Britain's leading weekly magazine for software reviews

Home Computing WEEKLY

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No.49
Feb 14-20, 1984

40p

Two pages of Commodore 64 software reviews, PLUS: BBC, Spectrum, Texas, Dragon and Electron

ZX Microfair: report, pictures

Three Spectrum games to type in

Colours and sprites on Commodore 64

Three listings for the VIC-20

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'Let's raid the software pirates'

Software companies were deciding last night whether to finance a raid on a big piracy operation.

They have come across counterfeit tapes — complete with full-colour inlay cards — which are so good that they can hardly be distinguished fromthe genuine products.

It would cost the Guild of Software Houses about £5,000 to get what is called an Anton Pillar order allowing a surprise raid.

And, if the case was later fought in court, the bill could rise to about £50,000.

GOSH chairman Nick Alexander, managing director of

Continued on page 5

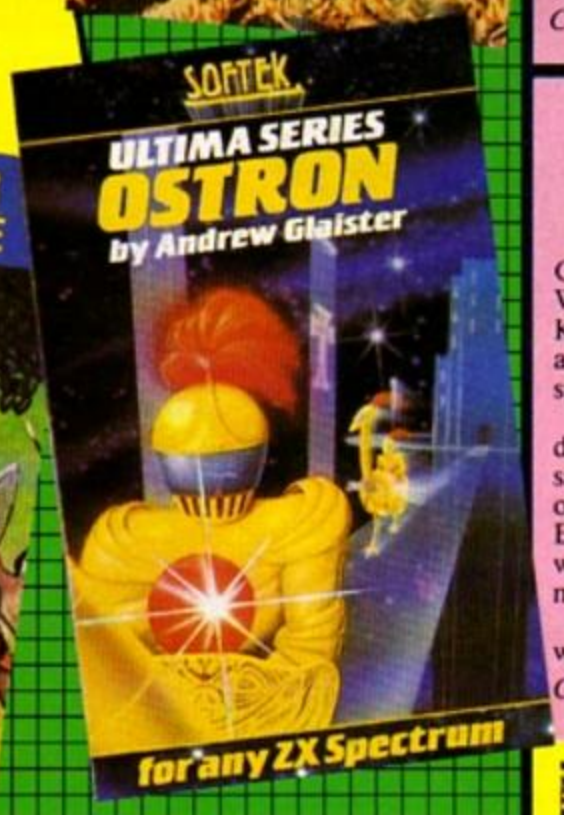
'Ignore rumours' — Genie boss

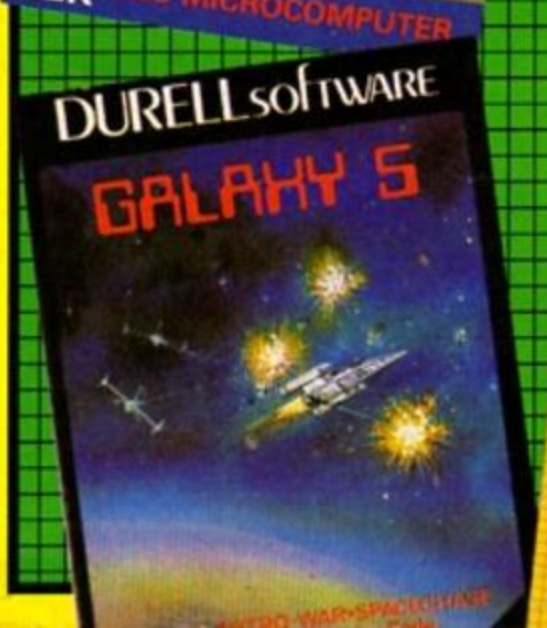
Colour Genie boss Alan Whitford says his range of Hong Kong-made computers is safe — and blames competitors for spreading false rumours.

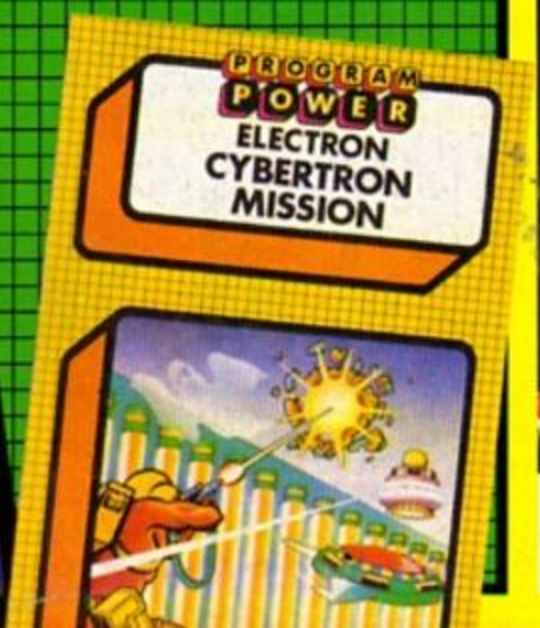
Mr Whitford, managing director of Lowe Computers, said: "We knew some sort of re-organisation was going on at EACA, but we are still in touch with the chief engineer and the marketing manager.

"And there are ships on the way to us with more products."

Continued on page 5







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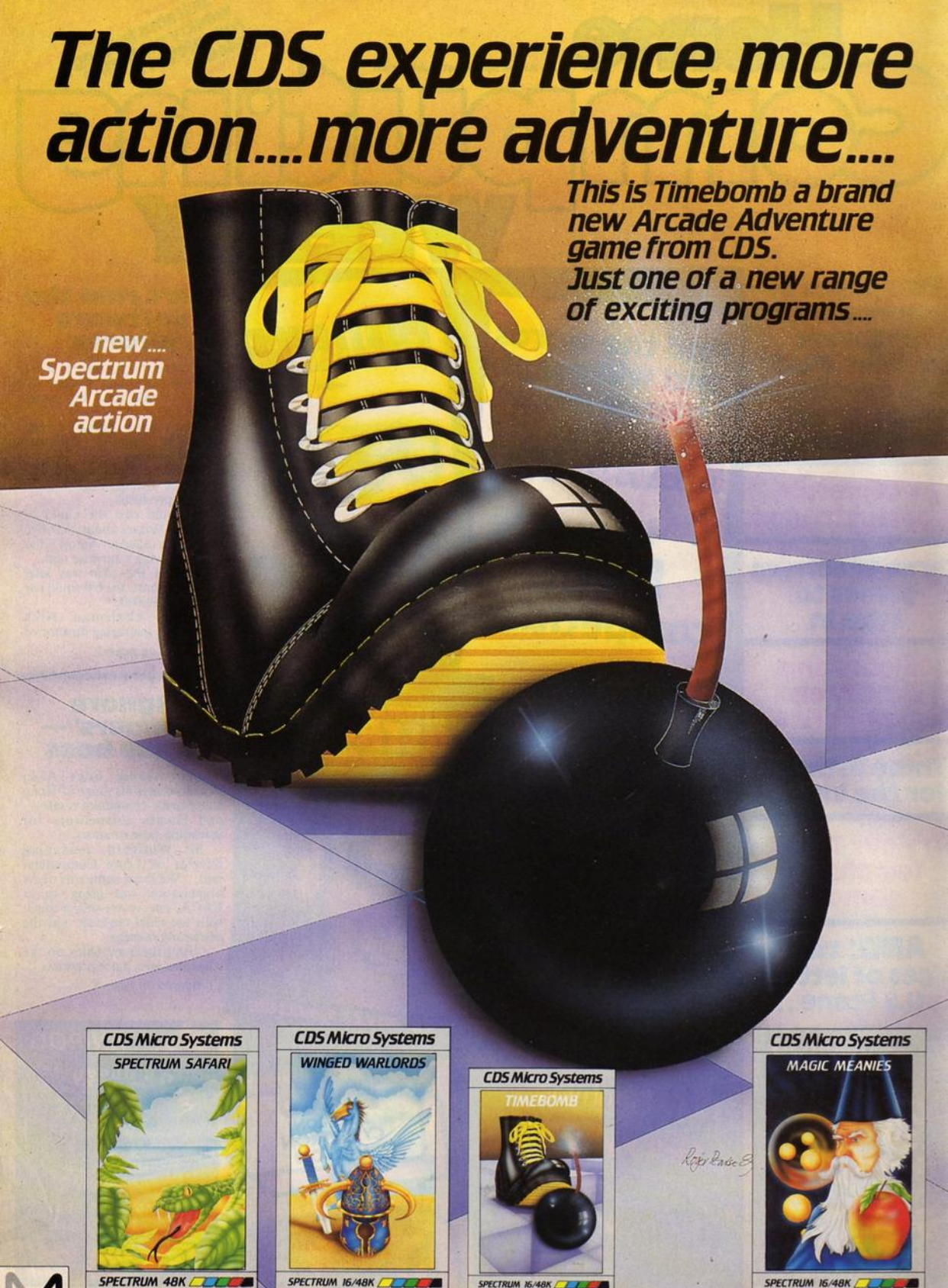

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NEXT WEEK: free 48-page supplement on Spectrum and ZX81 add-ons. Make sure you don't miss it — order HCW from your newsagent

Rescue Greta

Virgin is bringing out a follow-up to its chart success, Falcon Patrol, written by the same programmer, Steve Lee. It is called Hideous Bill and the Gigants, at £7.95 for the Commodore 64, and is a maze game where the player has to rescue "Greta" from giant ants.

Virgin, 61-63 Portobello Rd, London W11

● ● ●

Picturesque has re-writen its Spectrum Editor/Assembler and Spectrum Monitor programs to add commands for using Microdrives, networking and the RS232 interface. Prices remain unchanged at £8.50 for the assembler and £7.50 for the monitor and they are promised next month. Existing owners can exchange their tapes for a £1.50 fee.

Picturesque, 6 Corkscrew Hill, West Wickham, Kent BR4 9BB

● ● ●

Magpie, an "easy to use" database for the Commodore 64, has been brought out by Audiogenic at £99.95. Templates, for applications like mailing lists, records and invoicing, start at £19.95.

Audiogenic, PO Box 88, Reading, Berks RG1 2SN

● ● ●

All Oric tapes from PSS now have two versions on the same cassette — one for the Oric-1 and a second for the newly-launched Atmos. PSS has just brought out a 48K Spectrum game called Guardian and a version for the 32K BBC micro of Light Cycle, already available for the Spectrum and Oric.

PSS, 452 Stoney Stanton Rd, Coventry CV6 5DG

● ● ●

A Pascal compiler for the Commodore 64 has been produced by Oxford Computer Systems. It is available on disc at £49.95.

Oxford Computer Systems, Hensington Rd, Woodstock, Oxford OX7 1JR

Editor: Paul Liptrot
Designer: Bryan Pitchford
Managing Editor: Ron Harris
Chief Executive: Jim Connell
Divisional Advertisement Manager: Coleen Pimm
Acting Advertisement Manager: Ricky Holloway
Assistant Advertisement Manager: Stuart Shield
Classified Advertising: Debra Stupple

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Commodore 64 owners: try our useful routine on page 13... and then play the game which starts on page 25

MIKRO-GEN

£1,000-worth of Mikro-Gen games are waiting to be won — turn to page 15 and see if you can spot the words

There's three listings each for the Spectrum and VIC-20 in this issue

Home Computing Weekly is best for software reviews — there's seven pages of them in this issue. That's a total of 35 programs star-rated for you by our review panel

LLAMASOFT NEWS

NEW for the 8K Expanded VIC:

HELL GATE

A very fast-paced Arcade game featuring simultaneous control of 4 high-speed laser cannon. Unique game action is easy to learn yet difficult to master. Features include 20 levels to challenge you; automatic Smart bombs; seven-place High Score table with score signature memory feature and full Attract mode. A superb Jeff Minter design presented immaculately on a 25 x 30 screen.

£6.00

COMMODORE 64: After finishing HELL GATE Jeff took a couple of days to pop the code onto the '64. Whilst this is no Revenge or Hover Bovver, we are offering HELL GATE 64 at the bargain price of £5.00... an interesting diversion to occupy a little time while you wait for Jeff's next '64 epic, which we can now reveal will be called

SHEEP IN SPACE — for which Jeff promises the usual great graphics and sound — and also a totally new control concept... so prepare to feel extremely sheepish in a few month's time.

Until then — to all our followers

A) HAPPY BLASTING/MOWING/SPITTING ETC.

B) DON'T SHOOT THOSE GOATS!!!

BY JEFF MINTER FROM LLAMASOFT

Jeff Minter

Llamasoft

AWESOME GAMES SOFTWARE

49 MOUNT PLEASANT, TADLEY, BASINGSTOKE, HANTS.

Piracy

From front page

Virgin Games, said: "I hope they do decide there should be a bust."

And Quicksilva's managing director, Rod Cousens, who has been leading the anti-piracy campaign, said: "We must be seen to be taking action. If we don't it could lead to the destruction of the market.

"If we pull this one off it will be a major deterrent."

GOSH, which at present has 20 £500-a-year members, will be addressed by Mr Cousens and an expert in piracy and shown the counterfeits.

They are copies of games from about a half-dozen of the UK's best-known software houses.

Mr Cousens, who believes that there are at least seven copies for each genuine tape sold in the UK, said: "The quality was so good that we were chocked.

"Of course, we knew piracy went on but these inlay cards were, in some cases, better quality than the originals. The average person would not be able to distinguish them from the genuine products."

Mr Cousens believes that, as well as using the small Sony high-speed duplicators, many of the copies are being made by staff at legitimate printers and duplicating companies moonlighting after hours.

GOSH members will also be asked if they want to finance a continuing country-wide investigation to track down the pirates.

There has also been a problem with overseas companies, licensed to produce UK-written software and sending it into the UK undercutting prices. Agreements have been changed to avoid this.

Mike Johnston, GOSH secretary and organiser of the ZX Microfairs, said: "Let's face it, computer software is one of the few bright hopes for the future of our country.

"All these companies are growing rapidly and giving employment to people. We need a really strong UK industry to enable us to sell overseas and if this sort of thing happens it's going to go down the drain."

Guild of Software Houses, 79 Park Lane, Tottenham, London N17 0HG

Briefly

A&F Software has withdrawn its Atom range, now no longer self-financing, but promises to continue its lifetime guarantees. A&F's first programs were for the Atom. The company is ending its mail order service from the end of the month. It says the service has become uneconomical and it will be able to offer a more cost-effective service to retailers.

A&F, Hyde Rd, Manchester M18 7JD

3D Spell is a new educational game for the 48K Spectrum, priced at £5.95 from Camel Micros. Players control Mr Bill Board and avoid Speedy Spider while selecting letters from an alphabet. There are four levels of spelling difficulty and three for playing. A standard word list can be changed.

Camel Micros, 33A Commercial Rd, Weymouth, Dorset

Genie

From front page

He said: "One of our competitors started telling people that EACA was no more. Then another one came on to use to ask us to sell their machine instead."

He had no such intention, he said. The 32K Colour Genie was selling steadily at £168 and so were the earlier models, the Genie I and II.

He said: "We are amazed we can still find a market for the Genie I and II after three years."

In the remote event of EACA ceasing manufacture of the Genies, production could be taken up by the European distribution companies — particularly in Germany — said Mr Whitford.

In about a fortnight there will be a slightly different Colour Genie in the shops. The only change will be a meter above the function keys showing the data input level. It has been built in to allow users to control the cassette recorder volume.

Two more Genies are to be launched: a 64K Genie V and and IBM-compatible Genie VII with 128K of RAM.

Lowe has just brought out two new Genie peripherals. One is called the LC24, priced at £8.95, which fits between the cassette lead and the computer to give stable input.

The second, originally developed for commercial use, is a £20 Prestel cartridge which allows the use of a modem.

Mr Whitford is also importing a German-made interface board for disc drives.

Lowe Computers, Chesterfield Rd, Matlock, Derbyshire DE4 5LE

Imagine's five at once

Imagine's next arcade game, due out this week, goes on sale in versions for five computers — Spectrum, Commodore 64, Dragon, BBC and Electron.

The aim is to make the most of the money spent on marketing, said Imagine's Bruce Everiss.

Priced at £5.50, Pedro takes its name from a character in the game who keeps a garden in Mexico and has to stop animals gettiing to his blooms.

Failure is greeted by a tune which sounds like Where Have All the Flowers Gone?

Mr Everiss said the tape was protected by new copy-proofing techniques and that inserts would be in four languages to aid exports.

● Imagine's warehouse in Liverpool was broken into and 35,000 games cassettes — enough to fill a large van — were stolen.

Imagine, 5 Sir Thomas St, Liverpool

ROM Extension Socket for the BBC micro

Outside ROM

ROMs or EPROMs can now be fitted outside the BBC micro with a ROM Extension Socket to the left of the keyboard.

It costs £19.19 and fits into a hole made using the maker's perforations and plugs into the computer's ROM board.

Toad Educational Computing, 8 Westbourne Grove, Sale, Cheshire M33 1RP

You could be on our pages

We welcome programs, articles and tips from our readers.

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

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

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

Competitive rates are paid.

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

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

NEWS

Now book is a game

Quicksilva has turned a children's book into a computer game, thanks to a chat in a pub.

The Snowman, at £6.95 for the 48K Spectrum, is based on Raymond Briggs' picture book of the same name.

Quicksilva's software manager Mark Eyles said: "We were sitting in the pub trying to think up ideas and we thought it would be a good idea to turn books into games.

"And it turned out that David Rowe, who does lots of our artwork, used to be a student of Raymond Briggs."

Programmed by 18-year-old David Shea, the game is non-violent. A little boy has to build a snowman — and collect its tie, glasses, trousers, torch, skateboard and balloons — and find enough ice to stop it melting.

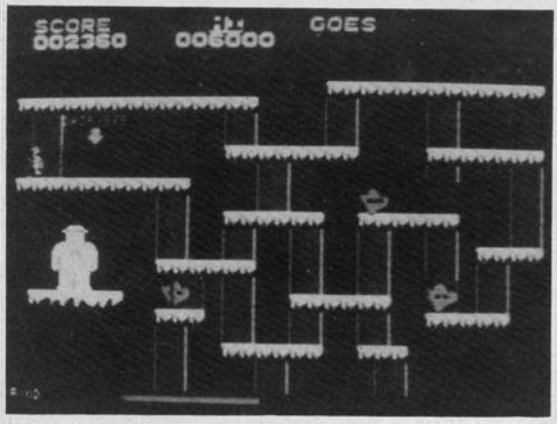
Asked if any other of Mr Briggs' books would appear as games, Mr Eyles said: "We'll see how The Snowman goes — this is something of a new experience for both of us."

The Snowman is one of six new Quicksilva releases. The Spectrum titles, all at £6.95, are: Dragonsbane, a graphic mythical adventure written by four sixth-formers in their summer holidays; Fred, a graphic adventure written by three programmers from Spanish company Indescomp; and Laserzone, a space arcade game converted from the Commodore version which was written by Jeff Minter, of Llamasoft.

The Commodore 64 games, both £7.95, are Sting 64, featuring Bertie Bee, and Boog a Boo (The Flea), also be Indescomp, converted from the similarly-named Spectrum version.

● Quicksilva has taken on the world rights for non-Spectrum versions of New Generation's range of software, including 3D Tunnel, Escape, Knot in 3D and Corridors of Genon. The first conversions will be for the Commodore 64 and managing director Rod Cousens says he plans to market them also in America.

Quicksilva, 13 Palmerston Rd, Southampton, Hants SO1 1LL



A scene from The Snowman — based on a children's book

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ONE VETERAN'S VIEW

Software: Be fair to the others

Despite being only 14, I could be described as a computer veteran. I started out learning BASIC on my uncle's Commodore PET. Then I got a Sinclair Spectrum (I was one of the first to own one) and I sat back and watched the computer market heat up before me.

The amount of Spectrum software then could have been counted on the fingers of one hand. But as the weeks turned to months and Uncle Clive's profits continued to soar, software started to come onto the market, first in ones and twos and then in floods. It became continually easier to get — first in W. H. Smith, then Boots and then the local hamburger joints — and I loved every minute of it.

Then, last Christmas, I decided to upgrade to the excellent BBC Micro. I did have some regrets though when the little Spectrum went to a new home. I felt I had been one of the pioneers of the popular computer market; campaigning for more and better software. But I looked forward to the better capabilities and more serious software of the Beeb.

○ ○ ○

I am now a month into my ownership of the Beeb and I am feeling utterly cheesed off.

Oh yes, the computer lived up to my expectations, but the software certainly did not. It wasn't the quality so much as the quantity of it that annoyed me. I'm sure that owners of less well-selling computers know and understand my feelings.

Well, why should the Spectrum have the lion's share of the software that's around? It may be the best-selling computer, but that doesn't justify the sheer amount of software titles for it.

Instead of shoving as much, often mediocre, software on the market for one machine as they can, why don't the software houses spend more time on the writing and release the titles simultaneously in versions compatible with various computers, in amounts depending on the popularity of the micros?

This would be more fair on the owners of less well-selling but just as good (or better) computers and would also be better for the manufacturers. They could start immediately by converting the best-selling games to run on the other micros: if they can do it with Jetpac and The Hobbit why can't they do it with others?

I'm sure I speak for many here and I try not to be biased towards one computer, but let's see a marked improvement in the situation or the software companies may lose many of their established customers as well as their dearly-loved profit.

Rico Vannia
Johnstone, Renfrewshire

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

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ZX Microfair: packed with products and people

What did you miss at the Microfair, even if you were there? Paul Liptrot toured the stands to find out what's new

People queued for several hundred yards as the latest ZX Microfair beat its previous attendance total.

About 11,000 went to Alexandra Palace this time, excluding about 1,500 complimentary ticket-holders. In December 11,000 attended a two-day show and there were 8,000 at the last one-day event in August.

But the figures are a mixed blessing for organiser Mike Johnston, for whom this was the 10th Microfair.

He said: "It reminded me of the early show at the Royal Horticultural Hall where there were two hour queues.

"The attendance this time was encouraging, but I people don't like to wait in the rain. I brought in the opportunity to buy early tickets to try and avoid this."

Mr Johnston, who is also secretary of the Guild of Software Houses, is also concerned about the sales of copying programs.

He said: "I'm not very happy about it. Where I'm satisfied that people are selling programs which could be for breaching the Copyright Act or to break the law I will certainly stop them."

Andrew Laing, 13 that day made his show debut as **Simply Software.** He was showing a pre-release version of Clever Dick, a £5.50 educational program for the Spectrum.

Father Watson, marketing manager for North America for British Aerospace, said: "He runs the business entirely on his own, starting with his £150 life savings which he saved from his pocket money.

"He has his own bank account and keeps his own books and he's doing very well."

Clever Dick, written with 14-year-old Jeremy Bullard, is designed for children of two to eight and claims to teach a range from basic numbers to months of the year.

Andrew said: "We looked at some of the educational stuff and there was nothing that would teach kids a subject on a simple cassette and they all cost about £9.95."

Simply Software's products are on sale in a Stevenage bookshop — run by Andrew's mother.

Education specialists **Scotsoft** showed its latest tape, Heat, designed for students of 'O'-level physics. It costs £7.50 and runs on Spectrum, Electron and BBC. It displays experiments, step-by-step formulae and worked examples of problems involved.

Philip Aldridge, proprietor of **PAL Software,** was there with his first product, Mazecube, for the 48K Spectrum (£4.99) — 24 puzzles on one tape. Mr Aldridge, 39, a former systems analyst, said his next would be a crossword puzzle program.

● **Michelle Brant — with CompuSounds' improved Telesound**

In a few weeks adventure specialists **Richard Shepherd Software** plans to bring out two more programs for the 48K Spectrum — one adventure and one strategy game — both written by maths teacher Peter Cooke, author of other Richard Shepherd games. Conversions of existing Spectrum adventures for other computers are also due soon.

John and Gill Vaughan, trading as **J.W.V. Software,** were selling software and an RS232 interface (£33.50) and emulators for Viewdata (£10) and teletype (£10) which allow accessto Prestel and Telecom Gold. A package containing all three for the Spectrum costs £50.

David Husband, who now has a firm called **Skywave Software,** says his FORTH 83, multi-tasking and including an assembler, will be out on ROM for the BBC in two weeks at £40-£50. He already produces a FIG FORTH on ROM for the ZX81.

LERM's Graphics/Sound Toolkit for the Spectrum (£5.50) is said to offer the choice of more than 80 routines and options including scrolling in all directions, box fill and rotate characters.

Finsbury Computer Centre, a north London shop, has formed a software arm and showed its first five products.

They are Games 1 and Games 2, both three-game tapes for the 16K ZX81 at £4.95, a space game called Andromeda Trophy (£5.95) also for the 16K ZX81 and two versions of a maths-teaching adventure, called Prince, Princess and the Wicked Witch for the 48K Spectrum (£7.95) and the 16K ZX81 (£5.95).

Paul Verma, proprietor of **Finsbury Software,** said more programs were in the pipeline.

A 5¼ disc system for the Spectrum was launched by **Interactive Instruments.** It comes as a plug-in module, containing the operating system, connected to its Shu gart drive by ribbon cable. Both are cased in Spectrum colours and Interactive says 109K can be stored on each disc. The system costs £230, interface alone £99 and an extra edge connector — replacing the Spectrum connector occupied by the interface — cost £10.

Interactive is also making a Spectrum joystick controller and amplifier for **Primordial Peripherals,** which has the UK licence from a Swiss company called Bug-Frei.

The joystick controller, Atari and Kempston compatible, has a gold-plated connector and a top-

mounted socket.

The sound amplifier is connected to the Spectrum by calbes and uses the computer's own power supply. It has a speaker, save/load switch, volume control and external sockets. Both products cost £9.95.

A new Spectrum keyboard — with 59 keys including space bar — was shown by **Transform.** Styled in Spectrum colours it includes a 12-key numeric keypad and, says Transform, needs no soldering to instal. The company says it will incorporate Microdrive, Centronics interface and power supply. There is also an on/off switch with LED. Price: £69.95.

Another floppy disc system is due out in about five weeks from **Morex Peripherals.** It will, says Morex, enable 200K to be stored on a single 5¼in floppy and include three programs — a database, word processor and spreadsheet.

Phipps Associates went back to basics with its new adventure, Colditz, at £6.95 for the 48K Spectrum. Partner John Bareford said: "It's back on home ground for us. We started with adventures three years ago."

A range of screen planning aids on the **Orion Software** stand.

Top of the range, at £16.95 in a loose-leaf wallet, not pad, tape, wipe-off translucent trace screen and 20 copies each of four different paper plans. With a Microdraw program in place of the C15 blank tape the price is £21.50.

Factory Breakout is a new game from **Poppy Soft** which is due out in four-six weeks. Written for the 48K Spectrum and priced at £5.95, you guide a robot trying to escape from a factory.

Newly formed **IMS Software** showed its first four Spectrum tapes: Wordmaker Listmaker (48K £7.50), for children aged six-12; Toolkit (£8.95) and two games, The Trap (48K) £5.95) and Slither (£5.50). IMS is headed by three people, Vernon Hovsepian and Drs Andrew King, a mathematician, and Jan Stuart, a physicist.

As usual, **Automata** went over the top with bizarrely-dressed staff — including Groucho Marx look-alike and boss Mel Croucher — a three-piece band and free real ale.

Automata's latest games, both with "songs" on the other side, are PI-Eyed and PI-Ballad. The next will be OlymPImania, by Andrew Stark. The new releases cost £6 and run on the 48K Spectrum.

In about two weeks **dk'Tronics** is promising an Interface 1-compatible Spectrum keyboard.

● **Andrew Laing — 13-year-old owner of Simply Software — with dad, Watson**

And **Fuller** is bringing out a Kempston-compatible interface and sound amplifier at £19.95.

Fox Electronics also has a Spectrum keyboard due out soon. It is the Stonechip model, priced at £60, with space bar and built-in amplifier. The computer slots inside, using the rear edge connector so the Spectrum does not need to be opened.

Four new programs were shown by **Dream:** The Quest for the Holy Grail, a humorous graphic adventure, and Computer Aided Designer, adding 27 commands including FILL, both at £5.95 for the 48K Spectrum, and The Dungeon Builder (£9.95), a graphic adventure-writer, and Machine Code for Beginners (£7.95).

Mikro-Gen had an enhanced version of its Laserwarp game for the Spectrum with nine selectable levels and **Treetop Designs** had a new version of its executive-style Spectrum case which can now also hold the Interface 1, while connected, and up to three microdrives. Price: £47.45. A moulding for the earlier model to upgrade costs £15.45.

Computer Agencies, maker of Pixel Pads for the Spectrum, now produces its range for the Commodore 64 and BBC micros. A pad of 50 A3 sheets costs £4.95 and 50 A5 graphics grids is £2.43.

A new smaller version of Telesound, which enables the use of the TV speaker, is now out from CompuSound to fit issue 3 Spectrums. It costs £9.95 and the company says it clips inside in a minute or two with no soldering.

Carnell previewed its next game, arcade style and 3D, called Starforce One at £5.95 for the Spectrum.

TT-S: Spectrum Toolkit, from **Timedata,** adds 10 extra keywords, a joystick-compatible high-resolution drawing program, a user-defined graphics aid, a tape contents utility and a memory test program. Price: £7.95 for either Spectrum.

Technology Research showed its FDC-1 Mk 2 Floppy Disc System for the Spectrum. It is a plug-in interface — with duplicate edge connector — to control one or two 40 to 80 track disc drives, single or double sided. The capacity for a 40-track single side is said to be 97K. TR-DOS 1, written for the Spectrum, is in EPROM and uses the top 1K of RAM and has 13 commands.

Where to find them

Simply Software, 2/6 Baker Street, Middle Row, Old Town, Stevenage SG1 4AL
Scotsoft, 3 Fleming Rd, Bishopton, Renfrewshire
PAL Software, Freepost, London SE12
Richard Shepherd, 23-25 Elmshott La, Cippenham, Slough, Berks
J.W.V. Software, 139 Allington Dr, Strood, Kent ME2 3TA
Skywave, 73 Curzon Rd, Boscombe, Bournemouth BH1 4PW
LERM, 16 Stonepit Dr, Cottingham, Market Harborough, Leics
Finsbury, 25/27 Stroud Green Rd, London N4
Interactive Instruments, Unit 6, Pilot Hse, King St, Leicester
Primordial Peripherals, 176 Highcross St, Leicester
Transform, 41 Keats Hse, Porchester Mead, Beckenham, Kent
Morex Peripherals, 172B King's Rd, Reading, Berks RG1 4EJ
Phipps Associates, 172 Kingston Rd, Ewell, Surrey KT19 0SD
Orion Software, Pippbrook Mill, London Rd, Dorking, Surrey
Poppy Soft, The Close, Common Rd, Headley, nr Newbury, Berks
IMS Software, 143-145 Uxbridge Rd, Ealing, London W13 9AV
Automata, 27 Highland Rd, Portsmouth, Hants PO4 9DA
dk'Tronics, Unit 6, Shire Hill Industrial Estate, Saffron Walden, Essex
Fuller Micro Systems, The ZX Centre, 71 Dale St, Liverpool 2
Fox Electronics, 141 Abbey Rd, Basingstoke, Hants
Dream Software, P.O. Box 64, Basingstoke, Hants RG21 2LB
Mikro-Gen, 1 Devonshire Cottages, London Rd, Bracknell, Berks
Treetop Designs, 61 Widmore Rd, Bromley, Kent BR1 3AA
Computer Agencies, 29 Sun St, Hitchin, Herts SG5 1AT
CompuSound, 32/33 Langley C1, Redditch, Worcs B98 0ET
Carnell, N. Weylands Industrial Estate, Molesey Rd, Hersham, Walton-on-Thames, Surrey
Timedata, 16 Hemmells, Laindon, Basildon, Essex SS15 6ED
Technology Research, 356 Westmount Rd, London SE9 1NW

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Tee Off
Dragon 32
£7.95

Dragon Data, Margam, Port Talbot, West Glamorgan SA13 2PE

This is one of the most ambitious golfing programs I have seen. The idea is you should move your little golfer around the course until you are in position and then strike the ball to the desired strength.

This sounds good but I found it extremely limiting and at times impossible. The golfer only looks to strike the ball one way which is great until you reach the edge of the screen or have to turn a corner then — although the instructions assure me it is possible — I couldn't get the ball to go the way I wanted.

In fact, using joysticks is not as good an idea as it might appear either. It is difficult to get the man exactly where you want him and to get the shot strength right too.

The courses have plenty of variation and are well displayed with close-ups of the greens. However, I had so much difficulty getting control of the game that all the interest these stirred was lost in my struggle with the ball.

D.C.

instructions	70%
playability	20%
graphics	70%
value for money	30%

★ ★

Las Vegas Lady
48K Spectrum
£5.99

Mogul, 29 Glasshouse Street, London W1

I suppose there's no reason why a fruit machine should not be referred to in the feminine gender, because that's all the program is — yet another fruit machine.

As with other forms of gambling in real life, people can get addicted to playing fruit machines. But that is when they stand a chance of winning the jackpot in hard cash. Without the cash incentive there is very little to hold the attention of a player.

Even with the stake printed onto the screen this program has very little to hold the attention of the player. It might have been a bit more interesting if there was some kind of simulation of the reels spinning. As it is the display is very flat. The only thing that did hold my attention was the sight of the "money" dropping into the slot. I have seen people give real fruit machines a kick up the payout chute when they got frustrated. Heaven knows what they would do with a machine of this kind. The only way I could get any money out was by gambling, and not always successfully.

B.B.

instructions	75%
playability	40%
graphics	50%
value for money	40%

★ ★

Pinball
Dragon 32 £8

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

A game for the really leisurely player. It requires very little effort — only the fire button or number 7 key very occasionally. First you choose the colour of background — buff was quite good here — and then you have a choice of three tables.

You put the ball in play and control the flippers at the bottom of the table. A little bit of timing is necessary but mostly you sit back and watch the ball bouncing around.

Where it loses out, of course, is in the artistry of the original pinball machines. I missed the lurid pictures, the lights and the feel of a real machine. But if you've never ventured into the seaside arcades of been tempted by the table at your local then this is a good opportunity to have a go.

All the graphics are in hi-res, there are sound effects and the ball moves very smoothly and realistically.

Strangely enough, in spite of its drawbacks, I found it enjoyable and quite relaxing after so much space-zapping!

M.P.

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

★ ★ ★

Snooker
Electron £8.95

Visions, 1 Felgate Mews, Studland Street, London W6

Snooker is a complex game in which some appreciation is required of the mathematics involved in how a ball rebounds from straight and curved surfaces, as well as its interaction with other balls. This program attempts and almost succeeds to give the full realism of the game with these criteria in mind.

You are provided with options for a one or two player game, then a full or 15 ball game, although during play the game may be cut short by a delete ball or abort functions.

Using the arrow keys to position a cross, which acts as your cue, the aiming point of your shot is selected. The power of the stroke is controlled by the space bar and this in conjunction with the arrow keys may also provide spin on the cue ball.

In the event of a foul there is a foul snooker function. This is unusual in that if pressed, but the turn not passed on to your opponent, you are left to choose a colour excluding the reds. This is not a free ball option as the correct value for the colour is given if potted, rather than one point.

J.W.

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

★ ★ ★ ★

Oric Golf
48K Oric £5.95

R & R, 34 Bowton Road, Tuffley, Gloucester GL4 0LE

R & R's version of Golf for the Oric consists of either a nine- or 18-hole course which can be played by from one to six players at a time.

A single display of each hole is presented and fairway and green are hacked out of dense woodland before your eyes. The object is to drive your ball from the tee on to the green and down the hole by entering two numbers which serve as direction and strength indicators. I think the strength needed varies depending on rough or green, but the instructions do not explain.

Although all in BASIC, it ran smoothly and at a reasonable pace. With more than about three players, the 18-hole course would take probably well over an hour to complete, but you don't have to drag your clubs around with you.

Unlike similar software, there is no choice of clubs, and the hazards — bunkers, trees and pond — are rather crude. Remember to check your entries well before hitting Return, or you might find, as I did, that you have driven your ball from two yards away from the hole back on to the tee.

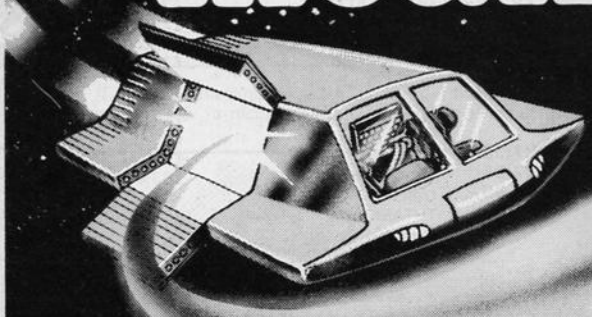
P.S.W.

instructions	60%
playability	85%
graphics	75%
value for money	70%

★ ★ ★

R&R SOFTWARE

means value



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Send those sprites to your printer

Sprites on the Commodore 64 need a special routine to dump them to a printer. Iain Murray's program does the job

Programs to dump the contents of the Commodore 64's screen to a printer are fairly common, but sprites need a special routine because of the way they are stored.

This program is such a routine, and will work directly on a 1525 graphic printer but should work on a 1515 or 1520 with a little modification — see your printer manual for the relevant details.

How it works

30-40 print titles and open file to printer
50-105 input printing details
110-165 single-colour sprites
112-113 print blank line if required
115-130 break sprite data up into bits
140-165 print shading as required
170-145 as above, but for multi-coloured sprites

The sprite data is read directly from its place in memory. The sprite shoud be in the first block of memory (i.e. address 0-16384), but if you are using sprites from another block, the memory address at line 94 (i.e. S) should be modified as required.

The program breaks the sprite data down into its component bits — or bit pairs in the case of multi-coloured sprites — and prints the corresponding shading pattern on the printer.

It also allows the option of the sprite facilities of expansion in the X, Y or both directions.

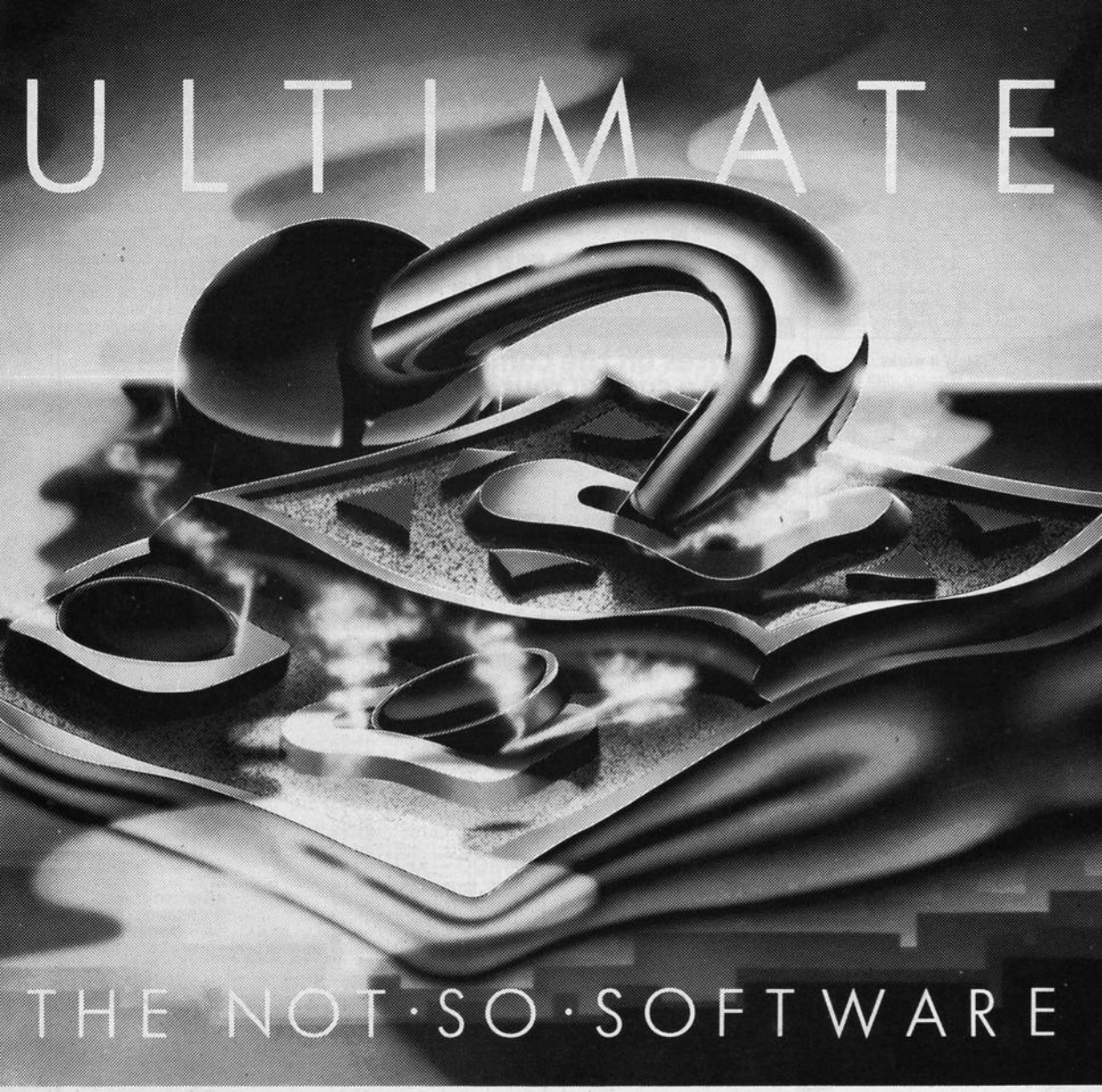
Note: As usual, control characters are explained in lines above. These REMs should not be typed in.

Variables

T$, D$, H$ prompt answers
S1 sprite block number (0-255)
S sprite start address
D double width flag
H double height flag
I, J sprite data row, column
K, C1, C2 bit types

```
10 REM *** SPRITE PRINTER ***
20 REM *** BY IAIN MURRAY 1984 ***
28 REM *** PRINT TITLES ***
29 REM [CLR] [2 CRSR DWN] [10 SPACES] [WHITE] [REV ON] [REV OFF]
30 POKE 53280,6:POKE 53281,6:PRINT "■■■
```

ULTIMATE



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And there's a high-score prize of £100 a month with Laserwarp.

The prizes

Each of our 50 winners will get a prize package of three tapes, chosen by Mikro-Gen from its "sensational software" range. Total prizes are worth about £1,000.

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Scramble
Panic
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Mad Martha
Pat The Postman
Laserwarp
Paradroids
Timequest
SAS Assault
Cruise Attack
Creepy Crawler

Winning VIC-20 owners will receive games from this list:

Puckman
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Space Mouse
Alien
Star Frog
Space Travel

And our winners who own ZX81s will be sent tapes from these titles:

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Mines of Saturn/Return to Earth
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How to enter

Study the word square and find all the Mikro-Gen software titles hidden in it. They are spelled out left to right, vertically and diagonally — but there is only one that is diagonally up and to the right.

All the titles in the word square, plus more, are in the three lists in the section headed The Prizes on this page.

Mark clearly all those you find by ringing them in ballpoint pen or by using a Magic Marker-type felt-tip pen with semi-opaque ink.

Fill in your name and full address, the number of titles you found and the computer for which you would like prizes on the coupon.

Seal both word square and coupon in and envelope and write clearly on the back the number of words you found.

Post your entry to Mikro-Gen Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB.

Entries close at first post on Friday, March 2.

You may enter as may times as you wish but each entry must be on the official coupon and word square — not a copy — and sealed in a separate envelope.

The winners will be the first 50 correct entries opened at random after the closing date and regardless of computers named.

Important note: please follow carefully the guidance in this How to Enter section. Entries which do not follow the guidelines cannot be considered.

Your coupon will act as a label if you're among the winners, so please complete it very clearly.

Another clue: there are more than 15 titles in the word square.

The rules

The 50 winners of three tapes will be those whose correct entries are chosen at random after the closing date, first post on Friday March 2, 1984.

Coupons and word squares which are not completed fully and correctly and envelopes without the number of titles found on the back will not be considered.

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

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

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I	R	L	Z	B	N	N	R	R	Q	K	A	S	I	T	W	V	R	M	K
N	H	T	E	M	T	Z	D	F	I	N	O	K	H	W	J	K	E	E	M
E	Q	P	P	Y	P	Q	S	H	R	G	U	B	Z	V	X	L	D	L	K
S	P	A	C	E	M	O	U	S	E	O	F	G	I	I	H	B	U	L	O
O	I	R	J	U	K	G	H	O	P	N	G	V	M	Z	O	K	A	Y	Q
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Complete clearly — this coupon will be used as a label if you are among the winners. Don't forget to follow exactly the guidelines in the How to Enter Section. Post to: Mikro-Gen Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Closing date: first post Friday, March 2.

This week's Spectrum of games

Our reviewers tackled meteors, and ostrich, several snakes and took on an evil warlock to bring you these reports

Blockade Runner £6.95

Thorn EMI, Upper St Martin's La, London WC2H 9ED

Earth is besieged by demented alien hordes and your mission is to get vital supplies through, overcoming a catalogue of terrors. They include meteor showers, laser beams, space mines and warships — and that's just for starters.

The hardest part, transferring your cargo, demands tremendous dexterity and split-second timing. Luckily, you have five lives.

I was well pleased with the choice of six skill levels. Once you have mastered the easier ones (no mean feat) you can tackle the real toughies. There's a joystick option, just as well in a game requiring so much adroitness. I found it a little too tricky to play with the cursor control keys.

Screen display is well formatted and I have no complaints about graphics or sound. Instructions cover all you need to know. Blockade Runner is addictive and fun — you won't easily tire of it.

C.C.

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

★★★★

Potty Planter £5.50

Mogul, 29 Glasshouse Street, London W1

Although there is a slight variation, this game follows the well worn Pac-Man theme — you know the one, the maze and the chase. The variation in this game is that the figure on the screen leaves a trail of "seeds" instead of gobbling them up, hence the planter in the title.

There is no fruit to be gathered up to gain points, and a bell to be rung, which should ring a bell in some memory banks out there. Described on the inlay card as "a super-fast machine code game", I found it neither super, or fast, with the characters moving in a very jerky fashion.

You should have no problems loading in the program, which loads in an incredible nine parts, including three screen strings, and takes about 5 minutes 30 seconds.

When you do finally load it in the instructions come up on the screen, but the choice of INK and PAPER makes for difficult reading. I did however, manage to read the part that told me which keys to press.

Certainly not addictive, and not impressive, and can only be described as run of the mill.

B.B.

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

★★

Ostron £5.95

Softek, 324 Croxted Road, London SE24

An Ostron, we are informed in the instructions, is an Ostrich that can fly. You are the owner of the last of the species and it is your job to ride out and do battle with evil knights mounted on their buzzards. Highest lance wins.

I found the graphics good, but I think Softek's claim that they are the most impressive yet seen to be rather over-inflated as is the statement that this is probably one of the most original arcade games to have ever appeared.

That said, I liked the game and especially the keyboard routine. Left keys move your man left and right keys to the right. Any key on the bottom row to fly. This means that it is convenient for any sized hand. You can, if you prefer, use a Kempston joystick.

It is also not too easy to play and requires a bit of practice to pass the first two levels. Another nice feature of the program is the lettering. It makes a very pleasant change from the usual.

N.B.

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

★★★★

Adder Attack £5.99

Mogul, 20 Glasshouse Street, London W1

I don't know why, but sometimes I find the in-built control keys in a game a bit awkward. It's a bit like riding a bike with the saddle set for someone a bit taller than yourself.

You may get to your destination eventually, but it's not a very comfortable ride. And that's the first thing I liked about this program: I could change the control keys.

I have seen a few of these snake games, and this is not very different. The object is to collect gold nuggets with the odd gemstone thrown in. Occasionally the blue snake on the screen drops an opal which, if you are quick enough, is yours for the taking. Initially there are four snakes, besides the blue one, on the screen, but the number increases to eight as the game progresses. Because the other snakes are surrounded by the gold nuggets you have to avoid releasing them, but of course the blue snake will.

Action is quite smooth, and the game not as easy as it first appears. Although I didn't find it addictive I could certainly while away a couple of hours playing Adder Attack.

B.B.

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

★★★★

Alchemist £5.50

Imagine, 5 Sir Thomas Street, Liverpool L1 6BW

A "gold"-plated review copy, with matching case, creates great envy in young friends. Insert instructions, in readable type, are informative, offer large choice of movement keys, plus joystick, and should please everyone.

You, the Alchemist, must find four sections of Magic Scroll and use the spell they contain to defeat the Evil Warlock. Screen display scrolls every which way through passages, mazes and caves, where a variety of ghosts, snails, swords and other "things" lurk, avid to bump into you and drain stamina.

Bumping anything is to be avoided and the Alchemist has the ability to change into a Golden Eagle, flying up to new levels or over obstacles. Food parcels, magic spells, weapons, etc., are scattered about and you fire lightning bolts while stamina lasts.

Graphics are superb, with Status: stamina, spell energy, items carried shown on bottom three lines.

Some experimentation is needed to select useful objects, where lightning and minor spells will work and care in positioning.

So busy exploring, I have died many times from Stamina loss but a game I shall continue to play for some time to come.

D.C.

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

★★★★★

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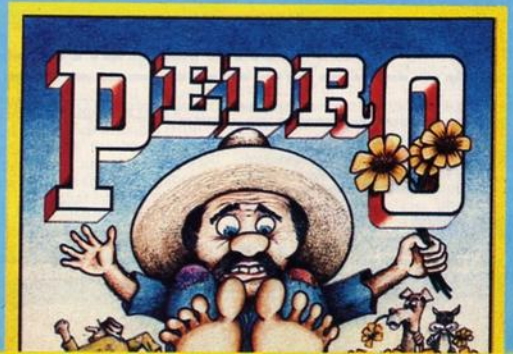

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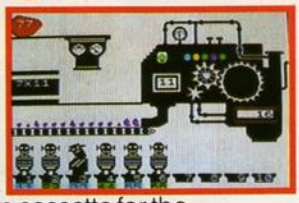

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Five more for your Texas

Read before you buy — a selection of games for the TI-99/4A rates by our panel

Spring Heeled Jack Ex BASIC £6

Stainless, 10 Alstone Rd, Stockport, Cheshire SK4 5AH

A simple, uninvolved game, yet great fun to play and most addictive.

At the start the screen displays eight lines on each of which is a hole that glides along, at different speeds, to give the illusion of a series of moving pavements.

Your task is to guide a man from his starting position at the bottom up to the eight level by walking him along and jumping up through the holes. Should you allow him to fall or hit his head on the next level, by mis-timing his jump, a life is lost.

Control is from the keyboard, using keys of your own choice, and he may be moved left, right or up. Points are scored for reaching each level and both current and highest scores are displayed. After you have reached the top you move onto a new, more difficult screen — more holes or obstacles such as cars to avoid.

Once a life is lost you re-start at screen one, until finally all lives have been used.

J.W.

instructions	40%
playability	85%
graphics	70%
value for money	80%

★ ★ ★ ★

Galactic Zoo-Keeper £5.25

Microsonic, 85 Malmesbury Road, Cheadle Hulme, Cheshire

Numbering a few zoo-keepers among my friends, I was intrigued by this game, expecting it to perhaps deal with animal conservation on a cosmic scale, or at least to elevate the general awareness of society about animals.

Not so. The game is rather disappointing, and considering the size of the listing and time to load, achieves very little, relying mainly on setting the player boring, difficult, and unrewarding tasks.

Documentation exists as the first of two programs, informing you of your task to rescue an animal supposedly at risk and apparently similar to a dragon.

Watchdogs, stun mines, an "invisable" (sic) maze, and cages are the obstacles in your path. You have five lives, but they are not really enough considering the poor response of the keyboard scans. Although the idea of giving the user instructions via a separate program is, in this field, novel, it isn't particularly helpful as you have to make notes to use while playing. Games program written in TI BASIC are of necessity limited, and this program is no exception. **P.B.**

instructions	90%
playability	40%
graphics	65%
value for money	30%

★ ★

Hunchback Havock £5.95

Lantern, 4 Haffenden Rd, Tenterden, Kent

A very attractive presentation in which you collect jewels hidden in a nuclear powered castle. Guide Egor through the castle unlocking doors and tackling fires or other hazards in order to turn on the reactor which makes the jewels visible.

There is a very short time limit before the reactor explodes ending the game. The main difficulty is Egor cannot carry both key and the fire extinguisher so he must scuttle back and forth.

Four screens show different parts of the castle. Hazards come in six forms, including electrical faults and gas leaks, dealt with in a similar fashion to fires. This does not add more difficulty, but introduces some graphic variety. Since time is very limited I found it impossible to progress beyond screen four, so I cheated by increasing the time limit so as to view all 24 screens — the same four repeated for six types of hazards. Play might become repetitive if you get that far — not a problem for me though!

I would like to see a time countdown marker on screen during play so as to monitor progress. Otherwise, a well designed game with excellent graphics.

C.E.

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

★ ★ ★ ★

Caveman Ex BASIC, joystick £4.95

Warwick, 40 Kingsway, Newby, Scarborough, N. Yorks YO12 6SG

Your objective is to recover the throne of the Inkaplonka king. To reach this treasure you must descend through five tunnels and brave the different hazards on each level. These include moving mines, flying shells, dangerous ground, hovering discs and boulders. Using the joystick in various ways according to which level you are on, the throne must be reached in the best possible time.

The screen display shows all five levels, the time, best time and number of lives remaining — from a maximum of five. Access to each level is obtained by descending a ladder.

Although instructions are provided on screen, because they are loaded separately you need to make notes of how to use the joystick on each level before actually starting. Written instructions on the cassette insert would be more helpful.

Any enjoyment of the game itself is spoilt by various bugs inherent in the program. I failed to get any further than level three, being prevented not only by bad luck but by two BAD VALUEs and a SYNTAX ERROR.

J.W.

instructions	80%
playability	50%
graphics	65%
value for money	50%

★ ★

Bouncing Bugs £6

Stainless, 10 Alstone Rd, Stockport, Cheshire SK4 5AH

Three games in one, each set on a different screen but the style of play remains the same for all.

The stars are five differently coloured bugs. Each in turn stands on a springboard positioned to the right of the screen. Using keyboard control the springboard must be raised or lowered to the correct height from which to launch the bug, so he land on various targets to the left.

Once released the bug bounces off any walls that he contacts, so keys 1-9 are also used to determine the strength of his bounce.

Each game may be played by up to 10 people who may compete in one to 10 rounds. Points are awarded for every successful landing, the total being displayed after each completed round.

Since there is no random element, before long the exact requirements to land the bugs can be remembered. In the multi-player situation the last player undoubtedly has an unfair advantage as he is able to benefit from all previous player's experiments and successes.

J.W.

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

★ ★ ★

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Get ready for the arcade

Five new arcade-style games under the microscope. All but one run on the 48K Oric

Acheron's Rage
48K £5.95

Softek, 12/13 Henrietta St, London WC2

I'm not sure who this Acheron is supposed to be, but his game is quite nice.

Loosely based around the asteroids game, you've got to spin around, bounce off walls, and generally shoot the daylights out of the levels of aliens you encounter in your section of space.

On the face of it, it sounds like a pretty boring game. Even the insert doesn't inspire much thought. In play it is very entertaining. The graphics are excellent and the colour is pretty clever. Although Softek's games may not be totally original sometimes, they are of a very high standard (well, all the Softek games I've seen). The presentation is always as good as well.

I managed to get to level 22 after a while. The screen was crammed full of aliens firing, leaving mines and trying to jump on me.

The sound used throughout the program is good. Altogether a very good program which I can recommend to anyone.

	P.S.
instructions	90%
playability	98%
graphics	100%
value for money	100%

★ ★ ★ ★ ★

Galaxians
48K £6.95

Softek, 12/13 Henrietta St, London WC2

Galaxians is, of course, a version of the arcade game of the same name. Although not really the same, the basic idea of Galaxians is there.

The game itself is excellent. I can't really complain about anything except that it doesn't work with my Oric. Now I know that I've got a dodgy Oric, so I would have been surprised if it had worked. The thing is it doesn't work on anybody's Oric that I know of, except Softek's, of course, because I've seen it at computer shows around the country.

The problem is with the hardware. Following the program through logically it should work, but for some reason certain parts of the keyboard won't "read". My friend and I must be exceptions, probably because we both have very, very early Oric's.

Anyway, back to the game. Aliens, of varying colours, swoop down from the pack firing bombs, etc, while you blast them out of the sky. Not particularly original perhaps, but it was entertaining enough to keep me going for over an hour.

	P.S.
instructions	78%
playability	98%
graphics	98%
value for money	90%

★ ★ ★ ★

Galaxy 5
£6.95

Durell, Castle Lodge, Castle Green, Taunton, Somerset TA1 4AB

A total of five space-type games — three short machine code arcade games and two in BASIC, which is listed after you have finished and explained line by line using REMs.

The machine code games are quite simple but fun, being sufficiently different from each other to make quite an attractive package. Space Chase was the hardest, involving lining an alien up in your sights ready for blasting. Astro-war is a right to left scrolling screen in which you avoid asteroids and kill Clyngons. The third, Galaxy provides useful training in a variation of the classic space-invaders.

The BASIC programs were also enjoyable and, for budding programmers, provide some useful hints.

All loaded OK, but I would have preferred a method of ending the machine code programs without switching on and off.

Good use of colour and sound and a pamphlet explains each in adequate detail, although printing is rather small.

All in all, a nice package for arcade fans although, of course, five short games cannot rival the more sophisticated Oric programs now available.

	P.S.W.
instructions	85%
playability	85%
graphics	85%
value for money	90%

★ ★ ★ ★

Loki
48K £6.45

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

A spectacular fast arcade game. Although described as Norse gods battering on far-flung planets and deep space, the whole thing boils down to zapping the enemy when he gets into your sights. What makes it different is superb display and sound effects.

The illusion of speed and rapid plunging and twisting is quite breathtaking. You quickly become absorbed in the desperate pace of the thing.

Joystick or keyboard control is available and the former is certainly preferable, especially with rather tricky key selections.

The tape loaded well, but no slow back-up is supplied, as is often the case for Oric software.

Use of Oric sound is first class and colours are used to good effect in planet scenes to give a ground skimming display. The only criticism I can make is that I suspect there is a method of play which can result in high scores with minimum skill. Having said that though, the enthusiast should be able to command his rightful winning place with practice.

A good game for your Oric library.

	P.S.W.
instructions	85%
playability	80%
graphics	95%
value for money	80%

★ ★ ★ ★

Loch Ness Monsters
48K £6.99

Romik, 272 Argyll Ave, Slough, Berks SL1 4HE

Romik's contribution to Oric software now includes a clever game involving both avoiding and hunting Loch Ness monsters. You have fairly short range harpoons, but you can also lay poisonous bait. The bait is collected by trawling from your fishing boat. Complications are added by the fact that your boat can get stuck on weed and your bait can explode.

Action is fast and smooth and a joystick option is included, although the keyboard provides good control for nimble fingers. High scores depend on brains as well as aggression.

I found the tape rather annoying by the need to have to endure a lengthy advert and to turn the cassette player on and off during the loading sequence. And the inability to even mute a continuous rendering of Loch Lomond grated on me eventually.

No slow back-up is provided, but I had no problems in loading.

In summary, a well constructed game, with probably more lasting appeal than a lot of others.

	P.S.W.
instructions	90%
playability	90%
graphics	85%
value for money	90%

★ ★ ★ ★

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Top Ten programs for the Commodore 64

1	Crazy Kong	Interceptor (—)
2	Space Shuttle	Microdeal (4)
3	Skramble	Interceptor (—)
4	Cosmic Convoy	Tasket (5)
5	Hover Bover	Llamasoft (—)
6	Frogger	Interceptor (7)
7	Falcon Patrol	Virgin (—)
8	Grandmaster	Audiogenic (—)
9	Motor Mania	Audiogenic (—)
10	Forbidden Forest	Centresoft (3)

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

Top Ten programs for the Spectrum

1	Atic Atac	Ultimate (2)
2	Chequered Flag	Psion (1)
3	Manic Miner	Bug-Byte (5)
4	Lunar Jetman	Ultimate (4)
5	Kong	Ocean (10)
6	Flight Simulation	Psion (7)
7	Deathchase	Micromega (3)
8	Ant Attack	Quicksilva (6)
9	Hunchback	Ocean (—)
10	Jetpac	Ultimate (—)

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

Top Ten programs for the VIC-20

1	Bewitched	Imagine (—)
2	Wizard and the princess	M. House (1)
3	Catcha Snatcha	Imagine (—)
4	Crazy Kong	Interceptor (—)
5	Snooker	Visions (—)
6	Flight Simulator	Ferranti
		Davenport (—)
7	Supervders/Bomber Run	K-Tel (9)
8	Wacky Waiters	Imagine (—)
9	Skyhawk	Quicksilva (—)
10	Arcadia	Imagine (6)

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Top Ten programs for the Dragon

1	Space Shuttle	Microdeal (4)
2	Eight Ball	Microdeal (1)
3	Leggit	Imagine (—)
4	Skramble	Microdeal (—)
5	Dragonchess	Oasis (2)
6	Devil Assault	Microdeal (5)
7	Transylvanian Tower	Richard
		Shepherd (—)
8	Dreambug	Kenfig (8)
9	Intergalatic Force	Microdeal (9)
10	Ring of Darkness	Wintersoft (—)

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BEST SELLERS

Top 30

1	Hunchback	Ocean	Spectrum (5)
2	Manic Miner	Soft Projects/ Bug-Byte	Spectrum (1)
3	Harrier Attack	Durrell	Spectrum (15)
4	Lunar Jetman	Ultimate	Spectrum (8)
5	Jetpac	Ultimate	Spectrum (4)
6	The Hobbit	M.House	Spectrum (2)
7	3D Ant Attack	Quicksilva	Spectrum (6)
8	Kong	Ocean	Spectrum (7)
9	Zzoom	Imagine	Spectrum (9)
10	Falcon Patrol	Virgin	CBM 64 (13)
11	Penetrator	M.House	Spectrum (—)
12	The Hobbit	M.House	CBM 64 (10)
13	Atic Atac	Ultimate	Spectrum (19)
14	Valhalla	Legend	Spectrum (3)
15	Horace goes Skiing	Psion	CBM 64 (14)
16	Cuthbert in the Jungle	Microdeal	Dragon (18)
17	Chequered Flag	Psion	Spectrum (26)
18	The King	Microdeal	Dragon (17)
19	Digger Dan	Ocean	Spectrum (—)
20	Chuckie Egg	A&F	Spectrum (28)
21	Arcadia	Imagine	VIC—20 (21)
22	Mini Kong	Anirog	VIC—20 (—)
23	Hunchback	Superior	BBC (12)
24	Hover Bover	Llamasoft	CBM 64 (—)
25	Jetpac	Ultimate	VIC—20 (29)
26	Skramble	Solar	VIC—20 (—)
27	Mined Out	Quicksilva	BBC (—)
28	Crazy Kong	Interceptor	CBM 64 (—)
29	Twin Kingdom Valley	Bug-Byte	CBM 64 (30)
30	Snooker	Visions	VIC—20 (—)

Compiled by PCS Distribution (0254 691211) and sanctioned by the Computer Trade Association. Chart is for retail sales in individual outlets in the UK and Northern Ireland for the fortnight ended February 21

Top Ten programs for the ZX81

1	Asteroids	Quicksilva (1)
2	Skramble	Quicksilva (4)
3	Football Manager	Addictive (—)
4	Defenders	Quicksilva (1)
5	Invaders	Quicksilva (3)
6	ZX Assembler	Bug-Byte (—)
7	Crazy Kong	PSS (7)
8	Espionage Island	Sinclair (—)
9	Vu-Calc	Sinclair (—)
10	ZX D.B.	Bug-Byte (8)

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

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What were those colours again?

Simple but challenging, this favourite game has been brought to the Commodore 64 by 15 year olds Simon and Edwin Sheaf

Remember that game where you had to remember a sequence of colours or numbers and repeat them?

Well, this is the computer version.

The computer will start by flashing the screen once. If you remember the colour correctly — which shouldn't be too difficult at this stage — it will add another, and so on.

How it works

0 sets high score
6 DIMensions array to store sequence of colours
7 turns on sound
8 sets up screen/border colours
10-200 title/instruction pages
298 sets up variables J and T
330 if it is the first go, this skips the part which replays old sequence
330-440 replay last sequence
600-750 defines and displays next colour in sequence
755-800 routine for inputting answers
910-930 sound routine for incorrect answer
940-1050 prints results and checks for high-score
2000-2050 sound routine for when displaying colours
3000-3040 sound routine for correct answer

These are the keys to use, chosen because they are also the appropriate colour keys for programming:

1 black **2** white
6 green **7** blue

Full instructions are in the program along with a high-score feature.

```
0 HI=0:HI$="NOBODY"
1 REM ************************
2 REM *****SCREEN-FLASH*****
3 REM **BY SIMON AND EDWIN**
4 REM *********SHEAF*********
5 REM ************************
6 DIM A(99)
7 POKE 54296,15
8 POKE 53280,3:POKE 53281,7
10 PRINT"■":REM(CLR)
20 PRINT"*****************************************"
30 PRINT"**************SCREEN-FLASH**************"
40 PRINT"*****************************************"
45 PRINT:PRINT"************A GAME OF MEMORY***********"
47 PRINT:PRINTTAB(6)"HI-SCORE=";HI;"BY "HI$
50 PRINT:PRINT:PRINT"    WOULD YOU LIKE INSTRUCTIONS (Y/N)"
60 GET Q$:IFQ$=""  THEN 60
70 IF Q$<>"Y" AND Q$<>"N" THEN GOTO 60
80 IF Q$="N" THEN GOTO300
85 REM(CLR)
90 PRINT"■"
95 REM(RVS ON)(RVS OFF)
100 PRINT"■                INSTRUCTIONS                ■"
120 PRINT:PRINT:PRINT"WHEN YOU BEGIN THE SCREEN WILL GO BLANK"
130 PRINT"THEN AFTER A SHORT PAUSE IT WILL CHANGE"
140 PRINT"THE COLOUR ONCE"
150 PRINT:PRINT"THE COLOURS IT MAY CHANGE TO ARE WHITE,"
160 PRINT"BLACK,GREEN OR BLUE"
170 PRINT:PRINT"ALL YOU HAVE TO DO IS REMEMBER THE      SEQUENCE"
180 PRINT:PRINT"EVERY TIME YOU DO SO THE COMPUTER WILL"
190 PRINT"ADD ANOTHER COLOUR TO THE SEQUENCE"
200 PRINT:PRINT"******HOW LONG CAN YOU GO ON FOR?*******"
298 J=0:T=0
299 REM(RVS ON)(RVS OFF)
300 PRINT:PRINT:PRINT"■              PRESS ANY KEY TO BEGIN              ■"
310 GET E$:IF E$="" THEN 310
315 PRINTCHR$(142)
320 REM *****ROUTINE FOR DISPLAYING LAST SEQUENCE*****
325 PRINT"■":FOR M=1 TO 300:NEXT
330 IF J=0 THEN GOTO 600
340 Z=1
350 FOR G=1 TO J
360 IF A(Z)=1 THEN K=0
362 IF A(Z)=2 THEN K=1
364 IF A(Z)=7 THEN K=6
366 IF A(Z)=6 THEN K=5
370 IF K=0 THEN D=34:C=75
380 IF K=1 THEN D=43:C=52
390 IF K=5 THEN D=57:C=172
400 IF K=6 THEN D=72:C=169
410 POKE 53281,K
420 GOSUB 2000
430 Z=Z+1
440 NEXT
600 REM *****ROUTINE FOR DEFINING AND DISPLAYING NEXT COLOUR*****
605 IF T=99 THEN GOTO800
610 B=INT(RND(1)*4)
620 IF B=0 THEN X=0:D=34:C=75
630 IF B=1 THEN X=1:D=43:C=52
640 IF B=2 THEN X=5:D=57:C=172
650 IF B=3 THEN X=6:D=72:C=169
660 POKE 53281,X
670 GOSUB 2000
680 V=X+1
690 T=T+1
700 A(T)=V
710 J=J+1
750 POKE 53281,7
755 REM *****ROUTINE FOR INPUTTING AND CHECKING COLOUR SEQUENCE*****
757 REM(RVS ON)(RVS OFF)
760 PRINT"■              SEQUENCE OVER              ■"
770 PRINT:PRINT:PRINT"NOW IT'S TIME TO ENTER THE SEQUENCE"
780 PRINT:PRINT"ENTER IT USING THE KEYS WITH THE"
790 PRINT"APPROPRIATE COLOURS MARKED ON"
794 Q=J-1
800 FOR S=1 TO J
810 PRINT"COLOUR NUMBER";S
820 INPUT Y
830 IF Y<>1 AND Y<>2 AND Y<>6 AND Y<>7 THEN GOTO 820
840 IF Y<>A(S) THEN GOTO 900
850 GOSUB 3000
855 IF Y=1 THEN PRINT"BLACK"
860 IF Y=2 THEN PRINT"WHITE"
865 IF Y=6 THEN PRINT"GREEN"
870 IF Y=7 THEN PRINT"BLUE"
880 NEXT
890 REM (RVS ON) (RVS OFF)
893 PRINT:PRINT:PRINT"■  PRESS ANY KEY FOR THE NEXT SEQUENCE .  ■"
895 GOTO310
900 PRINT"■"
910 POKE 54291,72
915 POKE 54290,129
920 FOR M=1 TO 10:POKE 54287,34:POKE 54286,75:NEXT
930 POKE 54287,0:POKE 54286,0:POKE 54290,0
935 REM (RVS ON) (RVS OFF)
940 PRINT"■  WRONG!WRONG!WRONG!WRONG!WRONG!WRONG!  ■"
950 PRINT:PRINT:PRINT"YOU REMEMBERED A SEQUENCE OF";Q;"COLOURS"
960 PRINT
970 IF Q<6 THEN PRINT"POOR":GOTO 1010
980 IF Q<11 THEN PRINT"FAIR":GOTO1010
990 IF Q<16 THEN PRINT"GOOD":GOTO 1010
1000 IF Q>15 THEN PRINT"EXCELLENT"
1010 REM *****ROUTINE FOR CHECKING FOR A HI-SCORE*****
1015 IF Q<=HI THEN GOTO 1100
1020 HI=Q
1030 PRINT:PRINTTAB(4)"CONGRATULATIONS!A NEW HI-SCORE"
1040 PRINTTAB(9)"PLEASE ENTER YOUR NAME"
1050 INPUT HI$
1100 PRINT:PRINT:PRINT"   WOULD YOU LIKE ANOTHER GO? (Y/N)"
1110 GET H$ IF H$="" THEN 1110
1120 IF H$<>"Y" AND H$<>"N" THEN GOTO 1110
1130 IF H$="Y" THEN J=0:T=0:GOTO7
1135 REM (CLR)
1140 PRINT"■"
1995 POKE 54296,0
1999 END
2000 REM *****SOUND ROUTINES*****
2005 POKE 54291,72
2010 POKE 54290,33
2020 FOR M=1TO10:POKE 54287,D:POKE 54286,C:NEXT
2030 POKE 54287,0:POKE 54286,0:POKE 54290,0
2040 FOR M=1 TO 100:NEXT
2050 RETURN
3000 POKE 54291,72
3010 POKE 54290,17
3020 FOR M=1 TO 10:POKE 54287,45:POKE 54286,198:NEXT
3030 POKE 54287,0:POKE 54286,0:POKE 54290,0
3040 RETURN
```

Hints on conversion

This program should be quite easy to convert to another micro, providing it has colour and the capacity to read arrays.

POKE 53280 changes the border colour and POKE 53281 changes the screen colour.

Sound is controlled by the POKEs 54290,54296,54291,54287 and 54286, but these can easily be omitted without much trouble. Alternatively, they can be replaced with your own computer's sound commands.

We chose the colours to make it possible to play the game on a black and white TV set. You can easily change them.

● The control characters are explained in the lines above those in which they appear. There is no need to type in these REMarks.

Variables

HI hi-score
HI$ hi-score scorer
J no. of colours to be flashed
A(T)/A(Z) array containing sequence of flashed colours
X/K number of colours to be flashed
D sound — high frequency
C sound — low frequency
B random number for choosing next colour
V number of key to be pressed to get correct answer
O score
S number of colour in sequence to be inputted next
Y number input

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Keep control of your cash

Ideal for your household budget, Geoff Turner's Mini Spreadsheet program stores up to 10 items over a full year. It runs on either model of the BBC micro

This spreadsheet program for either model of the BBC micro allows you to input data for a number of items over 12 months.

The program is menu driven with a choice of four options:

How it works

The program is menu driven, and the main part loops around PROCMENU.

120-140 initialise variables

250-460 display menu and prompt user to enter choice. Line **420** then directs the program to the appropriate PROCedure

470-680 allows user to set up initial data file, by entering 10 categories

690-1260 display spreadsheet

1270-1410 scan keyboard for any of the appropriate keys being pressed

1450-1630 PROCedure to load data from tape or disc

1640-1830 PROCedure to save data to tape or disc

1840-1980 PROCedure to allow input of data. The data is checked to ensure it is within limits, and totals are amended

1990-2030 error handling routine

Option one permits you to enter up to 10 categories of data, using a maximum of five characters for the title of each item.

Option two displays the actual spreadsheet with the 10 items listed in the left hand column. Because of the limitations of a 40 column screen, only three months' data can be displayed at once. The display window can be altered by using the four cursor keys, so that data for any three months can be displayed.

Row and column totals are continuously updated and displayed. Note that the totals are for the whole 12 months, not just the displayed three months.

Data is input by pressing the TAB key. An arrow at the centre of the display window identifies the currently selected month and category. When new data is entered, it is displayed in its correct position on the display, and the totals are automatically updated.

```
                SPREADSHEET
          JAN       FEB       MAR       TOTAL

GAS     56.34      0.00      0.00       56.34
ELEC     0.00      0.00      0.00        0.00
RATES    0.00      0.00      0.00        0.00
MORTG   75.00     75.00      0.00      150.00
INS      0.00      0.00 <    0.00        0.00
TAX      0.00      0.00      0.00        0.00
TV       0.00      0.00      0.00        0.00
PHONE    0.00     28.45      0.00       28.45
FOOD     0.00      0.00      0.00        0.00
MISC     0.00      0.00      0.00        0.00

TOT    131.34    103.45      0.00      234.79


CURSOR KEYS  - MOVE CURSOR
TAB KEY      - INPUT VALUE
SPACE BAR    - RETURN TO MENU
```

Mini Spreadsheet in action — a sample screen

```
  10 REM ***************
  20 REM MINISPREADSHEET
  30 REM By Geoff Turner
  40 REM ***************
  50 ON ERROR GOTO 1990
  60 *TV255
  70 MODE7
  80 PROCINITIALISE
  90 REPEAT
 100 PROCMENU
 110 UNTIL FALSE
 120 DEFPROCINITIALISE
 130 VDU23;10,32,0;0;0;0;
 140 SM=0:SC=0:GT=0
 150 X=SM+2:Y=SC+8
 160 DIM CAT$(20),C(13,20),T(20),MT(13),M$(13)
 170 FOR C=1 TO 20
 180 CAT$(C)="      ":REM 5 SPACES
 190 NEXT
 200 FOR M=1 TO 12
 210 READ M$(M)
 220 NEXT
 230 DATA JAN,FEB,MAR,APR,MAY,JUN,JUL,AUG,SEP,OCT,NOV,
DEC
 240 ENDPROC
 250 DEFPROCMENU
 260 CLS
 270 VDU7
 280 PRINTTAB(4,3);CHR$(141);"MINI SPREADSHEET"
 290 PRINTTAB(4,4);CHR$(141);"MINI SPREADSHEET"
 300 PRINT
 310 PRINTTAB(5);"MENU"
 320 PRINT:PRINT
 330 PRINTTAB(4);CHR$(130);"1.  SET UP DATA FILE"
 340 PRINTTAB(4);CHR$(131);"2.  DISPLAY SPREADSHEET"
 350 PRINTTAB(4);CHR$(133);"3.  LOAD FILE FROM TAPE"
 360 PRINTTAB(4);CHR$(134);"4.  SAVE FILE TO TAPE"
 370 PRINT:PRINT
 380 *FX21,0
 390 REPEAT
 400 PRINTTAB(5);"CHOOSE OPTION 1-4 ";:INPUT CHOICE
 410 UNTIL CHOICE>0 AND CHOICE<5
 420 ON CHOICE GOTO 430,440,450,460
 430 PROCSETUP:ENDPROC
 440 PROCSPREAD:ENDPROC
 450 PROCLOAD:ENDPROC
 460 PROCSAVE:ENDPROC
 470 DEFPROCSETUP
 480 CLS
 490 PRINT"OPTION 1.  SET UP DATA FILE"
 500 PRINT"-------------------------------"
 510 PRINT
 520 PRINT"Enter up to 10 catagories."
 530 PRINT
 540 PRINT"Each catagory should be identified by"
 550 PRINT"up to 5 characters"
 560 PRINT
 570 FOR C=4 TO 13
 580 PRINT"Catagory ";C-3;
 590 INPUT" ",CAT$(C)
 600 IF LEN(CAT$(C))>5 THEN CAT$(C)=LEFT$(CAT$(C),5)
 610 CAT$(C)=CAT$(C)+STRING$(5-LEN(CAT$(C))," ")
```

Hints on conversion

The display is produced on a teletext 40 by 25 display. The TAB values used will need to be adjusted to suit any other size of screen.

PROCedures may be changed to subroutines. Most of the rest of the program uses fairly standard BASIC which should be easy to convert.

Non standard lines are detailed here:

60 ***TV255** moves TV display down one line, and may be omitted

130 **VDU23** removes flashing cursor

270 **VDU7** makes a short beep

380 ***FX21** flushes keyboard buffer

710 ***FX4** enables cursor keys to function as normal keys

720 @% sets print format to two decimal places. Similar to PRINTUSING

740 **VDU30** homes cursor

1420 @% restores normal print format

1430 ***FX4** restores cursor keys

CHR$(129) to CHR$(159) are used in various print statements as Teletext control characters, used to change colour. They may be omitted and replaced with other colour statements

Options three and **four** allow the data to be stored onto the currently selected filing system, i.e. tape or disc.

The program uses around 4K in Mode 7, and will therefore run on either model. Various teletext control characters are added to the screen to give effective colour to the display.

Variables

SM start month

SC start category

GT grand total

X,Y cursor position

CAT$(0) categories

C(*,*) individual data entries

T(*) category totals

MT(*) month totals

M$(*) months

V used to adjust TAB positions to ensure neat columns

```
  620 NEXT
  630 PRINT
  640 PRINT"ARE ALL THESE ENTRIES CORRECT (Y/N) ";
  650 INPUT Y$
  660 IF Y$="N" OR Y$="n" THEN 480
  670 IF Y$<>"Y" AND Y$<>"y" THEN 640
  680 ENDPROC
  690 DEFPROCSPREAD
  700 CLS
  710 *FX4,1
  720 @%=&20209
  730 REPEAT
  740 VDU30
  750 PRINT CHR$(131);
  760 PRINTTAB(14,0);"SPREADSHEET"
  770 PRINT
  780 PRINT CHR$(130);CHR$(157);CHR$(132);
  790 FOR M=1 TO 3
  800 PRINTTAB((M*8)+1);M$(M+SM);
  810 NEXT
  820 PRINTTAB(34);"TOTAL"
  830 PRINT:PRINT
  840 FOR C=4 TO 13
  850 PRINTTAB(0);CHR$(134);CAT$(C+SC)
  860 NEXT
  870 FOR M=1 TO 3
  880 FOR C=4 TO 13
  890 V=0
  900 IF C(M+SM,C+SC)>9.99 THEN V=1
  910 IF C(M+SM,C+SC)>99.99 THEN V=2
  920 PRINTTAB((M*8)-2,C+1);CHR$(135);SPC(6)
  930 IF M+SM>0 AND M+SM<13 AND C+SC>3 AND C+SC<14 PRIN
TTAB((M*8)-V,C+1);CHR$(135);C(M+SM,C+SC);
  940 NEXT:NEXT
  950 FOR T=4 TO 13
  960 V=0
  970 IF T(T+SC)>9.99 THEN V=1
  980 IF T(T+SC)>99.99 THEN V=2
  990 IF T(T+SC)>999.99 THEN V=3
 1000 PRINTTAB(33,T+1);SPC(7)
 1010 IF T+SC>3 AND T+SC<14 PRINTTAB(35-V,T+1);CHR$(134
);T(T+SC)
 1020 NEXT
 1030 PRINT
 1040 PRINTTAB(0,16);CHR$(129);"TOT"
 1050 FOR M=1 TO 3
 1060 V=0
 1070 IF MT(M+SM)>9.99 THEN V=1
 1080 IF MT(M+SM)>99.99 THEN V=2
 1090 IF MT(M+SM)>999.99 THEN V=3
 1100 IF MT(M+SM)>9999.99 THEN V=4
 1110 PRINTTAB((M*8)-2,16);SPC(7)
 1120 IF M+SM>0 AND M+SM<13 PRINTTAB((M*8)+1-V,16);MT(M
+SM);
 1130 NEXT
 1140 V=0
 1150 IF GT>9.99 THEN V=1
 1160 IF GT>99.99 THEN V=2
 1170 IF GT>999.99 THEN V=3
 1180 IF GT>9999.99 THEN V=4
 1190 PRINTTAB(31,16);SPC(7)
 1200 PRINTTAB(35-V,16);CHR$(130);GT
 1210 PRINTTAB(13,9);CHR$(136)
 1220 PRINTTAB(22,9);CHR$(137)
 1230 PRINTTAB(21,9);CHR$(91);
 1240 PRINTTAB(0,18);CHR$(131);"CURSOR KEYS - MOVE CURS
OR"
 1250 PRINTTAB(0,19);CHR$(130)"TAB KEY      - INPUT VALU
E"
 1260 PRINTTAB(0,20);CHR$(134)"SPACE BAR    - RETURN TO
MENU"
 1270 *FX21,0
 1280 I$=INKEY$(0):IF I$="" THEN 1280
 1290 IF INKEY(-97) PROCinput
 1300 IF INKEY(-122) THEN SM=SM+1
 1310 IF SM>10 THEN SM=10
 1320 IF INKEY(-26) THEN SM=SM-1
 1330 IF SM<-1 THEN SM=-1
 1340 IF INKEY(-58) THEN SC=SC-1
 1350 IF SC<-4 THEN SC=-4
 1360 IF INKEY(-42) THEN SC=SC+1
 1370 IF SC>5 THEN SC=5
 1380 X=SM+2
 1390 Y=SC+8
 1400 VDU7
 1410 UNTIL INKEY(-99)
 1420 @%=10
 1430 *FX4,0
 1440 ENDPROC
 1450 DEFPROCLOAD
 1460 CLS
 1470 D=OPENIN "DATA"
 1480 FOR I=4 TO 13
 1490 INPUT #D,CAT$(I)
 1500 NEXT
 1510 FOR I=1 TO 12
 1520 FOR J=4 TO 13
 1530 INPUT #D,C(I,J)
 1540 NEXT
 1550 NEXT
 1560 FOR I=4 TO 13
 1570 INPUT #D,T(I)
 1580 NEXT
 1590 FOR I=1 TO 12
 1600 INPUT #D,MT(I)
 1610 NEXT
 1620 INPUT #D,GT
 1630 CLOSE #D
 1640 DEFPROCSAVE
 1650 CLS
 1660 D=OPENOUT "DATA"
 1670 FOR I=4 TO 13
 1680 PRINT #D,CAT$(I)
 1690 NEXT
 1700 FOR I=1 TO 12
 1710 FOR J=4 TO 13
 1720 PRINT #D,C(I,J)
 1730 NEXT
 1740 NEXT
 1750 FOR I=4 TO 13
 1760 PRINT #D,T(I)
 1770 NEXT
 1780 FOR I=1 TO 12
 1790 PRINT #D,MT(I)
 1800 NEXT
 1810 PRINT #D,GT
 1820 CLOSE #D
 1830 ENDPROC
 1840 DEFPROCinput
 1850 VDU7
 1860 *FX21,0
 1870 T(Y)=T(Y)-C(X,Y)
 1880 MT(X)=MT(X)-C(X,Y)
 1890 GT=GT-C(X,Y)
 1900 PRINTTAB(0,22);CHR$(133);"Maximum 999.99 please."
 1910 PRINTTAB(0,23);CHR$(133);"Input ";CAT$(Y);" for "
;M$(X);:INPUT"  "C(X,Y)
 1920 IF C(X,Y)<0 OR C(X,Y)>999.99 THEN PRINTTAB(0,23);
SPC(40);:VDU7:GOTO 1910
 1930 T(Y)=T(Y)+C(X,Y)
 1940 MT(X)=MT(X)+C(X,Y)
 1950 GT=GT+C(X,Y)
 1960 PRINTTAB(0,22);SPC(40);
 1970 PRINTTAB(0,23);SPC(40);
 1980 ENDPROC
 1990 REM ERRORS
 2000 *FX4,0
 2010 @%=10
 2020 MODE7:REPORT:PRINT" at ";ERL
 2030 END
```

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What's best for the beeb?

If you're a fan of arcade games, take a look at the reviews of the latest for the BBC. All run on the 32K model

Cybertron Mission £7.95

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

The old maze games are now being succeeded by this new hide and seek type in which you have to negotiate a maze while nasty and vicious guardians try to stop you. This is that type of game and a very good version it is.

At the beginning of each sheet you are told what you have to find and then off you go. Each level of difficulty contains 16 rooms which have to be navigated in search of your Holy Grail. All are filled with the guards who follow you trying to thwart your mission. On the first level they do not fire back but later varieties and forms do and are quite accurate. Just to make life even more interesting there are also ghosts who come to get you if you take too long.

Remember, this all takes place in a maze, which has electrified walls, so you have also to keep the possible exits and the rooms you have already searched in mind.

An excellent game with a highly addictive attraction.

D.C.

instructions	70%-
playability	95%
graphics	95%
value for money	95%

★★★★★

Space Jailer £6.95

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

It's just you and your dis-integrator cannon against the might of the Argons. You must protect the prison from the Argons as they strive to liberate their kings, imprisoned by you for their crimes against the Empire. The Argons attempt to dismantle the prison brick by brick until they have freed their rulers. If they succeed you are duty bound to commit suicide. There is no respite, for each wave of Argons you destroy another more determined one will take their place.

The game features good colourful graphics, smooth action and good sound effects. You start with three cannons and there are nine levels to negotiate, with an extra cannon awarded at level five.

Choice of CAPS LOCK and CTRL keys is tiring on the wrists, but the game is readily playable nevertheless. I'm surprised at the number of arcade-type games released these days without a joystick option; it would certainly be a worthwhile addition here. Sound on/off and a pause facility are a couple of useful features.

The game is addictive and fun to play — you feel you can always do better next time.

D.H.

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

★★★★

Crazy Painter £7.95

Superior, 69 Leeds Road, Bramhope, Leeds

The BBC software hit of last year was Adrian Steven's Killer Gorilla. This is his latest arcade offering and once again he has not just given a flavour of the original but has designed the game to be a full feature implementation.

The game in question is Amidar and here we have both screens faithfully translated and the intermediate bonus screens also. The basic aim is for you (a gorilla yet again) to go around the screens eating the nuts before the Amidars can catch you. As you eat all the nuts around a particular area that area colours in and you score extra points.

If you are dextrous enough to colour all the corner squares then you can stun the Amidars and have a little more peace. The second screen features a paint roller which goes through similar movements but which runs out of paint after every three sides of an area, this time chased by Teddy Bears. The bonus screen involves trying to land the gorilla on a bunch of bananas.

Great sound and graphics, smooth and accurate animation, responsive and simple control mean that this game should follow Killer Gorilla to the No. 1 spot, if there is any justice.

D.C.

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

★★★★★

Lightcycles £7.50

Paen Systems, Quebec Marketing, Little Bealings, Woodbridge, Suffolk

Apparently based on the light-cycle races in Tron, this is rather like caterpillar games whose object is avoiding your own increasing tail. In this version you have two tails to avoid instead of one — your own and that of the enemy cycle. However, you do have a light cannon with which you can blast your way through any trail in your way.

While you have to avoid at least two trails, the enemy must only avoid yours. As there can be up to three enemy cycles, generally travel faster than your own, (though you can accelerate) it can be quite difficult. The main object is, therefore, to encircle the opponent.

Fast and hectic, difficult to play and quite attractive to watch, but it does not stand out particularly from a number of similar games and there are games which make much better use of the BBC's graphics.

If you like Tron you might like this. But I think it will pall after a while.

N.W.

	55%
instructions	80%
playability	80%
graphics	70%
value for money	

★★★

Challenger £7.45

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

The first BBC offering from a new software name, this game is a cross between Defender and Scramble. You are piloting a space ship over a planet surface trying to shoot aliens while at the same time bombing fuel dumps and avoiding rockets which leave their launchers as you pass above them.

There are plenty of levels and a saveable high score table so your friends will know how well you did.

Having played a number of versions of this type of game, I can't say this is very impressive. The main problem is the graphics are less than I have come to expect. In particular, the side scroll routine leads to flickering at the side of the screen. While this is not serious it should have been dealt with before sale. The graphics have plenty of detail but this means they lack the colour I now expect, too.

D.C.

instructions	90%
playability	60%
graphics	40%
value for money	60%

★★★

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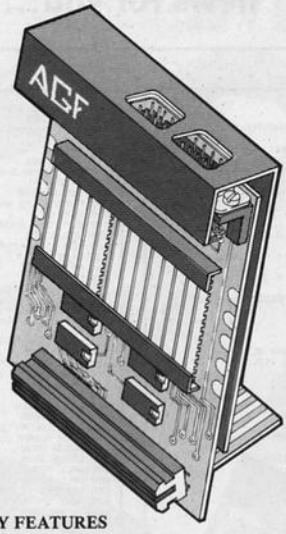

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Dial in to the Texas Telephones

You thought making a call was as easy as picking up the phone and dialling? P. G. Eyre, who wrote this program for the standard TI-99/4A, has got news for you...

The object of Texas Telephone is to connect together two telephones through four switches — it's not as easy as it sounds.

The switches are "level" switches as found in telephone exchanges. The computer sounds a series of "pulses" corresponding to the digit dialled. The switch then steps down the "levels". You have to stop it on the level you think has been sounded.

Hints on conversion

TI BASIC is fairly standard with two main exceptions. Single statement lines are used and subroutines for graphics and sound are available, prefixed with CALL, as detailed below.

CALL CLEAR clears screen

CALL SCREEN defines a character with a 16-digit hex string from an eight by eight grid. Other machines will use a different method

CALL COLOUR (character set, foreground, background) sets colour of character

CALL HCHAR (row, column, character code, number of repeats) places character on screen at co-ordinates specified and optionally repeats character horizontally

CALL VCHAR similar to HCHAR but repeats character vertically

CALL GCHAR (row, column, variable) similar to a screen PEEK on other machines. Gives the ASCII code at the given screen co-ordinates

CALL SOUND (D,F,V) gives sound of duration D, frequency F and volume V. Three sounds can be produced at once

If you are correct you move onto the next switch and finally ring the distant telephone. If you guess wrongly you get the "number unobtainable" tone, and a try again instruction.

How it works

30-795 main program
800-840 generates dial pulses sound
900-980 routine to step switch
1000-1020 simple time delay
1200-1295 set playing field
1800-1895 generates easier dial pulses sound
1900-1995 generates harder dial pulses sound
2000-2100 defines screen characters
3000-3190 introduction
3500-3640 ringing sound
4000-4195 playing instructions
5000-5070 failure routine

The computer gives playing instructions throughout the game. There are two levels of play: key 0 is easy, key 1 is harder. The only other key used is the S key, to start the game and stop the stepping of the switch.

The program makes use of many sub-routines. These make it easier to understand how it runs. There are many REM statements. As there are no jumps to any REMs, these may be omitted during typing in the program on the computer.

Variables

AS input variable to start game
D level of difficulty input variable
E,F,G data reading variable
K sets screen position of level numbers on switch
L,M X,Y positions of switch pointer
P value of random number generated for dialled digits
T timing variable
X,Y print positions
Z timing delay variable, also controls output of dial pulses sound and controls X position of characters during introduction

```
30 GOSUB 2000
40 GOSUB 3000
99 REM  PLAY INSTRUCTIONS
100 GOSUB 4000
105 CALL SCREEN(16)
110 PRINT "PRESS KEY s TO START."
115 PRINT "THEN PRESS enter."
120 INPUT A$
130 IF A$<>"S" THEN 140 ELSE 200
140 GOSUB 4000
150 GOTO 110
200 CALL CLEAR
210 PRINT "PRESS 0 FOR EASY GAME."
220 PRINT "":
230 PRINT "PRESS 1 FOR HARDER GAME."
240 PRINT "":
245 PRINT "PRESS 0.OR 1."
246 PRINT "":
250 PRINT "THEN PRESS enter KEY."
251 FOR Z=1 TO 6
252 PRINT " ":
253 NEXT Z
255 INPUT D
260 IF D>1 THEN 200 ELSE 270
265 REM  SET PLAY FIELD
270 CALL CLEAR
272 CALL SCREEN(16)
275 K=9
280 GOSUB 1200
290 FOR Z=1 TO 400
292 NEXT Z
299 REM  SOUND DIAL PULSES
300 GOSUB 800
339 REM  STEP SWITCH
340 L=10
350 M=11
360 GOSUB 900
395 REM  DRAW NEXT SWITCH
400 K=13
410 GOSUB 1200
420 FOR Z=1 TO 400
430 NEXT Z
439 REM  2nd SOUND OF DIAL PULSES
440 GOSUB 800
449 REM  2nd SWITCH STEP
450 L=10
460 M=15
470 GOSUB 900
479 REM  DRAW 3rd SWITCH
480 K=17
490 GOSUB 1200
500 FOR Z=1 TO 400
510 NEXT Z
519 REM  3rd SOUND OF DIAL PULSES
520 GOSUB 800
529 REM  3rd STEP OF SWITCH
530 L=10
540 M=19
550 GOSUB 900
559 REM  DRAW 4th SWITCH
560 K=21
570 GOSUB 1200
580 FOR Z=1 TO 400
590 NEXT Z
599 REM  4th SOUND OF DIAL PULSES
600 GOSUB 800
609 REM  4th SWITCH STEP
610 L=10
615 M=23
620 GOSUB 900
629 REM  ALL OK
630 GOSUB 3500
632 CALL COLOR(15,14,16)
635 CALL HCHAR(12,27,144)
640 GOSUB 3500
642 GOSUB 3500
645 CALL HCHAR(12,27,145)
650 CALL HCHAR(11,28,146)
660 FOR Z=1 TO 400
670 NEXT Z
680 PRINT "PRESS KEY s FOR NEW GAME."
685 PRINT "THEN PRESS enter."
690 INPUT A$
700 IF A$<>"S" THEN 680 ELSE 200
795 END
799 REM  SOUND DIAL PULSES
800 IF D=0 THEN 810 ELSE 820
810 GOSUB 1000
820 IF D=1 THEN 830 ELSE 840
830 GOSUB 1900
840 RETURN
899 REM  STEP SWITCH
900 Y=L
905 X=M
910 CALL HCHAR(Y,X,133)
915 Y=Y+1
920 IF Y=20 THEN 5000 ELSE 925
925 CALL HCHAR(Y,X,132)
930 FOR Z=1 TO 10
935 NEXT Z
940 CALL KEY(0,KEY,STATUS)
945 IF STATUS=0 THEN 910 ELSE 950
950 IF KEY=83 THEN 955 ELSE 910
955 IF Y=P+10 THEN 980 ELSE 5000
960 IF Y=20 THEN 5000
980 RETURN
1000 FOR Z=1 TO 2000
1010 NEXT Z
1020 RETURN
1199 REM  SET PLAY FIELD
1200 CALL COLOR(13,2,16)
1201 CALL HCHAR(12,4,128)
1202 CALL COLOR(14,5,16)
1210 FOR Z=1 TO 150
1215 NEXT Z
1220 CALL HCHAR(12,4,129)
1225 CALL HCHAR(11,5,130)
1230 FOR Y=11 TO 19
1235 X=K
1240 CALL HCHAR(Y,X,38+Y)
1242 CALL HCHAR(Y,X+1,136)
1245 NEXT Y
1247 Y=11
1250 CALL HCHAR(Y-1,X+2,132)
1295 RETURN
1799 REM  DIAL PULSES SOUND
1800 RANDOMIZE
1810 P=INT(9*RND)+1
1820 FOR Z=1 TO P
1830 CALL SOUND(33,110,2)
1840 FOR T=1 TO 30
1850 NEXT T
1860 NEXT Z
1895 RETURN
1899 REM  HARDER PULSING
1900 RANDOMIZE
1910 P=INT(9*RND)+1
1920 FOR Z=1 TO P
1930 CALL SOUND(33,110,2)
1940 FOR T=1 TO 5
1950 NEXT T
1960 NEXT Z
1995 RETURN
1999 REM  TELE REC ON
2000 CALL CHAR(128,"7EFFD8183C66E7FF")
2010 REM TELE REC OFF
2020 CALL CHAR(129,"0101191R3C66E7FF")
2030 CALL CHAR(130,"7EFFD8010102O4F8")
2039 REM  (LEVEL) CHAR
2040 CALL CHAR(136,"000000FEFE000000")
2049 REM  POINTER
2050 CALL CHAR(132,"0000206020602000")
2059 REM  BLANK SPACE
2060 CALL CHAR(133,"0000000000000000")
2069 REM  END OF GAME TELE
2070 CALL CHAR(144,"7EFFD8183C66E7FF")
2080 CALL CHAR(145,"0101191R3C66E7FF")
2090 CALL CHAR(146,"7EFFD8010102O4F8")
2100 RETURN
2999 REM  INTRODUCTION
3000 CALL CLEAR
3010 CALL SCREEN(12)
3020 GOSUB 3500
3040 GOSUB 3500
3050 CALL COLOR(13,2,12)
3055 FOR Z=4 TO 28 STEP 2
3060 CALL HCHAR(6,Z,128)
3065 NEXT Z
3066 GOSUB 3500
3068 FOR Z=4 TO 28 STEP 2
3070 CALL HCHAR(19,Z,128)
3072 NEXT Z
3075 GOSUB 3500
3078 FOR Z=6 TO 16 STEP 2
3080 CALL VCHAR(Z,4,128)
3084 NEXT Z
3090 GOSUB 3500
3095 FOR Z=6 TO 16 STEP 2
3100 CALL VCHAR(Z,28,128)
3101 NEXT Z
3102 GOSUB 3500
3103 FOR Z=4 TO 28 STEP 2
3105 CALL HCHAR(6,Z,129)
3110 CALL HCHAR(5,Z+1,130)
3112 NEXT Z
3120 FOR Z=9 TO 12
3125 CALL COLOR(Z,2,12)
3130 NEXT Z
3135 RESTORE 3600
3140 FOR Z=1 TO 22
3145 READ E,F,G
3150 CALL HCHAR(E,F,G)
3155 NEXT Z
3180 FOR Z=1 TO 1000
3185 NEXT Z
3190 RETURN
3499 REM  RINGING
3500 CALL SOUND(300,210,4,320,4)
3510 FOR Z=1 TO 130
3520 NEXT Z
3530 CALL SOUND(300,210,4,320,4)
3540 FOR Z=1 TO 400
3550 NEXT Z
3560 RETURN
3599 REM  DATA FOR INTRO.
3600 DATA 8,11,116,8,12,101,8,13,120,8,14,97,8,15,115
3610 DATA 10,10,116,10,11,101,10,12,100,10,13,101,10,14,112,10,15,104,10,16,111
3620 DATA 10,17,110,10,18,101,10,19,115
3630 DATA 12,13,98,12,14,121
3640 DATA 14,10,99,14,12,101,14,13,121,14,14,114,14,15,101
3999 REM  PLAY INSTRUCTIONS
4000 CALL CLEAR
4001 CALL SCREEN(15)
4002 FOR Z=9 TO 12
4004 CALL COLOR(15,13,15)
4006 NEXT Z
4010 PRINT "connect the telephones."
4020 PRINT " ":
4030 PRINT "you have two difficulty "
4040 PRINT "levels."
4050 PRINT " ":
4060 PRINT "after hearing dial Pulses."
4070 PRINT "the switch will step."
4075 PRINT " ":
4080 PRINT "Press key s to stop"
4090 PRINT "on the number dialled."
4100 PRINT " ":
4110 PRINT "you have four switches to"
4120 PRINT "connect the call."
4130 PRINT " ":
4195 RETURN
4999 REM  FAIL ROUTINE
5000 CALL CLEAR
5010 CALL SCREEN(10)
5030 CALL SOUND(3000,400,4)
5040 PRINT TAB(6);"WRONG NUMBER"
5050 PRINT "PRESS s KEY FOR NEW GAME."
5055 PRINT "THEN PRESS enter KEY."
5058 FOR Z=1 TO 8
5060 PRINT " ":
5062 NEXT Z
5065 INPUT A$
5070 IF A$="S" THEN 200 ELSE 5000
```

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Romik, 272 Argyll Ave, Slough, Berks SL1 4HE

At last, a third way of conversing with the 64: a language with (nearly) machine code speed and legibility of a high-level language. One minute FORTH will delight with its flexibility and speed, the next you will be screaming as it crashes on you.

For comparison I will use another version, £10 more expensive. Romik's is on cassette which presents the problem of loading time. It appears to be a pretty standard FIG version. Unlike the opposition (which uses RAM storage), Romik uses normal FORTH storage.

I had one or two problems loading the demo, but overall the program performed acceptably. Tests showed it to be a little sluggish, but still pretty nippy.

My big moan: documentation. A nice 61-page booklet described the words, but no allowance was made for beginners. And there was no effort to show which RAM was available for users, e.g. hi-res graphics. The memory map was hardly comprehensive. Please, Romik, more specific info for the 64.

Overall, reasonable value and recommended for those disenchanted with BASIC. P.S. When can we expect a decent 64 LOGO?

A.W.

instructions	60%
ease of use	90%
display	n/a
value for money	80%

★ ★ ★ ★

Discs and the BBC £9.95-£12.95

M.G.B. Software Support

A useful package supplied in two forms — £9.95 for 40-track disc or £12.95 for 80-track. If you already have a BBC disc drive manual the shorter and cheaper version would apply.

The utilities are the same: *DUPlicate copies and allows renaming of a file on the same disc, *FORMAT, for 40- or 80-track blanks, *FREE space on disc in specified drive, *MemoryDUMP displays memory contents and allows changes, *MERGE, *RELOCate loads a BASIC program, downloads it to PAGE &E00 and runs it, *ScreenDUMP for the Epson uses a simple add-on to the graphics program, *VERIFY the disc sector by sector.

I found the auto-boot menu program very useful for my games disc — anyone unfamiliar with the computer could use it to load and run a selected game.

I found one bug with *RELOCate: it corrupted one line of a BASIC program. Perhaps M.G.B. will correct this on later versions.

The manual is the only difference: the cheaper has no BBC disc reference section. Both are very well written. A good value package, but I should have preferred the utilities on ROM.

J.H.

instructions	90%
ease of use	65%
display	70%
value for money	80%

★ ★ ★ ★

Decode Tandy/Dragon 32 £18.40

Compusense, P.O. Box 169, London N13 4HT

This cartridge allows you to convert programs from the Tandy Colour Computer to the Dragon 32 and vice versa. The cartridge is inserted in the cartridge port, the computer is then switched on and the program to be changed is loaded in. By typing an EXEC figure, DECODE will display your options, i.e. which way you want to convert the program.

You are told line-by-line of the program's progress but this is hardly necessary as the programs are converted in just a few seconds. A 16K program takes about 25 seconds to convert. Once changed the program can be manupulated and saved onto tape according to your wishes.

Every program I converted worked on the other machine and if you have a number of programs on tape for one computer and wish to convert them to another then this is an ideal solution. However, it only converts BASIC programs without Disc commands and is poorly packaged with a single page leaflet. At £18.40, it is reasonably priced for a cartridge.

Unless you have a vast amount of material to convert, you may be better advised to buy a cassette that performs the same functions, slower but cheaper.

C.G.

instructions	50%
ease of use	95%
display	40%
value for money	60%

★ ★ ★

Utilities No.1 Dragon 32 £5

Hilton, 10 Jerome Rd, Larkfield, Kent ME20 6UR

A machine code program with the options presented as a menu. You choose by using the arrow keys.

One utility allows you to break down programs into their file names, lengths, whether they are machine code, the start and execute addresses. In short, you can create a cassette catalogue.

Another utility cleverly compresses a BASIC program by removing all spaces and REM statements. You would be surprised by the saving in memory — I gained nearly 2K on a large adventure program.

The cassette is easy to use, all instructions are explained clearly and jumping between the utility and a BASIC program is performed by simply using the break key to jump out of the program and an EXEC statement to continue using the utility.

Supplied with an inlay card run off a printer, the cassette is very useful if you use your Dragon a lot and, at just a fiver, good value.

C.G.

instructions	60%
ease of use	80%
display	60%
value for money	90%

★ ★ ★ ★

Screenplay BBC 32K £4.99

CompuSoft, 32 Watchyard La, Formby, Liverpool L37 3JU

Years ago, I kept tropical fish and one of their real delights was the soothing feeling that flowed over you as the fish swam around so effortlessly. The only purpose I can see for this program is to try to recreate this feeling, watching pretty patterns and listening to pleasant music.

The program comprises a loader routine and four data files for four Scott Joplin piano rags it can play. It's rather like having a juke box which not only play but generate coloured patterns too. Patterns and the tune are both adaptable. You can change volume, tempo, vibrato and height, width, colour and type of pattern.

The patterns are interesting if a little unspectacular and the tunes are all fairly good renditions of well-known pieces. There is, however, rather too little variation in tune type, most rags get to sound alike after a while. Apart from my computerised relaxation class what use is it? It's simply a pleasant diversion for a few minutes and as such not worth the money, I'm afraid.

D.C.

instructions	70%
playability	20%
graphics	70%
value for money	40%

★ ★

How's your aim... with bullets and rocks?

Try your skill at sharp-shooting and rock-hurling with these two games for the 48K Spectrum by Neil Cooper

Carnival

You're at a fairground firing range, hoping to impress friends with your skill as a sharpshooter.

Your gun is at the bottom of the screen: move left with the Z key, right with X and press space to fire.

How it works

1 GOSUB to graphics, set colours, instructions
9 tune, set colours
10-20 set variables
30-60 move and print ducks and balloons
70-90 move and print gun
100-190 fire gun, check for hits
2000-2040 main loop
2050 game over, play again?
4000-4010 tune, bonus
9000-9090 graphics

Every balloon you shoot is worth five points and each duck is worth 10 points.

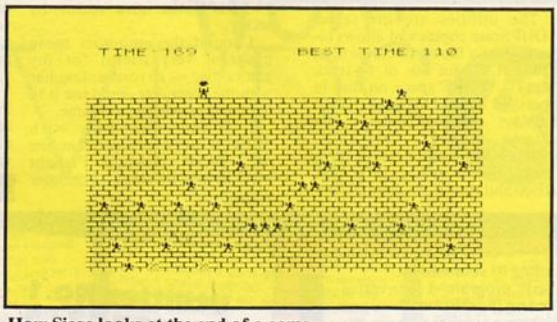
But make sure you have enough shots left for all the ducks.

Your ammunition is displayed at the bottom of the screen.

Note: Don't forget to enter the graphics print statements in graphics mode.

Variables

s score
a$ ducks
b$, c$, d$ balloons
sh shots
a co-ordinate of gun
z$ space



How Siege looks at the end of a game

Siege

You are in control of the man at the top of the wall and along the bottom are soldiers who will slowly scale the wall.

You must stop them reaching the top by dropping rocks on them.

How it works

10 set colours
20 GOSUB to graphics
30-50 instructions
1000 GOSUB to variables, jump to main loop
3000-3030 main loop
5000-5130 dead, play again?
8500-8530 set variables
9000-9040 graphics

Move with keys Z for left, X for right and drop a rock by pressing space.

Good luck. But watch out for a nasty surprise.

See also note for Carnival.

Variables

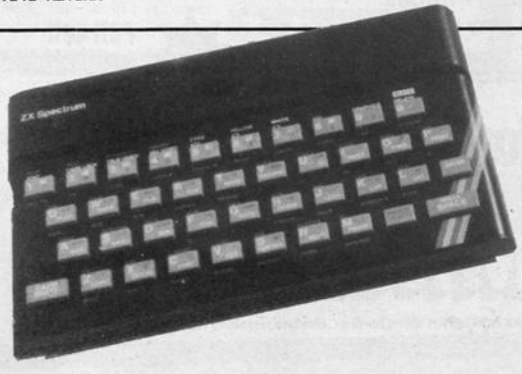
HS best time
s time
a co-ordinate of man
x, y co-ordinates of soldiers

Listing 1 — Carnival

```
   1 GO SUB 9000: INK 0: PAPER 7: BORDER 7: CLS : PRINT
  AT 0,10;"CARNIVAL"''"Sho
ot the ducks which fly acrossthe screen. If you hit a
A' youwill score 5 points
. Ducks are  10 points. If you hit both the  ducks some
 more will appear."'"You
only have a limited amount  of shots to do this."'"Move
 left with Z, right with
X"'"and fire with SPACE.": PRINT #0;"    Press any key
to start       ": PAUSE 0:
 CLS
   8 LET s=0
   9 BEEP .1,20: BEEP .1,17: BEEP .2,13: BEEP .2,13: BE
EP .1,13: BEEP .1,15: BEE
P .1,17: BEEP .1,18: BEEP .2,20: BEEP .2,20: BEEP .2,20
: BEEP .2,17: INK 7: PAPE
R 0: BORDER 0: CLS
  10 LET z$="                                    ": LET a$=
"BC          BC
       "
  15 LET b$="A       A       A       A       "
  20 LET c$=b$: LET d$=b$: LET a=13: LET sh=32
  25 PRINT AT 20,a-1; INK 6;" D ";AT 21,0; INK 7;"SHOTS
:E E E E E E E E E E E
E "
  27 GO TO 2000
  30 LET a$=a$(4 TO )+a$( TO 3): LET c$=c$(3 TO )+c$( T
O 2)
  40 LET b$=b$(31 TO )+b$( TO 30): LET d$=d$(31 TO )+d$
( TO 30)
  50 PRINT AT 1,0; INK 5;a$;AT 6,0; INK 6;b$ AND b$<>z$
;AT 9,0; INK 7;c$ AND c$<
>z$;AT 12,0; INK 6;d$ AND d$<>z$
  60 BEEP .005,-10: RETURN
  70 IF INKEY$="x" AND a<30 THEN  LET a=a+1: PRINT AT 2
0,a-1; INK 6;" D ": RETUR
N
  80 IF INKEY$="z" AND a>1 THEN  LET a=a-1: PRINT AT 20
,a-1; INK 6;" D "
  90 RETURN
 100 BEEP .01,5: LET sh=sh-2: PRINT AT 21,sh;"  ": PLOT
  OVER 1;(a*8)+4,19: DRAW
  OVER 1;0,149: BEEP .002,10: BEEP .002,30: BEEP .002,-
15: PLOT  OVER 1;(a*8)+4,
19: DRAW  OVER 1;0,149
 120 IF d$(a+1)<>" " THEN  LET d$(a+1)=" ": PRINT AT 12
,0;d$: LET s=s+5: BEEP .0
09,40: RETURN
 140 IF c$(a+1)<>" " THEN  LET c$(a+1)=" ": PRINT AT 9,
0;c$: LET s=s+5: BEEP .00
9,40: RETURN
 150 IF b$(a+1)<>" " THEN  LET b$(a+1)=" ": PRINT AT 6,
0;b$: LET s=s+5: BEEP .00
9,40: RETURN
 160 IF a$(a+1)="B" THEN  LET a$(a+1 TO a+2)="  ": PRIN
T AT 1,0;a$: LET s=s+10:
BEEP .009,40: RETURN
 170 IF a$(a+1)="C" THEN  LET a$(a TO a+1)="  ": PRINT
AT 1,0;a$: LET s=s+10: BE
EP .009,40: RETURN
 190 RETURN
2000 GO SUB 30: GO SUB 70: IF INKEY$=" " THEN  GO SUB 1
00
2030 IF a$=z$ THEN  GO TO 4000
2040 IF sh>6 THEN  GO TO 2000
2050 FOR n=40 TO 0 STEP -1: BEEP .01,n: BEEP .01,n-2: N
EXT n: PRINT AT 0,10;"GAM
E OVER";AT 2,10;"SCORE:";s: PRINT #0;"  PRESS ANY KEY T
O PLAY AGAIN   ": PAUSE 0
: CLS : GO TO 8
4000 PRINT AT 20,0;z$;AT 1,0;z$: BEEP .1,20: BEEP .1,17
: BEEP .2,13: BEEP .2,13:
 BEEP .1,13: BEEP .1,15: BEEP .1,17: BEEP .1,18: BEEP .
2,20: BEEP .2,20: BEEP .2
,20: BEEP .2,17
4010 LET s=s+50: GO TO 10
9000 FOR n=USR "a" TO USR "e"+7: READ a: POKE n,a: NEXT
 n: RETURN
9010 DATA 60,126,195,223,195,251,66,60
9040 DATA 1,3,126,14,127,3,0,0
9050 DATA 240,252,126,126,254,252,240,0
9070 DATA 0,24,24,60,60,126,126,219
9090 DATA 0,24,60,60,60,60,60,0
```

Listing 2 — Siege

```
  10 LET hs=0: INK 0: PAPER 7: BORDER 7: CLS
  20 GO SUB 9000
  30 PRINT AT 0,10;"SIEGE"
  40 PRINT AT 2,0;"Keep the invading soldiers from reac
hing the top of the wall
by throwing rocks at them. You are the man at the top o
f the screen. Move left w
ith Z, right with X and drop the rocks by pressing  SPAC
E."
  50 PRINT #0;"   Press any key to start"
  60 PAUSE 0: CLS
1000 GO SUB 8500: GO TO 4000
3000 FOR n=3 TO 20: PRINT AT n,a;"D": BEEP .003,20-n: P
RINT AT n,a; INVERSE 1;"E
": PRINT AT 3,a;" ";AT 4,a-1;" A ": NEXT n: LET s=s+2:
PRINT AT 0,6;s
3010 LET x(a)=21: PRINT AT 21,a; INK 6; PAPER 2;"F"
3030 RETURN
4000 INK 0: PAPER 5: BORDER 1: CLS
4010 FOR n=5 TO 21: PRINT AT n,0; INVERSE 1;"EEEEEEEEEE
EEEEEEEEEEEEEEEEEEEEEE":
NEXT n
4020 PRINT AT 4,a-1; INK 1;" A "
4030 FOR n=1 TO 30: PRINT AT x(n),y(n); INK 0;"B": NEXT
 n
4040 PRINT AT 0,1;"TIME:";s;AT 0,17;"BEST TIME:";hs
4050 LET z=INT (RND*30)+1
4060 FOR d=1 TO 2: PRINT AT x(z),y(z); INVERSE 1;"E": L
ET x(z)=x(z)-1
4070 PRINT AT x(z),y(z);"C"
4080 IF x(z)=4 THEN  GO TO 5000
4085 NEXT d
4090 IF INKEY$="x" AND a<30 THEN  LET a=a+1
4100 IF INKEY$="z" AND a>1 THEN  LET a=a-1
4110 PRINT AT 3,a-1;" D ";AT 4,a-1; INK 1;" A "
4120 IF INKEY$=" " THEN  GO SUB 3000
4130 PRINT AT x(z),y(z);"B": BEEP .005,20-x(z): LET s=s
+1: PRINT AT 0,6;s: GO TO
 4050
5000 IF y(z)>a THEN  PRINT AT x(z),y(z);" ": LET y(z)=y
(z)-1: PRINT AT x(z),y(z)
;"B"
5010 IF y(z)<a THEN  PRINT AT x(z),y(z);" ": LET y(z)=y
(z)+1: PRINT AT x(z),y(z)
;"B"
5020 BEEP .009,20: PRINT AT x(z),y(z);"C"
5030 IF y(z)<>a THEN  GO TO 5000
5040 PRINT AT 4,a; INK 1;"A"
5050 PRINT AT 3,a;"B"
5060 FOR n=1 TO 10: PRINT AT 3,a;"B"
5070 BEEP .01,0: PRINT AT 3,a;"C"
5080 BEEP .01,-10: NEXT n
5090 PRINT AT 3,a;" ";AT 4,a;"B": FOR c=5 TO 20: PRINT
AT c,a; INK 1;"A": BEEP .
008,20-c: PRINT AT c,a; INVERSE 1;"E"
5100 NEXT c
5110 PRINT AT c,a; INK 2; PAPER 6; FLASH 1;"F"
5120 IF s>hs THEN  LET hs=s: PRINT AT 2,8;"A NEW BEST T
IME"
5130 PRINT #0;"  Press any key to play again": PAUSE 0:
 CLS : GO TO 1000
8500 LET s=0: LET a=15
8510 DIM x(30): DIM y(30)
8520 FOR n=1 TO 30: LET x(n)=21: LET y(n)=n: NEXT n
8530 RETURN
9000 FOR n=USR "a" TO USR "f"+7: READ a: POKE n,a: NEXT
 n
9010 DATA 66,90,90,126,24,60,36,36,0,88,88,126,26,60,38
,96,0,26,26,126,88,60,100
,7
9020 DATA 0,0,0,60,126,126,60,0,0,254,254,254,0,239,239
,239
9030 DATA 65,36,138,16,37,32,138,32
9040 RETURN
```



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It was the best then . .

Chess-players with a 48K Spectrum will find this program ideal if they are stuck for a partner.

I have seen other chess games for computers, but as far as I am concerned, this is the best so far, and should give hours of enjoyment to the chess buff. **B.B.**

instructions	95%
playability	100%
graphics	75%
value for money	100%

★★★★★

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Will these help your youngsters?

Teacher members of our review panel give out the marks for the latest batch of educational software

Additional Fun BBC 32K £14.95

Shiva, 4 Church Lane, Nantwich, Cheshire CW5 5RQ

I have been playing these games for some time now but have only just understood the title! All involve addition or subtraction, hence the name.

This is Numeracy 2 in a set of 11 of which five will be numeric and at least five logic. All these programs work at numbers of less than 10 and involve number bonds as well. It is nice to see these two concepts taught together — this greatly helps understanding.

All the programs are game based and some are for two players only which could slightly restrict their home use. The titles: Cats, where birds are victors in the end; Octopus, which I found rather slow and boring; Picture had a nice theme but only contains one picture; Moon, a competitive addition/subtraction game; Castle, quite difficult in comparison with the others.

The programs are colourful if not too exciting and documentation good, but for teachers rather than parents. There is no suggestion of the types of problems to look for as your child learns, for example. I also found the idea of negation as used here hard to understand at first.

D.C.

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

★ ★ ★ ★

Number Rally BBC 32K £9.95

Longman, Burnt Mill, Harlow, Essex

This is another of the school of programs which rely on "practice makes perfect". It may have some validity, but is really yet another sum program in fancy dressing.

In this case it's a car rally in which you have to visit all the towns on the map, moving your car using cursor keys and earning fuel by your correct answers to the problems posed. The program is tidy in every respect with clear screens and pleasant graphics but is unexciting in most respects too. I have the impression it is the sort of program parents will like a lot and children loathe just as much.

There are four levels of difficulty (in two separate programs), all fully explained in a leaflet. All arithmetic operations but, no help facility. On the second wrong answer the colour of the problem changes "for greater clarity", according to the blurb. The parents' leaflet reads: "The simulation of a car rally may not be immediately obvious to younger children." In which case why use the idea at all?

D.C.

instructions	65%
playability	50%
graphics	60%
value for money	70%

★ ★ ★ ★

Sets and Operators BBC 32K £14.95

Shiva, 4 Church Lane, Nantwich, Cheshire CW5 5RQ

The teaching of logic is becoming more and more important and this course (First Maths Programme) tries to place such teaching squarely alongside numeracy, equal in importance and time.

This pack, numbered two of five, begins the teaching of sets and the operations which can be performed upon the members of a set. There are five games, all involving the mental (unfortunately not physical) manipulation of the colour, shape, size and thickness of logic blocks.

The first two (Hunt the Block and Seek the Block) involve defining a set and deciding of which set a particular block is a member. The third (No, Not There) involves set definition and the concept of negation. The final two (Colour Out and Shape Out) cover operations performed on sets to change their features between input and output. Good grounding for future programmers, you know.

I don't feel these programs are ideal for the home. They are obviously aimed at schools and are meant to be used by someone very familiar with the concepts acting as supervisor. The documentation, though very good indeed in every other respect, does presume some prior knowledge.

D.C.

instructions	75%
ease of use	80%
graphics	80%
value for money	60%

★ ★ ★ ★

Nursery Rhymes BBC 32K £2.99

CompuSoft, 32 Watchyard Lane, Formby, Liverpool L37 3JU

A rather nice package for the very youngest micro users. It is exactly what its title says: a musical and visual nursery rhyme tape. There are five rhymes, each with a picture on screen while the words appear at the appropriate point in the music. The rhymes are Hickory Dickory Dock, Polly Put the Kettle On, Humpty Dumpty, Seesaw Margery Daw and Ba Ba Black Sheep. Of the pictures, Polly and Humpty are the least interesting and are both a little static but they would hold an infant's attention. They kept my little one interested, at least.

The words sometimes use Mode 2 lettering, which children find extremely hard to read. As with all software that loads in several parts, the biggest problem is the waiting time. To alleviate the boredom slightly a coloured pattern is printed. You also have the ability to vary the colour and speed of the rhymes although this does not really give any real extra interest I found. The price is very competitive and if you intend to wean your child onto information technology at an early age you could do far worse.

D.C.

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

★ ★ ★ ★

Reading VIC-20 + 8K/16K £9.99

Commodore, 675 Ajax Avenue, Slough Trading Estate, Slough, Berks SL1 4BG

Testing a child's reading development can be one of the most time consuming jobs in a teacher's year. There are many tests, but all require taking notes, and this has to be done without distraction. This package, for ages seven to 11 and part of a Test Your Child series, is a help to both the teacher, and the parent who is curious to know the child's reading level.

There are two tapes containing five prorams and an explanatory book containing a rating chart. They use material from Hodder and Stoughton, educational publishers.

Program two, a "reading sentences aloud" test, requires adult supervision and gives a fair indication of ability. Program three, a comprehension test, gives a score after three passages have been completed. This can be daunting, especially if the child has problems with reading.

Programs four and five deal with vocabulary and spelling ability.

Overall, a good package but with one annoying fault: when a mistake is made it shows where the mistake is but not why it is a mistake. Remember that this is a testing package and not a teaching package.

M.W.

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

★ ★ ★ ★

NEW ORIGINAL GAMES FOR THE COMMODORE 64

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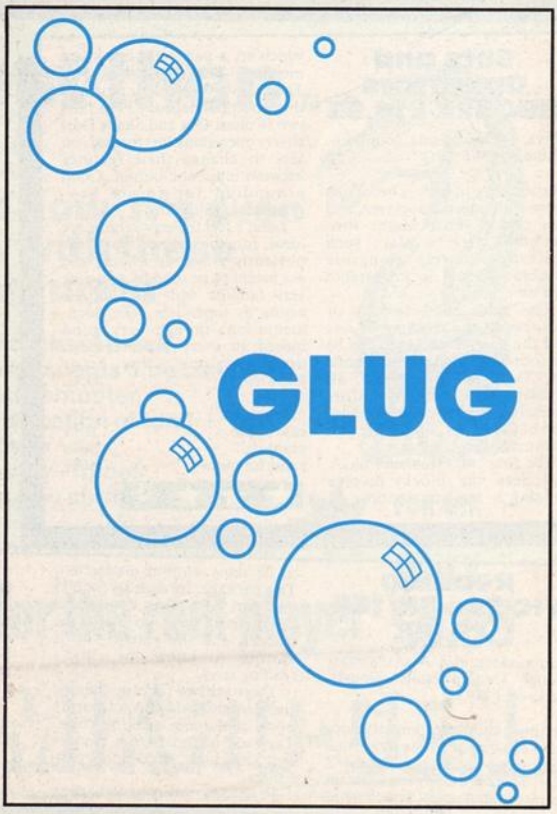


Send your letter to Letters, Home Computing Weekly, No.1 Golden Square, London W1R 3AB. Don't forget to name your computer — the best letter could win £5-worth of software. Got a problem with your micro? We'll soon be starting a queries page, so send your technical questions to Queries at the above address

How many Microdrives?

Do I hold a world record? Four months ago I sent my name to Sinclair Research to have it added to the Microdrive waiting list. Within the past two weeks I have been sent three order forms for the Microdrive.

If this continues I will be sending out my own letters beginning: "I am pleased to say that I am now in a position to offer you ZX Microdrives and Interface 1...."

Stephen Butcher, Edinburgh

A Sinclair spokesman said: "I'll get in touch with our despatch department at Camberley to make sure Mr Butcher doesn't receive any more order forms."

Whoops!

Part of the following line was omitted from Marc Freebury's Orion program for the Atari in HCW 47:

```
630 GRAPHICS 0:SET
    COLOR 2,0,0:POKE
    756, A/256
```

A. Fernandes, Ilford, Essex

Complaints, and an offer

There are two complaints I want to make about the home computer industry: the glut of "junk" computer games and manufacturers' advertisements.

To make my first point, my two sons and I have bought some six games since becoming Spectrum owners last August. On more than one occasion we have had to return them to the store because of bugs in them. We live in a rural area, 22 miles from the nearest store, so it's no fun having to go all that way for exchanges.

I'm amazed, to say the least, as to how these so-called games reached the shops in the first place. Tighter control needs to be exercised here.

My second point arises following my purchase of the Scope computer graphics language program. Although ISP's advertisement is correct in stating that it is fully compatible with BASIC, the compiled program can only be run with Scope present in high memory. So any thought of producing a program for commercial sale has to be put aside.

Having reasonable knowledge of programming in BASIC on my Spectrum. I was looking forward to writing games with action "as fast as machine code" without all the bother. I am more than disappointed and am now continuing to learn machine code. I should think there is no substitute for the real thing.

It is more than apparent that we also need tighter control on manufacturers' advertisements.

D. W. Williams, Corwen, Clwyd

ISP's marketing director Graham Lomax said: "If Mr Williams writes to Allen Pendle, the author of Scope, or to me we will send him a listing of the necessary operands to do just what he has in mind.

"We would ask that, if his program has commercial value, that he gives us first refusal for the marketing rights."

He explained that this was not a condition. In any case, ISP had a number of high quality programs from experienced writers.

The offer was open to any other user too. Software companies were asked to pay a small fee for ISP's extra work and asked to ensure that a credit line appeared.

Given time, an experienced programmer could break down Scope to get at the parts he needed, said Mr Lomax.

ISP says that Scope, which costs £11.95 and contains 31 new commands, will compile programs into machine code and improve their speed by 75 per cent in certain areas.

ISP is at 15A Castons Yard, off New Road, Basingstoke, Hants.

Blush, blush

I bought a Commodore 64 as a Christmas present and my first move (as a beginner) was to buy all the computer magazines I could find on the newsagent's shelf. I amassed 53 magazines in four weeks and set about programming.

I learned a lot, along with the kids, and I became an addict to "our 64". However, only one of my magazines — they now amounted to 67 — has given me total satisfaction.

It's yours, Home Computing Weekly — easy to read, bug-free DIY programs, very reasonable price, quality paper, interesting articles and so on.

Having typed in Extended BASIC parts 1 and 2, I now look forward to the advanced demo programs (since published), not to mention the issues after that.

Thank you for catering for people like me, a novice, without presenting childish nonsense, as others do. My three boys agree with me.

D. A McWilliam, Runcorn, Cheshire

Forgive our blushes!

Commodore 64 users may like to know that a software company is considering publishing our Extended BASIC on cassette, with the consent of Home Computing Weekly and the author, David Rees. We've got more lined up for the 64, too.

Speedy Stuart

In HCW 42 you printed a program for the Commodore 64 about racing cars by Tony Kelly. In line 50 it read READ B when it should have read READ C. Apart from this I thoroughly enjoyed the game, especially when I accelerated to top speed.

HCW is one of the best magazines out. Issue 42 was the first issue I bought and I thought it was super. I will be looking forward to buying it in the future.

Stuart La-Ffin, aged 12, Wirral, Merseyside

Can you help?

I bought a Commodore 64 at Christmas and am just getting to know it. I am interested in using computers with the mentally handicapped. I wonder if any of your readers have any experience in this area. There also seems to be very little software for use with slow learning people. Anyway, I would welcome any help or ideas.

Pauline Curwen, 124A Station Road, Ashington, Northumberland NE62 8HE

Minnesota schools get $ millions for software

California isn't the only technologically aware state in the country, as far as education goes. In a recent move, the Minnesota legislature passed a $5.8 million Technology and Educational Improvement Act to basically force school districts to make the best possible use of new technology.

One goal of the act is to allow school districts to purchase high quality software and to have schools develop plans to use it, as well as train staff in teaching and implementing high-tech applications. The act requires each of the state's school districts to develop what they call a technology utilisation plan. The plan must be developed in co-operation with local advisory committees comprised of community members, staff, and parents. No district will receive less than $500 to aid in the creation of their local plan.

Each plan must meet seven strict criteria in order to be acceptable. Of the seven factors, the one I can best appreciate requires the local district to indicate how their plan to implement the new technology will be applied to people of all ages, including women, minorities, and the disabled. All the criteria are intended to gain the co-operation and participation of the local communities.

What is equally interesting is that this is a software funding program only. How the districts attain the computers and peripherals is left up to them. Because of the manufacturers' donation plans, obtaining the hardware is not seen as much of a problem. It is interesting that many local programmers now have a chance to get exposure for their efforts for very little in the way of advertising fees.

In fact, the procedure for getting software approved for sale to the Minnesota school districts under this program is quite simple. A disc along with any other material (like documentation, for instance) should be sent to Dr Gilbert Valdez, Minnesota Department of Education, Capitol Square Building, 550 Cedar, St. Paul, Minnesota 55101. If you are interested in the scheme and want to question Dr Valdez directly you can call him on (612) 296-4067.

I hope this scheme serves as an example of what can be done to promote computer education in school systems. It is certainly clear that many systems will resist change until, like many districts in Minnesota, it is literally forced upon them. It is also clear that, in this respect at least, we still have much to learn from our British cousins.

As promised, here is some good news for TI-99/4A owners. There are quite a few vendors who plan to continue to market support products for the discontinued machine. It is sort of like a good news – bad news joke, though.

The good news is that there will be support for some time to come from a variety of sources; the bad news is that it will never be as good as when the machine was in current production — but that is usually the case when any product is discontinued. Never mind. There is still an installed user base of approximately two million people over here which is not exactly an insignificant number, so support will certainly not disappear overnight. Here are some of the more interesting products I know about for the little box.

First of all, a firm called CorComp of Laguna Hills, California, (714) 855-8033 is now developing a microcomputer that will be compatible with all TI software. There is at present no name for the new unit, but it is expected out soon. It will have 64K of RAM, a built-in speech synthesizer, and built-in BASIC. It is supposed to sell for less than $500 and have an optional disc drive. CorComp is not without previous experience with the TI. It presently makes 32K RAM boards and RS-232 boards for the TI expansion box. CorComp is also planning to make a smaller version of the TI expansion box (no disc drive) that will accept the various boards made for the expansion box.

If you want to buy a disc drive unit for your TI, from someone other than TI, you are limited to the product made by Percom Corporation, of Dallas, Texas. Percom makes drives, and good ones at that, for just about every home computer, so this is no fly-by-night organisation. Their TX 99-S1 drive carried a suggested list of $449 which includes the controller card. Percom has about 600 of these drives on hand worldwide at the present time.

It also makes a second drive for the TI called the TX 99-A1 which lists for $399. At the time of writing, it isn't clear if Percom will continue to manufacture these units. It all hinges on demand.

A company called Myarc of Basking Ridge, New Jersey, is planning to continue to manufacture its line of 5-, 10-, and 15-megabyte hard disc drives for the TI. This company has been making these units since earlier this year and apparently is selling many of them in South America where the TI is used mostly as a business computer.

Any number of small companies are planning to continue making cards and accessories to plug into the expansion box. These firms include A/D Electronics, of Sacramento, and Doryt Systems of Glen Cove, New York. Newport Controls, of Bishop, California, still plans to market its $30 joystick. 99er Home Computer Magazine of Eugene Oregon is still going strong, and has published a directory of third party hardware products in its September issue.

Of greater concern than hardware is the software issue. While many manufacturers are foregoing offering their hardware products in retail outlets in favour of doing so by mail order, the software vendors are unsure of which way to go.

TI plans to sell of all its remaining software. The publisher of 99er feels that this will allow the third party software market to really take off. Sierra On-Line Software is not so sure. It took them months to complete successful negotiations that allowed TI to manufacture and distribute game cartridges for which Sierra would receive royalties. Of the six games TI planned to produce and sell in the manner, two are already being produced (these being Jawbreaker and Crossfire) and are therefore likely to be released, although who know for how long.

TI has not said anything yet about releasing the other four, and Sierra tends to think that if TI sends the games back that it will not market the games either. It seems clear from present indications that most retail outlets would rather use their shelf space for software other than that designed to run on the TI.

One possible reason for this is the system developed by Romox and mentioned in this column a while back. Using the Romox system, retailers can download software into reuseable cartridges getting the programs over the phone lines, thus decreasing stock requirements.

Another problem facing the software manufacturers is that most of them are not set up to sell directly to the public, so if they decide to go the mail order route, they would have to restructure their organisation. This could be risky as no one knows how to predict what sales will be as a result. In order to do an effective mail order business, a firm needs a good direct mailing list. The best source of such a list is of course Texas Instruments itself, which has a record of almost every owner of a TI-99/4A. Yet so far TI has not offered this list to anyone at any price, not even the main TI user group, International 99 Users Group, of Bethany, Oklahoma.

One thing is for sure — I'll be willing to bet money that Atari is very upset over TI's rapid departure from the field. Rumour has it that Atari has already produced about a quarter of a million game cartridges for the TI under its new software company, Atarisoft Inc. A loss in that line now would be the last thing that Atari needs after its problems of the last year or so. Oh well, no one said this business was easy.

Hill Street Blues fans will appreciate this warning to potential software writers: Let's be careful out there. See you next week.

Out of room again — see you next week.

Bud Izen
Fairfield, California

Sorting by bubble — make it work with words

If you're using your VIC-20 for serious programming, here's a demonstration which will help. Alan Blackham's program, for the unexpanded model, shows how a bubble sort works

How does bubble sort work? This program will show you by sorting 10 words into alphabetical order.

The words must be less than 10 characters long or you will be asked to re-enter.

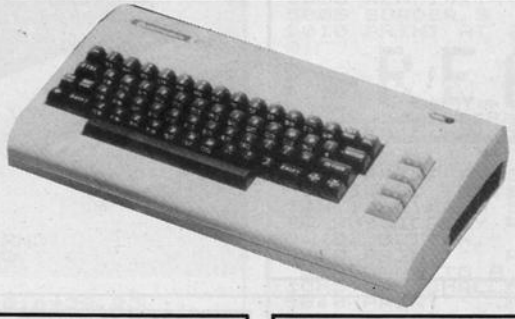
How it works

10-60 initialise variables
100-177 input words
200-280 set up screen
300-390 put words in order
500-550 move word right
600-650 move word left
700-790 move word up
800-860 move word down
900-950 invalid input
1000-1080 end

They are listed when you have typed them in and the sort begins after you press a key.

A red line shows the two words being considered and if the first comes later in the alphabet they are swapped.

The top one moves right and down to let the second move into its place and the first word then moves left into the vacant slot.



When the words are sorted you are asked if you want to see the process again.

Note: The graphic symbols in this program are only for colour and display. They have no effect on the program and can be omitted if necessary.

Hints on conversion

The POKEs are **36869** screen colour, **36878** volume, **36874-36877** sound.

The memory mapped screen is at locations **7680-8186** and the screen colours are at **38400-38884**. POKEing **32** to screen location gives a blank space and POKEing **106** gives a vertical line.

Variables

P(1-11) positions of words on screen
W$(1-19) the words
R,B,I,J,M FOR loops
A$ inputs
P position of word to be moved

```
 2 REM ####################
 3 REM # ALAN BLACKHAM'S #
 4 REM # BUBBLE SORT DEMO#
 5 REM #    (25/03/83)   #
 6 REM ####################
 7 REM
 10 REM
 12 REM **** INISIALISE ****
 13 REM
 15 POKE 36879,8
 20 POKE 36878,15
 25 DIM P(11),W$(10)
 30 FOR I=1 TO 11
 35 READ P(I):NEXT
 40 REM ** DATA FOR POSITIONS **
 50 DATA 7724,7768,7812,7856,7900
 60 DATA 7944,7988,8032,8076,8120,8164
 100 REM
 102 REM **** INPUT WORDS ****
 105 REM
 110 PRINT"■■    BUBBLE SORT"
 115 PRINT"     DEMONSTRATION"
 120 PRINT"■
 130 PRINT"■■ENTER TEN WORDS OF NOTMORE THAN NINE"
 135 PRINT"CHARACTERS THAT YOU   WANT THE DEMONSTRATION";
 140 PRINT" TO USE."
 150 FOR I=1 TO 10
 155 PRINT"■■WORD ";I;
 157 A$=""
 160 INPUT A$
 165 IF LEN(A$)>9 THEN PRINT"■WORD TO LONG■":GOSUB 900:GOTO 160
 167 IF LEN(A$)<1 THEN PRINT"■PLEASE TYPE IN A WORD■":GOSUB 900:GOTO 160
 170 W$(I)=A$
 177 NEXT I
 200 REM
 202 REM **** SET UP SCREEN ****
 205 REM
 215 PRINT"■■    PRESS ANY KEY"
 220 PRINT"■
 230 FOR I=1 TO 10
 235 PRINT" "+W$(I)+"          "
 240 PRINT:NEXT I
 250 FOR I=38400 TO 38884 STEP 22
 255 POKE I,2:NEXT I
 260 POKE 198,0
 270 GET A$:IF A$=""THEN270
 280 PRINT"■■    DEMONSTRATION"
 300 REM
 302 REM **** PUT WORDS INTO ORDER ****
 305 REM
 307 REM ** BUBBLE SORT **
 310 FOR I=1 TO 9
 320 FOR B=1 TO 9
 322 POKE P(B),106:POKE P(B)+22,106
 324 POKE P(B)+44,106
 325 IF W$(B)<=W$(B+1)THEN FORR=1TO300:NEXT:GOTO 350
 330 N=B:GOSUB 500:GOSUB 800
 335 N=B+1:GOSUB 700
 340 GOSUB 600
 342 W$=W$(B)
 344 W$(B)=W$(B+1)
 346 W$(B+1)=W$
 350 POKE P(B),32:POKE P(B)+22,32
 352 POKE P(B)+44,32
 355 NEXT B,I
 360 PRINT"■■■■■■■■■■■■■■■■■FINISHED!"
 370 POKE 198,0
 380 GET A$:IF A$=""THEN 380
 390 GOTO 1000
 500 REM
 502 REM **** MOVE WORD RIGHT ****
 505 REM
 506 POKE 36876,128
 507 P=P(N)
 510 FOR M=1 TO LEN(W$(N+1))+1
 520 FOR J=P+9 TO P+1 STEP -1
 530 POKE J+M,PEEK(J+M-1)
 535 NEXT J:POKE J+M,32
 540 NEXT M
 545 POKE 36876,0
 550 RETURN
 600 REM
 602 REM **** MOVE WORD LEFT ****
 605 REM
 606 POKE 36876,160
 607 P=P(N)
 610 FOR M=LEN(W$(N))TO 0 STEP -1
 615 FOR J=1 TO 10
 620 POKE P+M+J,PEEK(P+M+J+1)
 625 NEXT J:POKE P+M+J+1,32
 630 NEXT M
 640 POKE 36876,0
 650 RETURN
 700 REM
 702 REM **** MOVE WORD UP ****
 705 REM
 706 POKE 36876,200
 710 P=P(N)+22
 720 FOR M=1 TO 2
 725 P=P-22
 730 FOR J=1 TO LEN(W$(N))
 740 POKE P+J-22,PEEK(P+J)
 745 POKE P+J,32
```

```
750 NEXT J,M
760 POKE 36876,0
790 RETURN
800 REM
802 REM **** MOVE WORD DOWN ****
805 REM
806 POKE 36876,220
810 P=P(N)-22
820 FOR M=1 TO 2
825 P=P+22
830 FOR J=LEN(W$(N+1))+1 TO LEN(W$(N+1))+11
840 POKE P+J+22,PEEK(P+J)
842 POKE P+J,32
845 NEXT J,M
850 POKE 36876,0
860 RETURN
900 REM
902 REM **** INVALID INPUT ****
905 REM
910 PRINT"■PLEASE RE-ENTER"
920 POKE 36874,128:POKE 36875,128
930 FOR R=1 TO 100:NEXT
940 POKE 36874,0:POKE 36875,0
950 RETURN
1000 REM
1010 REM **** FINISHED ****
1015 REM
1017 PRINT"□■    BUBBLE SORT"
1018 PRINT"    DEMONSTRATION"
1019 PRINT"■ ──────────"
1020 PRINT"■■■THE DEMONSTRATION HAS FINISHED!"
1030 PRINT"■■I HOPE THIS HAS HELPEDYOU TO UNDERSTAND"
1040 PRINT"HOW A ■BUBBLE SORT■    WORKS..."
1050 PRINT"■■ ■ANOTHER GO(Y OR N)"
1060 GETA$:IFA$=""THEN1060
1070 IF A$="Y"THEN RUN
1075 IF A$="N"THEN POKE36879,27:END
1080 GOTO 1060
```

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Test your reaction time with David Hughes' program for either model of the Spectrum

Here's a "quickie" game for either model of the Spectrum. It has a swift result and reset and is ideal for any number of players to test their reaction time.

How it works

3-12 prepare for game
14-150 randomise pause, store reaction time
200-220 check score against best time
1000-1050 print reports
2050-2070 start game
5000-5070 instructions
6000-6020 grade list
6500-6660 grades score
9000-9030 graphics

Variables

p RND pause
a-e sub total times
t total time
bt shortest recorded time
s starts game
a$ graphics

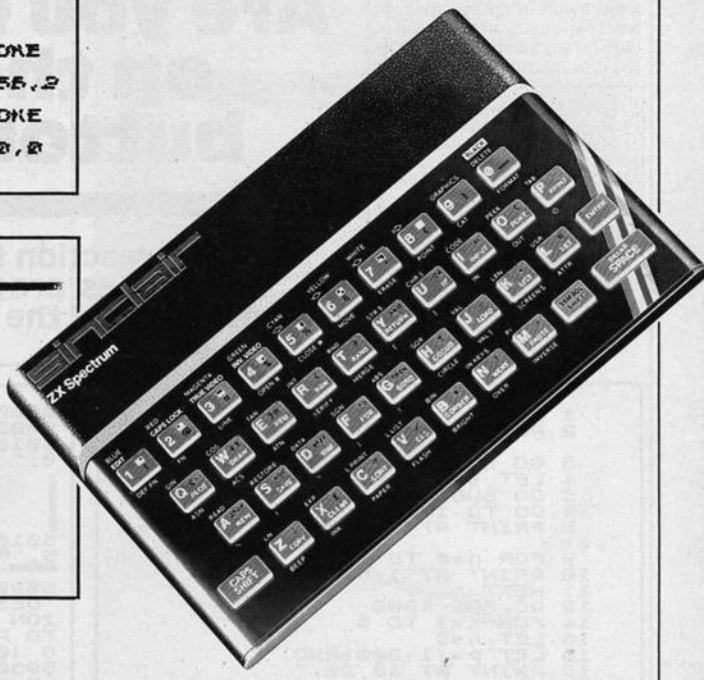
```
    1 REM    REACTION
    2 REM    D.G.HUGHES

    3 GO SUB 9000
    4 LET bt=10.000
    5 GO SUB 5000
    6 GO TO 1020
    8 PRINT AT 0,5;"BEST TIME   =
";bt
    9 FOR n=0 TO 31:
   10 PRINT AT 1,n;"■";
   11 NEXT n
   12 GO SUB 6000
   14 FOR x=1 TO 5
   15 LET n=0
   18 LET p=(1+200*RND)
   19 PRINT AT 10,20;"              "
   20 PAUSE p
   25 LET n=n+.001
   30 PRINT AT 10,20;n*39.23
   32 IF INKEY$="0" AND n<.002 TH
EN GO TO 1000
   35 IF INKEY$="0" THEN GO TO 10
0
   40 IF INKEY$<>"0" THEN GO TO 2
5
  100 IF x=1 THEN LET a=n*32.1
  110 IF x=2 THEN LET b=n*32.1
  120 IF x=3 THEN LET c=n*32.1
  130 IF x=4 THEN LET d=n*32.1
  140 IF x=5 THEN LET e=n*32.1
  145 PRINT AT 10,20;"
"
  148 PAUSE 50
  150 NEXT x
  200 LET t=a+b+c+d+e
  203 PRINT AT 18,16;"  TOTAL TIM
E  "
  205 PRINT AT 19,20; FLASH 1;t
  206 GO SUB 6500
  207 PRINT AT 10,20;"              "
  210 PAUSE 100: FLASH 0
  220 IF t<bt THEN LET bt=t: PRIN
T AT 18,16;"NEW BEST TIME": PAUS
E 50
  230 GO TO 2050
  240 GO TO 1020
1000 PRINT AT 10,20; FLASH 1;"TO
O SOON"
1010 PRINT AT 15,20;"TRY AGAIN":
  PAUSE 100: PRINT AT 15,20;"
                "
1020 PRINT AT 10,20;"RESETTING":
  PAUSE 100
1050 GO TO 6
2050 PRINT AT 21,3;" PRESS 'S' T
O START GAME"
2060 IF INKEY$="s" OR INKEY$="S"
  THEN PRINT AT 19,20;"          ";AT
  21,3;"                "
: GO TO 1020
2070 IF INKEY$<>"S" OR INKEY$<>"
s" THEN GO TO 2060
5000 REM inst
5005 BORDER 5
5010 PRINT AT 0,0; INK 5; PAPER
0;"
 REACTION
 "
5015 PRINT AT 4,0; INK 0; PAPER
5;"
"
5020 PRINT AT 5,0;" THIS GAME IS
 DESIGNED TO TEST  "'"YOUR REACT
ION TIME FROM SEEING"'"A SIGNAL
TO PHYSICALLY PRESSING"'"THE ZER
O (0) BUTTON."
5030 PRINT ': PRINT ;" THERE ARE
 5 ROUNDS TO A GAME.  YOUR REACT
IONS ARE CHALLENGED"
5040 PRINT ': PRINT ;" PRESSING
ZERO BEFORE THE TIMER"'"STARTS W
ILL STOP YOUR GAME"
5045 PRINT ': PRINT ;" TOTAL TIM
E AND GRADE WILL"'"BE DISPLAYED"
5050 PRINT AT 21,3;" PRESS 'S' T
O START GAME"
5060 IF INKEY$="s" OR INKEY$="S"
 THEN CLS : RETURN
5070 IF INKEY$<>"S" OR INKEY$<>"
s" THEN GO TO 5060
6000 REM grades
6010 PRINT AT 2,0;"SUPERSONIC--"
''"LIGHTNING----"''"FAST--------"
''"PRETTY QUICK"''"AVERAGE-----"
''"LAZY--------"''"SLOW COACH--"
''"SNAIL-------"''"WAKE UP !---"
6015 PAUSE 50
6020 RETURN
6500 REM GRADE
6501 LET a$="<-"
6503 PAUSE 50
6505 FOR n=0 TO 50
6510 LET g=INT (1+9*RND)+2
6520 PRINT AT g,13;a$
6522 BEEP .005,(g*-1): BEEP .005
,(g*-1)+20
6525 PRINT AT g,13;"  "
6530 NEXT n
6540 FLASH 1
6550 IF t<.65 THEN PRINT AT 2,13
;a$
6560 IF t>.65 AND t<.72 THEN PRI
NT AT 4,13;a$
6570 IF t>.72 AND t<.8 THEN PRIN
T AT 6,13;a$
6580 IF t>.8 AND t<.88 THEN PRIN
T AT 8,13;a$
6590 IF t>.88 AND t<.95 THEN PRI
NT AT 10,13;a$
6600 IF t>.95 AND t<1.02 THEN PR
INT AT 12,13;a$
6610 IF t>1.02 AND t<1.1 THEN PR
INT AT 14,13;a$
6620 IF t>1.1 AND t<1.2 THEN PRI
NT AT 16,13;a$
6630 IF t>1.2 THEN PRINT AT 18,1
3;a$
6640 PAUSE 100
```

SPECTRUM PROGRAM

```
6650 FLASH 0
6660 RETURN
9000 REM GRAPHICS
9010 FOR J=0 TO 7: READ Q: POKE
USR "A"+J,Q: NEXT J
9015 DATA 24,56,127,255,127,56,2
4,0
9020 FOR J=0 TO 7: READ Q: POKE
USR "B"+J,Q: NEXT J
9025 DATA 0,0,255,255,255,0,0,0
9030 RETURN
```

```
      BEST TIME  = 0.9639
SUPERSONIC--
LIGHTNING---
FAST--------
PRETTY QUICK
AVERAGE-----        0.27461
LAZY--------
SLOW COACH-- ←
SNAIL-------
WAKE UP !---        TOTAL TIME
```



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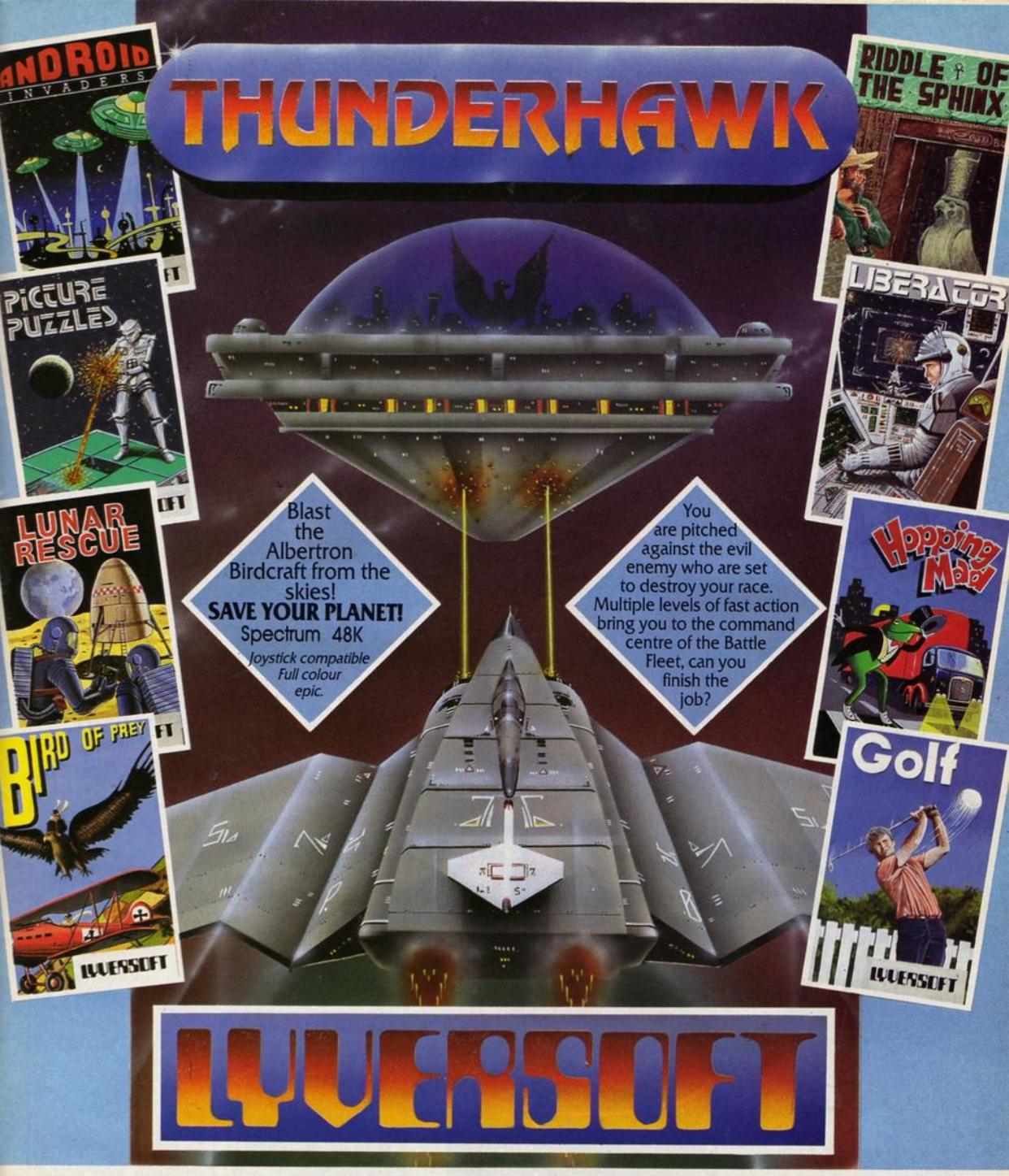

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Charting the scores

Why not have a chart showing readers' highest scores on games? Choose a game from each of your software charts, notify the readers in advance which it is, and get them to send in a photograph of their scores. At the end of the year you could compile a chart showing the highest scores. For each game you could set a target that readers have to beat before sending in their own scores.

Ian Reichard, Sunderland

A good idea, but with some practical difficulties. For example it's not unknown for computer users to break into programs. They could fake a high score for a picture.

What do you think? Let's have your letters.

Seg's counsel over Texas

At the risk of initiating an on-going correspondence situation — as our cousins across the Atlantic might say — I feel obliged to reply to criticims made about me by William Smith in HCW 46.

He seems to imply that I am disappointed with my TI-99/4A. Far from it. It is precisely because it is such a good computer that I am unhappy; for Texas Instruments to axe the 99 may be commercially and financially expedient, but what a waste of potential! Hang your heads in shame, TI.

Perhaps I was unfair to TI owners; I know any true 99er will defend the computer to the death against the hordes of unwashed Spectrum users and the like. On the other hand, there are quite a few Texas users who, on discovering that TI BASIC will not send aliens zooming across the screen at the speed of light, banish their machines to the attic prematurely.

Now, I use my 99 almost exclusively for programming. In fact, I haven't bought on single item of software. Before you scream "Apathy!" let me explain. Being a member of the three million jobless club, I don't have a great deal of money left over at the end of the fortnight, and what little I have goes towards the expansion of my system. In fact, I've already saved absolutely nothing!

As for the computing press (not HCW), there can be no defence here.

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

For example: I recently managed to acquire Extended BASIC and a speech unit by virtue of a small windfall and I am delighted with both. However, this set me thinking. Have you ever seen a review of X-BASIC in the computing press? Did you know there are in fact two home computers with named procedures (counting BBC and Electron as one)?

I also recently read a review of speech add-ons for home micros in a computing rag which shall remain nameless. Was the best speech synthesis unit for any computer even mentioned? Damn well right it wasn't!

I rest my case, m'lud.

Seg Gorham, Wakefield, West Yorks

We have received a lot of letters about Texas Instruments ending the production of the 99/4a and we are printing a small selection of them. However, most say roughly the same thing — how disappointed TI owners are and what a fine machine it really is. Please now write only if you have something genuinely new to say. And, as with all letters for publication, keep it brief!

TI: I'm not changing

Hear, hear, to Seg Gorham's letter in HCW 42. I, too, am a proud owner of a TI-99/4A and am disturbed by recent developments. It is now possible to by a TI-99/4A for almost half the cost I paid for mine. This fact alone should make it popular with a bargain-hungry public if it weren't for the apathy and scant support it receives.

However, is it just co-incidence or is it true that software (especially games) for the TI has become more prevalent in recent months? It would appear so.

Owners can only hope that those magazines (such as HCW) and the few friendly dealers and software houses that do support the TI continue to do so for a long time to come, as I for one am in no hurry to change to a five function button Spectrum.

No doubt this argument will continue for some time but if you print this letter I would be fascinated to hear the response, not from other TI users caught in this situation but also retailers and software creators.

Stuart Gilmour, Glasgow

Zap-free games

Regarding the letter (HCW 41) entitled: "Peace on earth — and elsewhere", I would first like to point out that there are lots of other games available for all machines that do not involve zapping aliens, e.g. Pacman or Donkey Kong.

Secondly, if someone feels that he must go out and kill someone, and someone plonks a game of Space Invaders in his hand, he will probably sit down and release his anger or hatred on the game.

Simon Drabble, Caterham, Surrey

Bring back our TI

I am writing in response to Seg Gorham's letter in HCW 42 concerning the withdrawal from the market of the TI-99/4A.

My husband and I bought our TI in October from a large nation-wide department store — which shall remain unnamed, much to my regret — because we thought it would be a good investment. However, we had no idea of what TI intended to do. I can now see why the salesman was so eager for us to buy the TI-99/4A: to clear their stock.

I have barely started learning the BASIC statements etc, let alone doing my own programming, so the chances of any peripherals being around when I'm capable of using them is negligible.

I would like to ask this of all shops, magazines and anyone in the home computer market: please support the TI and no more cold-shouldering. And, TI, please bring our computer back.

Thank you, HCW, for supporting us angry and disappointed TI owners.

Mrs S. J. Harris, Winchwen, Swansea

Can you save Quasimodo from a fiery fate?

Use Richard Ikin's program for the unexpanded VIC-20 to guide Quasimodo up the ladders — avoiding the fireballs — to reach the bell... the bell...

Here's your chance to create the legendary hunchback of Notre Dame on your present-day VIC-20.

Your task is to guide Quasimodo to the bell, avoiding the fireballs hurled by frightened Parisians.

Use these keys:

A up (jumping fireball or climbing ladder)
P right **L** left

How it works

1-34 set up user-defined graphics, screen layout
40-55 move fireball, print score, time, lives left
100-1000 music if bell rung
1000-1006 music if dead
2000-2005 new game?
3000-3010 routine for climbing ladder
3000-3003 move fireball, print score
3004 ensure fireball does not rub out base of ladder
3008 if Quasimodo is at top of ladder then go back to main program so he can move to bell

Time your jumps with care... it's not as easy as it looks.

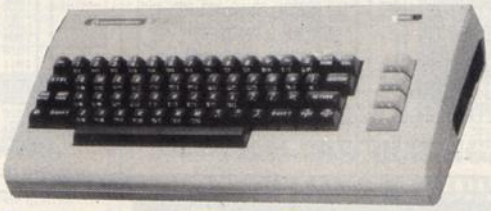
You get an extra life at 1,500 points and the time limit acts as your score — try to complete the game as fast as possible.

Quasimodo runs on the unexpanded VIC-20.

Control characters, all in reverse field, are: heart clear screen, S home cursor, Q cursor down one line, left square bracket cursor one place right, R reverse field on, horizontal line reverse off, E print in white, blob cursor up one line

Variables

SC score
EL extra life
L, L$ lives left
CO difference between end of screen memory and start of colour memory — provides colour of character
S1, S2 music voices
TV colour of border (green) and screen (black)
X position of fireball
Y position of Quasimodo
HI high score
TM time



```
1 POKE52,28:POKE56,28:POKE36869,255:POKE650,128
2 FORJ=0TO511:X=PEEK(32768+J):POKE7168+J,X:NEXT
3 FORJ=0TO71:READX:POKE7168+J,X:NEXT
4 CO=30720
5 CO=30720:S1=36876:S2=36874:TV=36879
9 DATA24,24,61,92,152,36,68,68
10 DATA255,129,255,129,255,129,255,129
11 DATA251,251,0,223,223,223,0,251
12 DATA28,62,127,255,255,126,124,56
13 DATA0,1,3,7,7,15,15,15
14 DATA0,128,192,192,224,224,224,224
15 DATA15,15,31,31,31,63,127,255
16 DATA224,224,240,240,240,248,252,254
17 DATA1,1,1,1,1,1,1,1
20 POKETV,13:PRINT"■";:POKE36878,15:X=8052:L=4:TM=1000:EL=0:SC=0:L$="■■■■":V=8032
21 FORQ=8054TO8105:POKEQ,2:POKEQ+CO,3:NEXTQ
22 PRINT"■■■■
```

Your country on your VIC

Typing in all those figures looks daunting, but you'll be rewarded by an accurate map of Great Britain and Eire.

Although it will be tricky typing in all the data correctly, my program will be worth the trouble.

It shows a detailed map of Great Britain and Eire and shows what really can be done with the definable characters of the VIC-20, unexpanded.

How it works

10 lowers RAMtop to protect your new characters
40 reads the data and POKEs it into the character set
1000-2000 changes screen colour and prints the map onto the screen

Hints on conversion

It would be quite easy to use this idea on the BBC micro using its VDU command and the Atari should support it too. It would not work on the Spectrum without extensive changes.

Obviously it will convert to other Commodore micros by changing the start of the character set POKE number, which on the VIC is 7168

```
10 POKE52,28:POKE56,28:CLR
40 FORC=7168TO7671:READA:POKEC,A:NEXT
50 DATA0,3,3,1,1,3,3,7
60 DATA0,131,255,255,255,255,255,255
70 DATA56,248,248,240,240,224,192,0
80 DATA0,0,0,0,119,255,255,255
90 DATA254,252,254,254,252,255,255,255
100 DATA3,15,31,31,15,31,31,7
110 DATA0,0,0,0,0,240,240,224
120 DATA192,192,192,128,128,128,0,0
130 DATA7,15,31,31,127,127,95,31
140 DATA31,15,15,15,31,127,95,31
160 DATA254,224,252,252,240,224,246,255
170 DATA128,224,240,240,248,248,248,248
180 DATA25,49,32,32,32,96,3,3
190 DATA7,7,135,130,66,192,192,192
200 DATA255,255,255,248,64,0,0,0
210 DATA248,252,252,252,254,254,254,255
220 DATA192,240,248,248,252,252,252,247
230 DATA255,255,255,207,15,31,63,63
240 DATA0,0,192,224,207,191,63,255
250 DATA63,127,127,31,31,191,255,255
260 DATA242,248,254,255,255,255,255,255
270 DATA0,0,0,0,0,128,128,0
280 DATA254,254,255,255,255,255,255,255
290 DATA24,63,191,255,255,255,255,255
300 DATA0,0,192,192,224,192,224,192
310 DATA1,3,0,0,0,0,0,0
320 DATA255,63,63,31,31,63,63,127
330 DATA224,224,192,0,0,0,0,0
340 DATA255,255,255,255,255,254,248,248
350 DATA255,255,255,255,255,255,255,207
360 DATA127,255,255,255,255,255,127,111
370 DATA0,7,31,127,31,62,8,0
380 DATA0,0,0,0,0,0,0,0
390 DATA0,0,0,0,0,3,3,3
400 DATA15,7,0,48,127,255,255,255
410 DATA31,63,63,255,255,255,255,255
420 DATA240,224,0,227,255,252,248,240
430 DATA0,0,0,128,128,0,0,0
440 DATA192,128,0,0,0,0,0,0
450 DATA255,47,0,0,0,0,0,0
460 DATA248,224,142,15,26,0,0,0
470 DATA255,159,7,0,0,0,0,0
480 DATA255,255,255,248,120,48,0,0
490 DATA7,15,63,63,62,240,224,192
500 DATA0,0,0,0,0,0,7,6
510 DATA255,255,255,255,255,255,255,255
520 DATA0,0,0,0,0,128,60,254
530 DATA0,0,0,0,0,7,127,255
540 DATA127,255,255,63,63,255,255,255
550 DATA0,0,0,0,0,1,3,255
560 DATA0,0,0,0,0,0,0,7
570 DATA3,7,0,0,3,7,31,15
580 DATA15,3,0,0,1,1,1,3
590 DATA255,255,63,255,255,255,255,255
600 DATA31,255,255,255,255,255,255,255
610 DATA14,0,15,15,255,31,63,127
620 DATA255,127,95,15,31,1,0,0
630 DATA255,255,255,250,224,0,0,0
640 DATA240,192,128,0,0,0,0,0
650 DATA248,240,240,224,224,224,192,0
660 DATA252,252,252,248,252,252,252,248
670 DATA255,255,254,254,248,248,248,248
680 DATA192,128,0,0,0,0,0,0
1000 POKE36879,8:POKE36869,255
1001 PRINT"■";:PRINT"■----------------------";
1002 PRINT"■■GREAT BRITAIN AND EIRE■■";:PRINT"----------"
1003 PRINT"  ■■■          @AB":GOSUB2000
1004 PRINT"          EDCF":GOSUB2000
1005 PRINT"          H--G":GOSUB2000
1006 PRINT"          I-J":GOSUB2000
1007 PRINT"         /.L--K":GOSUB2000
1008 PRINT"      210-MN-O":GOSUB2000
1009 PRINT"      3--=> 9-P":GOSUB2000
1010 PRINT"      45-< RS-TU":GOSUB2000
1011 PRINT"      76-;V2--VWX":GOSUB2000
1012 PRINT"      69: +?]--\[":GOSUB2000
1013 PRINT"        !"CHR$(34)"@--#%":GOSUB2000
1014 PRINT"          ,+*)('&
1020 FORT=1TO2000:NEXT:PRINT"■■■■  1984 P.STODDART"
1021 PRINT"■■      FOR   H.C.W"
1030 GOTO1030
2000 FORT=1TO75.5:NEXT:RETURN
```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Texas TI99/4A

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