Home Computing WEEKLY
An Argus Specialist Publication
No. 59
April 24-30, 1984
40p

FREE competition
More than 300 prizes from
CRL
are waiting to be won

Software reviews for:
Spectrum, BBC, Commodore 64, Dragon, Sord M5, VIC-20, Texas

Spectrum: three great games to type in

BBC listing: can you escape from danger island?

Our Dragon program puts you in command of a nuclear sub

PLUS
software charts, U.S. Scene, news, One Man's View, your letters

Every week: your best buy for software reviews and listings



Crime by numbers

Computer crime has hit Micronet 800, but the Prestel-based network is taking action to step the thefts.

Commercial software, downloaded from the system and paid for by legitimate subscribers, has been stolen by people who have used Micronet's exhibition and demonstration identities.

Now Micronet editor David Babsky has renewed his appeal to his 8,500 subscribers: "Do not let anyone know your identity number or your password."

Micronet, and sometimes other companies, uses special 10-digit identity numbers along with alterable four-character passwords to demonstrate the system at exhibitions.

Some visitors have been

Continued on page 5

Pirates on the air

Software pirates have taken to the airwaves — and lawyers have been brought in to stop them.

A&F, the Lancashire-based software house, has tapes of hours of broadcasts by radio hams exchanging software.

Managing director Mike Fitzgerald said one ham broadcast a program which turned out to be a list of 416 commercial programs from big-name companies.

Each program had a number, so a ham would place an "order" and have the program transmitted to him.

Mr Fitzgerald said A&F found out through a tip-off by a radio ham with an interest in software and commented: "We were amazed and horrified."

Now the company has two monitoring stations, one in its offices and one in Barnsley, plus a mobile receiver.

And to prove to themselves that broadcast software worked, A&F staff loaded and ran several. They included their own programs and several from other companies.

Mr Fitzgerald said: "We have concrete evidence and we have instructed our solicitors to approach certain people.

"Initially we are after undertakings from the serious offenders to stop doing it and we want details of those they are sending it to. They are stealing our software."

Continued on page 5

THE NAME IN VIDEO GAMES

Visions

DEMOLATOR

Following the Thousand year war with the Alien Demolators the last remnants of the human race are being transported across the galaxy in cryogenic suspension aboard the B.S. Quinn (Battle Star).

The Demolators however have invaded the cargo bay and it is your job to destroy the Demolators and to protect the human cargo. All you have to defend Humanity with is Xeno (popularly named "the Phobe") the ultimate Robot. You can control his movements on two planes and fire an ultrasonic Cannon to defend humanity with.



DEMOLATOR — BBC — MODEL 'B' OS1-2, £6.95

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A selection of new games for Sord M5 and TI

HOME COMPUTING WEEKLY
BRITAIN'S BRIGHTEST



PROGRAMS

Dragon/Tandy Colour 8
Find the bomb before it's too late for us all. Your're in charge of a nuclear sub. Your mission: find and destroy the menace on the seabed.

Spectrum 24
Three great games to type in. Mow the lawn, do some pyramid hopping and test your driving skill

BBC 16
Shipwrecked! Build a raft and escape from danger island — if the monsters let you...

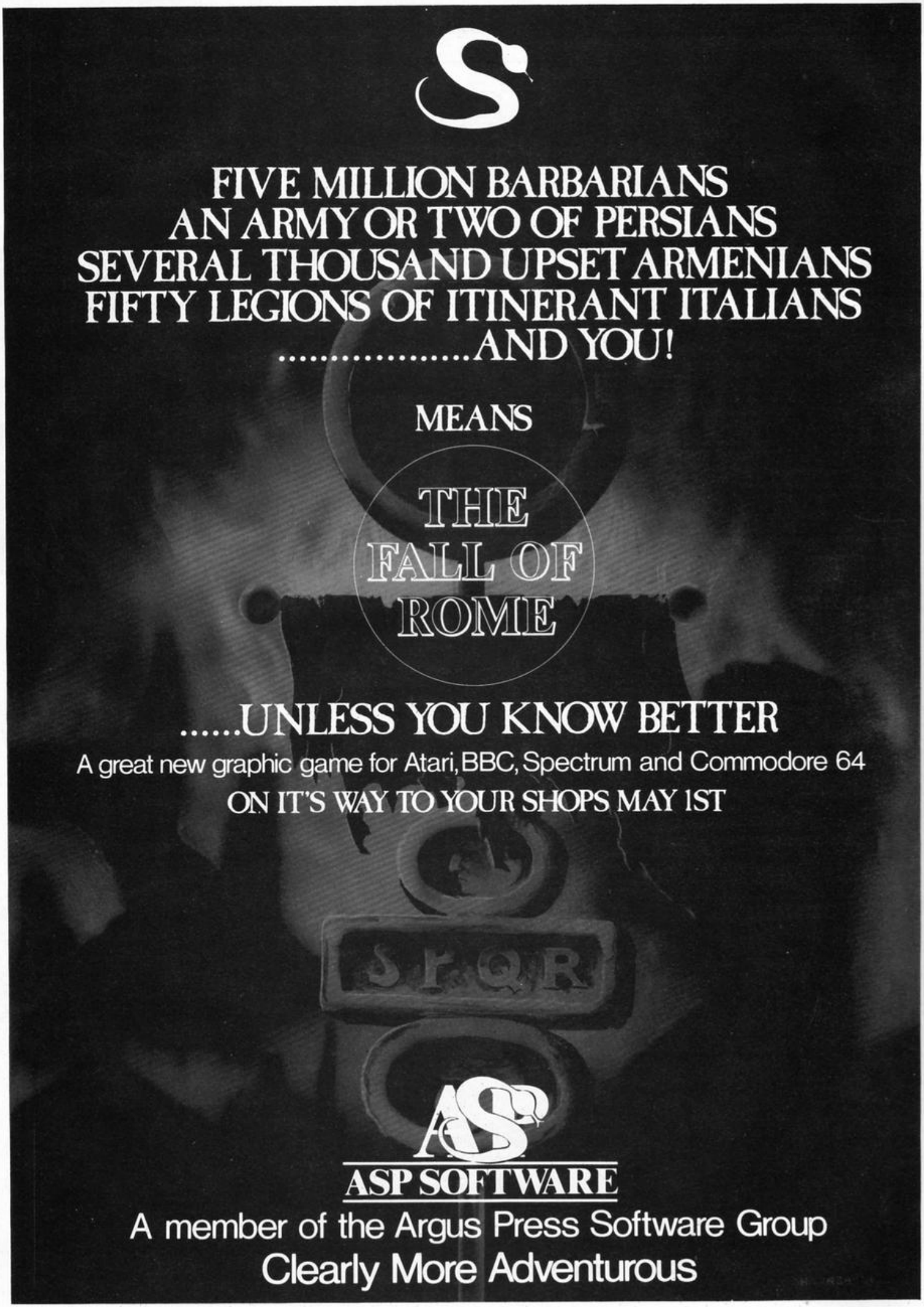
We welcome programs, articles and tips from our readers — see the panel in this issue for details

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FIVE MILLION BARBARIANS
AN ARMY OR TWO OF PERSIANS
SEVERAL THOUSAND UPSET ARMENIANS
FIFTY LEGIONS OF ITINERANT ITALIANS
.....AND YOU!
MEANS
THE FALL OF ROME
.....UNLESS YOU KNOW BETTER
A great new graphic game for Atari, BBC, Spectrum and Commodore 64
ON IT'S WAY TO YOUR SHOPS MAY 1ST
S P Q R
ASP SOFTWARE
A member of the Argus Press Software Group
Clearly More Adventurous

Crime by numbers

From front page

memorising the numbers and — in the short period before they are changed — using them to download software.

And one reliable source said the thefts had gone further, with a confidence trick played on genuine Micronet subscribers.

The source said the thieves had been leaving messages for subscribers, purportedly from Micronet, saying there was a problem with their numbers and could they log them onto the exhibitions or demonstrations mailbox numbers.

Then they inspect the mailboxes, take the numbers and use them to get more software. To make matters worse, says the source, they change the passwords, locking out the genuine subscribers.

Mr Babsky acknowledged that the first method had been used but had no knowledge of the second.

He said: "We acknowledge that it's just something that happens if people are careless. It's one of the facts of life.

"When I'm at exhibitions I'm very careful. Other people give demonstrations on our behalf and we expect them to be as careful as we are."

He said the maximum period during which these special numbers could be used was one day, as they were changed at the end of each exhibition day.

He said: "Everyone who joins Micronet gets a number from Prestel and they are told not to divulge it to anyone at all. If they have that's something of their own doing. They must not do it under any circumstances.

"We at Micronet have no reason to want their 10-digit number or their password and we will not ask for it under any circumstances. The only number we need is the Mailbox number so that messages can be left."

If subscribers mislaid their numbers, Prestel would treat it in the same way as a lost credit card. It would be sent to the subscriber's address in sealed envelope.

Asked about genuine subscribers' numbers being illicitly used, he said: "It is possible."

Micronet800, Telemap, Scriptor Ct, 155 Farringdon Rd, London EC1R 3AD

WP for the VIC-20

New word processing programs are now available for the VIC-20 with at least 8K expansion. Atlantic Software has brought out the TOTL range, available on tape and disc and costing from £11.95 to £19.95.

The range can be used not only with Commodore printers, but also with other parallel and RS-232 printers. Programs are also available for the VIC-20 with 16K, providing advanced functions such as merge and labels.

Atlantic Software, 18b Thorpe Road, Kingston, Surrey KT2 5EU

Light up a buggy

Northern Computers has launched a Micropulse buggy for use on the BBC computer in conjunction with its Micropulse Young Trainer.

The buggy costs £29 and comes with two light dependent resistors which you can program to follow a torchlight. A microswitch is incorporated so that the buggy does not collide with stationary objects.

Also included is an accessories kit; together with the Micropulse Young Trainer, a robotic device which can simulate traffic lights. This forms part of a teaching course suitable for secondary school pupils.

Northern Computers, Churchfield Road, Frodsham, Cheshire WA6 6RD.

All change for Oric

If you have found that your Tansoft Oric tapes are not compatible with the new Atmos, you can now exchange them at a cost of £3.

Munch, Base, Forth, Mon, CAD, Zodiac and House of Death are the titles affected; this offer does not apply to Oric Flight or Multigames 1 and 2, as new versions are not being produced.

Send a cheque/postal order for £3 per tape to cover handling to: *Tansoft, Units 1 & 2, Techno Park, Newmarket Road, Cambridge.*

Pirates on the air

From front page

On pricing of commercial software, Mr Fitzgerald said: "If they feel a program is over-priced they should leave it. I don't walk into Tesco, think an item is over-priced and then walk out with it. That's a direct parallel.

"A lot of genuine radio hams have been ringing us up because they think it's annoying having the radio waves taken over."

He stressed that only a small percentage of radio hams were involved and that it was perfectly legal for them to transmit programs they had written themselves.

A&F's technical director Martin Hickling reported on the company's four weeks of monitoring to the annual meeting of the Guild of Software Houses.

GOSH secretary Mike Johnston said: "Our members were horrified, as you can understand. What we are good at in this country is ideas, which everyone has been ripping off, from jet engines and all the way down the line. Software could generate a lot of wealth for the country."

A three-man group has been set up by GOSH to report back on practical ways of tackling piracy. The members are Nick Alexander, of Virgin, who is also GOSH chairman, Rod Cousins of Quicksilva, who is vice-chairman, and Rod Evans, of New Generation.

David Evans, general manager of the 36,000-member Radio Society of Great Britain, said: "We don't have any knowledge of any of our members being involved. We are not a law enforcement organisation, but we will be putting a message in our magazine that this is an infringement of copyright.

"My own feeling is that the people who are involved probably do not appreciate the copyright laws. It has probably been done in ignorance rather than a malicious act. After all, there are many other ways of doing this without using the public mateur bands."

● Through Home Computing Weekly, Mr Johnston is appealing for readers who have evidence of piracy to contact him.

● A&F has just launched its first program using copy protection devised by JLC Data, another version of which was placed on the secret list by Whitehall. Mr Fitzgerald said: "We are confident it will reduce piracy by 99.9 per cent."

The program is for the BBC and is called Haunted Abbey. It is priced at £6.90, £1 less than usual, because of the greater potential sales if copyright is impossible, said Mr Fitzgerald. In about a week it would be available for the Commodore 64 and all future A&F software would be protected in the same way.

A&F, Unit 8, Canalside Industrial Estate, Woodwine St, Rochdale, Lancs OL16 5LB
Guild of Software Houses, 79 Park Lane, Tottenham, London N17 0HG

Briefly

The Midland Computer Fair will be held from May 4-7, 1984, at the National Exhibition Centre, Birmingham. Over 16,000 attended last year's exhibition and more are expected this year as the show is over a Bank Holiday weekend.

Midland Computer Fair, Reed Exhibitions, Surrey House, 1 Throwley Way, Sutton, Surrey SM1 4QQ.

An association between five software houses — IJK, Joe and Lion, PSS, Severn Software and Arcadia — has been formed with the aim of promoting Oric and Atmos software.

The Association of Oric Software Houses, c/o 18 Harrow View, Harrow, Middlesex

The Sinclair QL Companion, by Boris Allan, has been published by Pitman at £6.95.

Pitman Publishing, 128 Long Acre, London WC2E 9AN

Bubble Bus has released an updated version of Word Wizard, its Commodore 64 word processing program, to run in conjunction with the Commodore 1520 printer/plotter. It can be set for 80 or 40 columns and supports most Commodore and Epson printers. Price: £6.99.

Bubble Bus, 87, High Street, Tonbridge, Kent TN9 1RX

Atari has launched its biggest ever cartridge promotion with Phoenix, Galaxian, Battlezone and Ms Pac Man retailing at £9.99, a saving of up to £15. Cartridges for the Atari XL and VCS will fall into three price brackets — £29.99, £24.99 or £19.99.

Atari, Atari House, Railway Terrace, Slough, Berks SL2 5BZ.

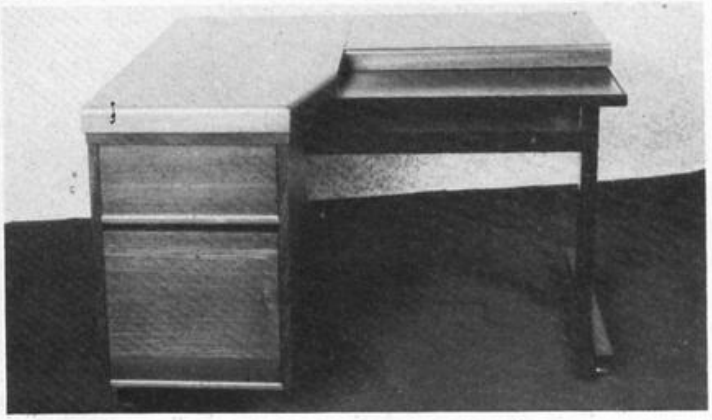
New from Mirrorsoft are two learning games on one cassette: Old Macdonald's Farm and Sort, for the 48K Spectrum. Old Macdonald's Farm is for children aged three to seven, while Sort is for six years and upwards. It costs £7.95 and Commodore 64 and BBC B versions are being prepared. Also from Microsoft: Go-Sprite for the Commodore 64 (£9.95), and Count with Oliver for the 48K Spectrum (£7.95).

Mirrorsoft, Holborn Circus, London EC1P 1DQ

Beta-Base, a disc-based database for the BBC micro, allows 200 fields, each of up to 254 bytes, and more than 2,000 records, according to Clares Micro Supplies. Up to five fields can be searched and up to three sorted at once and a file of 500 records can be sorted in about 60 seconds. Price: £25 with manual and demonstration program.

Clares Micro Supplies, 98 Middlewich Rd, Rudheath, Northwich, Cheshire CW9 7DS

NEWS



PDF has added thick top workstations to its range of furniture. The thick top (50 mm instead of the nromal 30 mm) increases the height between keyboard well and worktop. The keyboard well is narrow, only 250 mm deep, and the unit is finished in veneered teak and African walnut.

Planned Data Furniture, Unit 8A, Vaughan Industrial Estate, Manchester M12 5DU

Valhalla, the best-selling adventure from Legend, will be available for the Commodore 64 in May at £14.95. Although identical to the Spectrum version, claimed to have sold £2m-worth, Legend's managing director John Peel said the new version would have more lifelike backgrounds and smoother, flicker-free animation.

Legend, P.O. Box 435, London E4 7LX

Cubsoft, a new Lynx software house, has launched CBS-Forth for the Lynx at £19.95 with five free utility programs. CBS-Forth is for the 48K or 96K Lynx and, says Cubsoft, offers twice as much useable memory as its nearest 96K competitor, is the only version for the 48K model and has its own unique three-command editor.

Cubsoft, 6 Okeover Rd, Salford M7 0JX

Are you a winner?

The solution to our Phoenix Software spot the difference competition:

- hatband.stripe missing
- bullets missing from belt
- bullet omitted bottom left
- tuft of grass changed
- part of path of bullet missing
- letter L omitted from wanted poster
- part of child's dummy missing
- mountain range altered at right
- hinge on pram hood different
- spokes missing from pram wheel

Winners of two twin-packs of software worth £9.99 each:
K Brooke, West Yorks; Geoffrey Baldock, Maidstone; Mike Long, St Johns Hill; M Joyner, Nuneaton; William J Fox, Derbyshire; Thomas P Kilroy, Ireland; Mr S Webster, Cambs; Keith Blackwell, Romford; G N Lacey, Kent; Damian Hargreaves, S Wales; D J Wilson, Hants; J Newman, Ryde; Ian Bowell, Dublin; Svend Sorensen, Denmark; M Javed, Surrey; David Caulfield, Pennington; R D Bamford, Mansfield; S Phillmore, Halifax; M C Newhouse, Croston; F V Harrison, BFPO 45; Jason Taylor, Coventry; C Gouch, Manchester; D Shaw, Aryshire; Mr H Collings, Aldershot; Simon Whitting, Norfolk; Mark Maynes, Burton-on-Trent; Mr D Russell, Warminster; Graham Furniss, Chesterfield; P J Gunn, Harlow. E Edginton, Frome; Mark Kent, Lincs; Tim Prince, Cumbria; Andrew Doyle, Hudderfield; Mark Morrison, Tyne & Wear; Clayton Thompson, Newark; William Rennie, Aberdeenshire; R C Coppock, Nortwich; J J Hartopp, Nuneaton; Ian Mansfield, Windsor; J A Robson, Leigh-on-Sea.

ZX Lprint does more

A new version of the ZX Lprint interface for the Spectrum works with a wider range of printers and offers both RS232 and Centronics outputs.

Euroelectronics says the COPY command can be executed from the keyboard or from BASIC and that no extra software is needed to send a high-resoluton screen picture to a number of printers.

Routines are built in for printer models from Seikosha, Epson, Star, Walters, Shinwa and CTI. Full colour screen COPY can be made on the Seikosha GP700.

Euroelectronics says these will produce user-defined graphics and Spectrum block graphics in text or a program listing. On other printers a routine scans the display and prints alphanumeric characters, allowing daisywheels to be used.

Soon to be added are routines for printing in hi-res full colour on the MCP 40 and Tandy CGP 115. Other printers to be added shortly include the Microline 80 and 82.

Prestel pages can be printed and baud rates under RS232 can be varied between 75 and 9600.

ZX Lprint costs £34.95; Centronics and RS232 cables are £9.95 each.

Euroelectronics, 26 Clarence Sq, Cheltenham, Glos GL50 2UJ

ONE MAN'S VIEW

Computers don't think

The question of artificial intelligence, or whether an inanimate machine such as a computer can be said to possess intelligence or not, is an important and interesting one. Or at least it would be were there to be found any arguments in its favour which could be taken seriously.

It is an endearing, if irrational, weakness of people to ascribe human characteristics to objects such as motor cars, ships, and so on, and one which perhaps serves to compensate for unconscious fears of isolation and insecurity in occupying our unique position in the animal kingdom. This idiosyncrasy can be expressed most readily toward computers because such artifacts can be made to give the appearance of simulating consciousness quite convincingly. Even apparently anti-A.T. writers fall easily into the trap of anthropomorphism. How often I've read the words: "... computers are really quite stupid."

Of course, even stupidity presupposes some degree of intelligence, and can be no more ascribed to a computer than to, say, a milk bottle or a carpet tack.

The confusion is not eased by the unfortunate choice of terms used in computer jargon, such as "electronic brain", "memory", etc. This latter is an especially bad one as comuter "memory" in no way resembles true memory, but is closer in function to an abacus, albeit an electronic one.

The foremost reason for the popular belief that computers are potentially capable of thought must be that, whereas most tools have been designed to assist with primarily physical tasks, such as removing nails and opening tin cans, computers on the other hand help to perform mental tasks like arithmetic. Because the computer appears to be more efficient at logical processes, and logic being a property of mind (though by no means its most sublime attribute), it is tempting for some to infer that the hardware and program in combination are exhibiting intelligence. This is no more true, however, than saying an abacus thinks when you move its beads.

The belief that computers resemble minds is no more than a harmless fad. The real danger lies in the obverse assumption that minds are really no more than very sophisticated computers. Ludicrous as this notion may seem to all but the most hopeless materialist today, future generations could nevertheless fall victim to such a delusion, if only by the natural contrariness of the young, which always delights in opposing or shocking the beliefs of the previous generation. But such a conviction would contribute more than any other single factor in lowering the quality of life.

An individual so convinced will deny himself access to the limitless creative potential of his mind, dull his imagination and appreciation of the more subtle and loftier realms of human experience; in short, become a computer.

P.J. Willcox
Cardiff

● 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

Over 300 games from



CRL

must be won in our FREE competition

Your mission: to rescue the imprisoned princess. There's nearly £2,000-worth of games of Rescue — CRL's Spectrum mind-stretcher — waiting to be sent to the winners of this week's wordsquare competition

There's a princess waiting to be rescued — if you're one of the 300-plus winners in this week's great wordsquare competition.

We've got nearly £2,000-worth of tapes from CRL to give away. That's a total of 333 winners of Rescue, a classic adventure for the 48K Spectrum.

Written by army captain Derek Baker, author of CRL's best seller Test Match, Rescue gives you the rôle of a secret agent.

Your first challenge is to find the castle in which the princess is held prisoner. Once inside there are several rooms to search, each one a different game in itself.

Problems don't end when you have reached the fair maiden — now you have to get away, while being chased by armed patrols.

Rescue, a game of strategy and tactics, has both text and graphics and keeps many players occupied for days.

CRL's managing director, Clement Chambers, admitted he had to cheat and said: "It would have taken me at least four hours at the lowest level — and that's the record for this game."

Our prizes are for the 48K Spectrum, and would cost £5.95 in the shops, but Rescue is now out also for the Oric and the Commodore 64.

The original took Derek Baker four months to write because of its complexity. And the conversions are said by CRL to be just as mind-stretching.

How to enter

Examine the wordsquare and mark all the CRL titles you can find with a ball-point or semi-opaque felt-tip pen. Complete the coupon fully and clearly — if you are a winner it will be used as a label — and send the wordsquare and coupon to us.

You may enter as many times as you wish provided each is on the official wordsquare and coupon and in a separate envelope. Please do not enclose anything else.

Important: you must write on the back of your envelope the number of titles you found.

The titles in the wordsquare are all drawn from this list of CRL software:

Orpheus
Rescue
Stargazer Secrets
Test Match
Pandemonia
The Great Detective
Woods of Winter
Grand National
Jackpot
Derby Day
Fifth
Zaraks
Glug Glug
High Resolution
Handicap Golf
Omega Run
Incredible Adventure
Olympics
Draughts
Crawler

All except High Resolution (ZX81) are for the Spectrum and some are also available for other computers: Test Match (BBC), Glug Glug, Omega Run and Derby Day (Commodore 64), Zaraks (ZX81) and Handicap Golf (Dragon).

Send your entry to CRL Competition, Home Computing Weekly, No.1 Golden Square, London W1 3AB.

Closing date is first post on May 11, 1984. Senders of the first 333 correct entries we open after that date will win the prizes. They will arrive from CRL within 28 days, or earlier, of the results appearing in Home Computing Weekly.

The rules

Entries will not be accepted from employees of Argus Specialist Publications, CRL and Alabaster Passmore & Sons. This restriction also applies to employees' families and agents of the companies. The rules include the guidance in the How to Enter section. The editor's decision is final and no correspondence will be entered into.

CRL Competition

Entry Coupon

Name _____

Address _____

_____

_____

_____ **post code** _____

Number of differences found _____

_____

Complete clearly and fully — if you are a prizewinner this will act as a label. Post to CRL Competition, Home Computing Weekly, No.1 Golden Square, London W1R 3AB. Closing date: first post on May 11, 1984. Follow carefully the advice in the How to Enter section, including writing the number of titles you found on the back of the envelope.

S	A	D	M	I	L	Z	U	S	H	G	S	T	G	F	Z
O	T	D	C	J	L	R	T	K	E	P	R	D	S	O	O
N	P	A	N	D	E	M	O	N	I	A	J	F	Y	L	Y
W	M	D	R	E	S	C	U	E	D	V	I	C	D	Y	E
B	C	E	G	G	Q	X	H	K	U	H	F	Y	Z	M	J
R	S	R	P	L	A	E	T	R	P	Q	N	J	Q	P	W
V	B	B	E	U	Z	Z	A	R	A	K	S	B	M	I	Z
O	U	Y	A	G	Y	Y	E	A	U	G	E	X	C	C	O
N	Q	D	L	G	E	T	D	R	A	U	G	H	T	S	E
C	R	A	W	L	E	R	X	M	S	D	A	C	L	A	S
P	O	Y	M	U	N	K	W	C	L	E	B	W	P	X	H
O	A	N	J	G	U	F	I	V	J	A	C	K	P	O	T
U	T	F	I	F	T	H	O	M	E	G	A	R	U	N	I
X	W	S	B	K	G	R	V	A	W	Z	J	V	E	C	Y
V	G	B	F	H	H	L	K	M	K	Q	T	X	B	T	T
T	E	S	T	M	A	T	C	H	O	R	P	H	E	U	S

Find befo

Taken from Hot Programs to Feed Your Dragon and Tandy Colour Computer

We all face a watery doom unless you destroy the menace ticking away on the seabed

by Peter Robinson, Mark Smith and Neil Blacow, published by Sigma Technical Press

As commander of a nuclear submarine you are told that a device has been plced on the sea bed near a fault in the earth's crust.

Should this device explode the result will be an earthquake of sufficient magnitude that a giant tidal wave will engulf all continents and their inhabitants will perish.

Of course, you and the rest of your crew would also perish due to the hull of your submarine being crushed in the blast. Hence there is some incentive for you to try to prevent this slight messy situation from occurring.

How then can you find and destroy this menace? Easy. You have two aids to underwater vision. One is the 360 degree sonar scan. This is the display which presents itself when the game starts.

Submariners may skip this explanation and go onto the next section. The sonar sweeps arund the hull of the sub sending out sound pulses and listening for echoes. Targets are displayed on the TV screen in such a way that the arrow head on the display points in the direction of travel of the sub. Thus an object on the left appears on the left of the screen.

If you spin the sub round the dot corresponding to an object would travel round a circular path in the opposite direction to your spin direction.

Horizontal movement of the right hand joystick will cause the sub to spin on its axis, i.e. this stick controls the submarine's heading. Run the program, select the easiest level, make sure the left hand stick is pulled as far back in the vertical plane as it will go, and try moving the right hand stick horizontally.

You will see that the dot (which is the object to be located and destroyed) will appear to move in a circle about the centre of the screen. It is not really the object that is moving, but the fact that your sub is spinning about its axis. At the same time a beeping sound will indicate that the object has been located by your scanners.

While spinning round, watch the dials at the bottom of the screen. The leftmost dial shows the heading of the submarine relative to the points of the compass (North at the top). This dial will rotate as your heading changes.

To move nearer to the object, use the heading control to bring the dot back to the dead ahead position (i.e. on the line with the arrow head).

Now, holding this heading, move the left hand joystick

Variables

CS,SN arrays used to store pre-calculated cosine and sine values
V array of 3D object vertices
E array of 3D object edges
A,B,C,D blank arrays for screen erasure
NO$ strings for graphics numerals
Q array used to erase timer in TV mode
AM,BM,DM variables used to obtain 3D image
EM,FM,GM,HM,IM,U,U1,V,V1 used to plot each edge of 3D object
UM,TS,US three digit timer value, units of mins, tens of secs, units of secs
SX,SY X,Y, position of dot on sonar screen
D distance of viewer from TV screen
FL flag used to change from sonar to TV display screen
XO,YO,ZO object coordinates
XS,YS,ZS submarine coordinates
P,H pitch and heading of submarine
AN angle used in calculation of sine and cosine arrays
NV,NE number of vertices and number of edges in the 3D object
DP,DH changes in pitch and heading
VL submarine's velocity
VX,VY,VZ velocity components in three dimensions
AX,AY components of object-sub distance in X,Y plane
RO radial distance of object from sub
B used to read button settings
CF flag to denote screen cleared
EW flag to denote end of world has come
EA current edge value in 3D projection
X,Y,Z coordinates of object relative to sub
X3,Y3,Z3 transformed coordinates
MU,MV,MP used to check for hit when firing
DX,DY
HT flag to signal object hit

How it works

10 reserve graphics screen memory and clear screen
20-30 DIMension arrays, initialise variables
40 set graphics mode, clear graphics screen
50 set up strings for drawing numbers for timer
60 set timer value and initialise time to 10secs
70 draw time in top right of screen
80 set variables SX and SY to a clear part of screen, set viewer distance (D) to 75 units, set flag (FL) to select sonar display on entry
90-220 set up the sonar display in screen 1
230-340 draw the status displays for sonar screen
350 ask user to set level of difficulty
360-370 initialise object's X,Y, Z position
380-390 initialise sub's X,Y,Z position
400-410 set initial pitch and heading to zero
420-530 generate look up tables for sines and cosines
540-650 read in data to form 3D picture of bomb
660-720 sample joysticks, compute new values for pitch, heading and speed
730-760 form new X,Y and Z components of velocity
770-800 calculate new sub position using new velocities

the bomb ore it's too late for us all

forward and watch the dot move nearer to the centre of the screen. The pitch of the bleep goes up as the dot gets nearer.

Don't get too near as the bomb has a proximity fuse which will be triggered if the range is less than 7 units. (The object is initially at 600 units away, due North).

The pitch of the sub is controlled by vertical movement of the right hand stick. Pull this back and the sub rises in the water, push it forward and the sub dives. This control only takes effect if the sub is moving.

The starting depth of the sub depends upon the level of difficulty selected, and at level 9 the sub is on the sea bed, as is the object. Thus, to destroy the object from level 1 (the hardest) the submarine commander is going to have to dive from the surface to the sea bed pretty quickly if the world is to be saved.

The middle dial shows the pitch angle of the sub and the pointer will be level if the sub is neither rising nor diving. The right hand guage shows the sub's depth, the pointer being at the top when the sub is at the surface and vice versa.

The time readout at the top right shows how much time is left until the bomb explodes. Keep an eye on this. It could be important to several people.

When the dot is within the innermost circle on the sonar display it should be visible on the second (TV) display.

Press the button on the right hand joystick to turn on the TV camera mounted on the front of the sub. When the object is in view it will be seen that it is a rectangular box with a cross on one end.

To destroy the bomb the centre of this cross must be aligned with the cross hairs on the TV display. When all is lined up, press the button on the left hand joystick to fire.

Note that, due to the slowness of BASIC, the buttons have to be pressed for a considerable time before they take effect.

If all is well and you have aligned the cross hairs on the display with the cross on the box you will succeed in destroying it. The snag is that you can't fire **through** the box. This means that you must be sure to have the end of the box with the cross marked on it facing you when you fire.

Hint: use the sonar display to help you move round the bomb. To move round it in an anti-clockwise direction, keep the dot on the horizontal line to the left of centre and move the speed control forward.

Adjust the controls to keep the dot on the line and watch the heading indicator turn. When the heading has changed by the required amount (say 90 degrees) bring the dot back to the dead ahead position and look at it on the TV display.

Remember not to get too close or the proximity fuse will detonate the bomb. A warning will sound when the sub is approaching the point where this will occur, so take note!

Left joystick
Vertical speed control
Horizontal not used
Button fire

Right joystick
Vertical pitch
Horizontal heading
Button change display

• **Hot Programs to Feed Your Dragon, £6.95, contains 14 listings, including games, utilities and business. Sigma Technical Press, 5 Alton Road, Wilmslow, Cheshire SK9 5DY**



```
10 PCLEAR8:CLS:PRINT"PLEASE WAIT"
20 DIM CS(181),SN(181),V(20,3),E(20),B(20,20),C(4,4),D(4,4),
A(10,10),NO$(11),Q(30,10)
30 AM=0:BM=0:DM=0:EM=0:FM=0:GM=0:HM=0:IM=0:
U=0:U1=0:V=0:V1=0
40 PMODE4,1:PCLS
50 GOSUB 3200 : REM INITIALISE STRINGS
60 TIMER=50:UM=0:TS=0:US=9
70 DRAW"BM245,5"+NO$(US):DRAW"BM239,5"+NO$(TS):
DRAW"BM228,5"+NO$(UM)
80 SX=118:SY=50:D=75:FL=1
90 LINE(225,0)-(255,11),PSET,B
100 CIRCLE(128,70),69
110 LINE(0,0)-(255,140),PSET,B
120 PAINT(79,5):GET(0,0)-(3,3),C:PAINT(180,5)
130 LINE (0,140)-(255,191),PSET,B
140 LINE(0,0)-(255,140),PRESET,B
150 CIRCLE (128,70),10
160 CIRCLE(128,70),40
170 LINE(128,0)-(128,60),PSET
180 LINE(128,140)-(128,80),PSET
190 LINE(48,70)-(118,70),PSET
200 LINE(138,70)-(255,70),PSET
210 LINE(118,10)-(128,0),PSET
220 LINE-(138,10),PSET
230 REM SET UP STATUS DISPLAY
240 LINE(53,159)-(75,181),PSET,B
250 LINE(64,157)-(64,160),PSET
260 LINE(52,170)-(54,170),PSET
270 LINE(64,183)-(64,180),PSET
280 LINE(74,170)-(76,170),PSET
290 FOR I=160 TO 180 STEP 2
300 LINE(116,I)-(118,I),PSET:NEXT I
310 LINE(116,160)-(139,180),PSET,B
320 LINE(172,156)-(212,158),PSET,B
330 LINE(172,182)-(212,184),PSET,B
340 LINE(172,156)-(212,184),PSET,B
350 GOSUB 7000
360 REM GENERATE OBJECT COORDS
370 XO=0:YO=600:ZO=1000
380 REM SET INITIAL SUB POSITION
390 XS=0:YS=0
400 P=0:REM INITIAL PITCH = ZERO
410 H=0:REM INITIAL HEADING = ZERO
420 REM GENERATE SINE AND COSINE LOOKUP TABLES
430 FOR I=0 TO 45
440 AN=3.142*I/90
450 CS(I)=COS(AN)
460 CS(90-I)=-CS(I)
470 CS(90+I)=-CS(I)
480 CS(180-I)=CS(I)
490 SN(45-I)=CS(I)
500 SN(45+I)=CS(I)
510 SN(135-I)=-CS(I)
520 SN(135+I)=-CS(I)
530 NEXT I
540 REM READ OBJECT MATRICES
550 READ NV:REM NUMBER OF VERTICES
560 FOR P=1 TO NV
570 READ V(P,1),V(P,2),V(P,3)
580 V(P,1)=V(P,1)+XO
590 V(P,2)=V(P,2)+YO
600 V(P,3)=V(P,3)+ZO
610 NEXT P
620 READ NE:REM NUMBER OF EDGES
630 FOR E=1 TO NE
640 READ E(E)
650 NEXT E
660 REM SAMPLE CONTROLS
670 DP=JOYSTK(1):DH=JOYSTK(0)
680 VL=16-JOYSTK(3)/4
690 H=H-FIX(DH/8)+4
700 IF DP<32 THEN P=164+DP/2 ELSE P=DP/2-16
710 IF H>180 THEN H=H-180
720 IF H<0 THEN H=H+180
730 REM UPDATE 3D VELOCITIES
740 VX=VL*SN(H)*CS(P)
750 VY=VL*CS(H)*CS(P)
760 VZ=VL*SN(P)
770 REM CALC NEW SUB POSITION
780 XS=XS+VX:YS=YS+VY:ZS=ZS-VZ
790 IF ZS<0 THEN ZS=0
800 IF ZS>1000 THEN ZS=1000
810 REM CHECK FOR OBJECT IN LONG RANGE SCAN
820 AX=XO-XS:AY=YO-YS
830 RO=SQR(AX*AX+AY*AY)
840 IF RO>680 THEN 1090
850 IF RO<7 AND ZS>990 THEN 4000
860 B=PEEK(65280):IF B=254 OR B=126 THEN 870 ELSE 880
870 CF=1:FL=FL-1:IF FL<1THEN FL=2:PMODE
4,5:PCLS:GOSUB3010:SCREEN1,0
880 ON FL GOTO 1000,2000
1000 REM GENERATE LONG RANGE SCAN
1010 PMODE 4,1:SCREEN1,0:GOSUB 3010
1020 PUT(SX-2,SY-2)-(SX+2,SY+2),D
```

Hints on conversion

810-830 calculate distance from sub to object (RO)
840 if out of range of sonar only update status, no sound
850 check for proximity explosion, but make sure sub depth is near bottom
860-870 if right hand button pressed then change display by altering value of flag FL
880 go to appropriate display routine
1000-1190 generate long range (sonar) scan with sound, check for end-of-world flag (EW) (set by timer routine)
2000 select 3D display starting at page 5
2010-2070 calculate 3D projection parameters
2080 clear screen, set flag telling timer routine to re-display time, put crosshairs at centre
2090-2130 move observer to origin
2140 call timer routine
2150-2170 transform coordinates of box edge (eight edges in all)
2180-2190 project object edge on to 2D screen
2200-2230 clip object to lie within screen limits
2240 plot edge from end of last edge (U1,V1) to end of new edge (U,V)
2250 check fire button
2260 skip next section if not last edge of object
2270-2310 calculate distance from centre of cross on bomb to crosshairs on screen, if within allowed limits set midpoint glag (MP) to 1 else reset it
2320 update U1, V1 ready for next time round
2330 check for proximity warning, sound if too near
2340 repeat above for all edges of box
2350 if EW flag set then explode everything
2360 reset hit flag (HT)
2370 if button was pressed during drawing of bomb then go to fire routine
2380 fire routine will set HT to indicate a hit
2390 go and do it all again
2400-2510 DATA for drawing (bomb)
3000 timer routine counts down from initial setting to zero. Sets EW flag at zero.
3010 check flag which signals screen cleared, if set then re-write entire time display and clear flag
3020 if TV screen selected then must erase corner of screen to remove any object drawn there
3030 draw time
3040 only update time every 50 timer ticks (1 sec)
3050 reset timer, sample joysticks (to provide better control sensing)
3060 erase units of seconds
3070 zero flags
3080 decrement units of seconds count
3090 check for underflow, reset to 9 if 0, set flag to signal that tens of seconds must also change
3100 draw units of seconds
3110-3180 repeat for tens of seconds and units of minutes
3200-3300 strings for drawing numerals on graphics screen
4000 like it says!
4010 enable sound channel output from D-A converter
4020 copy sonar screen to TV screen (to save re-writing the sonar screen ready for next game)
4030-4070 draw expanding circle with random low frequency sounds poked straight to the D-A convertor, flash random colours by changing modes on the 6847 TV controller chip
4080-4240 put up end message, invite further attempt
5000-5150 draw tracer to centre of screen, check for hit
6000-6030 congratulate and print safety margin

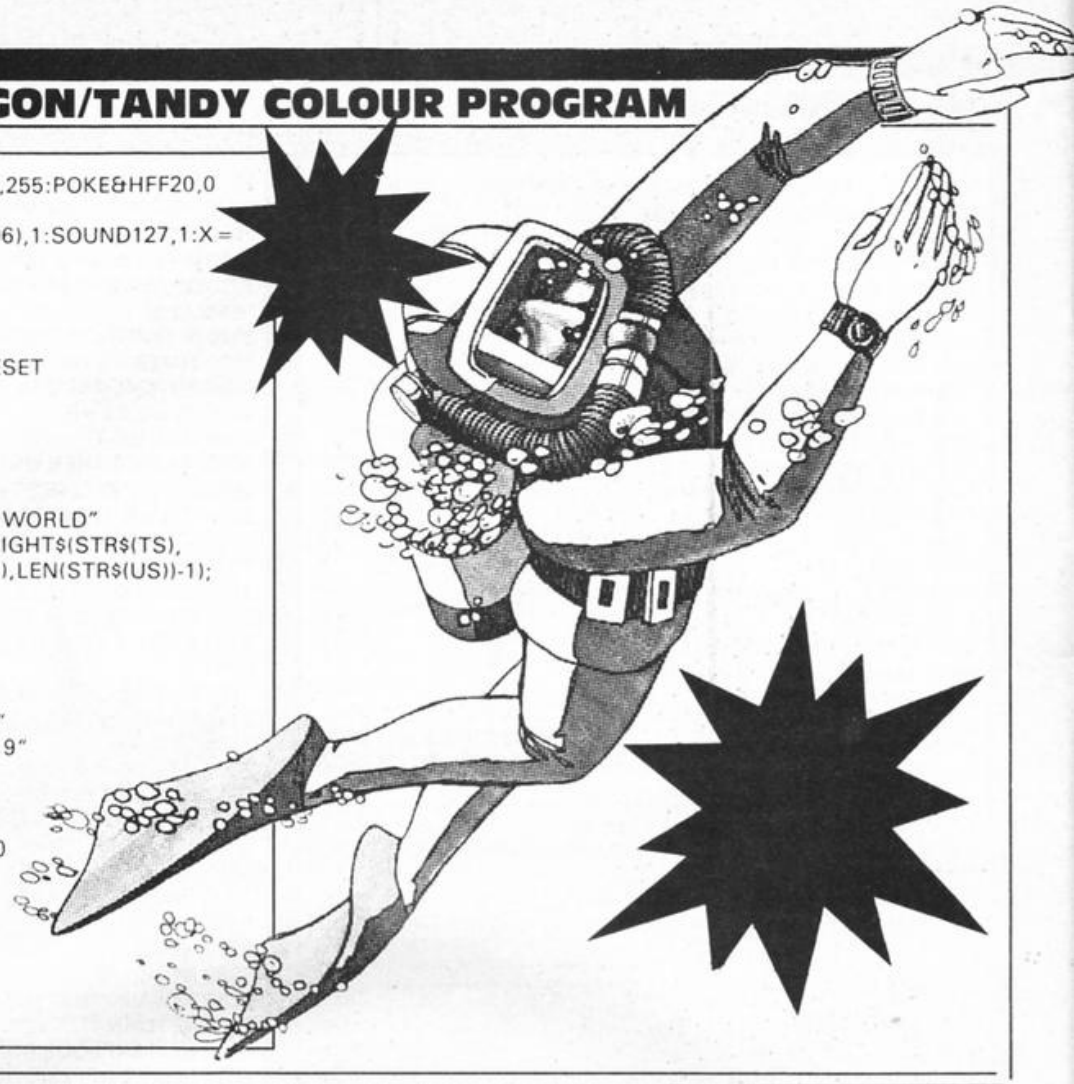
```
1030 SX = -(AX*CS(H)-AY*SN(H))/10 + 128:SY = -
AY*CS(H) + AX*SN(H))/10 + 70
1040 GET (SX-2,SY-2)-(SX + 2,SY + 2),D
1050 PSET(SX,SY):PSET(SX + 1,SY + 1)
1060 PSET(SX + 1,SY):PSET(SX,SY + 1)
1070 SOUND 255-RO/10,1
1080 REM UPDATE STATUS DISPLAYS
1090 PUT(57,160)-(71,180),B
1100 PUT(122,162)-(134,178),B
1110 PUT(182,160)-(202,180),B
1120 LINE(-8*SN(H) + 64,-8*CS(H) + 170)-(64,170),PSET
1130 LINE(63,169)-(65,171),PSET,B
1140 LINE(-8*CS(P) + 128,-8*SN(P) + 170)-(128,170),PSET
1150 LINE(127,169)-(129,171),PSET,B
1160 LINE(187,ZS/50 + 160)-(197,ZS/50 + 160),PSET
1170 GOSUB 3010
1180 IF EW = 1 THEN 4000 : REM BOMB EXPLODES
1190 GOTO670
2000 PMODE4,5:SCREEN1,0
2010 AM = CS(H):BM = -SN(H)
2020 DM = SN(H)*CS(P)
2030 EM = CS(P)*CS(H)
2040 FM = SN(P)
2050 GM = -SN(H)*SN(P)
2060 HM = -SN(P)*CS(H)
2070 IM = CS(P)
2080 PCLS:CF = 1:LINE(123,96)-(133,96);PSET:LINE(128,91)-
(128,101),PSET
2090 FOR E = 1 TO NE
2100 EA = ABS(E(E))
2110 X = V(EA,1)-XS
2120 Y = V(EA,2)-YS
2130 Z = V(EA,3)-ZS
2140 GOSUB 3010
2150 X3 = AM*X + BM*Y
2160 Y3 = DM*X + EM*Y + FM*Z
2170 Z3 = GM*X + HM*Y + IM*Z
2180 U = 128-150*X3/Y3
2190 V = 96-127.5*Z3/Y3
2200 IF U> 255 THEN U = 255
2210 IF U< 0 THEN U = 0
2220 IF V> 255 THEN V = 255
2230 IF V< 0 THEN V = 0
2240 IF E(E)> 0 THEN LINE(U1,V1)-(U,V),PSET
2250 B = PEEK(65280):IF B = 253 OR B = 125 THEN B2
     = 1 ELSE B2 = 0
2260 IF E< > NE THEN 2320
2270 IF U1> U THEN MU = (U1-U)/2 + U ELSE MU
     = (U-U1)/2 + U1
2280 IF V1> V THEN MV = (V1-V)/2 + V ELSE MV = (V-V1)/2 + V1
2290 IF MU> 128 THEN DX = MU-128 ELSE DX = 128-DX
2300 IF MV> 96 THEN DY = MV-96 ELSE DY = 96-MV
2310 IF DX< 5 AND DY< 5 AND XS> 10 AND YS> 580
     AND YS< 620
AND ZS> 900 THEN MP = 1 ELSE MP = 0
2320 U1 = U:V1 = V
2330 IF RO< 15 AND ZS> 990 THEN SOUND 255-RO,1
2340 NEXT E
2350 IF EW = 1 THEN 4000
2360 HT = 0
2370 IF B2 = 1 THEN GOSUB 5000 : REM FIRE
2380 IF HT = 1 THEN 6000 : REM HIT
2390 GOTO 670
2400 DATA 8
2410 DATA 5.25,-2,3.25
2420 DATA -5.25,-2,3.25
2430 DATA -5.25,-2,-3.25
2440 DATA 5.25,-2,-3.25
2450 DATA 5.25,2,3.25
2460 DATA -5.25,2,3.25
2470 DATA -5.25,2,-3.25
2480 DATA 5.25,2,-3.25
2490 DATA 19
2500 DATA -1,2,3,4,1,5,6,7,8,5
```

```
2510 DATA -2,6,-3,7,-4,8,1,-4,5
3000 REM COUNTDOWN
3010 IF CF = 1 THEN CF = 0 ELSE 3040
3020 IF FL = 1 THEN PUT(225,10)-(255,0),Q,PSET
3030 DRAW"BM244,5" + NO$(US) + "BM239,5" + NO$(TS) +
"BM228,5" + NO$(UM)
3040 IF TIMER< 50 THEN RETURN
3050 TIMER = 0:DP = JOYSTK(1):DH = JOYSTK(0)
3060 PUT(245,10)-(254,0),A,PSET
3070 S1 = 0:S2 = 0
3080 US = US-1
3090 IF US< 0 THEN US = 9:S1 = 1
3100 DRAW"BM245,5" + NO$(US)
3110 IF UM = 0 AND TS = 0 AND US = 0 THEN EW = 1
3120 IF S1< > 1 THEN RETURN ELSE TS = TS-1:IF TS< 0 THEN
TS = 5:S2 = 1
3130 PUT(238,10)-(242,0),A,PSET
3140 DRAW"BM239,5" + NO$(TS)
3150 IF S2< > 1 THEN RETURN ELSE UM = UM-1:IF UM< 0 THEN
UM = 0
3160 PUT(228,10)-(234,0),A,PSET
3170 DRAW"BM228,5" + NO$(UM)
3180 RETURN
3200 NO$(1) = "BU3BR3D3BL3BD3BR3U3BR1"
3210 NO$(2) = "BU3R3D3L3D3R3BU3BR1"
3220 NO$(3) = "BU3R3D3L3BD3R3U3BR1"
3230 NO$(4) = "U3BR3D3L3BD3BR3U3BR1"
3240 NO$(5) = "U3R3BD3L3BD3R3U3BR1"
3250 NO$(6) = "U3BR3BD3L3D3R3U3BR1"
3260 NO$(7) = "BU3R3D6BU3BR1"
3270 NO$(8) = "U3R3D3L3D3R3U3BR1"
3280 NO$(9) = "U3R3D3L3BD3BR3U3BR1"
3290 NO$(0) = "U3R3D3BL3D3R3U3BR1"
3300 RETURN
4000 REM EXPLODE BOMB
4010 POKE &HFF23,&H3C
4020 FOR I = 1 TO 4:PCOPY I TO I + 4:NEXT I
4030 PMODE 4,5:SCREEN 1,0
4040 FOR I = 1 TO 50
4050 CIRCLE(SX,SY),I
4060 FOR J = 1 TO RND(10):POKE&HFF20,RND(127):
     POKE&HFF20, 0:POKE&HFF22, RND(255): NEXT J
4070 NEXT I
4080 PMODE 3,5:SCREEN1,1
4090 DRAW"BM5,20S8C5BU8R8BL4D8BR8"
4100 DRAW"U8BR8D8BU4L8BD4BR12"
4110 DRAW"U8R8BD4L8BD4R8BR4"
4120 DRAW"BM193,130U8R8BD4L8BD4R8BR4"
4130 DRAW"U8F8U8BD8BR4"
4140 DRAW"U8R6F2D4G2L6BR12S4"
4150 FOR I = 1 TO 2000:NEXT I
4160 SCREEN 0,0:CLS
```

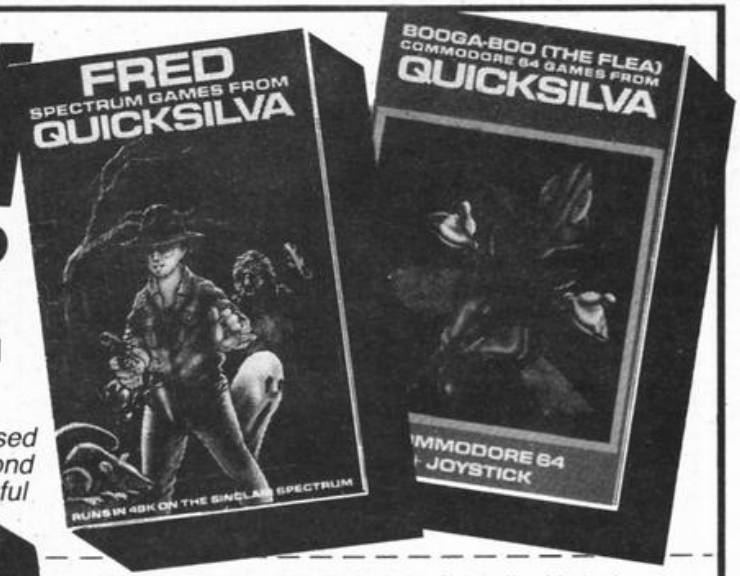
```
4170 PRINT "HAVING SINGULARLY FAILED TO
     ":PRINT"SAVE THE WORLD"
4180 PRINT "WOULD YOU LIKE TO TRY AGAIN?"
4190 PRINT "ENTER Y OR N> "
4200 A$ = INKEY$
4210 IF A$ = "" THEN 4200
4220 IF A$ = "Y" THEN GOSUB
7000:FL = 1:XS = 0:YS = 0:H = 0:HT = 0:EW = 0:GOTO 670
4230 POKE 65494,0 : REM NORMAL PROCESSOR RATE
4240 END
5000 REM FIRE AT BOMB
5010 X = 0:Y = 128:POKE &HFF23,&H3C
5020 FOR I = 1 TO 32
5030 LINE(X,Y)-(X + 4,Y-1),PSET
5040 LINE(256-X,Y)-(251-X,Y-1),PSET
```

DRAGON/TANDY COLOUR PROGRAM

```
5050 X = X + 4:Y = Y-1:POKE&HFF20,255:POKE&HFF20,0
5060 NEXT I
5070 CIRCLE(128,96),4:PAINT(128,96),1:SOUND127,1:X =
     0:Y = 128
5080 FOR I = 1 TO 32
5090 CIRCLE(128,96),4 + I/8
5100 LINE(X,Y)-(X + 4,Y-1),PRESET
5110 LINE(256-X,Y)-(251-X,Y-1),PRESET
5120 X = X + 8:Y = Y-2
5130 NEXT I
5140 IF MP = 1 THEN HT = 1
5150 RETURN
6000 REM HIT BOMB
6010 PRINT"YOU HAVE SAVED THE WORLD"
6020 PRINT"WITH";STR$(UM);":";RIGHT$(STR$(TS),
LEN(STR$(TS))-1); RIGHT$(STR$(US),LEN(STR$(US))-1);
"TO SPARE"
6030 GOTO 4180
7000 REM INSTRUCTIONS
7010 SCREEN 0,0:CLS
7020 CLS
7030 PRINT"LEVEL OF DIFFICULTY?"
7040 PRINT"ENTER A NUMBER 1 TO 9"
7050 PRINT"(1 = HARD,9 = EASY)"
7060 I$ = INKEY$
7070 IF I$ = "" THEN 7060
7080 IF I$< "1" OR I$> "9" THEN 7060
7090 UM = VAL(I$):TS = 5:US = 10
7100 CF = 1:TIMER = 50
7110 ZS = (VAL(I$) + 1)*100
7120 PRINT"LEVEL ";I$
7130 PRINT"PLEASE WAIT"
7140 RETURN
```



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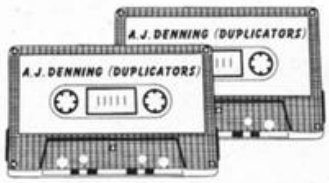
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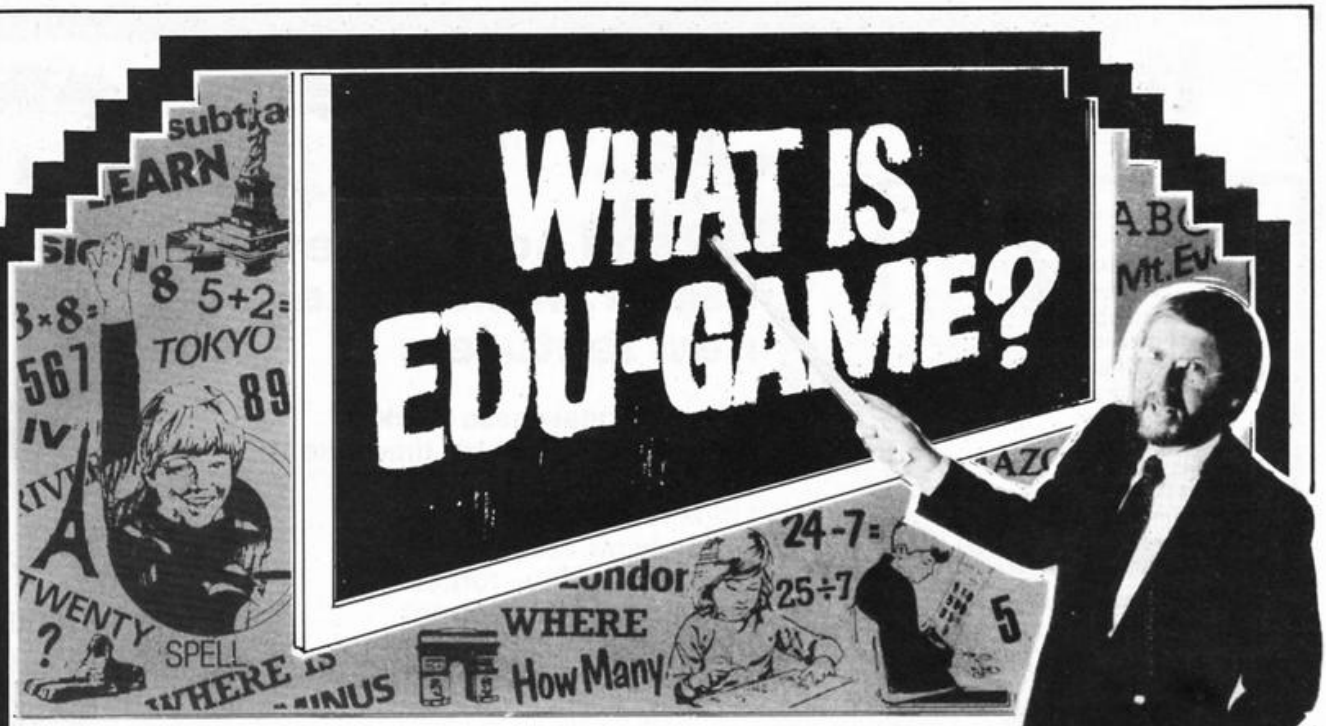


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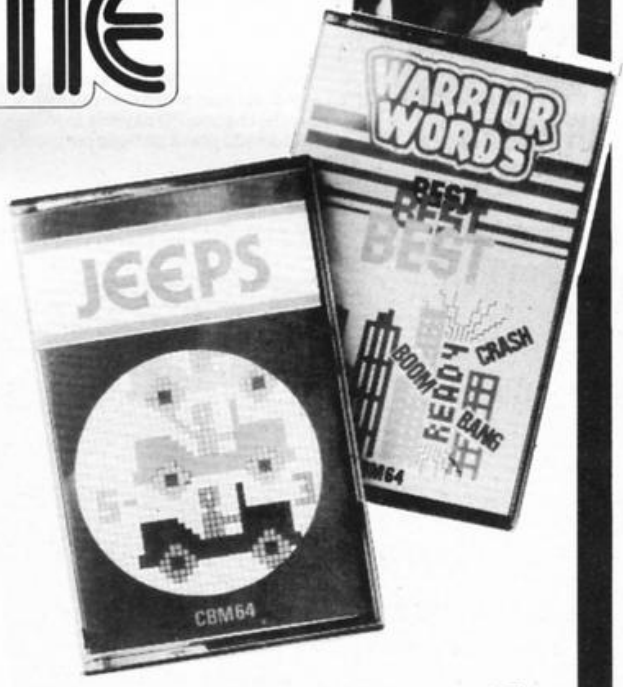
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Out of doors with your computer

Games which take you outside — and into space — star-rated by our panel

Light Cycle Wars 32K BBC £6.95

Personal Software Services, 452 Stoney Stanton Road, Coventry VC6 5DG

This review should be one word — impossible! I have seen other versions, based on the light cycles in Tron, and found them tedious. But this is fast, desperate and difficult. Control can be from keyboard or joystick and the latter is really necessary to play well, especially against the computer. As yet I have not been able to outwit the beast, though human opponents are possible and, fortunately, a little easier to beat

The BBC's highest resolution is used which makes the light cycle lines rather thin, but means play is much more sensitive and difficult, as the gaps between cycle trails become almost invisible. If you hit your own or your opponent's trail you are dead, so hand and eye co-ordination is the name of the game. You can only win if you take risks, but too great a risk and you're off your bike.

I think this game may pall after a while. It cannot be varied much and higher levels are simply faster. Nevertheless it is certainly as breathless as PSS claim and I recommend it to all Tron fans.

N.W.

instructions	75%
playability	85%
graphics	80%
value for money	80%

★ ★ ★ ★

Line up 4/ Reversi VIC-20 £6.95

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

Line up 4, connect 4, or any other name you care to call it, is a simple strategy game for two players. Getting four counters in a row, with the computer as your opponent, is not an easy task, although it is possible to win, occasionally. The computer response time is quite fast and, to emphasise that point, both your time and the computer's are displayed at the end of each game.

I know there are some people who take this type of game quite seriously. If you are one of them, you will find this a challenge.

Much less of a challenge is the version of Reversi. The programmer seems to have got it wrong, I'm afraid. Quite easy to beat, the computer seems bent on self destruction, making the most obvious mistakes. Without trying too hard I won the first game, leaving the computer with just six pieces to its credit.

If the programmer produces a better version of Reversi, then both games on one tape would represent better value for money. As it is, with only the one worthwhile game, Reversi detracts from the value.

B.B.

instructions	100%
playability	60%
graphics	75%
value for money	50%

★ ★ ★

Golf 48K Spectrum £5.95

Lyversoft, 66 Lime St, Liverpool L1 1JN

With so many golf simulation programs now available for the Spectrum, a new one must offer something special to stand out from the crowd. This one doesn't. It is no better or worse than several others.

Program instructions are available as an option at the start, providing a clear, but unimaginative guide.

You can choose between a nine or 18 hole course, and one or two playes. At the start of each hole, you get a bird's eye view of the fairway, with all the information necessary to select club and strength of shot. The possibility of hooking or slicing appears to be selected at random, so the only skill required is in judging the direction, and selecting the right club.

Once you get to the green, the view changes to a close-up. Here you decide on the direction and strength of your shot. It is rather confusing that the strength scale is different for putting on the green, compared with the fairway.

A few minor bugs in the program only helped to confirm that this is a mediocre offering from Lyversoft.

D.N.

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

★ ★

Checkout 32K BBC £7.95

Virgin, 61/63 Portobello Rd, London W11 3DD

An excellent and very colourful arcade-type game. You guide Checkout Charlie around a grid, changing the colour of the squares as you pass over them. The first time you run over a square it turns striped, the next it becomes the target colour — the one the grid has to be completely covered in before you can proceed to the next screen.

This may sound more like a game of logic rather than a arcade game, probably because I haven't told you about the remote controlled robot who moves very swiftly around the maze. If he bumps into you, you lose a life.

On the left of the screen is an egg timer. Every time the last few grains of sand disappear the robot fires a four-way death dealing laser. If you happen to be in its path you disintergrate.

As you clear more screens the action speeds up, and even though the concept remains the same I haven't got bored yet. Superb graphics and sound, and originality, combine to make a wonderful game.

M.B.

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

★ ★ ★ ★ ★

Pedro Dragon 32 £5.50

Imagine, 5 Sir Thomas St, Liverpool L1 6BW

An excellent arcade style game with plenty to keep you on your toes (or rather your joysticks) and an endearing story line for anyone with a garden.

The game is set in the garden of poor Pedro who is fighting a losing battle, I'm afraid. He tends two flower beds but, being rather poor, he can't afford enough bricks to keep holes in the fences blocked. This means that all the animals who pass by try to take a nibble of Pedro's prize blooms. You can help him to block the gaps with the one brick he has left or with compost but this is only a temporary measure as the animals just eat it away.

During the first screen it is ants who invade, then rats followed by rabbits who jump over the walls anyway. The game is responsive on both keys and joysticks, although we preferred the stick, and has an attractive screen. Sound is also of a very high standard. I'm not going to tell you what to do with the tramp or what he does to you! Try it for yourself.

D.C.

instructions	100%
playability	90%
graphics	95%
value for money	95%

★ ★ ★ ★ ★

While attempting to discover a new sea route through a group of volcanic islands, you are shipwrecked in a sudden storm off the south coast of Saurus Island.

You reach the safety of the island but have to traverse it, searching for materials to build and make a raft before you can set sail for the mainland and home. You have to sail from the calm waters of the northern shores.

Saurus Island has only been seen from the air before. It has remained unexplored because pilots of the aircraft have reported horrendous, strange and gigantic creatures lurking in its swamps and forests. These creatures are dinosaurs, extinct except on Saurus Island.

No man has dared to set foot on it before. Will you survive the dangers of Saurus Island?

You will travel by many different routes meeting many hazards. Like all discoverers, you need to keep an accurate log of your journey saying who or what you meet and the hazards you encounter.

Most of the land is low and flat and warm seas frequently flood it. There are many marshes and swamps with a lot of green plants resembling giant ferns which thrive in this warm moist climate. Streams have their sources in the high areas and flow quickly down mountain sides, often by way of gorges or waterfalls.

They then flow sluggishly over the flat plains until they reach the sea. Ravines, and pits appear everywhere caused by many factors. Perhaps as the earth was formed meteors fell from space; perhaps by the movement of rock; earthquakes or by volcanic eruptions.

Volcanoes may erupt at any time, sending out streams of lava so hot that everything within its path is burnt, or they may hurl out massive boulders in all directions, or ash or poisonous gas.

And remember, the island is full of dinosaurs lurking everywhere. Some, like Ankylosaurus and Stegosaurus are friendly plant eaters whose defence is an outer coat of armour plating and whose biggest enemies are the meat eaters, like Tyrannosaurus Rex.

To meet Tyrannosaurus Rex means instant death. Pteranodon is a dreadful dragon like reptile and king of the air, with a long pointed beak, no feathers and wings like a glider. Travel with caution if you meet this creature.

Naturally any discoverer will have prepared for mishaps, but remember you have been shipwrecked and the only equipment you managed to save is:

- a compass
- a penknife
- rope
- drinking water
- a badly damaged map of the area

As you trek around the island you may need to replace lost equipment but you **must** visit a certain spot on the edge of the forest for twine, **you** must find this place. Remember you need wood and two lots of rope to build your raft. You begin with one lot of rope. If you lose this it needs replacing.

You will need fresh water for drinking and a visit to the spring is necessary once you have started your journey. Good luck and have a safe trip home.

You may find it useful to make booklets showing the island, giving the rules of the game and allowing for space for the explorer's log to be kept, which will include illustrations of the dinosaurs met, and the route taken.

Instructions: Move through the island one square at a time in any of the four compass directions. You are not allowed to move into the sea. You must visit the spring for fresh water at least once. Twine is found near the forest but you must find the exact spot. Your survival kit is a compass, a penknife, rope, drinking water, a badly damaged map. Always remember to log your journey. You may cross any obstacles that you see.

● Computing for all the Family, £6.45, covers simple to advanced BASIC programming and contains four games listings and 25 instructional programs. Published by Sigma Technical Press, 5 Alton Road, Wilmslow, Cheshire SK9 5DY

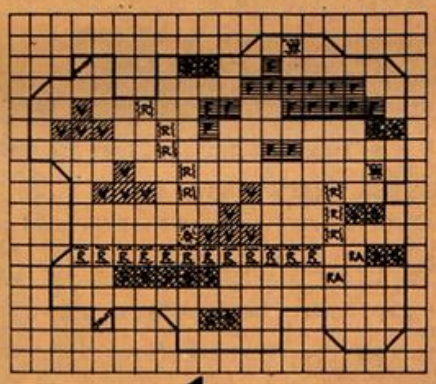
```
  1 REM S.ISLAND
 10 MODE 7
 12 Y$=CHR$255+CHR$255+CHR$255
 15 W$=CHR$255+CHR$255+CHR$255+CHR$255+CHR$255
 20 X=285: Y=0: rope=1: drinking=0
100 CLS:PRINT TAB(0,3)CHR$(141);CHR$(131);"S A U
R U S  I S L A N D"
102 PRINT TAB(0,4)CHR$(141);CHR$(131);"S A U R U
S  I S L A N D"
104 PRINT TAB(1,5)CHR$(130);"A journey through t
ime."
106 PRINT TAB(8,8)CHR$(145);CHR$(206)
108 PRINT TAB(8,9)CHR$(150);CHR$(255)
110 PRINT TAB(8,10)CHR$(150);CHR$(255)
112 PRINT TAB(8,11)CHR$(150);CHR$(255)
114 PRINT TAB(8,12)CHR$(150);CHR$(255)
116 PRINT TAB(1,13)CHR$(145);CHR$(215);CHR$(150)
;CHR$(255);W$;W$;CHR$(145);CHR$(197)
118 PRINT TAB(8,14)CHR$(150);CHR$(255)
120 PRINT TAB(8,15)CHR$(150);CHR$(255)
122 PRINT TAB(8,16)CHR$(150);CHR$(255)
124 PRINT TAB(8,17)CHR$(150);CHR$(255)
126 PRINT TAB(8,18)CHR$(145);CHR$(211)
128 PRINT TAB(19,19)CHR$(131);"Which Direction?"
130 INPUT TAB(21,21),Z$
150 IF Z$="N" THEN X=X-20: GOTO 200
160 IF Z$="S" THEN X=X+20: GOTO 200
170 IF Z$="E" THEN X=X+1: GOTO 200
180 IF Z$="W" THEN X=X-1: GOTO 200
190 PRINT TAB(20,23);"Wrong sign": FOR T = 1 TO
3000: NEXT T: GOTO 100
200 A=RND(16)+83: B=RND(16)+103: C=RND(16)+123:
D=RND(16)+143: E=RND(16)+163: F=RND(16)+183: G=RND
(16)+203: H=RND(16)+223: I=RND(16)+243: J=RND(16)+
263
230 IF X=A OR X=B OR X=C OR X=D OR X=E OR X=F OR
X=G OR X=H OR X=I OR X=J THEN 900
240 IF X>=250 AND X<=255 THEN 1000
250 IF X>=122 AND X<=127 THEN 1000
260 IF X>=151 AND X<=157 THEN 1100
270 IF X>=184 AND X<=189 THEN 1100
280 IF X>=246 AND X<=250 THEN 1200
290 IF X=290 OR X=291 OR X=238 OR X=239 OR X=197
OR X=198 OR X=118 OR X=119 OR X=49 OR X=50  THEN
1200
300 IF X>=210 AND X<=212 THEN 1300
310 IF X>=165 AND X<=167 THEN 1300
320 IF X>=103 AND X<=105 THEN 1300
330 IF X=191 OR X=172 OR X=146 OR X=84 THEN 1300

340 IF X=53 OR X=90 OR X=91 OR X=110 OR X=133 OR
X=134 THEN 1400
350 IF X>=72 AND X<=77 THEN 1400
360 IF X>=94 AND X<=98 THEN 1400
370 IF X=52 OR X=117 THEN 1500
380 IF X=256 OR X=237 THEN 1600
390 IF X>=224 AND X<=235 THEN 1700
400 IF X=216 OR X=196 OR X=176 OR X=169 OR X=149
OR X=128 OR X=108 OR X=87 THEN 1700
410 IF X=209 THEN 1800
420 IF X=158 OR X=34 THEN 1900
430 IF X=44 THEN 2000
440 IF X=85 OR X=111 OR X=136 OR X=194 THEN 2100
450 IF X>=1 AND X<=31 THEN 2200
460 IF X>=37 AND X<=43 THEN 2200
470 IF X=46 OR X=47 OR X=60 OR X=61 OR X=66 OR X
=67 OR X=80 OR X=81 OR X=100 OR X=101 OR X=120 OR
X=121 OR X=294 OR X=295 OR X=286 OR X=287 OR X=314
OR X=315 THEN 2200
480 IF X>=140 AND X<=142 THEN 2200
490 IF X>=160 AND X<=163 THEN 2200
500 IF X>=179 AND X<=183 THEN 2200
510 IF X>=200 AND X<=203 THEN 2200
520 IF X>=220 AND X<=222 THEN 2200
530 IF X>=240 AND X<=242 THEN 2200
540 IF X>=260 AND X<=262 THEN 2200
550 IF X>=280 AND X<=284 THEN 2200
560 IF X>=300 AND X<=308
    THEN 2200
570 IF X>=320 AND X<=340
    THEN 2200
```

```
  600 CLS: PRINT TAB(6,10)CHR$(141);CHR$(136);CHR$
(134);CHR$(157);CHR$(129);"S A F E  M O V E   ";CH
R$(156)
  610 PRINT TAB(6,11)CHR$(141);CHR$(136);CHR$(134)
;CHR$(157);CHR$(129);"S A F E  M O V E   ";CHR$(15
6)
  620 FOR K = 1 TO 15: SOUND 1,-13,RND(20),5: NEXT
 K
  630 FOR T = 1 TO 3000: NEXT T: GOTO 100
  900 CLS: FOR L = 1 TO 3: FOR M = -15 TO -1: SOUN
D 2,M,1,5: NEXT M
  910 PRINT TAB(5,4)CHR$(136);CHR$(129);"AH-H-H-H-
H": PRINT TAB(12,6)CHR$(136);CHR$(129);"AH-H-H-H-H
": PRINT TAB(19,8)CHR$(136);CHR$(129);"AH-H-H-H-H"
  920 PRINT TAB(7,11)CHR$(136);CHR$(129);"S U D D
E N": PRINT TAB(18,13)CHR$(136);CHR$(129);"D E A T
 H"
  930 NEXT L
  940 PRINT TAB(7,17)CHR$(130);"BACK TO THE BEGINN
ING": FOR T = 1 TO 3000: NEXT T
  950 RUN
 1000 CLS: PRINT TAB(0,1);CHR$(141);CHR$(131);"S T
 E G O S A U R U S   B E W A R E"
 1002 PRINT TAB(0,2);CHR$(141);CHR$(131);"S T E G
O S A U R U S   B E W A R E"
 1008 FOR stego = 1 TO 5: AA=RND(32): BB=RND(14)+4

 1010 PRINT TAB(AA,BB)CHR$(136);CHR$(145);CHR$(244
);CHR$(244);CHR$(244)
 1020 PRINT TAB(AA,BB+1)CHR$(136);CHR$(145);Y$
 1030 PRINT TAB(AA-1,BB+2)CHR$(136);CHR$(145);CHR$
(240);Y$;CHR$(255)
 1040 PRINT TAB(AA-1,BB+3)CHR$(136);CHR$(145);CHR$
(182);CHR$(233);CHR$(160);CHR$(182);CHR$(233)
 1050 VDU 7: FOR T = 1 TO 1000: NEXT T:
      NEXT stego : GOTO 100
 1100 CLS: PRINT TAB(0,1)CHR$(136);
      CHR$(141);CHR$( 129);
      "A N K Y L O S A U R U S"
 1102 PRINT TAB(0,2)CHR$
      (136);CHR$(141);
      CHR$(129);
      "A N K Y L O S
       A U R U S"
```

```
 1104 PRINT TAB(1,4)CHR$(136);CHR$(129);"KIND AND
GENTLE"
 1106 FOR ank = 1 TO 5
 1110 CC=RND(30): EE=RND(16)+4
 1120 PRINT TAB(CC,EE)CHR$(136);CHR$(146);CHR$(248
);CHR$(255);CHR$(255);CHR$(244);CHR$(240)
 1130 PRINT TAB(CC-2,EE+1)CHR$(136);CHR$(146);CHR$
(240);CHR$(166);CHR$(182);CHR$(233);CHR$(182);CHR$
(233)
 1140 PRINT TAB(CC-2,EE+2)CHR$(136);CHR$(146);CHR$
(161)
 1150 VDU 7: FOR T = 1 TO 1000: NEXT T: NEXT ank:
GOTO 100
 1200 CLS: PRINT TAB(0,6)CHR$(141);CHR$(131);"S W
A M P S"
 1210 PRINT TAB(0,7)CHR$(141);CHR$(131);"S W A M P
S"
 1220 PRINT TAB(0,10)CHR$(130);"WARM SEAS FLOODED
OVER THE LOW FLAT"
 1230 PRINT TAB(0,12)CHR$(130);"LAND.GREEN PLANTS
GREW IN ABUNDANCE."
 1235 PRINT TAB(0,14)CHR$(130);"GO WITH CARE."
 1240 PRINT TAB(0,20)CHR$(135);"Hit any key to con
tinue": keyhit=GET: GOTO 100
 1300 CLS: PRINT TAB(17,8)CHR$(146);CHR$(224)
 1305 PRINT TAB(17,9)CHR$(146);CHR$(250): PRINT TA
B(24,9)CHR$(146);CHR$(232)
 1310 PRINT TAB(12,10)CHR$(146);CHR$(234);CHR$(160
);CHR$(160);CHR$(160);CHR$(250);CHR$(255);CHR$(180
```



d! Will you e from the and dangers?

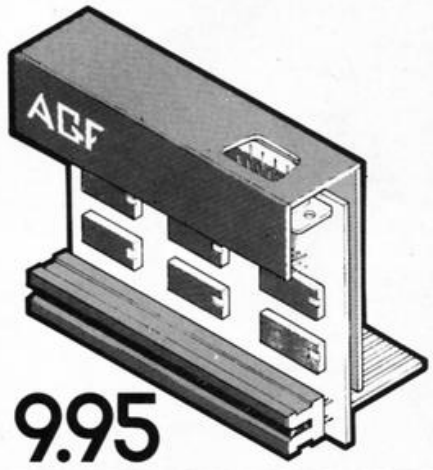


Build a raft and sail from Saurus Island — if the monsters let you. Tony Noble's program, for both models of the BBC micro, is taken from his book, Computing for all the Family with a BBC Computer, just published by Sigma Technical Press

```
);CHR$(160);CHR$(160);CHR$(160);CHR$(160);CHR$(160
);CHR$(234);CHR$(181)
 1320 PRINT TAB(11,11)CHR$(146);CHR$(224);CHR$(250
);CHR$(181);CHR$(160);CHR$(224);CHR$(255);CHR$(255
);CHR$(245);CHR$(160);CHR$(160);CHR$(160);CHR$(160
);CHR$(224);CHR$(255);CHR$(181)
 1330 PRINT TAB(11,12)CHR$(146);CHR$(250);CHR$(255
);CHR$(181);CHR$(160);CHR$(250);Y$;CHR$(176);CHR$(
250);CHR$(160);CHR$(160);Y$
 1340 PRINT TAB(10,13)CHR$(146);CHR$(254);CHR$(255
);CHR$(255);CHR$(253);CHR$(250);Y$;CHR$(255);CHR$(
245);CHR$(255);CHR$(180);CHR$(250);Y$;CHR$(181)
 1350 PRINT TAB(9,14)CHR$(146);CHR$(234);W$;W$;W$;
CHR$(255);CHR$(255);CHR$(255)
 1360 PRINT TAB(8,15)CHR$(146);CHR$(248);W$;W$;W$;
W$
 1365 PRINT TAB(0,17)CHR$(135);"VOLCANOES LIKELY T
O ERUPT AT ANY TIME"
 1370 JJ=RND(2)
 1375 IF JJ = 1 THEN PRINT TAB(8,20)CHR$(129);"GO
WITH CAUTION!!!!!" ELSE PRINT TAB(8,20)CHR$(131);"
ERUPTION.ROUTE BARRED"
 1380 IF JJ = 2 THEN PRINT TAB(3,7)CHR$(129);"**
*** * * * * ****     **    *"
 1385 IF JJ = 2 THEN PRINT TAB(2,6)CHR$(131);"*
 * *    ***      *      *    *"
 1388 IF JJ = 2 THEN PRINT TAB(3,5)CHR$(130);"*
 * *    ***      *      *    *  *"
 1390 FOR T = 1 TO 5000: NEXT T: GOTO 100
 1400 CLS: PRINT TAB(8,3)CHR$(135);"SEARCH FOR YOU
R TWINE"
 1410 PRINT TAB(12,5)CHR$(135);"IT IS NEAR THE"
 1420 PRINT TAB(14,7)CHR$(135);"FOREST EDGE"
 1430 FOR N = 1 TO 10: P=RND(30): Q=RND(14)+7
 1440 PRINT TAB(P,Q)CHR$(130);"^^^^^^^": PRINT TAB(
P+3,Q+1)CHR$(130);"^^^^^^^"
 1450 NEXT N: FOR R = 1 TO 6: SOUND 1,-13,41,5: SO
UND 1,-10,249,8: NEXT R
 1460 FOR T = 1 TO 3000: NEXT T: GOTO 100
 1500 CLS: PRINT TAB(0,1)CHR$(141);CHR$(129);"T W
I N E"
 1510 PRINT TAB(0,2)CHR$(141);CHR$(129);"T W I N E
"
 1520 PRINT TAB(0,5)CHR$(134);"WELL DONE.THIS SPOT
 CONTAINS SOME"
 1530 PRINT TAB(0,7)CHR$(134);"OF THE TWINE THAT Y
OU NEED."
 1540 PRINT TAB(0,9)CHR$(134);"BEFORE ARRIVING AT
THE FINISH YOU"
 1550 PRINT TAB(0,11)CHR$(134);"MUST HAVE TWO LOTS
 OF TWINE,TO MAKE"
 1560 PRINT TAB(0,13)CHR$(134);"THE ROPE.YOU BEGAN
 WITH ONE LOT BUT"
 1570 PRINT TAB(0,15)CHR$(134);"IF YOU HAVE LOST T
HIS THEN FIND"
 1580 PRINT TAB(0,17)CHR$(134);"ANOTHER SPOT IN TH
E FOREST FOR MORE."
 1585 PRINT TAB(0,19)CHR$(134);"THE COMPUTER CAN T
ELL IF YOU CHEAT!!!!"
 1590 PRINT TAB(0,21)CHR$(135);"Hit any key to con
tinue"
 1595 keyhit=GET: rope=rope+1: GOTO 100
 1600 CLS: PRINT TAB(0,5)CHR$(141);CHR$(129);"R E
X  R A V I N E"
 1610 PRINT TAB(0,6)CHR$(141);CHR$(129);"R E X  R
A V I N E"
 1620 PRINT TAB(0,9)CHR$(134);"IN TRAVERSING THE R
AVINE YOU USED ALL"
 1630 PRINT TAB(0,11)CHR$(134);"YOUR ROPE.VISIT TH
E EDGE OF THE"
 1640 PRINT TAB(0,13)CHR$(134);"FOREST TO COLLECT
MORE TWINE TO MAKE"
 1650 PRINT TAB(0,15)CHR$(134);"MORE ROPE. YOU MUS
T DO THIS TO GET"
 1660 PRINT TAB(0,17)CHR$(134);"OFF THE ISLAND AS
YOU NEED ROPE TO"
 1670 PRINT TAB(0,19)CHR$(134);"BUILD A RAFT.GOOD
LUCK."
 1680 PRINT TAB(0,22)CHR$(135);"Hit any key to con
tinue": keyhit=GET: rope=rope-1: GOTO 100
 1700 CLS: PRINT TAB(0,5)CHR$(134);CHR$(141);"R I
V E R  O N I D"
 1710 PRINT TAB(0,6)CHR$(134);CHR$(141);"R I V E R
  O N I D"
 1720 PRINT TAB(0,9)CHR$(133);"BOOT LOST IN DECAYI
NG MATTER IN THE"
 1730 PRINT TAB(0,11)CHR$(133);"RIVER.YOU MUST VIS
IT THE GRAVEYARD OF"
 1740 PRINT TAB(0,13)CHR$(133);"B R O N T O  TO MA
KE A REPLACEMENT."
 1750 PRINT TAB(0,15)CHR$(133);"EACH TIME YOU LOSE
 A BOOT YOU MUST"
 1760 PRINT TAB(0,17)CHR$(133);"VISIT THE GRAVEYAR
D OF BRONTO."
 1770 PRINT TAB(0,20)CHR$(131);"Hit any key to con
tinue": keyhit=GET: Y=Y-1: GOTO 100
 1800 CLS: PRINT TAB(0,1)CHR$(141);CHR$(135);"G R
A V E Y A R D  O F  B R O N T O"
 1810 PRINT TAB(0,2)CHR$(141);CHR$(135);"G R A V E
 Y A R D  O F  B R O N T O"
 1820 PRINT TAB(4,4)CHR$(136);CHR$(151);CHR$(163);
CHR$(100)
 1830 PRINT TAB(6,5)CHR$(136);CHR$(151);CHR$(229);
CHR$(240);CHR$(240);CHR$(240);CHR$(240);CHR$(240);
CHR$(176)
 1840 PRINT TAB(6,6)CHR$(136);CHR$(151);CHR$(182);
CHR$(233);CHR$(160);CHR$(160);CHR$(182);CHR$(233);
CHR$(162);CHR$(100);CHR$(240)
 1850 PRINT TAB(0,8)CHR$(135);"HERE LIES THE BODY
OF BRONTOSAURUS."
 1860 PRINT TAB(0,10)CHR$(135);"COLLECT ALL THE SK
IN THAT YOU NEED"
 1870 PRINT TAB(0,12)CHR$(135);"FOR YOUR BOOTS AND
 GO ON YOUR WAY."
 1880 PRINT TAB(0,18)CHR$(131)"Hit any key to cont
inue": keyhit=GET: Y=50: GOTO 100
 1900 CLS: PRINT TAB(0,5)CHR$(141);CHR$(134);"W  A
  T  E  R"
 1910 PRINT TAB(0,6)CHR$(141);CHR$(134);"W  A  T
E  R"
 1920 PRINT TAB(0,9)CHR$(129);"SAFE DRINKING WATER
 TAKE ALL YOU NEED."
 1930 FOR DD = 1 TO 5: SOUND 2,-13,RND(100)+50,10:
 NEXT DD: drinking=drinking+1: FOR T = 1 TO 7500:
NEXT T: GOTO 100
 2000 CLS: PRINT TAB(0,5)CHR$(141);CHR$(130);"W E
L L   D O N E"
 2010 PRINT TAB(0,6)CHR$(141);CHR$(130);"W E L L
 D O N E"
 2020 PRINT TAB(0,9)CHR$(134);"YOU HAVE SURVIVED S
AURUS ISLAND."
 2030 PRINT TAB(0,11)CHR$(134);"HAVE YOU ENOUGH RO
PE TO MAKE YOUR"
 2040 PRINT TAB(0,13)CHR$(134);"RAFT AND TO GET OF
F THE ISLAND?"
 2050 IF Y>=0 THEN PRINT TAB(0,15)CHR$(131);"GOOD
YOU HAVE YOUR BOOTS" ELSE PRINT TAB(0,15)CHR$(131)
;"CHEAT YOU HAVEN'T REPLACED YOUR BOOTS"
 2060 IF rope>=2 THEN PRINT TAB(0,17)CHR$(133);"GO
OD YOU HAVE ENOUGH ROPE" ELSE PRINT TAB(0,17)CHR$(
133);"CHEAT, GO AND GET MORE ROPE"
 2070 IF drinking>=1 THEN PRINT TAB(0,19)CHR$(131)
;"YOU REMEMBERED YOUR WATER" ELSE PRINT TAB(0,19)C
HR$(131);"CHEAT,GO FOR DRINKING WATER"
 2080 IF Y>=0 AND rope>=2 AND drinking>=1 THEN PRI
NT TAB(0,22)CHR$(129);"YOU HAVE ALL. NOW FACE THE
MIGHTY SEA" ELSE PRINT TAB(0,22)CHR$(129);"CHEAT.B
ACK TO THE BEGINNING"
 2090 FOR T = 1 TO 10000: NEXT T: END
 2100 CLS: PRINT TAB(5,2)CHR$(136);CHR$(135);"PTER
ANODON_____BEWARE"
 2110 FOR S = 1 TO 12: V=RND(35): W=RND(18)+3: VDU
30
 2120 PRINT TAB(V,W)CHR$(136);CHR$(151);CHR$(180);
CHR$(160);CHR$(232): PRINT TAB(V,W+1)CHR$(136);CHR
$(151);CHR$(162);CHR$(255);CHR$(161)
 2130 VDU 7: FOR T = 1 TO 500: NEXT T: NEXT S: GOT
O 100
 2200 CLS: PRINT TAB(0,5)CHR$(141);CHR$(134);"CHEA
T YOUR'RE IN THE S E A"
 2210 PRINT TAB(0,6)CHR$(141);CHR$(134);"CHEAT YOU
R'RE IN THE S E A"
 2220 PRINT TAB(0,9)CHR$(129);"OH NO!! YOU ARE  N
O T  ALLOWED TO"
 2230 PRINT TAB(0,11)CHR$(129);"PADDLE."
 2240 PRINT TAB(0,13)CHR$(131);"BACK TO START.REME
MBER TO BEGIN AT"
 2245 PRINT TAB(0,15)CHR$(131);"THE CORRECT SQUARE
"
 2250 SOUND 2,-15,9,40: FOR T = 1 TO 10000: NEXT T
: RUN
>
```

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Tower TI-99/4A £7

Not Polyoptics, from Stainless, 10 Alstone Rd, Stockport, Cheshire

Here's a chance to exercise some brain power instead of finger muscles, in this simulation of a flight controller's duties at Washington airport.

There are three levels, ranging from beginner to pro, but even the easiest proves demanding.

The screen shows runways and surrounding area as it would be seen on a controller's scanner. The aircraft appear as small white blips and there is a storm cloud for them to avoid. The object is to safely land five planes. As you may have to take control of a possible 10 aircraft some snap decision making is required.

Using several commands, you control the course and altitude of planes that are airborne and coming in to land. At the same time you must not forget to plan take off for those still on the ground.

Because the program is continually undating the screen display and aircraft data, trying to input commands seems very slow, and can be inaccurate. If you don't correct your mistakes a "Message Garbled" appears on the screen. This sometimes locks up the program, in which case you have to break and start again.

J.W.

instructions	85%
playability	75%
graphics	70%
value for money	80%

★ ★ ★ ★

Black Jack/ Slot Machine Sord M5 £8.95

Computer Games, Golding Hill, Loughton, Essex IG10 2RR

As if you didn't know, Black Jack is the card game as close to 21 as possible. The computer plays the part of the dealer and takes care of all the calculations. You start off with 10 chips and the game continues until you run out of chips or cards remaining is less than nine.

The other game in this pack is a simulation. You simply enter how much you want to bet and press RETURN. The computer takes care of everything else. There are no options such as nudge, hold or gamble.

Both these games have respectable graphics considering the limitations of BASIC-I and the memory restriction. But these are rather severe restrictions and it shows up in the games. Also, as the main attracton of gambling games such as these is money, computer simulations, not just for the M5, very often require absolutely no skill and fail to maintain interest for long. I'm afraid this games pack is no exception.

S.S.

instructions	100%
playability	40%
graphics	50%
value for money	50%

★ ★

Oligopoly Spectrum 48K £5.95

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

A management game for one to six players. You decide how much to manufacture, what to spend on advertising, research, new equipment dividends and your sale price.

Prompts give last year's details under each heading and entries are secret although opponents can guess by the number of asterisks displayed. Play length selects two to 25 years and strikes, taxes and Japanese imports abound. Bar and pie charts of all players' assets and sales are displayed and yearly results, in the form of company accounts, are displayed — (where everyone sees them) or sent to printer — 10 inches of paper per company per year could bankrupt you!

Instructions say the object is to make your shares highest valued and to pay dividends, but the winner is the one with most assets and dividends decrease these. Strangely, obsolete stock makes the balance sheet give an increased (and false) total of assets — mismanagement could win! This and the failure to erase parts of previous prompts, causing confusion, spoils the game and questions the standards of the 1983 Cambridge Award won by this program. Bugs corrected, this game might while away a rainy afternoon. **Warning:** do **not** use this to do forecasts for a real business. **D.C.**

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

★ ★

Cuthbert in the Mines Dragon 32 £7.95

Microdeal, 4 Truro Rd, St Austell, Cornwall PL25 5JE

I have to admit that while the Cuthbert series is the flagship of this particular software house, I was less than impressed by another in the series. This one is superb, however, and worthy of high praise. In particular the sound is very good. I have only previously heard the Dragon sound as organ-like as this through a synthesiser program. Graphics are also very good, flicker free and fast.

Here the mine has been taken over by Moronians and in order to escape you have to jump your way to the exit avoiding ore-carrying trucks which will knock you back a level if they hit you. This seems quite a mild penalty when compared to what happens to hapless frogs in their game, but it is all too easy to get knocked into another truck and then find yourself in the fires of hell at the bottom. There is also the ladder climbing demon who, if he gets onto your level, throws a fire ball and sends you flaming into the pit.

A good value program with plenty of interest and action.

D.C.

instructions	85%
playability	90%
graphics	95%
value for money	90%

★ ★ ★ ★ ★

Timequest 48K Spectrum £6.95

Mikro-Gen, 24 Agar Crescent, Bracknell, Berks

No insert instructions — not even loading. Side 1 contains an instruction program and, as each further page of over-crowded, complicated instructions appeared (13 in all) our groans grew louder. Had review not forced continuance I'd have given up then. Printed instructions, for reference during play, seem vital.

Having foolishly ventured into a black hole with your tachygen, it promptly breaks into 20 pieces, randomly scattered through time, which you must find to return to your own time.

Each era displays the same green field, containing unconvincing graphics representing, you are told, Roman soldiers or such, sometimes weapons, bits of tachything and you. You move by rotating an arrow and fire by similar arrow rotation. Unfairly, the other characters seem to get longer moves than you and, if bracketed, you cannot move further. You could shoot but even at point blank range can miss. Without weapon, you either wait until your wound points are used up and you die, or try to jump to another era. I wish I could find something nice to say about this program. D.C.

instructions	5%
playability	15%
graphics	10%
value for money	15%

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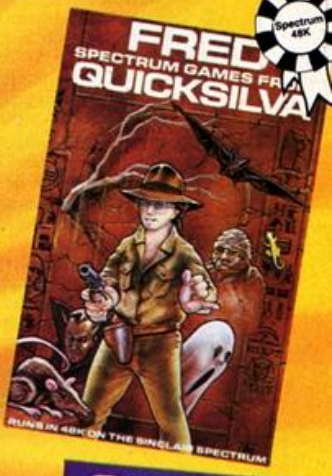
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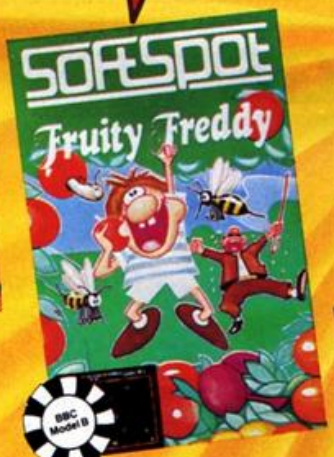
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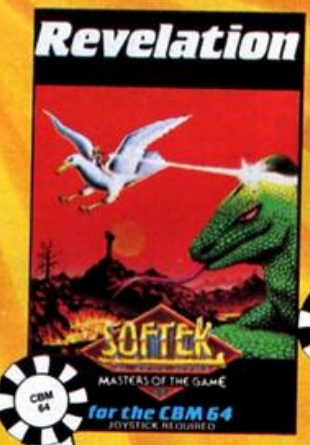




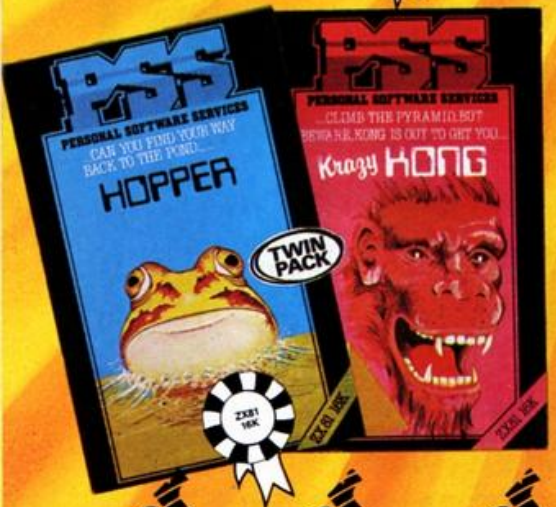






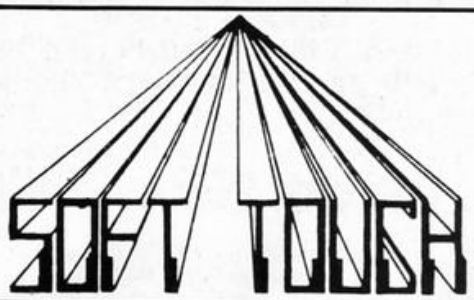








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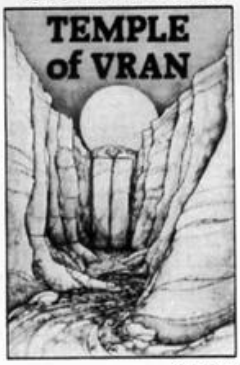
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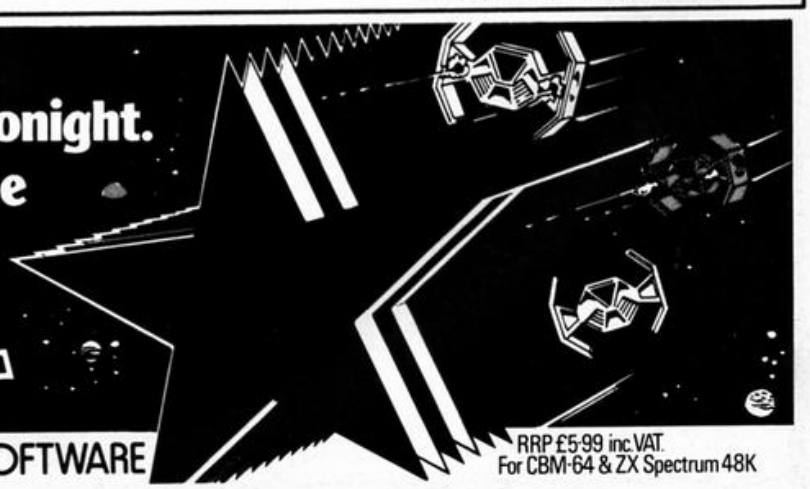
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B 5000
  7 LET hi=0
 10 PRINT AT 10,5;"[illegible]                    By John Marshall and                J.Gr
undil
l 1984"
 30 PAUSE 100: CLS
 35 PRINT AT 0,10; FLASH 1;"INSTRUCTIONS"
 40 PRINT AT 1,0;" The object of this game is to  drive your mower around the
  garden and cut down all the      weeds whilst avoiding the      flowers and t
he garden wall.      Cutting down a flower or      colliding with the wall will
  result in you losing a life.      You are given three lives."
 50 PRINT AT 12,6;"FLOWERS=O"
 60 PRINT AT 14,6;"WEEDS=S"
 70 PRINT AT 16,6;"WALL=RR"
 80 PRINT AT 18,6;"MOWER=EG";AT 19,12;"FH"
 90 PRINT AT 20,6;"Controls:-Q=Left,Z=Right                    I=Up,P=Down"
 92 PAUSE 1500
 95 LET f1=15: LET x2=0: LET y2=0: LET sc=0: LET lv=1: LET liv=3
100 CLS : PRINT AT 21,0;"SCORE=";sc;AT 21,12;"HI-SC=";hi;AT 21,23;"LEVEL=";lv
110 REM screen
120 PRINT  INK 2;AT 0,0;"RRRRRRRRRRRRRRRRRRRRRRRRRRRRRR"
130 PRINT  INK 2;AT 20,0;"RRRRRRRRRRRRRRRRRRRRRRRRRRRRRR"
140 FOR f=1 TO 20: PRINT  INK 2;AT f,0;"R";AT f,31;"R": NEXT f
150 FOR f=1 TO 71: PRINT AT INT (RND*19)+1,INT (RND*30)+1;  INK 2;"Q": NEXT f
160 FOR f=1 TO 20
170 LET a=INT (RND*30)+1: LET b=INT (RND*19)+1: IF ATTR (b,a)=60 OR ATTR (b-1,a
-1)=60 OR ATTR (b-1,a)=60 OR ATTR (b-1,a+1)=60 OR ATTR (b,a-1)=60 OR ATTR (b,a+1
)=60 OR ATTR (b+1,a-1)=60 OR ATTR (b+1,a)=60 OR ATTR (b+1,a+1)=60 OR (a<17 AND a
>14 AND b<12 AND b>9) THEN  GO TO 170
```

Variables

- **hi** high score
- **sc** current score
- **fl** flowers
- **x2, y2** values added to co-ordinates to give constant movement
- **x, y** co-ordinates of mower
- **lv** level reached
- **a$, b$** top, bottom halves of mower

```
180 PRINT AT b,a; INK 4;"S": NEXT f
185 LET a$="EG": LET b$="FH": LET x2=0: LET y2=0: LET weeds=0: LET x=15: LET y=
10: PRINT AT y,x;a$;AT y+1,x;b$
190 LET i$=INKEY$: IF i$="" THEN  GO TO 240
200 IF i$="I" THEN  LET x2=-1: LET y2=0: LET a$="MO": LET b$="NP"
210 IF i$="P" THEN  LET x2=1: LET y2=0: LET a$="JK": LET b$="IL"
220 IF i$="Q" THEN  LET x2=0: LET y2=-1: LET a$="AB": LET b$="CD"
230 IF i$="Z" THEN  LET y2=1: LET x2=0: LET a$="EG": LET b$="FH"
240 PRINT AT y,x;"  ";AT y+1,x;"  ": LET x=x+x2: LET y=y+y2
250 IF ATTR (y,x)=58 OR ATTR (y,x+1)=58 OR ATTR (y+1,x)=58 OR ATTR (y+1,x+1)=58
 THEN  BEEP 1,0: LET liv=liv-1: LET x2=0: LET y2=0: LET x=15: LET y=10: LET a$="
EG": LET b$="FH": PAUSE 50: GO TO (970 AND liv=0)+(190 AND liv<>0)
260 IF ATTR (y,x)=60 OR ATTR (y,x+1)=60 OR ATTR (y+1,x)=60 OR ATTR (y+1,x+1)=60
 THEN  BEEP .01,20: LET weeds=weeds+1: LET sc=sc+10: PRINT AT 21,6;sc: GO TO (40
0 AND weeds=20)+(190 AND weeds<>20)
270 PRINT AT y,x;a$;AT y+1,x;b$: GO TO 190
400 LET f1=f1+10: LET a$="EG": LET b$="FH": LET x=15: LET y=10: LET x2=0: LET y
2=0: LET lv=lv+1: GO TO 107
970 PRINT AT 10,10; FLASH 1;"GAME OVER": PAUSE 300: CLS : IF sc>hi THEN  LET hi
=sc
980 GO TO 105
4999 REM U.D.G.a to s
5000 FOR f=USR "a" TO USR "s"+7: READ z: POKE f,z: NEXT f
5010 DATA 48,63,48,63,48,63,24,7
5030 DATA 24,248,24,248,24,248,48,192
5050 DATA 3,3,3,3,4,8,8,15
5070 DATA 128,128,128,128,64,32,32,224
5090 DATA 15,8,8,4,3,3,3,3
6010 DATA 7,24,63,48,63,48,63,48
6030 DATA 224,32,32,64,128,128,128,128
6050 DATA 224,24,252,12,252,12,252,12
6070 DATA 143,143,144,224,0,0,0,0
6090 DATA 0,0,0,0,0,144,144,143
7030 DATA 0,0,0,63,127,170,170,170
7050 DATA 170,170,170,234,127,63,0,0
7070 DATA 0,0,252,254,187,85,85,85
7090 DATA 85,85,87,254,252,0,0,0
8010 DATA 0,0,0,0,7,9,241,241
8030 DATA 241,9,7,0,0,0,0,0
8050 DATA 0,56,68,84,56,84,40,48
8090 DATA 223,223,223,0,253,253,253,0
9010 DATA 36,40,146,84,40,20,4,3
9040 RETURN
```



Listing for Cubit

```
  1 BORDER 0: PAPER 0: INK 7: CLS
  3 RESTORE 2: FOR f=USR "a" TO USR "f+7: READ a: POKE f,a: NEXT f
  4 GO SUB 94
  5 LET hi=0
  7 LET sc=0: LET li=3
  8 LET sheet=1
 10 LET x=12: LET y=15
 11 LET m=115: LET n=75
 12 GO SUB 104
 13 LET box=0
 14 LET level=1
 15 LET a=4: LET b=15
 16 LET wait=0: LET count=0
 17 LET o=14: LET p=5
 18 LET level1=0
 19 PRINT AT 0,0;"hi-score:";hi
 20 PRINT AT 3,0;"pyramid:";sheet
 21 PRINT AT 2,0;"lives";li
 22  PRINT AT 1,0;"score";sc
 24 IF sheet=13 THEN  PRINT AT 3,0;"PYRAMID :1": LET sheet=1: LET li=li+1: PRIN
T AT 2,0;"LIVES:";li: PRINT AT 2,13; FLASH 1;"BONUS": FOR f=-20 TO 20: BEEP .01,
f: BEEP .01,10-f: NEXT f: FOR f=1 TO 100: NEXT f: LET sc=sc+1000: PRINT AT 2,13;
 FLASH 0;"     "
 25 LET chance=sheet-5
 26 GO SUB 31
 27 IF sheet<5 OR sheet>8 THEN  GO SUB 44
 28 IF sheet>4 THEN  GO SUB 60
```

Mower by Jarrod Grundhill and John Marshall

Guide your mower around the garden cutting down all the weeds while avoiding the flowers and the garden wall.

When you have demolished all the weeds the screen will clear and you will move onto a harder screen with more flowers.

One of the good points about our game is that the mower is made up of four user-defined graphics together for each of the four directions.

How it works

5-90 introduction and instructions
92-185 define variables and set up main screen
190-250 move mower
260 check if mower has hit a flower, weed or the wall
270-400 restart in centre of screen
970 game over. Alter high score if necessary
4999-9010 DATA for user-defined graphics

```
  29 PRINT AT 1,0;"score:";sc
  30 GO TO 23
  32 PRINT AT x,y; INK 3; PAPER 8;"AB"
  33 IF POINT (m,n)=0 THEN  LET sc=sc+10: LET z=USR 60035: LET box=box+1: GO SUB
 57: IF box=21 THEN  GO TO 42
  34 LET x1=x: LET y1=y
  35 IF INKEY$="i" AND y=15+(5-level)*2 OR INKEY$="e" AND y=5+level*2 OR INKEY$=
"f" AND level=0 OR INKEY$="j" AND level=0 THEN  GO TO 67
  36 IF INKEY$="i" THEN  LET x=x-2: LET y=y+2:: LET level=level+1: LET m=m+16: L
ET n=n+16
  37 IF INKEY$="e" THEN  LET x=x-2: LET y=y-2: LET level=level+1: LET m=m-16: LE
T n=n+16
  38 IF INKEY$="j" THEN  LET x=x+2: LET y=y-2: LET level=level-1: LET m=m-16: LE
T n=n-16
  39 IF INKEY$="f" THEN  LET x=x+2: LET y=y+2: LET level=level-1: LET m=m+16: LE
T n=n-16
  40 PRINT AT x,y; INK 3; PAPER 8;"AB"
  41 IF x1<>x AND y1<>y THEN  PRINT AT x1,y1; INK 7; PAPER 8;"  "
  42 IF box=21 THEN  LET z=USR 60059: LET sc=sc+100: LET sheet=sheet+1: GO TO 9
  43 RETURN
  45 IF wait=1 THEN  GO TO 54
  46 LET d=INT (RND*2)
  47 PRINT AT a,b; INK 2; PAPER 8;"CD"
  48 IF x=a AND y=b THEN  GO TO 67
  49 LET a1=a: LET b1=b
  50 LET a=a+2: LET b=b+(2 AND d=0)-(2 AND d=1)
  51 PRINT AT a,b; INK 2; PAPER 8;"CD";AT a1,b1; PAPER 8;"  "
  52 IF a=x AND b=y THEN  GO TO 67
  53 IF a=16 THEN  LET wait=1: LET count=(20 AND sheet=1)+(10 AND sheet=2)+(5 AN
D sheet=3)+(1 AND sheet=4)+(30 AND sheet=5)+(20 AND sheet=6)+(10 AND sheet=7)+(1
 AND sheet=8)+(30 AND sheet=9)+(20 AND sheet=10)+(10 AND sheet=11)+(1 AND sheet=
12)
  54 IF wait=1 THEN  LET count=count-1
  55 IF count=0 AND wait=1 THEN  LET wait=0: PRINT AT a,b; PAPER 8;"  ": LET a=4
: LET b=15
  56 RETURN
  58 IF y=5+level*2 AND x<>4 THEN  GO TO 63
  59 IF y=15+(5-level)*2 AND x<>4 THEN  GO TO 65
```

Try mowing, hopping and driving with your Spectrum



• When typing in all Spectrum programs, capital letters in PRINT statements should, unless part of text, be entered in GRAPHICS mode.

```
  60 IF x=4 THEN  PRINT AT x-1,y;"OP";AT x,y-1;"M"; PAPER 7;"  "; PAPER 0;"N";AT
 x+1,y;"KL": RETURN
  61 PRINT AT x-1,y;"HI";AT x,y-1;"G"; PAPER 7;"  "; PAPER 0;"J";AT x+1,y;"KL"
  62 RETURN
  63 PRINT AT x-1,y;"OI";AT x,y-1;"M"; PAPER 7;"  "; PAPER 0;"J";AT x+1,y;"KL"
  64 RETURN
  65 PRINT AT x-1,y;"HP";AT x,y-1;"G"; PAPER 7;"  "; PAPER 0;"N";AT x+1,y;"KL"
  66 RETURN
  68 LET z=USR 60083
  69 PAUSE 10: LET li=li-1
  70 IF a=x AND b=y THEN  PRINT AT 19,7;"THE BALL GOT YOU": FOR f=1 TO 200: NEXT
 f: GO TO 73
  71 IF o=x AND p=y AND sheet>4 THEN  PRINT AT 19,7;"THE SNAKE GOT YOU": FOR f=1
 TO 200: NEXT f: GO TO 73
  72 IF y=15+(5-level)*2 OR y=5+level*2 OR level=0 THEN  PRINT AT 19,10;"YOU FEL
L OFF": FOR f=1 TO 200: NEXT f
  73 IF li=0 THEN  GO TO 75
  74 GO TO 9
  75 CLS
  76 IF sc>hi THEN  LET hi=sc: PRINT AT 4,8; FLASH 1;"NEW HIGH SCORE"
  77 PRINT AT 10,2;"PRESS ANY KEY TO PLAY AGAIN"
  78 PRINT AT 0,8;"YOU SCORED ";sc
  79 PAUSE 0: GO TO 6
  81 IF sheet>8 THEN  LET chance=sheet-9
  82 PRINT AT o,p; INK 9; PAPER 8;"EF"
  83 IF (RND*7)>chance+1 THEN  RETURN
  84 LET o1=o: LET p1=p
  85 IF o>x AND p<y THEN  LET o=o-2: LET p=p+2
  86 IF o>x AND p>y THEN  LET o=o-2: LET p=p-2
  87 IF o<x AND p>y THEN  LET o=o+2: LET p=p-2
  88 IF o<x AND p<y THEN  LET o=o+2: LET p=p+2
  89 IF o<>o1 AND p<>p1 THEN  LET z=USR 60000
```

```
  90 PRINT AT o,p; INK 9; PAPER 8;"EF"
  91 PRINT AT o1,p1; PAPER 8;"  "
  92 IF o=x AND p=y THEN  GO TO 67
  93 RETURN
  95 PRINT TAB 13; PAPER 1;"CUBIT"
  96 PRINT '"YOU MUST GUIDE BERT"""; INK 3;"AB"; INK 7;"""ON TO ALL THE CUBES WI
THOUT     FALLING OFF THE PYRAMID AND     BEFORE THE BALL"""; INK 2;"CD"; INK 7;
"""GETS HIM."
  97 PRINT "ALSO YOU MUST WATCH OUT FOR THE SNAKE"""; INK 6;"EF"; INK 7;"""WHICH
 WILL CHASE YOU."
  98 PRINT "YOU GAIN POINTS BY FILLING IN   THE TOPS OF THE SQUARES IN THE  PYRA
MID."  99 PRINT "IF YOU COMPLETE PYRAMID 12      YOU WILL BE AWARDED A BIG BONUS
"
 100 PRINT "THE CONTROLS ARE:                              E  I
         \/                                 /\                              J  F"
 101 PRINT TAB 4; FLASH 1;"PRESS A KEY TO PLAY          "
 102 GO SUB 125
 103 PAUSE 0: RETURN
 105 CLS
 106 DATA 230,140,176,192,192,176,220,171,73,147,37,73,147,44,112,192,213,170,21
3,170,213,58,13,3,213,59,13,3,3,13,51,229,192,176,92,171,85,171,85,171,3,12,49,2
10,164,201,146,164,3,12,48,192,192,176,220,171,192,48,12,3,3,13,51,229,0,0,0,0,3
,12,48,192,0,0,0,0,192,48,12,3,213,59,13,3,0,0,0,0,203,140,176,192,0,0,0,0
 107 RESTORE 106: FOR f=USR "g" TO USR "r"+7: READ a: POKE f,a: NEXT f
 108 PRINT '''TAB 15;"OP"
 109 PRINT TAB 14;"M  N"
 110 PRINT TAB 13;"OIKLHP"
 111 PRINT TAB 12;"M  JG  N"
 112 PRINT TAB 11;"OIKLHIKLHP"
 113 PRINT TAB 10;"M  JG  JG  N"
 114 PRINT TAB 9;"OIKLHIKLHIKLHP"
 115 PRINT TAB 8;"M  JG  JG  JG  N"
 116 PRINT TAB 7;"OIKLHIKLHIKLHIKLHP"
 117 PRINT TAB 6;"M  JG  JG  JG  JG  N"
 118 PRINT TAB 5;"OIKLHIKLHIKLHIKLHIKLHP"
 119 PRINT TAB 4;"M  JG  JG  JG  JG  JG  N"
 120 PRINT TAB 4;"IKLHIKLHIKLHIKLHIKLHIKLH"
 121 PRINT TAB 5;"QR  QR  QR  QR  QR  QR"
 122 DATA 203,143,191,255,255,191,223,171,73,147,37,73,147,47,127,255,213,170,21
3,170,213,250,253,255,213,251,253,255,255,253,243,229,255,191,95,171,85,171,85,1
71,255,252,249,210,164,201,146,164,3,15,63,255,255,191,233,171,192,240,252,255,2
55,253,243,229,0,0,0,0,3,15,63,255,0,0,0,0,192,240,252,255
 123 RESTORE 122: FOR f=USR "g" TO USR "p"+7: READ a: POKE f,a: NEXT f
 124 RETURN
 125 DATA 1,10,7,33,255,0,17,10,0,29,213,197,205,181,3,193,209,225,125,145,111,1
6,242,251,201
 126 DATA 33,100,1,17,1,0,205,181,3,201
 127 DATA 1,30,3,33,255,0,17,100,0,229,213,197,205,181,3,193,209,225,125,145,111
,16,242,201
 128  DATA 1,10,100,33,255,0,17,70,0,229,213,197,205,181,3,193,209,225,125,145,1
11,16,242,201
 129  DATA 1,10,75,33,255,11,17,1,0,229,213,197,205,181,3,193,209,225,125,12,111
,16,242,201
 130 RESTORE 125: FOR f=60000 TO 60106: READ a: POKE f,a: NEXT f
 131 RETURN
```

Cubit by Robin England

Your task in this game for either Spectrum is to jump on every square on the pyramid — avoiding the ball and a snake.

There are 12 pyramids to cover and if you reach the twelth there is a special bonus. You have three lives.

How it works

1-4 set up screen
7-18 initialise variables
19-25 instructions etc
26-92 main game routine
93-105 more instructions
106-131 define characters

Hazard Driver by A.G. Bird

Drive your car through 10 laps of a race track to assess your driving ability.

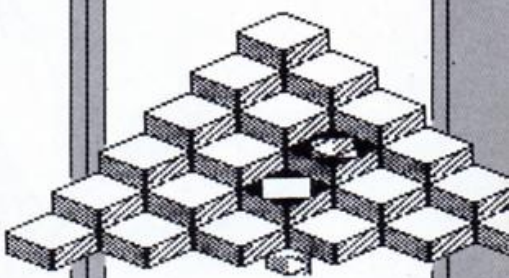
The hazards to avoid are broken glass, logs and oil slicks. The best of luck to you.

How it works

10-20 draw borders
30-40 variables
50-65 check lap, print hazards
80-180 main loop (car lap)
200-300 print car as it goes out of picture
500-610 game end, give score
1000-1200 keep score
7000-7050 instructions
9000-9500 graphics

Variables

lap laps
dd driving ability
b horizontal position of car
a loop for car (vertical)



Screen dump of Cubit

Listing for Hazard Driver

```
    5 GO SUB 9000: GO SUB 7000
   10 BORDER 3: PAPER 7: CLS
   12 FOR f=0 TO 21: PRINT AT f,0; PAPER 3;"        ";AT f,25;"        ": NEXT f
   20 FOR f=0 TO 21: PRINT AT f,7; INK 0; PAPER 6;"▗";AT f,24;"▖": NEXT f
   30 LET lap=0: LET da=100
   40 LET b=RND*12+9
   42 PRINT AT 0,1; INK 0;"LAP:";lap;AT 0,26;"LAP:";lap
   46 IF lap=10 THEN  GO TO 500
   48 FOR f=0 TO 21: PRINT AT f,8; PAPER 7;"                  ": NEXT f
   50 IF lap=1 OR lap=5 OR lap=8 THEN  FOR f=1 TO 7: PRINT AT INT (RND*17),INT (R
ND*13)+10; INK 5;"K": NEXT f
   60 IF lap=2 OR lap=3 OR lap=6 OR lap=9 THEN  FOR f=1 TO 7: PRINT AT INT (RND*1
6),INT (RND*13)+10; INK 4;"L": NEXT f
   65 IF lap=0 OR lap=4 OR lap=7 THEN  FOR f=1 TO 6: PRINT AT INT (RND*15),INT (R
ND*13)+10; INK 3;"M": NEXT f
   80 FOR a=18 TO 0 STEP -1
   85 IF ATTR (a,b)=61 OR ATTR (a,b+1)=61 THEN  GO SUB 1000
   90 IF ATTR (a,b)=60 OR ATTR (a,b+1)=60 THEN  GO SUB 1100
   95 IF ATTR (a,b)=59 OR ATTR (a,b+1)=59 THEN  GO SUB 1200
  100 INK 2: PRINT AT a+1,b-1;" CD ";AT a+2,b-1;" EF ";AT a+3,b-1;"     "
  110 IF INKEY$="8" THEN  PRINT AT a,b-1;" GH": LET b=b+1
  120 IF INKEY$="5" THEN  PRINT AT a,b;"IJ ": LET b=b-1
  130 IF INKEY$="" THEN  PRINT AT a,b;"AB"
  140 IF b<9 THEN  LET b=b+1
  150 IF b>21 THEN  LET b=b-1
  160 BEEP .012,-30
  180 NEXT a
  200 PRINT AT a+3,b-1;"    ": BEEP .012,-30: PAUSE 3
  210 PRINT AT a,b-1;" CD ";AT a+1,b-1;" EF ";AT a+2,b;"   ": BEEP .012,-30: PAUS
E 3
  220 PRINT AT a,b-1;" EF ";AT a+1,b-1;"   ": BEEP .012,-30: PAUSE 3
  230 PRINT AT a,b-1;"    ": BEEP .012,-30
  250 LET lap=lap+1
  300 GO TO 40
  500 FOR f=30 TO 100
  510 BORDER 3: BORDER 4: BORDER 6: BORDER 1
  515 BEEP .01,f/2: BEEP .01,f/3
  520 NEXT f
  530 PAPER 5: BORDER 0: INK 0: CLS
  540 PRINT AT 2,0;" Your driving ability is ";da;"%"
  600 PRINT AT 20,0;" Press any key for another go ! "
  610 PAUSE 0: CLS : GO TO 10
 1000 BEEP .02,10: LET da=da-13: RETURN
 1100 BEEP .02,0: LET da=da-9: RETURN
 1200 BEEP .02,-10: LET da=da-5: RETURN
 7000 BORDER 3: PAPER 3: CLS : PRINT AT 2,0; INK 2; PAPER 6; FLASH 1;"
                               HAZARD  DRIVER
     "
 7010 PRINT AT 5,0; INK 3; PAPER 6;"        BY  A.G.BIRD. 1984.       "
 7015 PRINT AT 8,9;"<< 5      8 >>"
 7020 PRINT AT 10,0; INK 1; PAPER 6;"The idea is to drive your car   through the
hazards on the road."''"These include
          K  Glass    L  Logs    M  Oil  "
 7030 PRINT AT 16,0; INK 1; PAPER 6;"Points will be deducted every   time you hit
 a hazard and at    the end your driving ability    is given.
    "
 7040 PRINT AT 21,0; PAPER 4; INK 0;"Press any key to start your car."
 7050 PAUSE 0: RETURN
 9000 FOR f=144 TO 156: FOR n=0 TO 7
 9010 READ a: POKE USR (CHR$ +f)+n,a
 9020 NEXT n: NEXT f
 9030 DATA 1,99,99,127,99,99,7,7,128,198,198,254,198,198,224,224,7,6,4,4,4,7,7,7,
224,96,32,32,32,224,224,224
 9040 DATA 7,103,99,127,99,98,15,15,224,230,198,254,198,70,240,240,1,51,115,127,2
27,195,7,7,128,195,199,254,206,204,224,224
 9050 DATA 1,195,227,127,115,51,7,7,128,204,206,254,199,195,224,224
 9060 DATA 0,64,73,17,0,148,72,2,0,0,32,24,12,255,255,0,14,31,127,254,254,252,124
,56
```

Looking for the ultimate joystick?

Creative Software has just announced an integrated line of software called The People's Choice. So far, it consists of three programs called Jack's Calc, Fred's Filer, and Joe's Writer. Each is designed to be able to be used by older children and adults at all levels of computer experience. The firm claims that, using Joe's Writer, anyone can be writing letters within 15 minutes, even if they have never used a computer before. That claim comes from Joe Jetson, the programmer. The program has all the standard word processing features plus an on-line help feature and a brief instruction card. Says Joe: "If you can use a typewriter, you can use Joe's Writer".

Using Jack's Calc, developing forms for business and personal finances becomes an easy thing to do, while Fred's Filer allows the user to create an index card-like system on the screen using whatever format seems best. Later the user can scan through the file making changes at will.

Look for The People's Choice series, to be available for the Commodore 64 soon, with IBM PC and PCjr versions expected by mid-year. The programs can be purchased separately or as a package and can be used together as they share a common command vocabulary. The suggested list price of each program will be $49.95. You can contact Creative Software at 230 East Caribbean Drive, Sunnyvale, California 94086. (408) 745-1655.



Are you a computer games player looking for the ultimate joystick? Watch out for the High Score (HS-20) Tournament Master, which is being billed as the first ergonomically designed controller.

Although you really need to see this product to be as impressed as I am (and I don't often play games), here are a few of its many features:

- *Fire buttons are the same size as regular coin-operated arcade games*
- *Two fire buttons are supplied — manual fire and auto fire*
- *The latest design is used for increased sensitivity coupled with high reliability*
- *It includes a carrying bag which has space for 10 games cartridges*

The Tournament Master is nine inches long, 5¼ inches deep, it is compatible with the Atari, Coleco, Apple and TI-99/4A and all switches are of the heavy duty industrial grade leaf type. And it comes with a five year warranty.

Although I cannot give you a price, you can find out for yourself by contacting High Score, 1667 West Ninth Street, Long Beach, California 90813.



I have just received some interesting information on another piece of hardwae, and thought I'd pass the information along. It's called Micro-X64 which is an expansion board for the Commodore 64. It plugs into the expansion slot (naturally) and provides the following features: allows the addition of a Z80 card so the machine can run CP/M; supports an additional disc drive; allows the use of a DMA controller; it's small and convenient to use; has two vertical slots and one horizontal slot; provides a system reset button; a system pause switch; uses all gold connectors; supports an 80-column card. Best of all, it is very reasonably priced at $49.95. Contact Compuscope Inc., 6400 Signal Street, Tillamook, Oregon 97141. (503) 842-4431.

Some time ago I wrote here about the problem of using portable video games and computers on board airplanes. The situation seems to be getting resolved.

In a recent announcement, Eastern Airlines, one of the first to ban the items, stated that passengers would indeed be able to use portable computers on board at any time except during takeoffs and landings. This decision was based on its findings that such devices do not interfere with the navigation instrumentation.

The tests that led to such a conclusion were conducted by Eastern and the Federal Aviation Administration. Since the FAA has set no firm policy on the issue, it is therefore up to each individual airline to set its own policy. As far as I know, so far Eastern, TWA, United Airlines and Delta allow computers, whereas American Airlines does not.

The policy of certain airlines regardng this now becomes one more reason to prefer flying one airline over another, that is if using a portable computer is important to you. In which case, you may find that certain skies are friendlier than others.



A few new product announcements from the Hayden Book Company: First there is The Unofficial I Hate Computers Book, by John Barry and Richard Tennant. This 80-page paperback contains 76 anti-computer cartoons that offer a "tongue-in-chip" look at the perils of home and business computing. To give you an idea, the cover shows a cat using a computer as a litter box, while on the back an ape is about to use a computer as a punching bag. The contents are filled with similar "applications".

Next, Hayden has announced the Fast Reference Guides series. This is a line of six reference booklets that include options, menus, commands, and formats for dBase II (one for programming and another for using it), SuperCalc, CP/M, VisiCalc, and WordStar. A glossary of useful terms is included in each guide. The suggested price of each guide is $3.95.

Atari in Wonderland is the title of a Hayden text that contains 22 short stories and programs designed to introduce children to the Atari and have them learn word and numerical skills. Among other things, the book explains how to count in French and Spanish, how to appear on a TV quiz show, how to write songs, how to measure angles while riding on a roller coaster, and how to write a book report. The book also includes a listing of programs and instructions for using Atari graphics. Each chapter shows how to modify the programs and use the features. Hayden is planning to make the programs available on cassette soon. The paperback has 128 pages and costs $9.95.

Hayden has also brought out two books for the Commodore 64. The first is called Commodore 64 Programs For The Home. It contains over 40 BASIC listings for the entire family and is written for first-time users. The book explains and lists each program including a symbol table, sample data, and an example run. All programs can be easily modified and have been thoroughly tested. This 170-page paperback will cost $14.95. The second is Basic Commodore 64 BASIC and is a guide that is designed to be used in the home or in class. It starts with short easy-to-learn programs, adding one command at a time. Each program is kept short and is divided into segments, most of which can fit on a single screen page. This 256 page paperback also costs $14.95. In the unlikely event that you cannot locate a source for these, contact Hayden Book Company directly at 10 Mulholland Drive, Hasbrouck Heights, New Jersey 07604. (201) 393-6303.

Definitely out of space again. See you next week.

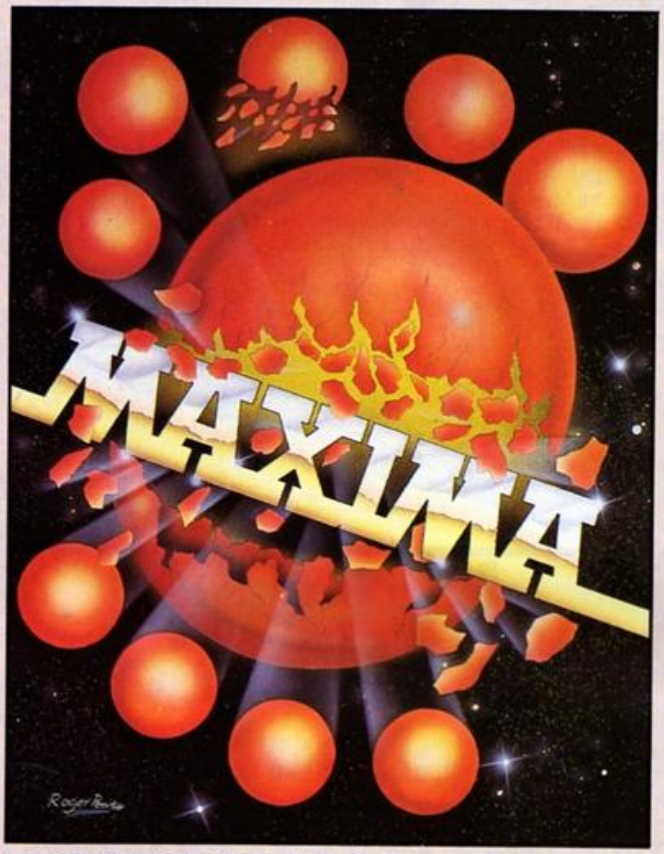
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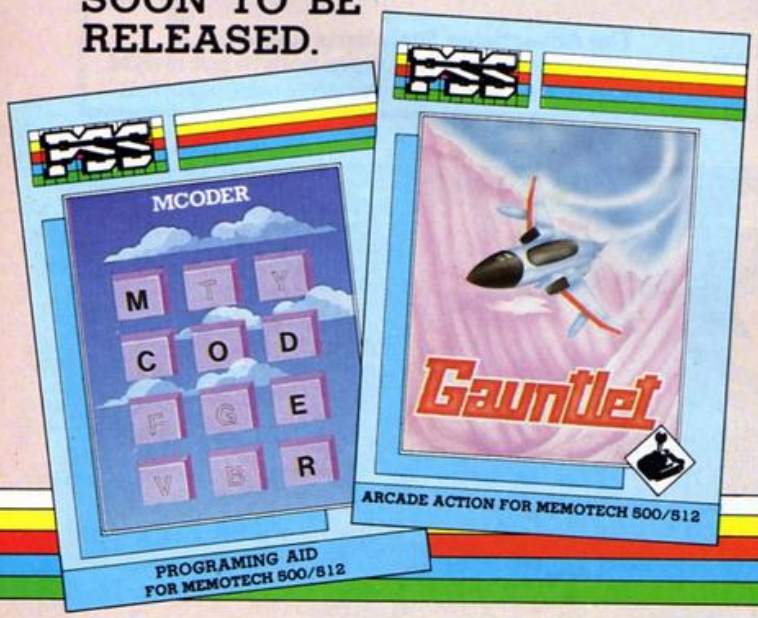
The game opens with your ship executing an impressive jump through hyper-space to where the action is. First up are the green snappers - easy targets against the starry backdrop. Next comes the blue meanies, a swirling bunch of wriggling invaders. To follow, a crescent of rather beautiful revolving hexagonal barrels who arc around the screen raining bombs on you. Its a shame to pot these lovely creatures. On you go to a further 13 screens of magnificent graphics.

Devestatingly simple in concept it nevertheless has that indefinable ability to compel you to have just one more attempt to try and see what the 16 screens hold in store.

A must for all Memotech owners.

R.R.P. £6.95

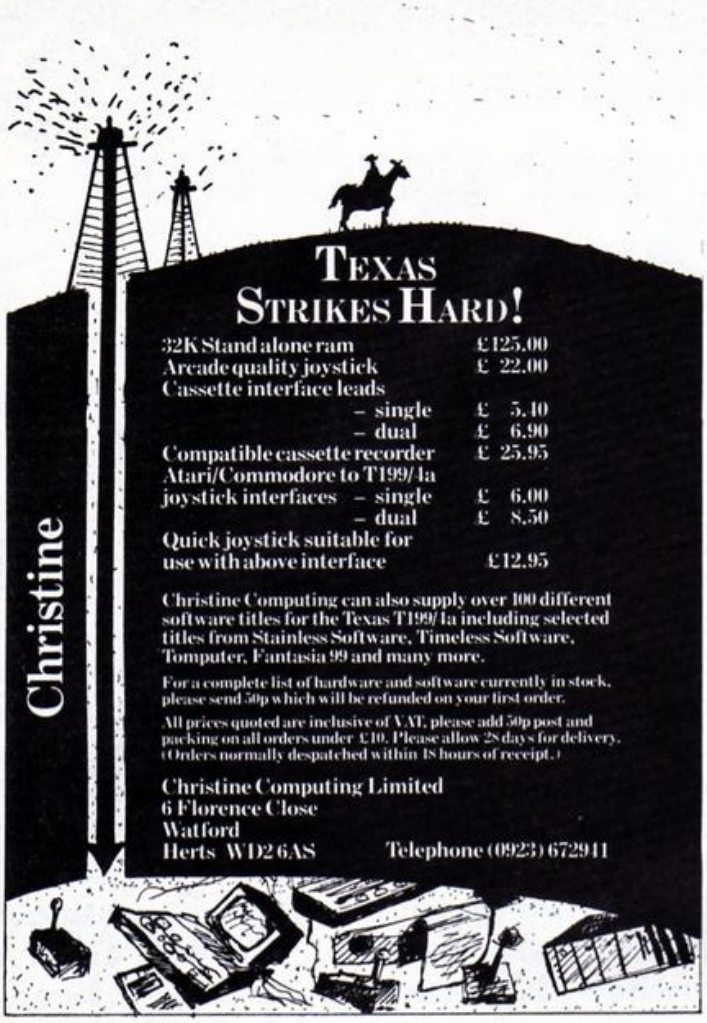
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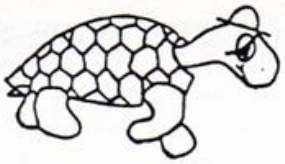




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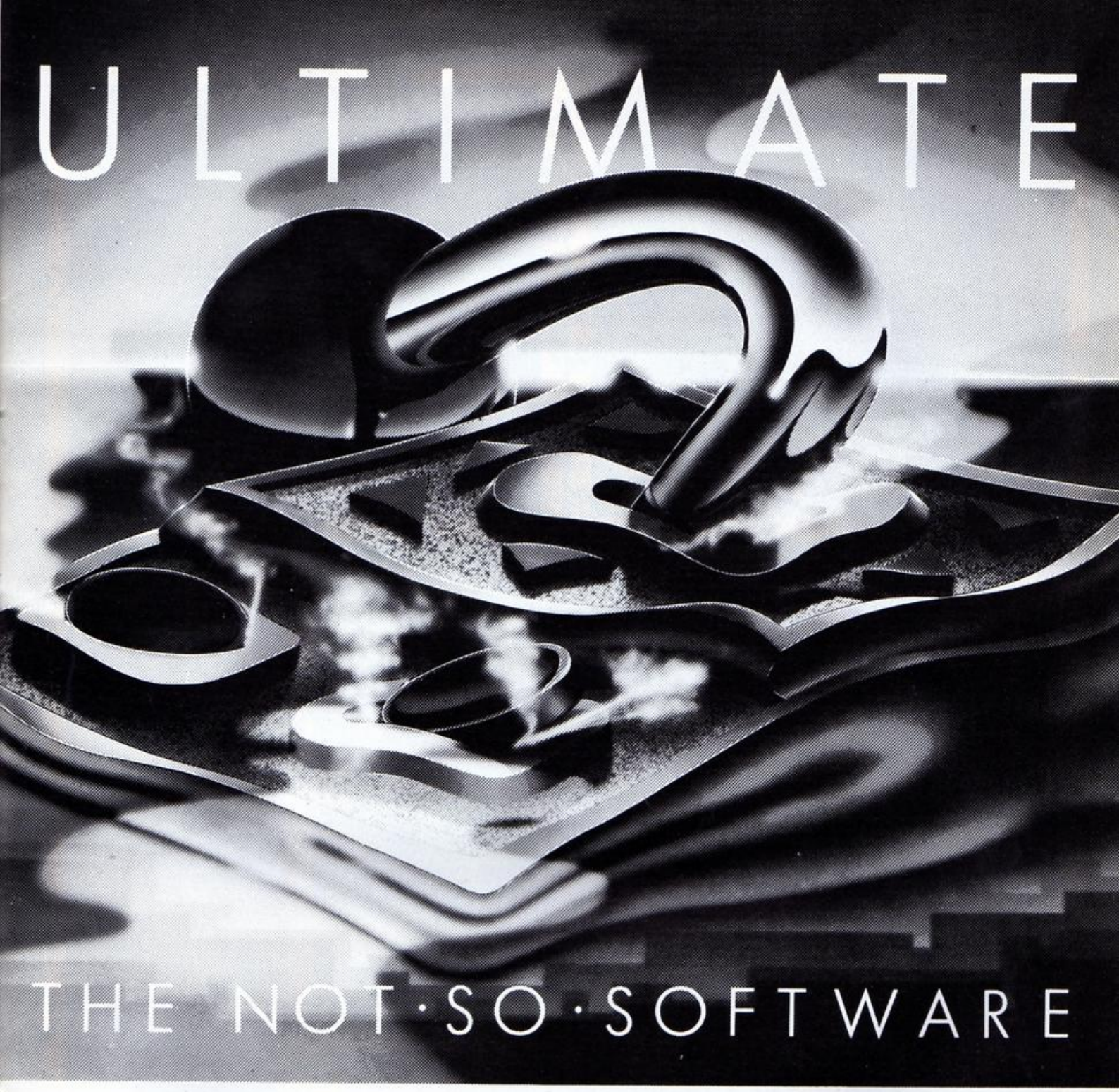
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Are these any use to you?

New utilities for the Dragon, BBC/Electron and Spectrum examined by our experts

Petite Pascal Dragon 32 £14.95

Oasis, Alexandra Parade, Weston-super-Mare, Avon BS23 1QT

Attractively packaged in a video-style case with manual, one tape contains the machine code program and the other a series of applied demonstrations, from a simple sort routine to a P-Code disassembler (there are 12 altogether).

The manual is in two sections: first a simple tutorial and a second for the more experienced programmer.

It was interesting that part of the claimed advantage was that Pascal "prevents the programmer from jumping in feet first" and "from writing at the terminal". It therefore "forces the program to be structured and designed first".

Whether you need another version of BASIC is debatable but this one comes with its own compiler to produce fast running times. Even this is not essential when Oasis has a very good Dragon BASIC compiler.

Everything performed well although I would have liked more detail with the demonstrations. They were not self explanatory to the beginner. Which brings us back to the central question: why Pascal? Does the experienced programmer want another high level language? I suspect not.

M.P.

instructions	80%
playability	70%
graphics	N/A
value for money	70%

★ ★ ★

Turbo Compiler 32K BBC/Electron £9.95

Salamander, 17 Norfolk Rd, Brighton, East Sussex BN1 3AA

This may seem to be the answer to many prayers: the speed of machine code by writing BASIC. But life is never that simple. If it was we would all be writing chart-toppers.

The problem is that this can only cope with a small subset of BASIC keywords. The manual claims it covers 65, but even to do this you must write in a particular way. For example, a MOVE statement must first be translated into VDU statements which may not be easy if you don't usually use this method.

That understood, this is a very compact and fast compiler which does all that is claimed. The manual is well written although I didn't find the disc instructions very easy to understand. The subset is reasonable and the code you produce can be used without compiler in memory.

The demo program shows another problem, though. The machine code version of the first part is no faster than the BASIC one and the second doesn't even run in BASIC as it was written in a special way so the compiler can make sense of it!

D.C.

instructions	80%
playability	90%
graphics	N/A
value for money	80%

★ ★ ★ ★

Adventure Creator 48K Spectrum £7.95

Fusion, 17 Crome Cl, Colchester, Essex

This program is a little like a toy piano — you can pick out a tune on it but wouldn't use it to play Beethoven. The authors have programming expertise but insufficient knowledge of text adventures.

Adventures created permit verb/object commands. Normally, solving problems requires discovery of the exact two words, i.e. only "Wave Wand" in sealed room reveals exit. But this program only permits one Wave or Wand, but not both. Exit would reveal with "Wave Dwarf" or "Eat Dwarf" or any combination of keyword and another!

Only part of the built-in vocabulary is revealed — a coy note says it understands many more. Quite how the writer is supposed to use these unknown words escapes me. A better manual with explanation of menu headings would help. Displays in same two colours throughout, exits must be strict directions and "facility to add your own graphics" translates as "we've left room if you know how". Music selection available — Congratulation and Funeral March being obligatory. Although apparently cheaper than others, still too pricey for what it is, even with sample adventure thrown in.

D.C.

instructions	60%
playability	50%
graphics	40%
value for money	40%

★ ★

H.U.R.G. 48K Spectrum £14.95

Melbourne House, 131 Trafalgar Rd, London SE10

A long time coming but worth the wait. My criticism of games designers so far is you're confined to variations on space-invaders — graphics change but game's the same.

The demo games are not great but I guess they are deliberately left simple so you can easily see what they are doing and use them for experimentation. Initially, the many menus and options seem confusing. I got stuck trying to enter yes/no answers, having skipped "keyboard or joystick left, right, up, down and fire controls work both games and program". If you haven't written games before, some terms may be new but the manual explains well. If you're still not sure, try it and see.

You can load previously designed backgrounds then, within the program, design and test animation of player's and enemy graphics, set colour, movement, collisions, explosions, etc. It will take time and practice but it really makes original games design possible. Hopefully, due to delay in release, Melbourne House will extend the £3,000-plus-publication competition for an original H.U.R.G.- designed game which, at present, closes April 30. If so, have a go!

D.C.

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

★ ★ ★ ★ ★

Graphics and Sound Toolkit Spectrum £5.50

Lerm Software Products, 16 Stonepit Dr, Cottingham, Market Harborough, Leics

Contains 25 machine code routines giving scrolls: up, down, right, left by character or pixel; screen "dissolve"; character rotation, reflection or upside-down; box-fill with character or attribute; attribute change without CLS; screen invert; screen-fill with random pixels or colours; screen flash; border stripes and flashes; and several sound aids.

A demo program loads with the toolkit, breakable for study and erasable, allowing initial practice with routines. For practical work, provision is made to copy toolkit without demo.

Instructions include: demo listing with REM headings on routine used; list of routines with USR call address, POKEs necessary and demo line reference for study; manual with simple explanations and sample programs. In principle, excellent but missing string/hash symbols with some address misprints. Box-fill example gave problems with window size and crashed program but worked O.K. on reLOAD.

Takes 2K relocatable memory, allowing other utility use at same time. Must be present in programs but author only requires acknowledgement. Useful package with very nice effects.

D,C.

instructions	85%
playability	90%
graphics	85%
value for money	95%

★ ★ ★ ★ ★

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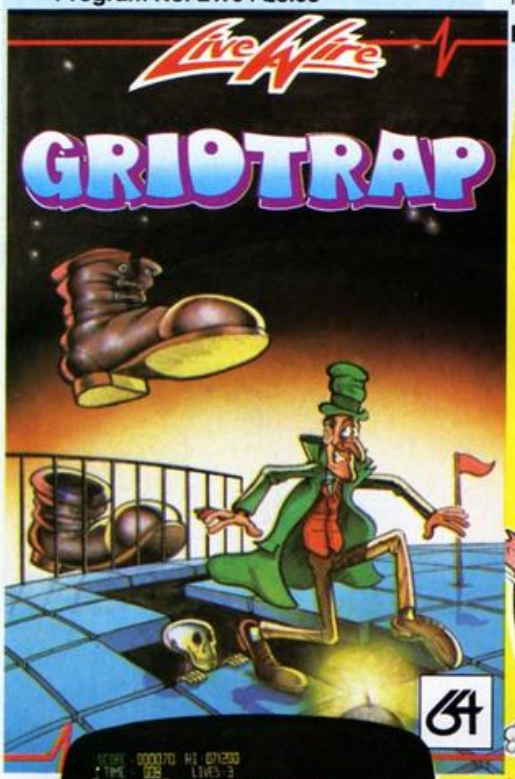
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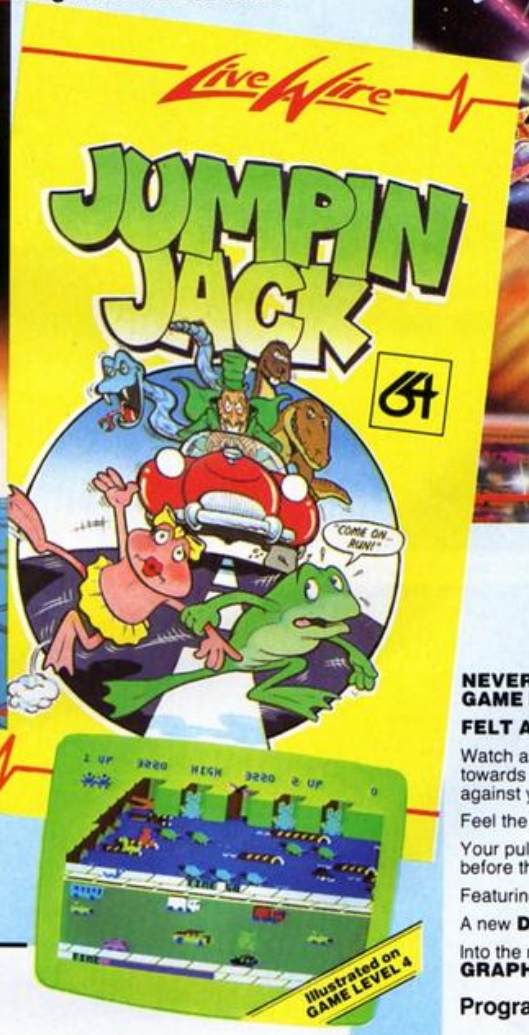
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Chopper X-1 Spectrum £5.50

R & R, 5 Russell St, Gloucester GL1 1DE

As commander of a helicopter gunship, you must destroy waves of Spinad, Spore and Fusa before they reach earth and rear attack. Your helicopter is firmly fixed left of screen, moving only up (cursor 7) or down (6), firing missiles (0) and smart bombs (9), green ground scrolling beneath you. Attacks come from above by upside-down ice cream cones, from the right by white whirling crosses, with occasional blue octopi dropping, out of range, to earth. Score is shown at the top, with five unexplained graphics marked "Pods", increasing and decreasing. Similar graphics appear, already imbedded, as the ground scrolls on, and explode upwards as they pass you. Since the game's aim is to destroy aliens before they reach earth, it seems a bit unsporting to let them land off-screen. And, without rear missiles, your two smart bombs are your only hope.

Mindless "zap aliens" games without originality or complexity, difficult only for lack of manoeuvrability and off-screen or out of range items, might have been acceptable once but program design has moved on. When landing aliens erase character squares in supposedly solid mountains, a problem overcome by most novices. **D.C.**

instructions	50%
playability	40%
graphics	20%
value for money	40%

★ ★

Star Commando Commodore 64 £7.95

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

I've tried — I've really tried — but I'm still a rookie. Is it me, I ask myself, or a game too difficult even in easy levels? First you log in your name (I swear the computer sneers) and bang, you're in outer space, nervously peering through a target sight. Examine score (nil), hi score (unbelievable), energy (full 500). Check scan information — tells you, (sometimes), what fiends await you where and mothership location.

Right, let's have a go at the Sausonic Raiders — enter selection, hyperspace flickers... help, you're in the middle of the moaning, whistling horde. Fighting like a tiger but no good — too many — can't escape sector until they or you are finished... made it... fuel low! Head for Mothership sector. Mid-air refuel operation, must lock both target sights. And Mother doesn't hang about. Any fumbling and whoosh, she's off leaving you half-full.

There are various colourful, noisy, deadly nasties and seven levels, culminating in Star Commando wings. If anyone makes it, don't tell me. **D.C.**

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

★ ★ ★ ★

Altair 4 Comodore 64 £7.50

Voyager, Business Centre, Claughton Road, Birkenhead, Merseyside L41 6ES

A text adventure, at least no graphics as far as I've got — about 15%. Story so far: your strato-cruiser is badly damaged in an asteroid storm. You land on Altair 4 — a galactic penal planet — and must find repair equipment, avoiding vile, cannibalistic criminal inhabitants. Finding and befriending wrongly imprisoned Furry Wooky could help.

Some rooms to be explored inside the strato-cruiser. In one, damaged cables and a snoring animal, with comment, "not badly damaged, needs some patching up". Animal or cables? He or it refuses to awaken and I can't find the first aid so I've started exploring the planet.

The nicest thing is that you feel the author, K. Suddick, is sitting inside the TV, watching your progress with fellow-feeling and offering the occasional encouragement or hint. I would have put on the spacesuit unprompted but the suggestion I do so was friendly.

Descriptions are detailed, atmospheric and sometimes subtle. Colour is used sparingly but to good effect and text occasionally behaves in a graphical way. Loved the adventure, hated the 15 minute LOAD. But highly recommended.

D.C.

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

★ ★ ★ ★ ★

3D Space Wars Dragon 32 £7.95

Hewson Consultants, 56B Milton Trading Estate, Abingdon, Oxon OX14 4RX

No prizes for guessing that this is another 3D shoot- 'em-up game in which you sit in your nice padded pilot's seat trying to despatch the latest invaders to a land from which they can never return.

So what is special about this one? Well it certainly is the best, yes **the** best, graphical screen I have yet seen for the Dragon. To be honest I had despaired of ever seeing anything this good. There is always a price to pay, however, and that is paid in the lack of colour. The screen is only black and white but the detail is well worth it and the colour comes back when you explode which, if you're like me, is quite regularly. The game has all the other features you would expect: radar screens, fuel gauges, speed changes and a mother ship to dock upon when needed.

The only disappointing feature is the sound which is the on the pathetic side of inadequate. While this is poor enough to lose a star in the ratings, anyone wanting this type of game should give it a whirl. **D.C.**

instructions	95%
playability	90%
graphics	100%
value for money	80%

★ ★ ★ ★

Up Up Balloon Sord M5 £23.95

Computer Games, Goldings Hill, Loughton, Essex IG10 2RR

There is one thing for certain: this is one of the most original games cartridges.

You move a little balloonist around the screen collecting hearts, or "Gal Marks" as the instructions call them, avoiding Galoons, Piros, Kniphoons, Sharcoons, Condolloons and Barracudas. There are two ways to tackle these creatures: knock them down with your balloon from above, or shoot them with your arrow. However, you can be knocked out by colliding with any of the creatures, being eaten by a barracuda, or by failing to collect nine Gal marks within the time limit. You have five balloons.

All this takes place to a jolly background tune. Graphics and animation are extremely impressive, especially the enormous barracuda which jumps out of the water from time to time with mouth agape. The creatures all behave in their own ways and if you are not playing, you will enjoy watching them wandering around the screen. With professional touches like two-player and joypad options, Up Up Balloon is well worth its hefty price and a must for anyone who is fed up with traditional shoot- 'em-up games.

S.S.

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

★ ★ ★ ★ ★

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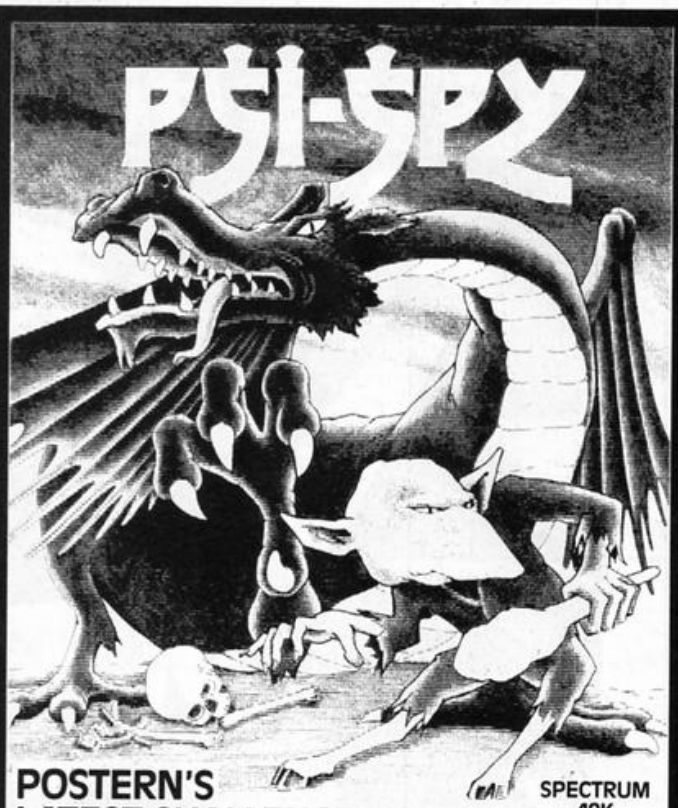
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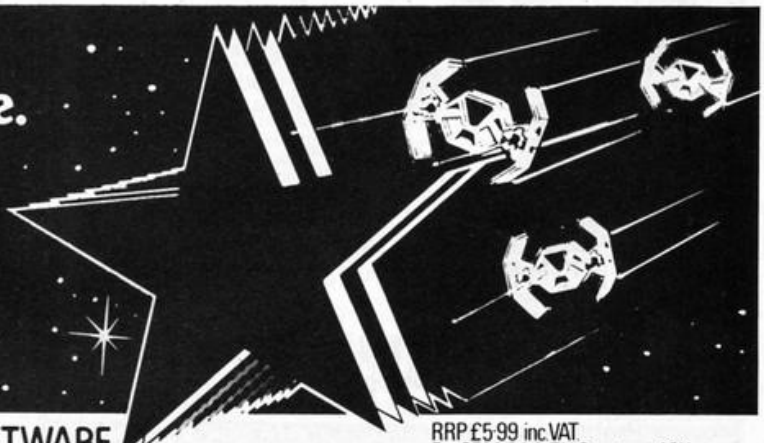
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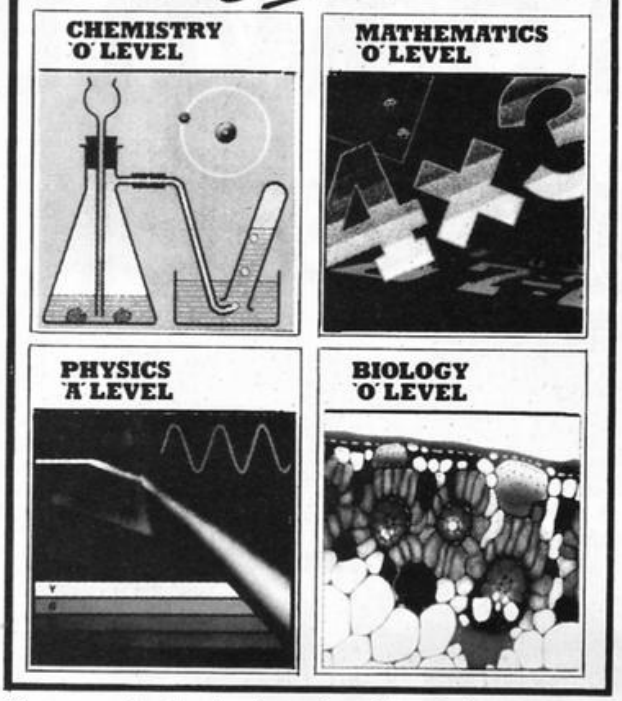
- **Programs must always be sent on cassette. Listings are helpful, but not necessary. Check carefully that they are bug-free. Include details of what your program does, how it works, variables you have used and hints on conversion.**
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HCW59

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Are women too busy?

I wasn't interested in computers until my husband, who is a micro computer engineer, brought home one of the firm's computers for testing. It all seemed very confusing. I hadn't a clue what keys to press. I was also a little afraid that I might damage it in some way by pressing the wrong keys. Then he showed me how to play games on it.

That was it. Housework was never done so fast. I couldn't wait to go on some adventure, to get away from all those boring chores and and enter a fantasy world of dragons, aliens and monsters.

Alas, my days of adventure came to an end as he had to keep using parts of the machine as spares for others. So it was back to the housework and other mundane things.

Then suddenly my husband decided to take a programming course and he needed a machine to practice on. We bought a TI. We now have some 20 games for it and have just invested in the Extended BASIC module. I find it makes the games much faster. When we get a new game now, it's a fight to be the first one to try it. I have two school age children. One is 13 and his reactions are much quicker than mine. I get in plenty of practice when he's gone to school.

I've noticed that most of the letters and programs are written by men. Why this is, I can only guess. Perhaps women are too busy looking after the home and family to have time to sit down and write. Now don't get the impression that my home is untidy or dirty. It isn't. I don't spend all day playing games — just every afternoon when we have a new one or when I think there is a good one in your magazine. Then I type it in and have a got at it before anyone else has even seen it.

It seems a shame that the manufacturers decided to discontinue the TI. I think it is a very good machine. One good thing has come out of it from my point of view: the big discounts on software. I wouldn't have been able to afford all the games that I have if it hadn't been for those. As far as I'm concerned, our TI will have pride of place in our lounge for a long time to come. It is in use two or three evenings a week.

I think it is good for all of us. It keeps us mentally alert and not like zombies with our eyes fixed to the television screen every night. There is also the challenge of trying to beat each others' scores.

I like playing the adventure games best, but I haven't seen any in your magazines and it seems to be the only one dealing with the TI. I am sure there must be some clever person out there who could write a good TI adventure game.

Pearl Brind, Rugeley, Staffs

See stars in 48K

Thank you for the favourable review of our Spectrum program. The Solar System in HCW 56. However, due to the time lapse, we now have on the market a full-blown 48K program, with much more information, a new cassette insert, a Microdrive capatibility (loads in six seconds). The price remains the same — £3.50. Please note that, due to its vast superiority, the new 48K program **replaces** the older 16K version. It does not complement it.

Eaglesoft, 66 James Street, Scarborough, N. Yorks YO12 7PH

Not so bad

I am sick and tired of people complaining about the Spectrum. In shops selling computers, I have heard people say: "Ugh! Look, it's one of those Sinclair things with those rubbishy rubber keys."

Well, listen out all you owners of computers like the BBC, Dragon and Commodore 64: The Spectrum isn't so bad.

I would say that Spectrum games are much better than those I have seen on other computers.

Kerry Bostock, aged 12, Beeston, Notts

Oric answers 1

In reply to J.M. Hopkin's letter, What's my chance? (HCW 55), I suggest the following:

```
10 FOR X = 0 TO 10 STEP
   0.1: NEXT X
```

This accomplishes the task in one line. In the original program X will never be exactly equal to 10 because of the number of decimal places which the computer works to, i.e. the last print up before 10 is 9.90000001. Add 0.1 and you have more than 10 so the condition is never met. This is why the program will work if the equals is changed to "greater than".

I must add that I have had my 48K Oric for nearly a year now and I am delighted with it. In spite of all remarks by reviewers I find the keyboard very easy to use and quite fast. In my view the machine cannot be compared with the Spectrum. The Oric is streets ahead. If you are going to compare it with anything it has to be the Commodore 64!

I must admit to being tempted to upgrade to the Atmos but having tried the Atmos keyboard I have reservations. How long will it last? It does not seem to be a very solid job. Time will tell. I shall be keeping an eye on the demonstration model in my local shop. If it stands up to that it must be OK.

Incidentally, if you get the chance have a listen to the music on the Atmos demonstration program. It's terrific! Congratulations to the author (and try doing that with a Spectrum!).

D. Howard, founder member, Trowbridge, Wilts, Oric Owners' Group

Oric answers 2

I was interested in J.M. Hopkin's letter (HCW 55), as I used to run into similar problems. That was until I understood the reason on reading Ian Sinclair's excellent guide to the Oric (page 34), which explains how computers store real (as distinct from integer) numbers in two parts — a fraction and a multiplier (eg 1.6 EXP6 instead of 1600000).

The problem in conversion is that the computer does not recognise a decimal counting scale and every fraction, unless it is one that is a power of 2, is stored as an approximate value and rounded up or down when displayed on screen. Try expressing two-thirds as an exact decimal.

Because of this approximation the test in line 20 is unlikely to be positive. Even if the screen display does show equality, any test is made with stored numbers and programmers usually insert an "integer" line as a precaution.

If the following line is used, the desired result will be obtained:

```
45 X (INT (X * 100 + 100
   + 0.001))/100
```

I hope Mr Hopkins does not lose heart with his Oric which, despite its ROM bugs, is a powerful computer. Most microcomputers probably suffer from this decimal approximation.

J.M. Stubbins, Maidstone, Kent

Best, and all in 3½K

I am writing to recommend a program for the unexpanded VIC-20 which is the best I have seen for the basic machine. I have not seen this game advertised or reviewed, so I thought your readers ought to know that it exists.

It is called Pedes and Mutants and is published by Romik. I hope you will publish this letter so that other VIC owners can see for themselves just what can be done in only 3½K of memory.

David Lester, Pinner, Middx

Pedes and Mutants costs £6.99 from Romik Software, 272 Argyll Avenue, Slough, Berks SL1 4HE. A Romik spokesman said: "No, David Lester has no connection with us — it's the first time we've heard of him."!

Thanks, Julian

I am writing to thank Julian Shawcross who in his letter (HCW 38) recommended the Suncom TAC2 joystick, for use with the TI-99/4A. I agree with him that the TI joystick is very uncomfortable and has slow reactions, and noticed a vast difference when I took his advice and purchased the TAC2 plus the adapter for the TI.

My scores have rocketed since, with my current record on Parsec, for example, being 1,006,900. This took me about 2¼ hours, and my mum wasn't too happy. She's dreading the next electricity bill!

Parsec, in my opinion, is the best micro game available, and I was far from surprised when your reviewer gave it a five star rating and 100 per cent across the board (HCW 30). Thanks again Julian, for making me aware of a quality joystick, and keep up the good work HCW.

Chris Baldwin, Coleford, Gloucestershire

Nothing worth getting

I thought I must write to you with my views on the lack of very good arcade-adventures for the Commodore 64. I would have thought it would be more profitable to make a Commodore 64 version of Atic Atac. I know many Commodore 64 owners who would be very happy with a version of Atic Atac or 3D Ant Attack for their computer (although Ant Attack is not an adventure).

Also, if you were a Spectrum owner and you have £6, you can buy Stonkers, Pyrimid, Android 2 or Alchemist, to name a few, but you can't buy anything worth getting for the 64.

Robert Leather, Worsley, Manchester

Whoops!

The printer seems to have slipped when listing my Mind Your Head program for the Spectrum in HCW 56. In line 110 the figure 3 should be a 4 and in lines 5220-5240 inclusive there should be a solid graphics character (value 143) between the double quotation marks. In these lines this should appear a total of four times.

Paul O'Brien

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

Are you game for some fun?

A batch of programs for the BBC and TI are given the once-over by our team

Patscram Mission TI-99/4A £6

Stainless, 10 Alstone Rd, Stockport, Cheshire

The third in a series featuring the Starship Patscram. Your mission is to restore the Cube of Peace, that the Zirgons have made ineffective, by penetrating their defences on five different screens.

After the title screen you choose the momentum type that your spacecraft will have and keyboard or joystick control. You then have the unusual option to practice operating the ship before play starts. Another feature is the choice of a demonstration game by the computer — far more valuable than a set of instructions.

Once the preliminaries are over, you make a start with Starship Patscam lift-off. By steering through Zirgon mines, it has to be taken to the top of the screen. On screen two you have a limited time in which to destroy Arrowite weapons. This you do by crashing into them! On screen three the converse applies as you have to avoid asteroids. On the fourth you manoeuvre gliding cubes to recover the Cube of Peace, and on the fifth take it back home. But when you've landed the game won't end here as the action re-starts on screen one. Needs Extended BASIC.

J.W.

instructions	95%
playability	85%
graphics	80%
value for money	90%

★ ★ ★ ★

Confrontation 32K BBC £7.95

M.C. Lothlorien, 56A Park Lane, Paynton, Stockport, Cheshire SK112 1RE

You may have guessed from its name that this is a game of war. In fact it's one of a series of two-player strategy games. The instructions reminded me of the typical rules for a board game. They are very complicated and detailed and if you read them extra carefully you may just be able to comprehend them. But I'm making no promises.

When the game has loaded there is no scenario in the memory, so it can either be loaded from the tape or you can make up your own, which can also be saved. Each player's forces consists of 35 units, 12 separate types of unit, each holding different properties. The conditions for victory are decided upon by the two players. For example, you may wish the outcome to be decided on the number of cities taken rather than units lost.

If you hate board games this isn't really worth considering. If, on the other hand, you like the sound of it try and find out more about it. The same game has been released for the Spectrum.

M.B.

instructions	40%
ease of use	60%
display	70%
value for money	55%

★ ★ ★

Pettigrews Diary 32K BBC £7.95

Shards, 189 Eton Rd, Ilford, Essex IG1 1UQ

This adventure comprises three programs, each under its own chapter heading, and each just as difficult as the last.

In the first, The Burning Farmhouse, you have to venture inside to retrieve as many objects as you can, avoiding the swirling flames. Once you have completed any stage you are given a code word, and from then on that stage can be missed out if wished.

In London Frolics, the next chapter, you have to earn enough to buy a ticket to Paris. You communicate with the computer in two-word phrases.

In Chapter 3, European Trek, you have to complete eight tasts. If you succeed you will have solved the mystery of Pettigrew's Diary. Graphics are included in Chapters 1 and 3. Each is referred to separately in the instructions, which tell you as much as they can without giving too many clues away.

After a while the music in Chapter 1 began to aggravate me a little but now I have most of the codes I don't have to listen. I haven't got long to go now. I'll complete the adventure soon.

M.B.

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

★ ★ ★ ★

Wallaby TI-99/4A with Extended BASIC plus Joystick £7

Counterpoint, from Stainless, 10 Alstone Rd, Stockport, Cheshire

Poor Wally the Wallaby is trapped inside a Thing-A-Ma-Jig factory and must find his way out. Exits are on four different screens along which he will encounter various obstacles. Successfully completing all four screens, however, only returns Wally to a more difficult screen one.

The first displays a series of ladders leading to upper floors, at the top right is the exit. Wally must not only climb these ladders but jump over sliding baskets and duck to avoid overhead buckets. Should he be hit not only does he lose a life but must start again.

Having reached the exit, Wally receives bonus points before continuing on the next screen, where he must travel down slides. On the third screen are both slides and ladders, and on the fourth, moving holes.

The program runs smoothly unless you attempt to move sideways off screen. Then it crashes with a BAD VALUE. I had to enlist the help of a nephew to find what lay beyond the first screen. "What a Wally,", did you say?

J.W.

instructions	95%
playability	85%
graphics	80%
value for money	80%

★ ★ ★ ★ ★

Mr D TI-99/4A £5

SP Software, from Stainless, 10 Alstone Rd, Stockport, Cheshire

Mr D is certainly strange. Not only does he resemble a little horse, but goes underground to collect cherries. I always thought they grew on trees.

It seems dinosaurs are also fond of these fruits — on each screen there are two that pursue Mr D, who will lose a life if caught. Using keys or joystick, Mr D must collect all the cherries to progress onto another screen and score points. Also beneath the ground are apples. If Mr D passes directly under one it will fall down the screen. Should one fall on a dinosaur's head, the monster is killed.

If Mr D can't manage to outrun the monsters he does have five magic balls to use in each screen. When fired, it will follow the path left by Mr D, destroying a dinosaur if it happens to be in the way.

Compared with other games of its type, this doesn't stand out as being particularly original or inspiring. Some variation in the graphics and a high score table might add more interest to what is otherwise a very repetitive game.

J.W.

instructions	80%
playability	45%
graphics	40%
value for money	60%

★ ★ ★

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by the ASP Market Research Group

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1	Atic Atac	Ultimate	Spectrum(3)
2	Jet Set Willy	Software Projects	Spectrum(2)
3	Space Pilot	Anirog	CBM 64(-)
4	Manic Miner	Software Projects	Spectrum(-)
5	Manic Miner	Software Projects	CBM 64(-)
6	Bongo	Anirog	VIC-20(-)
7	Light Cycles	PS	Spectrum(-)
8	Falcon Patrol	Virgin	CBM 64(4)
9	Hunchback	Ocean	Spectrum(-)
10	Flying Feathers	Bubble Bus	CBM 64(-)

NON-ARCADE

1	Twin Kingdom Valley	Bug-Byte	CBM 64(-)
2	Golf 64	Abrasco	CBM 64(-)
3	Hobbit	M.House	Spectrum(2)
3	Home Manager	Abrasco	CBM 64(-)
5	Golf Spectrum	Abrasco	Spectrum(-)
6	Twin Kingdom Valley	Bug-Byte	BBC(-)
7	Pool	CDS	Spectrum(-)
8	Mad Martha	Microgen	Spectrum(-)
9	Dragonbane	Quicksilva	Spectrum(-)
10	The Valley	APS	VIC-20(-)

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SPECTRUM

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6	Cyrus-IS-Chess	Intelligent (-)
7	Scuba Dive	Durell (3)
8	Flight Simulation	Psion (6)
9	Lunar Jetman	Ultimate (7)
10	Snowman	Quicksilva (9)

COMMODORE 64

1	Crazy Kong	Interceptor (3)
2	Buga Boo (The Flea)	Quicksilva (6)
3	Revenge of the Mutant Camels	Llamasoft (-)
4	Super Blitz	Commodore (-)
5	Manic Miner	Software Projects (2)
6	Chinese Juggler	Ocean (10)
7	Depth Charge	Commodore (-)
8	Mr Wimpy	Ocean (-)
9	Tank Attack	Superior (-)
10	Hobbit 64	M.House (—)

DRAGON 32

1	Chuckie Egg	A&F (1)
2	Up Periscope	Beyond (7)
3	Pedro	Imagine (8)
4	Hungry Horace	M.House (6)
5	Devil Assault	Microdeal (-)
6	Ring of Darkness	Wintersoft (-)
7	Frogger	Microdeal (10)
8	Kriegspiel	Beyond (3)
9	Dragon Chess	Oasis (-)
10	Skramble	Microdeal (-)

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

VIC-20

1	Snooker	Visions (-)
2	Crazy Kong	Interceptor (2)
3	Wizard and the Princess	M.House (3)
4	Flight 015	Ferranti / Davenport (1)
5	Jet Pac	Ultimate (6)
6	Gridrunner	Llamasoft (9)
7	Arcadia	Imagine (8)
8	Snowman and Maths Maze	Commodore(7)
9	Race	Commodore (-)
10	Supervaders / Bomber Run	K-tel (-)

HOME COMPUTING WEEKLY

BRITAIN'S BRIGHTEST

ZX81

1	Mothership	Sinclair (-)
2	Crazy Kong	PSS (3)
3	Fantasy Games	Sinclair (-)
4	Flight Simulation	Sinclair (-)
5	Space Raiders	Sinclair (-)
6	Asteriods	Quicksilva (2)
7	Skramble	Quicksilva (1)
8	Chess 1K	Sinclair (-)
9	Football Manager	Addictive (4)
10	Defenders	Quicksilva (5)

Find some fruit, squash monsters

Our reviewers star rate a selection of new games for the TI-99/4A and the Sord M5

Secret Agent TI-99/4A £7

Stainless, 10 Alstone Rd, Stockport, Cheshire

We've all seen the classic film stunt of running along a moving train, leaping from one carriage to another. Now here's the chance to try it without leaving the comfort of your armchair.

You have five enthusiastic agents with which to recover a briefcase — full of secrets, of course! On the first screen your agent crosses the train by jumping over pylons and taking care not to fall between the carriages. The briefcase is located at the far end of the train, but once recovered another appears at the opposite end. This continues until a total of six have been collected, the number of pylons increasing with each complete traverse of the screen.

The train then disappears and your agent reappears on one of a series of cable cars. By jumping up and down onto the cars he must once gain take possesion of the briefcase which has been hidden in one of the cars. If he survives this screen he returns to screen one which continues at a faster pace.

Makes excellent use of the sprites available in Extended BASIC, providing graphics that are both amusing and effective.

J.W.

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

★ ★ ★ ★

Fruit Search Sord M5 £19.95

Computer Games, Goldings Hill, Loughton, Essex IG10 2RR

The instructions tell you that you are planning a party for your girlfriends, but each will only eat the kind of fruit she likes. Your job is to find out which kind of fruit each girl prefers.

On the left of the screen there is a fruit shop from which you can select various fruits and on the right there are fruit baskets. You select three to five fruits, depending on the difficulty level, then the computer prints a blue fruit for each fruit of correct position and type.

Sounds familiar? Well, you've probably guessed by now, Fruit Search is a derivative of Master Mind, except you have to guess the right combination of fruits instead of boring little pins. And you get pretty pictures on the screen.

Graphics are nice and clear, presentation very professional. There are many nice touches as joypad option and difficulty levels and, even though relatively cheap for a cartridge game, it doesn't represent very good value for money.

S.S.

instructions	90%
playability	30%
graphics	80%
value for money	50%

★ ★

Last day of the Earth/ Mini Star Trek Sord M5 £8.95

Computer Games, Goldings Hill, Loughton Essex IG10 2RR

Both are, in fact versions of the Star Trek game that originated on mainframe computers. They do not transport well onto machines such as a standard Sord M5 which has a tiny memory.

Basically, the universe is infested with Klingons, or any other nasties, and you have to crusade to fumigate it. But it's not an easy task as the cosmic vermin are everywhere so you'll have to travel through sub-universes if you want to effectively clean up.'

To aid your heroic quest, there are several allied base stations throughout where you'll be able to replenish supplies and stock up on missiles. The univese is divided into sub-universes but as the screen is too small to show them all at once, it will only display one at a time. To effectively clean up the universe, you have to use warp drive and shifts cunningly and use missiles sparingly.

Although both games are very simple, they are well written and surprisingly fun to play.

S.S.

instructions	80%
playability	50%
graphics	40%
value for money	60%

★ ★ ★

Wonder Hole Sord M5 £23.95

Computer Games, Goldings Hill, Loughton, Essex IG10 2RR

The blurb says that all you have to do is to drive the car across the field, and wherever you encounter a monster, knock it underground. But the monsters won't stay put. They will dig their way back up to the surface and as soon as they remerge, they will regenerate into larva, "Lar", then pupa, "Boo", and will continue to grow every time they are knocked underground until finally, they turn into adults, "Eema". These are particularly nasty as they shoot at you.

In fact you drive your car over what look like plates and you simply go over anything that's not an "Eema". That's just about all there is to the game apart from the odd chance to get bonus points. You go on to the next screen when you knock out all the monsters. I must confess that I couldn't achieve this however hard I tried.

Although the game uses sprites and sounds well, the baddies and yourself doesn't show up well at all on the light coloured background and this spoils a game that could have been very addictive.

S.S.

instructions	90%
playability	50%
graphics	60%
value for money	60%

★ ★ ★

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J.W.

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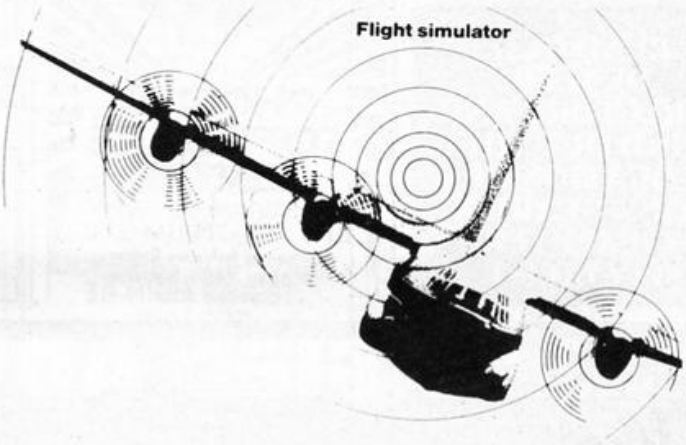


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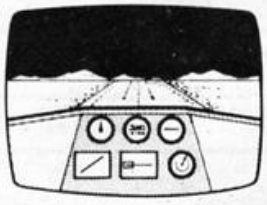
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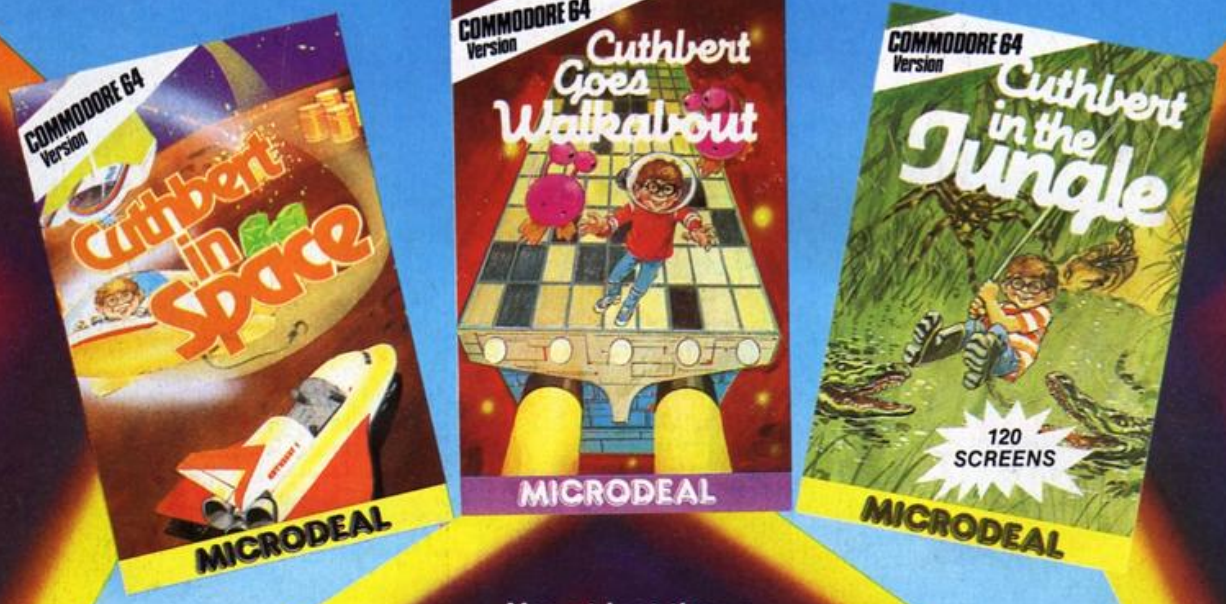
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