BEST FOR SOFTWARE EVERY WEEK

Home Computing WEEKLY

An Argus Specialist Publication

September 13-19, 1983 No. 28 38p

FREE: A&F software worth £1,000 must be won

Great games to type in for Spectrum and TI-99/4A

Software reviews for: TI-99/4A, Spectrum, BBC, Atari, Oric, Commodore 64, Dragon

Programming advice for VIC-20, Commodore 64 and Oric

Share in Sinclair next year

Sinclair Research has chalked up £14m profit — and you could soon be in line for a share.

The company, makers of the highly successful Spectrum and ZX81 computers, doubled its turnover in the year ended in March to £55.53.

It means that earnings per share — bought at £34 each by big investors like pension funds earlier this year — are £2.07 against £1.06 the previous year.

Sinclair spokesman Bill

Continued on page 5

• • •

Christmas brings lots of software

Software is beginning to flood into the shops ready for what is being predicted as the biggest ever Christmas for home computing.

Artic Computing has just announced no less than 21 new titles, due out in a week. And newcomer Virgin Games has brought out its second batch of eight games.

Artic's managing director, Richard Turner, believes it is going to be the biggest Christmas for computing since he set up the company three years ago.

He said the 21 new programs — bringing the range up to 62 — were his largest launch so far and

Continued on page 3

COMING SOON . . . .

The Hobbit

This incredible adventure game will soon be available for the Oric. Price £14.95 post free. Order now for delivery in late September.

Only from

TANSOFT

3 Club Mews, Ely CAMBS
Tel: (0353) 2271/2/3/4

COMING SOON . . . .

The Hobbit

This incredible adventure game will soon be available for the Oric. Price £14.95 post free. Order now for delivery in late September.

Only from

TANSOFT

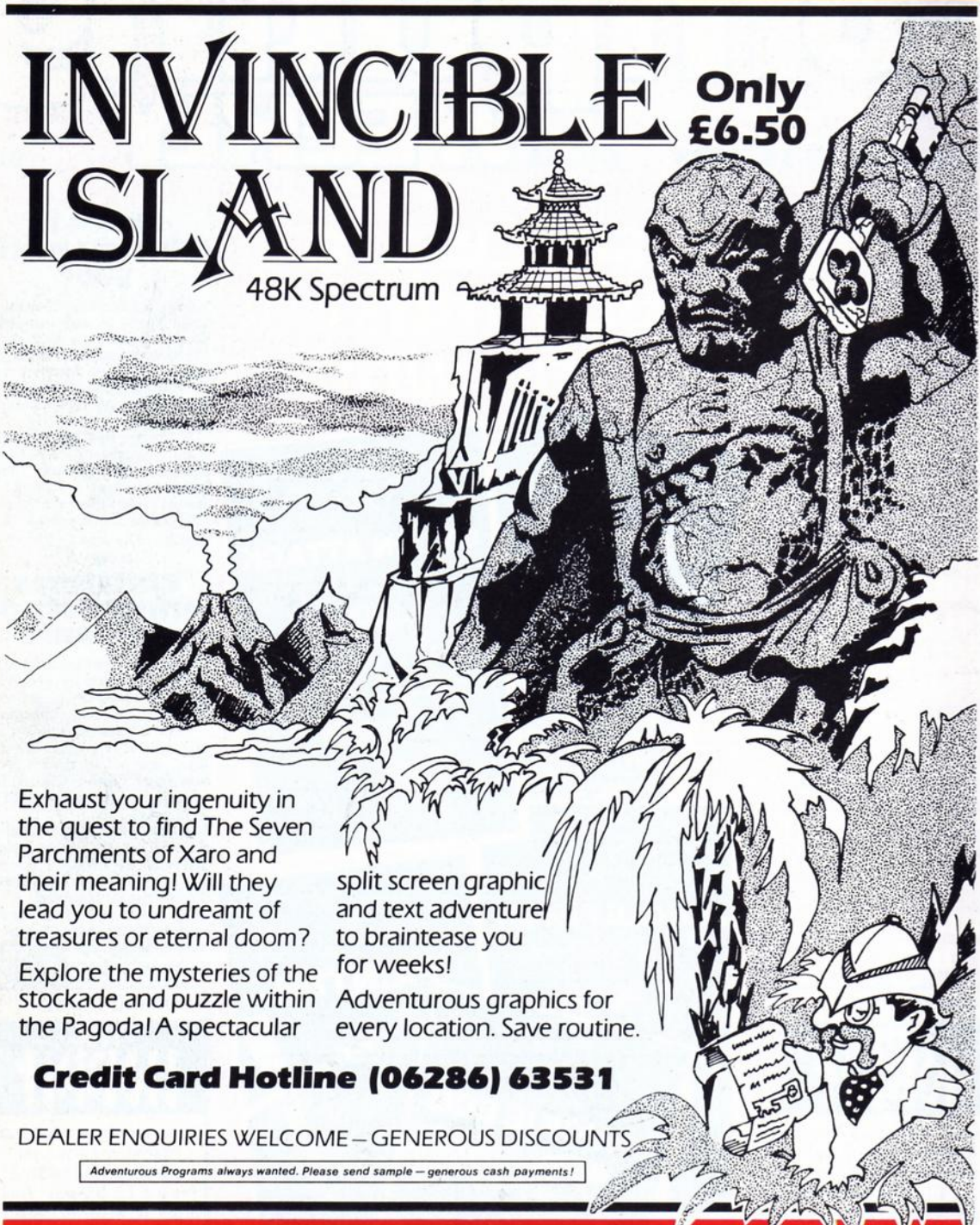
3 Club Mews, Ely CAMBS
Tel: (0353) 2271/2/3/4

RICHARD SHEPHERD SOFTWARE

INVINCIBLE ISLAND

Only £6.50

48K Spectrum



Exhaust your ingenuity in the quest to find The Seven Parchments of Xaro and their meaning! Will they lead you to undreamt of treasures or eternal doom?

Explore the mysteries of the stockade and puzzle within the Pagoda! A spectacular split screen graphic and text adventure to braintease you for weeks!

Adventurous graphics for every location. Save routine.

Credit Card Hotline (06286) 63531

DEALER ENQUIRIES WELCOME – GENEROUS DISCOUNTS

Adventurous Programs always wanted. Please send sample – generous cash payments!

RICHARD SHEPHERD SOFTWARE

ELM HOUSE, 23-25 ELMSHOTT LANE, CIPPENHAM, SLOUGH, BERKS. TEL. (06286) 63531

BUY THIS SPACE
To advertise your latest products!
Ring Coleen or Barry on
01-437 1002 NOW!

Continued from front page

were the result of a successful appeal to freelance programmers.

Mostly priced at £5.95, there are five for the VIC-20, one for the Oric, 10 for the Spectrum and five for the ZX81.

Artic has also become the distributor for educational software from Arnold Wheaton. There are six titles for the Spectrum and BBC micros costing £13.95 each.

Virgin's new titles, priced at £5.95 and £6.95, are two each for the Spectrum and the VIC-20, three for the Dragon and one for the Oric.

And the company has bought a double decker bus to promote its products. Fitted out with 12 computers and carrying programmers to answer queries, it will tour the country form October to Christmas.

Buyers of the new games are also entered in a draw for six prizes of days out, plus posters and T-shirts.

Artic Computing, Main Street, Brandesburton, Diffield YO25 8RG

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

• • •

Copy that screen — in colour

Good news for Spectrum owners — now you can use the Tandy CGP-115 four colour printer plotter to make screen copies.

Some months ago, Softest brough out an interface which linked the CGP-115 computers. The CGP-115 is a plain paper printer which uses four coloured pens to produce text in a wide range of sizes. It can also be used to plot at 52 mm per second horizontally and 73 mm per second vertically.

The only drawback was that the printer couldn't be used for producing screen dumps. Now it will, thanks to a new screen copy program developed by Softest for the Spectrum.

The program costs £5, and the interface costs £35.

Softest, 10 Richmond Lane, Romsey, Hants SO5 8LA

Home Computing WEEKLY

News 5

Software reviews 6
Take off with the Spectrum, Atari, BBC, TI-99/4A

£1,000 A&F competition 7
Make words and win

Add-on reviews 10
For ZX81, Dragon, Oric, BBC

VIC-20 program 11
Just picture it . . .

Spectrum program 13
Defend the innocent cities

Oric programming 17
Perk up your graphics

One Man's View 18
Our lively opinion column

TI-99/4A program 20
Can you keep your balance?

Commodore 64 programming 25
Hi-res graphics for the professional look

Spectrum program 27
Find that magazine article

Software reviews 29
Education on the Spectrum, BBC, VIC-20, ZX81

Oric programming 31
Make your own movies

Software reviews 32
Games for BBC, TRS-80/Genie, Oric, 64, VIC-20

Best Sellers 34
Charts for Dragon, ZX81, VIC-20, Spectrum

Software reviews 37
Thinking games for Spectrum, Dragon, VIC-20, TI-99/4A

Profile: Mr Micro 38

Letters 40

Software reviews 42

Acting Editor: Paul Liptrot
Assistant Editor: Candice Goodwin
Designer: Bryan Pitchford
Managing Editor: Ron Harris
Advertisement Manager: Coleen Pimm
Assistant Advertisement Manager: Ricky Holloway
Classified Advertising: Julie Bates
Chief Executive: Jim Connell

Argus Specialist Publications Ltd.
145 Charing Cross Road, London WC2H OEE. 01-437 1002

Home Computing Weekly is published on Tuesdays. Distribution by Argus Press Sales and Distribution Ltd, 12-14 Paul Street, London EC2A 4JS. Printed by Alabaster Passmore & Sons Ltd, of London and Maidstone, Kent. Design and origination by MM Design and Print, 145 Charing Cross Rd., London WC2H OEE

FREE SPECTRUM CATALOGUE
24 pages of Spectrum best.
Call 24 hours
Leave name & address clearly
01-789 8546
SOFTWARE SUPERMARKET

• All these computers — and more — are featured in this issue of Home Computing Weekly

FOR FIRST TIME USERS...

A new series of books which introduce newcomers to the most widely used micros in the marketplace.

The books assume absolutely no knowledge about computers and the reader is shown even the most fundamental operations such as "switching on" and "loading a program". The books lead the reader through simple programming and then onto graphics, with several programs which show how to achieve pictures and even animation. The books contain a number of specially written programs which show the full potential of these machines.

"The text is liberally supported by all manner of useful diagrams and illustrations (including many black and white photographs of the screen). The overall presentation is excellent. The printing, setting out and listings are clear and positively invite the reader to have a go."

EDUCATIONAL COMPUTING

£5.95

(incl. postage)

ORDER FORM

READ-OUT BOOKS AND SOFTWARE
8 Forge Court, Reading Road,
Yateley, Camberley, Surrey GU17 7RX

24 hour answering service Tel (0252) 873373

Name_____

Address_____

NOW AVAILABLE

Please send me.....copy/ies all at £5.95 each

incl. postage & packing. (Allow 14 days for delivery.)

- ☐ Learning to Use the PET Computer
- ☐ Learning to Use the BBC Microcomputer
- ☐ Learning to Use the ZX Spectrum
- ☐ Learning to Use the Apple II/IIe
- ☐ Learning to Use the Commodore 64
- ☐ Learning to Use the VIC-20 Computer
- ☐ Learning to Use the ZX81 Computer
- ☐ Learning to Use the Dragon 32
- ☐ Learning to Use the TI99/4a
- ☐ Learning to Use the Oric 1
- ☐ Learning to Use the Lynx

Make cheques payable to **Newtech Publishing Ltd**

I enclose my cheque for £_____
Please debit my Access ☐ ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Signed_____ Date_____

READ-OUT

HCW28

Professional Software for Spectrum and ZX81

SPECTRUM 48K

■ **Payroll:** Weekly, monthly, hourly. All tax codes, and pay levels. Guaranteed correct. £25.00 ■ **Statutory Sick Pay:** Better than programs costing 10 times as much on other machines. £40.25 ■ **Stock Control:** Over 1500 lines. Find, add, delete, in 2 seconds! Sinclair or full width plain paper printer (with interface) supported. £25.00 ■ **Spectrum Demo Tape:** Demonstration versions of payroll, stock control, SSP. On one tape. £3.95 ■ **Critical Path Analysis:** Enter network of over 500 activities. Program finds critical path. Durations and costs can be modified, and the calculation repeated. Full-width printer supported. £15.00

SPECTRUM 16K (usable on 48K)

■ **Mortgage:** See how repayment amount affects duration and total amount paid. While paying: see how much interest and how much capital you are paying. Month by month table printed. On the same tape. ■ **Loan:** Calculates true interest when paying instalments etc. £8.00 (both programs together)

Parallel Printer Interfaces:

■ **The Standard Interface:** Centronics interface to link your ZX Spectrum to many popular dot matrix and daisywheel printers. The package includes: interface, simple word processor, 3 sets (different) of printer software, cable, centronics plug, full instructions. The **LLIST** and **LPRINT** commands are supported. Many other features also. £45 inc. VAT. Post free. ■ **The Deluxe Interface:** Includes all the features of the standard package, and also has a 3.5 mm jack socket and special circuitry which allows the ZX Spectrum to **Save** and **Load,** without having to unplug or switch anything! £55 inc. VAT. Post Free. ■ **The Professional Interface:** Includes all the features of the deluxe package, but also allows the ZX Spectrum to be used as a very powerful peripheral processor for a bigger computer! Software is supplied which post-processes word processor output with straight right and left margins. £99 inc. VAT. Post Free.

Tape Loading Problems With Your Computer?

■ **Loading Aid:** Allows you to get tape playback level right first time. Helps with dropouts and to check tape quality too! Standard model £5.95. De luxe model £7.95 ■ **The Microcomputer User's Book of Tape Recording:** Is a practical guide to help you get programs in and out of your computer. Written for the computer user – but several audio and computer professionals have found it useful! ISBN 0 946476 00 4. ONLY £3.15 incl. postage (£2.90 in shops – temporarily out of stock) ■ **Test and Alignment Cassette:** Tape loading problems are often due to a mis-aligned tape head. Align your tape head by ear with our tape – no instruments required! £4.90

ZX81 16K

■ **Beamscan:** Computers bending moment and shear force diagrams for a simply supported beam with 1-99 point, uniform and uniformly tapered loads. £25.00 ■ **Time Ledger:** For up to 17 employees, 200 clients. £15.00 ■ **Optimax:** A powerful linear optimisation program up to 75 variables, constraints. £40.00 ■ **Payroll:** As above but only up to 30 employees. £25.00 ■ **Stock Control:** As above but 400 stock lines in 16K or 2000 lines in 64K. £25.00 ■ **Critical Path Analysis:** Up to 500 activities in 16K. Over 500 activities in 48K. £15.00 ■ **Budget:** Keeps track of expenses and compares with budget. 50 headings plus 12 months or 12 categories. £15.00 ■ **Financial Pack:** Contains three programs: Mortgage, Loan and VAT. £8.00

All items are post free and include VAT. Programs are supplied with comprehensive manuals.

Remember We at Hilderbay pride ourselves in the development of high quality professional software that is fully functional and with full support.

Contact us now for further information on these products and our full range of Apple II Software.

TRADE ENQUIRIES WELCOME ON ALL PRODUCTS

Hilderbay

Professional Software

Hilderbay Ltd. Dept. HCW28, 8-10 Parkway, Regents Park, London NW1 7AA
Telephone: 01-485 1059. Telex: 22870

Continued from front page

Nichols said a dividend of 1p per share was being recommended to the annual meeting.

The bulk of the profits would be re-invested in the company. This includes the money which Sir Clive Sinclair could claim as the owner of most of the Sinclair shares.

Last year's profit was £8.55m and trading this year is so far "looking very good".

City observers have been contrasting Sinclair's figures with the news of serious cash troubles which have hit Dragon and Grundy, makers of the NewBrain micro.

However, it has been pointed out that the Sinclair figures are dated March 31 — before the round of price-cutting in the UK and, more fiercely, in America.

Although U.S. versions of the Spectrum and ZX81 are now on sale in America, Sinclair is shielded from the price war there because Timex, selling them under licence, pays a royalty.

Sinclair expects less than was anticipated.

Next year the company plans to make shares more widely available. Present shareholders bought them through a private placing by a merchant bank.

A public offer of more shares would be made either on the Unlisted Securities or a full launch on the Stock Exchange.

£2½m more to help the Dragon

Banks and shareholders have put another £2½m into Dragon Data to ease the company's cash crisis.

The problem was brought on by the summer sales drop, said marketing director Richard Wadman. However, he said, Dragon had held its market share at No. 2 in sales and expected to beat its sales of 32,000 in the September-December period compared with the same months last year.

By the end of this month a 64K model would be on sale. As reported in HCW, an American company is to sell the Dragon in the U.S. And the prospects for Europe looked healthy with distributors being signed.

Dragon Data, based in West Glamorgan, is 42 per cent owned by Prutech — the new technology financing arm of the Prudential insurance company — 23 per cent by the Welsh Development Agency, 15.5 per cent by Mettoy and 8.6 per cent by the National Water Council.

In an earlier financial problem, Mettoy sold most of its interest to Prutech.

A new chief executive is expected to be appointed soon from GEC. At present the acting chief executive is Derek Morgan, vice-chairman, who is with PA Management Consultants whose research centre designed the Dragon.

● Dragon's disc drive has just been launched at £275. It has a claimed storage of 184K on a single-sided double density 5¼" disc. Another half-height drive can also fit into the steel case and two double units can be linked.

Dragon Data, Kenfig Industrial Estate, Margam, Port Talbot, West Glamorgan

Wordsworth on disc

The Wordsworth word processing package for the BBC, which has been out for several months on cassette, has now make its disc debut.

Author Ian Copestake reckons that it has several advantages — apart from the most obvious one of price — over its ROM-based rivals.

Unlike Wordwise, you can make multiple copies (500, in fact) of your document — whether it's an address label or a letter. And unlike VIEW, you don't have to save the document before you can print it out.

Probably the biggest drawback is that it uses up more of the computer's memory, and the disc version takes up more room than the tape. You can store about two A4 pages in internal memory after the program has been loaded.

On the other hand, with the rapid access of a disc drive, lack of internal storage space probably won't bother you too much.

The disc Wordsworth costs £19.50, as opposed to £17.25 for the tape.

Ian Copestake, 23 Connaught Crescent, Brookwood, Woking, Surrey GU24 0AN.

96K Lynx on the prowl

Now 96K Lynxes are beginning to prowl the high streets with Laskys selling the computer at 50 of its Micropoint stores.

And three large distributors will soon be offering it too.

The 96K model costs £299 and owners of the 48K version can return them to dealers for an upgrade costing £89.95.

Camputers, 33A Bridge Street, Cambridge CB2 1UW

New way to link up a printer

If you want to link a Centronics-type printer to a Spectrum or a ZX printer to a Jupiter Ace or BBC Micro, Advanced Digital Systems has the interface to let you do it.

Its Centronics interface can be used to produce plain-paper printouts direct from BASIC. Not only will it work with the Spectrum, but a change of software lets it link up to the ZX81. The further addition of a £5 adapter card converts it to work with the Jupiter Ace. The interference itself costs £34.50.

A package including the same adapter card and software enables the ZX printer to be linked to the Ace. There are two versions of the software — one will run on the unexpanded Ace, but will not deal with graphics or user defined characters. The second version, for the expanded Ace, will tackle all characters. The whole package costs £9.95.

Another kit of adapter and software will let you connect your BBC micro to the ZX Printer, and is expected to cost around £15. Advanced Digital Systems' technical director said: "We're the first to admit that the ZX printer is not exactly word processor quality, but for listings it's ideal. Our adapter must be the cheapest entry into printing on the BBC."

Advanced Digital Systems, 9 Bonchurch Road, Portsmouth, Hants PO4 8BR

Make a studio date

Central TV is looking for young people to form the studio audience for a six-part series on computers. Recordings will be in Birmingham on the 16th and 23rd of next month and November 2 and 7. Applicants should say which date they prefer, name their micro and its use and enclose a note from parent or guardian giving consent to attend.

Write (do not phone): Geoffrey Negus, Central TV, Broad St, Birmingham B1 2JP

You could be on our pages

We welcome programs articles and tips from our readers.

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

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

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

Competitive rates are paid.

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

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

Fly through the air with the greatest of ease

As easy as switching on your micro, in fact. Here our panel says how a selection of games with aeronautical themes took off with them.

Shuttle Command TI 99/4A (Extended BASIC) £12

FFF Software, distributed by Stainless Software, 10, Alstone Road, Stockport

The astonishingly inventive use of graphics and programming in this game tends to obscure its rather nasty origin. The basis for the game is the launching by the Russians of 'thousands of unmanned, unarmed, robot satellites' with the intention, cleverly uncovered by the Americans, of literally 'bumping' off the naturally more-peaceful American satellites. What a scream?

Your mission, of course, is to destroy all the Russki hardware. As each enemy satellite approaches, it gets bigger, and the number of points for its successful plastering diminish.

If one gets too close, it causes damage to you — mean trick, that. At 100% damage, the game ends. Points scored, damage sustained, and fuel left are displayed beneath an incredible view-port display.

The movement of both stars and satellites in response to keypresses begins to rival machine code on other machines.

P.B.

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

★★★★★

Dogfight BBC 32K £9.95

Opus, 701 Camberwell Road, London SE5 0EE

This cassette contains the most original and entertaining program I have seen for a long time. The theme is the aerial battles of the First World War and has two planes, and players, trying to shoot each other down. You are in command of one of these acrobatic planes controlling speed, turn and gunfire.

Control is either by well-placed keys or joysticks. I preferred joysticks, but the keys are more positive and precise. With eight difficulty levels, one can play for a long period without getting bore.

You can't afford to lose concentration for a second though, for if you crash after you have shot down your opponent you forfeit the game!

There is even a valley for real aces to fly down which allows you back to the center of the screen. The only improvement, I would suggest, is the option to play the game against the computer as I have now shot down all the local aces.

The graphics and sound effects are excellent, but the on screen instructions are beyond compare; I certainly have never seen or heard anything like them.

I recommend this program without reservation.

D.C.

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

★★★★★

Heathrow Air Traffic Control Spectrum £7.95

Hewson Consultants, 60A, St Mary's St, Wallingford, Oxon OX10 0EL

Here's a chance to take a crash course (pun intended) in Air Traffic Control with this simulation program from Hewson.

You must attempt to land eight or more aircraft safely within a time limit of 25 minutes. The planes are "stacked" in four areas to await your instructions as to direction, speed and height. Your television represents a radar screen, communication read-out and a stacking information table.

There are six levels of play as well as a demonstration section so that you may develop your skills gradually. The program also assesses your performance on request during the game and on completion.

The higher levels provide for unidentified aircraft, equipment failure, runway closure and the "vortex" factor, which is the effect a plane's air displacement has on a following aircraft.

There is a useful "hold" option to give you a chance to consider the airborne chaos you have caused.

The instruction leaflet is necessarily lengthy to go into the many facets of the program but for the most part directions are well explained.

D.J.

instructions	90%
playability	85%
graphics	65%
value for money	75%

★★★★

Chopper Rescue 48K Spectrum £5.95

Blaby Computer Games, Crossways House, Lutterworth Road, Blaby, Leicester.

Chopper Rescue is a true arcade-style game with an unusual plot.

An aircraft is flying across the top of the screen, dropping bombs and radio-active waste onto the heads of some poor scientists who gradually become entombed in the green, gungy waste.

You must fly your helicopter as your fuel ticks away and use your blaster to make shafts in the waste, to reach the scientists and carry them to the safety of the helipad.

If your chopper is hit by a bomb or a lump of falling waste, it explodes. The explosion is multi-coloured and noisy, which is as it should be.

This is a true arcade quality game with an original plot (I believe), with excellent sound effects, well chosen colours and a high degree of skill level required.

There is a high score feature and on-screen score which change colour in true arcade style.

The only thing that I could find fault with were the instructions, which do not tell you how to pick up the scientist.

M.B.

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

★★★★

Krazy Kopter Atari 16K + joystick

English Software, 50 Newton Street, Piccadilly, Manchester M1 2EA.

Two of your top agents have escaped from enemy custody. In their frenzy to flee they have hijacked a bright green enemy truck and even now are frantically heading for safe territory.

With hostile forces in hot pursuit the escapees are doing well — until they hit a ravine crossed by three bridges. Trouble is each bridge leads to one of the other bridges. Your intrepid agents are doomed to shuttle back and forth over the ravine relentlessly pursued by their former captors. Unless you can help.

How? By flying your helicopter above the enemy cars and terminating same with adroitly placed bombs. Allowing even one hostile car to cross a bridge completely will result in your prompt blasting and a life lost, together with a swift fall into the river at the base of the ravine. Herein lies the snag with the game.

It is difficult to achieve anything. The game is very fast, even at the lowest level. Instead of being enjoyably coaxed into Crazy Kopter's higher levels I found it hard work just to stand still.

T.A.

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

★★★★

40 chances to win in our great A&F £1,000 competition

WE'VE got £1,000-worth of great A&F software waiting to be won. And this is a competition in which **everyone** who enters stands to gain.

It's free, easy to enter and you have got 40 chances to win £25-worth of software for Spectrum or BBC computers.

You have probably seen A&F's range of software in shops throughout the country. Now A&F has released two new tapes guaranteed to give the family hours of fun.

So we have decided to base the competition on these two new titles: **Chuckie Egg** and **Cylon Attack.**

All you have to do is make as many words as you can from the 21 letters in these two titles, without using the letters more often than they appear on the four words.

Your total number of words — including the original four — must be written in large figures on the back of your envelope. And all the words you make up must be given in the

- Cylon Attack, for the 32K BBC micro, puts you in the pilot's seat for a fast-moving 3D space battle, complete with stunning graphics and sound.

- Chuckie Egg, which runs on the 48K Spectrum, features a chubby little character who has to collect eggs by running up ladders and along platforms and using lifts. But he has to avoid the ostriches and a crazy dive-bombing duck.

The prizes

Winners with 48K Spectrums will receive a package of software worth about £25 taken from the following A&F titles:

Jungle Fever	**Crazy Balloons**
Painter	**Chuckie Egg**
Frogger	

And winners who own BBC micros with 32K of RAM will get a selection also worth about £25, from these programs:

Shrinking Professor	**Frogger**
Horror Castle	**Planes**
Bouncer	**Pharoah's Tomb**
Painter	**Cylon Attack**

And, as we promised, every entrant stands to benefit in this HCW competition. All will receive a 10 per cent discount voucher from A&F for any software ordered direct from the company. The vouchers will not be accepted in shops.

How to enter

Make as many words as you can from the letters in these four words: **Cylon Attack Chuckie Egg.** The letters must not appear more often than they appear in these words.

Write them in the space provided in the coupon — attaching it to a sheet of plain paper if you need more room. Fill in the rest of the coupon, including the words Spectrum or BBC, depending on which set of prizes you would like.

Your words must be given in The Oxford Paperback Dictionary (2nd edition, 1983).

And you must write in large figures on the back of the envelope the number of words you have made, including the original four. Copies of the coupon will not be accepted.

Entries which do not meet these conditions will not be considered.

You have got until first post on Friday September 30, 1983 to get your entry to us and the results will be published in the news columns of Home Computing Weekly

You may enter as many times as you wish provided each entry is on an original coupon and in its own envelope.

The winning entries will be the first 40 drawn with the greatest number of words. They will be checked against The Oxford Paperback Dictionary (2nd edition, 1983).

The prizes and vouchers will arrive from A&F within 28 days of the publication of the results.

The small print

The first 40 entries opened with the greatest number of words will be the winners. They will be chosen at noon on Friday September 30, 1983.

Coupons which are not fully and legibly completed and envelopes without the number of words made on the back will not be considered.

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

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

A&F Competition
Entry Coupon

Name .....

Address .....

.....

.....

.....post code .....

Computer .....

Your words .....

.....

.....

.....

If you need more space, attach this coupon to a sheet of plain paper. Post to: A&F Competition, Home Computing Weekly, 145 Charing Cross Road, London WC2H 0EE. Closing date: first post Friday September 30, 1983.

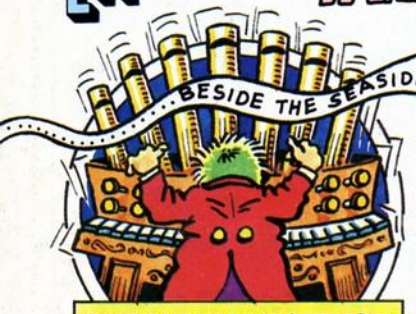
Virgin Games

GSH Guild of Software Heroes

THE AMAZING ADVENTURES OF THE LAUGHING SHARK

PART ONE

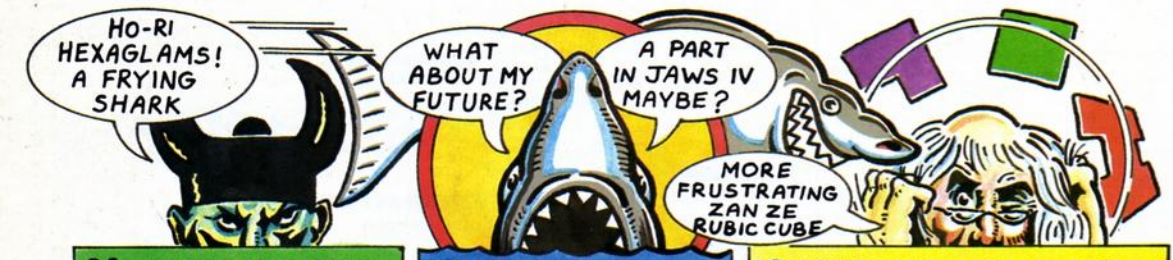
THE LAUGHING SHARK TORPEDOED TO THE SURFACE ONLY TO FIND HE WASN'T IN THE SUNNY PACIFIC – BUT IN THE DARK MURKY MOAT OF THE.....



CASTLE ADVENTURE WITH A THOUSAND DASTARDLY DEATHS – ACCOMPANIED BY THE MAD ORGANIST – PULLING OUT ALL THE STOPS.....

ESCAPING THE DEADLY SOUND OF MUSIC, THE LAUGHING SHARK NARROWLY AVOIDED A CRUISE LINER — IN A MOAT?!!

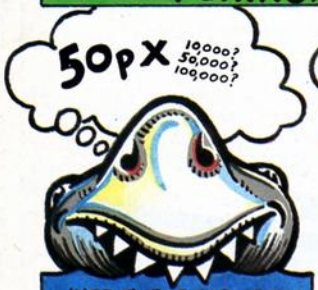
PASSING A PORTHOLE HE ESPIED NASTY DR. SINISTER PLANTING A BOMB. STOP HIM SOMEONE – OR THIS COULD TURN INTO A..... **DEATH CRUISE!!**



NOT WISHING TO SUFFER THE SAME FATE AS HIS COUSIN JAWS, OUR HERO DECIDED TO CONSULT THE ORACLE OF **I CHING**....

THE 4,000 YEAR OLD CHINESE ART OF THE HEXAGRAM – WITH ITS KEY TO FUTURE AND THE MEANING OF LIFE.

OVERFLOWING WITH NEWLY FOUND SELF-CONFIDENCE, LAUGHING BOY FELT READY TO HELP PROF. BATTY SOLVE THE PROBLEM OF **LOJIX** AND FIT THE SHAPES —



– INTO THE GRID. IF YOU MANAGE TO SOLVE IT, YOU COULD WIN THE LOJIX POT OF SILVER. 50p X EACH COPY SOLD

DIZZY FROM HAVING TO USE HIS LITTLE FISHY BRAIN OUR INTREPID 'CHUCKLES' GOT LOST AND FOUND HIMSELF IN THE DANK DEPTHS OF **KILLER CAVERNS**

WITH ITS HORDES OF TREASURE AND DEADLY GUARDIANS... TOO MUCH, EVEN FOR A SUPER FISH, SO HE HOPPED ON A BUS.....

September RELEASES

RACING MANAGER
by Mark Alexander
SPECTRUM 48K
VGC 1005
All the thrills of the racing world.
£5.95 R.R.P.

LOJIX
by Steve Webb
SPECTRUM 48K
VGC 1006
An intriguing intellectual puzzle – beat the puzzle, win the money.
£5.95 R.R.P.

DEATH CRUISE
by Lee J. Brookes
DRAGON 32
VGB 4001
There's murder afoot on the high seas.
£6.95 R.R.P.

I CHING
by James Breffni
DRAGON 32
VGB 4002
Consult the Oracle – Determine your future.
£6.95 R.R.P.

CASTLE ADVENTURE
by Conrad Jacobson
DRAGON 32
VGB 4003
A humorous (insane) adventure game – set in and around an old castle.
£6.95 R.R.P.

ENVAHI
by Jeremy Walker
VIC 20 (+8K EXPANSION)
VGC 3002
The game of the film of the book of the game.
Joystick/key
£5.95 R.R.P.

CREEPERS
by Nick Rowden
VIC 20 (+3K or 8K EXPANSION)
VGC 3003
An original, fast-moving arcade game.
Joystick/key
£5.95 R.R.P.

KILLER CAVERNS
by Daryl Bowers
ORIC 16K & 48K
VGC 5001
A graphic adventure game set in killer caverns.
£5.95 R.R.P.

VIRGIN GAMES GANG

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

- a year's **FREE MEMBERSHIP** of the **GAMES GANG**;
- **FREE ENTRY** in the next **VIRGIN GAMES GANG DRAW**;
- **6 FIRST PRIZES**, consisting of a **VIRGIN DAY OUT** – a trip on the **VIRGIN GAMES FUN BUS** to the **VIRGIN MANOR RECORDING STUDIO** in Oxfordshire. And then be our guest at the famous **KENSINGTON ROOFTOP NIGHTCLUB, "THE GARDENS"**;
- **50 SECOND PRIZES** of **VIRGIN GAMES T-SHIRTS**;
- **100 THIRD PRIZES** of **VIRGIN GAMES POSTERS**.

VIRGIN GAMES BUS TOUR

VIRGIN GAMES ARE ON THE ROAD! Look out for the **VIRGIN GAMES FUN BUS**. From **SEPTEMBER** onwards our eye-catching double-decker, games bus will **VISIT TOWNS** throughout the **U.K.**, demonstrating our games to the public, in conjunction (where possible) with local radio stations.

GAMES AVAILABILITY

If your **LOCAL RETAILER** is not yet stocking **VIRGIN GAMES** – tell him he should be – but, however, you can **ORDER DIRECT** from **"I'VE GOT NO GOOD LOCAL RETAILER"** dept., **VIRGIN GAMES, 61-63 PORTOBELLO ROAD, LONDON W11**, enclose a cheque or postal order for the right amount and **DON'T FORGET** to put your name and address – people do, you know!

THE "I WANT TO BE RICH AND FAMOUS" DEPARTMENT

If you have a yearning to be **RICH AND FAMOUS** and have written an **ORIGINAL GAMES PROGRAM**, with good graphics, for any of the popular home computers other than the ZX81, **PLEASE SEND A CASSETTE VERSION** (with details) **TO US.**

EXISTING TITLES

Other titles in the **VIRGIN GAMES** range are: VGA 1003 – **SHEEPWALK** by Gregory Trezise for **SPECTRUM 48K** A sheepdog trial in your living room! VGA 1001 – **YOMP** by Terry Murray and Roy Poole for **SPECTRUM 16 & 48K** Command the paras and take on the impossible. VGA 1002 – **STARFIRE** by Martyn Davies for **SPECTRUM 48K** Rid the galaxy of the Xtardan battle cruisers – a game of strategy and skill. VGA 1004 – **GOLF** by David Thompson for **SPECTRUM 16 & 48K** Championship golf in your own home. VGA 2001 – **BUG BOMB** by Simon Birrell for **BBC B** A skin-tingling new arcade game. VGA 2002 – **LANDFALL** by Gregory Trezise for **BBC B** An exciting and realistic space ship landing simulator. VGA 2003 – **SPACE ADVENTURE** by R. Thomas and A. Thomas for **BBC B** A graphic adventure set on a seemingly abandoned ship drifting through space. VGA 3001 – **MISSION MERCURY** by Steve Lee for **VIC 20 (UNEXPANDED)** Land your craft on the surface and rescue the scientists . . . but beware the asteroid birds.

All our fun-to-play games are available from **BOOTS, MENZIES, DIXONS, THE GAME CENTRE, PHOTOMARKETS, VIRGIN RECORDS** and all **GOOD** computer shops everywhere.

To obtain **REVIEWS** of current releases please write to the **"DON'T JUST TAKE OUR WORD FOR IT! Dept."** at: **VIRGIN GAMES LTD. 61-63 PORTOBELLO ROAD LONDON W11 3DD**

In addition to your micro . . .

We review a selection of boxes which can complement a computer's talents

ZX Tape Loader ZX81 £14.99

Elinca Products, Lyon Works, Capel Street, Sheffield, S.Yorks

Another tape loading aid, ZX81. Measuring 119 × 99 × 40 mm, the box has a small edgewise meter set into the front, and a three position switch for Load, Off and Save. There's an LED to indicate when the switch is in the load position, which of course means that you require a battery, a PP3 in fact.

The instructions are clear and easy to follow, and on the back page are four illustrations of the screen showing various load signals.

To test the unit I used an old cassette recorder/player that I had proved was no use for computing, then I found some old tapes which I had labelled as 'unloadable'. After setting up as per instructions, every tape loaded perfectly and re-saved perfectly to become quite normal tapes again.

It can be left in position all the time, which saves you the trouble of moving leads (to avoid the ear/mic loop). The battery retaining clip is not very effective, but to be fair, you wouldn't be throwing the thing about (would you?). A bit on the expensive side, perhaps. A Spectrum version is also available. **B.B.**

★★★★★

Recording Level Meter Most micros £5.95

Hilderbay, 8-10 Parkway, Regents Park, London NW1 7AA

For home computer enthusiasts, an essential part of the set up is a cassette recorder/player to transfer programs to and from the computer.

Unfortunately the quality of signals produced can very tremendously from one instrument to another. This often bears no relationship to the price, and can cause difficulty when loading tapes made on machines other than your own.

Most of the troubles appear to be the actual level of the signal going into the computer. You can of course vary this with the volume control, but there is nothing so frustrating (to me at least) than fiddling with levels after having so carefully set the volume.

This level can be measured with an ac voltmeter, but even supposing you have one you won't want to commit it to permanent duty as a level meter.

Now Hilderbay has produced a neat meter which can be left permanently in position if so desired. It measures just 3×2¾ × 1¼ inches and is very easy to use.

The first time I used it I managed to load first time two tapes that has been proving very difficult. **B.B.**

★★★★★

Sound Extension Module Dragon 32 £34.95

JCB, 29 Southbourne Road, Bournemouth, Dorset BH6 5AE

A very well-organised package containing a cartridge and an extensive manual. The cartridge contains its own chip, and only uses about 32 bytes of memory at the top of RAM, leaving ample room for your own programs.

It generates three channels of sound thus enabling you to create chords and harmonies. There are also many predefined sound effects (eg a machine gun or car starting). All of these are accessed by a new basic command, Music, which makes the process quite easy even for non-musicians.

There is a 3.5mm jack socket on the cartridge for connecting up to an external amplifier which, when I tried it on my old Leak system, worked a treat! A further two 8-bit input/output ports are available as an added bonus which could be used to control external devices.

The manual deals with the machine code aspects in great detail and enable you to change the notes, providing your skills in machine code programming are up to it. A further section of the manual gives you examples to type in with simple graphic routines demonstrating that the sound does not adversely affect the display.

M.P.

★★★★

Clares Joysticks BBC B £17.95

Clares, 222 Townfield Road, Winsford, Cheshire CW7 4AX

In assessing hardware add-ons there are two main questions to be answered: Do they do what the makers claim? and are they worth the money? In the case of these joysticks the answer to both is a definite yes.

These joysticks are meant to remove the drawbacks of the manufacturers' ones and they do just that. They are small enough to fit in the hand properly without fatigue, they have a well positioned fire button and they have some 'feel'. This means that far from being just for games they are ideal for programs which can use a joystick to draw on screen, such as Grafstick and Draftmate.

They have a square aperture, which means you can actually get maximum readings in both directions at the same time, giving them true proportionality. The D-type connector is metal, very sturdy and well fitting — unlike my present pair, which never did fit properly!

The only feature which I would like to see improved is t fire button, which does seem a little small despite its convenient placing.

Overall these joysticks are a real pleasure to use and are my firm favourites now. Even the simple drawing program on the leaflet which accompanies them is good fun. **D.C.**

★★★★★

Joystick Interface 48K Oric-1 £14.95

Pasesoft, 213-215 Market Street, Hyde, Cheshire SK1 1HF

Joysticks allow an arcade style game to be played fast and furious without the keyboard being bashed about too much.

This interface allows the familiar Atari joysticks to be used with the Oric. The interface comes in the form of a small box with a connector to the printer port and sockets for one or two joysticks.

The interface comes with full instructions, including the listing and dissassembly of the machine code necessary for its use. A cassette containing a demonstration game is also included. The game is a variation of Surround, and suffers greatly from the fact that it requires two players rather than one player against the computer.

There are several games around at present using the Pase interface, but not enough to warrant the price. If Oric do not bring out their own interface, however, then many more games will be brought out using this system and the price will not seem so high.

Apart from this, the system appears perfectly adequate, while the instructions should prove very useful to anyone wishing to find out more about the workings of the V.I.A. or the Oric printer port. **G.P.**

★★★★

Just picture it — on your VIC

Is there an artist in you trying to get out? Mike Roberts' program for the unexpanded VIC-20 will make you quick on the draw

How it works

10-30 set up variables
40 rearrange screen for differing memory sizes
50 title
148-150 background colour option
160-170 border colour option
180-186 joystick or keyboard option
190-200 set up screen colours and menu
210-220 main loop
400-490 change ink colour
500-550 read joystick
600-650 move cursor
654-660 change nib of pen
660-690 print cursor
700-780 save picture
800-860 load picture
900-970 read keyboard

My Artist program will allow colour pictures to be drawn on an unexpanded VIC-20, saved and loaded on tape for further use.

When first run, the program will ask for a border colour. You respond by pressing one of the colour keys at the top left of the keyboard. The background colour that is chosen in a similar way.

The third option is for joystick or keyboard use, using standard Atari or Commodore joysticks, with eight direction movement. Keyboard controls are four directional, as follows:

Function key 1 up
Function key 2 down
Left arrow left
1 right

To draw lines with the joystick press fire, and with keyboard press CTRL, shift, or shift lock.

When all options have been decided, the screen will go blank apart from eight coloured squares in the top left corner, some words in the top right, and a flashing cross. The cross shows you your position on the screen.

If the cross is moved on to the top line you have access to three functions. When you have selected one of the functions then you will move to the line below.

The first function is a colour change. When you position the cross on one of the coloured squares and press the draw button (fire on shift etc.) that becomes the colour that you are drawing in.

The second function is SAVE. To save a picture you move the cross on to the word SAVE at the top of the screen and press the draw button. A warning siren will then go off, and if the button is then released nothing will happen.

But if the draw button is kept depressed, then instructions will follow at the top of the screen just as when saving a BASIC program.

The third function, LOAD, is identical in operation to SAVE and has the same instructions.

At start up, the default colour is black, and the shape that is printed on the screen is a reverse space character.

The character that is to be printed on the screen is shown in the top right hand corner of the screen. It can be changed at any time by just pressing the appropriate key on the keyboard, and the top right character will then change.

To access reverse field characters CTRL/RVS can be used prior to entering the desired character, and CTRL/RVS off afterwards.

Variables

SC screen start location
CR colour map start location
CH current character under cross
Y1 Y position of cross
Q current draw colour
O zero constant
CO colour register for border etc
CR$ carriage return constant
GC graphics character at top right
TW twenty constant
WO two constant
V length of save/load siren
U/I temporary variables
W one constant
A$ temporary variable
A border colour
B background colour
L cross screen location
C cross colour map location
CC current colour under cross
KJ keyboard joystick flag
E temporary variable
X cross X movement enable flag
Y cross Y movement enable flag
Z cross draw button enable flag
P cross print enable flag
X1 X position of cross
D cross movement direction
M/L1 siren loop variables
S keyboard/joystick peek location
SO cross move up flag
S1 cross move down flag
S2 cross move right flag
S3 cross move left flag
F fire/draw button flag
J key pressed for nib change

```
5 REM** ARTIST     MIKE ROBERTS 1983
6 :
7 REM** SET UP VARIABLES **
10 SC=7680:CR=38400:CH=32:Y1=1
20 DIMO,O:CO=36879:CR$=CHR$(13):GC=160:TW=20
30 WO=2:V=51:U=4:W=1
40 POKECO,25:IFPEEK(1)<>600THENSC=4096:CR=37888
45 REM** HELLO MESSAGE **
50 PRINT"□                    ■■■
```

VIC-20 PROGRAM

```
690 RETURN
699 REM** SAVE PICTURE **
700 A$="":FORI=SCTOSC+66:A$=A$+CHR$(PEEK(I)):NEXT
710 FORI=CRTOCR+66:A$=A$+CHR$(PEEK(I)):NEXT
720 PRINT"@":OPEN4,4,4,"PICTURE":PRINT"@"
730 FORI=0TO66:POKEI+SC,ASC(LEFT$(A$,1)):A$=RIGHT$(A$,LEN(A$)-1):NEXT
740 FORI=0TO66:POKEI+CR,ASC(LEFT$(A$,1)):A$=RIGHT$(A$,LEN(A$)-1):NEXT
750 PRINT#4,A;CR$;B;CR$;
760 A$="":FORI=SC+22TOSC+506:A$=CHR$(PEEK(I)):PRINT#1,A$;:NEXT
770 A$="":FORI=CR+22TOCR+506:A$=CHR$(PEEK(I)):PRINT#1,A$;:NEXT
780 GOTO960
799 REM** LORD PICTURE **
800 PRINT"@":OPEN4,4,0,"PICTURE":PRINT"@"
805 INPUT#1,A$,B$:A=VAL(A$):B=VAL(B$)
810 FORI=SC+22TOSC+506:GET#1,A$:IFA$=""THENA$=CHR$(0)
820 POKEI,ASC(A$):NEXT:FORI=CR+22TOCR+506:GET#1,A$:IFA$=""THENA$=CHR$(0)
830 POKEI,ASC(A$):NEXT
860 CLOSE1:PRINT"@":GOTO190
899 REM** READ KEYBOARD **
900 S=PEEK(197):IFX=0THEN930
910 IFS=0THENS=W
920 IFS=8THENS=W
930 IFY=0THEN960
940 IFS=39THENS=W
950 IFS=63THENS=W
960 IFZ=WANDPEEK(653)<>0THENF=W
970 RETURN
READY.
```

SPECTRUM TRS 80

LOTS OF INTERESTING SOFTWARE FOR THE ABOVE, E.G:-
SPECTRUM EDUCATIONAL GAMES
CASSETTE 1. ARITHMETIC GAMES
CASSETTE 2. LOGIC GAMES
PRICE £4.95 EACH
LEVEL 1 IS EASY. HIGHEST LEVEL IS FORBIDDEN TO MERE MORTALS.

CAMEL MICROS. 33A COMMERCIAL RD., WEYMOUTH, DORSET (03057) 70092

SOFTWARE

* TI99/4A PRODUCTS *

BLAST IT As reviewed in H.C.W. Disarm Bombs in order with a wire quided Robot, Time Limit, Hall of Fame, 5 levels of play etc.

CODE BREAK Code Break only reviewed in H.C.W. A master mind (game) like programme 3D maze added for extra value.

CODE Under review in H.C.W. Fly past Birds and Planes to arrive at the caves and on to the maze and colour full ending.
All @ £3.50 each (£2.00 refund against further purchase if returned within 21 days).

HARDWARE Cassette leads single £4.35 Dual £5.45 Cassette Records £24.98 with single lead £28.75
With Dual lead £29.75 All prices protected S.A.E. for illustrated list
CHRISTINE COMPUTING, 6 FLORENCE CLOSE, WATFORD.
Tel: 09273 72941

YAHTCEE....This traditional dice is for one or more players and features superb graphics to enhance your enjoyment.
YAHTCEE is Fascinating, Absorbing & Challenging.

SPECIAL OFFER

Order YAHTCEE Today for only £7.95 incl and get a ten game cassette FREE

ANIK

30 KINGSCROFT COURT, BELLINGE, NORTHAMPTON

TICK BOX FOR YOUR REQUIREMENT. COMM@DORE/SPECTRUM/48/DRAGON32
YAHTCEE
NAME
ADDRESS
TOTAL £ ENCLOSED
HCW28

Buck's turned nasty — he's out to flatten your city

Buck Rodgers seems to have gone over to the enemy. Type Sandy MacLennan's program into your Spectrum quickly, before innocent cities are blasted out of existence

How it works

3-9 set up user-defined graphics
10 screen colours, GOSUB for logo, ask for time, set score
25-30 set up score, draw and randomise enemy
31 print score, time
90-140 main program: movement of enemy, check for enemy position, time, print cities, decrement time
500-590 enemy explosion routine
900-930 screen details
1000-1400 flashing ground
1500-1506 screen details
1511-1520 target sight
2000-2010 check if time equals 25 for extra life
3000-3070 controls flight of enemy
4000-4007 logo

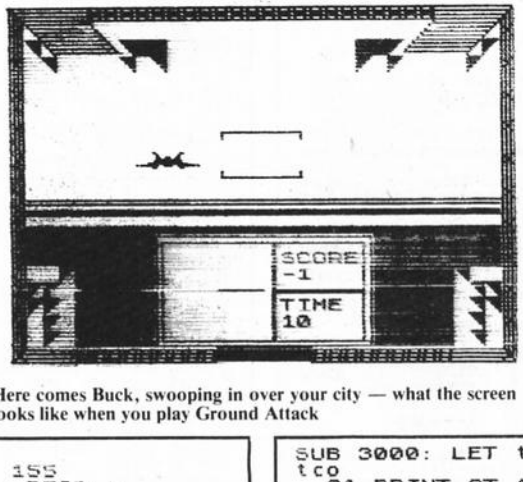
Ground Attack is for everyone who can't stand Buck Rodgers — now you have a chance to shoot him down.

After you have chosen your time — displayed in a panel — a city becomes visible and Buck will start his run from the top of the screen.

He might not be visible at this stage, but when his attack begins the time will start to count down and target lines will appear.

Variables

tco start time
co current time
sc score
A$ spacecraft
x start of A$
Px end of A$
lf lives total
y lines from top
z random factor



Here comes Buck, swooping in over your city — what the screen looks like when you play Ground Attack

Buck moves randomly across the screen, but you can bring him into your line of fire by using the right and left cursor keys. Your fire button is the down cursor key.

Every time you destroy Buck your start time is reduced by one. If you manage this within 10 per cent of your time then your time for the next game is halved.

Each destroyed craft earns you 100 points, plus the unused amount of time. A negative time is deducted from your score.

When your time is down to 25 you will gain an extra man and this will be identified by a BEEP.

Although the program is written entirely in BASIC, it runs relatively fast because only that which must move does so.

The ground uses black and yellow bands of varying thicknesses which flash alternately to simulate perspective.

It is possible for Buck's craft to leave your line of sight, achieved by A$ which is 44 characters long and is always printed at one space in from the side and the number of characters displayed is determined by the right and left cursor keys and by the random factor z.

This allows the craft, or part of the craft, to be displayed anywhere along the line of movement.

To make the game more tricky, just reduce the figure .9 in line 2002. You could also add another enemy spacecraft.

The user-defined graphics: **A-D** enemy spacecraft, **E** bars for ground, **F-H** the city, **i** and **J** triangular segments, **K** and **L** laser bolts.

```
    2 GO TO 10
    3 FOR i=144 TO 155
    4 FOR j=0 TO 7: READ b
    5 POKE USR CHR$ i+j,b: NEXT j
: NEXT i
    6 DATA 0,0,0,0,0,3,191,0,0,0,
0,0,0,192,253,0,192,32,49,59,127
,255,227,192,3,4,140,220,254,255
,199,3
    7 DATA 0,255,0,0,255,255,255,
0,144,144,255,213,255,157,157,25
5,9,9,255,171,255,185,185,255,0,
0,90,255,189,231,195,195
    8 DATA 255,127,63,31,15,7,3,1
,255,254,252,248,240,224,192,128
    9 DATA 240,240,240,248,24,4,2
,1,15,15,15,31,24,32,64,128
   10 BORDER 0: PAPER 7: INK 0: C
LS : GO SUB 4000: INPUT "difficu
lty 100-20 ";tco
   20 INK 0: DRAW 255,0: DRAW 0,1
75: DRAW -255,0: DRAW 0,-175
   21 GO SUB 900
   22 GO SUB 1000
   24 GO SUB 1500
   25 LET lf=3
   26 LET sc=0
   27 DIM A$(1,44)
   28 LET A$(1,32 TO 35)="ACDB"
   30 LET A=4: LET B=9: LET C=1:
LET x=INT (RND*34): LET y=4: GO
```

```
SUB 3000: LET tco=tco-1: LET co=
tco
   31 PRINT AT 15,17; PAPER 1; IN
K 7;"SCORE";AT 16,17;"     ";AT
16,17;sc;AT 18,17;"TIME ";AT 19,
17;"  "
   90 LET co=co-1: PRINT AT 19,17
; PAPER 1; INK 7;co;"  "
   91 IF co=0 THEN FOR k=1 TO lf:
 PRINT AT 11,INT (RND*15)+4; PAP
ER 1; INK 4;"FHG": NEXT k
   92 IF ATTR (11,34-x)=12 AND co
<0 THEN PRINT AT 11,32-x; OVER 1
; PAPER 1; INK 3;"****": LET A=9
: LET B=4: LET C=-1: LET sc=sc+c
o: GO SUB 3000: LET lf=lf-1: GO
TO 2000
  100 IF INKEY$="" OR INKEY$="6"
THEN LET z=INT (RND*3): LET x=x+
z-1: BEEP .005,x
  110 IF INKEY$="5" THEN LET x=x+
1: BEEP .005,x
  115 IF INKEY$="8" THEN LET x=x-
1: BEEP .005,x
  116 IF INKEY$="6" THEN LET f=1:
 PAPER 1: INK 7: FOR i=4 TO 8 ST
EP 2: BEEP .002,i: PRINT AT i,f+
9;"K";AT i,22-f;"L";AT i,f+9;" "
;AT i,22-f;" ": LET f=f+2: NEXT
i
  120 LET Px=x+29
```

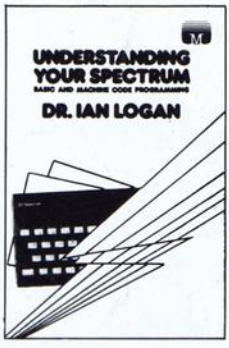
```
 121 IF x<2 THEN LET x=1
 122 IF x>15 THEN LET Px=44
 130 PRINT AT y,1; PAPER 8; INK
7;A$(1,x TO Px)
 140 IF INKEY$="6" AND 34-x=15 T
HEN LET sc=sc+100+co: PRINT AT 9
,14; PAPER 1; INK 2; OVER 1;"@**
@": GO SUB 500: GO TO 2000
 400 GO TO 90
 500 LET fh=9
 501 PAPER 1: INK 6
 502 LET tr=15: FOR j=16 TO 28
 503 BEEP .005,j: PRINT AT 9,j;"
";"B";AT 9,tr-1;"A ";AT fh,tr;"
";AT fh,j;" "
 504 LET tr=tr-1: LET fh=fh-.3
 505 BEEP .002,fh: PRINT AT fh,t
r;"C";AT fh,j;" D": NEXT j
 590 RETURN
 900 PRINT AT 3,10; PAPER 1;"
          "
 902 PRINT AT 2,10; PAPER 1;"
          "
 903 PRINT AT 3,9; PAPER 7; INK
0;"I";AT 3,22;"J";AT 2,7;"I   ";A
T 2,22;"   J"
 904 PRINT AT 3,7; INK 7; PAPER
1;"I";AT 3,24;"J"
 906 PRINT AT 3,3; PAPER 1;"
";AT 3,25;"
 909 FOR i=4 TO 11
 910 PRINT AT i,1; PAPER 1;"
                "
 920 NEXT i
 930 RETURN

1000 INK 7: PLOT 8,80: DRAW 240,
0: INK 0
1002 FLASH 1: PRINT AT 12,1; PAP
ER 6;"EEEEEEEEEEEEEEEEEEEEEEEEEEE
EEEE"
1003 PRINT AT 13,1; PAPER 6; INK
 0;"
"
1004 PRINT AT 14,1; PAPER 6; INK
 0;"          ";AT 14,23;"
"
1005 PRINT AT 15,1; PAPER 0; INK
 6;"          ";AT 15,23;"
"
1007 PRINT AT 16,4; PAPER 0; INK
 6;"      ";AT 16,23;"      "
1008 PRINT AT 17,4; PAPER 6; INK
 0;"      ";AT 17,23;"      "
1009 PRINT AT 18,4; PAPER 6; INK
 0;"      ";AT 18,23;"      "
1010 PRINT AT 19,4; PAPER 6; INK
 0;"      ";AT 19,23;"      "
1011 PRINT AT 20,4; PAPER 0; INK
 6;"      ";AT 20,23;"      "
1012 PRINT AT 21,4; FLASH 0; PAP
ER 7; INK 0; OVER 1;"HHHHHHHHHH
HHHHHHHHHH"
1019 FLASH 0
1020 LET t=3: FOR i=16 TO 18
1030 PRINT AT i,t; INK 4; PAPER
7;"J";AT i,31-t;"I": LET t=t-1:
NEXT i
1040 PRINT AT 16,1; PAPER 4; INK
 0;"  ";AT 16,29;"  ";AT 17,1;"J
";AT 17,30;"I"
1050 PRINT AT 3,1; INK 7; PAPER
2;" I";AT 3,29;"J ";AT 2,1;"I";A
T 2,30;"J"
1100 PLOT 133,10
1102 DRAW 0,49: DRAW 45,0: DRAW
0,-49: DRAW -45,0: PLOT 134,34:
DRAW 44,0: DRAW 0,1: DRAW -44,0
1109 PLOT 76,10
1110 DRAW 0,49: DRAW 56,0: DRAW
0,-49: DRAW -56,0: PLOT 81,35: D
RAW 46,0
1111 PLOT 73,8
1112 DRAW 0,54: DRAW 109,0: DRAW
 0,-54: DRAW -109,0
1113 PLOT 0,175: DRAW 24,-24: PL
OT 255,175: DRAW -24,-24
1114 PLOT 40,168: DRAW 16,-16: P
LOT 215,168: DRAW -16,-16
1115 PLOT 40,168: DRAW 0,7: PLOT
 215,168: DRAW 0,7
1120 PRINT AT 18,2; PAPER 0; INK
 7;"J";AT 18,29;"I"; BRIGHT 1;AT
 19,2;"J";AT 19,29;"I";AT 20,2;"
J";AT 20,29;"I"; BRIGHT 0
1130 PRINT AT 0,5; OVER 1;"HHHHH
HHHHHHHHHHHHHHH": OVER 0
1140 FOR j=1 TO 21 STEP 2
1150 PRINT AT j,0; OVER 1;"X";AT
 j,31;"X": NEXT j
1160 LET de=0: FOR j=167 TO 153
STEP -2
1170 PLOT 8+de,j: DRAW 32,0: PLO
T 247-de,j: DRAW -32,0: LET de=d
e+2: NEXT j
1200 FOR i=15 TO 19
1210 PRINT AT i,10; OVER 1; PAPE
R 4;"          ": NEXT i: OVER 0
1400 RETURN
1500 PLOT 2,2
1501 DRAW 251,0: DRAW 0,171: DRA
W -251,0: DRAW 0,-171
1502 PLOT 4,4
1503 DRAW 247,0: DRAW 0,167: DRA
W -247,0: DRAW 0,-167
1504 PLOT 6,6
1505 DRAW 243,0: DRAW 0,163: DRA
W -243,0: DRAW 0,-163
1506 RETURN
1511 INK 7: PLOT 107,94: DRAW 0,
-3: DRAW 40,0: DRAW 0,3
1512 PLOT 107,110: DRAW 0,3: DRA
W 40,0: DRAW 0,-3
1520 RETURN

2001 IF tco=25 OR tco=25 AND sc>
3500 THEN LET lf=lf+1: BEEP .05,
lf
2002 IF co/tco>.9 THEN LET tco=I
NT (tco/2)
2003 FOR i=1 TO 50: BEEP .001,i
2004 NEXT i
2005 IF lf=0 THEN INK 0: STOP
2006 GO SUB 900
2007 PRINT AT 11,1; PAPER 1;"
                "
2010 GO TO 30
3010 FOR i=A TO B STEP C
3011 PAUSE 10
3020 LET z=INT (RND*5)
3030 PRINT AT y,1; PAPER 1;"
"
3040 LET x=x+z-2: LET y=i: LET P
x=29
3041 IF x<2 THEN LET x=1
3042 IF x>15 THEN LET Px=44
3050 PRINT AT y,1; PAPER 1; INK
9;A$(1,x TO Px)
3060 NEXT i
3070 GO SUB 1511: RETURN
4000 FOR I=0 TO 60
4001 POKE 23607,I: FLASH 1
4002 PRINT AT 10,9;"GROUND ATTAC
K"
4003 PRINT AT 11,11;"by A.G.M."
4004 PRINT AT 7,14; INK 2; FLASH
 0;"ACDB"
4005 NEXT I
4006 FLASH 0
4007 RETURN
```

SPECTRUM
COMPUTING MADE SIMPLE

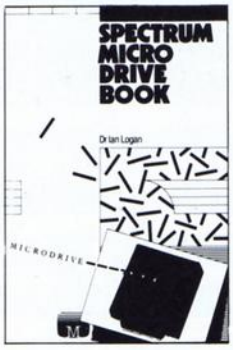
The Complete Spectrum ROM Disassembly
For the serious programmer who wants to get right to the heart of the Spectrum; its 16K ROM control program. Each ROM routine is clearly explained and all functions and entry points within the ROM are made available for use in the user's own programs.
'A useful and interesting book.'
Personal Computing News

Over the Spectrum
30 exciting easy to enter programs designed specifically for the Spectrum. From mind blowing arcade action to intriguing strategy games, this book will allow the first time user to become familiar with how programs actually function.
'A clear winner in the Spectrum Stakes.'
Personal Computer World.

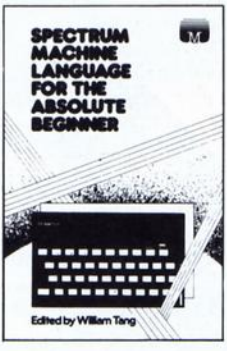
Spectrum Hardware Manual
An in-depth explanation for the electronic hobbyist who wants to know how the Spectrum actually works.
The book reveals many features of the Spectrum hardware including a complete rundown on each component's function, full circuit diagrams, and exciting practical construction projects.
'A wealth of ideas.'
Educational Equipment



Understanding Your Spectrum
A complete guide to the Spectrum software system for users who want to learn how to program this remarkable micro in both BASIC and Machine Language.
A special section explains how the ROM can be utilised in the user's own programs.
'I cannot recommend this book too highly.'
Practical Computing



Spectrum Microdrive Book
In this book Dr Ian Logan gives a detailed explanation of the Spectrum microdrive – the revolutionary high speed memory storage system.
How it works, its capabilities from Basic and Machine Language and the networking and RS232 possibilities are all thoroughly detailed.
A special section deals with the amazing capabilities of the interface including how to add more commands to BASIC!



Spectrum Machine Language for the Absolute Beginner
A 'no jargon' introduction to machine language programming for Spectrum users keen to progress beyond the limitations of BASIC. A self test questionnaire is also included.
The book concludes with the development of an entire machine language program from start to finish.

SPECTRUM Books

☐ Understanding Your Spectrum	NEW LOW PRICE £6.95
☐ Spectrum Machine Language for the Absolute Beginner	NEW LOW PRICE £5.95
☐ Over The Spectrum	NEW LOW PRICE £4.95
☐ The Complete Spectrum ROM Disassembly	£9.95
☐ Spectrum Hardware Manual	£5.95
☐ Spectrum Microdrive Book	£5.95

48K SPECTRUM Cassettes

☐ Penetrator	£6.95
☐ The Hobbit	£14.95
☐ Terror-Daktil 4D	£6.95
☐ Melbourne Draw	£8.95

☐ Please send me your free 48 page Catalogue.

Trade enquiries welcome.

All prices include VAT where applicable. Please add 80p for post and pack.

HCW 2/8

Orders to:
Melbourne House
131 Trafalgar Road
Greenwich London SE10
Correspondence to:
Melbourne House
Church Yard Tring
Hertfordshire HP23 5LU

All Melbourne House cassette software is unconditionally guaranteed against malfunction. Access orders can be telephoned through on our 24 hr ansafone (01) 858 7397.

I enclose my cheque/money order for £

Please debit my Access Card No. Expiry Date

Signature

Name

Address

Postcode

£

£ + p/p .80

Total £

MELBOURNE HOUSE

MICROMEGA

3D

3D

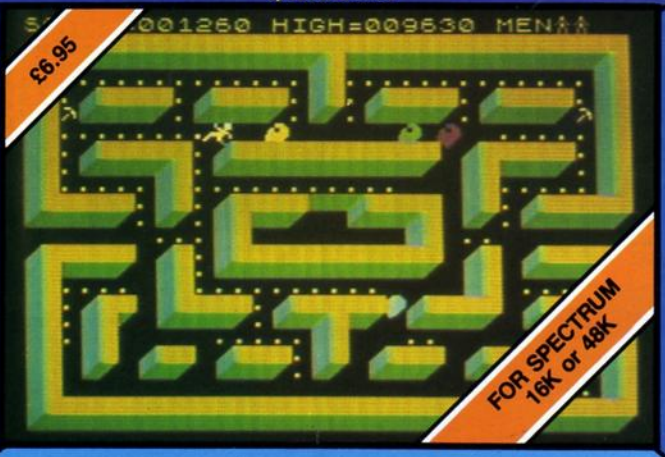
LUNA CRABS

by M J Estcourt

NEW SOFTWARE FOR A NEW DIMENSION
The Graphics Tell The Story.....

HAUNTED HEDGES

by Derek Brewster



3D

3D

AVAILABLE NATIONALLY FROM ALL GOOD RETAILERS

MICROMEGA - PERSONAL COMPUTER DIVISION - QUANTEC SYSTEMS & SOFTWARE LTD - 230 LAVENDER HILL - LONDON SW11 1LE

How to perk up your Oric's graphics

If you're grappling with graphics on your Oric, Alan Welch has some sound advice

Do your graphics look odd, have they lost their symmetry? Why not perk them up with a POKE or two?

That such an excellent machine as the Oric-1 should have a bug in its graphics is disappointing. Nevertheless, it is not that serious and there is a cure. (A hot-water bottle and two aspirin don't work.)

The specification for the Oric says that horizontal resolution is 240 pixels or 40 characters per line, i.e. a character block is six pixels wide.

The graphics are, however, stored with an eight pixel width and when printed on the screen loses its two left-most columns. See **figure 1.**

The standard graphic set is constructed in a block format, each box having binary place value.

The code for a particular symbol is the total of its place values plus 32, as in **figure 2.** The ASCII character associated with this code number gives the graphic symbol when in ESC '1' mode — see **figure 3.**

The 6 × 2 block format gives us 2^6 equalling 64 different symbols (including blank) directly related to the ASCII codes.

The remaining 33 graphics can be defined as anything you wish and allows great scope for experimentation to produce realistic aliens, explosions and so on.

The program on page 89 of the Oric manual can be used, with **table 1** to redefine the graphics set by changing the first statement in line 70 to A=47112. But, be warned, this program displays the characters/graphics in 8 × 8 block as stored in ROM and at eight times normal size, including the two left-hand columns that are supposed when the character is printed.

With a total of 96 graphics at 8 bytes each, that's 768 locations to check or alter and using this program would take well over an hour after you have entered the program.

So it is advisable only to redefine those that are absolutely necessary. Better still, redefine from within a program.

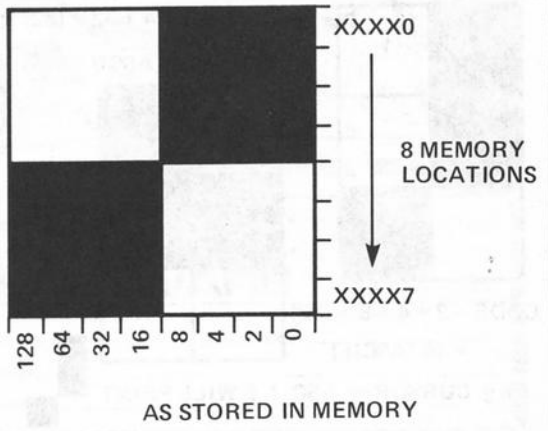
This is why I am working on a program to redefine the standard graphics plus 33 special characters for use on its own or incorporated into a program.

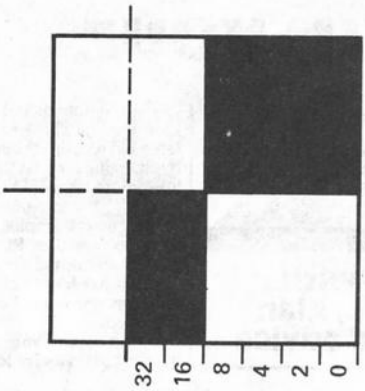
Warning: Using the reset switch will delete any redefined character and replace them with the originals held in ROM.

Table 1 — a listing to be used to POKE correct graphics into the Oric, using the program on page 89 of the manual. The row number 0 to 7 should be input in reply to on-screen prompts

ASCII CODE	ROW 0	1	2	3	4	5	6	7
33		56			0		0	
34		7			0			
35		63			0			
36		0			56			
37		56			56			
38		7			56			
39		63			56			
40		0			7			
41		56			7			
42		7			7			
43		63			7			
44		0			63			
45		56			63			
46		7			63			
47		63			63		0	
48		0			0		56	
49		56			0			
50		7			0			
51		63			0			
52		0			56			
53		56			56			
54		7			56			
55		63			56			
56		0			7			
57		56			7			
58		7			7			
59		63			7			
60		0			63			
61		56			63			
62		7			63			
63		63			63		56	
64		0			0		7	
65		56			0			
66		7			0			
67		63			0			
68		0			56			
69		56			56			
70		7			56			
71		63			56			
72		0			7			
73		56			7			
74		7			7			
75		63			7			
76		0			63			
77		56			63			
78		7			63			
79		63			63		7	
80		0			0		63	
81		56			0			
82		7			0			
83		63			0			
84		0			56			
85		56			56			
86		7			56			
87		63			56			
88		0			7			
89		56			7			
90		7			7			
91		63			7			
92		0			63			
93		56			63			
94		7			63			
95		63			63		63	

Figure 1 — how graphics are stored and displayed





AS PRINTED ON SCREEN

Figure 2 — the standard graphics set is made up of six boxes, each of which is either full or empty

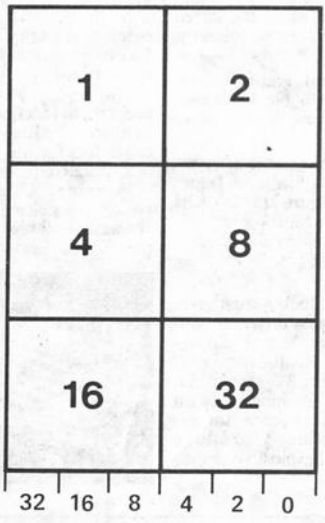
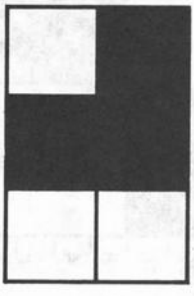


Figure 3 — how the code for each symbol is calculated

CODE = 1 + 4 + 32 + (32)

= 69 (ASCII E)



CODE = 2 + 4 + 8 + (32)

= 46 (ASCII.)

e.g. CURSOR→, ESC, I, E WILL PRINT

In the new era, will you be in the know?

We have come a long way since the home-computing industry really began with the ZX80.

Heralding a new era in computing, it offered black and white, chunky graphics, a flickering screen, 1K of RAM, a bonk-sensitive keyboard, with a free, built in egg-fryer.

Offered for sale at £100, people snapped them up, eager to get into what promised to be the hobby of the future.

But the really important aspect of the ZX80 was that it proved to the world, what could be achieved with a little ingenuity and a lot of hard work.

Since that day, progress has been fast — very fast. It is now possible to buy a microcomputer with colour, sound, hi-res graphics, moving key keyboard, fast cassette storage and more than 40K of usable random access memory for under £125.

If the car industry had progressed at this speed, automobiles would be two pence each, and disposable. But how far can we really go? How soon will it be before the ultimate software is produced, and what next?

Over the years, games software has improved to an amazing standard. Now, 3D games with astonishing sound-effects can be purchased for less than £10. Some of these games are more complex, and indeed faster than some of their arcade counterparts.

Games today have to be more than just shoot-until-you-die, like Space Invaders, or Pacman.

Today games must have a goal, whether the game is Zaxxon, Penetrator, or a game of the adventure genre, such as Philosopher's Quest, Valhalla or The Hobbit. Standards are improving at an increasing rate.

However, this cannot go on forever, and ultimately new ways of using computers must be found. Perhaps, instead of a flight simulator program, the computer will interface to a radio-controlled plane, with a built in processor and video camera, and the simulations will get closer to reality. But how real can a simulator be?

Indeed, the computer literate will be looking for new ways to amuse themselves. Already, a modem can be purchased for under £50, or a complete database terminal peripheral for under £100.

Very soon the society we live in will be virtually run by computers. However, it will not be controlled by computers, it will be controlled by those with enough knowledge to program or reprogram these computers, and perhaps they won't all be teenage hackers.

OK, so the American Defence Computer is probably very safe, but what about the many other computer systems that might not be quite so safe? Wargames is a stark warning of what could happen, but many will scorn it. Perhaps almost as many who scorned the idea of ever landing on the moon.

David Harrison
School Kid & Teenage Hacker
Burgess Hill, West Sussex

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

WITH YOUR OCTOBER ISSUE OF

Personal Computing Today

FREE GIFT

THE PCT SHAPE MAKER

FREE GIFT

Want to design your own graphics characters but don't know how?

Then don't miss your FREE PCT SHAPE MAKER in our October issue. This specially designed grid tells you how to draw up your own individually created graphics characters on this PVC card.

You can make unlimited use of the PCT SHAPE MAKER because the card's surface can be written on and wiped off, once you have incorporated your character into your program.

To make your programs more visually exciting make sure to get your copy of PERSONAL COMPUTING TODAY.

On sale at newsagents from September 2.

OUT·OF·THIS·WORLD OFFER..

£9·95 INC. VAT, POST & PACKAGING

50 GAMES

CASSETTE 50 for your MICRO

•SPECTRUM • ORIC-1 • ATARI•
•ZX81 • DRAGON • BBC A/B
• VIC 20 • apple ON DISC & CASSETTE •

ORDER NOW!

GALACTIC ATTACK	MAZE EATER	SUBMARINES
SPACE MISSION	ORBITTER	ROCKET LAUNCH
LUNAR LANDER	MOTORWAY	PLANETS
PLASMA BOLT	FORCE FIELD	BLACK HOLE
STARTREK	NIM	DYNAMITE
RADAR LANDING	TUNNEL ESCAPE	DO YOUR SUMS
ATTACKER	BARREL JUMP	DERBY DASH
GALACTIC DOGFIGHT	CANNONBALL BATTLE	SPACE SEARCH
ZION ATTACK	OVERTAKE	UNIVERSE
IVASIVE ACTION	SITTING TARGET	RATS
OXO	SMASH THE WINDOWS	TANKER
BOGGLES	SPACE SHIP	PARACHUTE
PONTOON	JET FLIGHT	JETMOBILE
SKI JUMP	PHASER	HIGH RISE
HANGMAN	INTRUDER	THE FORCE
OLD BONES	INFERNO	EXCHANGE
THIN ICE	GHOSTS	

WE BUY GAMES CONTACT US NOW

CASCADE SOFTWARE
CASCADES HOUSE
LLANDOGO
MONMOUTH
GWENT
S.WALES NP5 4PA

I ENCLOSE CHEQUE/P.O. FOR £9.95 (WHICH INCLUDES VAT AND DELIVERY).

PLEASE SEND ME 50 GAMES ON A CASSETTE FOR MY _____ COMPUTER

NAME _____

ADDRESS _____

HCW28

There's heaps of trouble on the grisly grid

If you think you can keep your balance, try your skill in Frank O'Connor's electrifying game for the TI-99/4A

As my game begins you find yourself precariously perched on a grid — and that's the only thing between you and the gaping mouth of an atomic reactor.

Dotted about the grid are a number of piles of atomic dust, and your task is to collect them. Every time you succeed, your score increases.

But there's a catch — in fact, there are two. As you move, random static appears along your route, and it you touch it, instant death follows. Falling off the grid into the reactor won't do you much good either.

The game includes instructions, an initialised high score routine, and a selectable skill level which determines the number of dustpiles available.

If you collect more than 20 piles, a new game starts and your score increases. Off you go — and watch your step.

How it works

10-350 initialise, define characters, set up variables
360-430 set up grid
440-510 define headings
620-730 print characters
740-850 define headings
860-920 scan keyboard for input
930-1400 move man. Check for losing routine condition. Sound Routine
1410-1500 place random static on grid
1510-1650 losing subroutine (off grid)
1660-1700 check for high score
1710-1870 ask player for another game and key input
1880-2060 losing subroutine (Hits static)
2070-2220 score update
2230-2490 master card and input for instructions
2510-2960 print instructions
2970-3050 "print at" subroutine
3080-3230 new high score subroutine

```
10 CALL CLEAR
20 REM  **********************
30 REM  *!!#ELECTRON#!!      *
40 REM                       *
50 REM  *FRANK OCONNOR       *
60 REM  **********************
70 LET K=1
80 LET PSN=5
90 GOSUB 2260
100 LET ZS=0
110 LET SC=0
120 RANDOMIZE
130 LET DRF=0
140 CALL CLEAR
150 PRINT "SKILL LEVEL:(1-10)"
160 INPUT "10=EASY 1=HARD":SL
170 IF (SL>10)+(SL<1)THEN 140
180 CALL CLEAR
190 LET ZS=ZS+1
200 LET DRF=DRF+20
210 CALL SCREEN(7)
220 CALL CHAR(128,"FFFFFFFFFFFFFFFF")
230 CALL COLOR(13,5,1)
240 LET IJN=IJN+1
250 CALL CHAR(159,"181818180C0C0C0C")
260 CALL COLOR(16,16,1)
270 CALL CHAR(144,"3C7E7EFFFFFF7E3C")
280 CALL COLOR(15,8,1)
290 LET ROW=12
300 LET CLM=16
310 LET SND=110
320 CALL CHAR(33,"3C3C995A3C183CC3")
330 CALL CHAR(34,"3C3C18FF1899FF")
340 CALL COLOR(1,2,1)
350 REM **SET UP SCREEN**
360 FOR C=1 TO 24 STEP 3
370 CALL HCHAR(C,1,128,32)
380 CALL SOUND(100,323,0)
390 NEXT C
400 FOR C=1 TO 32 STEP 3
410 CALL VCHAR(1,C,128,24)
420 CALL SOUND(100,232,0)
```

```
430 NEXT C
440 LET M$="GAME"
450 LET K=1
460 LET PSN=17
470 GOSUB 2980
480 LET M$=STR$(ZS)
490 LET PSN=21
500 GOSUB 2980
510 LET M$=U$
520 LET K=24
530 LET PSN=1
540 GOSUB 2980
550 LET M$="**HIGH SCORE="
560 LET K=24
570 LET PSN=16
580 GOSUB 2980
590 LET M$=STR$(HS)
600 LET PSN=30
610 GOSUB 2980
620 FOR C=1 TO (SL+28)
630 LET RRR=INT(23*RND)+1
```

```
640 IF RRR=1 THEN 630
650 LET CCC=INT(32*RND)+1
660 IF RRR=12+CCC=16 THEN 630
670 CALL GCHAR(RRR,CCC,G)
680 IF G=32 THEN 630
690 CALL HCHAR(RRR,CCC,144)
700 CALL SOUND(100,789,0)
710 NEXT C
720 CALL HCHAR(ROW,CLM,33)
730 CALL SOUND(100,1000,0)
740 LET M$="ELECTRON"
750 LET PSN=24
760 LET K=1
770 GOSUB 2980
```

Hints on coversion

Texas BASIC has some unusual commands for graphics and sound.

CALL CHAR (number, hexadecimal string) controls the user definition of characters. Number refers to the ASCII code of the redefined character

CALL HCHAR (row, column, number) prints the character whose ASCII code is number at position row, column on the screen. The TI-99/4A has a screen size of 24 rows by 32 columns

CALL GCHAR (row, column, variable) is the equivalent of PEEK. The ASCII code of the character at position row, column on the screen is left in the designated variable

CALL SOUND (d, f, v) sounds a note of frequency, f, duration d milli-seconds and volume v

CALL KEY (O, K, S) the equivalent of INKEYS, will leave the ASCII code of the key pressed in the variable

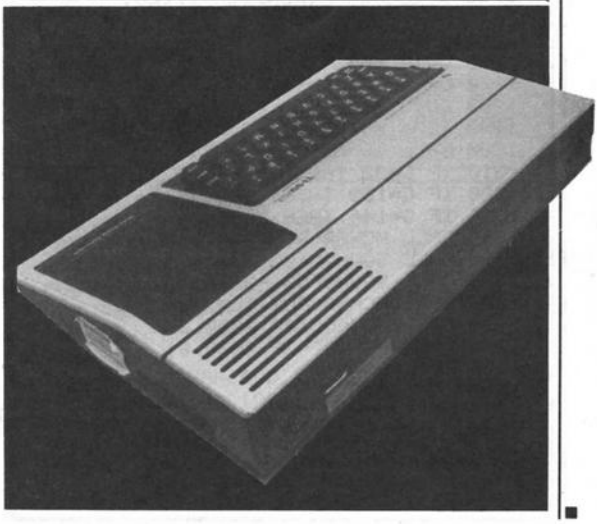
CALL CLEAR clears the screen. A direct equivalent of CLS

```
780 LET M$="YOUR SCORE= "
790 LET PSN=1
800 LET K=1
810 GOSUB 2980
820 LET M$=STR$(SC)
830 LET PSN=12
840 LET K=1
850 GOSUB 2980
860 CALL KEY(3,K,S)
870 IF S=0 THEN 860
880 IF K=68 THEN 930
890 IF K=88 THEN 1020
900 IF K=69 THEN 1110
910 IF K=83 THEN 1200
920 GOTO 860
930 REM   MOVE RIGHT#
940 LET CLM=CLM+1
950 IF CLM>32 THEN 1000
960 CALL HCHAR(ROW,CLM-1,128)
970 GOSUB 1290
980 GOSUB 1420
990 GOTO 860
1000 LET CLM=CLM-1
1010 GOTO 860
1020 REM  MOVE DOWN#
1030 LET ROW=ROW+1
1040 IF ROW>23 THEN 1090
1050 CALL HCHAR(ROW-1,CLM,128)
1060 GOSUB 1290
1070 GOSUB 1420
1080 GOTO 860
1090 LET ROW=ROW-1
1100 GOTO 860
1110 REM  MOVE UP#
1120 LET ROW=ROW-1
1130 IF ROW<2 THEN 1180
1140 CALL HCHAR(ROW+1,CLM,128)
1150 GOSUB 1290
1160 GOSUB 1420
1170 GOTO 860
1180 LET ROW=ROW+1
1190 GOTO 860
1200 REM  MOVE LEFT#
1210 LET CLM=CLM-1
1220 IF CLM<1 THEN 1270
1230 CALL HCHAR(ROW,CLM+1,128)
1240 GOSUB 1290
1250 GOSUB 1420
1260 GOTO 860
1270 LET CLM=CLM+1
1280 GOTO 860
1290 REM  MOVEMENT+SOUND+CHECKS
1300 CALL GCHAR(ROW,CLM,G)
1310 IF G=32 THEN 1520
1320 IF G=159 THEN 1880
1330 IF G=144 THEN 2080
1340 CALL HCHAR(ROW,CLM,34)
1350 CALL SOUND(100,-3,0)
1360 CALL SOUND(50,-3,15)
1370 CALL HCHAR(ROW,CLM,33)
1380 CALL SOUND(100,2000,3)
1390 CALL SOUND(-30,2000,0)
1400 RETURN
1410 REM  STATIC
1420 LET OOO=INT(23*RND)+1
1430 LET PPP=INT(32*RND)+1
1440 IF OOO=1 THEN 1420
1450 CALL GCHAR(OOO,PPP,G)
1460 IF G=32 THEN 1420
1470 IF G=144 THEN 1420
1480 CALL HCHAR(OOO,PPP,159)
1490 CALL SOUND(10,-3,0,110,0)
1500 RETURN
1510 REM  HIT PHOTON (GS)
1520 FOR C=1 TO 10
1530 CALL COLOR(13,16,1)
1540 CALL SOUND(100,-7,0)
1550 CALL COLOR(13,5,1)
1560 CALL SOUND(100,-5,0)
1570 NEXT C
1580 LET M$="YOU FELL INTO A PHOTON"
1590 LET PSN=5
1600 LET K=11
1610 GOSUB 2980
1620 LET M$="GENERATING MODULE....."
1630 LET PSN=5
1640 LET K=12
1650 GOSUB 2980
1660 REM  HIGH SCORE CHECK
1670 IF IJN=1 THEN 1680 ELSE 1700
1680 LET HS=SC
1690 GOTO 3060
1700 IF SC>HS THEN 3060
1710 REM  END ROUTINE
1720 LET M$="ANOTHER GAME ?"
1730 LET K=18
1740 LET PSN=5
1750 GOSUB 2980
1760 LET M$=U$
1770 LET K=18
1780 LET PSN=18
1790 GOSUB 2980
1800 LET M$="IF YES KEEP Y PRESSED.."
1810 LET K=19
1820 LET PSN=5
1830 GOSUB 2980
1840 CALL KEY(3,K,S)
1850 IF S=0 THEN 1800
1860 IF K=89 THEN 100
1870 END
1880 REM  HIT STATIC
1890 LET CLR=1
1890 LET CLR=1
1900 FOR C=1 TO 14
1910 LET CLR=CLR+1
1920 CALL COLOR(1,CLR,CLR+1)
1930 CALL SOUND(100,-7,5,800,0)
1940 CALL SOUND(300,-7,0,800,5)
1950 NEXT C
1960 CALL-COLOR(1,1,1)
1970 CALL SOUND(100,220,0)
1980 LET M$="YOU CAUSED A STATIC"
1990 LET PSN=6
2000 LET K=11
2010 GOSUB 2980
2020 LET M$="OVERLOAD^^^^^^^^^^^"
2030 LET PSN=6
2040 LET K=12
2050 GOSUB 2980
2060 GOTO 1670
2070 REM  COLLECT SLIME
2080 FOR C=1 TO 5
2090 LET SND=SND+300
2100 CALL SOUND(10,SND,0)
2110 NEXT C
2120 CALL HCHAR(ROW,CLM,33)
2130 CALL HCHAR(ROW,CLM,34)
2140 LET SC=SC+1
```

```
2150 IF SC=DRF THEN 190
2160 LET M$=STR$(SC)
2170 LET PSN=12
2180 LET K=1
2190 GOSUB 2980
2200 IF SND<6000 THEN 860
2210 LET SND=110
2220 GOTO 860
2230 REM  MASTER CARD
2240 LET PSN=5
2250 LET K=5
2260 FOR G=1 TO 3
2270 LET M$="!!#ELECTRON#!!"
2280 GOSUB 2980
2290 CALL COLOR(16,16,1)
2300 CALL COLOR(15,8,1)
2310 LET K=K+1
2320 NEXT G
2330 LET PSN=5
2340 LET K=16
2350 LET M$="COPYRIGHT FRANK O'CONNOR..."
2360 GOSUB 2980
2370 LET M$="DO YOU WANT INSTRUCTIONS"
2380 LET PSN=5
2390 LET K=20
2400 REM  INSTRUCTIONS
2410 GOSUB 2980
2420 LET M$="Y OR N...."
2430 LET K=22
2440 LET PSN=5
2450 GOSUB 2980
2460 CALL KEY(0,K,S)
2470 IF K=89 THEN 2500
2480 IF K=78 THEN 2490 ELSE 2420
2490 RETURN
2500 CALL CLEAR
2510 PRINT "YOU ARE DEEP INSIDE  "
2520 PRINT "THE COUNTRY'S NEWEST"
2530 DISPLAY "THERMO-NUCLEAR PHOTONIAL"
2540 PRINT "P.PH GENERATING PLANT"
2550 PRINT
2560 PRINT "YOUR JOB IS TO MANOUVER"
2570 PRINT "AROUND THE ELECTRO GRID"
2580 PRINT "COLLECTING  ALL THE"
2590 PRINT "EXESS ATOMIC SLIME WHICH"
2600 PRINT "GATHERS ON THE GRID"
2610 PRINT "IN LITTLE BLUE PILES."
2620 PRINT
2630 PRINT "ALSO COLLECTING ON THE GRID"
2640 PRINT "ARE HIGH VOLTAGE STATIC"
2650 PRINT "PARTICLES WHICH MUST BE"
2660 PRINT "AVOIDED AT ALL COSTS"
2670 REM  T "AND ARE WHITE."
2680 PRINT
2690 PRINT "PRESS ANY KEY FOR MORE....."
2700 CALL KEY(3,K,S)
2710 IF S=0 THEN 2700
2720 CALL CLEAR
2730 PRINT "POINTS TO REMEMBER ARE....."
2740 PRINT
2750 PRINT
2760 PRINT
2770 PRINT "1.YOU CONTROL THE MAN"
2780 PRINT "WITH THE CURSOR KEYS"
2790 PRINT
2800 PRINT "2.THE GRID IS 100 FT. ABOVE"
2810 PRINT "THE PHOTON GENERATING UNITS"
2820 PRINT "SO DON'T RUN OFF"
```

```
2830 PRINT
2840 PRINT "3.POINTS ARE GIVEN FOR"
2850 PRINT "EACH PILE OF SLIME YOU "
2860 PRINT "COLLECT"
2870 PRINT
2880 PRINT "4.YOU GET A NEW GAME EVERY"
2890 PRINT "20 POINTS."
2900 PRINT
2910 PRINT "PRESS R TO REPEAT"
2920 PRINT "OR P TO PLAY"
2930 CALL KEY(3,K,S)
2940 IF S=0 THEN 2930
2950 IF K=82 THEN 2500
2960 GOTO 140
2970 REM  PRINT SUBROUTINE
2980 FOR C=1 TO LEN(M$)
2990 CH=ASC(SEG$(M$,C,1))
3000 CALL HCHAR(K,PSN+C,30)
3010 CALL SOUND(100,3000,0)
3020 CALL HCHAR(K,PSN+C,32)
3030 CALL HCHAR(K,PSN+C,CH)
3040 NEXT C
3050 RETURN
```

```
3060 REM  NEW HIGH SCORE
3070 CALL SCREEN(12)
3080 CALL COLOR(1,7,7)
3090 CALL SOUND(1000,262,0,330,0)
3100 CALL SOUND(1000,262,0,392,0)
3110 CALL SOUND(1000,330,0,392,0)
3120 LET M$="A NEW HIGH SCORE***"
3130 LET K=12
3140 LET P=5
3150 GOSUB 2980
3160 LET HS=SC
3170 CALL CLEAR
3180 PRINT "WHAT IS YOUR NAME ? "
3190 CALL COLOR(1,12,12)
3200 INPUT "UP TO 14 LETTERS":U$
3210 IF LEN(U$)>14 THEN 3200
3220 CALL CLEAR
3230 GOTO 1720
```



The Lightening Oric Assembler. £9.90*

There are other assembler/editors available for the ORIC but none combine the same features and ease of use that we have obtained with this comprehensive utility program for the ORIC 48K. The manual which accompanies the assembler gives a brief insight into machine code and the use of assemblers to enable anyone to write in assembly language after just a little study. Full specifications of the assembler cannot be fitted into the small space available here and so they may be obtained from your local dealer or direct from Mr. Micro.

*Includes comprehensive instructions booklet.

Crazy Golf £6.90
48K Spectrum

Crazy golf is a new program for the 48K Spectrum you are required to clear the course avoiding and circumventing the many strange obstacles finally putting your ball in the hole. The par for each hole is displayed and a novel direction indicator combined with a force indicator enable you to send the golf ball in the direction you feel is the best one to clear the course. Crazy golf really is crazy but most of all it is fun and will be found to be very enjoyable by all members of the family.

For use with Joystick and keyboard.

Bengo £6.90
Vic 20

An exciting program for the unexpanded Vic 20, which combines fast moving strategy and reflex skills. You must control Bengo the super Eskimo against the dreadful snow Yeti – Half blind and half witted the Yeti can smell a good Eskimo lunch – the only protection Bengo has is to hurl huge blocks of ice across the frozen waste at the Yeti.

– Don't get distracted – or you'll be personally responsible for the demise of an Eskimo!

For use with Joystick.

Dracula £6.90
48K ORIC

A superb adventure for the 48K ORIC. This adventure is written in the good old style! No silly graphics, no gratuitous drawings, no distractions from pure mental images of horrendous realism. This evocative text adventure of the old genre will have Oric owners shivering with anticipation and perhaps fear.

Dare you load DRACULA into your ORIC 48.?!!

By keyboard.

No smocks – Plenty of surprises!

Mr. Micro make Programs you can trust. Programs that are as exciting when you load them as they look at your dealer. Programs that come proven and refined. Programs that bring you the breathtaking excitement of arcade games with the special extra dimension of real mental challenges – all at the right price. Plus accessories and add-ons which extend the value of your computer. Ask for Mr. Micro by name at your local dealer. Or order your games direct, post-free, from Mr. Micro Ltd. 69 Partington Lane, Swinton, Manchester M27 3AL. Cheques should be made payable to Mr. Micro Limited. Ring our 24 hour hot-line for payment by Access or Visa on: 061-728 2282.

MR. MICRO

Amigo £6.90
Vic 20 8K or 16K expansion.

Hey Amigo you gotta run fast ah. The banditos they are a chasing you and they will a geta you ifa you do nota escapa OK. You musta runa rounda the blocka, when you run round de corners ofa de city the banditos they are frightened to go there and you score de points. Pity you have nota gota gun but a joystick can be fun.

For use with Joystick.

Digger £6.90
Vic 20 8K or 16K expansion

Your remote viewer shows the path of the professors devilish digging apparatus. Using your computer linked remote control you must guide the digger beneath the earth to collect the rare micronite gems. Unfortunately the micronite is protected by the micronits who will plague your machine in order to attempt to stop its progress. You may be able to kill the micronits by skillfully manoeuvering your digger beneath a subterranean stalactite which will then fall killing any micronit in its path. This is a novel implementation of a popular arcade game. For use with Joystick.

Humphrey £6.90
Vic 20 BBC Model B

This new game for the BBC Model B or for the VIC 20 (8K or 16K expansion) and also for C.B.M. 64 involves some tricky decision taking.

Object of game is to make Humphrey land on all the cubes thus changing their colour. Unfortunately Humphrey is being chased by a bouncing ATOMIC BOMB! You will soon learn that this deceptively simple game has tremendous addictive properties and quite a high degree of tactical skill.

For use with keyboard or Joystick.

Mysterious Island £9.90
Vic 20 16K

Escape from prison in a hot air balloon – try to land it on Mysterious Island, then the fun really begins. ● Booby Trapped Fields ● Killer Bees ● Hostile Natives ● Hidden Clues ● Force Fields ● Capture the Nautilus ● Full Graphic Display ● Several Games lead to Exciting Climax ● Separate Practice Program ● Includes Blank Data Tape to store the game to play later.

All successful adventures can claim a unique personalised award by sending Mr. Micro their final position at the end of the game – By Joystick or keyboard.

RAMDAM £13.90
Vic 20

This accessory enables programs which would normally only work with 3K expansion to work with 8K or 16K expansion. RAMDAM saves having to buy a 3K pack if you already own an 8K or 16K. With RAMDAM and a Commodore 16K expansion all known tape games will run on your Vic 20. ● Includes Memory Test Program ● Free 6·5K game – MICROVADERS for use with Joysticks.

Punchy £6.90
Spectrum 48K

Punch has taken Judy for his evil purposes and locked her away. Judy has called upon the forces of goodness to escape, so with the help of our hero Bobby the policeman and you the purchaser of this fine program you must guide brave Bobby across the stage to rescue poor Judy. Leap the gaps. Jump over the dogs. Leap the alligator pit. Dodge the tomatoes. Rock the crib. Collect the sausages and finally rescue Judy. By Kempstone joystick or keyboard.

Dragon Tamer £9.90
Dragon 32

Allows Atari type and other digital joysticks to be used with the Dragon – giving better response and more control. For the first time your Dragon will be able to reflect your true skills. ● Achieve higher games scores ● Less Frustration.

Plus To ensure maximum value, Dragon Tamer includes two original games for use with digital Joysticks.

Goldrush £6.90
Vic 20 3·5k

This graphic adventure program was the first in the world to offer real gold for the successful adventurer. An idea which has been much copied but never equalled. ● Fun ● Educational ● Challenging ● Clues ● Puzzles ● Searches ● Fast Reaction Game. For use with keyboard.

A. S. N. COMPUTER SERVICES LIMITED

ANNOUNCE

Top USA Software at Discount Prices
At least 20% Discount from Top Selling US Software

Just Look at These:

	RRP	A.S.N.
Zakkon — Datasoft — Atari	33.00	25.00
Jumpman — Epyx — Atari CB64	33.00	25.00
Miner 2049ER — Big Five — Atari	41.70	30.00
Temple of Apshai — Epyx — Atari, CB64, IBM	33.00	25.00
Zork I to III — Infocom — Atari, CB64, IBM	33.00	25.00 (each)

All Prices include VAT and Post & Packing is Free (UK mainland only). This is just a selection. We have over 500 Games/Utilities/Educational and Business programmes to choose from. To obtain up to the minute info on any programme, telephone our Hot Line — 07842 57599.

(Export Orders Welcome)

Send all orders with cheque P/O etc to:

A.S.N. COMPUTER SERVICES LTD,
Dept. H.C.W., 89 Station Crescent,
Ashford, Middx.

GRIFFIN Software

Treasure Island an exciting adventure game for the VIC-20, CBM.64, SPECTRUM only **£6.50**

TIME SLIP another adventure where you fall back in time to do battle with prehistoric monsters. For VIC-20, CBM.64 and SPECTRUM **£6.50**

STAMPIT stamp out the camp fire with your boot before it spreads to the tents or cars and gets out of control. TI99/4A **£5.50**

EARLY BIRD eat the worms but beware of the cat who is after you. You cannot escape Grand-Daddy worm for long. TI99/4A **£5.50**

PRAIRIE SHOOTOUT high noon gunfight. Shoot the cacti to increase your score before killing your opponent. Two player J/Stick or play your computer. BBC 32K **£6.50**

C.E.S.I.L. Computer Education in Schools Introductory Language. An implementation of the popular introduction to Assembler Language. BBC 32K **£6.50**

MACHINE CODE PROGRAMMERS WANTED
DEALER ENQUIRIES INVITED
free colour photograph with every program sold
48, RANNOCH DRIVE, MANSFIELD
NOTTINGHAMSHIRE TEL: 646436

TEXAS INSTRUMENTS

genuine

T1 99/4A Solid State Software

EXTENDED BASIC	£52.25
MINI MEMORY	£52.25
BLASTO	£10.50
CHISHOLM TRAIL	£16.95
TUNNELS OF DOOM	£18.95
SOCCER	£12.50

FOR OTHER CRAZY PRICES
SEND S.A.E. FOR FULL PRICE LIST
PLEASE MAKE CHEQUES/POs PAYABLE TO:

PARCO ELECTRICS
4 DORSET PLACE, NEW STREET,
HONITON, DEVON. EX14 8QS.
TELEPHONE HONITON (0404) 44425

CALIFORNIA GOLD RUSH

HOWDEE PARDNERS

THIS here's Prospector Jake, I sure am havin' one helluva time tryin' to peg my claim with them Injuns a hoot-in' and a hollerin' all over this here territory.

Can YOU help Jake oeg his claim, dodge the arrows, avoid the tomahawks, n' plant his Dynamite ? . . You CAN!!

YIPPEE . . . You need all your skill &
CALIFORNIA GOLD RUSH . . . NOW
for COM 64, Spectrum 48, & Dragon
Amazing Arcade Action for **£7.95** incl.

SPECIAL OFFER: Order California Gold Rush NOW and get a 10 game cassette ABSOLUTELY FREE

ANIK

30 KINGSCROFT COURT
BELLINGE, NORTHAMPTON

HCW28

TICK BOX FOR YOUR REQUIREMENTS
COM 64 | SPECTRUM 48 | DRAGON 32
NAME
ADDRESS
TOTAL SUM ENCLOSED

Here's how to make a new resolution

Give your Commodore 64 programs that professional hi-res look by following Mike Roberts' guidelines

As you probably know high resolution graphics are possible on the Commodore 64. You may have seen them in commercial games, or at Commodore demonstrations.

But the trouble is, the BASIC supplied with the 64 does not support this feature. In fact the truth of the matter is that the 64 can have six different modes of screen operation, five of which the operating system does not support. So you can't write programs in BASIC that have high resolution graphics.

The following subroutines will help in the writing of programs using the Commodore 64's highest resolution graphics mode, which gives 320 by 200 dots and 16 colours on the screen at once.

On other computers, having 10K of screen would use up a lot of user memory. But the Commodore 64 has 64K of memory, and by using a page switching method the graphics screen will take up no user memory at all as it occupies the same memory space as BASIC.

Hi-res functions are called by subroutines that must be GOSUBed first via BASIC. Before a routine is called, however, some variables may need to be set. In fact many variables are used by these routines, and it is wise to avoid these as they may corrupt your program or crash the system. Here is a list of variables to avoid and their functions:

SC holds the memory location of the start of the hi-res SCreen in memory

CL holds the start address of the colour map in memory

QQ,QQ%,I,J,TC,GC,XB,YB, XX are all temporary variables in use throughout the routines

Subroutines

There now follows a list of the subroutines, the line numbers in the program listing where they occur, the variables that need to be set upon entry to them, and how they work:

Set graphics screen, line 100. This simply sets the screen into the graphics mode of operation

Set text mode, line 200. This sets the screen back into the mode that the 64 usually has in operation

Clear graphics screen, lines 300 to 399. This clears the graphics screen of all graphics and sets the background colour to that of the normal text mode i.e. memory location 53281

Copy text screen to graphics screen. This will transfer the contents of the text screen and dump it on the graphics screen. Lines 400 to 499. If CS is set to 1 then the copy will be made in lower case but if variable CS is 0 then the copy will be in upper case.

Plot point on graphics screen, lines 500 to 599. This will plot a point on the graphics screen at specified coordinates. Variables that need to be set on entry to this routine are as follows:

FC Foreground Colour (a number from 0 to 15)

BC Background Colour (as number from 0 to 15)

RW Rubout or Write dot to screen. If RW = 1 then a dot is written, but if RW = 0 then a dot is erased

X X axis position of start of text 0 to 319. Origin is top left

Y Y axis position of start of text 0 to 199

Print text to graphics screen, lines 600 to 699. This will print the text string X$ to the graphics screen. Other enhancements are available as the variables that need to be set will show:

X X axis coordinates in the range 0 to 319. Origin is top left

Y Y axis coordinate in the range string

FC Foreground Colour, a number between 0 and 15

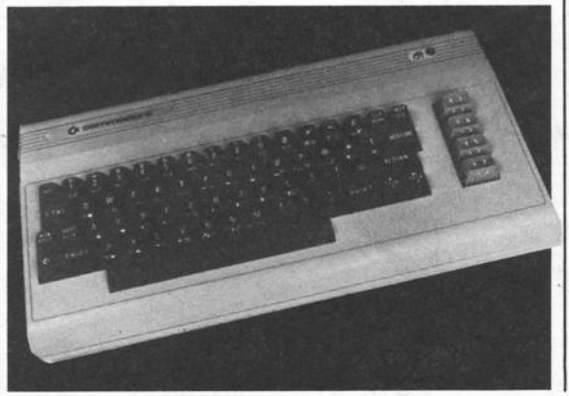
BC Background Colour, a number between 0 and 15

CS CaSe change. When CS is 1 then the string will be printed in lower case and when it is 0 the string will be printed in upper case

HG gives double height characters when set to 1 and normal characters when set to 0

UL% when set to 1 this will Underline the text being printed

Machine code for page switch and plot, lines 700 to 770. This must be run before any use of the plot routine or the computer will crash. It only needs to be run once. The machine code starts at location 49152, but is totally relocatable



```
 10 REM**********************************
 20 REM**                              **
 30 REM** HI RESOLUTION GRAPHICS MODE **
 40 REM**                              **
 50 REM**      ON THE COMMODORE 64     **
 60 REM**                              **
 70 REM** BY MIKE ROBERTS AUGUST 1983 **
 80 REM**                              **
 90 REM**********************************
 98 :
 99 REM SET HIRES MODE
100 POKE56576,148:POKE53272,24:POKE53265,59:SC=57344:CL=58176:RETURN
198 :
199 REM SET TEXT MODE
200 POKE56576,151:POKE53272,21:POKE53265,155:RETURN
298 :
299 REM CLEAR GRAPHICS SCREEN
300 BC=PEEK(53281):QQ=1000+CL:FORI=CLTOQQ:POKEI,BC:NEXT:REM CLEAR GRAPHICS
310 QQ=SC+8000:FORI=SCTOQQ:POKEI,0:NEXT:REM CLEAR COLOUR
320 RETURN
398 :
399 REM TRANSFER TEXT SCREEN TO GRAPHICS SCREEN
400 BC=(PEEK(53281)AND15):QQ=1000:REM FIND BACKGROUND COLOUR
410 FORI=0TO99:POKEI+CL,BC+(PEEK(55296+I)AND15)*16:NEXT:REM FOREGROUND COLOUR
420 POKE56333,127:POKE1,51:REM PAGE OUT I/O AND PAGE IN CHARACTER GENERATOR
430 QQ=SC:FORI=0TO1000:TC=PEEK(I+1024):REM FIND CHARACTER CODE ON SCREEN
440 GC=53248+TC*8+((CS=1)*-2048):FORJ=0TO7:POKEQQ+J,PEEK(GC+J):NEXTJ:QQ=QQ+8
445 REM FIND AND PLOT BIT IMAGE OF CHARACTER
450 NEXTI:POKE1,55:POKE56333,129:RETURN:REM PAGE IN I/O AND OUT CHAR GENERATOR
498 :
499 REM PLOT X,Y : FOREGROUND COLOUR IN FC : BACKGROUND COLOUR IN BC
500 IFXQ0ORXQ319ORYQ0ORYQ199THENGOSUB200:PRINT"PLOT ERROR":STOP
505 REM CHECK THAT COORDINATES ARE WITHIN BOUNDS
510 XB=INT(X/8):XX=X-XB*8:REM FIND X BLOCK
520 YB=INT(Y/8):YY=Y-YB*8:REM FIND Y BLOCK
530 POKECL+XB+YB*40,FC*16+BC:REM PLOT COLOUR OF DOT IN CELL
540 QQ=SC+Y*320+XB*8:POKE253,INT(QQ/256):POKE252,QQ-(INT(QQ/256)*256)
550 POKE255,2^(7-XX):POKE254,RW:SYS49152:RETURN:REM GET DOT LOCATION ON GRAPHICS
560 REM SCREEN, SET UP AND CALL MACHINE CODE MEM PAGEING AND PLOTTING ROUTINE
598 :
599 REM PRINT STRING IN X$ ONTO GRAPHICS SCREEN
600 QQ%=LEN(X$):IFQQ%<1ORX>390ORY<0ORY<0ORY>24THENGOSUB200:PRINT"PRINT ERROR":ST
OP
605 REM CHECK THAT COORDINATES ARE WITHIN BOUNDS
610 QQ%=0:FORI=1TOLEN(X$):QQ=ASC(MID$(X$,I,1)):IFQQAND96THENQQ%=QQ%+1
615 REM FIND NUMBER OF PRINTABLE CHARACTERS IN THE STRING
620 NEXTI:QQ%=QQ%-1:QQ=SC+Y*320+XB*8:YY=CL+Y*40+X
625 REM FIND APPROPRIATE SCREEN MEMORY LOCATIONS
630 IFY*40+X+QQ%>1000THENGOSUB200:PRINT"LENGTH ERROR":STOP
635 REM CHECK THAT LENGTH OF STRING WILL FIT ON THE SCREEN
640 FORI=0TOQQ%:XX(I)=PEEK(I+FC*16+BC:IFHGTHENPOKEI+40,FC*16+BC
642 REM PERFORM COLOUR CHANGING
645 NEXTI:PRINT"";X$:POKE56333,127:POKE1,51:REM PAGE OUT I/O AND CHAR GEN IN
650 FORI=0TOQQ%:TC=PEEK(I+1024):GC=53248+((CS=1)*-2048)+TC*8:IFHG=0THEN680
655 REM GET CHARACTER VALUES
660 FORJ=0TO7STEP2:POKEQQ+J,PEEK(GC):POKEQQ+J+1,PEEK(GC):GC=GC+1:NEXTJ:QQ=QQ+32
0
665 REM DO DOUBLE HEIGHT CHARACTERS
670 FORJ=0TO7STEP2:POKEQQ+J,PEEK(GC):POKEQQ+J+1,PEEK(QC):GC=GC+1:NEXTJ
675 IFUL%THENPOKEQQ+7,255-PEEK(GC-1):REM DO UNDERLINING
677 QQ=QQ-312:GOTO690
680 FORJ=0TO7:POKEQQ+J,PEEK(GC+J):NEXTJ:QQ=QQ+8:IFUL%THENPOKEQQ-1,255-PEEK(GC)
685 REM DO SINGLE HEIGHT CHARACTERS AND UNDERLINING IF NECESSARY
690 NEXTI:POKE1,55:POKE56333,129:RETURN:REM PAGE I/O BACK IN
698 :
699 REM DATA FOR MACHINE CODE PAGE SWITCHING AND PLOTTING
700 DATA 173,13,220,72,169,0,141,13,220,165,1,41,253,133,1,160,0,177
710 DATA 252,166,254,224,0,240,254,5,255,145,252,165,1,9,2,133,1,104,141,13,220
720 DATA 96,72,165,255,73,255,133,255,104
730 I=49152:QQ=0:DATA 37,173,13,220,72,169,0,-1
740 READQQ%:IFQQ%=-1THEN760:REM READ AND
750 POKEI,QQ%:I=I+1:QQ=QQ+QQ%:GOTO740:REM POKE IN DATA
760 IFQQ<>68800THENPRINT"ERROR IN DATA LINES 700 TO 730":STOP:REM CHECK DATA IS
770 RETURN:REM OK, IF SO THEN RETURN
1000 GOSUB700:GOSUB100:X=312:Y=192:RW=1:FC=1:BC=0:GOSUB500
READY.
```

The world's first true 3D game.

Postern bring you the first fully 3 dimensional stereoscopic game.

by Mike Singleton

3D DEEP SPACE

If you've escaped from the Snake Pit, survived The Siege, ridden the mighty Shadowfax and conquered the fearsome Firehawks – see if you're ready for the ultimate experience.

POSTERN

SPECTRUM
VIC 20
COMMODORE 64
BBC 'B'

£7·95

© FRANK MOSES

Postern Ltd. P.O. Box 2, Andoversford, Cheltenham, Glos GL54 5SW.
Tel: Northleach (04516) 666
Telex 43269 Prestel 37745

This game requires a colour television set and the special 3D glasses provided with each game.

Find that magazine article the easy way

Forget the frustration of hunting out the article which you know has just what you want. Let Simon Edwards' program for the Spectrum do the searching for you

Are you forever skimming through back issues of magazines trying to find an article or program that you know is around somewhere?

My magazine catalogue is designed to help you find exactly what you were looking for by giving the name of the magazine, date of issue, and page number of each article or program. It is possible to list entries from each magazine, or of each type.

The program allows you to decide the magazines included and the categories to give you as wide a scope as possible.

How it works

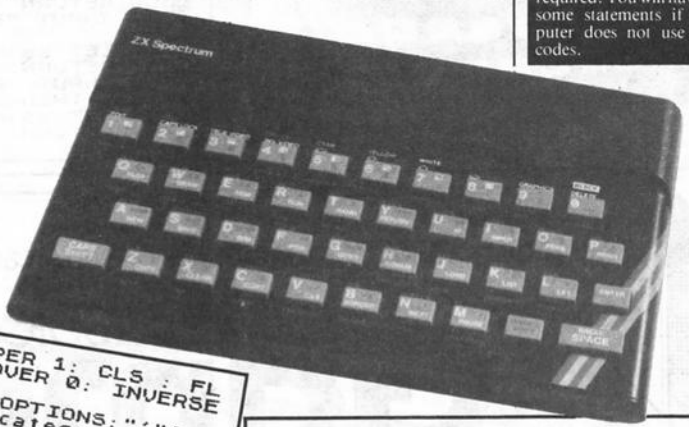
1 sets colour
10-40 main loop
100-190 sub-routine for new entry
200-290 list categories, then list entries in a category
300-390 list all entries, allow amendment
400-490 list articles in chosen magazines
500-590 record program with data
1000-1130 initialisation
2000-2010 print information on entry
2100-2790 sub-routines for inputting data on entry: **2100-2190** category, **2200-2290** description, **2300-2390** magazine, **2400-2490** day of issue, **2500-2590** month of issue, **2600-2690** year of issue, **2700-2790** page number

Variables

arrays:
a$ contains 22 characters of information on each entry: 1 code of category, 2-11 description, 12-13 magazine code, 14-15 day number of issue, 16-17 month number, 18-19 year, 20-22 page number
m$ names of each magazine
c$ names of each category
simple variables:
b$ has different functions, DIMensioned so it always has a length of 2
no number of entries
max maximum number of entries
cat number of categories
mag number of magazines
n, f control variables

Hints on conversion

The Spectrum has a non-standard form of string slicing, which is used a great deal within the program. It is not difficult to modify but a lot of work will be required. You will have to modify some statements if your computer does not use the ASCII codes.




```
1 BORDER 2: PAPER 1: CLS : FL
ASH 0: BRIGHT 0: OVER 0: INVERSE
 0: INK 7
 10 CLS : PRINT "OPTIONS:","1-N
ew entry";;,PRINT "2-View categories ","
3-Amend entry","4-View magazines
","5-Save program and data"
 20 LET b$=INKEY$: IF b$<"1" OR
b$>"5" THEN GO TO 20
 30 CLS : GO SUB (VAL b$*100)
 40 GO TO 10
100 IF no>max THEN PRINT #0;"No
more room": BEEP .1,-1: RETURN
110 LET no=no+1: LET n=no: GO S
UB 2100: GO SUB 2200: GO SUB 230
0: GO SUB 2400: GO SUB 2500: GO
SUB 2600: GO SUB 2700
190 RETURN
200 FOR f=1 TO cat: PRINT f;TAB
14;c$(f): NEXT f
210 INPUT "Enter number to view
entries     0 to return",n: IF n
=0 THEN RETURN
220 IF n>cat THEN GO TO 210
230 CLS : PRINT c$(n): FOR f=1
TO no: IF a$(f,1)=STR$ n THEN P
RINT f,a$(f,2 TO 11)
240 NEXT f
250 INPUT "Enter number for inf
ormation     0 to return",n: IF n
=0 THEN RETURN
260 IF n>no THEN GO TO 250
270 CLS : GO SUB 2000
280 PRINT #0;"ANY KEY": PAUSE 0
290 RETURN
300 FOR f=1 TO no: PRINT f;TAB
5; INVERSE 1;a$(f,2 TO 11); INVE
RSE 0;TAB 16;c$(VAL a$(f,1)): NE
XT f
310 INPUT "Entry number? (0 to
repeat)";n: IF n=0 THEN CLS : GO
TO 300
320 IF n>no THEN GO TO 310
```

```
330 CLS : PRINT "Enter no. for
amendment": GO SUB 2000: PRINT
"0 to return"
340 LET b$=INKEY$: IF b$="0" TH
EN RETURN
350 IF b$<"1" OR b$>"7" THEN GO
TO 340
360 CLS : GO SUB 2000+(VAL b$*1
00)
390 GO TO 330
400 FOR f=1 TO mag: PRINT f;TAB
13;m$(f): NEXT f
410 INPUT "Enter number to view
entries     0 to return", LINE f
$: IF f$="0" THEN RETURN
420 IF VAL f$>mag THEN GO TO 41
0
430 CLS : PRINT m$(VAL f$);": FO
R f=1 TO no: IF a$(f,12 TO 13)=f
$ THEN PRINT f,a$(f,2 TO 11)
440 NEXT f
450 INPUT "Enter number for inf
ormation     0 to return",n: IF n
=0 THEN RETURN
460 IF n>no THEN GO TO 450
470 CLS : GO SUB 2000: PRINT #0
;"ANY KEY": PAUSE 0
490 RETURN
500 SAVE "Mag.Cat" LINE 1
510 PRINT "Verifying": VERIFY "
Mag.Cat"
590 RETURN
999 REM initialization
1000 CLS : INPUT "Max no. of ent
```

SPECTRUM PROGRAM

```
ries? ";max: DIM a$(max,22)
1010 INPUT "How many different m
agazines? ";mag
1020 IF mag>99 THEN GO TO 1010
1030 DIM m$(mag,19): DIM f$(2)
1040 FOR f=1 TO mag
1050 INPUT "Name? (max 19 letter
s)"'TAB 12;m$(f)
1060 PRINT m$(f)
1070 NEXT f
1080 CLS : INPUT "Number of diff
erent categories?";cat: IF cat>9
 THEN GO TO 1080
1090 DIM c$(cat,18)
1100 FOR f=1 TO cat
1110 INPUT "Category? (max 18 le
tters)"'TAB 13;c$(f)
1120 PRINT c$(f): NEXT f
1130 LET no=0: GO TO 10
```

```
2000 PRINT "1-category";TAB 13;c
$(VAL a$(n,1))'"2-info";TAB 13;a
$(n,2 TO 11)'"3-magazine";TAB 13
;m$(VAL a$(n,12 TO 13))'"4-day";
TAB 13;a$(n,14 TO 15)'"5-month";
TAB 13;a$(n,16 TO 17)'"6-year";T
AB 13;a$(n,18 TO 19)'"7-page";TA
B 13;a$(n,20 TO 22)
2010 RETURN
2100 FOR f=1 TO cat: PRINT f;TAB
 14;c$(f): NEXT f
2110 INPUT "Which category? ";f:
 IF f>cat THEN GO TO 2110
2120 LET a$(n,1)=STR$ f
2190 RETURN
2200 CLS : INPUT "Name or descri
ption?";TAB 21;a$(n,2 TO 11)
2290 RETURN
2300 CLS : FOR f=1 TO mag: PRINT
 f;TAB 13;m$(f): NEXT f
2310 INPUT "Which magazine? ";f:
 IF f>mag THEN GO TO 2310
2320 LET a$(n,12 TO 13)=STR$ f
2390 RETURN
2400 CLS : INPUT "Enter day no.
(0 if monthly) ";f: IF f>31 THEN
 GO TO 2400
2410 LET a$(n,14 TO 15)=STR$ f
2490 RETURN
2500 INPUT "Month number? ";f: I
F f>12 THEN GO TO 2500
2510 LET a$(n,16 TO 17)=STR$ f
2590 RETURN
2600 INPUT "Enter year (e.g. 83)
";f$
2610 LET a$(n,18 TO 19)=f$
2690 RETURN
2700 INPUT "Page number? ";f: IF
 f>999 THEN GO TO 2700
2710 LET a$(n,20 TO 22)=STR$ f
2790 RETURN
```


SIMPLE TO USE

You want to program your own Arcade Games?

SoftwareSTUDIOS

Games Designer

Now you can! Produce your own SPRITE BASED MACHINE CODE Arcade Games

NO programming knowledge needed
EIGHT pre-programmed games included

48K SPECTRUM £14.95

Teachers take a test

Our reviewers tell you whether these educational programs passed their software test with flying colours

Junior Education Spectrum £7.95

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

Excellent quality educational programs which cover tenses of verbs, nouns, verbs, adjectives and adverbs on English topics on side one, and tens and units addition plus a long division tutor on side two.

Accompanying the cassette was a little booklet with full explanations, instructions and information on how to alter the programs to meet your own requirements.

The purpose is to help reinforce subjects already taught — a drill exercise. Many already exist, some good, most awful. This is one of the best, and there are four programs on the tape!

Well written, first class use of graphics and sound, user friendly, good motivation, a picture is built up on correct answers, enjoyable and well error trapped.

The format is the same for all four programs, a question is asked, an answer given, if correct the picture at the top is built up, if wrong another try is allowed, sometimes help is given, and, if still wrong, then the correct answer is given.

R.E.

instructions	100%
ease of use	99%
display	98%
value for money	100.

★ ★ ★ ★ ★

Number Gulper BBC B £9.95

ASK, London House, 68 Upper Richmond Road, London SW15

This program is well packaged in a presentation type case with a concise and simple, twelve page instruction booklet. Its stated aim is to supplement school work on number bonds in an interesting and exciting way, which means that the player must already have some ability in simple mental arithmetic with the four rules of number.

The recommended age range is from five to twelve, although it has proved interesting (and no doubt useful) to pupils up to sixteen!

The program has two sections, a test option or the game itself, which can be played from the keyboard or by joystick. Two numbers are displayed at the top of the playing area in boxes. The lefthand number is the number you are trying to make the righthand number equal to.

Spread around the screen are numbers and signs (5+, 2/, 4− etc), and by guiding your "gulper" to these you change the righthand number accordingly. You have three lives and succeeding with at least two advances you to a higher level.

R.E.

instructions	98%
ease of use	91%
display	82%
value for money	90%

★ ★ ★ ★

Edutape 1 16K ZX81 £4.95

JRS, 19 Wayside Avenue, Worthing, Sussex BN13 3JU

Two educational programs on this tape, both aimed at children between five and seven and written by Gordon Askew, a deputy headmaster of a primary school.

The cassette insert contained the instructions and the aims — basically to develop visual and short term memory. This is an important skill and not to be decried, as both literacy and numeracy depend on it. A pre or early reader's exercise game.

The tape was recorded by JRS's "fast load" system — I approached with care, ZX81s are not noted for ease of loading. My special 81 compatible recorder failed, but a tatty old one loaded with no problems several times!

Program one was a simple "Pelmanism" type game to match pairs of hidden objects, for two players or one player against the ZX81. Program two showed three teddies with food, the screen clears, then your match the teddy number to the food displayed.

Good, sound educational techniques and practice, the program was simplicity itself to use, well error trapped and entertaining.

R.E.

instructions	91%
ease of use	80%
display	94%
value for money	90%

★ ★ ★ ★

English Invaders VIC-20 £5.99

Rabbit Software, 380, Station Road, Harrow, Middlesex HA1 2DE

One of the things that any child hates to be is a failure. This is a pseudo-educational program which helps him or her to be just that.

The basic idea behind the game is sound; using a Space Invaders format with words taking the place of the aliens. The object is to shoot down the word by pressing the key corresponding to its grammatical definition (verb, noun or adjective).

As the game proceeds the speed of descent of the words increases, giving you less time to decide which button is to be pressed.

If you fail to hit a word, you lose a life. OK, that's fair enough but the speed of the aliens increases if you miss giving progressively less time to react. This is hardly fair on a child who finds the game difficult. The game also needs a range of levels of difficulty to cater for children of differing abilities.

The list of words was limited to those of five or less letters and consisted of roughly 70 words (according to a quick peep with a machine code monitor). Several of the words were suspect and I doubt if the list was based on a standard key word list.

M.W.

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

★ ★

Snail Logo 48K Spectrum £9.95

CP Software, 17 Orchard Lane, Prestwood, Great Missenden, Bucks HP16 0NN

Logo is one of thes excellent ideas that has to be used to be appreciated. It is a simple yet powerful language that can be used by very young children yet quickly teaches complex concepts like procedures and recursion, as well as an understanding of mathematical and geometrical rules that underlie much graphical work.

Snail Logo is a good implementation of the language, containing all the essential features. It comes with a small 26-page manual that explains everything in a comprehensive way, though its organisation is a little confusing.

However, neither the manual nor the menu which drives the Snail Logo system could easily be understood by a child under the age of about ten or eleven, possibly even older, so as an educational tool the system is limited.

The other major fault of this system is that it is written in BASIC. Writing an interpreter for one language in another interpreted language which is itself rather slow produces some painfully slow programs.

N.W.

instructions	90%
ease of use	80%
display	75%
value for money	85%

★ ★ ★ ★

TI-99/4A SOFTWARE

PILOT **£5.95**

A great new flight simulation game for the unexpanded TI99/4A. Graphics display of landing strip and terrain map, plus updated instrument panel. Options for take-off, landing or in flight. Full instructions included. Graphics and sound.

TEXAS PROGRAM BOOK **£5.95**

35 program sof the unexpanded TI99/4A, including 3D Maze, Lunar Lander, Caterpillar, Horse Race, Invader, Morse Code, Arithmetic, Alien Attack, Organ, Evasion and many more.

Send cheque or PO or telephone with Access/Visa. for immediate despatch. Please add 50p p&p to orders under £7. Orders over £7 post free.

APEX SOFTWARE

VISA

115, Crescent Drive South, Brighton BN2 6SB
Tel: Brighton (0273) 36894

The Simulation and Education People

SPECTRUM

and now for something completely different...

TITRE

Sensational titration simulation! Yes, titrate on your SPECTRUM. Complete with screen display of apparatus, all indicator colour changes, burette control, and warning of end-point. Choice of concentration and 10 indicators. Plus manual.

Titre (16K) £4.95 Titre (48K) £8.50

complete with 3 extra programs: pH plots, worksheet and indicator file.

s.a.e. for complete catalogue

Trade and export enquiries welcome

WANTED: Those completely different programs. Send samples for prompt evaluation. Excellent royalties.

CLOUD 9 SOFTWARE (HCW 5)
4, DOLVIN ROAD, TAVISTOCK, PL19 9EA

PIRATE

NOW AVAILABLE FOR SPECTRUM 48K AND BBC 'B'

NEW

There has never been an educational adventure game like it.

is a new adventure game for young people. YOU are a pirate, and it's your job to explore an unchartered ocean. Simple function key presses (no spelling required) ensure easy sailing around the New World. What will you find? Treasure trove? Savage islanders? One of HM Ships out to get you? THERE has NEVER been a BBC 'B' game like it! Two full-colour and sound programs for £9.25 (all inclusive)

Details of these and more (sae please) from:

chalksoft Ltd.

37 Willowslea Road
Northwick
WORCESTER
Tel: 0905 55192

Trade and Export enquiries welcome.

It's easy to complain about advertisements.

The Advertising Standards Authority.
If an advertisement is wrong, we're here to put it right.

A.S.A. Ltd., Brook House, Torrington Place, London WC1E 7HN

MICRO BARGAINS!!

from
Altek Electronics

Commodore 64	199.95
C 2M Cassette Recorder	39.95
Vic 20 Starter Pack	129.95
Atari 400 16K inc. Programmers Kit	132.00
Atari 800 48K inc. Programmers Kit	255.00
Sinclair Spectrum 16K	95.00
Sinclair Spectrum 48K	124.00

Add £5 carriage on computers. £2 on cassette recorders

Software for Commodore 64 on cassette

Grand Master Chess	17.95
Motor Mania	8.95
Renaissance	8.95
Annihilator	5.75
Centropads	5.75
Cyclons	5.75
Escape MCP	5.75
Monopole	5.75
Pakacuda	5.75
Sprite-character generator	5.75

Add 25p p&p to software orders
Also software for BBC, Vic 20, Texas, Sinclair, Atari, Genie, etc.
All prices include V.A.T.
Repairs to most micros in our own workshops

ALTEK ELECTRONICS, UNIT F,
3A, 2 BATH ROAD, STROUD, GLOUCESTERSHIRE
TEL: (04536) 79849

LOOKING FOR SPARE TIME EARNINGS?

Then why not sell software to your friends and workmakes.

There are probably hundreds of micro users in your area looking for software who are wary of mail order and cannot find a local dealer. You can become that local dealer.

We are looking for agents in all areas to sell software for the Spectrum, ZX81, VIC-20, CBM 64, BBC, Dragon, Atari, Oric 1 and Lynx. All the latest titles in stock. Write now for full details or telephone if you prefer.

Joysticks, joystick interfaces and Spectrum sound boosters along with CBM 64, Spectrum and Lynx 48K Computers also available.

If you are interested in becoming a Bytewell agent in time for the predicted boom in sales this Xmas then write or telephone now.

BYTEWELL, 203, COURT ROAD, BARRY, S. GLAMORGAN, CF6 7EW
Telephone (0446) 742491

Take your seat for the Oric picture show

Use these routines and you could even create your own moving pictures. Oric advice from HCW regular David Nowotnik

If you've seen the Teletext transmissions, you will agree that they are an excellent way of putting a message across to the viewing public. Your home computer could be used in much the same way.

Microcomputer displays are being used in a few cases to advertise in shop windows, usually to sell the home computer on display.

But there is no reason why this form of advertising cannot be used to sell other products. Also, it could be used to advertise your club or society, or provide an extra special birthday card display for someone in the family.

Whatever application you may have, this article shows you how to produce, save, and display multicoloured pictures on the 48K Oric.

Pictures can be created on the Oric in TEXT mode simply by typing the characters from the keyboard outside a program. This is the method I use, although a short program is held in RAM to save your picture once created.

The save routine is part machine code. The hex loader for this machine code routine appears in **figure 1.**

Type in the listing, save it on tape, then RUN to put in the machine code. Then remove the hex loader with NEW, and type in the listing in **figure 2.**

You can store up to 26 pictures in the 48K Oric with this routine. Before starting to draw any picture, you must assign to it a number, to define its eventual storage position in RAM. Type RUN 500, and enter a number (1 to 26). On completion, the screen will clear, and the program will stop. At this stage you can start drawing your display.

First, set global INK and PAPER colours with direct commands, then clear the screen once more.

Move the cursor around the screen using the cursor control keys either side of the space bar, and type in characters as required. When you enter a character, it not only appears on the screen, but also goes into the input buffer. Once there are 80 characters in the input buffer, you will get a warning PING. Add two more characters, and the buffer will clear, and an automatic RETURN occurs.

This need be of no concern, except that you will need to remove the end of input marker by overtyping with space.

You can add attributes to the screen, at the cursor position, by pressing ESC, followed by one of the characters listed in appendix C of the handbook.

The convention is to enter a background colour attribute on the left most screen column, and the foreground attribute on column 0. Other attributes for colour, double height, flash, and alternative character set can be entered elsewhere on the screen — you will have to experiment with these to use them with effect.

In moving the cursor around the screen, make sure that you do not try to move it off the top or bottom of the screen, or the whole display will scroll.

Once you have completed your picture, take the cursor to the top left screen position, and press DEL for 20-30 seconds to make sure the input buffer is empty.

Then take the cursor down to a line in which the first three character positions are empty (but not the bottom line). Turn the cursor off by pressing simultaneously CTRL and Q. Enter RUN, and press RETURN, and the picture is saved in RAM. The screen will clear for a moment and your picture should reappear.

The machine code routine will instantly copy your picture from its position in RAM to the display file.

Repeat this procedure to draw the number of displays required, then remove the screen save routine with NEW. Enter the program lines in **figure 3,** substituting the letter x in line 10 with the number of pictures you have created.

Adjust the value of the WAIT command in line 50 to the delay required between the change in pictures. This routine will display your creations in numerical rotation, until you press CTRL C to stop it.

Before you use it save your machine code and displays and program — just in case.

First use CSAVE"DISPLAY",A=1-500,E=9800 to save your displays and machine code, then CSAVE"DISPLAY",AUTO to save the program. When reloading, lower the top of RAM with the direct command HIMEM=1500, then use CLOAD"" twice to load data and the program.

When the program is loaded, it should start automatically, paging your screen displays with your selected delay.

If you have nothing to advertise, or no birthday to celebrate, then you may care to experiment with the creation of moving pictures.

The machine code screen refresh is so fast it could be considered instant. So, with a short WAIT in line 50, the rapid turnover of images could create the effect of movement. ■

Figure 1 — machine code hex loader

```
10 HIMEM #1500
20 X=#1500
30 REPEAT
40 READY
50 POKEX,Y
60 X=X+1
70 UNTILY=255
80 DATA#A9,#05,#85,#78,#A0,#00
90 DATA#B1,#79,#91,#7B,#C8,#D0
100 DATA#F9,#E6,#7A,#E6,#7C,#C6
110 DATA#78,#D0,#F1,#60,#FF
```

Figure 2 — screen save routine

```
10 PRINTCHR$(11);"    "
20 DOKE121,#BB80
30 DOKE123,DEEK(#400)
40 CALL#1500
50 CLS:WAIT200
60 DOKE121,DEEK(#400)
70 DOKE123,#BB80
80 CALL#1500:STOP
500 INPUTT
510 DOKE#400,#1600+1280*(T-1)
520 CLS
```

Figure 3 — picture display routine

```
 5 TEXT
10 FORI=1TOx
20 DOKE123,#BB80
30 DOKE121,#1600  280*(I-1)
40 CALL#1500
50 WAIT400
60 NEXTI
70 GOTO 10
```

Are they really the same?

That's what these arcade lookalikes are supposed to be. Read on to find out whether our reviewers could tell the difference

Frogger 32K BBC £7.95

Superior Software, 69 Leeds Road, Bramhope, Leeds

I had trouble persuading the review copy to load its first block but won it round eventually. Once loaded, the short but ample instructions were displayed and then off we went, hoppity, hop.

This is one of many Frogger programs on the market and comparisons, however odious, are bound to be made. the graphics are excellent; from the frog which actually hops to the open-jawed crocodiles and bull- or frog-dozing lorries.

As the game progresses, the turtles start to dive, the wagons get longer and the vehicles move closer together. Flies and crocodiles sometimes appear in the home caves and you get a bonus or lose a frog if you land there depending upon the inhabitant at the time.

Two criticisms: there was no hi-score table, which should be mandatory on all games now and there seemed to be just a hint of a delay between pressing a key and the frog moving — enough to make manoeuvring between tightly-spaced wagons difficult. Possibly a matter of personal preference or you may adapt to it.

I.W.

instructions	100%
playability	70%
graphics	90%
value for money	75%

★ ★ ★ ★

Crazy Kong Commodore 64 £7

Interceptor Micro's, Lindon House, The Green, Tadley, Hants.

Crazy Kong is a fairly standard version of a popular arcade game. You must climb the ladders, collecting diamonds and jumping over various objects coming at you, in order to get to the top of the screen.

Unfortunately there is a slight bug in the program: when jumping over objects you may lose a life even though you do not hit anything.

The keyboard controls are more of a hindrance than a help, so you need to be good at finger gymnastics to use them. I would recommend a good quality joystick for playing the game.

Good use is made of the sound facilities, but better use could be made of the graphics.

The cassette comes with very brief instructions. You must work out the game for yourself if you have never played it before in the arcades.

The program is recorded slightly differently on both sides of the cassette, which should help you to load the game correctly.

At first Crazy Kong is tedious and difficult to play. But stick with it — it improved with practice.

K.I.

instructions	15%
playability	70%
graphics	80%
value for money	75%

★ ★ ★ ★

Delta Tau 1 TRS-80 Models I & III, Genie I & II £10

Molimerx, 1 Buckhurst Road, Town Hall Sq., Bexhill-On-Sea, E. Sussex.

This game is similar to a number of arcade games — Galactic Invaders and Firebird to name but two.

You fight your way through sectors of space using a laser cannon which appears at the bottom of the screen. This has lateral movement controlled with the arrow keys and fires a laser cannon by hitting the space bar.

The invaders do not take on the orderly progression down the screen of earlier invader games, but swoop at you in a haphazard way. The last three aliens in any screen take a very determined approach to destroying you.

The only further control you have over your ship is entering hyperwarp. This is achieved by pressing any of the numbered keys and this advances you to the next sector which contains more powerful aliens.

The graphics of this game are up to TRS-80 standard and the program has sound capability. A record of your score is shown, as is the number of ships that you have remaining.

D.B.

instructions	50%
playability	70%
graphics	60%
value for money	80%

★ ★ ★ ★

Invaders Oric-1 £6.95

PSS, 452 Stoney Stanton Road, Coventry, CV6 5DG

Does the world need another version of Space Invaders? Evidently PSS thinks so, and has to be credited with an above-average standard of graphics and variations.

The game itself has not been changed, but PSS's machine code version provides excellent use of the Oric's sound, colour and graphics, to warrant its comparatively high asking price.

Apart from the option of a one or two player game, pressing the S key will turn the sound on or off, while H can be used as a pause button during a game if the phone rings or you just need a breather from the all-out action.

Each player starts with three lives and a fourth is added on reaching 1,500 points. Hitting the mothership that crosses the top of the screen from left to right at random brings a mystery bonus.

Scoring is not easy as the aliens rain down bullets, with the occasional extra speedy missile usually catching you unawares, and a 1,000-plus score is a notable achievement.

Loading Invaders into the Oric is a mite touchy at fast speed, but this is due to the fact that PSS wisely provides a well-recorded tape

S.I.

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

★ ★ ★ ★

Mini-Kong VIC-20 £5.95

Anirog Software, 8 High St, Horley, Surrey.

This is a version of the excellent Krazy Kong game available from the same company and cut down to run on the unexpanded VIC.

The quality of the graphics is identical to the full version. All you lose is some of the embellishments.

For example, due to the lack of RAM you are given only one screen. This does, however, incorporate an elevator to make life a little more interesting.

If you reach the top of Kong's refuge you start the screen over again — but with greater difficulty.

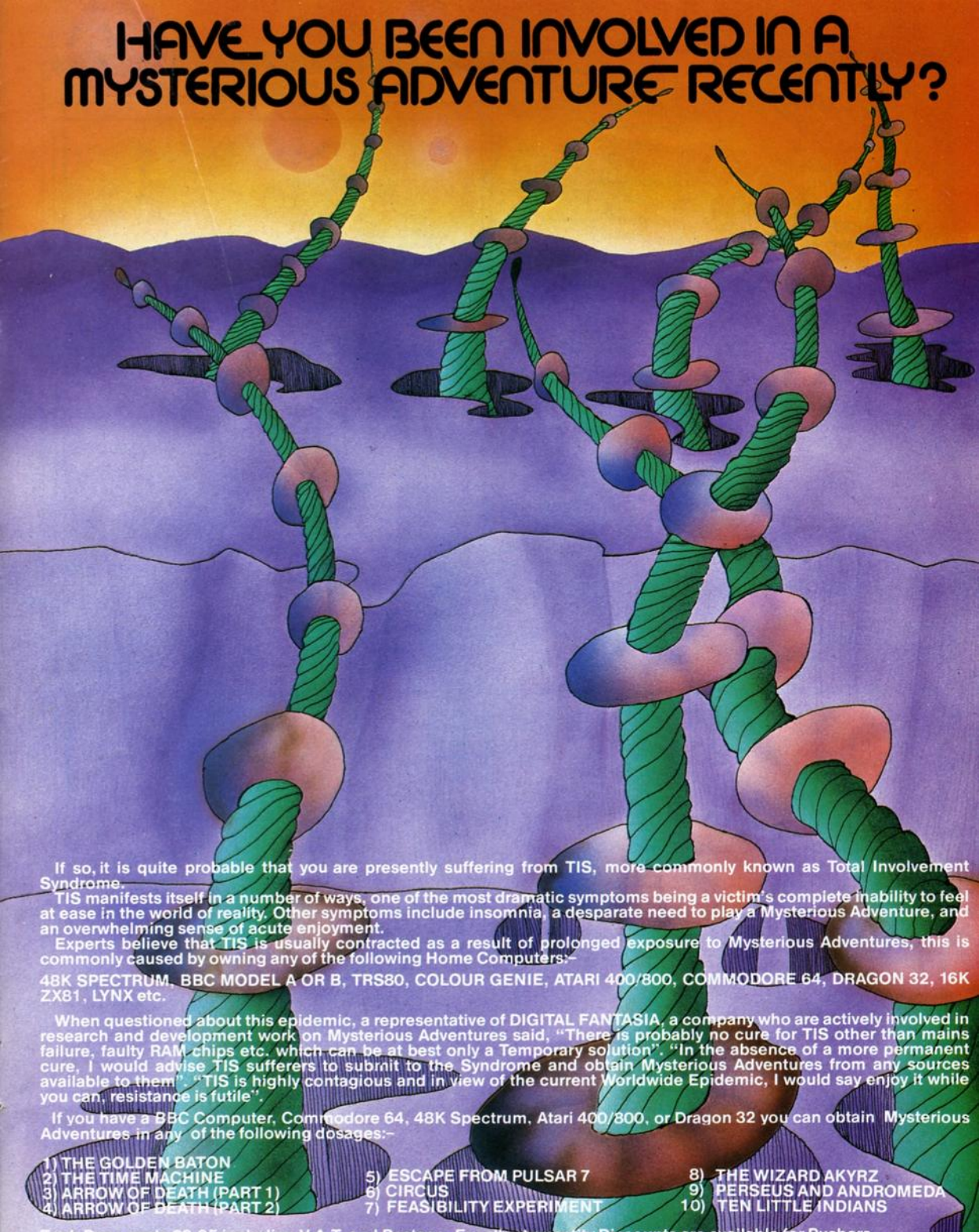
When I visited the recent Commodore show, I took the opportunity to check out similar games by other companies. To be honest, both Mini-Kong and its big brother out-classed them all. This is a well written, nicely presented game which represents good value for money.

A.W.

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

★ ★ ★ ★

HAVE YOU BEEN INVOLVED IN A MYSTERIOUS ADVENTURE RECENTLY?



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

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

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

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

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

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

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

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

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

For BBC, 48K Spectrum order from:-

DIGITAL FANTASIA

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

BARCLAYCARD VISA

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

CHANNEL 8 SOFTWARE

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

Top Ten programs for the Dragon-32

1	The Key	Microdeal (2)
2	Frogger	Microdeal (3)
3	Android Attack	Microdeal (4)
4	Space War	Microdeal (5)
5	Shuttle	Microdeal (7)
6	Night Flight	Salamander (6)
7	Planet Invasion	Microdeal (8)
8	Cuthbert Goes Walkabout	Microdeal (10)
9	Champions	Peaksoft (-)
10	Ring of Darkness	Wintersoft (9)

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

Top Ten programs for the ZX81

1	Space Raiders	Sinclair (1)
2	Espionage Island	Sinclair (2)
3	Flight Simulation	Sinclair (3)
4=	Fantasy Games	Sinclair (4)
	1K Games	Quicksilva (5)
5	Defender	Addictive (7)
6	Football Manager	Quicksilva (6)
7	Scramble	Sinclair (-)
8	Chess	Sinclair (9)
9	Ship of Doom	Sinclair (10)
10	History	

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

Top Ten programs for the VIC-20

1	Arcadia	Imagine (1)
2	Skyhawk	Quicksilva (3)
3	Cosmic Crunch (cart.)	Commodore (4)
4	Wacky Waiters	Imagine (2)
5	Catcha Snatcha	Imagine (6)
6	Gridrunner	Llamasoft (-)
7	Cosmiads	Bug-Byte (7)
8	Panic	Bug-Byte (8)
9	Sargon II Chess	Commodore (5)
10	Frantic	Imagine (-)

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

Top Ten programs for the Spectrum

1	Jet Pac	Ultimate (1)
2	Scrabble	Psion (-)
3	Flight Simulation	Psio (2)
4	Horace and the Spiders	Psion/M. House (3)
5	Transylvanian Tower	Richard Shepherd (8)
6	Horace Goes Skiing	Psion/M. House (7)
7	Football Manager	Addictive (4)
8	The Hobbit	Melbourne House (6)
9	Ah Diddums	Imagine (10)
10	Pssst	Ultimate (-)

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

64 'to use software for Apples'

Interesting news for owners of the Commodore 64 — you will soon be able to run Apple software, says a Minneapolis company.

Advanced Integrated Development has announced the Amulator, a $129 board to allow the 64 to use about 18,000 programs that have been developed for the Apple II.

To get the board to operate, you must remove the 6510 chip from the 64, plug it into the Amulator, then plug the Amulator into the 6510 socket. The board should be out soon. It will allow users to have two computers in one. The 64 will continue to operate normally, but will also be able to read programs developed for a 40-column Apple II. As a side benefit, the Commodore disc drive will also be able to read Apple discs.

The device is not without its limitations. Users will not be able to write to the disc in Apple emulation mode nor will the unit recognize more than one disc drive.

Furthermore, the software requiring an 80-column display will not run properly nor will it be able to take advantage of the extra features present in the new Apple IIe. The limitations occur mostly because the company does not wish to infringe on the design of the Apple II. Very noble in these days of limited ethics.

It would appear that this device may find its way into many classrooms and other applications where the cost of the Apple is prohibitive.

★★★★

Home computer users — especially those with Tandys — will find it worthwhile writing for a catalog from these people: Computronics Inc., 50 North Pascack Road, Spring Valley, New York 10977, phone (914) 425-1535.

They offer very good prices, a 24-hour order line (so you can call during off hours for best rates), and a 30-day money-back guarantee on what they sell.

What they sell mostly is software and books, although they do have limited types of hardware. They also sell a number of programs and books for other popular computers including the VIC-20 and Commodore 64, the Atari, Apple, PET, and so forth. They will ship to the UK too, and will take all major credit cards.

Some of the software they offer seems very impressive. For example, the VersaBusiness Series. There are five separate packages in this series, four priced at $99.95 and one at $149.95. The first four cover receivables, payables, payroll, and inventory; the last is a complete ledger system. The series is designed to run with a set of low cost computer forms for your printer.

Backed up by their guarantee, they make the very simple statement that VersaLedger II will outperform any other competitive system. After seeing a detailed description, I think it definitely offers great value for money. Write to them for their well-produced catalog No. 12.

★★★★

RAMAX is a neat add-on device for your VIC-20. It is a 27K unit that replaces a 16K RAM module, an 8K RAM module, and a 3K RAM module. It enables the use of two extension connectors that are quite similar to the VIC's memory expansion connector. Using this device, you can switch designated memory sections on or off, allowing you to use the device with any VIC plug-in peripheral.

Included in the package is 27K of RAM, the two extension connectors, a reset switch, a connector/memory safety fuse, and a diagnostic program. RAMAX costs abut $170. A smaller version, imaginatively called RAMAX JR., which holds 19K of RAM is available for about $30 less. Contact Apropos Technology, 350 Lantana Avenue Suite 821, Camarillo CA 93010, (805) 482-3228 for more information.

That's it for this week

Bud Izen **Fairfield, California**

NEW!!
SPECTRUM BRIDGE PLAYER
At last you can play Bridge against your Spectrum! Uses the Acol bidding system with Stayman and Blackwood conventions. With scoring and instant replay facilities. The ideal complement to our Bridge Tutor programs.
48K Spectrum – £8.95

SUPERCHESS II
For Sinclair 48K SPECTRUM
THE BEST AT £7.95
● 7 levels of play ● Plays a variety of openings e.g. French Defense, Sicilian Defense, Ruy Lopez, Queen's Gambit etc. ● Self play mode ● Analyse mode ● Enhanced end-game play ● Recommended move option.

ORIGINAL SUPERCHESS
10 levels of play, plus many features
16k ZX81 £4.95 48k Spectrum £4.95

Specialists in high quality, intelligent games

CP Software
Spectrum Software

ZX DRAUGHTS
For 48K Spectrum – £5.95
16K Jupiter Ace – £6.95

16k SUPERCHESS £6.95
The best 16k Spectrum Chess program. 3 levels of play with playing strength similar to the 48k version's first three levels. Analyse mode, plays several openings e.g. Queens Gambit, Ruy Lopez, plus more features. Runs on 16k and 48k Spectrum.

SUPERCHESS II
With most of the features of the Spectrum version now available for:
16K Jupiter Ace – £8.95
Lynx – £8.95

SPECTRUM BRIDGE TUTOR
Improve your Bridge with Spectrum Bridge Tutor. Uses the Acol bidding system including Blackwood and Stayman conventions. Each of the 40 hands illustrates a particular aspect(s) of the bidding and play. Following the card play is an explanation of those aspects highlighted in the hand. The correct bid and play must be made in order to progress but a help feature is included.
For 16k and 48k Spectrum –
Beginners (40 hands) £5.95
Advanced (40 hands) £5.95

COLOSSAL CAVES
(Adventure 1 by Abersoft)
Enter the Colossal Cave, discover the treasure left by the wizard. On your travels you will meet dragons, snakes, trolls and other denizons of the underworld. Be warned, this adventure can be addictive. Includes a save facility so that the adventure can be continued from the point reached when saved.
48K Spectrum £6.95

BACKGAMMON
Very popular
48K Spectrum £5.95

SNAIL LOGO
An advanced implementation of the Logo turtle type graphics. Uses the original style Logo instructions to control the movements of a graphical Snail around the screen instead of a mechanical turtle. Includes the following features. ● Full operating system and Editor ● Comprehensive user guide with sample programs ● Multi-level Hierarchic Procedures ● Procedures with Parameters ● Recursive Procedures ● Nestable repeat loops ● Variables ● Colour and wall bouncing controls ● 25 Language Instructions, over 20 warning and error messages ● Commands to control the optional ZEAKER turtle.
48K Spectrum £9.95

ZEAKER TURTLE with Pen and obstruction sensors. Can be used with our Spectrum Snail Logo. The ZEAKER can be used with both the Spectrum and ZX81 or other micros with suitable parts.
ZEAKER in Kit Form – £52 P.O.A.
ZEAKER Ready Assembled – £69.50
ZX81 Interface if required **£13**
Spectrum Interface **£18.50**
add £3 for P&P and 15% VAT

SUPERCODE
The ultimate Machine Code Tool Kit for the Spectrum with 60 plus routines. Both 16K and 48K versions on each cassette.
16K and 48K Spectrum – £7.95

FLOATING POINT FORTH
Supports all Forth structures, the Zx printer and access to I/O ports. Has all the Spectrum hi-res colour graphics, plot and draw and beeper facilities. Allows direct entry of machine code. Comprehensive user guide.
48K Spectrum – £10.95

ORIGINAL SPECTRUM FORTH
Similar facilities to the floating point version but has only integer arithmetic.
16K and 48K Spectrum – £9.95

Speech from the Spectrum 48k
SOFTALK I 'Multiwords' 70 plus words £5.95
SOFTALK II 'Spacegames' 80 plus words £5.95

8th ZX MICROFAIR
ALEXANDRA PALACE.
SATURDAY 20th AUGUST 1983

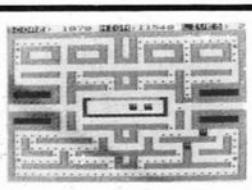
UK Prices include post & packing. Despatch within 48 hours of receipt of order. Send SAE for catalogue (For orders outside UK add 80p for postage). Send cheque or postal order to:
Also available from WH Smith – Computer Branches
CP SOFTWARE, Dept.HW 17 Orchard Lane, Prestwood, Bucks. HP16 0NN

TOP RATES PAID FOR HIGH QUALITY PROGRAMS – SEND YOUR MATERIAL FOR EVALUATION AND PROMPT REPLY.

DJL

DJL SOFTWARE

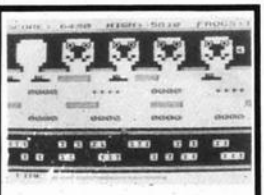
DEPT HCW, 9 TWEED CLOSE, SWINDON, WILTS SN2 3PU
Tel: (0793) 724317 Trade enquiries welcome
Export Orders: Please add £1.00 per tape airmail



ZUCKMAN

ZX81 (16K)
- *ALL MACHINE CODE (10K)
- *FOUR INDEPENDENT GHOSTS
- *HIGH-SCORE 'HALL OF FAME'
- *AUTHENTIC ARCADE ACTION
- *TITLE/DISPLAY MODE

ONLY £4.95 INC. P&P



FROGGY

ZX81 (16K)
- *MOVING CARS, LOGS, TURTLES
- *ALLIGATORS, DIVING TURTLES
- *FOUR 'SCREENS' OF ACTION
- *ALL ARCADE FEATURES
- *ENTIRELY MACHINE CODE

ONLY £4.95 INC. P&P

NEW NEW

ZX Spectrum
FROGGY 16K or 48K

Spectrum version of Arcade Game with Full Arcade Features:–
- *Fabulous Hi-Res Colour Graphics
- *Authentic Sound Effects + 3 Tunes
- *3-D Logs, Swimming & Diving Turtles
- *3 Lanes of Multi-coloured vehicles
- *On-screen Score, Hi-Score, Time-bar
- *Snake, Alligators and Baby Frog
- *'Top 5' High-Score initials table
- *Demonstration Game routine

Your home-sick frog must leap across a busy main road, then onto logs and turtles in the river to reach safety of the river-bank frog-homes. THIS MACHINE-CODE GAME MUST BE SEEN TO BE BELEIVED!!
ONLY £5.95 INC. P&P

THE QUILL
FOR THE 48K SPECTRUM AT £14.95

The Quill is a machine code Adventure authoring system which allows you to produce high speed machine code adventures without any knowledge of machine code. You may create well over 200 locations, describe and connect them. Then using a set of simple commands you can fill them with objects and problems of your own choice. Part completed adventures can be saved to tape for later completion. You may alter and experiment with your adventure with the greatest of ease, The completed adventure may be saved to tape and run independently of the Quill editor. The Quill is provided with a detailed tutorial manual which covers every aspect of its use in writing adventures. All this for only £14.95! We have produced a demo cassette giving further information and a sample of its use for only £2,00 inc. P&P.

EDUCATIONAL TAPES

CESIL.....£5.95

If you are starting 'O' level Computer studies this year you may well be required to learn the CESIL language. S we have produced CESIL interpreters for the ZX Spectrum, 16K ZX81 and Dragon 32 which will allow you to write and run CESIL programs on your home computer thus gaining the familiarity with the language that examinations require Supplied with full manual. Please specify machine type when ordering.

HAL.....£5.95

This is another 'O' level language used in some ares and is available for the ZX Spectrum only. Supplied with instructions.

VISUAL PROCESSOR.....£5.95

Provides an on screen display of a simple micro-processor showing its internal operation as it runs programs. Full manual supplied. Available for the ZX Spectrum Only.

GILSOFT
30 Hawthorn Road, Barry, South Glam. CF6 8LE.
Tel: (0446) 736369

Our Software is available from many Computer Shops Nationwide, or direct from us by post or phone. S.A.E. for details.

COMPUSOUND
TELESOUND 84

"THE ONLY ONE OF ITS KIND TO FIT INSIDE THE SPECTRUM"

Probably the worlds smallest modulator!

TELESOUND 84 is ready built and tested to get full Spectrum sound through your unmodified television set, black/white or colour. The unit can be fitted in minutes without any previous experience. Telesound 84 has been developed using the very latest ultra miniature components so that the size is kept to an absolute minimum.

TELESOUND 84 FEATURES

• Sound and vision together for added realism • Beep volume controllable from a whisper to a roar • Keyboard prompt click clearly heard to assist program entry • Programs can be heard with loaded • Compatible with all other ZX add ons • No soldering or case cutting required • Additional amplifier not necessary • Separate power supply not required

TELESOUND 84 comes complete with a free sound effects program and costs **£9.95** inclusive of post, packing etc. Please state your computer when ordering.

BARCLAYCARD VISA ACCESS

COMPUSOUND

32/33 Langley Close, Redditch, Worcs B98 0ET
TEL: 0527 21429/39

Dragon 32 — Spectrum — Tandy Color

FREE TAPE OFFER

CODE		
D/T	Lost in Space	
D/T	Draculas Castle	
D/T	Floating Bomb	ALL £5
D/T	Death Ship	

BUY ONE GET ONE FREE

D/T	A-MAZE-IN 3D Maze with death defing monsters — Hours of fun for all — different game each time. Buy a copy of A-Maze-In and get any TWO of the above mentioned FREE *"Good Value for Money" S. Drew, York*	£10
D/T/S(48)	Ownership Very realistic version of Monopoly with all the thrills and more over 24K	£7
S(16)	Games pack No. 1 (over 30K of programs) Bomb Run, Yellow Oil, Monster and more Games pack No. 2 (over 30K of programs) Snake, Zombie Lander and more *"Liked games pack one send me No. 2. C. W. Thom, Glasgow*	£4 £4

Buy both for £6.50

BIG CASH PRIZES

D/T/S(16)	Roving Knight (includes entry to competition). This amazing board challenge has still to be cracked. Try your luck and you could be pounds in	£5

Code D = Dragon 32 T = Tandy S = Spectrum 16K or 48K

STATE WHICH MACHINE

Send cheques or Postal orders to:
FLATBELL Ltd
9 Franklin Road
Haddenham, Bucks HP17 8LE

ZX SPECTRUM & ZX81 EDUCATIONAL SOFTWARE

Spectrum Junior Education **£7.50**

Use your Spectrum to help your children with their school work. This cassette contains eight attractive, easy-to-use programs for the 7 to 11 age group.

Topics include English comprehension, spellings, homophones, junior science, maths and history.

* Entering your own questions and answers allows you to adapt two of these programs for exercises in any subject area.
* Moving colour graphics and sound are extensively used to improve motivation.
* Use the "draw" program to produce pictures, maps and diagrams.

Suitable for the 16K or 48K Spectrum. Program notes are supplied.

Overseas orders: £8.50

O-Level Chemistry (C1) **£5.50**

This cassette contains four clearly presented revision/tutorial programs. The subject matter has been carefully structured to cover the most important aspects of:

* Elements, compounds and mixtures.
* Structure, bonding and properties.
* Redox, electrolysis and the activity series.
* Acids, bases and salts.

48K Spectrum and 16K ZX81 versions of the cassette are available. Please specify which you require.

Overseas orders: £6.50 ($11.60) per cassette; includes AIRMAIL postage.

Professional Computer Assisted Learning materials from:

CALPAC COMPUTER SOFTWARE
108 Hermitage Woods Crescent, St Jonns,
Woking, Surrey GU21 1UF.

Software that's all in the mind

We rate a selection of programs designed to make you put on your thinking cap

Jerico 2 / Farmer Horace 48K Spectrum £4.80

Elephant Software, 41 Haymill Road, Burham, Berks SL1 6UE

Two programs for the price of one. Firstly forget any relation to Psion's Horace in Farmer Horace — this is a version of the old favourite Kingdoms, often found in listings form in magazines.

Essentially text, but with a nice display, this is as good a version of this frustratingly absorbing game as any. The aim is to juggle land/corn/population figures in order to survive ten years of management, in face of lifelike problems such as rats who eat varying amounts of your precious corn.

Jericho 2 is a variation on Farmer Horace but much more complex. It's really almost a strategic battle simulation, text only, and based on Joshua's battle of Jericho — unfortunately the trumpet has been forgotten!

This is an excellent program of its type, and if you enjoy these thoughtful exercises, you'll find many more hours slip by while you deploy your troops.

Sound and graphics are almost non-existent in these games.

R.E.

instructions	85%
playability	92%
graphics	80%
value for money	90%

★ ★ ★ ★ ★

Park of Death Dragon £5.95

MK 1, 30 Painswick Road, Birmingham, B28 0HF

A maze game with a difference.

The maze never changes, and all you have to do is move using E N W S keys from one side to the other. Sounds easy, doesn't it? But it's not quite that simple. There are some nasty surprises in store.

For instance, there are 100 boxes and you must guess the number of the box containing the key within seven goes. Watch out though, some contain lethal objects — I was spared this particular fate.

There is also a homicidal robot who turns vicious if you can't tell him his name after it is shown briefly on the screen. This name changes so you can't cheat.

The worst of the obstacles to my mind was the crusher where you are allowed 15 attempts to guess the correct letter of the alphabet before being crushed.

These are just a few of the obstacles you may meet on your journey across the park. I must confess that I never reached the other side despite numerous attempts.

The graphics are interesting and I had no difficulties in loading the game. Quite enjoyable but I think it would become monotonous after a w h i l e .

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

★ ★ ★

TI-99/4A (Extended BASIC) £8

Lizard Games, 14 Bridgewood, Brookside, Telford, Shropshire, TF3 1LX

Torment — you'll take on a deeper understanding of the word once you've played this game.

Set in a maze, your objective is to reach the centre in no more than 100 moves and without losing the three lives you are allowed.

When the maze first appears on the screen, no fences or gateways are shown. These are only revealed as you make your way round and depend on which row or column you are in at the time.

To make this even more difficult, skulls of previous explorers block your path. These are unfriendly and may be dealt with by various means, which you have to discover for yourself, but as each method is more frequently used the less effective it becomes.

Direction of travel is controlled by the cursor keys. The distance, however, is determined by stopping a random number display with the ENTER key. Slow reactions here are not only move-wasting but agonising.

J.W.

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

★ ★ ★

Everest Dragon-32 £7.95

Salamander, 17 Norfolk Road, Brighton

The latest from Salamander is a little disappointing for the price. A simple plot: all you have to do is climb one of three mountains, using a team of six climbers in the least number of days.

At the start of the game you are invited to chose a particular mountain to climb and the supplies you wish to carry.

Having equipped your party you set off on the climb where various hazards befall you — crevasses, falls etc.

Throughout the game, full reports are available on the state of your health, progress, supplies etc.

One criticism is that the input stage is rather long-winded.

Secondly, the game is in two parts. Text is used for the preparation, inputs and reports. Hi-res graphics are only used for the representation of the actual climb.

The lack of graphics and slow inputs let down what could have been a novel program. The instructions are first class, though, and easy to understand.

A.G.

	100%
instructions	60%
playability	20%
graphics	60%
value for money	

★ ★ ★

Time Slip and Treasure Island VIC-20 + 16K £6.50

Griffin Software, 48 Rannoch Drive, Mansfield, Notts

In essence these are standard textual adventures. Time Slip dumps you in the remote past and you must do battle with prehistoric nasties during your attempts to return to the present. In Treasure Island you are dumped on an island. You must avoid the cannibals and find yur way home.

The idea of such games is to manipulate objects and move your alter-ego by simple two word commands. These types of programs are often complex and slow to respond. These programs, in spite of being written in BASIC, react quickly.

The big limitation is the lack of RAM in the VIC. This is reflected in the plot and complexity of the games. In spite of this, they are reasonably difficult and interesting.

I do have one moan. There are two ways of handling commands in adventure games. First, you can allow for all combinations of words in the vocabulary (the good way) or you simply cater for the combinations needed to solve the game (the not so good way).

instructions	85%
ease of use	80%
display	n/a
value for money	90%

★ ★ ★ ★ ★

It started with a kissometer

Electronics can be put to some strange uses, as Dave Carlos found when he talked to Jim Gregory — the man behind Mr Micro

Mr Micro is not only the name of a company but also an apt name for its founder Jim Gregory. The foundation of the firm was laid while he was still at school.

Jim became interested in electronics, he says, "at a time when transistors were just becoming available". "We used to make such things as kissometers with all the attendant extra activities that entailed!"

This led Jim into an apprenticeship in electronic engineering and a qualification to work on radar and defence systems. At about this time he discovered games, of the board variety, and soon became hooked

Jim invented one called "Island Election" which, he says, "had thousands of rules and needed a million pieces to play it". Due to this complexity he never managed to sell the idea, and it was only later he realised that computers would be best for playing such games.

"At that time, computers were still a priesthood into which only the chosen were called. The ordinary man didn't realise how easy it was to use and program them," he recalls.

Jim's first program was written on a programmable calculator with ony two stores, "just like having a two byte memory!" It was a rate relief program and the machine had no branch instructions and method of program storage at all.

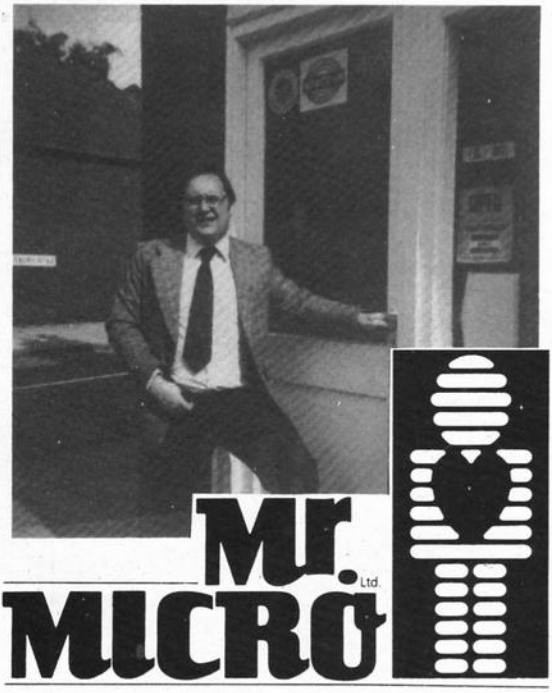
"The operators had to key the program every time they used it. With early equipment like that, you learned to be very conservative in your programming. Now programmers who work for us have to try very hard to convince me that something cannot be done," Jim said.

"In July 1980, we decided to start a business aimed at the new home computing market. My wife Val would work fulltime until it could support us both properly. All we needed then was a name.

"We tried all sorts, before one day, while reading a Mr Men book to my son, the name Mr Micro came to mind. It seemed to fit well so we used it and, as we have already had a couple of offers to buy the name, others must like it too."

The first product that Jim produced for a computer was a screen address programming aid for the Pet which sold thousands of copies and encouraged him to think more about the new computers and their use.

"The only games for the Pet at the time were of the bang-bang, shoot-shoot variety but I wanted to go into deeper mind-involving games," he said. "That's how we came to be programming for the VIC, we decided to try to have the first all-British game for that machine and had to borrow a pre-release VIC from a friend inorder to do so."



Mr Micro himself — Jim Gregory

The game, Gold Rush, was to be a graphic adventure, one game leading to others and all providing clues to the final solution. It was released in June 1980 and by Christmas had sold over a thousand copies. In February '82 someone cracked version 1 but Gold Dust 2 is still selling well and the prize is still to be won.

This encouraged Jim and Val to go into the business full time, and so they started to look around for the money to do so. Jim recalled: "In our walks around the high street banks we heard some amazing things. One told us that their predictions forecast the boom in home computing would die in Autumn 1982, another that they preferred to put their high-risk capital in non-risky enterprises, and yet another that they were not loaning in the north west of England as it 'is a depressed area'. Eventually we got what we needed, partially by mortgaging the house and kids but also from a helpful bank."

Mr Micro now has several facets. There is the retail shop below his office at 69 Partington Lane, Swinton, Manchester, where I couldn't count the number of different micros, much less the quantity of programs they stock!

There is the program publishing side and a collaborative venture with another group to develop a superior software protection device. So far all the 'experts' have failed to beat the unique system. All Jim would say about it was, "No-one copies a car because it is simply too expensive to do and that is what will prevent people from cracking this device too."

He also has plans to enter the educational market with a completely different approach. "One of the things that makes Britain great is the individuality the schools allow and that is also what makes the education market so difficult.

"Unlike other countries there is no common curriculum and therefore providing software becomes impossible. We intend to aim our software at the home, where a product must be attractive to be used, so our programs will aim first to be great fun so that learning is a by-product."

On the games side, Jim likes to get new ideas and concepts. "Mysterious Island" for example, is really 20 games in one, linked together by an adventure concept. Mr Micro provides a personalised certificate to any one who completes it and lets them know. "We are sad to some extent that arcade game copies are so much in demand as we would prefer to try to take games to a different level," said Jim.

But believing that the public is not yet ready for new games concepts, Mr Micro has just launched three new titles for all types of machines. Called Hunchy, Bengo and Humphrey, they are all fast action games.

Coming soon are dual program tapes, with a program for say a VIC-20 on one side and the same game for the Commodore 64 on the other. "This will be better for everyone," Jim reckons. "Buyers will be able to keep the tapes when they upgrade, and the dealer will only have to stock one tape for both machines. We also hope to do some dual BBC/Electron tapes."

Jim believes that the next technological breakthroughs will be in the areas of speech recognition and synthesis coupled to video disc. As a game player and designer, he sees Mr Micro staying in this type of leisure industry. Or as he prefers to put it, he expects to be involved in "mindventions" for some time yet.

MR. CHIP SOFTWARE

VIC 20 GAMES AND UTILITIES

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

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

PACMANIA
Choose your own game from the following options — difficulty 1-2, speed 1-3, size of maze 1-3, visible or invisible maze, still or moving power pills, define your own key controls, any combination, if this is your type of game, then this is the one for you, for the 3K expanded VIC only, (available Now) **£5.50**

SNAKE BYTE
Guide your ever hungry snake round the screen, eating the flies and wasps, to stay alive you must avoid the deadly mushrooms, quick reactions are required for this biting game, keyboard control, for the unexpanded VIC, (available NOW) .. **£5.50**

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

MINI-ROULETTE — PONTOON — HI-LOW
Three great games of chance for the VIC, try to beat the computer, hours of fun, full colour, sound effects and tunes **£5.50**

DATABASE — create your own flies and records on tape **£7.50**

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

COMMODORE 64 GAMES AND UTILITIES

WESTMINSTER
A game for up to four players, can you lead the party of your choice and win the general election, you tour the 60 constituencies (seats) buying votes, when you can, (just like the real thing), this must be one of the first board type games specifically written for the computer. Why play on your own, have fun with your family and friends playing WESTMINSTER **£5.50**
(available from the 15th Sept)

LUNAR RESCUE
Our new version, avoid the asteroid belt, to rescue the stranded scientists, then fight your way back to the mother ship, fast reactions are required to safely land and dock your lunar module **£5.50**
(available now)

LUNAR RESCUE — Our own version of that popular arcade game **£5.50**

PONTOON — ROULETTE — ACE'S HIGH — More powerful versions, that make three great games of chance for the 64 ..... **£5.50**

M/C SOFT 64 — Assembler and Disassembler, with decimal to hex converter, everything our program for the VIC will do and more **£7.50**

BANK MANAGER — As our Super Bank Manager, but for the 64 ..... **£7.50**
Now available on disc with added facilities **£10.00**

Full documenations with all utility programs.

Other software available for the VIC and Commodore 64, send for free brochure, including **RABBIT SOFTWARE** at **£5.99** each.

Send Cheques/PO's to: **MR CHIP SOFTWARE**

Dept HCW, 1 NEVILLE PLACE, LLANDUDNO, GWYNEDD LL30 3BL. Tel: 0492 49747

WANTED: HIGH QUALITY SOFTWARE, OF ALL TYPES, FOR EXPORT & U.K. DISTRIBUTION

All programs now available on disc please allow £2.50 ea extra.

DEALER ENQUIRIES WELCOME

ARCADE ACTION - ORIC-1 - ADVENTURES

DINKY KONG

For 48K £6.95

SUPER M/C ARCADE GAME

- Skill Levels, Full Colour, Platforms, Ladders, Fire-balls, Rolling Barrels, Umbrellas, Hearts, Hall of Fame, Sound Effects.

You wont see a better game for the Oric.

***Author — Adrian Sheppard.**

JOGGER

For 48K £6.95 inc.

REAL M/C ARCADE ACTION

- 4 Screens, Skill Levels, Full Colour, Road, Cars, Lorries, River, Crocs, Logs, Hall of Fame, Sound Effects.

Perspire your way up the screen.

***Author — Adrian Sheppard.**

Dink Kong available from selective branches of W.H. Smith.

SEVERN SOFTWARE

ORICADE

For 48K £8.50 inc.

- **Assembler/ Disassembler/ Editor**
- Handles full 6502 mnemonics. Features Save & Reload M/C Assembles & Disassembles at any address

You can't program seriously without Oricade.

***Author — Adrian Sheppard.**

GRAIL

For 48K £6.95 inc.

Exciting Graphic Adventure

Where in the Castle Perilous is the Holy Grail? Gather armour and weapons to fight monsters. Sell treasure to a trader in exchange for strength potions and wound ointment. Where will the warp take you to? This is a test of skill, luck, logic & intelligence.

MORIA

For 48K £6.95 inc

A challenging adventure set in the mines of Moria.

- Can you survive encounters with the munsters of Middle-Earth? Will the wizard help you? Are you fated to die beside the sealed doors? Or have you the power to open them? Unless you find Durins Ring you will never leave the mines alive!

*Now available from branches of Laskeys.

*Dealers enquiries welcome — excellent trade terms.

*Ask for Severn Software at your local computer store.

Please send me your ..... program.
For my Oric-1

I enclose cheque/ P.O. for £. .....

NAME .....

ADDRESS .....

..... Post Code .....

SEVERN SOFTWARE HCW28
5, School Crescent, Lydney, Glos. GL15 5TA.

If you're left-handed

I am a proud owner of VIC-20 and, after typing in the program in HCW 25 called Mine Sweeper by Stephen Saxon, I found the keys A and Z to be in a comfortable position as they are the first two keys on the left of the keyboard and I am left handed.

I asked my father to try the game. He enjoyed it and commented that if the keys on the extreme right of the keyboard were used it would be more comfortable for him as he is right handed.

So I put in additional lines so that you can use the A and Z keys or the K and M keys.

And here are those lines (__ means one space):

```
27 IF M$ = "K" THEN D=D-1
32 IF M$ = "M" THEN D=D+1
156 PRINT "[4 cursor up]"
158 GET A$: IF A$: IF A$ = "__" THEN 60
162 PRINT "[SHIFT AND]__IF__YOU__ARE__RIGHT__HANDED"
163 PRINT "[RVS Q]_____K__—__TO__go__UP_____M__—__TO__GO__DOWN"
```

Jackie Hamilton
Dundonald, Belfast

Scrabble suggestions

This letter is for everyone who has bought Psion's Scrabble for the Spectrum.

This great program has many excellent features. But there are two options which the booklet supplied with it doesn't tell you about.

Pressing SYMBOL SHIFT and T lists all the tile values.

And pressing SYMBOL SHIFT and D displays the distribution of the tiles.

David Poole, Stevenage, Herts

Off-putting pin-ups

A few weeks ago your magazine had on the front page: "Girls: micros are for you, as well". Since then, you have had pin-up girls, half naked on your front pages. How can you expect us females to get into computing when magazines insist on putting such things on the covers and so putting us girls off?

Miss K D Yarwood
Hatfield, Herts

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

Calendar adjustment

Alan Blundell's calendar program (HCW 21) is an excellent example of the string handling ability of the TI-99/4A home computer. However, there is one basic error in his program: the calculation of a leap year is not correct. My enclosed amendments put this error right.

A leap year is any year which is divisible by four, **provided** it is not divisible by 100, except when it is also divisable by 400. The calculation I have used to find the position of the start of the month string (lines 355 to 415 and 490) is based on a formula derived by the German mathematician C. F. Gausse. Line 430 gives the amended calculation to find a leap year.

Pope Gregory did design his calendar in 1582, as stated by Mr Blundell. However it was not until 1752 that the Gregorian Calendar was introduced in England. Lines 305 to 325 take care of this.

```
120 CALL CLEAR
125 INPUT "WHAT'S YOUR NAME PLEASE?":N$
305 IF Y>=1752 THEN 320
310 PRINT "PRE GREGORIAN YEAR TRY AGAIN"
315 GOTO 300
320 PRINT :::
325 INPUT "MONTH?(1-12)":M
340 PRINT::: "THANK YOU"&N$
355 A=Y
360 MO=M-2
365 IF MO>0 THEN 380
370 MO=MO+12
375 A=A-1
380 C=INT (A/100)
385 YR=A-(C*100)
390 X=INT((2.6*MO)+.8+YR+INT(YR/4)+INT(C/4)(2*C))
395 FOR G=7 TO 56 STEP 7
400 IF X>0 THEN 415
405 X=X+G
410 NEXT G
415 F=X-(7*INT(X/7))
430 IF (M=2)*((Y/4=INT(Y/4))*((Y/100<>INT (Y/100))+(Y/400=INT(Y/400))))
THEN 470
490 M$=SEG$("[28 SPACES]",1,F*4+2)&M$
610 CALL HCHAR (24,3,99,28)
620 CALL VCHAR (1,3,99,24)
630 CALL VCHAR (1,31,99,24)
```

The other amendments not already covered are only cosmetic but I, obviously, feel they add to the original program.

Donald Thomas,
Chatham, Kent

It's not a fluke . . .

Congratulations. Yours is the first magazine I have found to print a program that works — Mine Sweeper for the VIC-20 (HCW 25).

I was beginning to think I would never do it and the magazines had put mistakes in to upset the programs. I hope the above program was not a fluke as I intend buying your magazine from now on.

I must admit when I first saw your magazine I thought: "Yuk, what a cheapie." But when I got into it I found your magazine better than the rest as your printing is OK to read, no fussy bits and, the best part, the programs work and the price is down on the others by half.

Keep up the good work and thanks for keeping me interested.

J Havies
Brentford, Middx

Oric springs a surprise

Oric Products has sprung a surprise which has caused an error in two of my articles in Home Computing Weekly. These appeared in issues 14 and 25, and covered the topic of colour serial attributes on the Oric 1.

The original Oric handbook clearly states that the address of the display file in the 16K Oric is 32K below that of the 48K Oric. This was the information which I passed on to readers in my articles.

However, trying out a 16K Oric in my friendly local Dixons branch, I found that the address of the display file is identical to the 48K model.

All the examples I gave in my articles will work on both models of the Oric.

David Nowotnik

Twice Over

In my Forest Rallye program, (HCW 26), I have noticed that line 1030 to 1120 have been printed twice, which may confuse some readers. Perhaps you could publish a note to the effect that the second set of line numbers should be ignored.

Graham Baldwin

NEW HOME COMPUTER CABINET

£95
incl. VAT & Delivery

Especially designed for your home computer system, whilst also accommodating your video recorder.

Our cabinet has been custom designed after intensive consultation with P.C. users to provide maximum comfort and convenience during those long hours spent slaving over a hot micro.

The cabinet includes many features not previously available, and as well as combining the very best aspects of modern furniture design, it provides an ergonomic and practical layout for all the major components of your system.

In fact, we are proud to claim that your cabinet will look perfectly at home in your lounge, dining room, or even bedroom.

JUST CHECK THESE STANDARD FEATURES

1 Smooth sliding shelf locks in position just where you require it — and neatly glides away after use.

2 The computer shelf has been designed to allow adequate 'Knee room' for you to sit comfortably, and will avoid 'programmers backache'.

3 Adequate room to position tape recorder, printer, disc-drives, etc, alongside computer for ease of use.

4 All cables neatly and safely out of sight, while allowing all units to be permanently connected if desired.

5 Lots of storage space for cassettes, cartridges, books, listing paper, joysticks, etc.

6 With shelves and doors closed, instantly becomes an elegant piece of furniture.

7 The lower shelf accommodates all makes of video recorders currently available.

8 Smart teak effect finish.

9 Supplied as a flat-pack. Very simple to assemble, using just a screwdriver. Full instructions supplied.

TERMS OF OFFER UK Mainland Customers only. Please allow up to 28 days for delivery. Cash with order or charge to one of the credit card accounts specified. Money back guarantee if not satisfied provided the goods are returned undamaged within 72 hrs of the customer taking receipt.

ORDER FORM

Please send me one of your new Home Computer Cabinets as advertised. I enclose my cheque for £95.00 or please debit my

Access/Barclaycard No ..... Name (Block letters) ..... Signed .....

Address .....

.....

.....

MOUNDPORT LIMITED, 151 ALBERT ROAD SOUTH, SOUTHAMPTON SO1 1GB Telephone (0703) 34974

Break down the language barriers

Using these programs, you can do some straight talking to your computer

Mace Dragon £29.95 (cartridge)

Windrush Micro Systems, Worstead Laboratories, North Walsham, Norfolk NR28 9SA

This useful cartridge combines all the features of a monitor, an assembler and an editor for use in writing or learning to write machine code programs.

The cartridge is smaller than most and hardly rugged but performs its job very well.

It is supplied with very impressive documentation in the form of an 80 page manual which comprehensively explains all of MACE's features and many of the elements of the 6809 assembly language.

However, any beginner to assembly language programming and indeed some old hands will need a full reference guide.

The cartridge is surprisingly simple to use and does save valuable time in preparing and writing a machine code program. I particularly liked the assembler which among other things has the ability to assemble without a listing to screen, printer, tape or memory.

It also comes up with text error messages — very helpful in detecting any coding errors, a feature I unfortunately need too often!

It would be impossible to detail all the functions of this versatile cartridge. **C.G.**

instructions	90%
ease of use	80%
display	n/a
value for money	85%

★★★★

M Coder 48K Spectrum £9.95

PSS, 452 Stoney Stanton Road, Coventry CV6 5DG

One of the few genuine compilers for the Spectrum, this program is loaded into the computer where it sits at address 60,000 onwards. Type in or load another program, call M Coder and hey presto, a machine code version of your program!

"Oh yes" you say, "you don't get something for nothing". Well, you do have to select your BASIC keywords carefully — a few don't operate and some perform differently with M Coder. You can only work in integers, have one dimensional numerical arrays and no string arrays. There are a few other limitations but nothing that a resourceful programmer can't get around.

Although comparatively inefficient (to dedicated code) a speed increase from 10 to 100 times the original can be obtained — a BASIC game I M Coded went from boring to unplayable, and delays had to be introduced!

You can also compile and save code in parts, so a suite of M/Code subroutines is feasible. The program instructions are supplied on a leaflet and are concise, but expect the user to be familiar with BASIC.

I found the program easy to use and wonder how I got on without it. **R.E.**

instructions	90%
ease of use	90%
display	n/a
value for money	100%

★★★★★

Monitor & Dissassembler 48K Oric-1 £4.95 each

Pasesoft, 213-215 Market Street, Hyde, Cheshire SK1 1HF

These two programs come as separate cassettes but their application is so similar that I shall review them together.

The Monitor is a straightforward and rather uninspiring program which offered me an impressive-looking menu of options.

On closer inspection, however, I found that 75% of these options were either of very limited use or merely implemented existing keyboard commands (such as CALL).

These are minor problems though and the program does allow you to look at, fiddle about with and move around chunks of memory in an efficient and workmanlike manner. The memory display is particularly impressive, and should prove helpful to anyone unused to poking around in the Oric's memory.

There is not much you can say about dissassemblers; they either do or they don't. This one definitely does and it does it very nicely. You input the start address and it churns out pages of 6502 mnemonics until you stop it. One gripe however, is that the start address must be in decimal notation exclusively.

G.P.

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

★★★★

Toolkit BBC B £8.95

Logic Systems, 129 High Street, Cherry Hinton, Cambridge

This program is essentially for machine code programmers and creates an additional 13 Basic commands to the BBC's already extensive system.

BREAK sets up a breakpoint in a machine code program.
BREAK? prints the current breakpoint address.
CHECK calculates a check sum between two given addresses.
DIS disassembles code between two addresses into 6502 mnemonics.
FIND finds all locations, between given addresses, of a number of text string.
HEX prints a Hex dump between given addresses.
MOVE moves code; useful for altering code for DISC/TAPE systems or data blocks.
MEM stores bytes; similar to ? ! and $ operators.
RELOC similar to move, except code addresses are altered to allow it to run at the new address.
SHUT turns off the toolkit.
STEP steps through a m/c program displaying information.
TOOL displays toolkit commands.
XEQT runs a m/c program.

The program occupies memory from &7100 to &7C00. An accompanying booklet explains how to use this clearly and simply. **R.E.**

instructions	92%
ease of use	90%
display	90%
value for money	80%

★★★★

Forth FP50 48K Spectrum £14.95

Hampson & Lord Software, 7 Hereford Drive, Clitheroe, Lancs. BB7 1JP

A program which turns your Spectrum into a computer which you program in Forth instead of BASIC.

Forth is a high level language which needs a logical approach, based on creating "subroutines" in the form of a dictionary of "words" and using a stack of numbers. Many claim that it is easier to learn Forth than BASIC. I had no previous experience, but had a set of "invaders" up and invading 1½ hours after loading this program.

Technically, this is a BASIC program which compiles entries into Forth format. It will process both integer and floating point — decimal — numbers and will handle all Forth-79 structures plus special Spectrum commands, for colour sound and UDGs.

A 12-page typed, A4 booklet/manual is supplied, which I found simple to understand and which contained very short, one line, demos. It's a good introduction, but I needed a book to really get to grips with the language's capabilities. A few more demo programs with visual effects would have been nice. **R.E.**

instructions	86%
ease of use	99%
display	90%
value for money	97%

★★★★★

Games of the unexpected

for the unafraid...

THE WHITE BARROWS

Somewhere amid this maze of burial chambers lurks an Evil Sorcerer whom you need to trap. Trouble is, he's protected by Trolls, Dwarves, Serpents and the occasional Dragon or two! Your magic staff will block the tunnel to prevent him escaping unless, that is, he outwits you.
A real brain twister, White Barrows requires both brains and brawn from its players. It's no good just hacking your way through the Barrows and hoping to fall over the Sorcerer. Eventually you'll meet a Dragon, and they don't hack easily! You'll need all your strength and cunning to survive this one for long.
THE WHITE BARROWS Only £6.50 all inclusive!

CELLS AND SERPENTS

More monsters than you ever thought could live behind your keyboard. Wander the hills in search of gold and glory but be very, very careful where you tread! There are things here that will make your wildest nightmares look like Julie Andrews. Fancy meeting a Mind Flyer, for example? Or how about shaking hands with an Asmodeus? (You'll only do that once!) Treasure is here to be found though . . . the hard way.
See just how good you really are at adventuring with this practically unsurvivable fantasy. Not for the faint of heart or the slow of sword.
CELLS AND SERPENTS Only £6.50 all inclusive!

*** SPECIAL DEAL ***
Both programs for only £11.45 all inclusive!

Our Adventure Series programs are available on tape for the following systems: Commodore VIC-20 (not available for White Barrows), Commodore PET, Sharp MZ-80A and MZ-80K, Tandy TRS-80 Model 1, BBC Model B or 32K Model A, Atari 400 and 800, Sinclair 48K ZX Spectrum.

ASP Software, ASP Ltd,
145 Charing Cross Road, London WC2H 0EE

Please send me . . . tape(s) of the following programs:
The White Barrows . . . . . @ £6.50 each
Cells and Serpents . . . . . @ £6.50 each
Both tapes at special price . . . . . only £11.45
My system is a . . . . . computer

TRADE ENQUIRIES WELCOME

I am enclosing my Cheque/Postal Order/Money Order (delete as necessary) for £ . . . (payable to ASP Ltd)
OR Debit my Access/Barclaycard (delete as necessary)

Please use BLOCK CAPITALS and include your postcode
NAME (Mr/Ms) . . . . . .
ADDRESS . . . . . .
. . . . . .
. . . . . POSTCODE . . . . . .
Signature . . . . . Date . . . . . .

HOME COMPUTING WEEKLY CLASSIFIED

Lineage:
235p per word — Trade
125p per word — Private
Semi display: £6.00 per single column centimetre
Ring for information on series bookings/discounts.

All advertisements in this section must be prepaid.
Advertisements are accepted subject to the terms and conditions printed on the advertisement rate card (available on request).

01-437 1002
EXT 282.

Send your requirements to:
Julie Bates
ASP LTD.
145 Charing Cross Road,
London WC2H 0EE

ACCESSORIES

Atari 400/800 'Supaklone'. Don't risk losing your favourite programs! Supaklone copies most m/c-Basic cassettes (including bootable) £15.95 (post free). Supaklone, 42 Avon Drive, Huntington, York YO3 9YA.

PROGRAMS MAKE MONEY
SELL YOUR PROGRAMS QUICKLY AND EASILY THROUGH H.C.W. SOFTWARE SECTION.
RING 01-437 1002
EXT 213.

Dust Covers available for any computer printer, etc. BBC, TI, Epson £3.95. Dragon, Atari, VIC-20 £2.95. Sharp MZ-80A-K, £4.95p, for others please phone or write to: Sherborne Designs, Victory House, 8A, The Rank, North Bradley, Trowbridge, Wilts. Tel: 02214 4425. Also made-to-measure service. Dealer enquires welcome. Access and Barclaycard.

Speed up the action with

PICKARD JOYSTICK CONTROLLER

Allows use of any keys, not just cursors — no special programming — does not affect other add-ons — special price until the end of June.
Price: £19.95 + £1.50 p&p
Spectrum ZX81 compatible

Success Services, 154 High Street, Bloxwich, Walsall, West Mids WS3 3JT.
Tel: (0922) 402403

ELKAN ELECTRONICS **NEW! NEW!**

NANOS "quick-reference" cards — easier to use than the manuals!

Dragon 32	£3.95
Commodore 64/VIC-20	£3.95
Sinclair ZX81	£3.50

QUICK-SHOT self-centring joysticks — improve your scores!

Dragon 32 (specially developed by ELKAN)	£14.95*
Atari 400/800	£12.95*
Commodore 64/VIC-20	£12.95*

*£1 p&p

ELKAN ELECTRONICS, FREEPOST
11 Bury New Road, Prestwich, Manchester, M25 6LZ. Tel 061-798-7613

BOOKS

48K SPECTRUM
at last something different
'SYPHAX'
100 pages of Jokes, Quizzes, Puzzles, Conversion charts, Gardening diary, and general World & British information, including programming aids. For the whole family.
Introductory offer £3.50 inc. p&p
Rosetta Software, 2, Rosetta Close, Wivenhoe, Essex. CO7 9RX

BOOK SALE?
IT COULD BE YOUR BOOKS FOR SALE.
RING 01-437 1002
EXT 213 NOW.

MICRO TAN 65 OWNERS

The Micro Tan 65 is back. If you want to be kept up to date with the latest news — reviews — hardware and software products, then you should subscribe to:

The Micro Tan World Magazines

Published by Microtanic Computer Systems Ltd, the new owners of the Micro Tan 65 system. Please send £10 for 1 year's subscription to:

MCS Ltd
16 Upland Road
Dulwich
London SE22
Tel: 01-693 1137

HARDWARE

TI99/4A
Single cassette lead, £3.95. Dual cassette lead, £4.95. Cassette recorder (it works guaranteed), including tape counter, record lamp, bat/mains operation, ect, £22.48. Recorder + single lead, £24.95, all prices inc VAT full list (see also software games classification). Cheques/POs, **Christine Computing, 6 Florence Close, Watford, Herts.**

BUY OR SELL HARDWARE THROUGH H.C.W.
RING 01-437 1002
EXT 282.

FOR HIRE

To Hire a Computer from ZX81 upwards, ring or write to: Business and Computer Services, 292 Caledonian Rd., N1 1AB. Tel: 01-607 0157.

RECRUITMENT

Move your Retail Career into a Growth Market

Home Computer Sales Consultants

Boots are already one of the country's most successful retailers in the rapidly expanding Home Computer market and we have a strong commitment to further expansion for the future. To help us maintain our position in this growth area we are looking for young men and women to become a Home Computer Sales Consultant for our branch in Hull.

You will need to be aged 19-30, and at least 2 years of retail experience is essential (or slightly less if you are a commercially orientated graduate) – some of which should have been selling home electrical, photographic, audio or similar goods requiring some technical advice. Ideally you will already have a basic appreciation of home computer use from hobby or other interests. The ability to communicate effectively with customers and to train and motivate staff to maximise sales is essential.

Comprehensive product training will be given to build upon your existing experience. Salary will be in the region of £5,000 per annum. Other benefits include: generous staff discount, 5 day week, profit sharing, pension and sick pay schemes.

Please telephone Mrs. L. Tomkins, Staff Officer on Hull 223334.

Boots The Boots Company PLC

FOR SALE

BBC Lightpen — Cheapest on market, £19.50 + £1.50 P&P. A. M. Technology, Room 11, Ambleside, Valley Drive, Gravesend, Kent DA12 5UE.

VIC1515 Printer, Vicwriter and paper £180. Arfon expansion unit with switched sockets and cover. Tel: 0258 55420 after 5 pm.

Sharp MZ-80A, Knockout Whist, with instructions for beginners, and Launcher £4.99. Scotsoft, 16 Grange Road, Edinburgh, EH9 1UJ.

As new Vic 20 plus tape recorder and books £110. Tel: 0787 247540.

Occasion: Atari 800 48K (Pac-man + joysticks, chess) + program recorder 410 + interface 850 Atari word processor keyword mailshot program. Further details: Tel: 01-789 7261.

SERVICES

ALL YOUR CASSETTE NEEDS

Blank cassettes C15 with case, 40p each.
Labels in Blue, White or Yellow, 20 for 36p. Inlay cards in Blue, Red or Yellow 20 for 60p. Library cases, 9p each.
Postage on each complete order 55p.
Stonehorn Ltd, (HCW), 59 Mayfield Way, Barwell, Leicester LE9 8BL.

DO YOU OFFER A SERVICE PEOPLE IN COMPUTING REQUIRE? IF SO WHY NOT TELL THEM ABOUT IT? RING 01-437 1002 EXT 213. TO APPEAR IN THE SERVICES SECTION.

SOFTWARE GAMES

MYSTERIOUS ADVENTURES
For the BBC Micro and 48K Spectrum (*Spectrum version with high res graphics*)
choose from the following titles:—

1. The Gold Baton
2. Time Machine
3. Arrow of Death (Part 1)
4. Arrow of Death (Part 2)
5. Escape from Pulsar 7
6. Circus
7. Feasibility Experiment
8. The Wizard Akyrz
9. Perseus and Andromeda
10. Ten Little Indians

Each one only £9.95 incl. Available from:—
Digital Fantasia
24 Norbeck Road, Norbeck
Blackpool, Lancashire
Tel (0253) 591402
Trade Equiries welcome

LANTERN SOFTWARE
TI99/4A
High quality arcade games and utilities inc., Troll King and Daddie's Hotrod. S.A.E. for details to: 4 Haffenden Road, Tenterden TN30 6QD.

TI99/4A
Games
North Sea, Astro Fighter, Core! Code Break/3D Maze. The above at £3.50 each or £6.50 for 2, £9.00 for 3.
Literature:
(Tape & Booklet) handy sub-programs, £4.50. See also hardware classification. SAE for list (overseas one international reply coupon).
Trade enquires welcomed.
Christine Computing, 6 Florence Close, Watford, Herts.
Tel (09273) 72941

5D SOFTWARE ZX81 (16K)
SOFTWARE BARGAINS
4 great new games by various authors on 1 tape.
- **JAILBREAK**
- **DOSTMAN DAN**
- **A DAY AT THE RACES**
- **CONTRACTORS PAY CALCULATOR**

Only £3.50 available now!
Orders to: **5D SOFT**
Hempland Cottage, North Lopham, Diss, Norfolk.

Soft Joe's
Superb new game for Spectrum/CBM 64
TRAX!
100% machine code action available now
£5.50
Cheap at the price!
Soft Joe's Business Centre Claughton Road, Birkenhead, Merseyside L41 6EF.
Tel: 051-647 8616

REGENCY SOFTWARE
Special Offer on Com. 64 games
Pacacuda, Ape Craze, Centrapod, Sketch & Paint, Escape MCP — **only £4.99 inc p&p**
Cheques/PO's or SAE for details to:
Regency Software, PO Box 28, Ascot, Berkshire SL5 7RR.
Tel: 0990 22707.
Trade enquiries welcome.

Over 500 titles for ZX81, Spectrum, VIC-20, BBC A & B, Texas TI/99, Commodore 64, Oric, Dragon 32, sae for lists. "Basic Software", 96 Tippetknowles Road, Winchburgh, West Lothian.

Unexpanded TI-99/4A programs: Air Attack £5.25, Alien Alert £4.25, Grand Prix £3.95. Microsonic, 85 Malmesbury Road, Cheadle Hulme, Cheshire.

Avalon Computing
A comprehensive range of software titles Spectrum 16K/48K, Vic 20, Dragon, Oric, Commodore 64, BBC, Atari 400/800

Egs.	
AH Diddums (Spectrum)	5.49
Monster Mine (Dragon 32)	7.95
Frantic (Vic 20)	5.49
4D Terror Dactyl (Spectrum)	5.99
Attack of Mutant Camels (Com 64)	6.99
Space Pirates	5.49

(inc VAT) **plus** 100's more titles at competitive prices. Send a large sae for catalogue p&p 50p per order or free for 2 tapes
Avalon Computing, 14 Cliff Rd, Hornsea, N.Humberside HU18 1LL.
Tel: 04012 2791

TEXAS TI99/4A
New original Software for the Unexpanded Machine
'Fishing For Points'
An unusual challenge — try to catch some unpredictable fish as they swim around your screen.
'Creative Symmetry'
Use your keyboard to create your own beautiful symmetrical patterns.
Gives endless enjoyment.
£4.95 each or *£8.00* for the two
Cheques/P.O.'s to:
E.N.T. Software, 200 Chase Side, Enfield, Middlesex. EN2 0QX.

TI99/4A
Hopper £2.99
3 screens of action in extended Basic. Please include 50p p&p. Data-Soft, 22 St, Albans Tower, Iris Way, Chingford, London E4 8RG

SOFTWARE APPLICATIONS

SPECTRUM KOPYKAT £4.95
SIMPLY THE BEST. Play tape to be copied then press a key for back-up copy. Any ZX Spectrum program easily duplicated. Programs over 41.5K (8.7K for 16K machines) are copied with ease. 100% machine code. Plus, FREE Tape-Header Reader program IMMEDIATE DESPATCH Send cheque/PO to:
MEDSOFT
61 Ardeen Rd., Doncaster, S.Yorks DN2 5ER.
IT CAN EVEN COPY ITSELF

ATARI 400/800 16K
Multicoloured Character Generator £5.50
Exploit the Atari *Multicoloured* Antic Modes 4 & 5 in your own programs...
Character Generator £3.50
Define your own character set for use in Graphics Modes 0-2...
Both programs feature full editing and the redefined set is saved to cassette for use in your own programs
Supplied on cassette. Prices inc P & P. Both programs together only £8.00
P.F. Software, 14 Kirkstall Ave., Littleborough, Lancs OL15 9JA.

HGIH YTILAUQ, WOL TSOC, 18XZK16 SMARGORP. Send sae to: PAC, 26 Stray Road, Appletree Village, York.

Sharp MZ80K copy program, back up your software investment with easy to use program. Supplied on cassette for £6.95. Cheques/PO to: Terence Andrew, 53 Wildlake, Orton Malborne, Peterborough.

SOFTWARE EDUCATIONAL

TI99/4A Biology Assessment 0-level and 0-grade programs. 1. Respiration/Photosynthesis; 2. Reproduction/Genetics; 3. Feeding/Digestion; 4. Water balance/Transport systems. £3.50 each. £6.50 any two. £9.00 any three. £11.00 all four. F. Thornhill, 5 Highburgh Drive, Rutherglen, Glasgow G73 3RR.

USER GROUPS

TI-99/4A Britain's alternative home-users, newsletters, Ti-modules exchanges, SAE TI-users. 40 Barrhill, Patcham, Brighton BN1 8UF.

WANTED

WANTED
High quality software of all types for the VIC, CBM 64 and Spectrum for export and UK distribution. Could your program be No. 1 in Isreal, Norway or Canada? Tel: (0492) 49747 or write to:
Mr Chip Software, 1 Neville Place, Llandudno, Gwynedd LL30 3BL.

TIRED OF YOUR COMPUTER? RING 01-437 1002 EXT 213. AND SELL THE WEEK AFTER.

Hundreds of Second-Hand Tapes on Offer
Games and Educational for the Vic-20, Spectrum, ZX81, Dragon 32 and others. We stock various second-hand add-ons, (e.g. joysticks and rampaks).
Quality Blank Cassettes
As used by the best software companies at incredibly low prices.
10×C10 £5.00 10×C12 £5.50 10×C15 £6.00
WANTED: Second-hand software, anything for computers including games. Please send SAE for details or telephone between 9 a.m.-5 p.m.
HEATH MICROWARE
4 GATEACRE AVENUE, OSWESTRY, SHROPSHIRE
0691-652626

NATIONWIDE SHOPS & DEALERS

LONDON

SOFT MACHINE

A large selection of the very best software, books and some accessories available for ZX81, Spectrum, BBC, Dragon, VIC-20 and Commodore-64 microcomputers at:
3 Station Crescent, Westcombe Park, London SE3.
Tel: 01-305 0521, or send SAE for free catalogue (state which computer).

DO YOU HAVE ENOUGH STAFF TO COPE WITH LISTING YOUR SHOP IN THIS SECTION? FOR MORE CUSTOM LIST YOUR SHOP AND LOCATION. RING 01-437 1002 EXT 213.

SURREY

Top Name Software
(eg. Bug-Byte, Imagine, etc.)
At rock bottom prices. Send SAE for list:
SHEENSOFT
1 The Parade, Lower Richmond Road, Richmond, Surrey.
Tel: 878 0530.

STAFFS

Computerama - The Midlands Home Computer Specialists

FOR BBC, SPECTRUM & ALL LEADING MICRO'S
STAFFORD: 59 FOREGATE ST
TEL: 0785 41899
STOKE-ON-TRENT:
MARKET SQUARE ARCADE
TEL: 0782 268620

WARWICKSHIRE

Carvells of Rugby Ltd,
3/7 Bank St., Rugby.
Tel: 0788 65275/6
VIC-20 starter pack computer + C2N Tape Unit, intro to Basic Pt 1 and 4 games. Only £134.00, usually, £154.95. Texas TI99/4A, now only £99.95 + unbeateable Texas offer.
We also stock BBC B, Electron, CBM 64, Spectrum + Software books. Phone or visit soon.

TO BE INCLUDED IN THIS SECTION RING 01-437 1002

MAIL ORDER PROTECTION SCHEME

If you order goods from Mail Order Advertisers in this magazine and pay by post in advance of delivery, this publication will consider you for compensation if the advertiser should become insolvent or bankrupt, provided:

1. You have not received the goods or had your money returned; and
2. You write to the publisher of this publication explaining the position not earlier than 28 days from the day you sent your order and not later than 2 months from that day.

Please do not wait until the last moment to inform us. When you write, we will tell you how to make your claim and what evidence of payment is required.

We guarantee to meet claims from readers made in accordance with the above procedure as soon as possible after the advertiser has been declared bankrupt or insolvent to a limit of £1,800 per annum for any one advertiser, so affected, and up to £5,400 p.a. in respect of all insolvent advertisers. Claims may be paid for higher amounts, or when the above procedures have not been complied with, at the discretion of this publication, but we do not guarantee to do so in view of the need to set some limit to this commitment and to learn quickly of reader's difficulties.

This guarantee covers only advance payment sent in direct response to an advertisement in this magazine (not, for example, payments made in response to catalogues, etc, received as a result of answering such advertisements):

CLASSIFIED ADVERTISEMENTS ARE EXCLUDED.

CLASSIFIED ADVERTISEMENT — ORDER FORM

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.
13.	14.	15.

PREFERRED CLASSIFICATION

Please place my advert in Home Computing Weekly for weeks.
Please indicate number of insertions required.

Advertise nationally for only 25p Private, 35p Trade per word (minimum charge 15 words). Simply print your message in the coupon and send with your cheque or postal order made payable to Argus Specialist Publications Ltd to:

CLASSIFIED DEPT., HOME COMPUTING WEEKLY,
145 Charing Cross Rd., London WC2H 0EE.
Tel: 01-437 1002.

Name .....

Address .....

.....

.....

Tel. No. (Day) .....

VISA

at the sign of the BIG 'M'

MICRO MANAGEMENT

LOW prices BEST service

OVER 1000 SOFTWARE TITLES AVAILABLE FOR BBC SEND FOR LIST

- Britain's No 1 range of products
- Check our UK dealer network for your nearest outlet
- After sales, speedy service from our own factory and engineers

It's our aim to provide satisfaction at the sign of the Big 'M'. By providing local distributors, best prices and service, we offer you the most. If you don't see it in our ad., ask your local distributor, or write to our Head Office for full list. *All prices include VAT.* All products normally in stock but to prevent a wasted journey phone your local dealer first before calling.

BBC ORIC ATARI COMMODORE
JUPITER COLOURGENIE SINCLAIR
DRAGON LYNX MICROPROFESSOR

AGENTS

Head Office: 16 Princes St, Ipswich 0473 219461

Abergele
Abergele Computer Centre
8 Water St. 0745 826234

Ballymoney
Everyman Computers
Charlotte St. 02656 62116

Birmingham
The Software Centre
80 Hurst St, B5 021 622 2696

Bodmin
Microtest Ltd
18 Normandy Way 0208 3171

Bridgend
Automation Services
31 Wernlys Rd, Penyfai 0656 720959

Bristol
The Model Shop
65 Fairfax St. 0272 23744

Bromley
Datastore
6 Chatterton Rd. 01 460 8991

Cambridge
GCC (Cambridge) Ltd
66 High St, Sawston 0223 835330

Chelmsford
Essex Computer Centre
Moulsham St. 0245 358702

Clacton-on-Sea
Clacton Computer Centre
Pier Avenue 0255 422644

Colchester
Emprise Ltd
58 East St. 0206 865926

Coventry
Coventry Micro Centre
33 Far Gosford St. 0203 58942

Gloucester
The Model Shop
79 Northgate St. 0452 410693

Great Yarmouth
Criterion Computers
12 George St. 0493 53956

Guildford
The Model Shop
23 Swan Lane 0483 39115

Hastings
The Computer Centre
37 Robertson St. 0424 439190

Hay-on-Wye
The Playpen
Market St. 0497 820129

Hemel Hempstead
Faxminster
25 Market Square 0442 55044

Holyhead
P & K Computers
33 Williams St. 0407 50283

Hull
Computer Centre (Humberside)
26 Anlaby Rd. 0482 26297

Ilfracombe
Bits & Bytes
44 Fore St. 0271 62801

Ipswich
Micro Management
32 Princes St. 0473 59181

Kingston-on-Thames
Vision Store
3 Eden Walk 01 549 4900

Lichfield
Fosters
59 Tamworth St. 05432 22341

Liverpool
Beaver Radio
20/22 Whitechapel 051 709 9898

London
Computers of Wigmore St.
87 Wigmore St, W1 01 486 0373

Percivals
85 High St North, East Ham, E6
01 472 8941

Trend Video & Hi Fi
167 High St, E17 01 521 6146

Northampton
Richard Reeves
174 Kettering Rd 0604 33578

Plymouth
FTB Lawson
71 New George St 0752 665363

The Model Shop
11 Old Town St. 0752 21851

Shetland
Tomorrows World
Esplanade, Shetland 0595 2145

Southend-on-Sea
Estuary Software
261 Victoria Ave. 0702 43568

Stevenage
Video City
45/47 Fisher Green Rd. 53808

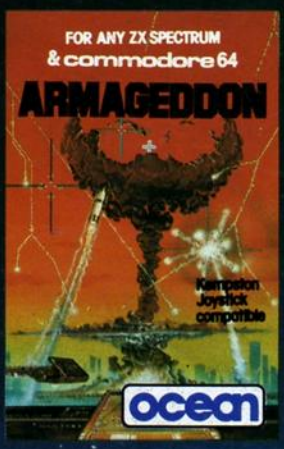
Stroud
The Model Shop
22 High St. 04536 5920

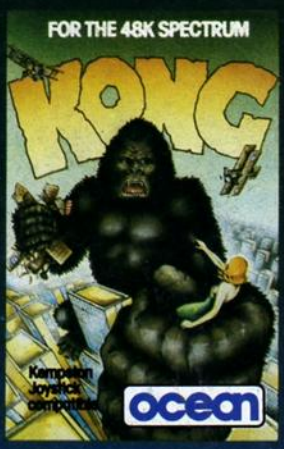
Surbiton
Computasolve
8 Central Parade, St Marks Hill
01 390 5135

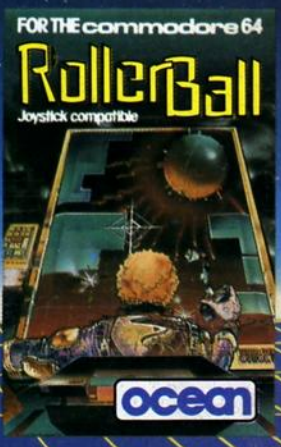
Taunton
LA Gray
1 St James St. 0825 72986

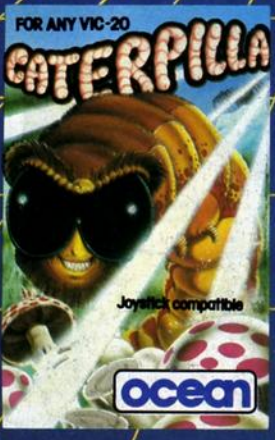
West Bromwich
Bell & Jones
39 Queens Square, Sandwell Centre
021 553 0820

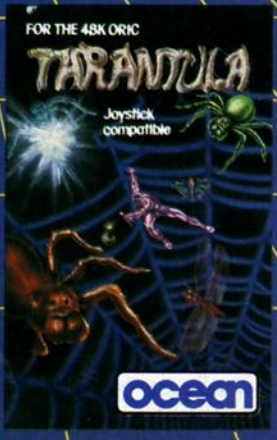
ocean's 11











Simply Sensational

Featuring

- ANIMATED GRAPHICS
- ARCADE SOUND EFFECTS
- MACHINE CODE ACTION

SUPERB GAMES PACKED WITH MORE FUN, CHALLENGE AND EXCITEMENT

Spectrum Titles	£5.9
VIC 20 Titles	£5.9
commodore 64 Titles	£6.9
Oric 1 Titles	£6.9

Expect the Best-insist on

DEALERS:
Ocean's Fast Selling range is available from all major distributors, for further information phone 061-832 7049

ocean

NUMBER 1 IN GAMES SOFTWARE
OCEAN SOFTWARE LIMITED, RALLI BUILDINGS, STANLEY STREET, MANCHESTER M3 5FD.

Ocean Software is available from W H SMITH, John Menzies, selected branches of LASKYS, Spectrum Shops, Computers for all, RUMBELOWS, Major Department Stores and all good software outlets.
Details phone 061-832 9143