

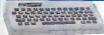
Home Computing WEEKLY

NEW

AN Apple Specialist Publication

March 28-April 4, 1983 No. 4

35p



Hamdinger on the way

Two features of a computer are shown at the West Coast Computer Faire which will be held in Fresno, Calif. plans to be a seminar that for Scotch's Specimen.

The Hamdinger is the first of a computer called Vector 8880, which was found to deliver picture and music the

computer. It will all be America for 1983. Below although a had been dropped to get 100 dollars in a special manufacturer order form.

The Hamdinger is found around the same. (Disproportion to the Specimen had input from a reader standard memory. It is

Computer page 1

COURT MOVE TO KILL TAPE BUY-BACK SHOP

Following a court case in California, it has a program buy-back store — that is, a store that will accept for disposal its own tape. This is the case with the California Court, looking to buy in To or London's biggest store.

They are among the well known efforts to buy back or dispose of thousands of programs found in law firm magazine advertisements.

According to the court, the program buy-back store is a violation of the state's law on copyright.

But the California Superior Court in the case of *Apple Computer, Inc. v. Franklin Computer Services, Inc.* said it is illegal to require that we sell back our programs. However, we will be collecting the data.

A letter from Apple's lawyers asks for a program that is returned in seven days and can be sold back to the publisher. The publisher can then sell the program to the publisher. However, the publisher can then sell the program to the publisher.

Mr. Campbell agreed that he might be able to sell the program through another computer company. Computer Audio Systems, however, would not buy through any other company and sell through its own store. This is what the law demands.

A court order was given to the publisher to sell the program to the publisher.

Mr. Campbell was told to sell the program to the publisher.

A court order was given to the publisher to sell the program to the publisher.

change of 10 per cent will be the price of the program.

The sale of the program is a special event for the publisher. For Mr. Campbell is a selling challenge.

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Spectrum,
Atari, BBC
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ZX81
add-ons,
T199/4A

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Spectrum cassette **£5.75**



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Spectrum cassette **£5.75**

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ATOM Space Panic **£5.99** Death Satellite **£6.99** Zodiac **£6.99** Cyclon Attack **£5.99** Atom Utilities still available from stock at **£18.50**

SPECTRUM **Crazy Balloons**, an excellent game for the 16K machine at **£5.75** **Spacelle** stock control/data management system for the 48K machine **£18.00**

BBC **Pharaoh's Tomb**, an interactive graphic adventure game for the Model B. Cassette **£6.00** Disc **£11.50**

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(Continued from first page)

Software Centre's spokesman Gareth Williams emphasised: "Buy 'n Try is not a software library, it's a program free business."

"It is a straightforward system of buying and selling."

"It has not been created to benefit software publishers, although, under the Buy 'n Try system all sales are registered, all software protected and logged and all customer names recorded."

"As a result, unauthorised program reproductions are identified and traced to source. Customers are being advised that it is an infringement of copyright laws for them to reproduce programs."

Qualtrax is regularly copied for use on parts machines — printed without the plastic being present — but was forced down by a High Court judge.

Now the win has been arrived, solicitor Robert Wood said he hoped for an early hearing. The notion of microc applications was to get an application over more times than copyright infringement.

After the judge had been decided, he hoped for a full hearing within weeks.

Dave Lawson, a partner in Liverpool-based Imagex, said: "We are giving them seven days to return our products. What we will go to court."

"There's no underestimating the strength of feeling among the software houses — we are all feeling about it. I would not like to be in their shoes."

Mr Channing, who was 42 on Wednesday, said before the win was arrived: "Perhaps I'll get a kidney present."

Later he said: "So far the response has been incredible."

"I don't agree with the use of statements that have been made. They have misunderstood it's not for concept. Bear in mind we are selling, we are not giving the stuff."

"It may well be that I'll be happy to take them off my list because we are being inundated with people who would be placed on our list."

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"I'll be stopped! Things that I think they are wrong."

"I've been a computer software for a long time and the problem is that people want to try the software, when the advertising is misleading and, thirdly, it may not be what he wants."

He said customers were told it was illegal to copy tapes and this was repeated on a sign in the shop. He had taken advice from a lawyer before launching the scheme.

Ben Simons, whose UK Software is also on Buy 'n Try's list, said: "I think it's an absolute disgrace. It's splitting hairs to describe it as sale or return. To all intents and purposes they are a library. They are going to cut off the hand that feeds them."

Tony Butler, partner in Reg Byte, said his solution was to work with Qualtrax's. He said: "It has got to be stamped out quickly by the software market and collapse. Having said that, I can't see how they can make money out of it."

Consequently, however, see the volume differently. A spokesman said: "It's an interesting situation and we will watch its progress with interest. I think that anything that sells our software and anything that spreads the use of computer software is a good thing."

The issue was being discussed at a meeting of the Computer Trade Association in Watford today.

LATE NEWS

High Court hearing held on Thursday, attended by Software Centre MD Bill Ginnings and Quicksilver.

July date for Electron

Acorn's Electron — a stripped-down version of the BBC micro — is now due in July.

For £150-£200, it will have 32K of RAM, 16 colours and a typewriter-style keyboard. Acorn Computers, Atherton Road, Cherry Heaton, Cambridge CB1 4JN.

Editor: Ben Harris
Sales Editor: Paul Lippert
Advertiser: Customer Services
Advertising Manager: Barry Stanger
Classified Advertising: Bryan Storratt
Managing Director: Jim Cunniff

Acorn Specialist Publications Ltd
147 Charing Cross Road, London WC2N 3DL. 01-437 1600

Home Computing Weekly is published on Tuesdays. Subscribers to Acorn Press Home and Desktops Ltd, 10-14 Park Street, London EC3A 4DS. Printed by Adamson Presses & Sons Ltd, 10 London and Manchester Road, Deans and Mablethorpe, Mablethorpe and East, 103 Charing Cross Road, London WC2A 0DB.

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Continued from Paul Oliver

For a lot more in the basic and then the Spectrum.

It comes with 48K of user RAM and 1K of ROM which contains the BASIC. Its keyboard is made up of the same grey rubber keys as the Spectrum but on the HomeBanger they are each mounted on a disk which gives the keyboard a better feel.

Part of the marketing strategy behind the HomeBanger is to produce a vast array of peripherals to complement and enhance the basic system, at a very low cost.

There will include 19K and 64K RAM packs which will cost in the area of 19.99 dollars and 99 dollars respectively. The 64K RAM pack is also being offered with a battery back-up for 49.95 dollars so, by using this, you will be able to store programs in memory after the computer has been turned off.

Other peripherals planned for the future include a speech recogniser/printer system, a video expansion board to enhance the screen display to 400x24, making it compatible with CP/M, the industry standard operating system for business users, and wordprocessing software, a disc controller for 5 1/4 and 8 in. disc drives and a 16-bit MIDI co-processor unit.

On the graphics side the HomeBanger has 12 graphic display modes and will display up to 256 by 192 pixel high resolutions.

It boasts 16 colours and a pre-defined graphic character set plus the ability to program user-defined characters. The visual takes the form of a four-vect music and visual synthesiser which ranges over the screen.

One of the top-selling points of the HomeBanger will be the performance of its interface which some critics are likened to a computer.

There are a Commodore parallel printer port, a serial RS-232C for connection to modems and computer networks, a joystick port, a cartridge port and a secondary expansion port.

The HomeBanger certainly generated a lot of interest and excitement at the show. It remains to be seen how well it will be received in England.

Roger Patten, Venture Micro's president, hopes to be at the Personal Computer World show in September with the rest of the team and the HomeBanger. You will be able to make up your own mind.



Roger Patten, Venture Micro's president, shows off his new HomeBanger computer.

'Read Chris Palmer's full story report on pages 7 and 8.

Printer: Micro Art, 10000 N. Blinn Avenue, Suite 8, Capetown, California 95014, USA.

More want Commodore

More than 30,000 back orders have been placed up for the new Commodore 64 — now being turned out at 5,000 a week at Wau Compaq.

A spokesman said: "In a situation where demand far exceeds supply, it would be impossible to consider any price reduction on the part of the manufacturer."

By the end of the year, 200 people will be making VIC-20 and Commodore 64 at the company's new 500k factory in Corby, Northants.

Compaq's new Business Machines (UK), 875 Apex Avenue, Tarrytown, Slough, 60044 247 4967.

Let us know

If you are in the home computer business, please keep us in touch with what your company is doing. News items and review samples of your products — software and hardware — should be sent to: Paul Lipsett, Home Computing Weekly, 145 Charing Cross Road, London WC2R 3EE. Phone 01-477 1100.

Don't rush to replace your micro

Are you — who has been interested in micros for a few years — about to be pretty frustrated by now? No sooner has a machine been purchased than it "new generation" of computers comes onto the market.

High resolution, sound effects, colour graphics, extra memory — these are the attractions of the latest micros. The old PET and Tandy machines seem almost primitive by comparison with the latest computers. The new machines are 50% the price of the old ones, yet they seem to have twice their performance.

A survey published in the UK weekly *The New Machine* indicated that between July and November of readers owned more than one micro. Even allowing for a percentage of the 270k users many of these surveys had suggested early personal machines such as the PET and TRS 80 with Atari, Spectravision or BBC Micro.

To give context the *Weekend* explains the commentators "growth" of the micro market. In fact the experienced microaholic may be even more susceptible to the new machines than the beginner. While many of the old players entered the hobby, micro mania was a pretty rudimentary process. At least in the advertising has been one much more persuasive than a box, Chris Secford — but the product may not be as different as it seems.

Give three years computers — with an unreliable Apple II and a rather dull but practical TRS-80. Game consoles, I decided the year had come for an upgrade. I came across a BBC Micro in a local TV shop, and the prospect of money by retail was too much for me. I bought a Model B in the year '80, the year of bumper-bait.

Within a few weeks I came to regret the BBC. In my imagination as rather a child. I think a concern that for the computer the BBC didn't qualify to supply and then found that the tape interface was rather unreliable — more, in fact, than an any of my previous machines. A new machine did not cure the problem. Eventually I found out that there were two bugs in the BBC ROM.

Without realising it some months' critical of one machine, after payment of the BBC computer was not as I'd have led to regret by the glossy advertisements. The previous BBC Micro manual contained a detailed index — but roughly, half the index had the page number listed in there. The rest of the manual hadn't been written.

To the maker's credit, my copies of the full manual were sent out to users after a few months. The new manual was an improvement.

There were some good ideas in those manuals, but they are just a sample of the problems I encountered. They allowed me to fix them (I'm typing this on my shiny Video Game just less the time that's necessary. I paired computers with my much-loved BBC Micro after a frustrating six months after I bought it).

The fact of the matter is that, however the makers may tell you, there is not much difference between one video and the next.

The problems I met myself with BBC Micro were: As a member of your computer club I have seen the same disillusionment as those who "upgraded" with Spectravision, DMB or Atari. Work with a Commodore and a Spectrum has confirmed my impression.

The question jumps around between not having a computer and having one. Once you have passed that stage why the "features" add up to a lot more than bugs in another sense.

Nelson Goodwin
Computer-aided design programmer

What makes you pleased to accept about the micro users. Hardware software? As welcome contributions for the column. Send them to: Paul Lipsett, Options, Home Computing Weekly, 145 Charing Cross Road, London WC2R 3EE. Please include your name and your address in correspondence.

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Rain, mud and some of the fun of the Faire

San Francisco

California, land of sun, sea and surf turned into the land of rain, Hercules and modems for the staging of the 16th West Coast Computer Faire.

I imprompted with the ill-fated movie San Francisco as I battled my way to the faire through torrential rain. They were obviously having trouble coming to terms with the fact that they had to make English weather just because our research had visited them.

I arrived at the faire with my mind fully prepared to be blown away by American tech-savvy and computer wizardry.

However, once inside, I was taken aback to find that the show was more of a TV Microdisk style of the old and not the large three-day experience I had expected. Do not lose hope, though, because the show did reveal some interesting new products which should soon be making their way to the U.S.

First off, the people from Melbourne House were promoting their software and books and also publishing some forthcoming titles.

For Commodore 64 owners they will soon have a book of games listings written by Clifford and Mark Kaminow and also a couple of new books for Spectrum owners. The first is a book full of ready-to-use machine code routines and the second is the Microdisk series. It will be interesting to see whether the book actually precedes the Microdisk into the market.

Following hand on the heels of Melbourne House's highly acclaimed Promoteur are comes Terror-Digital. This apparently a 40 graphics game which has you delving yourself against profane creatures deep in the heart of the South American jungle.

On the whole there was not a lot of interest shown at the faire for the recently released Tans-Serlein computers with most of the software and peripherals manufacturers concentrating their efforts on the Commodore 64, which seems to hold a lot more appeal for the average American computer enthusiast than the Z88 and Spectrum.

What's on the way here from the States? Chris Palmer found out after battling through torrential rain to the West Coast Computer Faire



Broderbund product Doug (left) and Gary Carlson with sister Cathy.

The previous opinion of most people I talked to was that the Z88 was almost a disposable computer. In some places it was selling as low as \$900000, so-called people bought one, used it for a few months and then threw it away.

The three most popular computers at the show were the

faithful Apple II, the IBM Personal Computer and the Amn 400. Most of the software companies were exhibiting their latest money in arcade games for those machines. One company which particularly caught my eye was Broderbund software.

Broderbund, which means "Broderbund?" was founded

three years ago in San Rafael by two brothers, Doug and Gary Carlson.

Since then it has become the source for some of the most exciting and dynamic software to ever grace the screens of computer owners throughout the States. It was they who brought you CHEERLEADER, a game which has topped the box office list within U.S. games magazine Softdisk, for longer than any other computer game ever in date. You might have already seen this game running on the Amn or Apple computers and Broderbund is putting the finishing touches to versions for the Commodore 64 and the VIC-20.

Two parts of software which they are especially proud of are A.E. and The Arcade Machine.

In A.E. you have to battle against hordes of escaped animal taming men in an effort to drive them from the solar system. Each phase of the game is played out against a magnificently detailed on-line background depicting the different stars for the battle. Once again it is available on Apple and Amn computers, but 64 and VIC-20 versions are being completed.

The second program, The Arcade Machine, is one which makes you wonder why nobody thought of the idea earlier.

It allows you to create your very own custom arcade game. Using this package you design your own backgrounds, monsters and scenery, along with sound effects and graphics. You then put them altogether and you have your own game. What's more, you don't need to be a programmer to use it.



An example of Broderbund's A.E. game on screen.

WEST COAST COMPUTER FAIRE

At the moment it is only on the Apple but I talked to the programmer and he assured me that the Atari version would soon be complete.

An interesting insight into how seriously the Americans take their computer gaming was given by a company called Videotron.

In products which must fit the standards in game centres, the Videotron centre stands about five feet tall and looks exactly like a proper arcade machine. You fit your games computer onto the front panel where the controls would normally be and your TV or monitor is built in. You can then play your games as you would in an arcade.

Richard Altmeyer was at the show with his Apple IIe computer and managed to generate a lot of interest from the resident FORTH users in the new American Acs.

He was happy to tell me that the heavily criticised case of the early Atari has now been replaced by a sturdy injection moulded case. For America the Acs has been renamed the Apple Acs 4000, as it seems the Americans won't buy computers unless they have a number on them. In the same way the Spectrum is sold as the Times 3200.

Richard told me that things were progressing nicely back in Cambridge with lots of software for the Acs being written. He was particularly proud of a chess game which he claims can beat Sargon. Also coming out as available, a terrific graphics package and a lot of games.

Dezack was finally showing off his latest software masterpiece in the form of Zaxxon.

Based on the hugely successful Sega arcade game, the play of software really drives the computer's graphics display to the limits. In it you have to pilot your spaceship through a series of futuristic levels and space battles to confront the Zaxxon robot for the final duel.

All this is achieved in mind-blowing 3D with truly amazing TRON like graphics. At the show it was running on the Atari and Turdy Colour computers and other versions should soon be available.

Despite the lack of new computers, I did manage to track down the new Passaic, and guess, which quietly in the corner of one of the software stands. Unfortunately they couldn't tell me much about it but from the pic-

ture it was running a looky like it's job site gets a good impression.

How would you like a screen display for your 250k which was 832 pixels by 480 pixels and could display up to 512 colours on the screen simultaneously?

Well, the Vector Corporation can help you for around 4000 dollars. For this you will get the new Vector Graphics Processor which can be added to any computer which is capable of sending out RS-232 or Centronics signals.

With this and it is possible to create the most stunning high resolution pictures you can imagine. And you have written your own TRON clone for the system for you.

Jobbing well, although the cost is out of the reach of most people it is an indication that the

art of graphic power is dropping in price.

To wind up this look at the West Coast Fair, here are a few of the other games of software which were released and will soon be heading for the U.K.

Lovers of Adventure International's Prophecy game will be pleased to know that Wadsworth Jet has survived the perils of the golf course and is now in Prophecy II, for the Atari computer.

In this game our unfortunate prisoner finds himself strung on the locker room and still avoiding the dangers of the killer dog and the golf course, along with all the other males that preceded him at the original Prophecy.

And if you like extreme adventures you will soon be able to buy the E.T. adventure for the Atari 400/500 computer. The game

has E.T. moving around a scrolling screen and trying to pick up the pieces of E.T.'s phone so he can "Phone Home". Along the same lines as Atari's VCS cartridge, the game carries the IBM option and the scientist who try to handle E.T.'s presence.

And, finally, taking "the way speak" award a Great Software with their Dark Crystal adventure game based on the new film.

In the game you have to return the crystal fragment to the dark crystal before the planets slip and the mass of freedom and justice are lost for eternity.

The whole adventure is played out as a mixture of high resolution graphics displays and text. It runs on disk for the Apple but is likely to turn up on other machines soon.



Richard Altmeyer presents the FORTH game!



The only place in San Francisco.

Which child gets a place in college?

One of the strongest 71 commercials for computers is a program being run by Commodore for its VIC-20. The screen is split vertically, one side showing a child mindlessly playing a video game and the other a child intelligently programming a VIC-20.

I've seen two slightly different versions of the ad. In one the lower-down says that one of these does both of these children may be competing for a college place. The other does not, which is better, leaving time to play a game or viewing computer skills and perhaps learning how to create a program for a game? The ad seems very effective and certainly makes good sense.



Trying to bridge the game-computer gap, Atari has introduced an add-on keyboard for its 2600 video game player. Atari, which recently had profits and market share a la Coleco and Intellivision, hopes that after competing with its \$90 dollar keyboard announcement.

Atari is an on the market. The Coleco board is expected to retail at about 120 dollars and Atari's about 130 dollars and these are expected to be the first few months with Atari's loss in the year.

Atari is obviously trying to boost its market share by under-cutting the competition and is offering to do this in several ways such as 8K of RAM and a version of Microsoft BASIC in ROM. If you examine the total price, a both Intellivision Color and Atari and that the Texas-Instron Spectrum is not.

The announcement of Atari's add-on keyboard fits in the industry. It had been predicted that game sales would help off with a corresponding increase in purchases of home computers.



A new line of programs has been introduced which are designed to force children into learning computer concepts while they think they are just playing games.

The first Windows package, from Scholastic, includes an adventure game, a computer magazine containing programs instead of articles, a Logo-like turtle graphics package and a program that connects with the child to introduce it to science.

The feeling at Scholastic is that more families with low-cost access will want their children to do more than just play distracting games.

Each Windows package will cost about 40 dollars and will eventually be available for the Atari 400 and 800, the TI-99/4A, the VIC-20 and the Apple II Plus.

Scholastic is also planning to publish Microzone, an educational magazine for the computer aimed at eight- to 14-year-olds. Scholastic believes games do not have to exclude education or gain in order to be accepted.

The games will be marketed in computer outlets occasionally with more advertising in Scholastic's own publications.

More from Spectator next week

Bed Lee
Fairfield, California

Geography on cassette

See the country with a 40K Spectrum, the Game Computer, which has brought out a version of the program originally written for Sharp computers.

It costs £11.95 on cassette and shows a large-scale map of the UK and links. Kids can see the features include a two-or balloon route, search for a named place, find distance between two places, display latitude and longitude, remove names for online use, hide names for "guess the place"

Business born in bed

Jeff Miner was so bored at being forced by illness to spend three months on his back that he learned programming.

Now, in partnership with his mother, he has 30 games on sale for the ZX81, VIC-20, Atari, Spectrum and Commodore 64.

Jeff, 20, was due to return to his physics studies at the University of East Anglia in January but he will not be going back now.

His mother, Hazel, said "Jeff was on his back from November to January so he decided to learn computing. He already had an interest in it."

"We're fit and well now and he is in America on our business."

Miner, who has five other sons, and Jeff run Linnacraft from their Hampshire home.

games and copy display area to printer.

Controlled by command letters, it is said to be easy and fast due to the use of machine code.

Kuma has also announced add-on boards at £79.97 for the Sharp Model, and M2000, computers which replace the 2MHz microprocessor with the faster 2MHz, Ray Trac, a rasterboard processor for the Nintendo, at £24.17 and a Video Touch-Type Teacher for the Sharp M200A, costing £35.17.

Game Computers, 77 Post Road, Maidenhead, Berks SL6 2SD.

Linnacraft was able to bring out the first Commodore 64 program available here because Jeff was able to get a machine from America.

The three programs for the Commodore 64 now available from Linnacraft are Gold Runner 64—a top seller in America—and Attack of the Mozzies. Clank, both games at £8.95, and Run 64, at £4.95, which shows the use of the mouse graphic screen and sound.

Linnacraft's most recent release—and most fun on the way—is Laser Blast, for the VIC-20 with 16K of RAM, priced at £5.

Although Jeff and his mother mainly run Linnacraft they are assisted at times and other events by Mrs Miner's husband, Patrick, manager of a drawing office.

Linnacraft, 49 Mount Pleasant, Twyford, Berks RG26 6BN.

Top Twenty programs for the Spectrum

1	The Hobbit	Melbourne House (£1)
2	Flight Simulation	Peter (£3)
3	Hungry Horace	Pelican/Melbourne House (£5)
4	Anger	Amica (£4)
5	Time Gate	Quadrant (£4)
6	Escape	New Generation (£-)
7	Pentecost	Melbourne House (£5)
8	3D Texas	dk Images (£1)
9	Planetoids	Peter (£10)
10	VU-90	Peter (£3)
11	China	Peter (£5)
12	Armside	Imagine (£-)
13	Plains of Death	Amica (£-)
14	Over the Spectrum 3	Melbourne House (£-)
15	Nightlight	Horizon (£-)
16	VU Pils	Peter (£-)
17	Over the Spectrum 1	Melbourne House (£-)
18	Step at Dawn	Amica (£-)
19	Iron Game	Amica (£-)
20	Battle of Britain	Microgame (£-)

Compiled by W.M. Short. Figures in brackets show list price in pounds.

ZX SPECTRUM - TRS80 LV.2 SOFTWARE LIBRARY TAPE



BREAKOUT



POPULATION SIMULATION



CORRIDORS OF DOOM



THE VAULT



HOUSEBREAK



AMAZING 3D MAZES

25 SUPER PROGRAMMES- including machine code arcade games, simulations, competitive games, adventures, dungeons & dragons, puzzles and ball games, plus a whole lot more.

BREAKOUT- A fast action machine code programme, that takes you through nine skill levels. Break through a double and then a triple wall. Smooth motion and good graphics.

POPULATION SIMULATION- A game for two players, each ruling a planet, a battle to find out who can survive the longest. Each decide a player must decide various things in governing his planet, to balance production and technology against consumption and population and to either negotiate or declare war on his opponent; How about sending out an exploration party to find new wealth. Only the experienced last long.

CORRIDORS OF DOOM- (Spectrum Version) Dungeons & Dragons type game that is very addictive. The game is not won by chance, you have to discover the secrets of how to deal with the monsters in the game. What liquid will destroy the were-rat? How can you tame a giant spider? What will you do about the blood devil? Collect treasure and find an exit, but first you must cross some nasty pits.

AMAZING 3D MAZES- For the madrigal, collect all treasures and find your way out, score extra points for short cut routes and don't get frustrated by apparent dead ends.

THE VAULT- Start at the outer limits of space and find your way home, then release the manager who is trapped in his own bank vault, it's a race against time as this game really puts your powers of logic to the test.

HOUSEBREAK- Dark rooms, treasures, alarms and vicious dogs are met in a real time, full graphical adventure.

3D NOUGHTS & CROSSES- Played inside a 4x4x4-cube, it is more like chess than noughts and Crosses and wins, on average, nine games out of ten.

All 25 games on one C30/C48 tape are sent by return post for only £8.95! or send a SAE for full details.

SPARTAN SOFTWARE

Dept. HC2, 9 Cotswold Terrace, Chipping Norton, Oxon. OX7 5DU

PROGRAMMERS- 25% Royalties paid on original software for the Spectrum or TRS80.

SCW 4

On your marks . . . a Spectrum scoreboard

Organizers of sports days will find any program useful to work out individual performance marks for events like gymnastics, diving and diving.

Written for the SAS Spectrum, it asks for the marks for two categories of grading — artistic merit and technical ability.

It calculates the highest and lowest marks in each category and calculates an average of the marks remaining. Finally it produces the contestant's marks.

There are several options for developing the program.

Ideal for sports events, Dave Judson's Spectrum program works out results fast

The marks for each candidate could be stored and an up-to-date printable table produced on request.

The Spectrum's sound or graphics abilities might be used to elaborate a perfect score or return a poor one.

Variables used: j number of judges, i score marking total, a(j) and b(j) arrays gathering artistic merit and technical ability, Z1 artistic merit — average score of marks awarded after excluding

highest and lowest, Z2 as Z1 but for technical ability.

How it works

Lines 10-59 program introduction and setting up of number of judges 60-130 collect marks for artistic merit

140-230 sort marks, excluding highest and lowest, and calculate average of remaining

250-300 as 60-130, but for technical ability

400-450 give two category scores and total item

```

10 REM CALCULATION OF PERFORMER
200 MARKS
30 PRINT "TWO CATEGORIES OF MARKS
40 PRINT " PROVIDED FOR"
50 PRINT " ARTISTIC MERIT & TECH
60 PRINT " NICAL"
70 PRINT " GO TO 10"
80 PRINT " THE HIGHEST & LOWEST
90 PRINT " MARKS IN EACH CATEGORY IS IGN
100 PRINT " ORED & THE MEAN OF THE REMAINING
110 PRINT " MARKS IS CALCULATED"
120 INPUT "ENTER THE NUMBER OF
130 JUDGES" J
140 INPUT "ENTER CANDIDATE'S NAME
150 OR NO. TO MULTIPLE" N
160 IF N=0 THEN GOTO 170
170 IF N=1 THEN GOTO 180
180 PRINT "ENTER THE 'J' MARKS
190 PRINT " FOR ARTISTIC MERIT"
200 LET S=0
210 FOR I=1 TO J
220 INPUT "MARK AWARDED IS "
230 LET S=S+I
240 NEXT I
250 LET A=(S-J)/J
260 PRINT "ARTISTIC MERIT MARKS"
270 LET S=0
280 FOR I=1 TO J
290 INPUT "MARK AWARDED IS "
300 LET S=S+I
310 NEXT I
320 LET B=(S-J)/J
330 PRINT "TECHNICAL MARKS"
340 LET S=0
350 FOR I=1 TO J
360 INPUT "MARK AWARDED IS "
370 LET S=S+I
380 NEXT I
390 LET Z1=(S-J)/J
400 PRINT "ARTIST'S MERIT
410 PRINT " SCORE IS " Z1
420 PRINT " TECHNICAL
430 PRINT " SCORE IS " Z2
440 PRINT " TOTAL SCORE IS " Z1
450 GOTO 60
460 STOP

```



In with the IN crowd

I was pleased to see the review of the Tandy 1000 (13 pages) in your recent issue — I can confirm that the documentation is excellent for such a low-priced product.

It is actually manufactured for Tandy, and appears to be available from EPC or Mailorder to a complete set, and is a tremendous wealth of without drive electronics from Amde in Illinois.

As a founder member of the Independent Newsletter, User Group like (IN Group?) I am particularly interested in the COP115 because it needs very little software change in order to print out Newsletter desktop as well.

While I am writing, could I also mention that the IN Group publishes a monthly newsletter containing reviews of hardware and software for the Newsletter?

We are always in touch even on the newsletter, which as well as Newsletter users may appeal to ZX01 and Spectrum owners thinking of moving on to a more professional machine.

Anthony D Hodge, Independent Newsletter User Group, 18 St John's Court, Maitland WA 585.

Six into three will go

As I was patiently for Commodore to send my Super Executive cartridge and software guide, I keep myself busy advancing programs written for the VIC-20 plus SE to work on my expanded VIC, using knowledge gleaned from publications such as yours.

Your article on VIC graphics amazed me with its great ideas, and I am now advancing the Mercury Maze program published in the same issue.

The Amiga 1000 was obviously the money-maker, so I saved your bits of more than one screen location, locating the maze screen at 7150. By altering the top of memory pointer bitz this:
 3 POKE 31,153 POKE 32,17
 POKE 33,279 POKE 34,27
 I prevented the new screen being overwritten. I then replaced line 188 with:

```
188 POKE T = 0 TO 80 POKE
TIS + T, PEEK (TIS + T)
NEXT POKE D = 0 TO
131, @1000 NEXT PRINT "
```

Reflections at line 390 to AEM and in lines 329 and 330 to

Send your letters to Letters, Home Computing Weekly, 145 Charing Cross Road, London WC2H 0EE. Software worth at least £5 for the best each week, so please name your computer. We cannot answer queries on this page

Amiga because PEEK (7064 + 25) and PEEK (7164 + 40) Lines 390 and 375 were replaced with
 375 POKE 34966,32 POKE
 34966,340 POKE 349,29 POKE
 349,29 POKE 7164 + 40,42
 375 POKE D = 1 TO 324,4000

NEXT
 376 POKE 34966,30 POKE
 34966,340 POKE 449,30
 RETURN

Using other raster memory access (eg an REMM), I ended up with 40K bytes still free, however none of the original program's features.

I hope this might help other VIC users to see how they might use your excellent article.

By the way, can any of your readers solve a problem for me? Commodore says that the maximum memory expansion for the Amiga is 32K, but the Spectrum computer drops this to 16K using a 64K expansion unit which can be expanded still further to 128K!

At around £114, this could be a very good buy — provided it works. I contacted my local store, but they claim I know much about it. Has anyone got any further information?

Mr Rosmary Wood, Hinxley, Leas.

Noisy payout for fruit machine

Computer magazines such as entertaining new magazine. As a 64K Spectrum owner I have found plenty of interest in a your first two columns.

Your second issue featured a really fine classic Spectrum fruit machine program by Clyde Stob. As a schoolmaster I am constantly looking for new ideas for school-fair raising, and I am sure that this game will prove to be a firm favourite.

The only thing lacking in the program was sound. It is important to hear a payout so the game is attract people to see the game and play it over a 2-week school

year. I am from Micro Power of Leeds, and I added the following line after each payout:

```
POKE 3,8 BEEP 3,4  

BEEP 3,4 BEEP 3,4  

BEEP 3,8 BEEP 3,4  

BEEP 3,8 BEEP 3,4
```

I also checked the amount of program space taken up by the pure and it was almost 3K. Anyone interested in finding out the memory used by a Spectrum program should use the command:

```
PRINT PEEK 34617 +  

256*(PEEK 24628 - 3757)
```

Brian Carr, Givoli, North Hambleton.

My long wait for a RAMpack

I have seen a number of letters in the computer magazines complaining about Seadec's delivery times, but compared to an episode of some (delish) as well as priced Seadec seems like potted lichen!

In October 1981 I sent a cheque to Audio Computers of Southend-on-Sea for the purchase of a 64K RAMpack. After waiting about eight weeks they sent me a pack containing 64K at over-12K interest.

All I could see at any one time was 32K, but as the accompanying letter it said that this pack was just to enable me "to get used to using them" — and suggested that as a month's time it would be exchanged for a full 64K.

I wrote to them twice after this month had elapsed, sending SAEs each time, but received no reply. Over the next 30 months I sent them numerous letters, all with the same result.

Just before Christmas last year I wrote again, saying that I was about to go on health with the computer magazines in case if they could contact them since I had failed on numerous occasions. For my all I knew, they might have gone out of business.

Enclosed herewith, on December

23 I received a letter signed by Philip Perry of Customer Services, saying that they got somewhere yesterday by letters and that they replied — or when delayed (what? For 12 months?) However she said that I returned the old pack, they would phony replace it with a Super 2 pack.

I received similar letters from the January 4 returned the RAMpack by recorded delivery. I am still waiting for the replacement. Since January I have written to them twice and — you've guessed it — received no reply. I have had the one letter I did receive from them framed — it is one of my most prized possessions:

J. Ashbourne, Watton, Cambs.
Tom, the technical director of Audio Computers, told me that Computer Weekly (17) had a right away and said it off before than 30 percent of the RAMpacks that have been replaced. I'm sorry for that but he was the only one left!

We have more than 2,000 customers month to 8 in our surprise we got a few complaints I don't know why Mr Ashbourne had to wait for so long when we replaced most of them between January and July last year.

We did have a problem with some people who were refusing to send back their RAM pack so we would approach them.

Keeping a Sharp look out

Just a line to say that we wanted to form a Sharp M2000/A User Group in the near future. The group aims to produce a quarterly newsletter giving advice, tips, program listings and members' letters. Membership is free to M2000/A owners nationwide, and open also to a members' library. All enquiries should be accompanied by an SAE.
N Brown, 18 Bracken Road, York Road, Leeds, W. Yorks YO1 4PE.

Inspiration from the Orc...

We were recently inspired to write the little poem.

What makes the Orc so attractive is his fast and fast physique.

I have not got an Orc yet but when I do, I'll call my PIC.

Maybe one day, you never know I might come over and see your show.

Mr and Mrs B. Houlden, Farnham, Hants.

Arcade games: we rate the new releases

Your favourite arcade games, adapted for a range of home micros. Our testers have played them and give you their considered opinions



Q5 Defenda 16K ZX81 £3.95

QuickSilva, Palmerston Park House, 11 Palmerston Road, Southampton

Leap Frog 32K BBC £7.50

UK Software, 9 King Street, Blackpool, Lancashire

Your task in the game is to hop across the road, avoiding the cars, on to the river bank, then swim the river using the turtle and logs, into your basket. Once you have mastered that, further dangers appear — snakes and frog-eating parents — and things move faster!

Excellent colour graphics and sound — especially liked the little waves and the "spastic" effect. The controls are easy to master (ZX for left/right, \blacklozenge and \blacktriangledown for up/down), and a simple chase makes the introduction phase which all my family enjoyed.

The final skill level rights for a beginner, and a challenge

This version of the classic Defender arcade game gives you up to 16 moving characters in screen at the time. The objectives are simple but not so simply so.

The game progresses at a hectic pace, with aliens, missiles, bonuses and the rat streaming towards you and slowing down, only to be followed by another wave of aliens.

A novel 32 x 32 character display is used, and some realisation of your set may be necessary. The screen and accompanying card list addresses which can be typed in after the vertical and horizontal hold, and even the character height.

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



eventually each one a set of bonus issues are filled to become a fun, difficult game.

The cassette tells you how to load, all other instructions and prompts are via the screen and are good. My cassette, a prototype, needed a few attempts before it loaded, but UK tells me that the production version is OK. Certainly in my experience all their other tapes have been fine time loaders.

A high score is kept and displayed. Players of this game should watch themselves carefully, and when they develop a strategy for this, give it a rest!

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



The Brood Video Genie £4.99

Batworth Software, 14 Victoria Avenue, Radcliffe-on-Kebley, York

Another in the vast range of Pac-man type games, written in machine-code and, for those who like this sort of game, excellent value for money.

The instructions are clear, only possibly by the fact that for " \blacktriangleleft " and " \blacktriangleright ", you should read " \blacktriangle " and

" \blacktriangleright ". Lightened the screen for a few days in the game, after finding that when I used the keys indicated on the instructions, nothing happened.

Good graphics, considering the limitations of the screen, and sound for those who can see the facility.

R.N.D.	
instructions	70%
playability	90%
graphics	70%
value for money	80%



Q5 Invaders 2X81 £3.95

QuickSilva, Palmerston Park House, 11 Palmerston Road, Southampton

This is a straightforward Space Invaders game for the ZX81, which can be used with or without the Q5 control board and Character board.

If made with an enable and the instructions are clear and simple to follow.

Although there are long pauses in between each one, and at the end of each game, the controls work smoothly and efficiently. Sometimes too much so — the alien shoots from side-to-side at quickly that you need quite a determination to stop it in the right place!

The bombs only fall from directly above the alien, and since they can move so fast as to be difficult to avoid the best wall for the best, in the game, unlike arcade Space Invaders, does not have many variations.

There are three levels of play, ranging from a slow game scoring 10 points per enable to a fast one which scores 30 points per hit. A randomly generated "bonus" also points to the top of the screen for you to shoot down.

Progress has been made for functions such as score per hit and bomb rate to be altered and the highest score can even be named at the end of a game.

C.G.R.	
instructions	90%
playability	70%
graphics	60%
value for money	70%



SOFTWARE REVIEWS



Galaxians 16K ZX81 £4.95

Quadrant, Palmerston Park House, 13 Palmerston Road, Southampton.

Whoever wrote the blurb for Galaxians has tried hard to make the scenario gripping. Avoiding the high technology laser found in most shooter games, the writer has opted for a spaceport bomb thrower with small furry bunnies to fight off

the giant gaseous birds dropping exploding eggs on the poor-little planet of the planet Poverfun. "Splash, ploof, bang."

The attacks comprise two types of Galaxians. A1 are low-life exposed, and therefore worth ten points in many points in Y1. Sweeping Galaxians are worth more than three in factness.

For each game you select speed, firing rate and the number of Galaxians sweeping. You then move the bomb thrower from side to side with keys and Y key, fire with the 0. Your current score is displayed continuously, and when the game ends, with the destination of the third bomb thrower, your final score is added to a table of rankings.

Galaxians can be played very fast — too fast for me, especially when the number sweeping was set high. Instructions are well presented, and a demonstration game is played on initial entry.

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



Munchees 16K ZX81 £3.95

Quadrant, Palmerston Park House, 13 Palmerston Road, Southampton.

Normally I feel reluctant to spend evenings with Poverfun or his close relatives. So on learning that Atlantis (which I shall discuss in the course of a house, dining guests and eating power pills, I set off to meet them without much enthusiasm.

First approaches revealed that their diet wasn't restricted to pills they'd nibbled past of the program side tray, and completely gripped up the advertised game instructions. Tentative probes in the control keys, however, elicited a ground plan of the layout, and the means to tackle up to four ghosts.

After that, things became fairly predictable. Each game comprised three phases, 30 points being scored per pill, with bonus plays for clearing all pills from a screen.

The bonus had a pair of side screens, those that appeared frequently below the central ones, and the ghosts (called A1) and the Munchees (called C1) moved around in a steadily increasing pace, fortunately a speed was available to change the number of ghosts.

Minor flaws aside, Munchees seemed suitable if atypical in such attention to prop, all but one of the current results I know of set better scores. But some of them do have extra features for varying the game.

instructions	100%
playability	20%
graphics	90%
value for money	65%



OS Scramble ZX81 £3.95

Quadrant, Palmerston Park House, 13 Palmerston Road, Southampton.

Your ship is flying over the mountains of a distant planet, under alien attack. You can't avoid being shot down by the aliens,

while bombing, their fuel drops and grounded rockets. If you miss, the rockets will take off to attack you, and all the time your fuel is running out.

The landscape and fuel changes randomly generated and pan from right to left across the screen. But as your own ship remains on the left hand side and only moves up and down, the controls are easy to avoid. Bombing and shooting are also easy to control.

You can make the game more difficult by changing the amount of fuel, the speeds and scores etc, but even so I found it simple to play and ultimately not very exciting.

However, I had no trouble loading and running it. The screen display is clear and the instructions are easy to follow. (The tape automatically programs the OS sound board and character board if these are available.)

A group of children might enjoy the game, perhaps competing

for the highest score. Otherwise, though completely practical and reasonable, it is rather boring compared to the greater but more sophisticated versions of the game on the market.

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



Atlantis 32K BBC £7.50

UK Software, 9 King Street, Blackpool, Lancashire.

Warning — this game could damage your health! Positively addictive, my upper arm literally ached after I had finished.

Atlantis is an underwater version of the arcade game "Scramble", and seems to have most of the features of that game, although I could not get far enough to be sure. A game for the advanced

player, it is extremely fast right from the start, and uses the BBC's sound and graphics capability to the full.

You have to move past a right to left scrolling underwater landscape avoiding, shooting or bombing mines, obstacles and enemies. I could not get past for the first version, but one of my school-mat friends, playing compulsively, managed to reach the cover of the second map.

Controls instructions are minimal — how to load (which I did, five times) Screen instructions are the same as for the tape version, and would be appropriate,

left and right cursor keys for L, R, A, and Z for up/down, space bar or tab for bombs and shift for mines.

A high score is not kept and more instructions would have been useful — plus some hints for beginners like myself. The computer game for expert videoplayers.

instructions	70%
playability	90%
graphics	90%
value for money	85%



After the Space Invaders have come down to earth . . .

What do you do with your micro if you don't want to play games? Candice Goodwin went to see Ivan Berg Software, a company which has come up with a solution



Berg kept works on the documentation for a new program

"What video games are especially violent", said Ivan Berg, head of Ivan Berg Software. "What we do could be justified in that it's potentially more mind-enhancing."

Mind-enhancing or not, in a software market dominated by Galaxians and Pac-Man, Ivan Berg is one of the few computer sector folk who have gained interest in educational programs. His career for the VIC-20, which started with O-Level and CSE revision aids, now includes Know Your Own IQ, Know Your Child's IQ, Know Your Own Personality, and Robert Carter's Name Planner.

Coming next are further educational programs, the Teach and Test and Test Your Child series, and a range aimed at motivating women in using the family computer, covering beauty, health, exercise and dieting.

Quite apart from its educational products, the company is unusual in always getting software in the first place. Most of the software companies around at the moment started life as a computer enthusiasts' hobby, only later coming to terms with the problems of producing and publishing products in volume.

Ivan Berg, on the other hand, had all these problems faced before the idea of selling software ever arose. The software operation developed from Ivan Berg Associates, which had been publishing radio-cassette versions of children's stories, scripts and documentaries since 1961. In the last year or so there, Ivan Berg explains, the company "gained a lot of experience of responding, producing content" - it even had a distribution to a tape duplicating company in Aylesbury.

So the scene was set for a successful diversification into software, and "if you're running a small company in today's world, you have to keep thinking up ideas".

The idea recently came from the VIC-20 Berg bought for his son for Christmas 1981. He had previously dabbled in programming as "too mathematical", but by playing with his son's machine, found a way "like learning a fairly simple foreign language", and discovered what the computer could and couldn't do.

Looking around at existing programs, Berg was not impressed with their content - at their presentation. He felt there was "scope for improvement", and Ivan Berg Software was born. In April last year, work began on the first programs, which were ready

before the programming stage is even reached.

The programmer then gets a full specification, which enables the program to be completed quickly. "Much quicker than dealing with the whole thing from scratch".

The company's standards are high. The programs, written in BASIC so that they can be easily transferred from one type of machine to another, must be "well structured and robust" - they must also be easy to follow, so that changes can easily be made in-house.

Owner of the "finishing good programmer" is a continuing problem. Ivan Berg uses a team of freelance programmers whose turn, in contrast with the average programmer used by many software companies, averages around 30. One is a middle teacher who teaches BASIC, and many of them are ex-mainframe programmers, professionally trained.

The problem of finding programmers can only get worse as the company is poised to step up with the "anonymous market" - it aims to have over 50 titles by the beginning of the summer. There are no plans as yet to move out of its "essentially computer club business" range. "We don't want to go into the mass market."

There are a lot of small companies trying to do everything for all people, and they come a cropper. Why? It's doing things as well as we possibly can, and establish a respected base." The strategy will, Berg hopes, result in turnover of 6000-700,000 for the company's first year.

Like Silveroff, profiled earlier, Ivan Berg sees the software market as becoming increasingly professional. "Consumers are starting to become more discerning - they're looking around at what software's available before choosing." With this in mind, the company aims to offer good value for money.

A two-volume package costs £19.95, and each package contains a lot of information. Know Your Own Personality, for example, contains 400 different questions for the user to answer and would, Berg estimates, take three to four hours to complete.

"I don't think any other company is going that kind of value for money," he said.

A lot of care goes into the design of the packaging and instructions to go with each package, and again, Berg feels this is the way the market is moving.

for the market by September.

In the New Year, the company moved into new offices at a Canfield Gardens, North London. These now house Berg himself, his wife Inga, who handles administration and accounts, Bob Kemp, on the editorial side, Ken Clark, who works on the programs, and secretary Elaine Ross.

Here ideas for new programs are developed and the specifications worked out. "The company takes a 'publishing approach' to software development," the editorial

team is the most important thing - that how it should work." Some ideas are adaptations of existing books. Know Your Own IQ, for example, comes from Hans Eysenck's best-seller of the same name. And so on for getting the output of BBC Manuscript

Editors, such as the forthcoming Teach and Test programs, are specially commissioned by Ivan Berg. Either way, a detailed script and a set of "screen maps" being out exactly what will appear on the computer's screen are worked out

PROFILE

"You can't get away with just popping a cassette in a slot; there has to be something along with your philosophical documentation."

The company's philosophy of "doing something as well as we can" also has helped the Commodore become only for the VIC-20, seen as the best machine for the price that was on the market at the time.

"Commodore got a more right than anyone else with the VIC," says Berg. Now the company is also working on packages for the new Commodore AM ("the best value for money of any under \$200"), and is "looking at" the BBC, the TI-99/4A, and the Spectrum.

So far, all from Berg software has been sold through Commodore, but as the next few weeks it will also be appearing in selected tape and record shops. If the power continues, the next stage will be to sell programs through bookshops.

The choice of general consumer outlets rather than specialist computer outlets reflects the company's determination to reach "people who want to use computers at home, but don't want to



Brian Berg looks over the packaging for the *Death Wish CMM* series.

know how they work and how to program them" — as opposed to the hobbyists who, Berg estimates, make up only 20 percent of home micro owners.

Berg himself believes that a lot of people are waiting to buy home



Putting the finishing touches to some character designs, Ken Clark (left) and Brian Berg.

computers because of propaganda about the joys of information technology, without having any clear idea of what they can use a computer for.

"People will buy home computers because it's the thing to do. I

think it's glib and French deprivation. Government and media have been going on about computers and how we've realized to know about it, or we'll miss out — without knowing what it is we'll be deprived of."

For these people, to own a computer means to having only a limited lifespan. "The software market will develop in showing what more the computer can do. Whether it'll be useful or viable will depend on the subjects chosen and the way the software will be used."

But according to Berg, the computer's potential has as yet hardly been explored. In the short term "it is an information medium with the real advantage of individual interaction. There's no other medium that responds to you — apart from another person."

In the long term "what we're seeing is the emergence of an intelligence that will eventually demonstrate it will happen without anyone doing anything about it." A worrying prospect, surely? "There'll be lots of opportunity for leisure and creativity. My advice to mankind is, be back and ready if."

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(For any
VIC-20)



Rescue the stranded scientist from the moon.

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Card Number

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Name

Address

HW 4

Stay alert — the zombies are on your trail



As prime operator in Island Cleaners Inc., you have been given the task of tidying an island group of its zombie inhabitants.

You have been parachuted onto an island, but unfortunately your equipment has fallen into the sea.

The only chance you now have of completing the job assigned to you is to lure the zombies into pits dotted about while avoiding the clutches of the zombies themselves.

Fortunately, the zombies are blind so they will walk into a pit, unlike in the sea in an attempt to reach the rubber limping medical food which your body needs.

There are several points which must be taken into account:

You're at risk not only from hunger-crazed zombies, but ravines and pits too. David Ryan's 16K game for Atari computers needs quick wits and strong nerves

● The surrounding sea is thick with fish, but this doesn't matter as you cannot swim.

● Zombies refuse to cross a cactus zone.

● You may cross a cactus zone, but in doing so you knock them down.

● You or the zombies will die on falling into a ravine or a pit.

● Zombies falling into a ravine will fill the ravine.

● A zombie may cross the water but with a 50-50 chance of dying in the jaws of a shark.

● The ravine appears in any skill level above 5.

● Occasionally a zombie will walk onto your island from a neighbouring island.

For an explanation of each object on the island, look at the key when the program is first run. The following keys are used to move diagonally:

Q — bottom right to top left

W — bottom left to top right

A — top right to bottom left

E — top left to bottom right

The cursor keys move you in the directions indicated by the arrows.

To remain in the same place for one move type A. All the other keys are unresponsive.

On the first run of the program, be prepared for a screen wash while the characters are re-defined.

The program occupies merely 16K of MSX. If your computer only has 16K the screen display may be lost when an error occurs or a break is pressed. This is

VIC-20 PROGRAM

37 DATA H,.,.,.,M,.,.,.,D,.,.,.,P,.,.,.,S,.,.,.,S,.,.,.,S,.,.,.,T,.,.,.,U,.,.,.,V,.,.,.,M,.,.,.,K,.,.,.,N,.,.,.,
38 DATA Y,.,.,.,Z,.,.,.,1,.,.,.,2,.,.,.,3,.,.,.,4,.,.,.,5,.,.,.,6,.,.,.,7,.,.,.,8
39 DATA 9,.,.,.,0,.,.,.,A,.,.,.,B,.,.,.,C,.,.,.,D,.,.,.,E,.,.,.,F,.,.,.,G,.,.,.,H,.,.,.,I,.,.,.,
40 DATA J,.,.,.,K,.,.,.,L,.,.,.,M,.,.,.,N,.,.,.,O,.,.,.,P,.,.,.,Q,.,.,.,R,.,.,.,S,.,.,.,T,.,.,.,U,.,.,.,V,.,.,.,



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We welcome programs and articles from our readers.

• Articles on using home computers should be no longer than 2,000 words. Don't worry! You needn't give up your writing ability — just try to keep to the style in this. Please include complete routines. We will convert any sketches submitted into finished software. Authors need little to be published: we help our readers make better use of their editors by giving useful ideas and tips.

• Programs should, if possible, be user-friendly (avoid just a new ribbon or sort on cassette). Check carefully that they are free-free. Include details of what your program does and how, hints on conversion and expansion (see routine *HOW TO USE*).

• Suppliers of software, add-ons and peripherals need to have a good knowledge of computers in your application. A reviewer please give your occupation or training and, if under 21, your age. Don't forget to name your computer and any expansion.

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 Ubbrot, Home Computing Week-ly, 148 Charles Cross Road, Loughborough WC1H

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Five ways to pit your wits with the ZX81

Here's a two-page selection of games specially written for the 1K ZX81

Wedges

You are managing director of an up-and-coming wedge-producing company. As the sales figures come in each week you face a tricky business decision: are you selling enough wedges to put more money into production, or should you concentrate on advertising to boost sales?

This program by Bill Baucher lets you try your skill at business. Starting off with £500, you must balance your resources between production and advertising — but be warned, it's not a good idea to spend more than £5 at a time on ads!

Solo Hunt

A drowsy leaper under the sea... an empty submarine out to get you. Try to evade it before it torpedoes you, in the action-packed program by Bill Baucher.

The enemy sub is being somewhere in the 0 to 100 grid on your screen axis. You must track it down by entering a row and column number. As you get closer, the number that comes up on the screen will get lower. To start with, you have 30 tries; as you get better, try reducing the value of N in line 100 to make the game harder.

Tronix

Imagine you see the wiles of a hungry crocodile which lurks in a river waiting for unsuspecting creatures to fall into its clutches. To reach safety, your victims have to reach the bottom of the maze without bumping into you, and if they do, they're... You have to try to stand in that way — but time is short, because you only have six tries.



Listing 1 — Wedges

```

0 REM *****
10 PRINT
20 LET T=1
30 LET P=0
40 LET M=500
50 LET T=T-2
60 LET S=10
70 GOTO 10
80 PRINT "WEDGES ",T
90 LET T=T+1
100 PRINT "M,M,M,M"
110 PRINT "P,PLANT"
120 PRINT "I, "WEDGES"
130 PRINT "S,"WEDGES"
140 IF M<500 THEN GOTO 200
150 PRINT "WEDGES"
160 INPUT Y
170 IF Y<=0 THEN GOTO 200
180 LET M=M+Y
190 LET M=M-1000
200 PRINT "M,M,M"
210 INPUT B
220 LET M=M-B*10
230 INPUT "M,M,M"
240 GOTO 10
250 IF M<=0 THEN GOTO 200
260 IF M<=10 THEN GOTO 200
270 LET I=100
280 LET T=T+INT (I*(M+500+10))
290 IF M<=10 THEN LET T=M+500+10
300 IF M<=10 THEN M=2 THEN LET T=2
310 PRINT "M,M,M"
320 IF B<=0 THEN LET T=T+10
330 IF T<=1 THEN LET T=1
340 LET M=M+500-100-100-100-100-100
350 IF M<=0 THEN GOTO 200
360 PRINT "M,M,M"

```

In this abstract game by Steve McCullam, you are represented by the "I" sign and the computer takes the part of your victim, represented by the "B" sign. You move it yourself in response to its requests: 1 means +1, -2 means +1, 9 means 1, and 11 means 1. But it sometimes makes mistakes, and if it asks for a move which would take it off the board, you have to play fair and move it in the opposite direction.

This program must be copied exactly as listed. Even an extra full stop will cause a crash.

Alive

The alien space ships are on your tail, and you only have five minutes' warning left with which to destroy them. Worse still, the more ships you kill, the more determined the survivors are to stay alive. Peter Cooper offers some advice on how to come out on top.

You move the warheads by passing any of the keys on the ZX81. The longer you hold down a key, the further the warhead travels, but to finish the shoot-off, you have to get within killing distance in only three key depressions.

Line 120 of the program holds the formula for how close you need to get to the alien. Try changing it if you find the game too easy — or too hard.

Draw

If you ever owned an Ink & Brush game you will recognize the uses of the program by Richard Drew, which lets you draw lines and block graphics wherever on the screen.

But now keys control the functions: 1, 4, 8 and 9 move you down, left, right and up; 1 lets you draw, and 3 lets you erase. 7 will save on tape anything you have drawn, if you are in the queue or in moved before you press a 9. You can write an alphanumeric combination at a point on the screen to the right of the last cursor position. And 0 lets you see exactly where the cursor is at the time.

This program fits snugly into 1K of memory, and leaves out enough space to draw in about half the screen.

ZX81 PROGRAMS

Listing 3 - Sub Hunt

```

1  REM *****
10 FOR X=0 TO 9
20 PRINT AT 1,1:1
30 PRINT AT 2,1:1
40 FOR Y=0 TO 9
50 PRINT AT 2,Y:1
60 NEXT Y
70 NEXT X
80 LET A=INT (RND*9)
90 LET B=INT (RND*9)
100 LET X=0
110 PRINT AT 13,8:"YOU HAVE "X
120 " TRIES LEFT"
130 LET X=X-1
140 IF X=0 THEN GOTO 200
150 INPUT C
160 PRINT C
170 IF C=A AND B=A THEN GOTO 25
180
190 PRINT AT 8,0:INT (RND*10)-8
200 IF A=1:2:3
210 GOTO 130
220 CLS
230 PRINT "TORPEDOED..TORPEDOED
240 "TORPEDOED"
250 GOTO 870
260 PRINT "SUB DESTROYED-SCORE=
270 "X*X
280 PRINT "ANOTHER DAY (A.R.)"
290 PRINT 49999
300 CLS
310 GIN

```

Listing 3 - Vexes

```

5  REM
10 FOR N=CODE " " TO CODE "9"
15 PRINT "
20 PRINT "
30 NEXT N
40 PRINT "
50 LET P=CODE " "
60 FOR X=CODE " " TO CODE "9"
70 LET Y=INT (RND*CODE "9"-P)
80 PRINT AT CODE "9",CODE "9",
"X " : "1111-0 0" Y:CODE "9"-CODE
"9" : "Y:CODE "9"-CODE "9"
90 INPUT D
100 FOR P,3
110 LET P=P+0
120 FOR P,149
130 IF P=N THEN PRINT "YOU WIN"
140 IF X=N AND D=N OR P=N AND
D=799 THEN PRINT "I WIN"
150 IF P=799 OR P=N OR X=N TH
EN STOP
160 PRINT AT CODE "9",CODE "9",
"YOU'RE "
170 INPUT D
180 LET D=19 AND D=91-19 AND D=
91-19 AND D=99+111 AND D=99-19
AND D=79-(111 AND D=79)
190 FOR N,3
200 LET N=N+0
210 FOR N,191
220 NEXT X

```

Listing 4 - Alien

```

10 REM ALIEN
20 LET A=10
30 LET H=10
40 RND
50 CLS
60 LET X=0
70 LET L=INT (RND*270)
80 PRINT "AL IEN" : "UNRATED" :
" " : "DISTANCE 000 MILES"
90 PRINT AT 9,10:R,AT 1,10:R,AT
T 0,10:L
100 IF R=0 THEN GOTO 870
110 IF R=9 THEN GOTO 200
120 IF L=0 OR L=270 GOTO 240
130 IF INKEY$="" THEN GOTO 100
140 FOR I=0 TO 200
150 IF INKEY$="" THEN GOTO 100
170 NEXT I
180 GOTO 100
190 LET A=A-1
200 IF X=N THEN GOTO 200
210 CLS
220 LET L=999 A-L-1
230 GOTO 80
240 LET H=H-1
250 LET H=H-1
260 GOTO 40
270 PRINT AT 3,0:"ALIEN FLEET D
ESTROYED-WELL DONE"
280 STOP
290 PRINT AT 3,0:"OUT OF WEAPON"
300 GOTO 10
310 STOP

```

Listing 5 - One

```

10 REM "ONE"
20 LET X=110
30 LET A=0
40 LET C=0
50 IF INKEY$="0" THEN LET A=A-
1
60 IF INKEY$="1" THEN LET X=X+1
70 IF INKEY$="2" THEN LET X=X-2
80 IF INKEY$="7" THEN SAVE "OR
DU"
90 IF INKEY$="8" THEN LET A=A+
1
100 IF INKEY$="9" THEN GOTO 40
110 GOTO 50
120 INPUT R
130 PRINT R
140 IF INKEY$="4" THEN LET C=C-
1
150 IF INKEY$="5" THEN LET C=C+
1
160 IF INKEY$="6" AND X=110 TH
EN GOTO 100
170 GOTO X
180 PLOT C,R
190 GOTO 30
200 PLOT C,0
210 UNPLOT PEEK 16438,PEEK 1643
220 GOTO 30
230 UNPLOT PEEK 16438,PEEK 1643
240 GOTO X

```


Playing around with pixels — on screen

Creating user-defined characters is a tricky task. The TI-99/4A has a special routine, called CHARR, to deal with it. Even so, to define each of a 32 pixel character, you have to work out, then type in, a 16-digit hexadecimal string — and what if that you may well find that the end result that appears on screen is not quite what you intended!

My program, for the TI-99/4A, allows you to design up to four characters on screen. Enlarged versions of the characters can be manipulated on a large 16 x 16 grid, and moved around it by using the arrow keys. Individual pixels can be set or removed by using ENTER.

As well as the large grid, the program also displays several small representations of the characters and their hexadecimal string representations. These are only updated when the user moves to another character or when the space bar is pressed.

At the start of the program, users are given the option of supplying initial values for the characters. Only if they wish to do this must a 16-digit hexadecimal number be supplied.

To make the program as foolproof as possible, all user input is checked halfway through to ensure the correct use of the 16 x 16 grid is required.

Going through the program line by line, that's how it works:

100 determines the arrows used in the program. SET holds the string representing the four characters being defined. HEXP holds parts of messages to be displayed during initialization. BLEP (1,16) holds the 16 hexadecimal digits making up the representations for the four characters.

160-200 define some functions used in the rest of the program. DIVS (X) produces the integer division of X by Y and MODS (X) produces the remainder.

210-220 calls subroutines to carry out initialization.

230-250 a loop to design the string representations and initial display for each of the four characters.

300 makes a sound.

350 SET will always contain the number 0 to 31 of the current character being defined. This line sets SET to represent the top left hand character.

360 CHANGED will indicate whether the current character SET has been changed since the last time a string representation and initial user representation were displayed. FALSE (0) implies no change and TRUE (-1) implies a change.

350-360 CURX and CURY indicate the coordinates of the cursor within the current character (SET). CURX indicates the top left hand corner of the character, gets the cursor on the screen.

400 wait for user input.

410-430 removes the cursor from the screen.

440 performs some actions depending on the value of the input (KEY) and then gets 100.

450 Space bar has been pressed, so updates the display of the character (SET) has been changed.

460 moves cursor left.



Finding user-defined characters hard to handle on the TI-99/4A? David Gray shows you how to tame them

480 moves cursor right.

510 moves cursor down.

540 moves cursor up.

570 sets or unsets the current pixel (indicated by CURX and CURY) of the current character (SET). In-vald input, so make a error.

700 The remainder of the program is a collection of subroutines.

820-880 clear the screen and set up the user-defined characters and colours used in the program. character codes 134 to 137 are used to define the four characters being entered.

890-1100 clear the screen and set up the empty display including the 16 x 16 grid.

1120-1220 display the string representations (STRS(SET)) for the character SET at the appropriate position on the screen.

1230-1340 ask whether the user wishes to supply initial values for the four characters. If so, the subroutine inputs the values and calls the subroutine at 2100 to check that they are valid.

1350-1380 determine the absolute position of the cursor on the screen by using the character number SET and the position within that character given by CURX and CURY.

1390-1460 position the cursor on the screen by finding its absolute position using the subroutine at 1330. The type of cursor placed depends on whether the cursor is at a set or user pixel. This is determined by calling OCHARR.

TI-99/4A PROGRAMMING

1478-1742 reverse the cursor and replace it by the appropriate character to represent a set or reset point.

1754-1830 move cursor up.
1860-1900 move cursor down.
1930-2070 move cursor right.
2080-2120 move cursor left.

These four subroutines move the cursor as directed by the user. If any attempt is made to move the cursor off the 16 × 16 grid, a sound is made (by calling the subroutines at 2170) and no action is taken.

If the move takes the cursor to another character, then the display is updated by calling the subroutines at 2630. Otherwise CURX or CURY is updated as appropriate. Note at this point the cursor is not actually displayed on the screen, but when it is replaced by L, C, R, X and CURT will indicate its correct position.

```

140 GOTO CHARACTER GENERATOR
150 NEXT
160 GOTO 1480
180 GOTO
200 GOTO
220 GOTO
240 GOTO
260 GOTO
280 GOTO
300 GOTO
320 GOTO
340 GOTO
360 GOTO
380 GOTO
400 GOTO
420 GOTO
440 GOTO
460 GOTO
480 GOTO
500 GOTO
520 GOTO
540 GOTO
560 GOTO
580 GOTO
600 GOTO
620 GOTO
640 GOTO
660 GOTO
680 GOTO
700 GOTO
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860 GOTO
880 GOTO
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9820 GOTO
9840 GOTO
9860 GOTO
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9920 GOTO
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9960 GOTO
9980 GOTO

```

2440-2520 reverse the DIGITS digit from the string ST and turn it into an integer in the range 0 to 9.

2534-2720 change the current pixel when the user presses ENTER. The change is recorded by setting CHANGED to TRUE (1). The subroutines then update the display by changing the character at the cursor position. If then replaces the value of BRP with the current character ST to reflect the change. At this point the string representation for the character ST remains unchanged.

2730-2820 check if using CSI input by the user and report any errors found. If the string is correct a value of TRUE (1) is returned as OK, otherwise a value of FALSE (0) is returned as OK.

2834-3120 update the string representation and the normal character representation of the character ST, if it has changed. The string representation is updated both externally (ST\$ST) and on the display.

```

720 GOTO
740 GOTO
760 GOTO
780 GOTO
800 GOTO
820 GOTO
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900 GOTO
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940 GOTO
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Personal Software Services

Presents

Two New Arcade Programs for ZX81 16K



Tai

£4.95

In any other time or galaxy, the dust ball of a world called Tai would have been quite unimportant.

TIMES CHANGE... Now it is the last remaining outpost between the advancing Imperial Fleet and the main planets of the Eortian system. Unless the Imperial Forces can be held off until the Republican battle fleet arrives, an entire civilization will be betrayed...

You have been chosen to defend Tai, the Galactic future depends on you...

Available from all good Computer Shops and Retail Dealers



Hopper

£3.95

Can you help Fergys and his friends get across the 4 lane highway and back to the lily pond?

Includes obstacles, logs, varying speed traffic etc.



Interested in making more money?



How do you find out the best place to leave your money? Dave Judson's Spectrum program makes the choice easy

If you want to find out how best to make your money work more, try my Investing Program.

Written onto 48K Spectrum, it should really work on the MK model.

It gives you three choices: simple or compound interest or present value. The first two could be used, for example, to compare savings plans.

The calculation for present value works in the opposite way to compound interest.

You might ask, "How much do I need to invest as a compound

interest rate of 10 per cent to accumulate £1,000 in five years?" The answer is £621.

The concept is often used as a business and would be useful for household budgeting as well.

Variables used: i is choice of calculation type, p present, r rate of interest, t term or period of years, s accumulated amount.

Lines 100-110 introduce the program and offer options, 200-290 is the simple interest calculation, 400-500 works out compound interest and 600-740 are for present value calculation.

```

10 REM interesting program
20 REM Dave Judson 1983
30 GO TO 100 THE PROGRAM BEGINS TH
E OPTION OF
40 PRINT "VARIOUS FINANCIAL TR
ANSACTION"
50 FOR I=1 TO 10: PRINT . NEXT
I
60 PRASE 100
70 CLS PRINT "TO CALCULATE S
IMPLE INTEREST"
80 PRINT
90 PRINT
100 PRINT "CALCULATE COMPOUND I
NTEREST"
110 PRINT
120 PRINT "CALCULATE A PRESENT
VALUE"
130 PRINT "to choose calculation
type"
140 PRINT FLASH 1;"ENTER a OR c
OR p"

```

```

55 INPUT CB
140 IF CB="a" THEN GO TO 200
150 IF CB="c" THEN GO TO 400
160 IF CB="p" THEN GO TO 600
170 CLS
180 PRINT "option not valid". @
190 TO 20
200 REM simple interest
210 CLS
220 INPUT "WHAT IS THE ORIGINAL
SUM" : P
230 INPUT "AT WHAT RATE OF INT%
REST" : R
240 INPUT "FOR HOW MANY YEARS
" : T
250 LET A=P*(1+R*T/100)
260 LET B=INT (1000001/100)
270 PRINT "ACCUMULATED SUM IS
" : A
280 PRINT
290 PRINT "OF WHICH E " : "a-p."
300 INTEREST="
310 INPUT "ANY MORE CALCULATION
S OF THIS TYPE (y/n) " : CB
320 IF CB="y" THEN GO TO 200
330 INPUT "ANY OTHER TYPES OF C
ALCULATION (y/n) " : CB
340 IF CB="y" THEN GO TO 60
350 GO TO 1000
360 REM compound interest
370 CLS
380 INPUT "WHAT IS THE ORIGINAL
SUM" : P
390 INPUT "AT WHAT RATE OF INT%
REST" : R
400 INPUT "FOR HOW MANY YEARS
" : T
410 LET A=P*(1+R*T/100)
420 LET B=INT (1000001/100)
430 PRINT "ACCUMULATED SUM IS "
: A
440 PRINT
450 PRINT "OF WHICH E " : "a-p."
460 INTEREST="
470 INPUT "ANY MORE OF THIS T
YPE OF CALCULATION (y/n) " : CB
480 IF CB="y" THEN GO TO 200
490 INPUT "ANY OTHER TYPES OF C
ALCULATION (y/n) " : CB
500 IF CB="y" THEN GO TO 60
510 GO TO 1000
520 REM present value
530 CLS
540 PRINT "THE CONCEPT OF PRESE
NT VALUE
WORKS OPPOSITELY TO
THE COMPOUND INTEREST CALCULATIO
N"
550 PRASE 100 CLS
560 INPUT "WHAT SUM DO YOU WISH
TO HAVE" : S
570 INPUT "OVER HOW MANY YEARS
" : T
580 INPUT "AT WHAT RATE OF INT%
REST" : R
590 LET A=(S/(1+R*T/100))
600 LET B=INT (1000001/100)
610 PRINT "to ACCUMULATE C
" : A
620 PRINT "OVER " : T " YEARS @ "
: R
630 PRINT "YOU MUST INVEST " : B
640 INPUT "ANY MORE OF THIS TYP
E OF CALCULATION (y/n) " : CB
650 IF CB="y" THEN GO TO 510
660 INPUT "ANY OTHER TYPES OF C
ALCULATION (y/n) " : CB
670 IF CB="y" THEN GO TO 60
680 GO TO 1000
690 CLS : PRINT AT 00.10;"BYE P
OR NOU"
700 STOP

```


How easy to add on some ZX81 add-ons?



Insert video module LFO and repeating key module

Electronics expert Bob Bennett examines a selection of the latest firmware for the ZX81

The race to produce cheaper and better computers for the home or hobbyist user has created a market for firmware or add-on units, either as kit items or ready built.

The ZX81 is a prime target for this market and I have just been looking at four products you can buy for your ZX81. The manufacturers are Haven Hardware, who assure that your ZX81 is still in its original case.

How easy are? The first thing I did was to build a keyboard and put the PCB in a larger casing for cooling and the addition of a larger transformer. To be fair, I cannot comment on how easy or not it is to fit these things into the original case.

The first product was a keyboard repeater module which is fairly easy to assemble

from the instructions given — although some came ready built — and with care can be fitted and working in about 10 minutes.

The pot on it gave a fair range of speeds, but if you have the original case for the ZX81 I would recommend experimenting with a better potting it all together. It wouldn't be easy adjusting the pot afterwards.

The second unit I tried was Haven's LFO port. Mine was already assembled, but the assembly instructions are quite easy to follow.

It appears that this unit was originally designed for the Spectrum, but fitting a shorter edge connector will allow it to fit the ZX81 when it is in its original case.

The Spectrum has been a few commands, of course, and a simple program demonstrated

the unit working in both modes.

The ZX81 has to be programmed via a short machine code routine which should present no difficulties.

There are eight input and eight output ports you can access via direct address connections to the PCB.

The third module I tried was a small unit for producing stereo video, quite easily fitted with four connections to the upper side components rail of the ZX81.

After fitting and switching back on all I had was a rather murky TV screen with the reception of an inverted K cursor back just noticeable on the left hand edge. It may be that I had been not a little untidy. The door sometimes happens and if that's the case I would be happy to try another one.

The last module I examined was a keyboard sounder or, as

Haven whimsically call it, a beeper. This has exactly the same connections as the ZX81 as the keyboard repeater and can be fitted on about the same time, but you would have to be very careful of fitting both units together.

The module worked well and gave a reasonable warning in case you hit the keyboard pot.

Apart from the one exception, the modules did what they were supposed to do. If you have a modicum of skill with a desoldered adding iron then construction of the kits should present no problem and instructions for fitting and use are easily followed, always assuming that these additions are what you want. With regard to the LFO port, I think Haven could go one or two steps down about the extension of their PCB edge connector and further extensions.

Prices include postage and packing and those in brackets are for kits.

Repeating key module	£3.95 (£3.95)
LFO port	£14.95 (£13.95)
Insert video module	£4.50 (£2.95)
Keyboard beeper module	£3.50 (£3.95)

Haven Hardware, 4 Adley Road, Adley, Worthington, Condon CA14 4BR.

Simon says:

try this
game for
youngsters

Youngsters will get hours of amusement from my version of the classic Simon game — it makes a change from arcade-type games.

Simon is not a spelling machine, it's just the name I have given to my version. It uses the high-resolution graphics of Mode 2 and therefore needs a model B BBC micro to run.

The object of the game is to remember a sequence of colours or patterns presented to you. To help you remember these notes they are accompanied by flashes of a corresponding coloured block.

You then repeat this sequence after the starting tone, using the keys 1 to 6. The computer then checks your response against the notes and gives you a score.

The computer will make the next sequence harder if you get all

Keep children happy for hours with Jeremy Riggs' version of the Simon classic, which runs on the BBC classic model B micro

the notes correct, but if you fail to do so the sequence will be the same length.

When you reach level 10 or above the computer will only sound the notes so you have to remember the notes and not just the colours.

The program is of a simple construction, using the BBC's PROC macros, and has just five main parts:

- The instructions are displayed using the pre-defined PROC instructions

- Setting up all the variables. Two arrays are dimensioned on line 30 (SIZE) as the sequence of notes to be played. The six notes are kept in SIX() and these are also calculated on line 30 (PI% on line 30 is used to control the printing field width. *FIX() on line 30 are used to set the field size of the coloured patterns.

- The display is set up using PROC screen (line 70) which draws the coloured squares with their numbers. The squares are drawn using PROC box (line

170). PROC screen also sets the window using the VDU133 statements at line 130. Scores and progress appear in this window. Note: The VDU1 statements also turn off the cursor. Make sure you get the column and row-values in the right places or weird things will happen.

- The last part is the actual playing of the game. This is called by PROC play (line 150). The computer waits for you to hit the space bar and then it will generate a sequence of numbers, each being 1-6, in PROC sequence (line 240). After a small rest is called by PROC break (line 490) you must enter your reply, entered by PROC check (line 710). You are then given a score (PROC score, line 580) and the sequence is repeated.

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HCM 4

Testing, testing . . . 10 programs for the Spectrum

Our reviewer has played his way through the latest Spectrum software. Here are his considered opinions, complete with star ratings

Mancala Spectrum £5.99

Manca Hardware, 4 Auby Road, Acton, Wokingham, Cleveley, Camber.

Awah, Bani Hasan, Mancala — whatever you call it, it's the same game. Played against the computer, the object is to distribute and capture pebbles as you take it in turns to move

around a rectangular board. There are three skill levels in Mancala's version, but on the highest the computer takes up to 30 seconds to think. Since it isn't the skill of the game but in being able to play it very quickly, I don't see this as an ideal game for a computer.

instructions	60%
playability	40%
graphics	30%
value for money	50%



Transylvanian Tower 48K Spectrum £6.50

Richard Shepherd Software, 21 Green Lays, Middlesbrough, Tees.

In the third of a series of theme adventures from Richard Shepherd, you are the intrepid adventurer trudging through the rooms and corridors of Transylvanian Tower.

The Tower has five floors, each floor consisting of a maze of 100 rooms. You start off at the dungeons at the very bottom of the tower, where you can practice navigating through the maze in mazes, and call up a floor plan at any time to help you find your way out.

As you move up to the next level, though, your initial ready frames. From now on, you risk being attacked by the evil vampire bats which fly around the rooms.

The bats have their own, though. Each carries a floor plan, which you can use once

and once only if you manage to shoot down the bat. If you die, you go without — from level 2 this is the only way to get hold of a plan.

If you manage to reach the final level, you battle directly with the Count. But I only just managed to reach the top level in the few hours I had to play the game, and that he killed me almost instantly.

The graphics and sound are nothing special, though there is imaginative use of colour, plus the odd beep and music background notes. New levels are very slow to materialise as you move up the tower, though this does at least provide a welcome break between levels.

Movement is controlled mainly by the cursor keys, and the laser gun is fired by the O key. Response time is, however, quite slow, and you have to hold down the keys for a second or two each time.

instructions	50%
playability	50%
graphics	10%
value for money	50%



Micro Chess Spectrum £6.95

Artis Computing, 396 James Beckett Avenue, Hall, N. Humberdale.

Spectrum Micro Chess is Artis's other new chess game for the Spectrum and is, as far as I know, the only version available for the 16K machine.

Despite memory limitations it is well presented and easy to use, keeping to all the standard chess rules. Moves are ordered by giving the row number and the column number; all illegal moves are simply ignored.

There is only one level of play, and response time is fast. But it plays a weak game — I once lost it in 30 seconds and seven moves.

Several new features have

been included. There is a 'help' option, in which the computer makes your move for you, and a clock is displayed at the top of the screen. The graphics are well designed, though it is a bit of a strain on the eye to play on a magazine and open board.

Thorough instructions are given on the cassette box set, and on loading you are given the option of watching a demonstration game to see how you are asked for an opening move, and the computer then plays both sides — unfortunately in each Micro Chess would make an excellent chess tutor, a shame that it is such a weak player.

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



Invaders Spectrum £4.95

Artis Computing, 396 James Beckett Avenue, Hall, N. Humberdale.

Everyone, unless they have spent most of their lives spending down with their head in a bucket, must now know the rules of Space Invaders, and Artis's version is no different. Scramble rows of alien trans screen and down the screen in media oriented tanks, firing missiles at your laser base (you have three) as they go.

Artis's game offers two

levels of play and four different bonuses. The game is well presented, the graphics are fast and smooth, and the sound is reasonable — well, how many different sounds can an alien make?

Control of your base is straightforward, the boys being well spaced, and playing position is simpler. Instructions and scoring details are given on loading and before each new game.

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



Voice Chess 48k Spectrum £9.95

Artic Computing, 196 Ames
Buckton Avenue, Hall, N
Hambrook

Voice Chess is based on Artic's successful ZX80 Chess II program, but with the added novelty of speech. Whenever a move is made, Voice Chess speaks its coordinates, if rather indelicately, and moves the appropriate piece. It will also suggest a move if you ask for help.

There are six levels of play, but the levels on the screen's title screen that the first two are really only suitable for correspondence chess — for which the voice is irrelevant. At level 3, the response time is fast but the computer plays a very weak game. Level 4 is probably the most satisfactory level to play at, with a response time of about 40 seconds.

After loading, and at any time during the game, the 'Analysis' option may be entered. Once in this mode you can move pieces around, swap sides or change the level of play as required. Using this facility occasionally seems to make the computer lose track of the game. At six points, after being

checked, I was able to change sides and capture at long — upon which the computer made a noise and promptly crashed.

The speech takes a while to get used to, and pronunciation is occasional. However after a while, as you recognise repeated words, the 'voice' becomes more intelligible. To break the monotone repetition of piece positions, the computer occasionally comes up with some nonsense such as 'I was expecting that' or what sounds like 'Oh sorry, not again?'

Playing chess with a well-designed board and fluidly-moving pieces is an aesthetic as well as an intellectual experience, and computer chess should seek to make the screen display attractive as well as clear. Artic has achieved this to a certain extent. The pieces are well designed, being large and clear, and the screen display has been kept simple and uncluttered so that the screen colours can be things after a while.

A good, well documented chess program, but the speech is just a gimmick.

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



Auto-Sonics Spectrum £6.95

Barnacraft Software, 14
Weyman Avenue, Redbourn,
Royston, Yorks

Although Spectrum sound production may seem limited, you can actually use it to produce many interesting and complex effects, and Auto-Sonics is a package designed to help you do just that.

Written in Basic, the program presents you with a selection of 35 predefined effects which can then be built and related to your requirements. Once a sound has been created, the program generates and prints the list of Basic required to produce that particular effect.

Galaxians Spectrum £4.95

Artic Computing, 196 Ames
Buckton Avenue, Hall, N
Hambrook

From the words game of the same name, Galaxians is very like Space Invaders and the rules are visually identical. The main difference is in the screen display. There are no shields for your laser gun to hide under, and the invaders do not attempt to reach the ground and land.

Occasionally groups of aliens break off from the left or right flanks, flip over and swoop down, firing missiles at you as they go. In Artic's version this is the only time at which the aliens fire, but in later games an alien will move back off and it becomes very difficult to dodge them — let alone hit them.

This is a well-written version and the graphics are fine, although they tend to flicker slightly. The title screen flip and swoop gracefully. Ample instructions are given at the start, though the game is really self-explanatory.

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



For each of the 35 sounds, the sound specification can be called up on a data-screen showing tone, repeat, pitch values etc. These can be easily altered as necessary. At any time the sound can be played back and the Basic line printed.

This cleverly-written program is relatively easy to use. The screen is well laid out with 'later' displays showing the components of the sound, and the documentation is extensive and clear. Users may, however, find that some sounds are difficult to change, due to the high-contrast of ZX files.

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



Patience Spectrum £5.99

Beavis Hardware, 4 Aubrey
Road, Arley, Worthington,
Cumbria

It has always puzzled me why people waste computer simulations of games such as Patience, when they can be so easily played with an ordinary, ultra-low technology pack of cards.

In the computer version, I suppose, you don't have to shuffle the cards, and as the case of this game it's also impossible to cheat, since the computer's error checking is very thorough.

Beavis Hardware's version takes one of the better-known patience games, in which the player must transfer all the cards of each suit to the appropriate piles in ascending order, seen at the bottom.

After shuffling, the cards are shown on the screen, set out in the four-beaconed layout of a right-angled triangle with a lone seven cards long. Cards are then taken from the pack and placed on the triangle in descending order and alternating black and red.

instructions	60%
playability	50%
graphics	40%
value for money	30%



Invasion Force Spectrum £4.95

Artic Computing, 196 Ames
Buckton Avenue, Hall, N
Hambrook

A threatening alien spaceship looms above you, and the aim of the game is to destroy it. But so first as you must first blast holes in the laser field. To hinder you, alien bombs drop. Tap across the screen above the laser field, firing rapidly. The force field plays strange tricks, turning one of your missiles into three smaller falling comets.

If these hazards can be avoided and the flag ship destroyed by hitting a central control point (called the heat sink) and when your score is increased, according to how

long it took you, and a reading of superior status is given. If your time runs out, or if you lose all of your three lives, then the game is over.

There are two levels of play, 'standard or casual' — in the second level, the game rarely loses more than a few seconds! The graphics are colourful and, to add a nice twist, when you have been hit by a little Artic lady crandles an to repair your heat.

The instructions sequence is long and complex, although the game is largely self-explanatory. Invasion Force is simple but addictive, and makes a change from the usual 'Space Wars, kill the alien' format.

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



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CHANGING YOUR MINDSET I FEEL THAT THE ONLY WAY TO BE SUCCESSFUL TODAY is to be truly **FREE — OUT OF ALL TIME**

Let me tell you — I did not say anything about being **RICH** — I am a successful and happy **RICH**. The **REAL MONEY** was not in the bank but in the fact that I am a successful and happy **RICH**. The **REAL MONEY** was not in the bank but in the fact that I am a successful and happy **RICH**.

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— I **WANT** TO BE RICH & HAPPY
 Why? Because of the problems of your employment are making it very hard to keep your own money. You need a way to make your own money. You need a way to make your own money. You need a way to make your own money.

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STOP PRESS LETTERS PROOFED TO THE PAPER

RE: K. F. 474444 — My account number is 474444. I am a successful and happy **RICH**. The **REAL MONEY** was not in the bank but in the fact that I am a successful and happy **RICH**.

RE: D. D. 474444 — My account number is 474444. I am a successful and happy **RICH**. The **REAL MONEY** was not in the bank but in the fact that I am a successful and happy **RICH**.

Test your powers of logic



This classic brain teaser, from Derek Sorensen, pits you against your 1K ZX81. You've got 10 chances to get the numbers right

Sharpen up your brain with my Master Code game in which you have to break the code set by the computer.

It runs on the 1K ZX81 and here are the rules of play:

1 The computer sets the code, which consists of four different numbers from 1 to 4.

2 You must ascertain, initially by guesswork but eventually by logic, what the code numbers are and in the correct order. You will be given clues as to the identity and position of the four numbers — a graphic space means a number is correct and in the correct position and a graphic defined H means a number is correct but not in the correct position.

3 If you successfully break the code then the number of times you have had a displayed on the screen.

4 If you take more than 10 at-

tempts then the computer prints the message YOU LOSE.

How it works

Line 2 sets up the constant S = 4, storing necessary.

3-6 set up variables A, B, C, D, as random numbers from 1 to 4.

7 checks the A, B, C, D are all different. If not, they are re-set.

8 sets player to stay begin.

10 sets 100 times the FOR/NEXT loop.

20-50 allow input of player's guess (variables AA, BB, CC, DD).

60 prints player's guess.

70 to 140 print coding lines which player may eventually deduce the solution.

150 escapes from the loop if the correct solution is input.

170 prints YOU LOSE if the correct solution is not found in 10 tries.

175 flags program end Break is pressed.

180 prints number of guesses player had if the correct solution is found.

```

3 LET S=4
4 LET A=INT (RND*(S)+1)
5 LET B=INT (RND*(S)+1)
6 LET C=INT (RND*(S)+1)
7 LET D=INT (RND*(S)+1)
8 IF D=B OR A=C OR B=C OR B=D OR C=D
9 PRINT "READY"
10 FOR N=1 TO 10
11 INPUT AA
12 INPUT BB
13 INPUT CC
14 INPUT DD
15 PRINT AT N,5,AA," ",BB," ",
CC," ",DD
16 IF AA=B THEN PRINT " "
17 IF BB=B THEN PRINT " "
18 IF CC=C THEN PRINT " "
19 IF DD=D THEN PRINT " "
20 PRINT "A"
21 IF AA=B OR BB=C OR BB=D THEN
PRINT "A"
22 IF CC=A OR CC=B OR CC=D THEN
PRINT "A"
23 IF DD=A OR DD=B OR DD=C THEN
PRINT "A"
24 IF AA=A AND BB=B AND CC=C AND
DD=D THEN GOTO 100
25 NEXT N
26 PRINT "YOU LOSE"
27 GOTO 170
28 PRINT AT 10,5,"NO OF TURNS"
--14
  
```


Stretch your mind & your micro.



The first Mr. Micro products to appear on the shelves of approved dealers are specifically for the owners of the VIC 20 but programs and accessories for other micros are already in production.

Mysterious Island £9.50

The first in the Jules Verne MicroVenture series. Your adventure starts after escaping from prison in a hot air balloon which descends to a small inhospitable island. Once you've landed the fun really begins!

There are deadly trapped fields, killer bees, holes to visit for energy and natives to be bribed! Enter the caves to find clues hidden under a mosaic floor, avoiding the traps at all costs! Then negotiate a fierce fight, capture the natives and you're almost home — but not quite!

This game requires skill and quick reflexes. All successful adventures can claim a unique personalised award by sending Mr. Micro their final surface position at the end of the game.

● Full graphic display ● Several games loading to an existing diskette ● Separate Practice Program ● Bonus Data Tape to store the game to play later (for use with Commodore VIC 20, 16K expansion, by Joystick or keyboard)

RAMDAM £13.95

RAMDAM enables programs which would normally only work with a 3K expansion to work with 8K or 16K expansion. RAMDAM saves having to buy a 3K pack if you already own an 8K or 16K. With RAMDAM and a 16K expansion all known tape games will run on your VIC 20.

The RAMDAM works by 'fooling' the VIC into 'believing' that there is only a 3K expansion fitted. This is required because the VIC 20 changes the location of the screen display in memory, dependent upon how much memory it 'thinks' it has.

PLUS to ensure maximum value, the RAMDAM package includes a memory test program and a great 65K game called MicroVadem for use with joystick.

Write to Mr. Micro now to find out who your nearest stockist is and learn about a valuable "first come first served" special offer.

MR. MICRO



Mr. Micro has built a hard earned reputation as innovators in the world of home computing.

From the early days, as pioneers in a lot of firsts was established — including the first software available for the VIC 20 in the U.K. and the first adventure programme to offer a real reward — an idea which has since been much copied, but never equalled.

In the past, Mr. Micro's exciting software and invaluable accessories have only been available by mail order, but now, in response to popular demand, an extensive network of retail outlets has been established.

Note to Dealers: If you would like to have the exclusive benefit from becoming a Mr. Micro Stockist, telephone Jim Gregory at Mr. Micro without delay.

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