

Home Computing WEEKLY

An Argus Specialist Publication

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magazine

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No. 37
Nov 15-21, 1983

38p

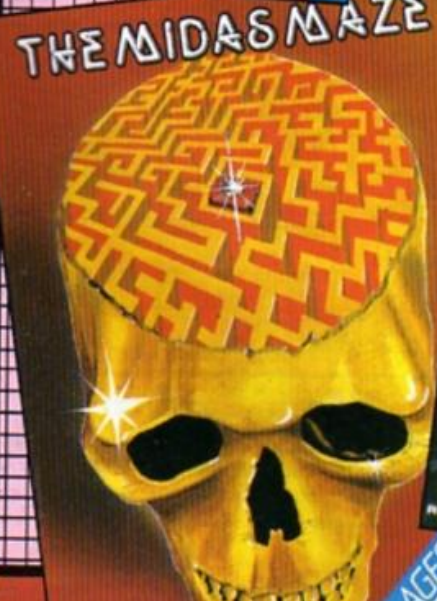
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Make a date with a micro

Now your computer can find the love of your life... and work out the good and bad points of your partnership.

Both use questions devised by experts, including a psychiatrist who has written quizzes for women's magazines.

The Dating Game and I Do cost £12.65 each for the BBC and Electron computers and are each on two cassettes in video cassette-style boxes.

Both were devised and written by Ivan Berg Software and are being marketed by Acornsoft.

The Dating Game, which is four separate programs, is based on a book by Dr Glen Wilson, of the University of London's Institute of Psychiatry.

Designed to hold data on up to 40 people, it asks 19 questions. Among them: should men and

Giant's step into the home

How will IBM's newly-announced home computer fare when it reaches us from America?

A leading London IBM dealer describes the move as "exciting", but Commodore's UK marketing manager says he has serious doubts.

The PC Junior, on sale in the US early next year, has a fast 16-bit processor and a 62-key cordless keyboard which controls the main unit with an infra-red beam.

There are two models:
continued on page 6

home computer:
the first pictures



Another devastating new game from the fabulous Postern range.

Defeat the flock of
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Postern is always on the look out for any new games you might have developed.

BBC BEST NEW CATALOGUE

Send 50p stamp to:
Software Supermarket,
87 Howard's Lane,
London SW15 6NU

Program with the less fattening centre

Who said chips were fattening? Well, the ones in your Spectrum aren't, especially when you use them to run *Dieta*, a new calorie-counting program from a company of the same name.

Dieta will calculate the calorie and fibre content of any dish, but that's not all. It will work out which ingredients in a recipe contribute the most calories, and tell you how to adjust the recipe accordingly.

It will also suggest alternative low-calorie ingredients that you can use instead of fattening ones.

Dieta will work with recipes of up to 16 ingredients, and the makers say it has been tested on over 30 different recipes from four different countries!

If you have a printer, you can print out list of ingredients and calories and fibre content.

A ZX81 version is due out soon. The Spectrum version costs £5.

Dieta, 14 Ribble Close, Culcheth Warrington WA3 5EA

Audiogenic has brought out a bumper selection of programs in time for Christmas shoppers. They include a Big Six games pack for the Dragon, costing £5.95; two dual-program cassettes, with a VIC-20 game on one side and a Commodore 64 version on the other; three new games on cartridge and one on disc for the 64, plus six cassette-based games; and two new VIC titles.

Audiogenic, PO Box 88, Reading

You could win a computer or joysticks for Christmas if you buy a *Galactic* game. Each game carries an entry form, and all you have to do is guess the lucky number. Nearest guesses to the number win 20 Commodore 64s, and 100 runners-up will get games joysticks. *Galactic* sell software for the VIC-20, Commodore 64 and Dragon. Latest release: *Games Designers* for the VIC-20 and 64, which allow you to make up your own machine-code computer games. They cost £9.50 and £11.50 respectively.

Galactic Software, Unit 7, Larchfield Estate, Dowlish Ford, Ilminster, Somerset TA19 0PF

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What does IBM's new home computer look like? Details and pictures are on page 6



Money problems? Our Dragon program, which starts on page 19, will look after your finances



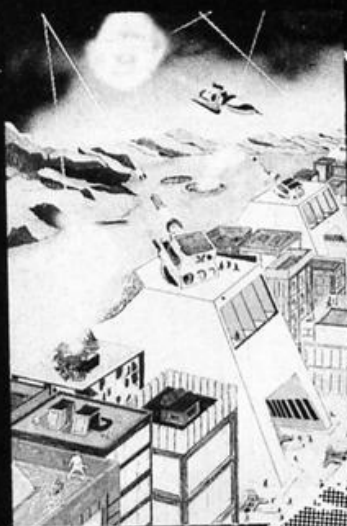
Turn to page 15 and find out how you stand a chance of receiving a Bug-Byte T-shirt



There are two great Spectrum programs in this issue. They start on pages 32 and 44

ANIROG

SOFTWARE



MISSILE DEFENCE

MISSILE DEFENCE

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

KB/JS 16K/48K £5.95

SLAP DAB

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

KB/JS 16K/48K £5.95

GALACTIC ABDUCTORS

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

KB/JS 16K/48K £5.95

FROGRUN

Popular arcade game. All machine code with brilliant colour graphics and sound effect. Features include snakes, crocodiles, lady frogs, turtles, cars, lorries and logs.

KB/JS 16K/48K £5.95

TINY TOT'S SEVEN

Super games pack for younger children with bright colour graphics and sound effects. Everybody's favourite Simon plus Super Snap O's and X's, Word Jumble, Bomber, Duck Shoot and Mad Drivers.

KB 16K/48K £4.95

AVAILABLE SEPT. 1983

KONG	KB/JS	£5.95
XENO II	KB/JS	£5.95

Also available Commodore64 & Vic 20

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Make a date

From front page

women be equal? What do you think about sex? and questions on the food you like and your hobbies and pastimes.

Acornsoft's managing director, David Johnson-Davies, 29, said: "You obviously can't run it as a commercial enterprise — 40 people wouldn't be enough. It's really designed for parties and among friends. We are going to

Show in the New Year

If you're getting a new micro for Christmas, or just planning how to spend those Christmas postal orders, make a note in next year's diary to keep 6-8 January free.

That's when Argus Specialist Exhibitions — owned by the same company that owns HCW — will be holding its 1984 London Home Computer Show, in the Royal Horticultural Society's New Hall.

There will be a range of hardware and software on display for you to try and buy, and the larger New Hall will provide space for more stands than ever before.

The Horticultural Hall is off Westminster's Victoria Street.

The show will be open from 10am to 6pm, except on Sunday, when it closes at 4pm. Admission is £2, or £1.50 if you're under 16.

Argus Specialist Exhibitions,
Wolsey House, Wolsey Road,
Hemel Hempstead, Herts. HP2
4SS

Seasonal software

You can send your BBC B-owning friends a Christmas card with a difference this year.

Elm Computers has brought out a range of three computer Christmas cards on cassette. Load them into the BBC, and they display an animated Christmas scene, complete with musical accompaniment.

One card features a snowman, another a forest with Santa travelling through it, and the third shows night falling and a house whose windows gradually light up.

Andrew Jones, who wrote the programs last summer, said he first had the idea while sitting on a beach on holiday in France.

Elm Computers will be following up the cards with a range of machine-code games. Meanwhile, the cards cost £2.50 each or £7 for three.

Elm Computers, 59 Bateman Road, East Leake, Loughborough, Leics.

try it at our Christmas party.

"I've run through it myself... but I haven't tried dating with it."

I Do uses questions from psychologist Hans Eysenck's book *I Do: Your Guide to a Happy Marriage* and has eight questionnaires — a total of 400 questions — on subjects like personality, sexual attraction and compatibility.

At the end bar charts show how the two partners differ.

Both Mr Berg and Mr Johnson-Davies said people were far more honest with a computer than they would be face-to-face, as shown by the Eliza program, well-known in the computer industry.

Mr Berg said: "People will answer a computer with more honesty and less inhibition. We might even have computer therapy programs."

And Mr Johnson-Davies said: "When I've walked up to people using *I Do* they have quickly put their hands over the screen to hide it from me."

The two programs, due out today, answered the criticism that home computers had no real use apart from games.

More useful programs were on the way, including family quizzes devised by experts — Anthony Holden on the Royal family; Steve Race, of TV's *My Music* quiz; author Brian Aldiss on science fiction. Language teaching was on the way, with each program accompanied by an audio tape.

Could *I Do* really be taken seriously? He said: "It depends how seriously you take psychiatric tests."

Did he feel like the software industry's cupid for publishing *The Dating Game*? He said: "I don't think these two programs are the start of a trend, just one of many types."

Mr Berg said Dr Wilson had devised quizzes for magazines like *Company* and *Cosmopolitan* and said: "A tremendous number of people do them and find them fascinating."

"We are trying to take the use of the home computer a step further, to allow people to find out more about themselves and the people around them."

It was Mr Berg's company that produced the Eysenck IQ Test for the VIC-20 and Commodore 64.

● Acornsoft has brought a range of 10 teaching programs for the BBC micro — with Electron versions to follow in December — developed by Applied Systems Knowledge. They cost £9.95 and cover age groups from three to 11.

Acornsoft, 4A Market Hill, Cambridge CB2 3NJ

ACORNsoft IVAN BERG SOFTWARE



HANS J EYSENCK

'..I Do'

YOUR GUIDE TO A HAPPY MARRIAGE

The Program

for the BBC Microcomputer and Acorn Electron



You could be on our pages

We welcome programs articles and tips from our readers.

PROGRAMS should, if possible, be computer printed to a width of 48 characters (use a new ribbon) and/or sent on cassette. Check carefully that they are bug-free. Include details of what your program does, how it works, variables you have used and hints on conversion.

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

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

Competitive rates are paid.

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

Paul Liptrot, Home Computing Weekly, 145 Charing Cross Road, London WC2H 0EE

IBM Junior

From front page

- A 64K RAM version, costing the dollar equivalent of £452. It has 64K of ROM, two cartridge slots, an audio tone generator and, with an adaptor or connector, displays up to 40 columns on a domestic TV or monitor

- The £957 model has twice the RAM, an 87-column display and built-in double-sided 5¼in disc drive for 360K of storage

Both run BASIC on cartridge and IBM says that, with its new disc operating system and disc drive, the Junior will run hundreds of programs written for its highly-successful Personal Computer.

Add-ons for the new models were unveiled at the same time, including a £118 thermal printer, joysticks and a communications device.

And there are more than a dozen new programs, including games, education, word processing, home finance, updated disc-based software and a program for single-keystroke access to Prestel-like services.

IBM reckons a popular home system will be the enhanced model with TV connector, thermal printer, DOS 2.1 and cartridge BASIC. Total price: about £1,090.

The president of IBM's entry systems division, Philip Estridge, said newcomers to computing could use the Junior quickly and people with experience would get quality and versatility.

A program called Keyboard Adventure is built into the Junior's ROM to teach the keyboard. And there are two free discs with the more expensive model to show how it works and give sample programs.

The Junior uses Intel's 8088 processor, and IBM says some adaptor cards have been eliminated by including circuits for things like joysticks, serial port and colour graphics on the main board.

Each key can be user-defined and there are colour-coded function keys. If more than one Junior is being used in the same room, a 6ft cable is needed to replace the infra-red controller.

A second new printer, costing £1,348, uses plain paper up to nearly 15in wide to produce text or graphics in eight colours at a claimed 200 characters per second for drafts, 110 cps for correspondence and 35 cps for letter quality.

IBM has not announced when the new computers will be available in the UK and all prices are direct conversions (\$1.48 equals

£1) of prices at IBM's US product centres.

IBM's Personal Computer went on sale here 17 months after its US launch — although "grey" imports were available earlier. Michael Kraftman, manager of central London IBM dealers Bonsai, hopes it will be sooner this time.

He said: "It sounds an exciting product. The lower-priced model is a bold move. People are going to buy it because it can be easily upgraded... perhaps people who use IBM at work."

"The upmarket version will be very significant. It will be cheaper than the BBC computer with a Torch disc pack."

Commodore's UK marketing manager John Baxter said customers would expect a Rolls-Royce computer from a company with IBM's standing but the Junior would not live up to it.

He said: "IBM is the largest corporation in the world and it can afford to make mistakes. It has supplied industry and governments for years but I don't think they yet understand the home computer market."

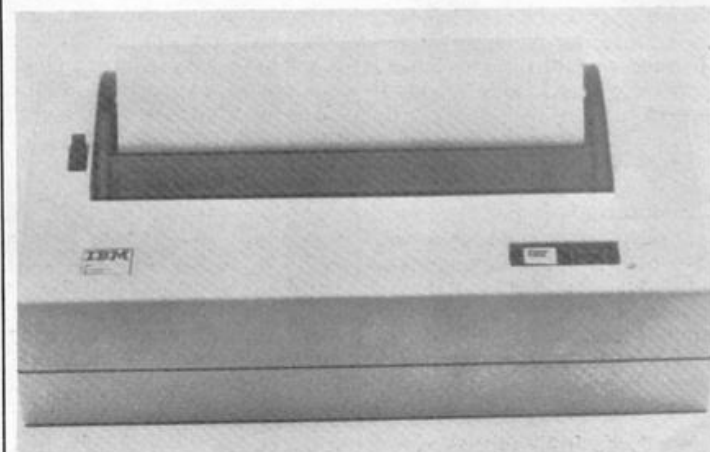
"They will learn and it won't cost them much because they are so big."

An example, he said, BASIC had to be bought as an extra on cartridge. In fact, he estimated it would cost an added £600 before the Junior could be used.

IBM United Kingdom, PO Box 41, North Harbour (Baltic House), Portsmouth PO6 3AU



Both models of the Junior look the same, but in the cheaper version a blanking plate covers the opening for the disc drive. Below it are two cartridge slots. The round opening is for the infra red control and the grille is for the speaker and for ventilation



Designed for Junior users — IBM's new thermal Compact Printer



IBM's PC Junior with the thermal printer perched on top of the main unit

Software? Look in the Mirror

Mirrorsoft, the software publishing company set up by Mirror Group Newspapers, is launching its first three programs next Monday.

In keeping with the Mirror's image as a family newspaper, Mirrorsoft will be concentrating on programs for all the family, with the emphasis on children's educational software.

It will be selling programs for the BBC B, Electron, Commodore 64 and Spectrum. The programs will be on sale in High Street chains including Boots and Smiths, as well as by mail order offers in the Mirror and other Mirror Group publications.

Rather than having its own in-house programmers, Mirrorsoft will be acting like a book publisher, providing marketing advice and facilities to small software companies.

The companies providing Mirrorsoft's first three offerings are Primer Educational, Andromeda and Wigit.

Primer wrote First Steps with Mr Men, which contains four programs to teach children a range of skills, including first steps in reading.

It uses the Mr Men characters, and includes an illustrated

instruction book and a Mr Men label for the computer's keyboard.

It will be selling for £8.95 for the BBC B and Electron, and will be available on the Spectrum soon.

Mirrorsoft plans to follow up First Steps with the Mr Men by other programs using the Mr Men characters.

Andromeda wrote Caesar the Cat, a children's arcade game. The player has to guide Caesar along shelves to hunt down the mice that are eating plates of food. Price: £8.95 for the Commodore 64.

And from Wigit, profiled in HCW 10, there's Quick Thinking, a package of two arithmetical games for the family.

The first is SumVaders, where you have to do an addition or subtraction before a robot dropped from a space ship can land. The game gets progressively faster, and two people can play.

There's also a facility that allows two players to play each other on different levels, so that a parent and child can compete on equal terms.

The second program in Quick Thinking is Robot Tables. Lumps of robot-making material roll on to a conveyor belt, and to make a good robot you have to say whether the number on each lump is the next in the multiplication sequence.

Tina Detheridge, of Wigit, said of Mirrorsoft: "We've found them very pleasant to deal with — they take an interest at all levels of program development. And they have a very fine educationalist on their team — she really does know her stuff."

"But from our point of view the best thing is that they are giving full credit to the companies who wrote the software."

Versions of the programs for all the machines in Mirrorsoft's range are likely to be out before Christmas, with some new titles scheduled for early in the New Year.

Mirrorsoft hopes to sell at least 100,000 cassettes during its first year.

Briefly

If you think you've written a good flight simulation program, send it off to the Royal Aeronautical Society and you could win £500. There are two categories, one for under-18s and one for over-18s, and school teams as well as individuals are welcome to enter. But hurry — entries must be in by the end of November.

Royal Aeronautical Society, 4 Hamilton Place, London W1V 0BQ

Dial-up software, U.S.-style

When American Telephone and Telegraph (AT&T) was broken up into component companies recently, it advertised that it would have not only a new look, but a new outlook as well. Apparently, they were not kidding.

In a recent announcement, AT&T let it be known that they were entering into a joint venture with Coleco Industries, the well known toy and computer game manufacturer.

Rather than cooperate on a product, the two firms plan to develop a unique subscription service that will allow subscribers to play arcade-quality video games at home via a telephone line modem connection. A special modem is being developed by Bell Labs especially for this purpose.

The plan is for AT&T to be responsible for the communications and billing side of things, while Coleco will provide the games and other entertainment software.

Apparently the plan will enable subscribers to pay for the service on the same invoice as they get for their regular telephone service. No price for this service has as yet been announced.

The service is expected to be operational next year in a few major cities, but plans are in the works to make it available anywhere in the nation.

Although the games will be "interactive" it is not presently known whether the degree of interactivity will allow, for example, a player in one house to play an opponent in another location.

The potential impact of this move by AT&T is not lost on most computer marketing companies. This is AT&T's first indication that they intend to enter the field of telemarketing, and the move is sure to have an impact on the firm's net profit.

This will be especially true if the games can be made highly interactive. The net result will certainly mean more long distance calls, and therefore more revenue. We shall see what happens.

★★★★★
If the trend continues, this year might be remembered as the year of the mouse, at least in the computer world.

Latest company to enter the rodent race, if I may take the liberty to call it that, is none other than the Tandy Corporation. They have now announced a \$49.95 Color Mouse for their Color Computer.

For those few of you who have just come back from a long trip away from civilization, a mouse is, in the parlance of the trade, a device that can be used for rapidly positioning the cursor, instead of using keyboard controls or commands and/or instead of using a joystick controller. As I say, it is all the rage this year over here.

Anyway, the Radio Shack Color Mouse plugs into a joystick port. No announcement has come out as to who was contracted to build the things; it could be any of a dozen mice makers.

The main difference between Tandy's mouse and others, like that for Apple's Lisa or for the IBM PC, is that this one was brought out strictly with entertainment and educational applications in mind.

I might add that the Tandy mouse is about \$150 cheaper than that for the IBM and similarly less expensive than many others.

At the moment, the mouse can only be used with three games, these being *Polaris*, *Rectoids*, and *Wildcatting*. More to the point, it specifically will not work with any more practical program, such as the Tandy spreadsheet program.

The calibration of the unit is obviously not as precise as those available for other more expensive computers, but should meet the requirements of the Color Computer's ability to resolve detail.

One industry observer reports that if nothing else, this product will make people realize there is nothing magical about mice. I wonder what a certain well known mouse named Mickey would have to say about that?

No more space. See you here again next week.

Bud Izen
Fairfield, California

Software goes north

Glasgow's first home computer exhibition took place last Friday, Saturday and Sunday at the Anderston Exhibition Centre — further proof that computing doesn't stop at Watford.

There were over 40 exhibitors at the show, including Menzies, Boots, software companies including Anco, Scotsoft and AR Software, and a number of schools and user groups.

The show saw the launch of the first programs from Screenplay, the software company set up in Glasgow by ex-Silversoft boss David Paterson.

Screenplay is selling software for the BBC, Dragon, Electron and Commodore 64, and its range includes educational and utility programs as well as games.

David said: "When I first moved back to Glasgow from London, I wasn't convinced that I'd be able to get a software company going. But there's a lot of talent up here — a lot of people have computers. I've found loads and loads of good programmers."

"The main drawback is that while in London my accent was fairly distinctive, in Glasgow I sound just like everyone else."

ames

GSH
Giant Soft History

THE AMAZING ADVENTURES OF THE **LAUGHING SHARK**

PART THREE



FEELING PECKISH, HE WAS TEMPTED BY A MOUTH-WATERING SNACK DANGLING BEFORE HIM. BEWARE MIRTHFUL HERO.....

MMM!! A MACWIMP CRAB-BURGER

IT'S ANGLER AFTER A BITE!

THE LAUGHING SHARK, TIRED OF WET WINDY AND BLACKED-OUT PENG, HEADED FOR SUNNY CLIMES.....

WRONG AGAIN!! IT'S RIDER PARACHUTING HIS WAY TO A TOP SECRET MISSION TO CHECK OUT MINED ROADS-FIRST HAVING TO LAND ASTRIDE A MOTORBIKE

BETTER NOT DISTRACT HIM! ANY MISTAKES COULD PROVE PAINFUL-EVEN FATAL.....

GERONIMO

NO OLD BOY THE LAUGHING SHARK ACTUALLY.

AW NUTS!!

FROM HIS TRUSTY TRAWLER, ANGLER NEARLY HOOKED OUR HERO, WHO DECIDED IT WOULD BE SAFER IN THE AIR.....

LATER..

HIGH OVER METROPOLIS DISASTER HAS STRUCK. A NEW BUILDING HAS COLLAPSED AND SCAFFOLDING SID'S ONLY HOPE IS TO PLANKWALK TO SAFETY-BUT WATCH OUT FOR MONSTERS!!

AN EXPLOSIVE SITUATION!

ROAD CLOSED UNEXPLODED BOMB

OUR HERO WOULD BE BETTER OFF CATCHING THE VIRGIN BUS CHECKING OUT ALL THE FAB NEW GAMES. TICK TOCK

OH NO! A UXB!! UNLESS THE BOMB DISPOSAL EXPERT CAN FIND THE RIGHT TOOLS TO DEFUSE IT, OUR FISHY FRIEND COULD BECOME SHARK PASTE!!

LIFE IN THE AIR IS A LITTLE TOO EXCITING.

WATCH OUT for the VIRGIN GAMES FUN BUS – on tour NOW



Angler
by Dirk Olivier
Spectrum 48K
VGC 1012
Fishy fun for all ages – but don't catch a crab!



Rider
by Roy Poole & Terry Murray
Spectrum 48K
VGC 1014
Parachute into the enemy territory and ride the mined roads.



Plankwalk
by Neil Cannon
BBC B
VGA 2008
Can you help scaffolding Sid to stay alive!



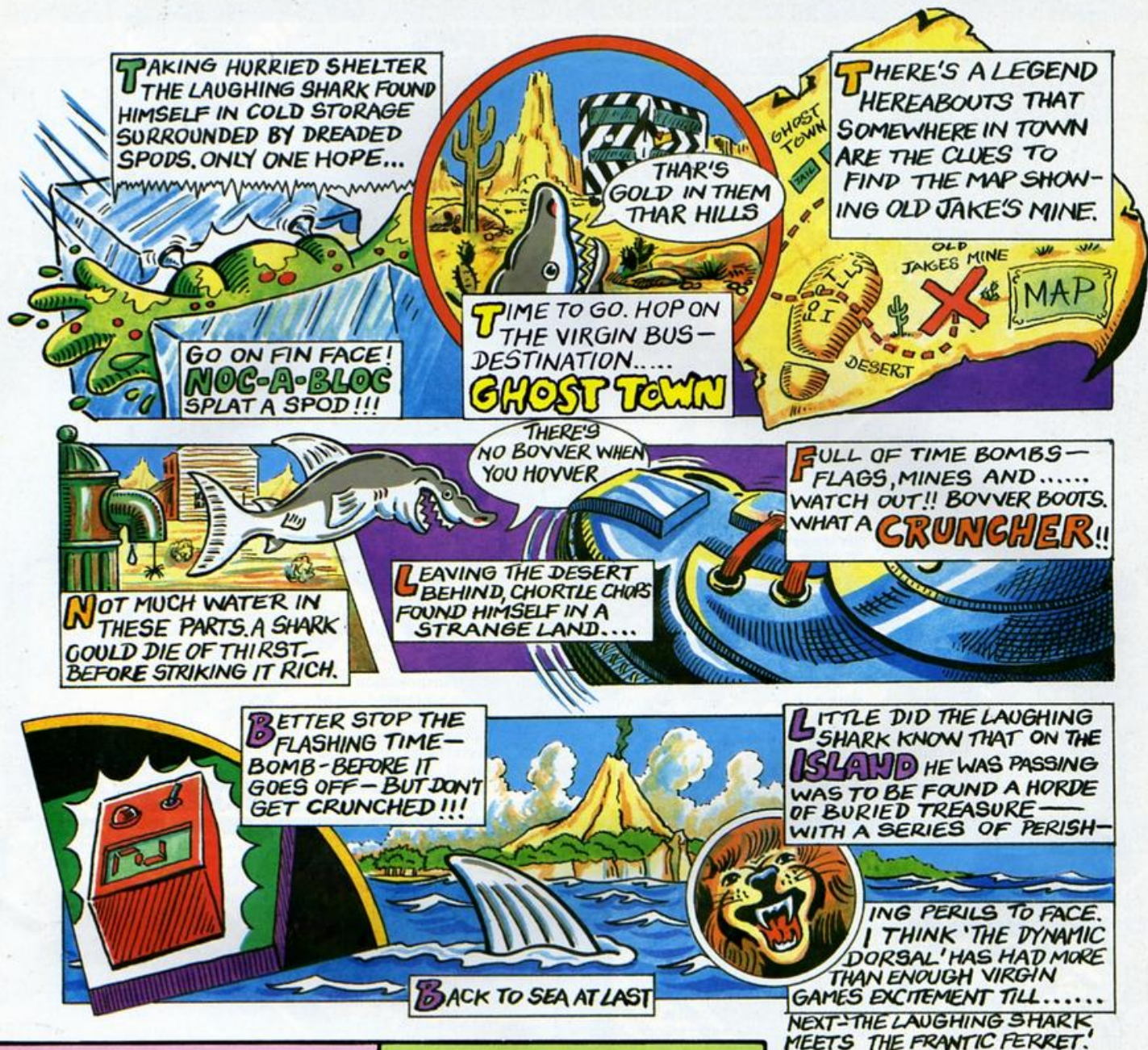
UXB
by Patrick Fisher
Dragon 32
VGB 4004
A nail-biting test of skill and nerves to defuse the unexploded bomb.



Noc-A-Bloc
by Richard Bygrave
BBC B
VGA 2010
Just when you thought it was safe to go back in the deep freeze!
Joystick/Key



Ghost Town
by John Pickford
Spectrum 48K
VGC 1013
An intriguing graphical adventure



MAIL ORDER

All our programs are available at normal retail price including postage and packing direct from our "MY LOCAL DEALER STILL DOESN'T STOCK YOUR PROGRAMS DESPITE THE FACT THAT THEY'RE REALLY GOOD DEPARTMENT" at 61-63 Portobello Road, London W11.

COLOUR CATALOGUE

If you want a copy of our sixteen page colour catalogue FREE listing details of all our games, please write to the "GIMMEE A CATALOGUE QUICK JIMMEE"



Cruncher
by Malcolm Ripley
BBC B
VGA 2009
Trample the
time-bombs, but
avoid the boots
or be 'crunched'.
Joystick/Key



The Island
by Martyn Davies
Spectrum 48K
VGC 1015
Find the
treasure — a full
48K adventure
with action
sequences.

"DEPARTMENT" enclosing an A4 SAE (with 17p stamp).

THE "I WANT TO BE RICH AND FAMOUS DEPARTMENT"

We are always keen to receive any original entertaining programs with good graphics at our now famous "I WANT TO BE RICH AND FAMOUS DEPARTMENT" from any of you programming mega-stars out there. Don't delay — send today!

VIRGIN GAMES GANG

Our **GANG** is growing in numbers all the time, and everybody who buys one of our **NEW GAMES** will **RECEIVE**:

- a year's **FREE MEMBERSHIP** of the **GAMES GANG**;
- **FREE ENTRY** in the next **VIRGIN GAMES GANG DRAW**;
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Chuckie Egg 48K Spectrum £6.90

A & F Software, 830 Hyde Road,
Gorton, Manchester M18 7JD

A game for one to four players. There's no joystick capability, but provision for three sets of movement keys, including defining your own.

Pause and Abort functions are built in.

You have five lives for the whole game and, if you run out of time with lives remaining, get another chance to complete the level.

You, the tubby little yellow farmer in the big hat, must climb the ladders, jump gaps, avoid blue geese and collect eggs by stepping on them! Presumably you like omelettes.

Levels become progressively difficult — more eggs and geese,

a more intricate layout, and the appearance of elevators requiring careful timing and luck to negotiate.

I found level three particularly difficult, as the jump key seems to produce random height variations. So I have only reached level four once, without enough lives to even get started, and there may be further levels.

There is a time and running score display, if you dare to look at it, and a Hall of Fame.

I did find the musical interludes annoying after a while but on the whole it's a most enjoyable fun game and very addictive, if a trifle pricey. Try it.
D.C.

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



Q*Bert 32K BBC £7.95

Superior Software, Dept AB9, 69
Leeds Road, Bramhope, Leeds

This new offering from Superior Software is a faithful reproduction of an intriguing new game which is already very popular in arcades.

The object is to move a small figure round a pyramid of cubes, turning each cube's face a different colour as it is landed on.

Your figure is a small red face with a large nose, which may hop diagonally across the cubes.

But watch out for the bouncing balls which appear at the apex of the pyramid and tumble down.

Also dangerous are the snakes,

Screens with new scenes

Our reviewers tried out some new action games with new themes

which appear occasionally and crawl after you.

Each pyramid when completely transformed gives an extra life and a new pyramid.

To help you in your task are two spinning transportation discs which will take you to the top of the structure, dodging the snakes which then plunge to their doom.

It is, however, very easy to fall off the pyramid, and the controls are fairly difficult to master. A high score table and full instruc-

tions are included.

This game is very well written and has excellent graphics and sound. If you liked the arcade game, you'll love this! A good addition to anyone's software collection
D.A.

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



Steeple Jack Atari 400/800 £14.95

English Software, PO Box 43,
Manchester M60 1BW

This game features a little boy called Steeple Jack who, one day seeing real steeple jacks at work, decides to become one himself.

It is at this point that the player becomes involved, by moving Steeple Jack up a network of randomly generated ladders on the world's tallest chimney while avoiding the falling elephants, a rather tame-looking ghost and gaps in the ladder system, which all cause Jack to fall off as he attempts to climb higher.

Jack's animated face adds a touch of humour to this game as it blinks and squirms — why didn't programmer continue this idea with the ghost and the elephant?

When Jack dies his face splits

into two separate pieces which fly about the screen while the TV speaker emits a high pitched squealing noise.

In an attempt to find an undocumented pause button I hit the 'Option' button, causing the game display to freeze.

The letters on the scoring readout appear to be slightly corrupted — perhaps this is deliberate, although to me it looks like a sign of shoddy programming. The screen display features very smooth vertical scrolling of the main play area.

An original game which, in my opinion, would have benefited from some further development.
D.R.

instructions	90%
playability	50%
graphics	65%
value for money	70%



Dicky's Diamonds Commodore 64 £6.99

Romik, 272 Argyll Avenue,
Slough, Berks

The playing area for this original game is a spider's web, in the middle of which is a diamond.

In order to get the diamond you must move your owl along each strand of the web, turning the strands black as you go.

The last strand which you turn black must be one of the centre axis strands, and to make life even more difficult, the spider must be on this strand as you move on to it.

While you are weakening the web, the spider will walk about the white web only, except when it comes to a dead end, in which case it will re-spin more white web.

If you meet a spider, then it will kill you.

This may sound very easy but believe me, it's not. There are also facilities to make the game even harder. You can have faster speeds, two spiders and limited flights for the owl.

If you manage to collect the diamond, then the web explodes and your owl will fly off with the diamond.

If the last strand of web that you weaken is not on the central axis, then the web explodes and you fall to the ground.

The program can be played with either keyboard or joystick. It is very well-presented, and plays some classical music between games.
K.I.

instructions	85%
playability	100%
graphics	95%
value for money	100%



Bugaboo 48K Spectrum £6.95

Quicksilver, 13 Palmerston Road,
Southampton SO1 1LL

Maybe helping a flea to escape from a monster in a pit is not your idea of fun, but that is what you are asked to do in this game.

By using keys one and zero

you hop the flea from shelf to shelf until you reach the surface, then try to avoid a prowling pterodactyl.

Instructions are minimal, just describing which keys should be used.

However, the program runs fairly smoothly with colourful, if not terribly exciting graphics and it is quite difficult to get right to the top.

During loading, you are confronted with messages, and finally see your approach to the blue planet over the title page, which I thought was rather well done.

As for lasting appeal, I am not so sure. The absence of skill levels and high score facility makes it a nuisance for two players to compete.

The whole idea seems to be

aimed at the younger player, and I don't mean that in any patronizing way — it isn't necessarily a bad thing.
N.B.

instructions	40%
playability	60%
graphics	75%
value for money	70%



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Test your taste . . . you could uncork a surprise

Do you know a good wine when you taste one? Whether you consider yourself an expert or have trouble distinguishing between red, white and rosé, this program could set the scene for an entertaining evening.

It was written for a PET but will work on any Commodore machine with 8K memory and is very easy to adapt to most other machines.

A word of warning: this program was first tried out by myself and four friends on a range of six German Rhine wines.

We were all convinced that we would easily identify the best/expensive wines. The wines were decanted into identical carafes, coded, then re-coded so even the person who decanted them did

Here's an excuse for a tippie. Brian Jones' program will help you and your friends take part in a blind wine-tasting session. The program will run on any Commodore micro with 8K of RAM. Hic . . . !



Hints on conversion

This program will convert easily to other computers. These are the meanings of the characters peculiar to Commodore BASIC:

Reverse heart (100,230,410, 500,600,736,810,2110) clears screen and cursor home

Reverse S (620) cursor home without clearing screen

Reverse Q (several) moves cursor one line down

Reverse blob (630,660,690,1020) moves cursor one line up

Reverse vertical line (450,520, 540,720,760,1020) moves cursor left one per line

Shifted space — appears the same as a space (450,520,540,720, 760, always 3 before the reverse vertical lines and in 725 between quotes) traps null entry which would cause program to stop

Reverse R (410,610) display in reverse video

How it works

10-80 Initialise values, DIMension arrays.

90-390 the host sets up the guest list and range of values for the wines (so over enthused, over imbibed guests do not ruin the averages with values of £10 or £1000)

400-790 accepts and validates somebody's scores: 645, 675 and 705 round the score to one decimal place, 730-735 check if the value is to two decimal places or less (i.e. whole number of pence) 770 has to use the abbreviated form of PRINT, i.e. ?, to be fitted in.

800-860 display scores so far allocated of any of the tasters

1000-1020 subroutine to print error message, clear invalid answer and set print position back at the right place

1100-1180 subroutine to GET a valid number. This can be used in any program where a numeric response is to be accepted and any invalid keys (such as letters) are ignored.

1120 completes the subroutine when return is pressed, 46 is the ASCII code for decimal point — one, and only one, can be accepted. **1130** ignores the second one. **1150** and **1160** test for the delete key. If a decimal point is deleted, reset the flag F which indicates if a decimal point is acceptable.

1160 removes the deleted character from M5 and from the display but stops you deleting the prompt. The digits 0 to 9 are ASCII codes 48 to 57. **1180** adds the acceptable characters to M5 and displays them on the screen

2000-2170 Display the overall averages (only for wines/tasters which have been scored). Only the host knows how to stop the program — by pressing S here

not know which was which.

After an hour of enjoyable sips and slurps, we all agreed — number five was tops. Imagine our surprise, not to say embarrassment, when number five was revealed to be the cheapest — Tesco's hock.

```
10 REM WINE TASTING BY B. JONES
20 DIM N%(10),V(10,10),B(10,10),T(10,10),O(10,10),P(10,10),AB(10),AT(10),AO(10)
25 DIM AP(10),VA(10)
30 REM N% NAMES V(I,J)=1 IF VERDICT GIVEN ON WINE I BY PERSON J
40 REM B,T,O ARRAYS HOLD SCORES FOR BOUQUET, TASTE AND OVERALL RATING
50 REM P HOLDS PRICE GUESSTIMATE
60 REM AB,AT,AO,AP ARE USED IN CALCULATING THE AVERAGES, VA IS NO. OF VERDICTS
70 SE=""
80 BO="BOUQUET":TA="TASTE":OV="OVERALL":REM ALTER THESE VARIABLES IF WISHED
90 REM SET NAMES AND NUMBER OF WINES
100 INPUT "J HOW MANY WINES ARE TO BE TASTED?":NM
110 PRINT "HOW MANY PEOPLE ARE ATTENDING THE INPUT TASTING?":N
115 IF NM<10 THEN 130
120 IF NM<10 THEN 150
130 PRINT "PLEASE CHANGE DIMENSIONS AT LINE 20 AND REMOVE 115 - 140 AND RERUN"
140 STOP
150 FOR I=1 TO NM
160 PRINT "NAME":I:INPUT N%(I):NEXT
170 FOR I=1 TO N:PRINT I:SPC(4):N%(I):NEXT
180 PRINT "ARE THESE CORRECT ?"
190 INPUT "ENTER 'Y' IF YES, OTHERWISE ENTER NUMBER TO BE CHANGED":AF
```


VIC-20/COMMODORE 64 PROGRAM

```

200 IF A#="V" THEN 230
210 A=VAL(A#) IF A<1000 THEN 190
220 PRINT "CORRECT NAME OF NUMBER":A:INPUT "IS":N(A):GOTO 170
230 PRINT "J"
240 INPUT "PLEASE GIVE LOWER LIMIT OF PRICE RANGE":L
250 INPUT "UPPER LIMIT":U
260 PRINT "FROM":L:"TO":U
270 INPUT "IS THIS CORRECT? 'Y' OR 'N'":R#
280 IF A#="V" THEN 240
290 FOR I=1 TO N:FOR J=1 TO V(I,J):NEXT NEXT
300 PRINT "PRESS ANY KEY TO START"
310 GET# : IF A#="" THEN 310
400 REM ACCEPT DATA
410 PRINT "J":TAB(7):"WINE TASTING ANALYSIS"
420 C=0:PRINT "PLEASE ENTER YOUR NUMBER"
430 FOR I=1 TO N:PRINT:SPC(4):N(I):NEXT
440 PRINT "0 WILL GIVE CURRENT AVERAGES"
450 INPUT "YOUR NUMBER IS":N#
460 IF A# THEN 200
470 IF A#1 OR A#N OR A#INT(A) THEN C=C+1:T=1
480 IF C=3 THEN PRINT "STOP MUCKING ABOUT"
490 IF T=1 THEN T=0:GOTO 450
500 PRINT "J" "THANK YOU":N(A)
510 PRINT "DO YOU WISH TO ENTER YOUR VERDICT OR REVIEW YOUR SCORES SO FAR?"
520 INPUT "ENTER 'V' OR 'R'":R#
530 IF R#="R" THEN 500
535 IF A#="V" THEN 520
540 INPUT "WHICH WINE":N#
550 IF W#1 OR W#N OR W#INT(W) THEN 540
560 IF V(A,W)=0 THEN 500
570 PRINT "YOU'VE ALREADY SCORED THAT ONE. DO YOU WISH TO CHANGE IT?"
580 INPUT "ENTER 'Y' OR 'N'":R#
590 IF R#="N" THEN 410
595 IF A#="V" THEN 500
600 PRINT "J" "PLEASE GIVE YOUR SCORES OUT OF TEN"
610 PRINT:SPC(15):"WINE":N#
620 PRINT "FOR":B#:"PRINT" "FOR":TAB:PRINT "OF":N#:"R"
630 PRINT "SCORES":SPC(12):IF B(A,W)=0 THEN PRINT B(A,W):PRINT "T":SPC(12):
640 PRINT "GOSUB 1100:IF M#="" THEN 660
645 B(A,W)=INT(VAL(M#)*10+.5)/10
650 IF B(A,W)=0 OR B(A,W)>10 THEN GOSUB 1000:GOTO 640
660 PRINT "SCORES":SPC(12):IF T(A,W)=0 THEN PRINT T(A,W):PRINT "T":SPC(12):
670 PRINT "GOSUB 1100:IF M#="" THEN 690
675 T(A,W)=INT(VAL(M#)*10+.5)/10
680 IF T(A,W)=0 OR T(A,W)>10 THEN GOSUB 1000:GOTO 670
690 PRINT "SCORES":SPC(12):IF O(A,W)=0 THEN PRINT O(A,W):PRINT "T":SPC(12):
700 PRINT "GOSUB 1100:IF M#="" THEN 720
705 O(A,W)=INT(VAL(M#)*10+.5)/10
710 IF O(A,W)=0 OR O(A,W)>10 THEN GOSUB 1000:GOTO 700
720 INPUT "WHAT PRICE (IN POUNDS, PENCE) WOULD YOU PUT ON IT":P#
725 IF P#="" THEN 736
727 P(A,W)=VAL(P#)
730 IF P(A,W)<L OR P(A,W)>U THEN PRINT "OUTSIDE RANGE":GOTO 720
733 P1=INT(P(A,W)*100):P2=INT(P(A,W)*100+.5):P3=P(A,W)*100
734 IF ABS(P3-P1)<.0000001 OR P3=P2 THEN 736
735 P(A,W)=P2/100:PRINT "LET'S CALL IT":P(A,W):GOSUB 1500
736 PRINT "J" "YOUR SCORES OUT OF TEN ARE":PRINT:SPC(15):"WINE":N#
737 PRINT "FOR":B#:"TAB(18):B(A,W):PRINT "FOR":TAB:TAB(18):T(A,W)
738 PRINT "OF":O#:"TAB(18):O(A,W):PRINT "THE VALUE YOU PUT ON IT WAS":P(A,W)
740 PRINT "O.K.":N(A):"IF YOU ARE HAPPY WITH"
750 PRINT "THESE VALUES ENTER 'Y', OTHERWISE ENTER 'N'"
760 INPUT "":R#
770 IF R#="N" THEN PRINT "O.K. JUST PRESS RETURN FOR CORRECT ONES":GOSUB 1500:GOTO 600

```

```

775 IF A#="V" THEN PRINT "Y OR N PLEASE":GOTO 760
780 V(A,W)=1:PRINT "THANK YOU":N(A)
790 GOSUB 1500:GOTO 410
800 REM PRINT SCORES SO FAR
810 PRINT "J" "BO#":TAB:OV#:"PRICE"
820 FOR I=1 TO N#
830 PRINT:SPC(4):B(I):TAB:SPC(4):T(I):TAB:SPC(4):O(I):TAB:SPC(4):P(I):NEXT
840 PRINT "PRESS ANY KEY TO CONTINUE"
850 GET# : IF A#="" THEN 850
860 GOTO 410
999 STOP
1000 PRINT "SCORE BETWEEN 0 AND 10 PLEASE"
1010 FOR I=1 TO 500:NEXT
1020 PRINT "J":SP:PRINT "T":TAB(12):PRINT "J" "RETURN"
1030 M#="" F=0:REM GET A VALID NUMBER SUBROUTINE
1040 GET# : IF A#="" THEN 1110
1050 IF ASC(A#)=13 THEN PRINT:RETURN
1060 IF ASC(A#)=46 AND F=1 THEN 1110
1070 IF ASC(A#)=46 THEN F=1:GOTO 1100
1080 IF ASC(A#)=20 AND RIGHT$(M#,1)=", " THEN F=0
1090 IF ASC(A#)=20 AND LEN(M#)>0 THEN M#LEFT$(M#,LEN(M#)-1):PRINT "M":GOTO 1110
1100 IF ASC(A#)=48 OR ASC(A#)=57 THEN 1110
1110 M#M#+A#:PRINT:

```

```

1190 GOTO 1110
1500 FOR I=1 TO 1000:NEXT:RETURN
2000 REM CALCULATE AVERAGES
2010 FOR J=1 TO N#
2020 AB=0:AT=0:AO=0:AP=0:VA(J)=0
2030 FOR I=1 TO N#
2040 AB=AB+B(I,J):AT=AT+T(I,J):AO=AO+O(I,J):AP=AP+P(I,J)
2045 IF V(I,J)=1 THEN VA(J)=VA(J)+1
2050 NEXT I
2055 IF VA(J)=0 THEN 2100
2060 AB(J)=INT(AB/VA(J)*10+.5)/10
2070 AT(J)=INT(AT/VA(J)*10+.5)/10
2080 AO(J)=INT(AO/VA(J)*10+.5)/10
2090 AP(J)=INT(AP/VA(J)*10+.5)/100
2100 NEXT J
2110 PRINT "J" "BO#":TAB:OV#:"PRICE"
2120 FOR J=1 TO N#
2130 PRINT:SPC(4):B(J):TAB:SPC(4):T(J):TAB:SPC(4):O(J):TAB:SPC(4):P(J):NEXT
2140 PRINT "PRESS SPACE TO CONTINUE"
2150 GET# : IF A#="" THEN 2150
2160 IF A#=" " THEN STOP
2170 GOTO 410

```

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THE QUILL is a major new utility written in machine code which allows even the novice programmer to produce high-speed machine code adventures of superior quality to many available at the moment without any knowledge of machine code whatsoever.

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THE QUILL is provided with a detailed tutorial manual which covers every aspect of its use in writing adventures. It is impossible to describe all the features of this amazing program in such a small space so we have produced a demonstration cassette which gives further information and an example of its use.

This demo-cassette is available at £2.00, and THE QUILL itself at £14.95.

FOR THE 48K SPECTRUM AT £14.95

Our Software is now available from many computer shops nationwide, or direct from us by post or telephone.

SAE for full details of our range.

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Do not send anything to us now.

Employees of Argus Specialist Publications, Bug-Byte and Alabaster Passmore & Sons are excluded from this offer. This restriction also applies to employees' families and agents of the companies.

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Make sure you get the next two issues of Home Computing Weekly and you stand a chance of receiving one of 750 free T-shirts, distinctively designed for software house Bug-Byte

Mysterious Adventures

WHAT ARE MYSTERIOUS ADVENTURES?

MYSTERIOUS: (Adjective):- "Baffling, full of mystery, strange or unaccountable".

ADVENTURE: (Noun):- "An enterprise full of risk or danger, an experience of unforeseen events endangering the participants life, a gamble on failure or success".

To start play on a MYSTERIOUS ADVENTURE is to take a step out of the world of reality and into the world of dreams. Your computer is your guide on these fantastic journeys in time and space where danger is ever present and solutions to problems seldom come easy.

By typing in simple commands in plain English you can "talk" to your computerised guide and tell it what your next actions are to be.

MYSTERIOUS ADVENTURES bring a frightening reality to the surreal situations in which you will find yourself. You will become involved in these strange worlds of the imagination, you will feel anger when things seem to be moving against you, you will feel elated when you overcome obstacles that are set in your way. Eventually you will feel overjoyed as you reach the climax of your mission and success is yours.

Any MYSTERIOUS ADVENTURE is not a mission to be taken lightly, success will never be instant - just as Rome was not built in a day, so each Adventure can rarely be completed in one session. To this end a "SAVE GAME" feature has been incorporated in each of the Adventures. This means that at any given time during play of an Adventure, you can store on tape your precise whereabouts, your equipment carried, and any other pertinent details about your present status.

NEW DEVELOPMENTS ON MYSTERIOUS ADVENTURES

Over the past few years, Adventure programs on Computers have almost always been presented in the classic "Text only" mode. For most Adventure players this has indeed been the way they prefer to play Adventures. The mental imagery generated by such an approach is limited only by the player's own imagination. One of the main reasons for the "Text only" approach has been the lack of hardware capabilities with regard to Graphics resolution - Pictorial Adventures could at best be only very limited in scope.

This situation is changing now however, and Brian Howarth, author of the MYSTERIOUS ADVENTURES series, has spent many hours incorporating Graphics into the Adventures. By working in close conjunction with Jon Blacow, a professional Artist, Brian has produced a series of extremely vivid and imaginative Adventures. Each MYSTERIOUS ADVENTURE now features, in addition to the Text description, pictorial "views" of your current location and surroundings. As you enter each new location, a high resolution, colour picture is rapidly drawn. The effect of this is to bring much more reality to the Scenario, you can actually see the situation you are faced with and act accordingly. It must be stressed that each picture has been designed so that it will enhance, rather than conflict with your mental imagery. At the single stroke of a key, you can erase the picture and carry on with your Adventure in text only if this is your preference. We are confident that no other Adventure programs can boast such breathtaking realism and imagination combined with the flexibility and ease of play that have made MYSTERIOUS ADVENTURES such a phenomenal worldwide success.

In addition, the Adventures now features full sentence decoding as standard. These mean that you are no longer restricted to inputting single or two-word commands. You can now type in whole sentences in more or less plain English. Your computer will quickly analyse the sentence and perform a whole string of your commands. Just another feature designed to maximise your enjoyment of these world beating games!



The "New style" MYSTERIOUS ADVENTURES are currently available for the 48K SPECTRUM, COMMODORE 64. More releases are planned this year which will include DRAGON 32, ORIC-1, APPLE II & IIfx, ATARI, LYNX, MATTEL AQUARIUS, IBM PC etc. Please write or phone for availability.

HAVE YOU BEEN INVOLVED IN A MYSTERIOUS ADVENTURE RECENTLY?

If so, it is quite probable that you are presently suffering from TIS, more commonly known as Total Involvement Syndrome.

TIS manifests itself in a number of ways, one of the most dramatic symptoms being a victim's complete inability to feel at ease in the world of reality. Other symptoms include insomnia, a desperate need to play a Mysterious Adventure, and an overwhelming sense of acute enjoyment.

Experts believe that TIS is usually contracted as a result of prolonged exposure to Mysterious Adventures, this is commonly caused by owning any of the following Home Computers:-

48K SPECTRUM, BBC MODEL A OR B, TRS80, COLOUR GENIE, ATARI 400/800, COMMODORE 64, DRAGON 32, 16K ZX81, LYNX etc.

When questioned about this epidemic, a representative of DIGITAL FANTASIA, a company who are actively involved in research and development work on Mysterious Adventures said, "There is probably no cure for TIS other than mains failure, faulty RAM chips etc. which can be at best only a Temporary solution". "In the absence of a more permanent cure, I would advise TIS sufferers to submit to the Syndrome and obtain Mysterious Adventures from any sources available to them". "TIS is highly contagious and in view of the current Worldwide Epidemic, I would say enjoy it while you can, resistance is futile".

If you have a BBC Computer, Commodore 64, 48K Spectrum, Atari 400/800, or Dragon 32 you can obtain Mysterious Adventures in any of the following dosages:-

- | | | |
|----------------------------|---------------------------|--------------------------|
| 1) THE GOLDEN BATON | 5) ESCAPE FROM PULSAR 7 | 8) THE WIZARD AKYRZ |
| 2) THE TIME MACHINE | 6) CIRCUS | 9) PERSEUS AND ANDROMEDA |
| 3) ARROW OF DEATH (PART 1) | 7) FEASIBILITY EXPERIMENT | 10) TEN LITTLE INDIANS |
| 4) ARROW OF DEATH (PART 2) | | |

Each Dose costs £9.95 including V.A.T. and Postage. Excellent quantity Discounts are available for Pushers.

D.F. MENTAL HEALTH WARNINGS. MYSTERIOUS ADVENTURES CAN SERIOUSLY DAMAGE YOUR SENSE OF REALITY.

For BBC, 48K Spectrum
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**DIGITAL
FANTASIA**

24 NORBRECK ROAD, NORBRECK, BLACKPOOL, LANCASHIRE,
ENGLAND FY5 1RP. TEL. (0253) 591402

For Atari, Commodore 64,
Dragon 32 order from:-



CHANNEL 8 SOFTWARE

61 FISHERGATE, PRESTON,
LANCASHIRE, ENGLAND. TEL. (0772) 53057

Laser days with your micro

If alien-zapping's your game, read on. You could find out something to your advantage

Skramble Commodore 64 £7.95

Anirot, 8 High Street, Horley, Surrey

Anirot's version of Skramble is remarkably similar to the version found in the arcades.

The game consists of various landscapes and cities scrolling

from the right to the left of the screen. On the ground are various missiles, fuel dumps, rockets, etc — you gain points if you can blow these up.

Depending on which landscape you are flying over, rockets may take off or UFOs and fireballs may attack you.

The graphics are slightly on the slow side and rather jerky, though after playing a few times you do get used to this.



Grid Runner Spectrum £6.95

Quicksilver, Palmerston Park House, 13 Palmerston Road, Southampton, Hants. SO1 1LL

I had immediate problems with Grid Runner. The cassette inlay promised instructions as soon as loading was complete, but none were forthcoming.

I then fiddled about with the keyboard and eventually discovered a superb game.

It's a convoluted plot, but basically you operate a laser base (grid runner) at the bottom of an electrical grid.

Packets of electricity in chains descend the grid. If you hit a chain it splits into smaller packets, making it harder to destroy each fragment.

If the electricity reaches you,

you are zapped. The zapping effect is excellent, accompanied by a nice electrical sizzling sound and little ripples of charge along the grid.

The graphics are of a high standard and the author has even created a new chunky character font to replace the standard Spectrum alphabet. I found this reduced colour crawl on my screen.

A high score feature is provided and, since the grid runner can move up and down as well as side to side, a high degree of hand/eye co-ordination is required.

But please, Quicksilver, can we have some on-screen instructions, as promised? **M.B.**

instructions	0%
playability	90%
graphics	90%
value for money	90%



The Ultra Oric-1 £6.95

PSS, 452 Stoney Stanton Road, Coventry

If I am right, the Ultra will prove to be one of the great Oric software successes of 1983.

Devastatingly simple in concept, it nevertheless has that indefinable ability to compel you to have just one more attempt to

try and fight your way through its 16 separate screens.

The task, starting with just five lives, is to meet the challenge of The Ultra, an evil race of mutant aliens who have challenged you to a battle to the death in outer space.

After an impressive hyperspace warp to the battlezone, you do battle with a host of Pacman-style characters, while continually being bombed.

Screen two has Space Invader-

type aliens, screen three rolling coloured cubes and screen four yellow blobs that constantly change in size.

So far I have still to get past screen six — but the challenge of finding what the remaining screens are hiding keeps me going night after night. Use of graphics is among the best so far for the Oric.

The Ultra provides extra lives at 2,000 and 10,000 points — and you will need them — along with

sound level selection, an Ultra Hi-Score feature with an attractive sideways scrolling title and clear instructions.

A must for Oric owners. **S.I.**

instructions	85%
playability	95%
graphics	100%
value for money	95%



Ultima Zone 48K Oric-1 £8.50

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

Tansoft has added an exciting new fast-action, all-machine-code arcade game to its repertoire. Ultima Zone is a three-stage space battle. If you can survive to the end, you return to the first stage but with faster-moving opponents and more of them.

The program loaded perfectly, and I only had to read the instructions twice before I realised what I was doing wrong.

Stage 1 is the most impressive part and skilful programming of the bouncing "brunes" is evident.

You are equipped with a laser to blast them with, and a recharge-

able defence shield to assist you in tight spots.

Having zapped the colourful walkons and destroyed the highly dangerous brunes, the action slows down while you manipulate a remote control laser in a cruelly short timescale.

Whether or not you collect a bonus, progression to stage 3 is assured. Here your keyboard skill is severely tested in avoiding various orbital defences — a bit like froggy crossing the road.

The Oric's super sound has not been stretched to its full capability, but this may be viewed as a blessing by any non-micro freaks in the neighbourhood. **P.S.W.**

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



The colours and definition used in the graphics are top quality and cannot be criticised.

The sound is quite good, too, although I would have liked a firing noise to be made when I press the fire button — the only fault here.

The program can only be used with a joystick — perhaps this is better than bashing your key-

board to pieces! The fire button releases both missiles and bombs when pressed. **K.I.**

instructions	40%
playability	87%
graphics	90%
value for money	90%



Quintic Warrior Commodore 64 £7.95

Quicksilver, Palmerston Park House, 13 Palmerston Road, Southampton, Hants. SO1 1LL

No, this game isn't an adventure, as the name may suggest; it is in fact an arcade style game.

You are a small space craft (or possibly a warrior?) The object of the game is to shoot at rows of your enemy as they move slowly up the screen.

Along the screen edges are three laser cannons, which continuously fire missiles horizontally and vertically.

If you are caught at the point where the missiles cross over, then you lose a life.

The graphics and screen layout are rather limited — the author obviously didn't use much imagination to create the shapes. The sounds are acceptable but again they are nothing stunning.

The documentation is virtually non-existent. On running the program, I was shown a few pages of instructions which I had forgotten by the time the game was loaded.

The game didn't appeal to me — I soon got bored with it — but perhaps a young child might find it quite a challenge. It isn't really fast enough for anyone over 10. **K.I.**

instructions	10%
playability	40%
graphics	35%
value for money	30%



Let your computer look after your finances

Check the state of your finances at any time with my Budget program which enables you to set up and maintain your own personal database.

The cassette file will hold 52 weeks of transactions with 14 transactions to each week as well as an opening and closing balance.

Each transaction consists of a four-character identifier — such as CASH or MORT — and a plus or minus amount for pounds and pence.

The positive amounts are income and the negative amounts are outgoings.

You have full facilities for inputting and altering transactions and a wide range of display screens for examining balances and movements.

The whole thing is menu driven and simple to operate. Here are a few points to bear in mind:

- On your first run through the program, when asked to PRESS I FOR INITIAL FILE LOAD you should respond with I. This will enable you to input a primary opening balance and the date from which you want your 52 weeks to start.

Main variables

TRS and VL are 52 by 16 item arrays referring to transactions within weeks. The first contains the four-character transaction type and the second contains the corresponding values. These two, along with the 52-element "week-ending date" array, comprise the data file which is read in by the cassette interface at the beginning of each run

Having loaded your initial transactions you may end with a file update which will write your data file to cassette.

On subsequent runs you should respond with any key other than I. This will then load in your cassette data file and allow you to amend, input or simply display information.

- Keep your data file on a separate cassette from the program; simply swop cassettes when the program is loaded.

- Remember to run the RECALCULATION function when you have input or altered transactions.

Why do you run out of money so quickly? Brian Hughes' Budget program for the Dragon will tell you and give you a day-by-day guide to your home accounts



- To move on from a display, simply press any key and the program will continue.

- Type "end" as a transaction type to complete a session of inputting transactions.

- When using the program's paging facility — for example, moving through the file display a week at a time — you may press E to end before you reach the final week.

Hints on conversion

The cassette data file handling is a particular feature of the Dragon and makes it unlikely that this program would convert easily to other computers. Otherwise the program should be fairly easy to use on other micros.

- The two POKES, &HFDD7,0 and &HFDD6,0,

switch the Dragon's 6809 processor in and out of high speed mode. Because of these always re-set the computer if the program ends abnormally.

How it works

- 10 POKE to increase processor speed and CLEAR to reserve enough string space
- 20-40 dimension arrays and set up headings
- 50-70 set up opening and closing balance transaction types
- 110-120 set initial opening on first run
- 130-280 calculate week ending dates at seven-day intervals from first week-ending date as input
- 290-350 clear high speed POKE (cassette interface works only at normal processor speed), open data file, read in arrays VL, TRS and DT, close data file and re-establish high speed processing
- 360-510 display main menu
- 520 start of new transaction routine
- 520-580 search for next available space in the arrays space in the arrays
- 590-670 process a new transaction, letting you know if all 14 transactions for this week have been used
- 680-740 change existing transactions, keyed by week and transaction numbers
- 810-900 set up sub-menu relating to display options
- 910-960 calculate week number when only the date is known
- 970-1030 page through array displaying one week at a time
- 1040-1060 display each line of transactions, acting as general purpose routine for the display functions
- 1070-1100 display one week's transactions
- 1110-1170 recalculate opening and closing balances incorporating all new or amended transactions
- 1180-1230 open data file — don't forget to make sure your data tape is re-wound — outputs three main arrays, then close the file
- 1240 ensures computer is restored to normal processing before ending program
- 1250-1330 search for any balances which are less than or equal to zero and print week number so you may investigate further. I've found this useful on the odd occasion!
- 2000-2600 put 16 weeks' closing balances on the screen from any given week number

```
10 POKE &HFDD7,0: CLEAR 2500
20 DIM VL(52,16), TRS(52,16), DT(52), HD(52), ND(12)
30 HD$(1)="01", HD$(2)="02", HD$(3)="03", HD$(4)="04", HD$(5)="05", HD$(6)="06",
HD$(7)="07", HD$(8)="08", HD$(9)="09", HD$(10)="10", HD$(11)="11", HD$(12)="12",
HD$(13)="13", HD$(14)="14", HD$(15)="15", HD$(16)="16"
40 ND(1)=31: ND(2)=28: ND(3)=31: ND(4)=30: ND(5)=31: ND(6)=30: ND(7)=31: ND(8)=31: ND(9)=30: ND(10)=31: ND(11)=30: ND(12)=31
50 FOR I=1 TO 52: FOR J=1 TO 16
60 IF J=1 THEN TR$(1,J)="DBAL" ELSE IF J=16 THEN TR$(1,J)="CBAL" ELSE TR$(1,J)="
70 NEXT J, I
80 CLS: PRINT@224, "PRESS-I FOR INITIAL FILE LOADING"
90 AS=INKEY$: IF AS="" THEN 90
100 IF AS<>"I" THEN 290
110 CLS: INPUT "ENTER OPENING BALANCE: "; OP
120 VL(1,1)=OP
130 INPUT "ENTER FIRST W/E DATE (DDMMYY): "; D
140 GOSUB 750: DT(1)=FD: MN=INT(FD/100)-8300
150 FOR I=2 TO 52
160 FD=FD+7
170 IF FD-(INT(FD/100)*100)>ND(I) THEN GOSUB 200
180 DT(I)=FD: NEXT I
190 GOTO 360
200 IF MN<12 THEN GOTO 250
210 FD=FD+10000
220 FD=FD-1131
230 MN=MN+1
240 RETURN
250 FD=FD+100
260 FD=FD-ND(MN)
270 MN=MN+1
280 RETURN
290 POKE &HFDD6,0: CLS: PRINT@228, "reading tape—please wait": OPEN "I", #1, "ACCOUNT"
300 FOR I=1 TO 52: FOR J=1 TO 16
310 IF EOF(-1) THEN 1230
320 INPUT #1, VL(I,J), TR$(I,J)
330 NEXT J, I
340 FOR I=1 TO 52: INPUT #1, DT(I): NEXT I
350 CLOSE #1: POKE &HFDD7,0
360 CLS
```


CHOOSING A HOME MICRO

WARNING

Choosing a home micro can be a daunting task to the newcomer, and with an ever increasing number of micros emerging on the market, even up-grading, say, from a ZX81 can be a risky and expensive exercise if the wrong decision is made. It is important to look at the real facts and specifications, and check exactly what you get for your money before choosing your micro-computer system.

THE PITFALLS

"DON'T LET THE ADD ONS ADD UP"

A number of large companies are offering packages that seem to be good value and low cost. These offers usually have a hidden sting inasmuch as the essential accessories such as connection leads, peripherals and software often carry very high cost premiums. e.g. software for low cost hardware usually costs between £29 and £49 for a ROM cartridge!!

CHECK THE QUALITY OF THE PRODUCT.

Raw materials are now an area where corners can be cut, and shoddy workmanship during 'building' can effect the 'up-time' of your unit. Areas to watch out for are unreliable edge connectors, corrosion and poor quality P.C.B.s. Low quality components and bad design will seriously effect the reliability of the end product, and can lead to false economy.

DON'T BUY A GAMES MACHINE

Unless you want just games and nothing else! With a games computer you are limited. Some computers, however, have the advantage of both games facility plus the whole world of computing to explore, as your interest and skills develop. A real computer system will allow you to expand your knowledge of the Hi-Technology world, and help earn its keep with its added uses in the field of education, communication and home business use.

SOFTWARE

Make sure the system you choose has a growing library of support software, to enable you to realize the full potential of your machine.

KEY POINTS TO LOOK FOR

● High Resolution Colour

In general most home computers have a poor graphics resolution (or detail). Check on the vertical and horizontal resolution in graphic mode and multiply the two numbers together. If the result is less than 35,000, then the graphics can hardly be considered high resolution. Without high resolution graphics displays such as those used in games tend to be "Chunky" in appearance.

● High Quality Sound

Some computers claim to provide a sound channel when in reality all that can be found inside the computer is a small buzzer controlled by electronic pulses. At the very least a sound facility should provide more than one channel and a raise channel as well (for gun shot effects in games for example). The best systems also provide envelope control of the sound channels to produce very sophisticated effects; very important for generating music. Also look for the ability to connect to external amplifiers.

● Keyboard

For accurate entry of programs and data into a computer it is important that the keyboard has a good tactile feel in operation. Coupled with acoustic feedback the user is fully aware when the computer has accepted his/her actions. Also of importance in a keyboard is layout. A standard computer keyboard layout will familiarise the user with the vast majority of computers used in the world of business and professional applications; very important if the purpose of purchasing a computer is educational.

● RAM

One of the most important features of a computer is the amount of RAM, or memory, included. In general the more powerful and exciting a computer program is the more RAM it requires. But take care, all computers are advertised quoting the total RAM used in the system. Computers use up a great deal of their own RAM for storing essential data and particularly in supporting the graphics display and the CPU. If it is less than 32K think again, is it enough?

● Computer Language

It is too difficult to program a computer in its own binary language so high level languages are used, the most popular being BASIC. However, there are a number of BASICs, some being very different from the rest. A de facto standard in the computer industry is Microsoft BASIC. Learn this one and you will be able to program in the majority of computer BASICs; such an important point if a home computer is to be used to educate your children to face the technology of the future.

● Expansion

As your interest and knowledge of computing grows, you will need a



Choosing the right system carefully will save you from throwing your money away. Check full specification, plus peripherals and software prices, before you buy. Preferably choose a Real computer system that can expand to meet your needs.

computer system that will grow with you; able to accommodate Printers, Disk-drives, Joysticks, Communications Modem, and Colour Monitor, as well as produce HI-FI sound effects.

● Software

The computer you choose should have a growing selection of utility

software to make the most of its capability.

Remember, computing is here to stay. You can't learn to compute on a toy, or a device which does not behave like a real computer. In short, look out for a computer which offers all the points above, and you will be sure of getting the best value for money.

To find out which company offers you the right choice, with:-

- Good value, high specification, quality micros.
- A quality, 4 colour, plain paper printer/plotter.
- Communications Modem.
- Micro Disk Drives.
- Comprehensive and growing range of software

TURNOVER... ➔

ORIC-1



The Growing System



ORIC COMMUNICATIONS MODEM

The Oric Modem is the latest C MOS single chip modem, running off the Oric's own power supply. Its own ROM will turn Oric into a Prestel* terminal, with all the communications benefits

including Viewdata, Telesoftware, and Electronic Mail.



ORIC 3" MICRO FLOPPY DISK DRIVE

Coming soon the incredible new 3" Oric Micro Drives. Small size. Compact. High precision disks with storage capabilities from 100K Bytes to in excess of 1 Megabyte unformatted. With their own

built-in power supply, these easy to use units will add big system capability to your home micro.

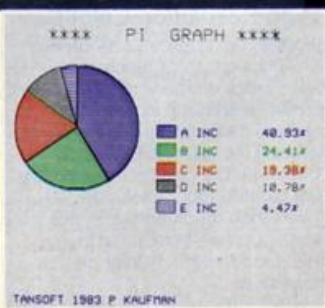
ORIC MCP 40 COLOUR PRINTER/PLOTTER

The Oric Colour Printer is quality engineered to provide 4 colour hard copy on plain paper, with superb graphics and text capability, printing either 40 columns or 80 columns. It prints in red, green, black and blue, onto a 4½" width standard paper roll. With a print speed of 12 characters a second, the MCP 40 comes with its own power supply and all necessary leads to connect straight into your Oric or to any standard Centronics interface.



This superb printer represents excellent value at just

£169.95 including VAT.



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*Trademark - British Telecom.

The right choice for real computing ORIC-1

Before making your final choice, check any other home micro in the same price bracket, against the incredible specification of the ORIC-1.

● Quality of build and materials		● Real computer keyboard layout and moving keys	
● Superb styling / Full colour display		● High Resolution colour graphics 240 x 200 pixels	
● Choice of 16K or 48K RAM		● Real computer language programming – Basic / Forth	
● Latest design technology and circuitry		● Teletext/Viewdata compatible graphics (28 rows x 40 characters)	
● Real sound – 8 octaves plus Hi-Fi output		● Cassette Port & R.G.B. output.	
● Centronics printer interface		● Fully supported and growing software library	
● Colour printer / Disk Drives		● A fully expandable system for home, education & small business use	
● Communications Modem		● Full range of peripherals to support your system...	

ORIC-1 Setting today's standard in Quality and Price.

ORIC-1 48K £139.95 inc. VAT **ORIC-1 16K £99.95 inc. VAT**

All ORIC computers purchased before 31st December 1983 come with a £40 voucher off the M.R.P. of the MCP 40 Colour Printer.

MCP 40 COLOUR PRINTER £169.95.
OFFER PRICE £129.95

TANSOFT ORIC Software

The fast growing success of ORIC-1 means that an incredible number of software titles are becoming available for your Oric. With many well known titles from independent software houses, plus exclusive ORIC SOFTWARE from TANSOFT, you can now drive your Oric towards its full potential.

Below is a small selection from Tansoft's range, all of which offer superb value.

BUSINESS

ORIC BASE, ORIC CALC, AUTHOR.

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FORTH, ORIC MON.

COMPUTER GAMES

ZODIAC, HOUSE OF DEATH, ORIC MUNCH, SUPER BREAKOUT, ULTIMA ZONE, DEFENCE FORCE.

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GENERAL INTEREST

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TANSOFT ORIC SOFTWARE available from your ORIC supplier and all good software dealers. For full list of further information contact:-

NEWS FLASH
LATEST RELEASE
THE HOBBIT



A touch of class?

Two teachers test these teaching programs for the home and classroom too

Geography 48K Spectrum £6.50

Kemsoft, The Woodlands, Kempsey, Worcs

Although it takes a full six minutes to load, this program cleverly provides you with several pages of instructions on the screen while you wait.

At the end of loading you are rewarded for your patience with a superb high resolution colour map of the world.

This educational program tests your knowledge of geography; specifically countries of the world, their capitals, the counties of the UK, and seas of the world.

Given a country, sea or county, you move the cursor over a map to show you know where it is.

If you are wrong, the program

gives you the correct answer.

There is provided a learning mode to give you the 10 answers to the test prior to the test.

In each of the five categories of test there are several blocks of 10 questions, so it will take some time to learn all the answers.

Superb on-screen maps of the world, Europe and Great Britain enhance a well produced cassette.

teachers which give instructions on how the general knowledge questions may be changed.

An interesting departure for a program to be advocating its own cannibalisation, but a necessary feature if it's to have lasting appeal.

Younger children of about seven needed minimal guidance and found it intriguing. I also tried it at school with small groups of nine and 10 year olds, who collectively answered the questions in about 45 minutes.

One complaint. In one room the wrong decision causes the program to wipe itself out — a nuisance in class because valuable time is wasted reloading. Oh well, we can always alter it! **M.P.**

instructions	95%
playability	90%
graphics	75%
value for money	95%



Junior Education Spectrum £7.50

Calpac, 108 Hermitage Woods Crescent, St Johns, Woking, Surrey GU21 1UF

Eight good educationally-sound programs from an unpretentious company whose aim is to provide programs to reinforce the child's school work. Essentially these programs do so admirably.

It would be impossible to describe all eight, so I will just mention their titles — all are aptly named! They are Draw, Homophones, Subtract, Flower, Tables, Comprehension, Romans and Spelling. Flower needs a special mention as this is very nearly a teaching program in its own right.

Most programs follow the same format of building up a picture on

correct answers and animating it at the end if enough correct answers were made.

Presentation is very good, the graphics are excellent, colour and sound are well used, and all programs loaded first time.

Two of the programs can be tailored to suit the teacher/parents' own requirements. Comprehension and Spell both let you create your own sentence/word databases.

The tape is supplied with a six-page booklet which contains clear notes on each program.

A valuable and useful pack for both school and home.

R.E.

instructions	98%
playability	87%
graphics	91%
value for money	100%



Midas Maze Dragon £5.95

Dungeon Software, PO Box 4, Ashbourne, Derbyshire DE6 1AQ

Described as "An Exploration for Younger Players", there is no other guideline as to just what age group this might be suitable for.

The game consists of a low-resolution maze in which you wander around to locate the

treasure.

Only the arrow keys are used to move, but if you get into a tight corner you can place yourself randomly elsewhere.

On the face of it, that doesn't sound too promising, but there is a lot more built in.

Young children of about five practising their motor skills need a lot of visual stimulus.

This is provided by the author, Mike Meineck, through a charming mixture of high- and low-res

excursions, giving the youngster pictures and actions which help with co-ordination and memory. I particularly liked the helpful Fairy Nuff.

I've tried it out with five to nine year olds, and they enjoyed the game. It was easy to cope with and contained enough to keep them interested. Loading proved simple and the instructions were straightforward.

Fun for the youngsters with a minimal amount of supervision

— I would even be happy to see this one in a play school.

M.P.

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



Giant's Castle Dragon £5.95

Dungeon Software, PO Box 4, Ashbourne, Derbyshire DE6 1AQ

This is a fun adventure program for younger players who need to be able to read reasonably well, cope with general knowledge questions, anagrams and a little frustration. In fact this is the basic stuff of all adventures.

The game is full of nice surprises, both from its graphics and its text comments. It would of course be unfair to detail these, but it's fair to say that colour, sound and simple animation provide an entertaining mix that will give the children lots of fun.

High- and low-res are used effectively in this BASIC program which is certainly an advantage here.

The program notes contain an interesting section for parents and

It demonstrates how home computers should really be used, and puts all arcade games to shame. **D.N.**

instructions	70%
ease of use	90%
graphics	100%
value for money	90%



Maths-Trek Dragon £5.95

Dungeon Software, PO Box 4, Ashbourne, Derbyshire DE6 1AQ

The current educational term for judging computer software is "degree of interaction", meaning basically that the program has to involve the child in a reflective exercise.

This one comes from one of the centres of Dragon software retailing. Nice to see they're willing to put their own heads on the block!

Maths-Trek is well packaged and presents its contents well, initially with a short inlay and then in more detail on screen.

The player is taken through a simplified version of Star-Trek in high-res screens, with the object of getting to a star base for refuelling. Along the way, difficulties are encountered: asteroids, Klingons, black holes

and fuel shortages.

These are dealt with by solving the maths problems posed by the computer. Normal progress is made by answering questions preset according to difficulty and type.

The nine year olds I tried this on loved it. They enjoyed the novelty of a "game" at their own level, with interesting graphics to motivate them.

At each starbase the player has the opportunity of increasing the level of difficulty. One difficulty at the start seemed to be the fuel running out too soon.

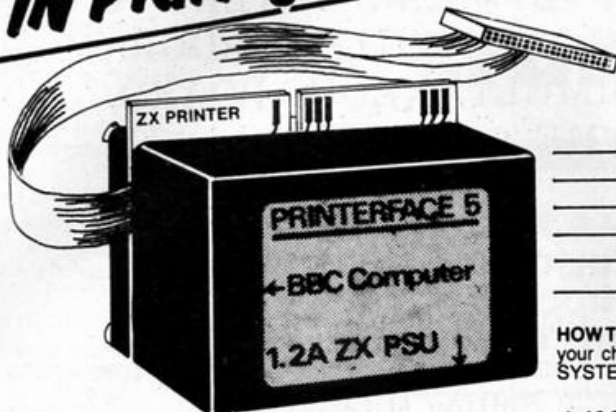
Good at home or in the classroom, but unfortunately a solitary trek. **M.P.**

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



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VIC 20 unexp SWARM

by Andrew Haisley

As a pilot testing the latest star ship, breakdown in your guidance systems causes you to materialise in the breeding grounds of the Psigophorus, an unbelievably nasty insect life form which kills anything entering its space. Survival depends on destruction of the eggs before they hatch to form a SWARM. They can use your laser energy to mutate at an alarming rate and the only escape from the devastating attack of a Swarm is by destroying the Psigophorus in only one brief stage of its life cycle.

CAN YOU SURVIVE this high scoring game?

VIC 20 unexp ALIEN VORTEX

by Andrew Haisley

It is the 23rd Century - unemployment 99.9% - due to 300% inflation, money replaced by credit discs - to relieve boredom the I.R.S.P. sets up huge gambling arcades - debts run high - inhabitants who cannot pay take part in "THE GAME". Transported to Launch Base 3 they are sealed into a Zeltan Earth Defender and attacked by waves of mutant birds, specially bred on the Space Station Alien. Moneylenders bet on the length of the ill-fated player's survival, so recovering their losses. SET your body modulator to HYPERDRIVE. PRIME your firing fingers and HANG LOOSE.

High scoring game

SINCLAIR ZX 81 16K SPECTRUM 48K ADMIRAL GRAF SPEE

by Simon Mansfield

An original game of strategy based on historically accurate records of the Graf Spee's formidable presence in the North and South Atlantic. As her Captain use full graphic instrumentation to calculate speed, compass bearings, fuel, distance, ammunition status, locate and manoeuvre into visual range and destroy enemy ships which can also evade, seek and destroy you! Attacked targets can only be destroyed by the same number of salvos or torpedoes as were necessary for the tonnage during the original action.

7 levels of difficulty -

VIC 20 16K - DRAGON 32K MICROPOLY

by Richard Fry & Simon Lacey

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DRAGON 32K SEARCHWORD

by Ian A. Macey

A WORD PUZZLER'S PARADISE! CREATE your own word puzzles by the thousand. An irresistible game for word puzzle enthusiasts, this program offers endless permutations. The computer will accept any list of words containing from 3 to 12 letters and conceal them within a letter grid until the player identifies them by giving the correct start position co-ordinates and direction. Program also includes two demonstration files and word save facility. Hours of enjoyment for one or more players.

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Sinclair User June 1983
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Don't let those snipers cross!

It's you against a whole platoon in David Nowotnik's Oric game – are you a good enough shot to defend the bridge?

```

570 RETURN
600 REM Move man
610 Y=INT(5* RND(1))-3: IF Y<-1 THEN Y=-1
620 PLOT38,B," ":H=0
630 B=B+Y: IF B=27 THEN B=26
640 IF B=0 THEN H=2
650 PLOT38,B,"<"
660 IF H=2 THEN B=0
670 IF A<>B THEN RETURN
680 IF Z(B+1)=1 OR RND(1)<.8 THEN RETURN
690 H=1: ZAP: X=B: GOSUB 500
700 FOR J=1 TO 4: PLOT1,A,"*"
710 WAIT10:PLOT1,A,">"
720 WAIT10:NEXT J:PLOT1,A," "
730 SC=SC-10: IF SC<0 THEN SC=0
740 V=V+1: A=4: RETURN
800 REM Man home
810 PING
820 FOR J=1 TO 6: PLOT38,B,"<"
830 W~IT10:PLOT38,B,">"
840 WAIT10:NEXT J:PLOT38,B," "
850 SC=SC-5: IF SC<0 THEN SC=0
860 B=26: M=M+1: RETURN
1000 REM Main Routine
1010 K=48004: A$="They shall not pass!"
1020 B$=STR$(SC): B$=RIGHT$(B$,LEN(B$)-1)
1030 A$=A$+B$+" ": GOSUB 250
1040 PLOT1,A,">": PLOT38,B,"<"
1050 GOSUB 300: IF H=1 THEN 1100
1060 GOSUB 600: IF H>0 THEN 1100
1070 GOTO 1050
1100 REM End check
1110 IF M<20 AND V<3 THEN 1010
1120 A$=""
1130 CLS: PLOT16,B,"GAME OVER"
1140 PRINT CHR$(20); "Score "; SC

```

- A** row position of your man
- B** row position of the enemy soldier
- H** indicator; equals 1 when hit achieved, otherwise 0
- K** used in printing to the top row
- M** the number of enemy soldiers used
- V** the number of times you have been wounded
- P** holds the value of a keypress
- Y** a random number, either 1,0, or -1, to move the enemy soldier
- SC** the score
- Z(27)** used to check if a bridge support is in the way when firing
- AS** used to print the display, and the top line.

70-160 initialise the variables and print the title
170-200 print the playing area
250-280 subroutine to print the title and score to the top (protected) row of the screen
300-340 check for cursor key or space bar press; move man up or down, or shoot, as appropriate
350-570 'shoot' subroutines. Check for a hit in line 520
600-670 move opponent. Line 640 checks if he is 'home', line 670 checks if he has you in his sights
690-710 the enemy soldier fires at you
800-860 opponent home — give PING, and adjust the score
1000-1070 main routine
1100-1140 check for end of the game

LETTERS

How can I crash-proof my Spectrum?

I have been very impressed in recent weeks by the increasing number of high quality contributions published in your magazine. I consider that producing simple "home" programs can be very rewarding for computer owners.

I was thrilled to read Ray Elder's article in HCW 31 on Crashproofing your ZX81. I also own a Spectrum, and would greatly value a repeat of this article applied to that machine.

Alfred Borg, Aughton, Lancs.

Ray Elder replied: "It's nice to know you enjoyed the article. The same principles I used to crashproof the ZX81 can be used on the Spectrum with a few modifications, and I'll be writing a short piece on these modifications soon."

Make up your minds

I was leafing through my back copies of HCW the other day, on the lookout for any VIC-20 programs that had missed my roving eye, when I noticed something that struck me as funny.

In issue 28 there was a Spectrum program. So what, I hear you say. Well, it was the one where you had to protect a city from a destructive Buck Rogers. In the following issue you had another Spectrum program. This time, you had to bomb a city. Talk about split personalities...

Andrew Hitchen, Walton, West Yorks.

Now any micro's welcome

With the large increase in variety of home computers over the last year, the Aylesbury ZX Computer Club have decided to drop the 'ZX' from its name, to cater for all makes of microcomputer.

As the main microcomputer club in the area, the Aylesbury group have found that despite the fact it was primarily a Sinclair user group, users of micros

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



other than the ZX series have been drawn to the club.

With the initials 'ZX' now dropped from its name, the club has formalised its interest in all makes of home computer.

The club will continue to hold weekly meetings at Quarrendon School (each Friday at 7.30pm) and monthly meetings at the Mandeville Centre.

Further information on the facilities offered by the club and its activities can be obtained from myself, on Aylesbury 630867.

Please could you bring these changes to the attention of your readers?

David Nowotnik, Aylesbury, Bucks.

Fair deal for Pontoon?

When I read your report on Grid Run and Pontoon in HCW 32, I could not believe that you were writing about my games.

For Grid Run you stated that "little skill is involved" — but nothing could be further from the truth.

It is a skilful game in which you have to plan ahead carefully choosing the correct path to avoid being destroyed. The game gets increasingly faster at the higher levels, a fact that I doubt you appreciate.

In Pontoon you state that it "lacks challenge". This game strictly adheres to the same laws of chance as the card game. Am I to presume that the card game Pontoon also "lacks challenge"?

I have been told by many of our customers that the graphics are among the best they have seen for the Spectrum, and how much they enjoyed the game, which naturally appeals to a different market from Space Invader type games.

May I suggest that when reviewing games in the future you test them thoroughly as comments based on a superficial ap-

praisal are most unfair to writers who have spent months working on these games before writing a review which will be considered by many of your readers as gospel.

Bruce Rutherford, Arcade Software, Orpington, Kent
Our reviewer replied: "I think it's a little unrealistic to expect a reviewer to play a game for months before saying anything about it, but I did spend rather more than five minutes on Grid Run and Pontoon, and I feel my comments were fair. In Grid Run, I felt that it was too easy to get into a situation where it was impossible to avoid the car that's chasing you, and where you couldn't get out however skilful you were."

"As for Pontoon, I did say in my review that the graphics were good, but I don't think that card games transfer well to computers — most of the fun is in playing with real cards against real opponents as far as I'm concerned. A case of nice implementation — shame about the game."

Cry from the heart

These verses are a cry from the heart from the mum of a computer-made family. Any sympathisers?

The years have caught me, left me behind,
The new technology boggles my mind
No more for me the turn of a knob,
But microwaves, chips to finish the job.

Computers and robots are found every place,
Programs and bits, bytes and dump,
Digitiser, atom, synchronous, interface,

And me! — cumulative error or frump?

Nan Bickford, Stafford

Family Fortunes

In recent weeks, I have noticed that people have written in claiming their high scores on various computer games, so I thought I would tell you mine.

Our family has a TI-99/4A. My high score on Parsec is 914,000, which took me 1¼ hours. My dinner went cold while I achieved it.

Also, my sister has munched her way up to 220,570 on Munchman. Can any TI owner beat these scores?

Antony Palourti, Harrogate, North Yorks.

Girls and micros

I am researching the differences, if any, between males and females in computer skills and interests, particularly with regard to computer games, and I would welcome assistance from your readers.

The information can be given anonymously if desired but I need to know the sex of the correspondents, approximately how many hours each week are spent using the computer, what percentage of the time is spent playing games and the names of their three favourite games with the relevant highest scores if appropriate.

I would also be interested to know of any other work your readers know of in similar areas, and would be very pleased to hear their views on why so few girls and women seem to be interested in micros.

Anne Shadbolt, Sheffield City Polytechnic, Totley Hall Lane, Sheffield S17 4AB

Chatter talk

We were very pleased to see quite favourable reviews of our programs, Chattermaths and Chattercount (HCW 34).

We must assume that, for some reason, the reviewer had not been given a copy of the instructions.

These are not within the program because of insufficient memory and the age of the children playing. They should be on the cassette insert.

Could we therefore make the following points?

Chattermaths includes subtraction as well as addition, and has two levels of difficulty: answers up to 10 and answers up to 10 + 10.

There is a simple form of scoring which can be reset to zero for use by another child.

In Chattercount, the 'mediocre' number recognition routine is intentionally simple, and acts only as an introduction to the numbers on the keyboard.

A child who gets five correct answers automatically moves onto a slightly harder version of the same game. Spoken help is given when necessary in each game.

There is a choice between numbers up to five and numbers up to nine.

These programs are also among those available for use on the Spectrum with the Currah Microspeech.

B. M. & S. M. Hodgson, Gilling East, Yorks.

Can we put in a plea here to software companies to ensure that the review tapes you send us are the versions that will be on sale, complete with final packaging and instructions? Our reviewers can't comment on what they haven't been sent, so it's in your interests to make sure they get the finished product.

Computing in Clifton?

I am a TRS-80 III and Spectrum user, and I do not know much about programming. I am looking for some people who live in Bristol (preferably Clifton) who know how to program such computers as ZX81, Spectrum, VIC-20, Dragon, TRS-80 III, Oric and BBC, to help me start a club.

This club will mainly deal in games and maybe a few business programs, and I hope that as we go along we will be able to open a software library. If you are interested please, please contact me at the address below. Christopher Tihanyi, Basement Flat, 2 Victoria Sq, Clifton, Bristol 8

Don't just blame Rabbit

To begin with, I must say I totally agree with T.M.'s review (HCW 33) of the VIC-20 game, Paratroopers.

I know I am right in saying that it is nobody's idea of fun to slaughter defenceless figures and watch and enjoy their descent to the ground, even if they are only made-up characters.

But I do think it is a little unfair for us to make Rabbit (the company producing Paratroopers) the only scapegoat for this "blow 'em all up and get the points" type of game.

After all, when you come to think of it, aren't nearly all the games out nowadays connected in some way to "killing"? Whether it's zapping, munching, flattening or just disintegrating, it's still the same, isn't it?

Perhaps this is a worse example than most, but it's an unavoidable fact that you are committing the accused "sin" when you play games like Scramble, Galaxion and so on.

On the same page there was another game very similar to this one — only you bomb ships instead — entitled Harrier Attack,

which received four stars.

I am not saying I approve or disapprove of these games. I am merely trying to emphasise that Paratroopers is not the only one of its kind.

Secondly, I think the children of today have enough to worry about — what with the wars we hear about every day — without computer tapes of this kind.

Finally, I would like to say that in my opinion HCW is, minus the odd thing like this, the best computer magazine on the ever-expanding home computing book shelf. Keep it up!

Luke Jacobson, aged 12, London SW15

★ Software winner

Life, death and micro games

Now that I have had time to get over T.M.'s review of "Paratroopers" in the October 18th issue I am able to see its funny side.

In fact, I can even compliment the reviewer on the first four lines of his review. By saying "This is one of the best examples of user-defined graphics that I have ever seen, along with excellent sound effects" he reflects accurately some of the best qualities of the game.

It is after this that he seems to lose sight of them by indulging himself in his own curiously narrow ideas of morality.

Confrontation, life and death are the "meat and drink" of computer games. No one takes them seriously, or the idea of humans being involved.

On the same page as the "Paratroopers" review are four others involving humans. Three feature confrontations which are exclusively human, and one is "Harrier Attack" which to some people might bring back memories of a real human conflict.

So, why is T.M. the only reviewer to feel that this kind of game is immoral? The game players don't seem to share his views either, because "Paratroopers" is already a best seller.

A reviewer has a responsibility, both to the game manufacturers and whoever reads his review, which should take precedence over his own personal views. He is there to evaluate each game on its technical merits, and not to treat readers to his feelings about Martians, monsters, helicopters or anything else.

In this case responsibility seems to have been shot down in favour of prejudice and self indulgence. How could any game, however dire, be worth only 0% for playability and value for money? Is this a trend? Can we expect to see "Phoenix" reviewed by the RSPCA in your next issue? And "Planetoids" reviewed by the UFO Society? Or, is it just a one-off?

Heather Lamont, Rabbit Software, Harrow, Middlesex

Not so private lines - 1

On the Micro Tips page of HCW 31, Andrew Turek gave a tip called Private Lines which he says makes it impossible to break into a program without a code word.

I entered his sequence into one of my Data programs, following his instructions carefully.

I did indeed find that entering anything other than the code word would not gain access, but being a fairly pessimistic sort, I looked for other ways to break in and eventually found one.

If you type a false code word, then press ENTER, and very quickly SHIFT and BREAK together you get LBREAK. From there, ENTER or LIST will let you into the program.

Ron Rickwood, Gillingham, Kent

Not so private lines - 2

Nice try, Andrew Turek (Private Lines, HCW31), but not quite good enough. By using SHIFT 6 you can get a Report H STOP in INPUT. However, by disabling the error report by adding a line POKE 23613, 215 you can make the program very inaccessible without the keyword.

Here is how I would use Andrew's program, not forgetting to reset the ERR SP back to normal in the first line of your program with POKE 23616, 84

```
1 POKE 23613,84
10 PRINT AT 10,5;"YOUR SECRET PROGRAM"
30 PAUSE 0
9995 POKE 23613,255
9996 FOR c=1 TO 3:CLS:PRINT "access keyword please?":INPUT LINE x$:IF x$=s$ THEN GO
```

TO 999 8
9997 NEXT c:NEW
9998 CLS:GO TO 1
9999 SAVE "secret" LINE 9995

Remember to enter your keyword as a direct command, using LET s\$="word or symbol" then SAVE by GOTO 9999.

Alan Gee, Grantham, Lincs.

Take ten lines...

A few lines seem to have been missed out of my Astro Gallery game for the TI-99/4A, published in HCW 35. The missing lines are:

```
1050 C=20
1060 C2=10
1070 CALL HCHAR(R,C,144)
1080 CALL HCHAR(R2,C2,144)
1090 V=R
1100 V2=R2
1110 W=C
1120 W2=C2
1130 X=INT(RND*4)+1
1140 N=N+1
```

Tony Garner

...And one more

Someone must have spirited away line 40110 from my Halloween adventure in HCW 31. It should read:

```
40110 DATA KITCHEN,0,2,0,0
```

Alan Blackham

Tip typo

Thank you for publishing my tip for finding memory locations on the VIC-20 in HCW. However, I have found a small typing error crept in, for which I must apologise. The amended line is below.

```
LN FOR CH=0 TO CN:READ CS:C=(ASC(CS)-64)*8+7168
LN FOR CS=0 TO 7:READ CQ:POKE C+CS,CQ:NEXT CS,CH
where LN=line number(s) and CN the number of characters to define.
```

Also, in a long program, it is better to split the original line into two as shown.

Again the matching DATA line would be as:
IN DATA "X",123,234,0,34,62,1,3,0
David Shepherdson, Ilkley, West Yorks

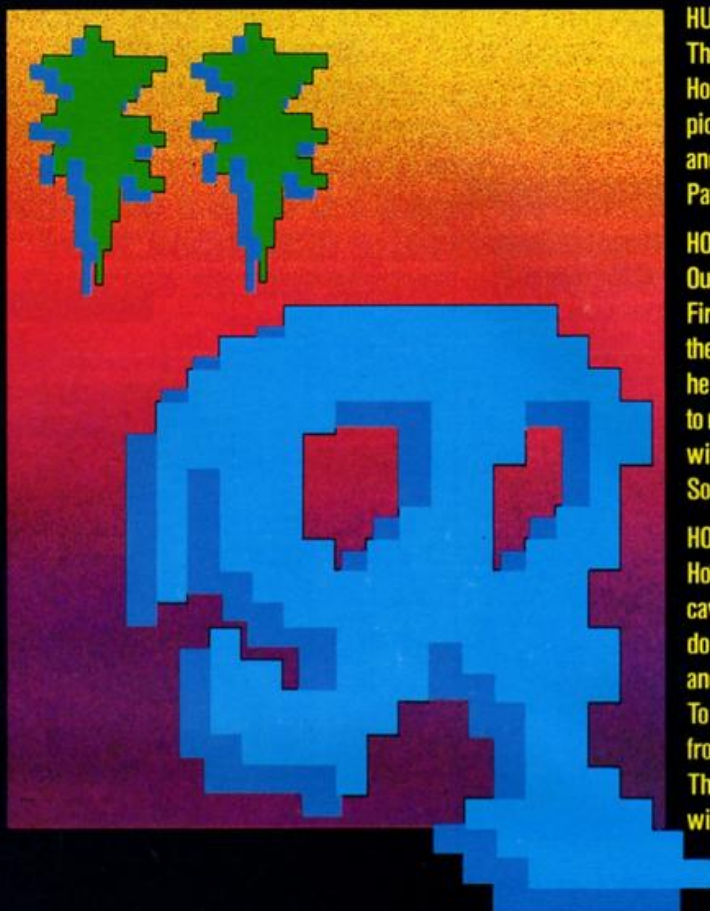
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Just when you thought microcomputer games had nothing more to offer, here comes Horace! It has been said that Horace games are in a class of their own: in fact, Horace is almost a legend.

Horace is a cute, lovable, animated character who races through adventures, creating havoc wherever he goes, and the good news is that Horace games are now available for most microcomputers.

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HORACE GOES SKIING

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HORACE AND THE SPIDERS

Horace's task is to rid the mountain caves of spiders. But before he can do that he must climb the mountain and reach the dreaded spider bridge. To cross it, Horace must swing from spider thread to spider thread! This game is challenging and fun with some amazing animation.



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Special Mission TI-99/4A (Extended BASIC) £5.95

Temptation Software, 27 Cinque Ports Street, Rye, Sussex

Special Mission is a text-only adventure game set in an industrial complex. Your task is both to discover and accomplish the objective of your mission by issuing instructions.

The computer can understand sentences of up to five lines in length, although this may sometimes result in a memory full error, a small technical point adequately described in the instructions.

Exploring the complex is achieved by going east, west, etc, but you may ask for help when it is required.

Various objects are, of course, to be found with which you can gain access to different parts of the complex, including a crazy cantera which not only has the infuriating habit of playing invader bashers, but sticks its tongue out at you!

The set-up of the adventure is the same each time that it is run, but your progress depends on having obtained various items and disposed of others in appropriate places.

Since there is no option to SAVE when you have reached a certain point, therefore, the ultimate solution to the adventure is difficult to achieve except, perhaps, for the more experienced player.

J.W.

instructions	90%
playability	65%
graphics	n/a
value for money	70%



Master Chess 48K Spectrum £6.95

Mikrogen, 24 Agar Crescent, Bracknell, Berks

Programs of this complexity never cease to amaze me. A fully implemented chess program at

this price has to be excellent value.

Good graphics, 10 levels of play, options to set up particular games, recommended moves from the computer when you get stuck, and a clock to prove to you just how slow you are: the list of features is seemingly endless.

The program is suitably idiot proof, which is just as well when I'm playing. Even on the simplest

It's the thought that counts...

...With these games of logic and strategy. Our reviewers give their verdicts

level, it's fascinating to use the computer's recommended moves and analyse why it recommends them.

I'm not sure how a Grand Master would react to this program, but for ordinary mortals who want to practice, improve, or simply learn together with the Spectrum, this program makes an ideal partner.

You can't make illegal moves, you're never hurried by an impatient human, and even if you

get stuck, you can get some help quickly.

A superb example of a real application for a home computer. Also available under the Sinclair label through Psion.

D.M.

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



Castle Adventure Dragon £6.95

Virgin Games, 61-63 Portobello Road, London W11 3DD

An adventure game written in BASIC, set in and around an old castle.

As the hero, your quest is to recover the staff of Gamroth and to return to the safety of the drawbridge, which is where the game begins.

There are more than 120 locations and over 100 objects to examine, so the inlay claims. I'll have to take its word for that.

Several clues are contained on the insert, which also tells you that you can go N,S,E,W, up and down. After that, you are on your own to discover what actions are permitted.

As with most adventures the game is text-only.

There are some unusual objects to be found as you wander through the castle, and a variety of nasty ends prevent you from fulfilling your objective.

Some of the comments made me smile, but others got on my nerves. I played the adventure many times, and was disappointed to find that the various objects were always in the same places.

Having played many other adventure games, I found this one lacking in comparison, chiefly because there is no random element.

I would not therefore recommend it to a dedicated adventure game player.

J.E.M.

instructions	70%
playability	60%
graphics	n/a
value for money	50%



Global Rescue TI-99/4A (Extended BASIC) £7

Stainless Software, 10 Alstone Road, Stockport, Cheshire SK4 5AH

The earth is threatened by an evil genius, the Shadow. Using Eagles 1 to 4, which are an aircraft, flying carrier, spacecraft and submarine, in strategic deployment, you must attempt a Global Rescue.

The screen displays a world map, the status and current position of each Eagle, and the game starts with the first of a series of disasters. A rescue must be made by despatching the appropriate Eagle in time.

The length and complexity of play are determined by fuel supplies of the Eagles, catas-

trophe limit and clue target.

The catastrophe limit, 1 to 10, is the number of current disasters which, if unaverted, will bring the game to an end.

The clue target is the number of rescues, 1 to 99, which must be effected before the lair of the Shadow is revealed. Once this is destroyed the game is won.

At the start, you have the option of selecting one of four skill levels to automatically determine the parameters of play. Alternatively, you may select them yourself, which gives plenty of difficulty levels to explore.

A well designed and fully documented game, which makes a refreshing change from zapping aliens.

J.W.

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



Lojix 48K Spectrum £5.95

Virgin Games, 61/63 Portobello Road, London W11

This is a puzzle program which will appeal to all those who can do the Rubik cube without thinking.

Even though it is in two dimensions, instead of Rubik's

three, it is a frustrating and difficult task.

On loading, the screen displayed a set of control instructions in the top left quarter, a 10 by 10 grid below them and a set of regular shapes on the right half of the screen.

Each of these shapes can be rotated and the object of the game is to place all of them on the grid, like a jigsaw.

Response is fast, the display is clear and easy to understand, all

the options you could want are supplied and are easy to use. Instructions are also supplied on the colourful cassette.

Unfortunately I am old enough to remember this game's predecessor, called Polynomials and played with low-tech card or hardboard shapes. However I prefer Lojix, as the pieces do not get jogged out of position or lost.

For every game sold, 50p is put in the bank. The first sender of a solution will win the lot. A game

for the thinker — and I'll bet it will be a while before the cash is won.

R.E.

instructions	92%
playability	75%
graphics	50%
value for money	80%



I wrote this program to teach myself how to use PLOT and DRAW — it draws squares, triangles and circles of any size, anywhere on the screen.

When you run the program, instructions and a menu will be shown. After choosing and drawing your shape, you can choose another one.

The screen doesn't clear between shapes, but it will clear if you add 101 CLS to the listing. You may also find it useful to use a pixel pad to help you design the shapes.

By adding colour, a tune and questions about the shapes you could expand the basic idea into a useful educational program for children.

While reading chapter 17 of the Sinclair manual, I noticed that a small but necessary instruction had been left out, which could be confusing for newcomers to computing.

The manual doesn't tell you that wherever the draw command finishes is now the 0,0 position of the pixel graph. So PLOT 50,50: DRAW 50,0: DRAW 0,50: DRAW -50,0: DRAW 0,-50 will draw a square.

Get your Spectrum into shape

Learning to use the PLOT and DRAW commands? Joan Rollason wrote this short program to help you



How it works

20-60 sets up variables
70-80 instructions and menu
90-230 menu direction
350-490 input and draw instructions for square
500-700 input and draw instructions for triangle
750-950 input and draw instructions for circle

Main variables

u 0-175
a 0-255
x 0-255

These variables are the pixel positions, length of sides and radius measurements.

```
10 REM J.Rollason June 1983
20 REM squares,triangles,circle
30 FOR u=0 TO 175
40 FOR a=0 TO 255
50 FOR x=0 TO 255
60 LET y=0
70 PRINT AT 3,6;"This program
enables you to draw squares,triangles
and circles any size and a
ny position on the screen.The pixel
position asked for is the bottom
left hand corner or as in the
circle the centre.There are two
pixel co-ordinates type one then
enter then type the other.If you
get the answer integer out of
range and you do not wish your
shapes to disappear,Enter GO TO
100."
80 PRINT AT 16,6;"Press s for
Squares":PRINT AT 18,12;"t for
Triangles":PRINT AT 20,12;"c for
circle"
90 PAUSE 1000:CLS
100 LET s=1:LET t=2:LET c=3
200 INPUT "Which would you like
";w
270 IF w=1 THEN GO TO 350
300 IF w=2 THEN GO TO 500
320 IF w=3 THEN GO TO 750
350 INPUT "Enter pixel position
";a;" ";u
370 INPUT "Enter length of side
";x
400 REM square
450 PLOT a,u: DRAW x,y: DRAW y,
x: DRAW -x,y: DRAW y,-x
490 PAUSE 100: GO TO 100
500 INPUT "Enter pixel position
for triangle";a;" ";u
550 INPUT "Enter length of side
";x
600 REM triangle
650 PLOT a,u: DRAW x,y: DRAW -x
/2,x: DRAW -x/2,-x
700 PAUSE 100: GO TO 100
750 INPUT "Enter position of ce
ntre of circle";a;" ";u
800 INPUT "Enter radius";x
850 REM circle
900 CIRCLE a,u,x
950>PAUSE 100: GO TO 100
```

Micro Tip

In command Spectrum

Where Series 3 Spectrums cause problems with existing software, I have an easy solution — provided that the program is written in BASIC.

For example, the following line
10 PRINT IN 57342:GOTO 10
will give the result 255 with Series 1 and 2 machines and 191 with Series 3 machines.

On each occasion that an IN command is needed, a preceding OUT command will reset the bits set by the ULA. For example:
10 OUT 57342,255:PRINT IN 57342:GOTO 10
will give 255 with both issue 1, 2 and 3 machines.

So the solution is quite simple — precede any IN n command with an OUT n,255 command, and any BASIC program will work on any Spectrum.
W. Smith

Micro Tip

Dragon

Verify your Dragon

One of the main problems on the Dragon is the lack of VERIFY command. It is most infuriating to have typed in and CSAVED a long program, only to find that it has been lost on CLOAD with an I/O error because it has not SAVED.

A way to overcome this problem is to CSAVE "PROG", rewind the tape then type SKIPF "PROG" and enter. The micro will then search through the program to the end of "PROG" where it will either print OK or I/O Error.

If the latter then you can make the necessary adjustments to record levels and try again. The advantage of this method is that while you are experimenting with different recording levels etc, your program remains in the computer's memory intact.

A. Lee-Bentley

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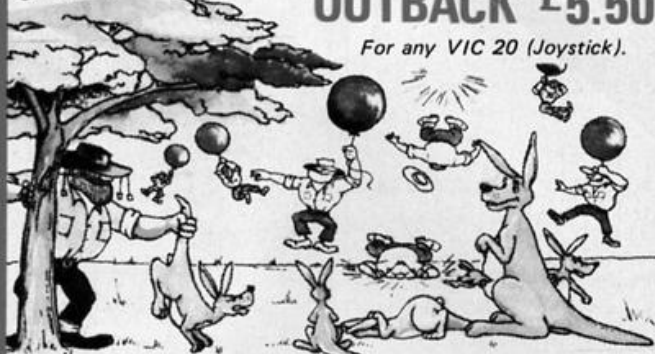
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Pip the farmer to the post

Try to escape with the fruit before that farmer catches up with you. Stuart Lenker explains how to play his apple-picking game for the standard TI-99/4A

How it works

85-95 variables set-up
100 clears screen
105 sets screen colour to black
110-120 sets text to white
125-150 define colours
155-185 define characters
186 do you want instructions?
190-205 displays screen border
210-265 displays orchard
270-320 displays random positions of apples
325-370 displays random position of key
375 displays man
380-525 main game loop
380-520 count down farmer's movement along rows
385-390 & 510 control farmer's movement along columns
395 checks keyboard
400 clears old player from screen
405-440 check for movement
445-470 check new screen positions
475 displays new player
480 adds one to time limit
485 tests to see if time limit is exceeded
490-495 check new farmer position
500-505 move farmer
515 displays basket
530-540 you fell over a basket
545-555 you touched the electric fence
560-570 you picked up an apple
575-605 you picked up the key
610-615 you have run out of time
620-650 the farmer has caught you
655-690 you escaped
705-725 losing tune
745-755 displays message
760 print score
770 end
805-895 display instructions
915-925 type in time limit

An apple a day might keep the doctor away, but what about the farmer that owns the orchard?

As you run around the orchard picking up apples, he's on your trail, picking up the fruit you've missed and dropping baskets to block your escape.

If he catches up with you, he'll prosecute you for trespassing on his land.

Main variables

X column of figure
Y row of figure
SC score
T/U positions of apples
GB number of apples
B/P position of key
R/C movement directions for farmer
M positions for baskets
LIMIT time limit
K position for gate
CS screen messages

You move by using the four arrow keys with the alpha lock button down. Mind you don't trip over a basket, or touch the edge of the orchard — it's protected by an electric fence.

When you've collected the apples, the only way out of the orchard is to pick up the key

Hints on conversion

If you are going to try to convert this program to another machine, remember that the Texas has a 24 by 32 screen and it uses user-defined characters. A good amount of space can be saved by using multiple line statements. Here are the more unusual commands:

CALL CHAR (ASCII code number, hexadecimal string). Defines characters used in the program. The hexadecimal string describes the pattern to be given to the character with ASCII code stated

CALL HCHAR (row number, column number, ASCII code, number of repetitions). Places character on screen at row and column specified, and repeats it horizontally the number of times stated. If this fourth value is omitted then the character is displayed only once. The character used is the one whose ASCII code appears in the command

CALL VCHAR (row number, ASCII code, number of repetitions). Works the same way as CALL HCHAR only repeats vertically instead of horizontally

CALL GCHAR (row number, column number, numeric variable). Equivalent of PEEK, assigns ASCII code of character at row and column stated to numerical variable

CALL CLEAR clears the screen. Equivalent to CLS

CALL SCREEN (colour code). Specifies screen colour, using colour code

CALL COLOUR (character set number, foreground colour code, background colour code). Specifies foreground and background colours for all characters in set stated

CALL SOUND (duration, frequency, volume). Produces sound with duration, frequency, and volume specified. Duration is in milliseconds, frequency in Hertz and volume in scale from 0 (loudest) to 30 (quietest)

CALL KEY (key unit, k,s). Equivalent of INKEYS or GET. Returns code if key pressed in variable K.

which unlocks the gate at the top. Make sure the farmer doesn't pick up the key before you.

You score 10 points for every apple picked up, and 50 points if you pick up the key. Your score doubles if you escape through the gate.

You set your own difficulty level, when line 915 asks for your time limit.

You can also vary the game by making the farmer move from bottom to top of the screen. Just change line 380 to FOR R = 22 TO 2 STEP -5.

To speed up the game, leave out line 446.

```

10 REM ***APPLE SCRAMPLING**
20 REM ***STUART LENKER***
30 REM ***AUGUST 1993***
85 Y=22
90 X=14
95 SC=0
100 CALL CLEAR
105 CALL SCREEN(2)
110 FOR I=1 TO 6
115 CALL COLOR(1,16,1)
120 NEXT I
125 CALL COLOR(11,15,1)
130 CALL COLOR(12,13,1)
135 CALL COLOR(13,7,1)
140 CALL COLOR(14,11,1)
145 CALL COLOR(15,16,1)
150 CALL COLOR(16,8,1)
155 CALL CHAR(119,"304201FFFFFFFFF")
160 CALL CHAR(129,"FFFFFFFFFFFFFFF")
165 CALL CHAR(130,"804053C7E7E7E3C")
170 CALL CHAR(140,"3020301010301070")
175 CALL CHAR(145,"10103C3A3A10103C")
180 CALL CHAR(155,"6562F2FEF26262F2")
185 CALL CHAR(156,"FFFFFFFFFFFFFFF")
186 INPUT "DO YOU WANT INSTRUCTIONS? (Y/N) "Z$
187 CALL CLEAR
188 IF Z$="Y" THEN 805 ELSE 915
190 CALL HCHAR(1,1,125,27)
195 CALL HCHAR(23,1,125,27)
200 CALL VCHAR(1,1,125,23)
205 CALL VCHAR(1,27,125,23)
210 READ A,B,C
215 IF A=0 THEN 270
220 CALL HCHAR(A,8,125,C)
225 GOTO 210
230 DATA 3,3,5,4,3,5,5,3,5,6,3,5,6,3,5,9,3,5,10,3,5,11,3,5
235 DATA 13,3,5,14,3,5,15,3,5,16,3,5,18,3,5,19,3,5,20,3,5,21,3,5
240 DATA 3,9,5,4,9,5,5,9,5,6,9,5,8,9,5,9,5,10,9,5,11,9,5
245 DATA 13,9,5,14,9,5,15,9,5,16,9,5,18,9,5,19,9,5,20,9,5,21,9,5
250 DATA 3,15,5,4,15,5,5,15,5,6,15,5,8,15,5,9,15,5,10,15,5,11,15,5
255 DATA 13,15,5,14,15,5,15,15,5,16,15,5,18,15,5,19,15,5,20,15,5,21,15,5
260 DATA 3,21,5,4,21,5,5,21,5,6,21,5,8,21,5,9,21,5,10,21,5,11,21,5
265 DATA 13,21,5,14,21,5,15,21,5,16,21,5,18,21,5,19,21,5,20,21,5,21,21,5,0,0,0
270 T=3
275 T=T+5
280 IF T=27 THEN 325
285 GB=0
290 GB=GB+1
295 IF GB=4 THEN 320
300 RANDOMIZE
305 U=INT(24*RND)+2
310 CALL HCHAR(T,U,130)
315 GOTO 290
320 GOTO 275
325 V=INT(30*RND)+1
330 B=INT(28*RND)+3
335 IF V=1 THEN 355
340 IF V=2 THEN 365
345 P=20
350 GOTO 370
355 P=8
360 GOTO 370
365 P=14
370 CALL HCHAR(B,P,140)
375 CALL HCHAR(Y,X,145)
380 FOR R=2 TO 22 STEP 5
385 M=INT(24*RND)+2
390 FOR C=2 TO M
395 CALL KEY(0,K,S)
400 CALL HCHAR(Y,X,32)
405 IF K<>"93" THEN 415
410 X=X-1
415 IF K<>"68" THEN 425
420 X=X+1
425 IF K<>"69" THEN 435
430 Y=Y-1
435 IF K<>"88" THEN 445
440 Y=Y+1
445 CALL GCHAR(Y,X,GET)
446 CALL SOUND(4,-5,10)
450 IF GET=119 THEN 530
455 IF GET=125 THEN 545
460 IF GET=130 THEN 560
465 IF GET=140 THEN 575
470 IF GET=156 THEN 655
475 CALL HCHAR(Y,X,145)
480 TIME=TIME+1
485 IF TIME>LIMIT THEN 610
490 CALL GCHAR(R,C,GET)
495 IF GET=145 THEN 620
500 CALL HCHAR(R,C,155)
505 CALL HCHAR(R,C,32)
510 NEXT C
515 CALL HCHAR(R,C,119)
520 NEXT R
525 GOTO 190
530 GOTO 380
535 CB="WHOOPS-YOU FELL OVER A BASKET!"
540 GOTO 695
545 CALL SOUND(500,-7,3)
550 CB="YOU TOUCHED THE ELECTRIC FENCE!"
555 GOTO 695
560 CALL SOUND(300,1000,0)
565 SC=SC+10
570 GOTO 475
575 FOR I=1 TO 8
580 CALL SOUND(100,1000,0)
585 NEXT I
590 SC=SC+50
595 K=INT(24*RND)+3
600 CALL HCHAR(1,K,156)
605 GOTO 475
610 CB="BRO LUCK-YOU'VE RUN OUT OF TIME!"
615 GOTO 695
620 CALL SOUND(150,196,0)
625 CALL SOUND(300,247,0)
630 CALL SOUND(150,196,0)
635 CALL SOUND(150,220,0)
640 CALL SOUND(300,196,0)
645 CB="FARMER McDONALD HAS CAUGHT YOU!"
650 GOTO 695
655 CALL SOUND(100,440,0)
660 CALL SOUND(100,550,0)
665 CALL SOUND(100,440,0)
670 CALL SOUND(100,660,0)
675 CALL SOUND(100,680,0)
680 CB="WELL DONE-YOU DIDN'T GET CAUGHT!"
685 SC=SC+2
690 GOTO 730
695 FOR DELAY=1 TO 300

```




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Programs to fill the software gap

Is there life in software between the Space Invaders and the financial planners?

Horoscopes 32K BBC £5.95

Third Program, 189 Cheddon Road, Taunton, Somerset

If you list this program, you'll find a plea not to copy it as the author is trying to earn a living from it. I'm afraid that on the basis of this piece of his work he's likely to starve to death.

It's a long program, not be-

cause it's complex, merely because it contains lots of text in print statements.

All it does is ask for your name, birthday and sex, then print the appropriate star sign text. Thus there are only 24 different outputs, any of which you could find in the cheapest books on horoscopes.

The only features I can think of worth mentioning are that it does validate the date you give — try June 32 and you get the response

"twit".

It does also have the option of a printed output; mind you, the program hangs if you select it when there's no printer.

I don't often find a program to which I'm prepared to give either a five star or a one star rating. However in this case I've no hesitation.

It is a prime example of the type of program to which the com-

puter sceptic points and says:

"Why on earth do you need a computer to do that?"

In general, this BASIC program is well presented, although one or two unprofessional techniques are used, and was written following astrologically accurate methods by Chris Somerville, a member of the Astrological Association.

In itself the program worked well — it gave me a glowing report — although as is said in the text, it is a limited forecast due to memory restrictions.

My wonder is, who will buy it? Once run, its function is completed, and the only other use could be parties or fund-raising as suggested. But it strikes me as a bit too serious for these applications.

R.E.

instructions	67%
ease of use	88%
display	74%
value for money	49%



I Ching Dragon £6.95

Virgin Games, 61/63 Portobello Road, London W11 3DD

Well, at least this is an original program!

It is totally unlike any other that I have come across — not a game, but based on the 4,000-year-old Chinese oracle known as I Ching.

The sleeve notes say: "Its philosophy reflects Taoist and Confucius ideas". While I am unable to confirm or deny this claim, I find it hard to believe that a few predetermined statements, randomly selected by pressing the space bar will really shed light on "the unconscious and inner self".

This is one of the first Dragon offerings from Virgin and comes with an extending cassette inlay, a

novel feature of which is a profile complete with photo of programmer James Breffini.

I didn't manage to load from side 1, but side 2 loaded every time. A neat auto-running intro displays the Virgin logo followed by the title page.

The program is written in BASIC and uses most of the Dragon's free memory to store the large amount of text required.

On balance, I would think Chairman Mao's little red book is probably more interesting and better value for money than this.

E.C.

instructions	60%
ease of use	70%
display	50%
value for money	40%



Diet 48K Spectrum £5

L. C. Dunbar, 14 Ribble Close, Culcheth, Warrington

What with suspicion growing that home computers are only used by small boys for playing Space Invaders, Diet is a particularly timely arrival on the scene.

The program is menu (sic)

driven, and quite straightforward to use.

Details of each ingredient of your chosen recipe are fed in one by one. When you've done that, the program works out the calorie content of the dish, and the fibre content too if you like.

However, to use the program, you will need standard calorie and fibre content charts and, of course, your recipe book.

The program also works out the calorie and fibre content per

person served, and allows you to experiment with different ingredients — for instance, to reduce the calories or increase the fibre content.

Results are displayed in neat, easy-to-read analyses with no graphic gimmicks.

Other features are tips on alternative, less fattening ingredients, and an option to print out hard copy of your recipe details — useful for sticking in your cookbook or for reference

during food preparation.

A useful addition to the Spectrum library, which could find applications at school as well as at home.

D.J.

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



Spectadraw 2 48K Spectrum £12.95

B. S. McAlley, 1 Cowleaze, Chinnor, Oxford OX9 4TD

The aim of this program is to give you around 30 per cent more chance of forecasting football matches which will produce a draw, to boost your chances of winning the pools. As far as I can see from reading the manual and examining the listing, this is done statistically.

The program was supplied with a four-page booklet and I followed the instructions meticulously. It took me three hours to set up the program and then it crashed — I think a misplaced bracket at line 4140 was to blame, at least on my copy. But if there is one error...

At last, using an alternative

entry method, I had the program working. I used David Nowotnik's forecasting program, published in HCW26, for comparison, and a random selection as a control. The week I used for my experiment produced 14 draws — all three systems forecast four correct draws.

Easy to use, but time-consuming. Fairly clear screen displays, although I would have liked to have the last two teams entered displayed when creating the match list.

But at this price, I would stick to the birthday method.

R.E.

instructions	91%
ease of use	52%
display	87%
value for money	10%



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Don't head for the stars!

An unexpanded VIC is all you need to play my Voyager game. The aim is to pilot your rocket through space, avoiding the stars, then dock with the mothership to regain lost fuel.

As the game starts, you will find yourself in the middle of the screen, which scrolls upwards. Detailed instructions and controls are given in the program. Happy voyaging!

Hints on conversion

Converting this program should be fairly easy. The main job is to change the POKES to suit your micro.

In line 550, POKE 218, 158 scrolls the screen down instead of up by tricking the computer into thinking the next line is not a continuation of the first.

POKE 36878 is a volume control and POKES 36874, 36875 and 36876 are all sound and tone controls. The POKES "number", "letter" are all involved in POKEing characters to the screen.

On some computers, such as the TRS80 or Video Genie, the GET AS:IF AS:" THEN... will have to be changed to A=INKEY S.

The special symbols in the print statements are colour and cursor controls.

You're on an obstacle course in space with Kulvinder Bhupal's game for the unexpanded VIC-20



Main variables

SC score
F fuel
HI hi-score
S star location
Ms mothership location
L rocket location
NS hi-scorer's name

How it works

100-400 sets up screen and instructions
550-800 main loop
550 makes screen scroll upwards
560 POKES your rocket to the screen
600-601 POKES stars, Motherships at random positions
615 checks which key is being pressed
660-680 checks if rocket has crashed. Checks if run out of fuel. Checks if you docked with mothership
900 crash routine and hi-score

```
10 REM** VOYAGER ***
20 REM** BY K.S.BHUPAL
100 PRINT "J":SC=0:F=300
150 PRINT "*****VOYAGER*****BY K.S.BHUPAL AUG'83"
151 FOR=1 TO 5000:NEXT:TIS="000000"
200 PRINT "*****VOYAGER*****"
300 POKE36879,0:PRINT"XMOBJECT:XSIMPLY TO AVOID THE STARS,"
301 PRINT"XMS YOU PROGRESS YOUR SCORE WILL INCREASE BUT BEWARE!"
302 PRINT"YOUR FUEL IS ALWAYS GETTING LOWER"
303 PRINT"YOU THEN HAVE TO DOCK WITH THE MOTHER SHIP"
305 PRINT"DOING THIS WILL GIVE YOU ONLY 50 UNITS OF FUEL"
306 PRINT"YOU HAVE ONLY 300UNITS .GOOD LUCK!!"
310 PRINT"XUSE X<=LEFT >=RIGHT"
320 PRINT"XHIT A KEY!!!"
350 GETAS:IFAS=" "THEN350
400 PRINT"*****"
410 L=7888
500 POKE L,30
510 PRINT"HIT F1 TO BLAST OFF"
520 GETAS:IFAS=" "THEN520
521 TIS="000000"
550 PRINT"*****POKE218,158:POKE36878,10:POKE36877,100"
560 POKE L,30:POKE L+22,102
600 S=INT(RND(1)*22)+7782
601 MS=INT(RND(1)*22)+7782
602 IFTIS="000000"THENPOKES,105:POKES+1.95:TIS="000000"
610 POKES,42
615 GETAS
620 IFAS=" "THENL=L-1
630 IFAS=" "THENL=L+1
640 PRINT"SC:SC" HI"HI" F"F"
650 SC=SC+1:F=F-1
660 IFPEEK(L-22)=42THEN900
665 IFPEEK(L-22)=105ORPEEK(L-22)=95THENF=F+50:POKE36879,25:POKE36879,0:FOR=1 TO 5000:NEXT
680 IFF=0THENPRINT"X YOU RAN OUT OF FUEL !!!":GOTO1005
800 GOTO550
900 POKE36878,0:POKE36877,0
910 POKE36878,15:POKE36877,150:FOR=1 TO 5000:NEXT:POKE36878,0
1000 PRINT"*****YOU-U C-R-A-S-H-E-D"
1005 PRINT"X YOU SCORED "SC:FOR=1 TO 5000:NEXT
1020 IFSC>HITHENHI=SC:PRINT"XTYPE YOUR NAME ":INPUTNS
1021 PRINT"XHI-SCORE"HI"*****BY NS"
1050 PRINT"XDO YOU WANT TO PLAY AGAIN?":INPUTNS
1055 IFNS="Y"THEN100
1070 PRINT"X":POKE36879,27:END
```

Micro Tip

Oric

Make space

Ever written a program for the Oric and found you could do with more text space?

Here are two tips. First you can use the top line reserved for SAVEing/LOADing/CAPS messages.

To do this you have to POKE into this area of screen RAM, from 48000-48039 decimal. The subroutine below enables you to put a title on this line.

```
1000 REM * Prints a title on the top
1010 REM * line in TEXT/LORES modes
1020 REM * needs TIS (your title) -
1030 REM * max. 40 letters
1040 AD=48000
1070 FOR X=1 TO LEN(TIS)
1080 TI%=ASC(MID$(TIS,X,1))
1090 POKE AD,TI%:AD=AD+1:NEXT:RETURN
```

If you want a coloured title add:

```
1050 IF B 8 THEN POKE AD,B+16:AD=AD+1
1060 IF F 8 THEN POKE AD,F:AD=AD+1
```

Define F and B as the fore-and background colours (0-7). Use F,B=8 if you want a 40-letter title. For tidiness, use this line to delete the title before using CSAVE, CLOAD or CTRL T:

```
FOR X=48000 TO 48039:POKEX,32:NEXT
```

Secondly, use the two columns normally protected for the PAPER and INK attributes.

To do this type of CTRL or? CHR\$(29) (in programs) or to avoid toggling problems (see HCW18) use POKE 618,43.

The text will be in white or black and you cannot use PAPER or INK.

If you do, the first two columns of text will be deleted! These two methods increase your text area from 38 x 27 to 40 x 28.

Andrew Mewnam



TI-99/4A SOFTWARE REVIEWS

Battle Tanks TI-99/4A £6

Stainless Software, 10 Alstone Road, Stockport, Cheshire SK4 5AH

This is a two-player game for those with a bellicose nature.

You each have three tanks and the aim is to destroy your opponent's hardware.

Dividing you and your opposite number is a series of walls which you can batter down with your shells — up to three walls before your salvoes fall short and you are forced to advance.

Control of your respective tanks is through either the split-keyboard or the joysticks, each being scanned alternately. So it would seem that the player who can keep his/her finger 'on the button' continuously might eventually be the victor.

The choice is not made clear in the embedded instructions, but is provided in the cassette inlay.

The program does remind you to make sure that the troublesome alphalock key is depressed before you commence battle.

The graphics are not dazzling and the instructions are printed slowly, but luckily you don't have to endure them each time round, unlike on some programs.

While it might appeal to children it is too boring for adults, and really needs something to spice it up in order to make it worth its price tag.

P.B.

instructions	50%
playability	90%
graphics	50%
value for money	40%



Tank Battle TI-99/4A (Extended BASIC plus Joystick) £5.95

Temptation Software, 27 Cinque Ports Street, Rye, Sussex

With five skill levels, described as being from "strategy to desperation", you may well imagine that with Tank Battle you're in for a tough time.

Enemy tanks appear in random formation from the right and top of the screen. Using your tank at the bottom of the screen you must stop five (not 10, as it specifies in the instructions), of the enemy from infiltrating your lines to

Take on your Texas

Your TI-99/4A takes on a variety of hostile forms in these action games, rated for you by our review panel

reach their objective, your H.Q.

You have only three lives with which to do so. Your movements are restricted to east or west, and range of fire is limited to the upper half of the screen, so some fast reactions and judgement are required to keep out the enemy.

For each enemy tank hit, points are awarded, the aim being to attain a high score.

There are also facilities to interrupt play, or changeover joysticks without having to CLEAR

and re-RUN.

Such features show that as much consideration has been given to the overall presentation of the program as in the play itself.

J.W.

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



Lunar Base/ Torpedo Fire TI-99/4A £7

Stainless Software, 10 Alstone Road, Stockport, Cheshire SK4 5AH

Leaving the safety of the mothership, you must guide your lunar pod through the asteroid belt to a lunar base standing above a marsh. After landing, your pod must immediately return to its mothership.

On lift-off the base disappears, leaving only marsh. Manoeuvres continue for as long as you have pods, scoring with each successful move.

When all landing bases have disappeared a new, more difficult set up is given and the game progresses.

Unfortunately there is one bug in what would otherwise be a crashproof program — an IN-

CORRECT STATEMENT IN 4340 turned out to be a typing error.

Torpedo Fire sends you down through oceanic depths to a submarine. Here you take charge of a five-position gun with which to torpedo war and cargo ships as they pass across the surface.

There are five classes of vessel, worth different points, and in each game 25 ships. At the end of a run your score and accuracy are displayed.

Left and right movements are controlled by the cursor keys.

Both games have good graphics and sound. Neither is disadvantaged by the inevitable slowness of TI BASIC.

J.W.

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



Galactic Gunfight TI-99/4A (Extended BASIC) £10

By Intersoft, from Stainless Software, 10 Alstone Road, Stockport, Cheshire SK4 5AH

Yes, it's time to take on those aliens again, this time in a

Galactic Gunfight.

Before the game starts, you are given the option of using joystick or keyboard. If the keyboard is selected, you can then decide which of the three keys you want to use for moving the starfighter up and down, and to fire.

Next comes the level of difficulty, which is set from the laser firing time and can be from one to 100 seconds. Twenty is regarded as "Super Pro".

Play then starts, as you attempt

to blast the aliens which appear in squadrons of five.

Since you only have a limited time in which to dispose of your attackers, some strategic play is called for.

Any time remaining when you have destroyed a squadron will be required when the next arrives, particularly as this moves twice as fast.

There is a limit to the number of times your laser can be fired in succession. More than two rapid

bursts will result in overheating for which a cooling period is required, which wastes time.

Quite a good game, made that much better by having such a range of difficulty levels.

J.W.

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



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ONE CHILD'S VIEW

It's not all fun and games for junior micro fans

I decided to write to you with my opinion after hearing more and more about how computers are taking over, and how more and more parents are, to my surprise, starting to react against their children using them.

The use of home computers by schoolchildren is often looked upon with disapproval by adults. The reason for this seems to be fairly obvious — most adults think of us being glued to our television sets, zapping up evil aliens or eating power pills to our heart's content.

I am speaking for many others of my age group when I say that this comment is not only unfair but also untrue.

A great number of children do possess computers — in fact, it is probably true to say that the majority of computer sales over the past few years have been made to us youngsters.

However, although a few do use their machines solely for the purpose of playing games, a great many others appreciate the need for a computer not so much for the present, but for the age to come — the computer age.

None of us can get away from the fact that when us kids leave school, and start work, our jobs will be dominated by computers. The computer will be able to take over jobs that previously took hundreds of workers to do.

Those of us who can already operate, or are at least familiar with these machines will have a definite head start on the rest — a head start that could prove to be invaluable to us. I am sure that no-one can deny that fact.

So although, yes, we all enjoy a good computer game on our micros from time to time, most children (and some parents) do realise that learning to program and operate computers in our spare time now can save us a lot of time, and gain us a better start in our future career — something that surely no-one wants to deprive us of.

So please, next time you see youngsters buying a micro, don't discourage them. Stop and think that in all probability they will have a better chance than most in the computer age that is to come — or is it here already?

Paul C. Smith
Schoolchild computer user, aged 15
Cheam,
Surrey

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

The object of this text-only game is to drive your starcar along galactic highways, travelling from service area to service area in order to collect clue letters.

The letters make up an anagram of a code word chosen at random from a list in the program. To win, you have to solve the anagram.

How it works

1,2 instructions, set variables
3-10 selects codeword
20-48 checks route for service areas
49-105 reads route, gives warning of hazards, contains treasure chest, pirates and space flu routines
200-210 turning left
250-260 turning right
300-320 time warp routine
400-550 route compiler
1050-1060 magnetic storm routine
1152-1160 gamma radiation routine
1200-1220 breakdown routine
1500-1600 meteor storm routine
1700-1760 black hole routine
1800-1860 interchange routine
3000-3070 makes anagram of code word, gives one letter at a time
4000-4990 services and bonus routines
5000-5040 status report
6000-6040 status checker
6900-7010 guess the code word routine

Along your way, you are likely to meet many hazards — meteor storms, black holes, magnetic disturbances, even pirates! You'll have to take evasive action as instructed on screen.

Time warps are likely to dump you either backwards or forwards a few stages.

Your car breaks down a lot, but luckily you can join the RAC or AA. If the going gets too tough, you can always pull off at a junction.

Find the key to the highway

There's a rough ride ahead of you when you set off to find the hidden code word. Foster Richardson briefs you on the details of this unusual game for any Spectrum

```
1 RANDOMIZE : PRINT AT 3,11:"
STARCAR":AT 4,11:"-----"
DRIVE THE GALACTIC HIGHWAY"
DISCOVER CODE LETTERS AT
SERVICE AREAS"
SOLVE THE A
NAGRAM TO FIND"
THE SECRET C
ODE WORD!!!
INSTRUCTIONS G
IVEN IN"
THE GAME (PRESS "S"
FOR"
STATUS, &"g" TO GUESS NO
RD)"
PRESS "ENTER" TO BEG
IN": PAUSE 0: CLS
2 LET memo=0: LET cash=400: L
ET fit=100: LET crew=50: LET yve
l=200: LET rac=0: LET ss=0: LET
P$=""
3 FOR n=1 TO INT (10*RND+1):
READ M$: NEXT n
4 DATA "north","south","east",
"west","compass","mariner","lon
gitude","latitude","gyroscope",
"sextant"
5 LET le=LEN M$: LET c=1: DIM
j(le)
6 CLS
10 GO SUB 400
20 LET cou=1: LET ser=0: PRINT
"SERVICES AT STAGES:"
25 IF a$(cou)="v" THEN PRINT c
ou:"
LET ser=ser+1
27 LET cou=cou+1
30 IF cou>101 THEN GO TO 25
35 IF ser=0 THEN PRINT "NO SER
```

Variables

fuel, crew self explanatory
fit % strength of starcar
rac,aa indicate membership of
motoring organisations
w\$ code word
a\$ stores route
cas number of casualties in space
flu routine
jum stages jumped in time warp
i intensity of meteor storm
di distance from black hole
la lane number
p\$ letters of code word anagram
pr price of fuel crystals

At the service areas, you can refuel with either hi-octane or lo-octane (beware!) fuel. There is also a bonus box, which might contain extra crew, cash, fuel and so on.

This is not an easy game to win, and there are many ways to close. All the instructions are contained in the game, and while travelling you can press s for a status report or g to guess the code word.

Starcar uses a lot of memory, so before loading, it's best to clear out UDGs and the like by entering:
CLEAR PEEK 23732 + 256 *
PEEK 23733

Hints on conversion

The program should adapt quite easily to other computers. A few points to note:

POKE 23692,255 this makes the screen scroll on and off without stopping with "scroll?"

STR\$ changes a number into a string

CHR\$ is applied to a number, and gives the single character string whose code is that number. If your computer doesn't use the ASCII codes you will have to amend lines 1530 and 1720.

```
VICES"
38 PRINT : PRINT
40 LET cou=1
47 IF cou=101 THEN GO TO 3
48 IF cou>95 THEN GO TO 60
49 LET n=cou
50 IF a$(n)="x" OR a$(n)="b" O
R a$(n)="t" OR a$(n)="g" THEN PR
INT : FLASH 1:"HAZARD WARNING"
FLASH 0:"- "n-cou+1;" STAGES A
HEAD" : PAUSE 40: GO TO 60
55 LET n=n+1: IF n=101+5 THEN
GO TO 60
58 GO TO 50
60 IF INKEY$="s" THEN GO SUB 4
990
62 IF a$(cou)="x" THEN PRINT "
HIGH LEVEL GAMMA RADIATION" : P
AUSE 20: GO TO 1152
63 IF a$(cou)="l" THEN PRINT "
ROAD JUNCTION TO LEFT (5 TO TAKE)
" : PAUSE 40: GO TO 200
64 IF INKEY$="g" THEN GO SUB 6
900
65 IF a$(cou)="r" THEN PRINT "
ROAD JUNCTION RIGHT (3 TO TAKE)
" : PAUSE 40: GO TO 250
67 IF a$(cou)="d" THEN PRINT F
LASH 1:"BREAKDOWN..." : GO TO 12
```

```
00
70 IF a$(cou)="m" THEN PRINT "
METEOR STORM" : PAUSE 20: GO TO
1500
75 IF a$(cou)="h" THEN PRINT "
BLACK HOLE" : PAUSE 20: GO TO 1
700
80 IF a$(cou)="t" THEN PRINT F
LASH 1:"TIME WARP" : GO TO 300
85 IF a$(cou)="v" THEN PRINT "
SERVICES" : PAUSE 20: GO TO 400
90 IF a$(cou)="j" THEN PRINT "
INTERCHANGE" : GO TO 1000
92 IF a$(cou)="g" THEN PRINT "
MAGNETIC DISTURBANCE" : PAUSE 20
: GO TO 1050
94 IF a$(cou)="r" THEN LET tr=
INT (RND*90+10): LET cash=cash+1
PRINT INVERSE 1:"LUCKY FIND"
TREASURE CHEST CONTAINING "PAU
tr" STAR TOKENS
95 IF a$(cou)="p" THEN LET cas
h=INT (cash*.25): LET crew=crew-
10: PRINT FLASH 1:"PIRATES!!!"
FLASH 0:"THEY KILL 10 CREW AND
TEAL MOST OF YOUR CASH" : PAUSE
20: GO TO 100
```


SPECTRUM PROGRAM

```

96 IF a$(cou)="U" THEN LET cas
=INT (RAND*10+1): LET crew=crew-c
as: PRINT INVERSE 1;"SPACE FLU
";cas;" CREW SICK": PAUSE 20:
GO TO 100
98 PRINT "ON ROUTE": PAUSE 2
0: GO TO 100
100 LET cou=cou+1
101 LET fuel=fuel-1
102 GO SUB 6000
105 POKE 23692,255: GO TO 47
200 IF INKEY$="5" THEN CLS: PR
INT AT 10,8: FLASH 1;"TURNING LE
FT": FOR n=1 TO 15: BEEP .05,20*
RAND: NEXT n: GO TO 8
210 GO TO 100
250 IF INKEY$="8" THEN CLS: PR
INT AT 10,9: FLASH 1;"TURNING RI
GHT": FOR n=1 TO 15: BEEP .05,10
*RND: NEXT n: GO TO 8
260 GO TO 100
300 LET jum=INT (20*RND)
305 IF cou<=20 THEN LET cou=cou
+jum: PRINT "YOU HAVE BEEN THROU
N ";jum;" STAGES FORWARD": GO
O TO 320
310 IF cou>20 THEN LET cou=cou-
jum: PRINT "YOU HAVE BEEN THROU
N ";jum;" STAGES BACK"
320 FOR n=-20 TO 40 STEP 4: SEE
P .01,n: NEXT n: GO TO 105
400 LET a$="ssssssssssssssssssssss
ssssssssssssssssssssssssssssss
ssssssssssssssssssssssssssssss
ssssssssssssssssssssssssssssss
ssssssssssssssssssssssssssssss"
405 IF memo=0 THEN PRINT "YOU A
RE APPROACHING STAR ROUTE AT TH
E START OF YOUR JOURNEY - BON
VOYAGE": LET memo=1
407 PRINT "SLIP ROAD"
410 LET cou=cou+INT (RAND*3+1):
IF cou>100 THEN PRINT "ZOOM...!"
;"YOU ARE ON "; INVERSE 1;"ROUT
E ";INT (RAND*10000): RETURN
420 LET sel=INT (RAND*53)
430 IF sel<11 THEN LET a$(cou)=
"l": GO TO 410
440 IF sel<23 THEN LET a$(cou)=
"r": GO TO 410
450 IF sel<26 THEN LET a$(cou)=
"m": PRINT "phut....": GO TO 41
0
460 IF sel<29 THEN LET a$(cou)=
"b": PRINT "splutter....": GO T
O 410
470 IF sel<32 THEN LET a$(cou)=
"t": PRINT "brrm....": GO TO 41
0
480 IF sel<35 THEN LET a$(cou)=
"v": GO TO 410
490 IF sel<38 THEN LET a$(cou)=
"j": GO TO 410
500 IF sel<41 THEN LET a$(cou)=
"d": GO TO 410
510 IF sel<44 THEN LET a$(cou)=
"g": GO TO 410
520 IF sel<47 THEN LET a$(cou)=
"f": GO TO 410
530 IF sel=48 THEN LET a$(cou)=
"p": PRINT "kerchunk....": GO T
O 410
540 IF sel=49 THEN LET a$(cou)=
"u": GO TO 410
550 LET a$(cou)="x": GO TO 410
1050 PRINT " - THIS CAUSES I
NSTRUMENT FAILURE AND YOU ARE
BURNING UP FUEL. IN ORDER TO
PROCEED YOU MUST SOLVE THE FOLL
OWING TECHNICAL PROBLEM:"; LET
g=INT (RAND*3): LET r=INT (10*RAN
D+1): LET s=INT (10*RAND+1)
1056 IF g=0 THEN LET u=r+s: PRIM
T "WHAT IS ";r;" TIMES ";s;"?"
1058 IF g=1 THEN LET u=r+s: PRIM
T "WHAT IS ";r;" PLUS ";s;"?"
1060 IF g=2 THEN LET u=r-s: PRIM
T "WHAT IS ";r;" MINUS ";s;"?"
1062 INPUT "ANSWER?";v
1064 IF v<>u THEN PRINT "WRONG -
5 FUEL UNITS PENALTY!": LET f
uel=fuel-5: GO TO 1062
1066 PRINT "CORRECT": PAUSE 20
: GO TO 100
1152 LET d=INT (2*RND)
1156 IF d=0 THEN PRINT "...BUT Y

```

```

OUR SHIELD IS SOUND AND THERE ARE NO CASUALTIES""
1158 IF d=1 THEN LET e=INT (10*RN
ND+1): LET crem=crem-e: PRINT "
..AND YOUR SHIELD IS LEAKY AND T
HERE HAVE BEEN ";e;" CREW MEMBER
S INJURED""
1160 PAUSE 20: GO TO 100
1200 IF rac=1 THEN LET rac=0: PR
INT "LUCKY YOUR IN THE A.A.C."
1210 IF aa=1 THEN LET aa=0: PRIN
T "GOOD JOB YOUR IN THE A.A."
1220 LET rep=INT (RAND*100+10): L
ET cash=cash-rep: PRINT "YOU HAV
E TO PAY ";rep;" STAR TOKENS FO
R REPAIRS"" PAUSE 20: GO TO 100
1500 LET i=INT (RAND*6+4)
1510 PRINT " - INTENSITY: ";i;"
1520 PRINT "FOR EVASIVE ACTION P
RESS THE SPECIFIED KEYS""
1525 LET j=0
1526 POKE 23692,255
1530 LET s$=STR$ (INT (RAND*10))
1535 IF j=i THEN PRINT " INVERSE
1;"STORM PASSED"" PAUSE 20: G
O TO 100
1540 PRINT "PRESS ";s$;" BEEP .
5,40: PAUSE 50
1550 IF INKEY$=s$ THEN LET j=j+1
: BEEP .5,10: BEEP .5,30: GO TO
1530
1570 PRINT " FLASH 1;"HIT!"
BEEP .5,-10: BEEP .5,-30
1575 LET fit=INT (fit*(1-1/40))
1580 PRINT "STRENGTH=";fit;"%"
1590 IF fit<=0 THEN PRINT FLASH
1;"DEAD": STOP
1600 GO TO 1525
1700 LET di=INT (RAND*7+3)
1710 PRINT "-DISTANCE=";di;" PAR
SECS"" TO OVERCOME GRAVITATIONA
L ATTRACTION PRESS SPECIFI
ED KEY""
1720 LET q$=CHR$ (INT (RAND*26+97
)): PRINT "PRESS ";q$;" PAUSE 1
00
1721 POKE 23692,255
1730 IF INKEY$=q$ THEN LET di=di
+1: BEEP .5,20: BEEP .5,30: GO T
O 1745
1740 LET di=di-1: PRINT INVERSE
1;"CLOSER"" BEEP .5,-20: BEEP
.5,-30
1745 PRINT "DISTANCE=";di;"
1750 IF di=13 THEN PRINT FLASH 1
;"ESCAPED"" GO TO 100
1755 IF di=0 THEN PRINT FLASH 1;
"IT GOT YOU!": STOP
1757 LET fuel=fuel-5
1760 GO TO 1720
1800 LET (a=INT (RAND*6+5): LET c
h=INT (RAND*6+1)
1820 PRINT "CHOOSE YOUR LANE - T
HERE ARE ";a;" AND ONE OF THEM
HAS BEEN MINED BY HOSTILE REBE
LS!"
1830 INPUT "WHICH LANE ?";ch1
1840 IF INT ch1<ch1 OR ch1<1 OR
ch1>la THEN GO TO 1830
1850 IF ch1=ch THEN PRINT INVERS
E 1;"BANG...CLASH...SPLATTER..."
: STOP
1860 PRINT "LUCKY BLIGHTER!!!"
: GO TO 100
3000 IF o=le+1 THEN PRINT "YOU'V
E HAD THEM ALL!"" GO TO 100
3010 LET h=INT (le*RND+1)
3020 FOR n=1 TO le
3030 IF j(n)=h THEN GO TO 3010
3040 NEXT n
3050 PRINT FLASH 1;"CODE LETTER
";w$(h): PAUSE 20
3060 LET j(o)=h: LET o=o+1: LET
p$=p$+w$(h)
3070 GO TO 100
4000 PRINT "HI OCTANE FUEL @ 3 T
OKENS EACH"" LO OCTANE @ 2 TOKE
NS EACH""
4010 INPUT "DO YOU WANT TO BUY ?
(y/n) ";y$

```



```

4020 IF y$="n" THEN GO TO 4100
4030 INPUT "HI OCTANE OR LO ? (h
/ l) " : y$
4040 INPUT "HOW MANY CRYSTALS ?
": n$
4050 IF y$="h" THEN LET pr=3: GO
TO 4070
4060 LET pr=2
4070 IF n$>pr*cash THEN PRINT "Y
OU CAN'T AFFORD THEM !": GO TO
4010
4080 IF y$="h" THEN LET cash=cas
h-n$*pr: LET fuel=fuel+n$: PRINT
"O.K.": GO TO 4100
4082 LET fu=INT (RAND*3)
4084 IF fu=2 THEN PRINT "SORRY -
SOLD OUT!": GO TO 4100
4086 LET fuel=fuel+n$: LET cash=
cash-n$*pr: PRINT "O.K.":
4100 INPUT "DO YOU WANT A CLUE L
ETTER OR OPEN THE BONUS BOX ?
(c/b) " : y$
4110 IF y$="c" THEN GO TO 3000
4120 LET bo=INT (RAND*5)
4130 PRINT "YOUR BONUS IS....":
4140 IF bo=0 THEN PRINT "RAC MEM
BERSHIP": LET rac=1
4150 IF bo=1 THEN PRINT "AA MEMB
ERSHIP": LET aa=1
4160 IF bo=2 THEN PRINT "FREE RE
PAIRS TO YOUR SHIP": LET fit=1
4170 IF bo=3 THEN LET ne=INT (RAN
D*10+1): PRINT ne; " NEW RECRUITS
": LET crew=crew+ne
4180 IF bo=4 THEN LET ne=INT (RAN
D*200): PRINT ne; " STAR TOKENS"

```

```

: LET cash=cash+ne
4190 PAUSE 50: GO TO 100
4990 CLS : BORDER 0: PAPER 0: IM
K 7: CLS
5000 PRINT "          STATUS
          " : fuel; " FUEL
          " : fuel; " CRYSTALS"
"CREW
CE " : cash; " TOKENS"
RENGTH " : fit; " MEMBE
RSHIPS" : "CODE LETTERS " : p$
"LETTERS LEFT " : LEN p$-LEN p$
5010 IF rac=1 THEN PRINT AT 15,1
5; "R.A.C."
5020 IF aa=1 THEN PRINT AT 15,15
; "A.A."
5030 INPUT "PRESS ENTER TO CONTI
NUE": LINE d$
5040 CLS : BORDER 7: PAPER 7: IM
K 0: CLS : RETURN
6000 IF cash<0 THEN PRINT FLASH
1; "CAN'T PAY WAGES - CREW MUTINY
!": STOP
6010 IF fit<0 THEN PRINT FLASH 1
; "STARCAR DEFUNCT!": STOP
6020 IF fuel<0 THEN PRINT FLASH
1; "NO FUEL!": STOP
6030 IF crew<0 THEN PRINT FLASH
1; "NO CREW!": STOP
6040 RETURN
6900 INPUT "WHAT IS YOUR GUESS ?
(LITTLE LETTERS) " : g$
7000 IF g$=p$ THEN PRINT FLASH 1
; "YOU DID IT!": STOP
7010 PRINT FLASH 1; "WRONG!": B
EEP .5, -30: BEEP .5, 40: RETURN

```

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This year's features include

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- Pick of the projects - Demonstration of the best from ELECTRONICS TODAY INTERNATIONAL, HOBBY ELECTRONICS AND ELECTRONICS DIGEST.

Top Ten programs for the Spectrum

1	Flight Simulation	Psion (1)
2	Ant Attack	Quicksilver (5)
3	Lunar Jetman	Ultimate (2)
4	Zzoom	Imagine (4)
5	Pool	CDS (6)
6	Oracles Cave	Doric (-)
7	Kong	Ocean (3)
8	Scrabble	Psion (-)
9	Terror-Daktil	Melbourne House (-)
10	Hobbit	Melbourne House (-)

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

Top Ten programs for the Commodore 64

1	Hover Bover	Llamasoft (6)
2	Crazy Kong	Interceptor (-)
3	Escape MCP	Rabbit (9)
4	Spritman	Interceptor (4)
5	Frogger	Interceptor (8)
6	Scramble	Interceptor (3)
7	Annihilator	Rabbit (-)
8	Laser Zone	Llamasoft (-)
9	Tank Attack	Supersoft (-)
10	Grand Master Chess	Audiogenic (5)

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

Top Ten programs for the VIC-20

1	Arcadia	Imagine (2)
2	Catcha Snatcha	Imagine (4)
3	Wacky Waiters	Imagine (3)
4	Escape MCP	Rabbit (6)
5	Skyhawk	Quicksilver (-)
6	Laser Zone	Llamasoft (5)
7	Paratroopers	Rabbit (8)
8	Blitz	Commodore (-)
9	Amok	Audiogenic (-)
10	Matrix	Llamasoft (-)

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

Top Ten programs for the Dragon

1	The King	Microdeal (3)
2	Android Attack	Microdeal (1)
3	Cuthbert Goes Walkabout	Microdeal (4)
4	Frogger	Microdeal (5)
5	Gridrunner	Salamander (-)
6	Shark Treasure	Dragon (-)
7	Mined Out	Quicksilver (2)
8	Storm Arrows	Dragon (-)
9	Grand Prix	Salamander (-)
10	Ring of Darkness	Wintersoft (6)

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

BEST SELLERS

Top 30

1	Jet Pac	Ultimate	Spectrum (2)
2	Manic Miner	Bug Byte	Spectrum (1)
3	Trans-Am	Ultimate	Spectrum (3)
4	Zzoom	Imagine	Spectrum (6)
5	Horace and the Spiders	Psion	Spectrum (23)
6	Kong	Ocean	Spectrum (26)
7	Cookie	Ultimate	Spectrum (4)
8	Killer Gorilla	Program Power	BBC (-)
9	Jumpin' Jack	Imagine	Spectrum (25)
10	Hall of the Things	Crystal	Spectrum (22)
11	Splat	Incentive	Spectrum (18)
12	Cuthbert Goes Walkabout	Microdeal	Dragon (15)
13	Cuthbert in the Jungle	Microdeal	Dragon (12)
14	Krazy Kong	Anirog	VIC-20 (9)
15	Pssst	Ultimate	Spectrum (11)
16	3D Combat Zone	Artic	Spectrum (5)
17	Chuckie Egg	A & F	Spectrum (7)
18	Johnny Reb	Lothlorien	Spectrum (8)
19	Horace Goes Skiing	Psion	Spectrum (10)
20	The Hobbit	Melbourne House	Spectrum (-)
21	Frogger	Microdeal	Spectrum (14)
22	Penetrator	Melbourne House	Spectrum (13)
23	Pool	CDS	Spectrum (-)
24	The King	Microdeal	Dragon (-)
25	The Hobbit	Melbourne House	CBM 64 (-)
26	Valhalla	Legend	Spectrum (-)
27	Lunar Jetman	Ultimate	Spectrum (-)
28	Dungeon Master	Crystal	Spectrum (30)
29	Bewitched	Imagine	VIC-20 (-)
30	Hunchback	Superior	BBC (27)

Compiled by PCS Distribution (0254 691211) and sanctioned by the Computer Trade Association. Chart is for retail sales in individual outlets in the UK and Northern Ireland for the fortnight ended November 6

Top Ten programs for the ZX81

1	Football Manager	Addictive (1)
2	Scramble	Quicksilver (5)
3	Flight Simulation	Sinclair (2)
4	Asteroids	Quicksilver (-)
5	1K Games	Sinclair (6)
6	1K Chess	Sinclair (8)
7	Defender	Quicksilver (10)
8	Invaders	Quicksilver (-)
9	Planet of Death	Sinclair (-)
10	Inca Curse	Sinclair (-)

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

MR CHIP SOFTWARE

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SPECTRUM DARTS (48K)

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

WH££LER DEALER

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

VIC-20

GAMES AND UTILITIES

JACKPOT

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

KWAZY KWAKS

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

PACMANIA

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

BUGSY (Joystick Only)

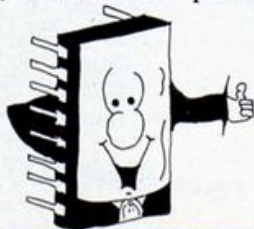
This is a Minefield with a difference as you step on the stones whilst collecting purple boxes which give you both time and points, they disappear from beneath your feet. DO NOT DESPAIR! "BUGSY" will randomly replace the stones but avoid bumping into him or its sudden death! An original compulsive and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

MINI-ROULETTE — PONTOON — HI-LOW

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

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

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



COMMODORE 64

GAMES AND UTILITIES

JACKPOT 64

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

WESTMINSTER

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

WH££LER DEALER

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

LUNAR RESCUE

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

PURCHASE LEDGER

Easy to use, single entry, handles 400 invoices per month, Gross/Nett purchases, V.A.T.£14.50
Disk Version£17.00
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CHIPMON — Contains a one- or two- pass Assembler, Disassembler and Monitor. A programming aid for the development of machine code programs and routines on the CBM 64.£12.50

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Now available on disc with added facilities.£10.00
Full documentation with all utility programs.

Other software available for the VIC and Commodore 64, send for free brochure, including RABBIT SOFTWARE at £5.50 each.

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DEALER ENQUIRES WELCOME

Pack 'em in: ace card games to suit you

Reverse Puzzle

Depending on your skill at cards, you will either solve Reverse Puzzle quickly... or you'll find it quite a struggle.

Twenty cards are dealt face up around the edge of the screen and you have to turn them all face down according to certain rules.

Place the cursor on any card and press the joystick trigger. This will turn the card face down. Count this as one and count to four cards clockwise. Press the trigger again and turn this fourth card face down.

Now move to any other card and repeat the sequence. I give no clue to help you!

Owners of 16K computers should start a new program at this point.

Those with more memory will have noticed the speed of the music getting slower as you add more games. This can be corrected by altering the delay loop in line 8240.

How it works

4000-4060 set up Game 4, draw layout

4080 branch to joystick routine

4100-4410 play routine. Checks are made at various points for a valid move and see if the puzzle has been solved, using variable DONE

4410 PRINT statement is same as the FDS, except last four characters are absent

Special instructions: In the PRINT statements below the letters U.D.L.R. refer to the cursor arrows. To print an arrow use ESC/CTRL and appropriate arrow. U=Up arrow etc.

4010 PRINT statement contains 40 inverse spaces 4015 PRINT title in inverse 4050 prints arrows on screen as a reminder to move clockwise. The first PRINT statement is ESC/ESC R SPACE ESC/ESC R. Second: ESC/ESC D D D L ESC/ESC D 4060 first PRINT statement ESC/ESC L SPACE ESC/ESC L. Second: ESC/ESC U D D L ESC/ESC U 4010 PRINT CTRL/Q CTRL/R CTRL/R CTRL/E D L L L L L Inverse vertical line, 2 inverse spaces, inverse vertical line, D L L L L L inverse V/Line 2 inverse spaces, inverse V/Line, 2 inverse space, inverse V/line 8109 alter variable GM to read GM (greater than) 4. For all 16K owners, if you are starting a new program then game number will be 1, so GM will have to read GM (greater than) 1.

Continuing Les Howarth's series of patience games for any Atari. It doesn't matter if you missed the earlier games. Just type in these listings and play straight away. There will be more next week.

Listing 1 - initialisation and sub-routines. Type this in first

```
10 REM Patience by R.L.Howarth, NOV '82
20 DIM A$(512), B$(36), B1$(40): GRAPHICS 0
25 B$(1)="4": B$(36)="4": B$(2)="8": B$(1,3)
="888": B$(34,36)="888": B1$(1)="6": B1$(40)
="9": B1$(2)=B1$: POKE 559,62
30 I=PEEK(106)-16
40 POKE 54279, I: POKE 53256, I: POKE 53277,
3: UTAB=PEEK(134)+PEEK(135)*256: ATAB=PEEK
(140)+PEEK(141)*256
60 OFFS=I*256+1024-ATAB: HI=INT(OFFS/256)
: LO=OFFS-HI*256: POKE UTAB+2, LO: POKE UTAB
+3, HI
70 GOSUB 8000: GOSUB 8200: HI=85: GOTO 8100
80 U=N1: FOR T2=28 TO 49 STEP N3: FOR H=N3
TO N1 STEP -N1: S(U)=P(T2+H): U=U+N1: NEXT
H: NEXT T2
90 U=29: H=53: FOR T2=N1 TO 24: IF S(T2)=N0
THEN H=H-N1: GOTO 95
93 P(U)=S(T2): U=U+N1
95 NEXT T2: IF H<53 THEN FOR I=H TO N52: P
(I)=N0: NEXT I
96 RETURN
200 ? NU$: "++": SU$: RETURN
300 SUIT=N1: C=P(T): POSITION N13,19: IF T1
<N1 THEN ? " ": GOTO 320
310 ? T1: IF T1<N10 THEN ? " "
```

```
320 GOSUB 500: POSITION 6,18: GOSUB 200: RE
TURN
400 FOR T=N1 TO N52: P(T)=T: NEXT T: FOR I=
(I)=P(R): P(R)=A: NEXT I: RETURN
500 SUIT=N1
505 IF C>N13 THEN C=C-N13: SUIT=SUIT+N1: G
OTO 505
510 NU$=STR$(C): IF C=N1 THEN NU$="A "
520 IF C>N10 THEN NU$="J " : IF C>N11 THEN
NU$="Q " : IF C>N12 THEN NU$="K "
525 IF C>N10 THEN NU$="K "
530 SU$="": IF SUIT>N1 THEN SU$="♦": IF S
UIT>N2 THEN SU$="♥": IF SUIT>N3 THEN SU$=
"♣"
540 RETURN
700 ST=STICK(0): IF STRIG(N0)=N0 THEN POP
: ON GM GOTO 810,2100,3100,4100,5100,610
0
701 IF PEEK(53279)=N6 THEN POP: GOTO 810
0
702 IF PEEK(53279)=N3 THEN POP: GOTO 812
0
703 IF ST=15 THEN 700
705 H=N0: U=N0: H=H+(ST=N7)-(ST=N11)+(ST=N
6)-(ST=N10)+(ST=N5)-(ST=9): V1=Y: Z=Z+(H#2
0): POKE 77,N0
710 IF GM#2 THEN 714
712 IF (ST=N14 OR ST=N6 OR ST=N10) AND Y
=170 THEN Y=N130: GOTO 720
714 IF (ST=N14 OR ST=N10 OR ST=N6) AND Y
>N34 THEN Y=Y-GU: IF GM=N3 AND Y=N130 THE
N Y=114
716 IF (ST=N13 OR ST=9 OR ST=N5) THEN Y=
Y+GU: IF Y>N130 AND GM#4 THEN Y=170: A$(Y
1,Y1+40)=B1$: GOTO 722
720 A$(Y1,Y1+36)=B1$
722 IF GM=N3 OR GM#4 THEN RETURN
723 IF Z>176 THEN Z=176
```

Monte Carlo

The fifth game in the series is reasonably easy to complete though you need to think ahead to be successful.

The object is to pair off all the cards in the pack. The cards are dealt to a five by five layout and two cards which match can be removed providing they are immediately adjacent in any direction — vertical, horizontal, or diagonal.

Having removed as many pairs as possible, place the cursor on the pack and press the trigger. The cards left in the layout are then picked up and re-dealt in exactly the same order but minus any spaces. So the cards slowly move up to the top of the screen. Extra cards are then added from the pack to make up the deficit in the layout.

The process is continued until all cards have been paired off. It is helpful to try to visualise where cards are re-positioned after a deal because you may have a choice of which two cards to remove. It is sometimes an advantage to leave a pair in the layout in order to benefit from the re-deal

How it works

5000-5050 set up game in similar manner to previous games

5060-5090 link program to joystick routine

5100-5135 decide which move you are making and reject illegal moves

5136-5140 check for matching pair

5150 replace a card in layout if chosen wrongly

5160-5220 remove cards from layout

5300-5380 pick up and re-deal cards to layout

Special instructions: In the PRINT statements the letters U D L R refer to the cursor control arrow. U=Up Arrow etc. To print an arrow use ESC/CTRL/ and appropriate arrow.

5000 PRINT title in inverse

5132 and 5134 note W=minus 1 (minus signs are easily missed)

5150 first PRINT statement is: U U U L L L : NU \$: D D L: S U \$.

Second print statement is: D L L L CTRL/Q CTRL/R CTRL/R

CTRL/E 5170 PRINT statement is: CTRL/Z CTRL/R CTRL/R

CTRL/C 5180 PRINT statement is: CTRL/Q CTRL/R CTRL/R

CTRL/E 8109 alter variable GM to read GM (greater than) N5 or

for 16K owners GM (greater than) N2 if you have made another tape.


```

724 IF Z<N56 THEN Z=N56
726 IF Y<N34 THEN Y=N34
728 IF Y>N130 AND GM=N1 THEN Z=96
730 IF GM=N2 THEN RETURN
734 IF Y>162 AND GM=N3 THEN Y=162
740 A$(Y,Y+35)=B$:POKE 53248,Z:RETURN
1000 SOUND N0,255,N10,8:FOR I=N1 TO N52:
NEXT I:SOUND N0,N0,N0,N0:RETURN
1100 FOR I=N1 TO N2:SOUND N0,20,I*(PICK+
N1),N10,N4:SOUND N1,20,I*(PICK+N2),N10,N
4
1110 FOR H=N1 TO 8:NEXT H:NEXT I:SOUND N
0,N0,N0,N0:SOUND N1,N0,N0,N0:RETURN
1200 V=PEEK(709):FOR I=N0 TO N3:FOR W=N3
TO N10 STEP 0.5:ON GM GO TO 1210,1212,12
14,1216,1218,1220
1210 SOUND I,200/(I+GM),N12,N12-H:NEXT H
:NEXT I:GOTO 1240
1212 SOUND I,240/(I+GM),N12,N12-H:NEXT H
:NEXT I:GOTO 1240
1214 SOUND I,N4*(I+GM),N2,N12-H:NEXT H:N
EXT I:GOTO 1240
1216 SOUND I,120*(I+GM),N10,N12-H:NEXT H
:NEXT I:GOTO 1240
1218 SOUND I,120/(I+GM),N12,N12-H:NEXT H
:NEXT I:GOTO 1240
1220 SOUND I,220/(I+GM),N10,N12-H:NEXT H
:NEXT I:GOTO 1240
1240 FOR I=N0 TO N3:POKE 709,16-I*I:FOR
H=N1 TO N10:SOUND I,(N10+I*GM),N12,N10-(
H*(GM+N6)):FOR A=N1 TO N3:NEXT A
1250 NEXT H:NEXT I:POKE 709,0:FOR I=N0 TO
N3:SOUND I,N0,N0,N0:NEXT I
1300 SOUND N0,N10,N0,N4:FOR H=N1 TO N5:N
EXT H:SOUND N0,N0,N0,N0:RETURN
9000 N1=1:N0=N1-N1:N2=N1+N1:N3=N2+N1:N4=
N3+N1:N5=N4+N1:N6=N5+N1:N7=N6+N1:N10=N5*
N2:N11=N10+N1:N12=N10+N2
9005 N13=N12+N1:N14=N12+N2:N17=N12+N5:N2
2=N17+N5:N23=N22+N1:N34=N17*N2:N52=52*N
6=56:N130=130
8100 PS=N0:DI1 P(N52),SUS(N1),NUS(N2),DX
N7,N6,CARD$(40),BLANK$(40),F0$(40),S(25
):OPEN #N1,N4,N0,"K:"PICK=N1
8020 CARD$="|-----| |-----| |-----|
|-----|
|-----| BLANK$="
*****
8030 F0$="|-----| |-----| |-----|
|-----|
|-----|
8040 RETURN
8050 A$(1)="0":A$(512)="0":A$(2)=A$:GOSUB
B:740:RETURN
8060 FOR I=N0 TO N7:FOR ROW=N0 TO N6:DI1
,ROW=N0:NEXT ROW:NEXT I:RETURN
1100 GRAPHICS N1:POKE 711,12:POKE 559,62
:POKE 752,N1:POKE 710,116:POKE 712,116:P
OKE 53248,N0
8101 ? #N6;"-----":? #N6
8102 POKE 764,255:GM=N0:? #N6;" SELECT
T GAME"
8103 ? #N6:? #N6;" r HOLE IN ONE"? #N6
;" - PACKET BOAT"? #N6;" + BLOCK ELEV
EN"? #N6;" ● REVERSE PUZZLE"
8104 ? #N6;" ■ MONTE CARLO"? #N6;" I P
OKER SOLITAIRE"? #6
8105 ? #N6;" during play press option
to -restart game"? #N6;" star
to -return to menu"
8109 GET #N1,GM:L=GM+256:GM=GM-48:IF GM(
N1 OR GM)N6 THEN 8109
8110 POKE 704,N0:GOSUB 1100:POSITION N2,
N0:? #N6;"selected game "CHR$(L):GOSUB
9000:GRAPHICS N0:POKE 752,N1
8120 ? "":GOSUB 400:POKE 559,62:POKE 75
2,N1:ON GM GOTO 600,2000,3000,4000,5000,
6000
8200 GRAPHICS N0:POKE 82,N0:DL=PEEK(560)
+256:PEEK(561)+N4:POKE 752,N1:POKE 710,3
4:POKE 709,0:POKE 712,N0
8210 POKE 708,200:FOR I=N2 TO N11:POKE D
L+I,N5:NEXT I:FOR I=N12 TO 17:POKE DL+I,
N6:NEXT I
8226 POSITION N0,N10:? "XXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX":POSITION N3,N
121:"BY r.l.howarth"
8230 FOR I=N0 TO 35 STEP N5:POSITION I,N
4:? CARD$:NEXT I:FOR I=N1 TO 36 STEP N5
8240 READ SUS:SOUND 0,ASC(SUS)-I,N10,N4:
SOUND N1,ASC(SUS)-I+N1,N10,N4:POSITION I
,N5:? SUS:FOR H=N1 TO N7:NEXT H
8250 POSITION I+N1,N7:? "H":NEXT I:SOUND
N0,N0,N0,N0:SOUND N1,N0,N0,N0:FOR I=N1
TO 70:NEXT I:POKE 82,N2
8260 RESTORE 8310:FOR I=N0 TO N10:READ C
:POKE 1536+I,C:NEXT I:POKE 512,N0:POKE 5
13,N6:RETURN
8300 DATA P,A,T,I,E,N,C,E
8310 DATA 76,169,22,141,10,212,141,24,20
6,184,64
9000 ? " DO YOU REQUIRE INSTRUCTIONS? Y/
N"?
9010 POKE 764,255:GET #N1,H:IF H=78 THEN
10020
9020 IF H<89 THEN 9010
9030 GRAPHICS N0:POKE 710,N4:POKE 559,62
:POKE 752,N1:ON GM GOTO 9100,9200,9300,9
400,9500,9600

```

```

9200 ? " 28 cards are dealt in seven col-
umns, only the bottom card of each col-
umn is playable ";
9210 ? "The object of the game is to col-
lect packets of 4 cards of the same deno-
mination.Cards can be played";
9220 ? " on each other if they are simi-
lar. When 4 similar cards have been bro-
ught together,";
9230 ? " they are removed by placing the
cursor on the bottom card and press-
ing the button. Cards are dealt";
9240 ? " from the pack by placing curs-
or on pack and pressing button. A spa-
ce can only be filled by a card";
9250 ? " from the discard pile. Pack
is redealt from discards":60T0 10000
9300 ? " 9 Cards are dealt in a square.
The object of the game is to get rid
of all the pack,";
9310 ? "by taking any 2 cards which add
to eleven. Picture cards can only be
taken when Jack,Queen,King ";
9320 ? "are on the board at the same tim-
e. Spaces can be filled from the pack
by placing cursor on a space ";
9330 ? "and pressing button.":60T0 10000
9400 ? " 20 Cards are dealt face up in a
large square"
9410 ? " The object of the game is to en-
d up with the cards in the layout all f-
ace down,";
9420 ? " Place the cursor over any card
and press button to turn face down,":?
" Count this as 1,"
9440 ? " Now move in a clockwise directi-
on counting 2,3,4. Turn the fourth ca-
rd face down. Choose ";
9450 ? "any other card,count 1 and turn
down,Turn down the fourth card and carry
on turning 1 and 4 "
9460 ? "until all the cards are reversed
":60T0 10000
9500 ? "25 Cards are dealt in a 5x5 layo-
ut.The object of the game is to pair off
all the cards.A pair can only ";
9510 ? "be taken,if they are next to ea-
ch other in any direction-":? " VERT-
ICAL,HORIZONTAL or DIAGONAL."
9520 ? "Place cursor on card and press b-
utton. If ";
9530 ? "you cant go,then place cursor on
pack and press button.The cards in the
layout will be re-dealt ";
9540 ? "minus any spaces.The layout will
be increased to 25 cards from the dec-
ik":60T0 10000
9600 ? "25 Cards are dealt from the sto-
ck one by one.Place each card anywhere on
a 5x5 grid to make the best ";
9610 ? "poker hands,Once laid,a card can
not be moved,":? "When the grid is fille-
d,the score willbe calculated ";
9620 ? "for 10 hands-":? " 5 across,5 d-
own and 2 diagonal.":? "The object being
to get the best score possible"
10000 ? ":? "PRESS START TO BEGIN"
10010 IF PEEK(53279)>N6 THEN 10010
10020 GOSUB 1100: "?":RETURN

```

```

>N1 AND R<N5) THEN GOSUB 1000:GOTO 4000
4140 IF PICK=N2 THEN D2=PS:IF D1-D2=N17
THEN D2=D2+20
4150 IF PICK=N1 THEN PICK=N2:D1=PS:GOTO
4170
4160 PICK=N1:IF D2-D1<>N3 THEN PICK=N2:G
OSUB 1000:GOTO 4000
4170 GOSUB 1100:GOSUB 4400:IF PICK=N1 TH
EN DONE=DONE+N2:IF DONE=20 THEN GOSUB 12
00:GOTO 900
4180 S<PS>=N0
4300 IF STRIG(N0)=N0 THEN 4300
4310 GOTO 4000
4400 POSITION A<N5-N3,R<N4-N4:IF (R=N1 O
R R=N5) AND (A<N1 AND A<7) THEN ? FD:RE
TURN
4410 ? " | + + + + | | + + + + | | + + + + | | "
:RETURN

```

Listing 3 – Monte Carlo

```

4990 REM Game 5
5000 POSITION N1,N2,N3=? "MONTE CARLO":Y=
N34:Z=N56:G=12:DONE=N0:PICK=N0
5010 POKE 704,42:POKE 709,N0:POKE 710,24
6:POKE 712,2481:T=N1:G=N23:POKE DL+N17,N2
:POKE DL+N22,130
5015 POKE 54286,192:FOR I=N1 TO 24:S(I)=
N0:NEXT I:FOR ROW=N0 TO 16 STEP N4
5020 FOR I=N2 TO N22 STEP N5:POSITION I,
ROW?: CARDS:C=P(T):D(I+N3)/N5,(ROW+N4)/
N4-N1:=C:GOSUB 500
5030 POSITION I+N1,ROW+N1:GOSUB 200:GOSUB
B 1300
5040 T=T+N1:NEXT I:NEXT ROW:T1=27:T2=N0:
COLOR 25:PLOT 27,N0:DRAHTO 27,20:COLOR 1
49:PLOT 27,20:DRAHTO 36,20:COLOR 153
5050 DRAHTO 36,N1:COLOR 21:PLOT 36,N0:DR
AHTO 26,N0:POSITION 30,N4?: FD$:POSITION
31,N6?: T1:GOSUB 8050
5060 GOSUB 700
5070 IF Z>136 AND H>-N1 THEN Z=168:Y=66
5080 IF Z>136 AND H=-N1 THEN Z=136
5090 GOSUB 724:GOTO 5060
5100 IF Z=168 AND PICK=N0 THEN T2=N0:GOTO
0 5300
5110 A=INT(Z/20)-N1:R=INT(Y/32)-N1:C=D(A
,R):IF C=N0 AND PICK=N0 THEN GOSUB 1000:
GOTO 5060
5120 IF PICK=N0 THEN D1=C:A1=R:R1=R:GOSUB
B 500:MATCH=C:PICK=N1:GOTO 5160
5130 IF A=A1 AND R=R1 THEN POSITION 30,N
12?: BLANK$:PICK=N0:C=D1:GOSUB 500:POSIT
ION ARN5-N3,ARN4:GOTO 5150
5132 R5=N0:FOR H=-N1 TO N1:IF A=A1+H THE
N 5134
5133 NEXT H:GOTO 5140
5134 FOR H=-N1 TO N1:IF R=R1+H THEN 5136
5135 NEXT H:GOTO 5140
5136 D2=C:GOSUB 500:IF C=MATCH THEN PICK
=N0:DONE=DONE+N2:POSITION 30,N12?: BLANK
$:C=N0:GOTO 5170
5140 GOSUB 1000:GOTO 5200
5150 ? CARDS: "*****":NU$: "+++":SU$:D(A
,R):D1=IF Y<162 AND D(A,R+N1)<>N0 THEN ?
"****"
5154 GOTO 5190
5160 POSITION 30,N12?: CARDS:POSITION 31
,N13:GOSUB 200
5170 D(A,R)=N0:POSITION ARN5-N3,ARN4?: B
LANK$:IF Y>34 THEN IF D(A,R-N1)<>N0 THEN
POSITION ARN5-N3,ARN4?: " "
5180 IF Y<162 AND D(A,R+N1)<>N0 THEN POS
ITION ARN5-N3,ARN4+N4?: " "
5190 GOSUB 1100
5200 IF STR16(N0)=N0 THEN 5200
5210 IF DONE=N52 THEN GOSUB 1200:GOTO 90
0
5220 GOTO 5060
5300 R5=N1:FOR ROW=N0 TO 16 STEP N4:FOR
I=N2 TO N22 STEP N5:S(R5)=N0:R5=R5+N1
5310 POSITION I,ROW?: BLANK$:C=D(I+N3)/
N5,(ROW+N4)/N4-N1?:IF C<>N0 THEN T2=T2+N
1:S(T2)=C
5330 NEXT I:NEXT ROW
5340 T2=N1:FOR ROW=N0 TO 16 STEP N4:FOR
I=N2 TO N22 STEP N5:C=S(T2):IF C=N0 THEN
5370
5345 IF T>N0 THEN GOSUB 1300
5350 POSITION I,ROW?: CARDS:T2=T2+N1:D(I
+N3)/N5,(ROW+N4)/N4-N1:=C:GOSUB 500:POS
ITION I+N1,ROW+N1:GOSUB 200
5365 NEXT I:NEXT ROW:POSITION 31,N6?: T1
:IF T1<N10 THEN ? " "
5366 GOTO 5060
5370 IF T1<N1 THEN D(I+N3)/N5,(ROW+N4)/
N4-N1:=N0:T1=N0:GOTO 5365
5380 T1=T1-N1:C=P(T):T1=T+N1:GOTO 5345

```

Listing 2 – Reverse Puzzle

```

3990 REM Game 4
4000 POKE 710,116:POKE 712,116:POKE 709,
N10:POKE 704,102:POKE 752,N1:60:=32:POKE
DL+N17,N2
4005 POKE DL+N22,130:POKE 1538,36
4010 FOR I=N0 TO 21:POSITION N0,I:?"":N
EXT I:POKE 54286,192
4015 POSITION N12,N23:?"REVERSE PUZZLE"
;
4020 U=N1:T=N1:FOR ROW=N0 TO 16 STEP N4:
FOR I=N2 TO 32 STEP N5:C=P(T)
4030 POSITION I,ROW:?"CARDS:60SUB 500:PO
SITION I+N1,ROW+N1:60SUB 200
4040 S(U)=P(T):U=U+N1:IF ROW=N0 AND ROW<
15 AND I=32 THEN 4050
4045 IF ROW=N0 AND ROW<15 THEN I=27
4050 T=T+N1:NEXT I:NEXT ROW:POSITION N17
,N6:?"* * * * * :POSITION 30,9:?"* * * * * *":
DONE=N0:PS=N1:PICK=N1
4060 POSITION N17,N14:?"* * * * * :POSITION
8,9:?"* * * * * *":Y=N34:Z=N56:60SUB 8050
4080 60SUB 700:60TO 4080
4100 A=INT(Z/20)-N1:R=INT(Y/32):PS=A:IF
R>N1 THEN 4120
4110 60TO 4130
4120 PS=N22-R:IF A=N7 THEN PS=A+R-N1
4125 IF R=N5 THEN PS=18-A
4130 IF S(PS)=N0 OR (A>N1 AND A<N7 AND A

```


You're in charge of the ball and chain

Here's the second part of my Slave Labour game for the unexpanded TI-99/4A. Type it in and find out just how hard a taskmaster you are.

Using the D and S control keys your job is to place a ball and chain in the path of a slave to keep him planting crops in the top half of the screen.

If three slaves escape you're sacked.

Here's part two of Slave Labour, Iain Bartram's novel game for the unexpanded TI-99/4A

How it works

-2020 escaping slaves routine
2030-2070 word centring for screen output
2080-2120 rest, return to main program
2130-2200 slave bouncing off walls and off ball and chain in correct direction
2210-2310 planting crop and determine direction of return
2320-2370 scoring
2380-2450 move to next field
2460-2600 end, play again?

```
1990 NEXT I
2000 RETURN
2010 IF SL=3 THEN 2400
2020 FOR W=19 TO 20
2030 CALL HCHAR(W,1,32,32)
2040 NEXT W
2050 GOTO 970
2060 ADIR=-1
2070 IF E=-2 THEN 2100
2080 BDIR=-1
2090 GOTO 1130
2100 BDIR=1
2110 GOTO 1130
2120 IF (B<2)+(B>31) THEN 2130 ELSE 2140
2130 BDIR=-BDIR
2140 CALL GCHAR(A+ADIR,B+BDIR,BL)
2150 IF BL=144 THEN 2170 ELSE 2160
2160 IF A=6 THEN 2170 ELSE 1060
2170 IF A=10 THEN 1060
2180 ADIR=-ADIR
2190 IF B<2 THEN 2240
2200 IF B>31 THEN 2220
2210 IF RND>.5 THEN 2220 ELSE 2240
2220 BDIR=-1
2230 GOTO 2250
2240 BDIR=1
2250 CALL SOUND(50,-6,1)
2260 SC=SC+A*2-10
2270 K$="SCORE="&STR$(SC)
2280 R=2
2290 GOSUB 1960
2300 IF SC>340 THEN 2310 ELSE 2380
2310 CALL CLEAR
2320 R=8
2330 K$="THIS PLANTATION IS FULL"
2340 GOSUB 1960
2350 R=10
2360 K$="MOVE ALONG TO THE NEXT ONE"
2370 GOSUB 1960
2375 GOTO 960
2380 CALL HCHAR(A,B,144)
2390 GOTO 1140
2400 CALL CLEAR
2410 IF SC>200 THEN 2420 ELSE 2460
2420 R=12
2430 K$="YOUR NOT A BAD TASK MASTER"
2440 GOSUB 1960
2450 GOTO 2490
2460 R=12
2470 K$="YOU CALL YOURSELF A TASK MASTER!"
2480 GOSUB 1960
2481 FOR D=1 TO 50
2482 NEXT D
2490 CALL CLEAR
2500 R=12
```

```
2510 K$="DO YOU WANT TO PLAY AGAIN?"
2520 GOSUB 1960
2530 CALL KEY(0,K,S)
2540 IF K=78 THEN 2600
2550 IF K=89 THEN 2570
2560 GOTO 2530
2570 SC=0
2580 SL=0
2590 GOTO 960
2600 END
```

Micro Tip

Atari

256 colours at once

This interrupt-driven program puts all of the Atari's 256 colours on the screen at the same time.

Here's how it works. As well as showing what graphics mode the next line is, the display list can also give interrupt instructions. (An interrupt is a machine code subroutine called during a vertical or horizontal blank on the screen.)

When this instruction is found, the computer looks at location 54286.

If it contains 192 it finds the routine to be executed in memory by looking in addresses 513 and 512, high and low memory bytes respectively.

Once the interrupt is completed the computer returns to what it was doing before being disturbed.

What my program does is change the colour register in each of the display list interrupts therefore providing 16 colours. The 16 shades of these colours are produced using Graphics 9.

```
10 GRAPHICS 9
20 REM FILL SCREEN
30 FOR X=0 TO 79:C=INT(X/5):COLOR C*(X/5)
40 PLOT X,0:DRAWTO X,191:NEXT X
50 REM DISPLAY LIST INTERRUPT MACHINE CODE
60 FOR I=1536 TO 1548:READ D:POKE I,D:NEXT I
70 DATA 72,165,205,141,26,208,24,105,16,133,205,104,64
80 REM PUT INSTRUCTIONS IN DISPLAY LIST
90 DL=PEEK(560)+256*PEEK(561)
100 FOR I=0 TO 15:READ D:POKE DL+D,143:NEXT I
110 DATA 6,16,28,41,53,65,77,89,102,114,126,138,150,162,
174,186
120 REM HORIZONTAL LINES
140 COLOR 0:FOR I=0 TO 191 STEP 12:PLOT
O,Y:DRAWTO 79,Y:NEXT Y
150 POKE 712,0:POKE 512,0:POKE 513,6:POKE 205,0:POKE
54286,192
160 GOTO 160
```

The instruction put in the display list is 128 plus its previous contents. For example 15 + 128, giving 143.

Amin Hoque

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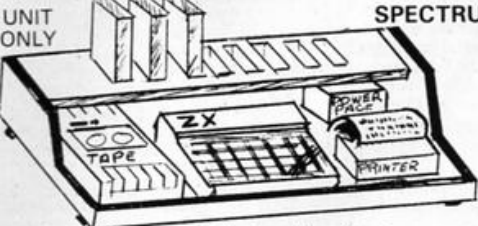
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