -
Sid snake"
15110 COLOUR8:PRINTTAB(7,27);"PRESS"
15115 PRINTTAB(3,29);"SPACE OR FIRE"
15120 A=ADVAL(0)AND3:IFA=1 THENJOY=1:ENDPROC
15130 A$=INKEY$(10):IFA$=" "THENJOY=0:ENDPROC
15140 GOTO15120
15300 DEFPROCjoysticks
15310 IFADVAL1>44000THENA$="Z"
15320 IFADVAL1<21000THENA$="X"
15330 IFADVAL2>44000THENA$=":"
15340 IFADVAL2<21000THENA$="/"
15350 ENDPROC
```

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The pride of the squadron rests with you, your crew and your TI-99/4A. Type in Graham Baldwin's game for the standard TI... and return home safely to Blighty

Your aircraft is trying to destroy an enemy dam by dropping bouncing bombs. Your bombs must hit the water before hitting the dam or the enemy will retaliate with anti-aircraft fire, damaging your engines.

Five hits on the dam are required and you have up to 10 bombs to complete your mission. The game is fairly user-hostile in that there are many ways of losing — crashing into the water, getting hit by your own bomb, being shot down or just running out of bombs.

Full instructions are included in the program, so good luck and come back safely, chaps.

How it works

190-390 define characters and assign colours
400-590 title screen and instructions request
600-700 instructions
710-820 skill levels
830-1080 set up screen and set variables
1100-1170 set plane moving
1190-1210 detect plane crash
1230-1490 detect keys and release bomb
1500-1530 check position of bomb
1550-1790 anti-aircraft fire, hits on dam
1810-2140 dam destroyed
2170-2580 lose sequences
2600-2630 print routine

Hints on conversion

TI BASIC is fairly standard but has some unique graphics commands, some of which are detailed below. The screen is made up of 32 columns and 24 rows.

CALL CLEAR clears the screen. Replace with CLS or similar on other machines

CALL CHAR re-defines an ASCE character with a sixteen digit hex string derived from an 8×8 grid

CALL HCHAR(R,C,ASCE) places a character at row R and column C on the screen and optionally repeats it horizontally

CALL VCHAR similar to HCHAR but repeats character vertically

CALL GCHAR(R, C, X) repeats the ASCE code to variable X of screen position R and C. Similar to a screen PEEK on other machines

CALL KEY(3, K, S) places the code of the key pressed into the variable K. Similar to GET on other computers

Main variables

ROW row of plane
COL column of plane
BR row of bomb
BC column of bomb
SCR number of hits on dam
BMS number of bombs
REV climb or dive plane

```
100 REM
110 REM  ***DAM RAIDER***
120 REM
130 REM           BY
140 REM     GRAHAM BALDWIN
150 REM
160 CALL CLEAR
170 REM  *DEF CHARS*
180 CALL SCREEN(5)
190 CALL CHAR(136,"101010FF10101010")
200 CALL CHAR(112,"FFFFFFFFFFFFFFFF")
210 CALL CHAR(113,"10387CFEFFFFFFFF")
220 CALL CHAR(97,"20A0C8FF7E081020")
230 CALL CHAR(98,"000020702")
240 CALL CHAR(105,"995A3CFF183C5A99")
250 CALL CHAR(120,"FFFFFFFFFFFFFFFF")
260 CALL CHAR(121,"FFFFFFFFFF3C3C3C")
270 CALL CHAR(122,"000103060C183060")
280 CALL CHAR(152,"3C7EFFFFFFFF7E3C")
290 REM  *COLOURS*
300 CALL COLOR(14,12,2)
310 CALL COLOR(16,12,5)
320 CALL COLOR(11,8,5)
330 CALL COLOR(9,16,5)
340 CALL COLOR(10,9,16)
350 CALL COLOR(12,2,5)
360 REM  *SET SCREEN*
370 FOR I=2 TO 8
380 CALL COLOR(I,16,5)
390 NEXT I
400 RANDOMIZE
410 CALL SOUND(100,1800,5)
420 MS$="DAM RAIDER"
430 RP=10
440 F=10
450 GOSUB 2590
460 MS$="**********"
470 CALL SOUND(100,1800,5)
480 RP=12
490 F=10
500 GOSUB 2590
510 MS$="DO YOU NEED BRIEFING? (Y/N)"
520 CALL SOUND(100,1800,5)
530 RP=16
540 F=3
550 GOSUB 2590
560 CALL KEY(3,K,S)
570 IF S=0 THEN 560
580 IF K=78 THEN 710
590 IF K<>89 THEN 560
600 CALL CLEAR
610 PRINT "YOU ARE FLYING A TWIN-ENGINE"::
```

```
620 PRINT "DAM-RAIDER AIRCRAFT.":
630 PRINT "DESTROY THE DAM BY BOUNCING ":
640 PRINT "BOMBS OFF THE WATER.":
650 PRINT "FIVE HITS ARE REQUIRED.":
660 PRINT "A DIRECT HIT WILL CAUSE":
670 PRINT "ANTI-AIRCRAFT FIRE TO":
680 PRINT "DAMAGE ONE OF YOUR ENGINES.":
690 PRINT "PRESS U TO CLIMB AND":
700 PRINT "SPACE TO DROP A BOMB.":::
710 PRINT "   SKILL LEVEL? (1-3)"
720 CALL SOUND(100,1800,6)
730 CALL KEY(3,K,S)
740 IF S=0 THEN 730
750 IF K<>49 THEN 780
760 BMS=10
770 GOTO 830
780 IF K<>50 THEN 810
790 BMS=7
800 GOTO 830
810 IF K<>51 THEN 720
820 BMS=5
830 ENG=2
840 CALL CLEAR
850 SCR=0
860 REM  *SET UP SCREEN*
870 CALL HCHAR(20,1,113,29)
880 CALL HCHAR(21,1,112,128)
890 F=2
900 RP=23
910 CALL VCHAR(16,30,136,9)
920 CALL VCHAR(17,31,136,8)
930 CALL VCHAR(16,32,136,9)
940 CALL HCHAR(19,1,120,6)
950 CALL HCHAR(18,4,121)
960 CALL HCHAR(17,4,122)
970 CALL HCHAR(1,7,152)
980 CALL SOUND(10,1800,6)
990 MS$=" BOMBS- "&STR$(BMS)
1000 GOSUB 2600
1010 ROW=INT(10*RND)+1
1020 REV=1
1030 CALL HCHAR(20,1,113,29)
1040 COL=1
1050 F=10
1060 RP=23
1070 MS$=STR$(BMS)&" "
1080 GOSUB 2600
1090 REM  *THE GAME*
1100 CALL HCHAR(ROW,COL,97)
1110 IF BMS=0 THEN 2290
1120 CALL KEY(3,K,S)
1130 CALL HCHAR(ROW,COL,32)
1140 COL=COL+1
1150 ROW=ROW+REV
1160 IF ROW>1 THEN 1190
1170 ROW=1
1180 REM  *DETECT HITS*
1190 CALL GCHAR(ROW,COL,CRH)
1200 IF CRH<>32 THEN 2200
1210 IF COL=32 THEN 1010
1220 REM  *DETECT KEYS*
1230 IF K<>85 THEN 1250
1240 REV=-1
1250 IF K<>32 THEN 1100
1260 CALL SOUND(15,1000,1,-7,8)
1270 BMS=BMS-1
1280 A=1
1290 Q=0
1300 BR=ROW+A+1
1310 BC=1
1320 BC=COL
1330 CALL HCHAR(BR,BC,98)
1340 CALL HCHAR(ROW,COL,32)
1350 COL=COL+1
1360 IF COL=32 THEN 1370 ELSE 1450
1370 COL=1
1380 REV=1
1390 CALL HCHAR(20,1,113,29)
1400 ROW=INT(10*RND)+1
1410 F=10
1420 RP=23
1430 MS$=STR$(BMS)&" "
1440 GOSUB 2600
1450 CALL HCHAR(ROW,COL,97)
1460 CALL HCHAR(BR,BC,32)
1470 BR=BR+A
1480 BC=BC+1
1490 IF BC>32 THEN 1100
1500 CALL GCHAR(BR,BC,H)
1510 IF H=32 THEN 1330 ELSE 1520
1520 IF H=113 THEN 1530 ELSE 1590
1530 A=-1
1540 REM  *SHELL-FIRE*
1550 Q=1
1560 CALL SOUND(40,-6,1)
1570 CALL HCHAR(BR,BC,32)
1580 GOTO 1330
1590 IF H=136 THEN 1610 ELSE 1600
1600 IF H=97 THEN 2370
1610 IF Q=0 THEN 1620 ELSE 1750
1620 CALL HCHAR(16,5,105)
1630 CALL HCHAR(11,18,105)
1640 CALL HCHAR(11,27,105)
1650 CALL HCHAR(11,9,105)
1660 CALL SCREEN(9)
1670 CALL SOUND(500,110,8,-7,1)
1680 CALL SCREEN(5)
1690 CALL HCHAR(11,9,32)
1700 CALL HCHAR(11,18,32)
1710 CALL HCHAR(11,27,32)
1720 CALL HCHAR(16,5,32)
1730 ENG=ENG-1
1740 IF ENG=0 THEN 2460 ELSE 1100
1750 SCR=SCR+1
1760 CALL HCHAR(BR,BC,105)
1770 CALL SOUND(500,110,5,220,5,-7,1)
1780 CALL HCHAR(BR,BC,32)
1790 IF SCR=5 THEN 1800 ELSE 1100
1800 REM  *WIN SEQ*
1810 CALL VCHAR(16,31,105,9)
1820 CALL SCREEN(11)
1830 CALL HCHAR(ROW,COL,32)
1840 CALL SOUND(100,110,4,-7,1)
1850 CALL SCREEN(5)
1860 FOR I=1 TO 16
1870 CALL SOUND(-150,-7,I)
1880 NEXT I
1890 CALL VCHAR(16,30,32,9)
1900 CALL VCHAR(16,31,32,9)
1910 CALL VCHAR(16,32,32,9)
1920 CALL HCHAR(21,1,112,128)
1930 CALL HCHAR(19,1,32,6)
1940 CALL HCHAR(18,4,32)
1950 CALL HCHAR(17,4,32)
1960 FOR I=20 TO 24
1970 CALL HCHAR(I,1,113,32)
1980 FOR D=1 TO 200
1990 NEXT D
2000 CALL HCHAR(I,1,32,32)
2010 CALL SOUND(300,-5,6)
2020 NEXT I
2030 CALL CLEAR
2040 CALL SOUND(100,294,4,440,4,370,4)
2050 CALL SOUND(1000,294,1,440,1,370,1)
2060 PRINT "    YOU BURST THE DAM.":
2070 PRINT "   MISSION SUCCESSFUL.":
2080 PRINT "   ANOTHER GAME? (Y/N)"
2090 CALL KEY(3,K,S)
2100 IF S=0 THEN 2090
2110 IF K=89 THEN 2130
2120 IF K=78 THEN 2450 ELSE 2090
2130 CALL CLEAR
```

TI-99/4A PROGRAM

```
2140 GOTO 710
2150 CALL CLEAR
2160 REM  *LOSE SEQ*
2170 CALL SCREEN(5)
2180 PRINT "   YOU WERE SHOT DOWN.":::
2190 GOTO 2080
2200 CALL HCHAR(ROW,COL,105)
2210 CALL SCREEN(9)
2220 CALL SOUND(990,110,7,-7,1)
2230 CALL CLEAR
2240 CALL SCREEN(5)
2250 PRINT "       YOU CRASHED. ":::
2260 CALL SOUND(100,196,1)
2270 CALL SOUND(400,165,1)
2280 GOTO 2080
2290 CALL CLEAR
2300 CALL SOUND(100,196,1)
2310 CALL SOUND(400,165,1)
2320 PRINT "    YOU HAVE DROPPED          ":::
2330 PRINT "     ALL YOUR BOMBS.":::
2340 PRINT "    MISSION ABANDONED.":::
2350 GOTO 2080
2360 CALL CLEAR
2370 CALL HCHAR(ROW,COL,105)
2380 CALL SCREEN(9)
2390 CALL SOUND(600,110,5,220,5,-7,1)
2400 CALL SCREEN(5)
2410 CALL CLEAR
2420 PRINT "   YOU WERE BROUGHT DOWN":::
2430 PRINT "     BY YOUR OWN BOMB.":::
2440 GOTO 2080
2450 END
2460 CALL HCHAR(ROW,COL,32)
```

```
2470 ROW=1
2480 COL=1
2490 CALL HCHAR(ROW,COL,97)
2500 CALL SOUND(-50,-7,1)
2510 CALL HCHAR(ROW,COL,32)
2520 ROW=ROW+1
2530 COL=COL+1
2540 CALL GCHAR(ROW,COL,CR)
2550 IF CR=32 THEN 2490
2560 CALL SCREEN(9)
2570 CALL SOUND(500,110,2,-7,0)
2580 GOTO 2150
2590 REM  ** SCORE ROUTINE**
2600 FOR I=1 TO LEN(MS$)
2610 CALL HCHAR(RP,F+I,ASC(SEG$(MS$,I,1)))
2620 NEXT I
2630 RETURN
```

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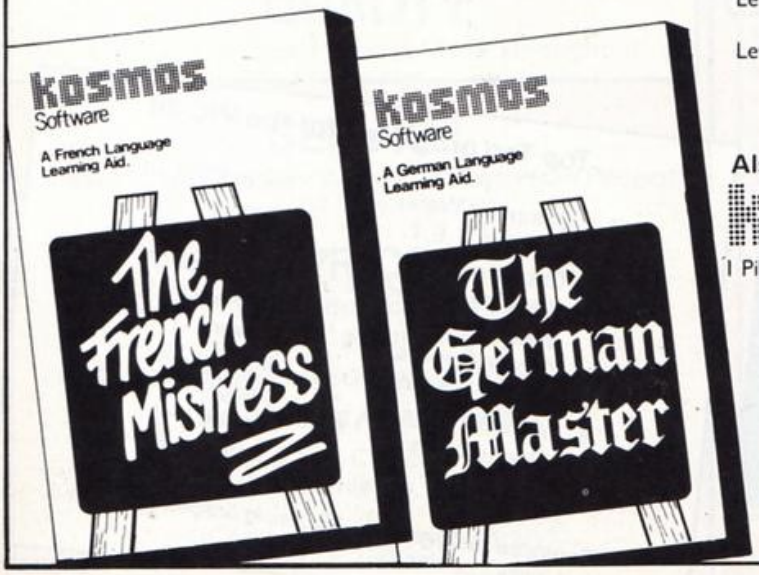

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1	Hungry Horace	Mel House (—)
2	Eight Ball	Microdeal (2)
3	Dragon Chess	Oasis (6)
4	Ugh	Softek (—)
5	Up Periscope	Beyond
6	Devil Assault	Microdeal (9)
7	Leggit	Imagine (4)
8	Cuthbert in the Mines	Microdeal (—)
9	Frogger	Microdeal (—)
10	Cuthbert in the Jungle	Microdeal (8)

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

Top Ten programs for the Commodore 64

1	Chinese Juggler	Ocean (—)
2	Manic Miner	Software Projects (—)
3	Boogaboo (The Flea)	Quicksilva (—)
4	Revenge of the Mutant Camels	Llamasoft (1)
5	Magawarz	Paramount (—)
6	Space Shuttle	Microdeal (6)
7	Mr Wimpy	Ocean (2)
8	Falcon Patrol	Virgin (7)
9	Hunchback	Ocean (5)
10	Cosmic Convey	Task Set (-)

Top Ten programs for the Spectrum

1	Atic Atac	Ultimate (1)
2	Chequered Flag	Psion (2)
3	Flight Simulation	Psion (5)
4	Lunar Jetman	Ultimate (4)
5	Ant Attack	Quicksilva (6)
6	Stonkers	Imagine (7)
7	Scuba Dive	Durell (—)
8	Alchemist	Imagine (10)
9	Jetpac	Ultimate (9)
10	Pool	CDS (—)

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

Top Ten programs for the ZX81

1	Mother Ship	Sinclair (7)
2	Footabll Manager	Addictive (1)
3	Defenders	Quicksilva (8)
4	Space Raiders	Sinclair (6)
5	Asteroids	Quicksilva (3)
6	Flight Simulation	Sinclair (2)
7	Invaders	Quicksilver (5)
8	Krazy Kong	PSS (4)
9	Espionage Island	Sinclair (10)
10	ZXAS Assembler	Bug-Byte (—)

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BEST SELLERS

Top 30

1	Manic Miner	Software Projects	Spectrum (1)
2	Hunchback	Ocean	Spectrum (2)
3	3D Ant Attack	Quicksilva	Spectrum (5)
4	Jetpac	Ultimate	Spectrum (4)
5	The Hobbit	M.House	Spectrum (3)
6	Atic Atac	Ultimate	Spectrum (9)
7	Lunar Jetman	Ultimate	Spectrum (6)
8	Valhalla	Legend	Spectrum (8)
9	Harrier Attack	Durrell	Spectrum (7)
10	Hunchback	Ocean	CBM 64 (10)
11	Chuckie Egg	A & F	Spectrum (13)
12	Falcon Patrol	Virgin	CBM 64 (11)
13	Hobbit	M.House	CBM 64 (12)
14	The King	Microdeal	Dragon (17)
15	Frogger	Microdeal	Dragon (16)
16	Kong	Ocean	Spectrum (14)
17	Zoom	Imagine	Spectrum (18)
18	Chequered Flag	Psion	Spectrum (19)
19	Penetrator	M.House	Spectrum (15)
20	Hunchback	Superior	BBC (21)
21	Cuthbert in the Jungle	Microdeal	Dragon (20)
22	Bear Bovver	Artic	Spectrum (—)
23	Buga Boo (The Flea)	Quicksilva	Spectrum (29)
24	Crazy Kong	Interceptor	CBM 64 (27)
25	Eskimo Eddie	Ocean	Spectrum (—)
26	Arcadia	Imagine	VIC-20 (23)
27	Chinese Juggler	Ocean	CBM 64 (—)
28	Snooker	Visons	VIC-20 (—)
29	Pedro	Imagine	Dragon (—)
30	Colossus Chess	CDS	CBM 64(—)

Compiled by PCS Distribution (0254 691211) and sanctioned by the Computer Trade Association. Chart is for retail sales in individual outlets in the UK and Northern Ireland for the fortnight ended February 25.

Top Ten programs for the VIC-20

1	Computer Wars	Thorn EMI (—)
2	M.L.B.A.T.E.T.	Llamasoft (1)
3	Crazy Kong	Interceptor (—)
4	Wizard and Princess	Mel House (2)
5	Jet Pac	Ultimate (—)
6	Catcha Snacha	Imagine (7)
7	Wacky Waiters	Imagine (3)
8	Arcadia	Imagine (8)
9	Paratroopers	Rabbit (—)
10	Bewitched	Imagine (6)

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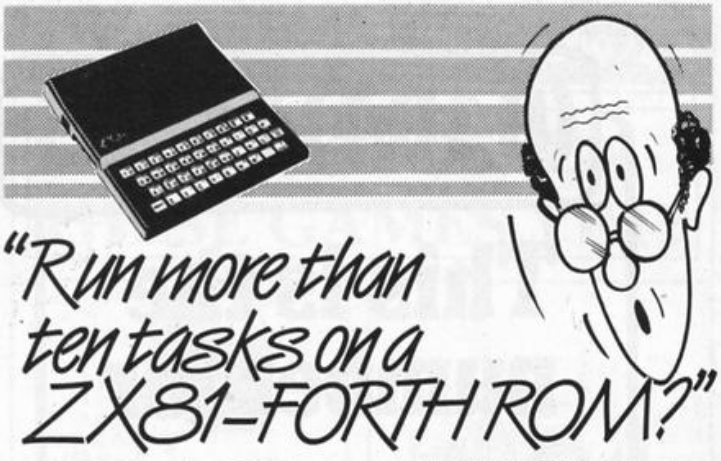

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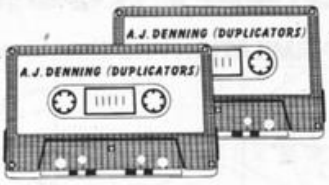

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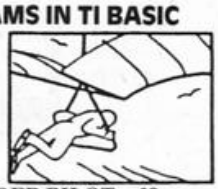

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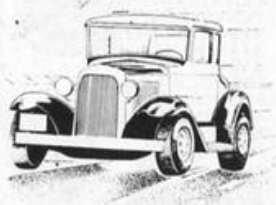

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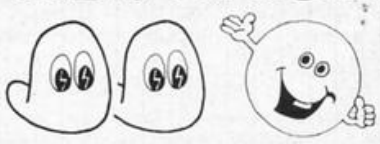

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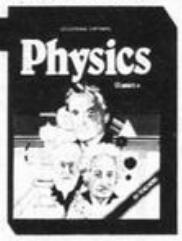

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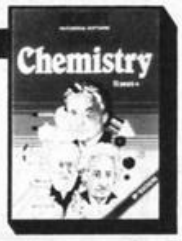

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250-340 invasion routine
350-415 census
430-460 end of game routines
1000-1020 strike routines
2000-3000 Mexican ambassador routine

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If you want to survive keep an eye on your census results — these will tell you just how popular you still are.

Variables
M money
DE defence budget
FO home secretary's budget
IN industry budget
PR profit
TM time spent in office

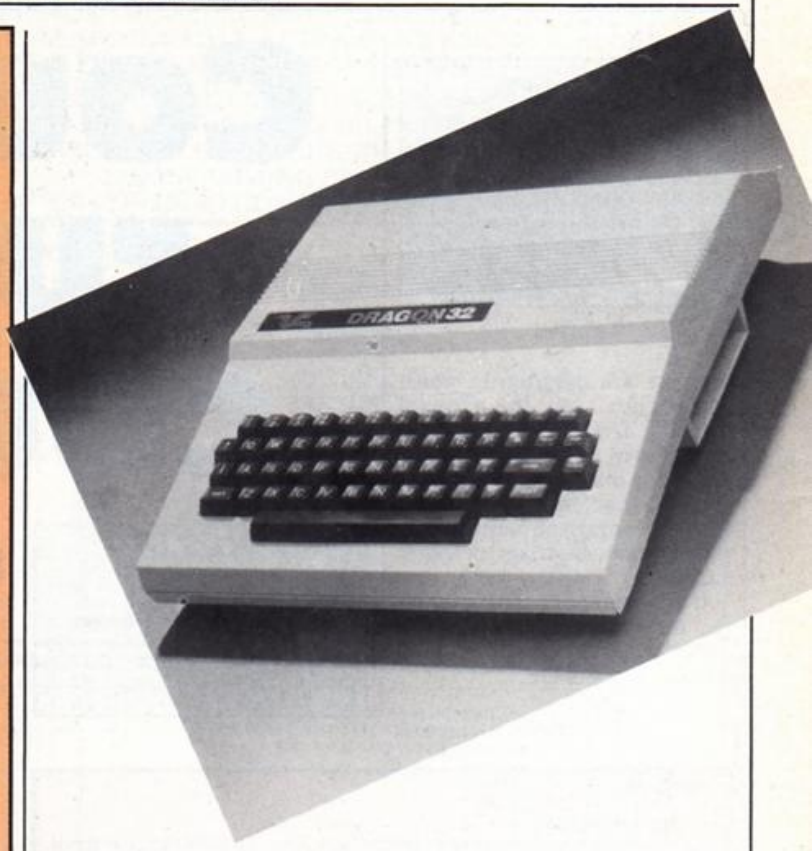
```
10 CLS0
11 ''''''?"ELECTION"''''''
12 B$=CHR$(159)
13 PRINT@67,B$+B$+B$+B$+B$;:PRINT@99,B$;:PRINT@131,B$+B$+B
$;:PRINT@163,B$;:PRINT@195,B$;:PRINT@227,B$+B$+B$+B$;
14 L$=CHR$(191)
15 PRINT@71,L$;:PRINT@103,L$;:PRINT@135,L$;:PRINT@167,L
$;:PRINT@199,L$;:PRINT@231,L$+L$+L$+L$;
16 E$=CHR$(159)
17 PRINT@75,E$+E$+E$+E$;:PRINT@107,E$;:PRINT@139,E$+E$+
E$;:PRINT@171,E$;:PRINT@203,E$;:PRINT@235,E$+E$+E$+E$;
18 C$=CHR$(191)
19 PRINT@79,C$+C$+C$+C$;:PRINT@111,C$;:PRINT@143,C$;:PR
INT@175,C$;:PRINT@207,C$;:PRINT@239,C$+C$+C$+C$;
20 T$=CHR$(159)
21 PRINT@83,T$+T$+T$;:PRINT@116,T$;:PRINT@148,T$;:PRINT
@180,T$;:PRINT@212,T$;:PRINT@244,T$;
22 I$=CHR$(191)
23 PRINT@86,I$;:PRINT@118,I$;:PRINT@150,I$;:PRINT@182,I
$;:PRINT@214,I$;:PRINT@246,I$;
24 O$=CHR$(159):Z$=CHR$(128)
25 PRINT@87,O$+O$+O$;:PRINT@119,O$+Z$+O$;:PRINT@151,O$+
Z$+O$;:PRINT@183,O$+Z$+O$;:PRINT@215,O$+Z$+O$;:PRINT@24
7,O$+O$+O$;
26 N$=CHR$(191)
27 PRINT@90,N$+N$+N$+N$;:PRINT@122,N$+Z$+Z$+N$;:PRINT@1
54,N$+Z$+Z$+N$;:PRINT@186,N$+Z$+Z$+N$;:PRINT@218,N$+Z$+
Z$+N$;:PRINT@250,N$+Z$+Z$+N$;
30 PRINT@256,"ELECTION-BY MARC CAWTHORNE 1983":SCREEN0,
1
100 MP=200
110 ''''''MAGGIE''''''
120 M=90000
130 PRINT@320,"YOU ARE THE BRITISH PRIME MINIS-TER.YOU
HAVE 90000 POUNDS WHICH MUST BE SPENT ON DEFENCE,CRIME,
 INDUSTRY.EVERY MONTH  A CENSUS    SHOWS HOW WELL YOU A
RE DOING"
135 SCREEN0,1
136 POKE359,57
140 PRINT"PRESS ENTER TO START":SCREEN0,1:EXEC41194
150 CLS2:PRINT"          defence":PRINT"YOU HAVE";M;"PO
UNDS.":PRINT"   HOW MUCH WILL TARZAN YOUR         DEFENC
E SECRETARY GET?"
160 INPUTDE:SOUND100,1:IFDE>M OR DE<0 THEN PRINT"CHEAT!
":GOTO150 ELSE M=M-DE:DE=DE
170 CLS3:PRINT"          crime":PRINT"YOU HAVE";M;"POUN
DS.":PRINT"   HOW MUCH WILL LEON (GREAT)   BRITAIN YOUR
 HOME SECRETARY GET?"
180 INPUTFO:SOUND100,1:IFFO>M OR FO<0 THEN GOTO170 ELSE
 M=M-FO
190 CLS4:PRINT"          industry":PRINT"YOU HAVE";M;"P
OUNDS.":PRINT"HOW MUCH WILL CEDRIC NOSEYPARKINSON YOUR
INDUSTRY SECRETARY GET TO  PAY THE WORKERS?"
200 INPUTIN:SOUND100,1:IFIN>M OR IN<0 THEN GOTO 190 ELS
E M=M-IN
210 IF IN<(M+FO+IN+DE)/4 THEN GOSUB 1000
220 IF DE<(M+IN+FO+DE)/5 THEN 260
230 IF FO<(M+DE+IN+FO)/20 THEN 470
240 PR=IN*RND(5)-RND(6786):M=PR+M
245 IF M=>100000 THEN GOSUB 2000
```

```
250 GOSUB 350
260 CLS2:FORT=1TO100:NEXT::CLS4:FORT=1TO100:NEXTT:CLS0:
FORT=1TO100:NEXTT
270 PRINT@234,"INVASION!!!";:SCREEN0,1:PLAY"T55V31CBCCB
CBCBCBCBCBCBCBCBCBCBCBCBCBCBCBCBCBCBFGFGFGFGFGFGFGFGF
GFGFFGFFFGFGFGFFGFGFCCBCBCBCBCBCBCBCBCBCBCBCBFGFGFGFGFGFGFG
FGFFGGFGFGFG"
280 CLS0:PRINT@224,"THE ARGIES ARE INVADING!!!!!!!!";SC
REEN0,1:PLAY"T255V3105CGCGCGCGCGCGCGCGCGCGCGCGCGCGC
GCGCT5V3101CCCCCCO5CCO4CCO3CCO2CCO1CC"
290 PRINT@66,CHR$(207)+CHR$(191)+CHR$(191);:PRINT@130,CHR$(207)+CHR$(1
,R$(191)+CHR$(191)+CHR$(191);:PRINT@194,CHR$(207)+CHR$(
91)+CHR$(207);
300 PRINT@86,CHR$(223)+CHR$(223)+CHR$(223);:PRINT@118,C
HR$(207)+CHR$(207)+CHR$(207);:PRINT@150,CHR$(223)+CHR$(
223)+CHR$(223);
310 GB=RND(30):AR=RND(100):IF GB>AR THEN PRINT@224,"YOU
 BEAT THE ARGIES!!!!!!!!!!!!"ELSE IFAR>GB THEN PRINT@22
4,"THE ARGIES DEFEATED YOU.YOU HAVE BEEN BOOTED OUT OF
OFFICE!!!!!!":PRINT"YOU LASTED";TM;"MONTHS":SCREEN0,1:EN
D
```

```
320 SCREEN0,1
330 FORT=1TO500:NEXTT
340 GOTO 240
350 ''''''''CENSUS''''''7
360 IF M=1 OR M<0 THEN 430
370 IF MP=<0 THEN GOTO 460
380 TM=TM+1
390 CLS:PRINT"NATIONAL CENSUS.MONTH";TM:PRINT:PRINT"YOU
 HAVE";M;"POUNDS TO SPEND":PRINT"THERE ARE";MP;"MP'S IN
 YOUR PARTY"
400 PRINT:PRINT"THE INDUSTRIES MADE A PROFIT OF ";PR;"P
OUNDS"
410 PRINT:PRINT:PRINT:PRINT"PRESS (ENTER) TO CONTINUE."
:EXEC41194
415 PLAY"T255CCCCCCCCCCC"
420 GOTO 150
430 CLS:PRINT"***********ELECTION***********":PRINT@2
24,"YOU HAVE BEEN BOOTED OUT OF 10  DOWNING STREET.YOU
RAN OUT OF   MONEY!!!!!!!!!!!"
440 PRINT"YOU LASTED ";TM;"MONTHS"
450 END
460 CLS:PRINT"***********ELECTION***********":PRINT@2
```

DRAGON 32 PROGRAM

```
24,"YOU HAVE BEEN BOOTED OUT OF 10  DOWNING STREET.YOUR
 MP'S HAVE   ALL LEFT BECAUSE YOU DON'T PAY  THE WORKER
S WELL ENOUGH":PRINT"YOU LASTED";TM;"MONTHS":END
470 CLS:PRINT"***********ELECTION***********":PRINT@22
4,"YOU DIDN'T GIVE YOUR PEOPLE VERYMUCH FOOD-SO THEY KI
LLED YOU!":PRINT"YOU LASTED";TM;"MONTHS":END
1000 CLS5:PRINT@64,"STRIKEstrikeSTRIKEstrikeSTRIKEst":P
RINT:PRINT"THE T.U.C LEADER LEN MURRAYMINTSHAS SAID THA
T IF THE WORKERS DO NOT GET A PAY RISE THERE WILL BE A
strike!!!!!!!!!!!!!!!!!!!!!!!!"
1001 PLAY"T155V31CCCCCCCV10GGGGGV3DDDDV10FFFFFV31DDDDDV
10EDEDED"
1010 PRINT"THEY WANT";(M+IN+DE+FO)/2;"POUNDS.":PRINT"HO
W MUCH WILL THEY GET?"
1020 INPUT A:IFA<M/2 THEN PRINT"MORE!MORE!":GOTO1020ELS
E PRINT"THANKYOU!!!":M=M-A:FORT=1TO500:NEXTT:GOTO 350
2000 CLS0:PRINT@224," THE MEXICAN AMBASSADOR HAS  A
 QUESTION FOR YOU!!":PLAY"V15T302L8CFP8CFP8CFP4P8CFGFEP
8FGP4P8":CLS0
2010 H$=CHR$(255):F$=CHR$(159):M$=CHR$(128)
2020 PRINT@68,H$+H$+H$;:PRINT@98,H$+H$+H$+H$+H$+H$+H$;
2030 PRINT@131,F$+CHR$(206)+F$+CHR$(206)+F$;:PRINT@163,
F$+F$+F$+F$+F$;
2040 PRINT@195,F$+M$+M$+M$+F$;
2050 PRINT@227,CHR$(157)+F$+F$+F$+CHR$(158);
2055 PRINT@74,"":PRINT@106,"":PRINT@138,"":PRINT@170,""
:PRINT@202,""
2057 FORLL=1TO30:PRINT@195,F$+F$+F$+F$+F$;:PRINT@195,F$
+M$+M$+M$+F$;:NEXTLL
2060 PRINT@74,"HEY!MEESTER!SEEING DAT";:PRINT@106,"YOU
HAVE";M;"POUNDS";:PRINT@138,"  COULD YOU LEND US...";:P
RINT@170," ";(INT(M/2));"POUNDS?PLEASE";:PRINT@202,"ANS
WER 'Y' OR 'N'";
2070 FOREM=1TO20:PRINT@131,F$+CHR$(205)+F$+CHR$(205)+F$
;:FORT=1TO20:NEXTT:PRINT@131,F$+CHR$(206)+F$+CHR$(206)+
F$;:FORT=1TO20:NEXTT:NEXTEM
2079 MP=200
2080 A$=INKEY$:IFA$=""THEN 2080
2090 IFA$="Y"THEN M=(INT(M/2)):GOTO350 ELSE IFA$="N"THE
N 360 ELSE IFA$<>"Y"ANDA$<>"N"THEN 2080
3000 GOTO 2080
```



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Football Manager

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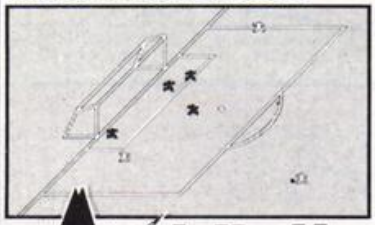

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* ZX81 Chart
Home Computing Weekly
1.8.83 and 1/11/83.

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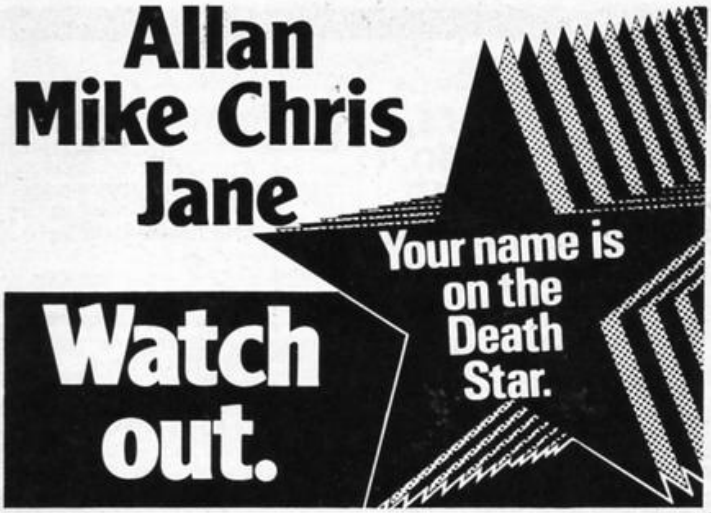

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Whoops!

Robot Riot, costing £5.95 for the 48K Spectrum, is by Silversoft, of 271/273 King STreet, London W6 9LZ, and Heist, the BBC game, is by Softspot, 29 South Crescent, Prittlewell, Southend SS2 6TB. These details correct errors in our review pages.

HCW review team

Help me over Hobbit

You announced in your news section in November that a BBC version of The Hobbit had been released by Melbourne House and I purchased a copy of this tape for use over the Christmas period.

First of all, I encountered the same problem as your reviewer (HCW 44, Jan 10) in that one side of the tape would not load on my BBC model B or on two other machines owned by friends.

The second side of the tape loaded with difficulty, but you could eventually get the program loaded and running.

But after a short time problems occurred. The two "windows" merged, with the communication window displaying into the adventure window, answers given when no questions were asked and answers given incorrectly, e.g. "you cannot go south" when you had typed in "go north".

I had the same results on my friends' machines and on all three computers the program finally seized up with the SHIFT LOCK light coming on and all functions ceasing, except for the final BREAK.

I duly returned the tape to Melbourne House, in Teddington, Middlesex, on December 28 and have not heard a word since.

They are among your regular advertisers, so would you please take up the matter with them?

D. E. Keightley, Welford-on-Avon, Warwickshire

Alfred Milgrom, managing director of Melbourne House, said: "My staff has searched the records thoroughly and we can find no trace of Mr Keightley's tape. This could, of course, be due to the Christmas post.

"However, we would like to apologise to him for the obvious inconvenience.

"Our policy is that when we receive a faulty tape, which is quite rare, we always replace it with a brand new one straight away.

"These, and any other enquiries, should be sent to our customer services department at Church Yard, Tring, Herts HP23 5LU. The phone number is 044282 6649. Sales and marketing enquiries should continue to be sent to our new offices in Richmond, Surrey.

"We have sent a replacement copy of The Hobbit to Mr Keightley and we hope he has many hours of enjoyment with it."

Seeking software

I am the owner of a Memotech MTX 500 and an avid reader of your magazine. But, for a computer that has so much going for it, I only know of one firm that produces software for it.

So could you please inform all other MTX 500 users that they are not alone in wanting software that will use the full capabilities of this excellent computer.

Maybe one day in the near future we'll see printed some reviews for MTX 500/512 software — perhaps by myself when I get better at programming.

A. W. King, Lisburn, Northern Ireland

Invaders on the way

Following a review in your magazine, I asked my wife, Rosalie, to buy me Invaders for the 48K Oric, from Arcadia Software, of Swansea, for a Christmas present. She sent a cheque for £5.50 at the beginning of December.

When nothing arrived by Christmas we assumed that it was due to the Christmas rush and held on for another fortnight.

A bank statement then showed that the cheque had been cashed before Christmas and I wrote to the company on January 16 asking them to send the game or refund the money.

We have received nothing. Directory Enquiries has no telephone number for the company, so I cannot get in touch with them that way.

I would be most grateful if you could assist us in any way, as you appear to have helped many other readers.

Alan James, Leek, Staffs

Tony Love, proprietor of Arcadia Software, said: "There seems to have been a slip-up somewhere. We are sorry that Mr James did not receive the tape. We are sending a copy of Invaders to him by first class post today and we know he will enjoy playing it."

Give it a rest

I am writing to try and clarify a point made by one of your reviewers in HCW 48 when he claims: "I can never remember seeing a dotted semibreve rest. Perhaps they have just evaded me. "Well that is the case — they have evaded him.

I have been playing E flat tuba in brass bands for several years and in music where there are in excess of four parts, as the reviewer probably well knows, rests of short or long periods are frequent. If the time signature is 6/4 or 12/4, then the dotted semibreve rest can become quite a common occurence especially in the very rare 9/4 time.

I am not trying to criticise the reviewer in any way. It's just a point I feel should be put straight.

John Wisbey, Abertillery

What about the 1K?

I have only one question to ask you ZX81 owners. Why aren't you sending any 1K games?

It's easy for you 16K owners sending in programs but the 1K owners (of which there are a lot) — come on, send in your programs and this will make the other owners happier as there aren't many 1K games about.

Robert Jones, Burton-on-Trent

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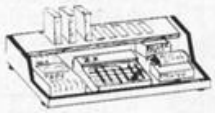

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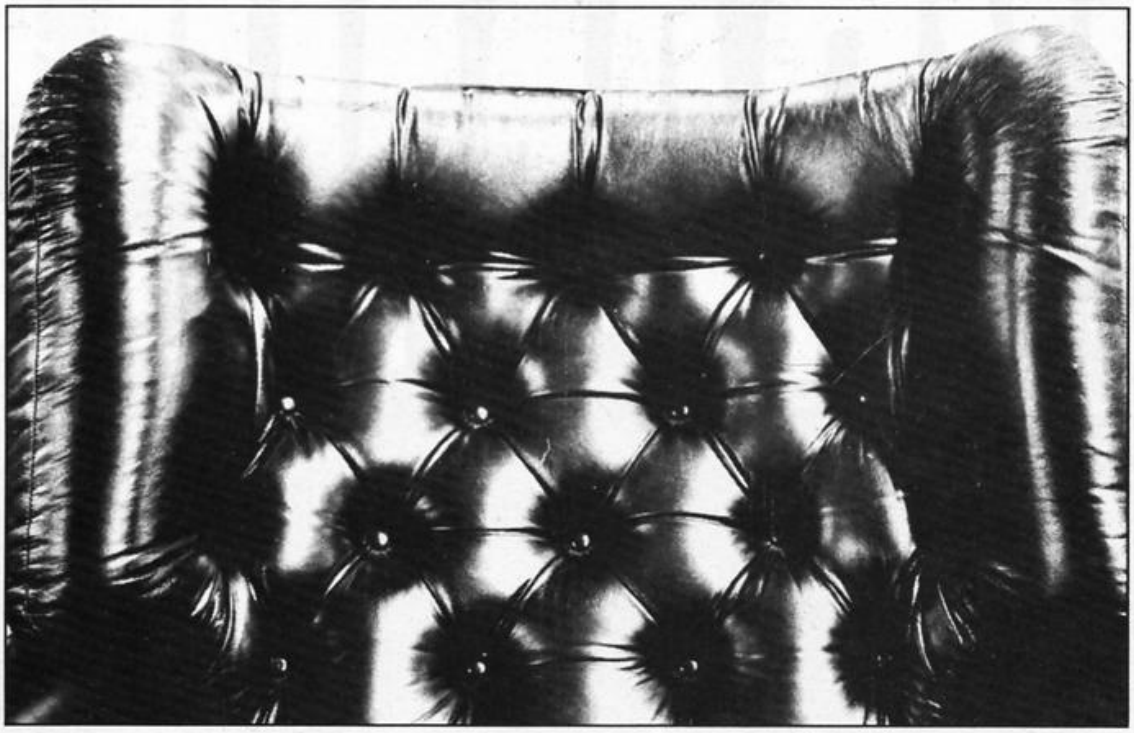

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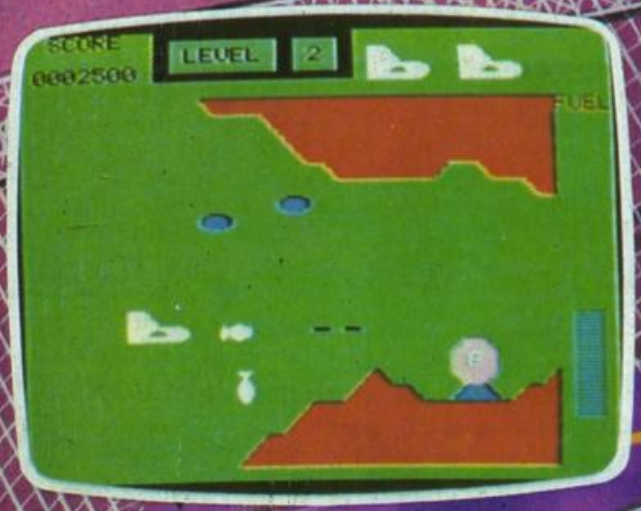

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