

POPULAR Computing WEEKLY

40 Rock
Only 45p.

2 May - 8 May 1985

It's the best selling weekly

Vol 4 No 18

New BBC out now

ACORN'S new £499 BBC B Plus micro (see *Popular Computing Weekly*, April 25) should be available in the shops this week.

The company has apparently been building up stocks

of the machine for some time, but delayed the announcement until it was confident it could meet demand.

"The new machine is not intended in any way to be a replacement for the BBC B,"

said an Acorn spokesman.

The company does not intend to develop new software specifically for the Plus which will not run on the BBC B. "New software which takes advantage of the extra memo-

ry will not depend on it to run," he added.

The B Plus is intended as a refined version of the standard BBC B model. It has the same operating system and BBC Basic combined on to a single chip, an enhanced disc interface, and disc utilities such as formatting are now built-in. The extra 32K Ram is divided between 20K of shadow screen Ram and 12K of paged Ram. Modes 128 to 135 are the shadow screen Ram equivalents of Modes 0 to 7.

Additional disc filing commands include *Format, Verify, Free, Mat, Roms, and Drive.*

At the same time Acorn has

C64 price drop ruled out

COMMODORE UK's new general manager Nick Bessey spoke out last week against any possible price cuts on the Commodore 64.

"We will not be cutting the price of the 64 within Commodore," he said. "The product should be sold at around £200, and I believe it can justify that price."

He was speaking in response to claims by Boots and Laskys that they were considering dropping the Commodore 64 because of the recent high street price war, includ-

ing a swingeing price cut for the Plus/4 (see *Popular Computing Weekly*, April 18).

"I see the Commodore 64



Nick Bessey

as being our major product at least until 1986, but I have sympathy with the retailers' position - if I were in their place I would be concerned about Commodore's marketing programmes. We urgently need to work with the high street, and will shortly be showing them our marketing plans for the year."

Replying to the claim that the price cut on the Plus/4 from £299.99 to £149.99 had made the 64 look like a bad buy, Nick said, "The market has not been enthusiastic about the Plus/4. I don't see the machine as being a major theme of Commodore's, though we want to continue software support."

"The Plus/4 could do with improvement in the Rom - having done that we will reconsider its position. Last year it was felt that bundled software would be a hit, but what has been shown is that people are more concerned with compatibility."

He also denied any possibility that the forthcoming C128 might replace the 64.

"The C128 is being aimed continued on page 4 ▶



The BBC B - no price change?
firmly denied that it has any plans to reduce the price of continued on page 4 ▶



FAR LEFT Ultimate has released its second Commodore 64 title, *Entombed*, a sequel to *Staff of Karnath*.

Entombed at £9.95 is an arcade adventure with high resolution 3D graphics and complex puzzles.

LEFT *Dun Darach*, the sequel to the critically acclaimed *Tir Na Nog* is now nearly completed. The game involves a number of characters as well as hero Cuchulainn.

A great NEW game from A&F.



CHUCKIE EGG 2

EXTRA EXTRA EXTRA EXTRA!!!
CHUCKIE EGG 2 COMPETITION!



Our intrepid hero "Hen House Harry" of "Chuckie Egg" fame has been called in to help a "Chocolate Egg" manufacturer sort out his automated factory, which has gone haywire. Harry, using all the skills he acquired working in the Hen House must get the wheels of industry moving.

Not only does Harry have to collect the ingredients to mix the eggs, but he will also have to collect the parts for the toys that go inside the eggs.

As if all these problems were not enough there are a number of other items that Harry will need to find and use to be able to complete the task. Things like ladders, bits of girders, keys and many more.

Chuckie Egg 2 contains 120 screens, plenty of surprises, and it is a true Arcade/Adventure game - you don't just find things, you actually move them and use them.



Great games. Great ideas.

AVAILABLE FROM GOOD COMPUTER STORES
(R.R.P) £6.90 ALSO AVAILABLE DIRECT FROM A&F

A&F Software, Unit 8, Canal Side Industrial Estate,
Woodbine Street East, Rochdale, Lancs OL16 5LB.
Telephone: 0706 341111

View

Recent reports have suggested that Chris Curry and Hermann Hauser are unhappy with the way things are going at Acorn, following its takeover by Olivetti.

Yet things seem to be carrying on much as before.

The new Acorn BBC B Plus at £499 is as overpriced as any previous Acorn product. Just who is going to pay £500 for a 64K 8-bit micro? A poser, is it not? Especially when Atari's new 130XE uses the same processor chip, offers 128K Ram and costs only £170 – around one third of the price.

Further, the BBC B Plus' price tends to indicate that the machine is to sell alongside the present BBC B and that the long hoped-for price cut of the older machine from £400 will now not happen.

In fact, the launch of the £500 B Plus may well herald the end of Acorn as a serious force in the home computer business.

With such a blinkered pricing policy – BBC name or not – the B Plus will fail in what one presumes is its main objective: to tide Acorn over until the software compatible 16-bit version of the BBC can be produced.

Instead the B Plus will be greeted by universities and research laboratories in industry as an enhancement of what is already a very successful development tool. Here the BBC's excellent interfacing for control applications and the Plus' extra Ram and the additional Rom socket will be welcomed. And Acorn may sell a few thousand.

Either Olivetti shows the same understanding of the home market as the 'old' Acorn demonstrated or the company is deliberately attempting to pull Acorn out of the dangerously volatile home computer arena.

POPULAR Computing WEEKLY

Vol 4 No 18

Presents...

News > Melbourne House's latest

4

Software Reviews > *Bored of the Rings* on Spectrum > *Pole Position* on CBM 64

10

Streetlife > John Cook takes a ferry across the Mersey and talks to the brains behind *Shadowfire* – Denton Designs

15

Hardware Reviews > Cheetah Sweet Talker for the Commodore 64 > Power Switch from Rainbow Electronics

17

Star Game > Over the sticks with this showjumping game – Horse of the Year for BBC B

18

Commodore 64 > Keep track of your names and addresses on tape

20

Spectrum > Get those Basic programs running faster – Part Two of Compiler

22

The QL Page > An on-screen calculator for your own programs by David Payne

26

Amstrad > Making waves on your Amstrad – brought to your from the keyboard of John Kennedy

29

Best of the Rest > Letters 6 > Peek & Poke 31 > Arcade Avenue 32 > Adventure Corner 35 > Readers Chart 42 > Diary, Top 10 42 > This Week 44 > New Releases 44 > Puzzle, Ziggurat, Hackers 46

Futures...

Arcade action in our QL Star Game... the Spectrum Compiler concluded... and a machine code alarm clock for the Amstrad



Editor David Kelly News editor Christina Erskine Features editor Graham Taylor Software editor John Cook Staff writer Martin Croft Production editor Lynne Constable Editorial secretary Geraldine Smyth Group advertisement manager David Lake Advertisement manager Alastair Macintosh Assistant advertisement manager Tom Watson Advertisement Executive Diane Holyoak Classified executive Diane Davis Advertising production Lucinda Lee Administration Theresa Lacy Managing editor Duncan Scot Publishing director Jenny Ireland. Published by Sunshine Publications Ltd, 12-13 Little Newport Street, London WC2H 7PP. Tel 01-437 4343 Telex 286275 Typeset by Publishers Reprographics Services Ltd, 4 Roger Street, London WC1. Printed by Greenaway Harrison, Sutton Road, Southend-on-sea, Essex. Distributed by S M Distribution, London SW9, Tel 01-274 8611, Telex 261643 © Sunshine Publications Ltd 1985.

ABC

56,052 copies sold every week (Jan-June 1984 ABC).

How to submit articles Articles which are submitted for publication should not be more than 2000 words long. The articles, and any accompanying programs, should be original. It is breaking the law of copyright to copy programs out of other magazines and submit them here – so please do not be tempted. **Accuracy** Popular Computing Weekly cannot accept any responsibility for any errors in programs we publish, although we will always try our best to make sure programs work.

Computer Trade Association Magazine of the Year

Beyond names Monolith as arcade games label

BEYOND's new arcade software label, first announced in March, is to be called Monolith.

The first two releases will be *Rockford's Riot*, the sequel to *Boulderdash*, and *Quake-I*, a shoot-'em-up written by Mike Singleton and Warren Ffoulkes, using the landscaping techniques pioneered in *Lords of Midnight*.

Rockford's Riot will also feature the original *Boulderdash* on the flip side.

It will be for the Commodore 64 and Spectrum initially, with Amstrad and Atari versions to follow. *Quake-I* will run on the Commodore 64.

Monolith will be a "high-quality label" claimed man-

aging director Bill Delaney.

Monolith games, like those released on the Beyond label, will sell for £9.95.

The next new game to be released under the original Beyond label will be *Elindor*, a fantasy epic inspired by *Lords of Midnight*.

"It will be more than just a graphic adventure - it's obviously a game aimed at our *Midnight* followers, in a similar game vein, but it is original in its own right," said Bill Delaney. The game design has been approved by Mike Singleton, but he has taken no part in the programming of it - instead game design and programming are by two seventeen year olds, Simon Welland and Nick Eastock.

Tandata buys QL modem rights

TANDATA has come to the rescue of QL owners and bought the existing stocks of the QCom modem.

The QCom QL modem package was previously manufactured by OEL, which went into receivership in March (see *Popular Computing Weekly*, March 21).

Tandata which will now take over selling QCom has also acquired the rights to produce the QCom package and the rights to sell Scicon's communications software which is bundled with QCom. "We are now only waiting for BT approval on QCom," said

a spokeswoman for Tandata. "The approval procedure was put in abeyance when OEL called in the receiver, but it shouldn't take too long. The product only needs its approval number to be given, before we can begin sales and production."

The spokeswoman stressed, however, that Tandata had not bought other OEL products which include the Spectrum VTX5000 modem and a teletext adaptor for Channel 4.

New micro series on BBC

THE BBC's latest vehicle for promoting computer literacy and the BBC micro is the new children's television series, *Whizz*, a puzzle-based program featuring computer software.

Aimed at 5-7 year olds, it uses a futuristic setting, the Space Place, inhabited by a female droid, Whizz, a computer called Voice and a rather strange looking Bug to pose various brain-teasers aimed at improving youngsters' learning skills, many using commercially available software for the BBC micro. Producer Pippa Dyson commented, "A lot of children of this age group have access to a computer either at home or at school, so we included an element of this in the program."

Software to be used includes BBC Publications' own *Maths with a Story* and *Sort by Mirrorsoft*. Four other titles have been commissioned from CRL who are marketing them in twin packs, *Space Shapes/Runaway Rocket* and *Crazy Cows/Cosmic Containers*, under licence from the BBC. They will be available from next week for the BBC and Electron priced at £8.95.

Whizz is being broadcast on Fridays at 3.55 pm.

New games, new boss at Melbourne

WAY of the Exploding Fist - a joystick-controlled martial arts simulation - will be the next release from Melbourne House.

The arcade-style game will be launched next month for the Spectrum, Commodore 64 and Amstrad, priced around £8-£9.

It is also the first title to be announced by Melbourne House's new UK managing director.



Geoffrey Heath

Geoffrey Heath, formally Activision UK's chief, has moved across to take charge of Melbourne House's UK operation, which was previously controlled from its Australian headquarters.

"I was asked to get Activision up and going in

C64 cuts ruled out

◀ continued from page 1

at people who know the 64 and feel they can use the extra memory - while we see it as an important product it is in no way intended to replace the 64.

"The compatibility is its most important feature, which is why we're aiming it at the up-graders. We plan to sell the basic model first and then offer the 128D version with a disc drive built-in later."

The C128 will be shown for the first time in the UK at the Commodore Show in June, but Nick was unwilling to give a definite release date.

"I am confident we can deliver the machines in quantity for the last four months of the year - in fact, before September if possible. But it is important to get our relationship with the high street retailers back to last year's footing by supplying in quantity."

Nick also dismissed suggestions that the C128 at around £315 might be affected by the Atari 130XE at £169.90.

"We will not be influenced by the sabre-rattling of our competitors - frankly, the C128 is not similar to the 130XE - it's in a class of its own."

● There will be a full interview with Nick Bessey in next week's magazine.

New BBC in shops this week

◀ continued from page 1

the BBC B from £399. "Acorn will not be cutting the price on existing products," commented the spokesman.

The B Plus will be on show at the Electron and BBC Micro User Show held on the New Horticultural Hall, London SW1 on May 9.

Sinclair cuts production

SINCLAIR has admitted it has had to cut back heavily on computer production, as sales to distributors and retailers since Christmas have been disappointing and the value of unsold stocks has increased almost three-fold to £34m the last nine months.

Sir Clive says that Sinclair Research's overdraft is now only around £5m on an annual turnover of £100m-plus and that he hopes a deal can be done to further reduce the overdraft, possibly involving the marketing of the flat screen tv under another company's name. An American company has apparently already approached Sinclair with this in mind.

● Sinclair is now claiming sales of 60,000 for the QL, which is due to be launched on mail-order in the US this week.

this country, and I like to think I did okay," said Geoffrey.

"With Melbourne House, I am determined to raise the company's profile considerably - its product certainly warrants it. While it has been acclaimed for adventure titles. I want to open up its whole range - so you can expect more arcade games along the lines of *Starion*."



Second 2000 AD hero becomes micro game

JUDGE DREDD, Megacity One's leading lawman, will soon be joining 2000AD's other great cartoon hero, Strontium Dog, on your computer.

Games Workshop has now gained the rights to produce an arcade game based on the cartoon character from the 2000AD comic magazine. The company already has a *Judge Dredd* board game, but gained computer rights in a separate deal.

"The game will be a high speed joystick-driven maze game set in Megacity One," said Angus Ryall, Games Workshop's software marketing manager.

"We will probably include a map screen which the player can call up to show where the player is in the city."

The Judge Dredd arcade game is scheduled for release on the Spectrum in the Autumn.

Atari founder bytes cat

A NEW type of micro driven robot is due to be launched in the US in August - the Petster.

Petsters are the latest brainchild of Nolan Bushnell, founder of Atari, who also developed the Androbot robot range.

A Petster is a robot cat. Made of fur, the battery operated device miaows and purrs to order and can be programmed to respond to hand-claps or noises, to move back and forth, avoiding obstacles.

If left on its own for any length of time, the Petster will go into one of a number of moods at random, such as playfulness or going to sleep.

Linkword follows up

FOLLOWING the success of the Linkword language learning series, a second range of Linkword titles will be available soon.

"The new series will take users up to 'O' level standard, using the same linking of words to mental images as the

It will switch off at night and 'wake up' when it gets light.

Long term plans for the Petsters see them as rather more than novelty toys. With additional sensors and software, the Petsters could be programmed to react to burglars or fire in the house, and raise the alarm if necessary.

As toys, however, the Petster will be available in two models, the basic 'miaou and purr' version at around \$50, and a deluxe model at \$70 to \$100. The latter can be programmed to respond to up to 48 commands.

Petsters are set to reach the UK next Christmas.

first series," said Dr Michael Grunenberg, the Swansea University psychologist who developed Linkword.

Dr Grunenberg hopes the advanced level packages can be used within schools as well as by the home user.

The first 'O' level Linkword program to be released will be *French*, published by Protek for the Spectrum at £12.95.

POPULAR Computing WEEKLY

BINDER £3.50 + p&p

Keep your issues in order with a specially designed *Popular Computing Weekly* binder holding up to 13 copies for quick reference back to that program listing or article.

Send me..... *Popular Computing Weekly* binders at **£3.50 each** plus postage (**£1 U.K., £1.50 Europe, £2.50 Rest of World**)

☐ I enclose a cheque/postal order for..... made payable to Sunshine Publications Ltd.

☐ Please charge my Access/Visa Card No:

Name.....

Address.....

Postcode..... Country.....

Which computer do you use?.....

Return this coupon together with payment to:

PCW BINDER
12-13 Little Newport Street
London WC2H 7PP, UK

HA10



SPECTRUM	RRP	2U	AMSTRAD	RRP	2U
A DAY IN THE LIFE	6.95	5.50	ANDROID ONE	7.95	6.95
ALIEN	8.99	6.95	ANIMATED STRIP POKER	6.95	6.95
ALIEN 2	9.95	6.95	BATTLE FOR MIDWAY	9.95	6.95
ANIMATED STRIP POKER	6.95	5.50	CONFUSION	8.95	5.50
BRIAN JACK'S SUPERSTAR	7.95	5.95	DT DECATHLON - IN STOCK	8.95	6.50
BRUCE LEE	7.95	5.90	DARK STAR	7.95	5.95
CHUCKIE EGG 2	6.90	5.50	DEFEND OR DIE	7.95	5.95
CONFUSION	6.95	5.50	EMERALD ISLE	6.95	6.75
DEATH STAR INTERCEPTOR	7.95	5.25	ER'BERT	5.95	4.75
DRAGONTRONIC OF AVALON	7.95	5.95	FIGHTER PILOT	6.95	5.95
EMERALD ISLE	6.95	5.50	GHOSTBUSTERS	10.99	8.95
EVERYONE'S A WALLY	9.95	6.95	HOBBIT	14.95	10.95
FANTASTIC VOYAGE	6.95	5.50	INTERCEPTOR ALL	8.00	4.50
FORMULA ONE	7.95	5.95	JET SET WILLY	8.95	5.95
GRAND NATIONAL	6.95	5.50	KONG STRIKES BACK	8.95	6.50
GREMLINS	9.95	7.25	LEVEL 9 ALL	9.95	6.95
GYRON	9.95	7.50	MASTERFILE 464	25.00	19.99
ICICLE WORKS	6.95	5.50	MILLIONAIRE	6.95	5.50
JONAH BARRINGTON SQUASH	7.95	6.50	MINI OFFICE	5.95	4.75
KOMPLEX	9.95	7.50	MOON BUGGY	7.95	6.50
LEONARDO	7.95	6.50	PINKBALL WIZARD	8.95	6.50
LEVEL 9 ALL	9.95	7.25	PIJAMARAMA	6.95	5.50
LIGHT MAGIC	14.95	11.95	QUILL	16.95	13.50
MIGHTY MAGUS	6.95	5.50	RING OF DARKNESS	9.95	7.50
MINI OFFICE	5.95	4.75	SORCERY	8.95	5.95
MINDER	9.95	7.95	STARSTRIKE 3D	6.95	5.25
MOON CRESTA	6.95	5.50	TANKBUSTERS	7.95	5.95
PSYCHEDELIA	6.90	4.50	TECHNICIAN TED	7.95	5.95
RAID OVER MOSCOW	7.95	5.90	WORLD CUP FOOTBALL	7.95	5.95
SPY HUNTER	7.95	5.95			
STARION	6.90	5.75			
SUPER GRAN	9.95	7.50	COMMODORE 64	RRP	2U
WIZARD'S LAIR	6.95	5.50	AIRWOLF	7.95	6.50
WORLD SERIES BASEBALL	8.95	5.25	BLAGGER GOES TO		
WRIGGLER	5.95	4.75	HOLLYWOOD	9.95	7.50
ELITE 911 TS	7.95	5.50	BOUNTY BOB		
			STRIKES BACK	9.95	7.50
			CAULDRON	7.99	6.50
			GREMLINS	9.95	5.50
			EVERYONE'S A WALLY	9.95	7.50
			LORDS OF MIDNIGHT	9.95	5.99
			MASTER OF THE LAMPS	9.95	7.50
			MINI OFFICE	5.95	4.75
			MOON CRESTA	6.95	5.50
			GRIBBLY'S DAY OUT	7.95	6.50
			PASTIFINDER	9.99	7.50
			PITSTOP II	10.99	8.95
			RAID ON B BAY	9.95	7.50
			ROCK N' BOLT	9.99	7.50
			ROCKET BALL	7.95	6.50
			SPITFIRE 40	9.95	7.50
			STAFF OF KARNATH	9.95	7.25
			SUPER HUEY	11.95	8.95
			SUPER PIPELINE II	9.95	7.50
			TRINA NOB	8.95	7.50
			ULTIMATE'S ENTOMBE	9.95	7.95
			WORLD SERIES BASEBALL	7.95	5.75

CHEQUE/PO PAYABLE TO:

IT'S

SEND TO: IT'S, 33 FOSCOTE ROAD, LONDON NW4 3SE.
ENQUIRIES: 01-430 2284

ALMOST EVERYTHING AVAILABLE IN STOCK

PD364

Letters

Cat and mouse

It appears that Michael Sleight (Letters, April 18) has also hit the 'nail on the head!'

The computer industry to day suffers from a lack of thought and consideration towards buyers. Micro manufacturers instead are too busy engrossed in cat and mouse games. They seem only interested in producing new micros designed to compete with rival manufacturers products. Why don't they stop and take some time to find out what kind of computer people actually want?

Cetin Munir
32 Stapleton Hall Road
Stroud Green
London N4

Disconnected C5 'trikes'

When are you and all the other computer magazines, going to stop using your valuable newsprint for news and articles related to the Sinclair C5 Electric Tricycle.

Please note:

The maker of this machine is Sinclair Vehicles, not Sinclair Research (the ones who make computers), the C5 is

neither a computer, nor contains a computer.

Yet the title of your publication suggests that the content, should be, computers.

I bet, in the computer world, hardly anyone really cares about this unconnected venture by Sir Clive.

Malcolm S Collins
Ventura Software
7 Heath Drive
Chelmsford
Essex

You'd be on a loser is you asked any of the several hundred people who entered our C5 competition, the results of which are printed below.

List disable

If you don't want anyone to be able to list your Basic programs and you own a BBC try typing in this small procedure at the beginning of your program.

What will happen, is that when the program is run, and then the Break key is pressed during the time that the program is in operation, Old, List, and Run will produce the error message Bad Program.

```
1 CLS
2 *FX200,2
3 *FX220,0
4 !&FE00 = &1020AA
```



"Good heavens - It's Mönolith software"

Of course the program must not have an End or Input statement in it otherwise it is possible to list the program. Lines 2 and 3 disable Escape.

Daniel R Gish
Fairmead Gardens
Redbridge
Essex

Check again

With reference to may article Memory Check which appears in the April 18 issue, there is an error in the second sentence of the penultimate paragraph in column 1.

The sentence should read:
"It then takes the first two

bytes and converts them to the Line number by PEEK (Byte 2) + 256 * PEEK (Byte 1), note that this is a reversal of normal Z80 practice. The second two bytes (PEEK (Byte 3) + 256 * PEEK (Byte 4)) give the number of Text bytes plus one for Enter."

It would also be advisable to add that the symbol £ appears in the program but should be interpreted as #.

H Hipple
17 Ayrshire Road
Liverpool

Milder version

While playing with Ver 2.00 Quill on the QL recently I noticed that the loading Boot program is different to that on the old Ver 1.03.

In Ver 1.03 the program uses the Respr, Lbytes, Call sequence while Ver 2.00 uses the Exec-W keyword which is used to load multi-tasking machine code programs. This seems to suggest the possibility of running Ver 2.00 Quill with other machine code programs including Easel, Archive and Abacus.

Edward Penman
7 Kenneth Court
173 Kennington Road
Kennington
London SE11

C5 competition Results

Future perfect

The response to our C5 competition (Popular Computing Weekly, 14 March) was quite overwhelming - both in numbers and the amount of work many of the contestants had put into their design for the Sinclair electric car of the 1990's.

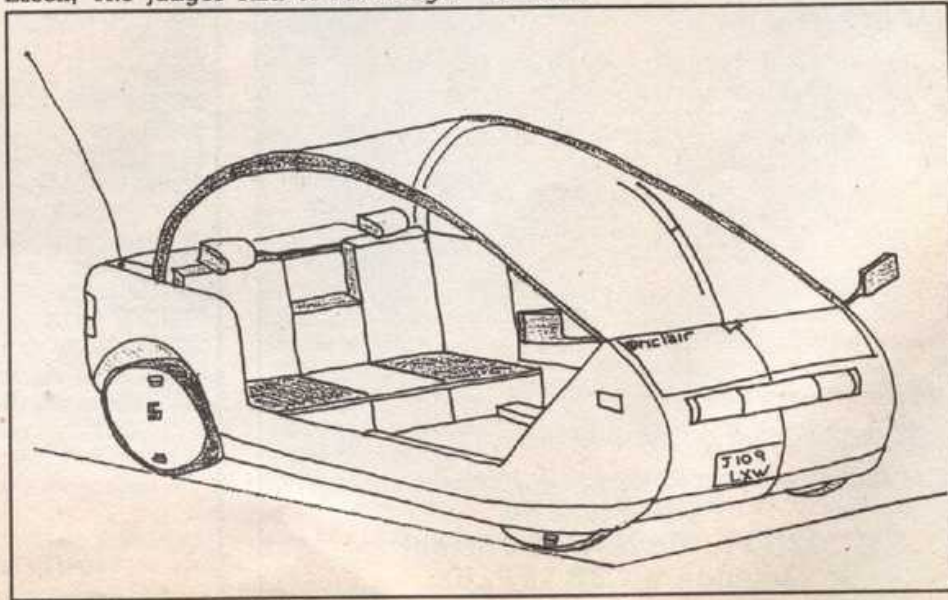
The panel of judges - from both Popular and Sinclair Vehicles - whittled down the several hundred entries to a shortlist of seven before choosing the outright winner and they included both some extremely innovative ideas and a stack of often beautifully drawn pictures.

Alistair Prior developed a clever credit-card locking mechanism for his car of the future. Neil Hewlett designed a complete range of vehicles - bus, taxi, hatchback and saloon. W Wray incorporated the flat screen tv as a standard feature. And Clive Burke nearly wrote an encyclopedia on his creation.

However, there could only be one winner from the short list and the judges unanimously selected the entry by 15-year old Steven Salmon, of Rayleigh in Essex. The judges said of his design:

"Excellent, very imaginative overall - most of his proposals are at least vaguely viable."

A C5 will soon be on its way to Steven Salmon.



... 7 busy characters, 10 lost chords, 12 hours, 48 Traffic Wardens,
95 London Tube Stations, 126,720 square feet of London,
7 million Londoners ... 943 action filled screens.

PAUL McCARTNEY'S

*Give my
regards
to*

BROAD STREET

When the
music stops,
the mystery
begins...

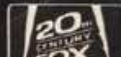


MIND GAMES

COMMODORE 64 - £7.99



Argus Press
Software Group



Instead of computers catc technology now has to ca



The way we see it, technology has quite a race on its hands. There's no other home computer in the world that's so expandable or so updatable as the new Enterprise 64.

And if you're wondering quite how we've managed that, kindly take a closer look at all the outputs on our remarkable new machine.

You'll notice that amongst the usual sockets and terminals we've incorporated a special 66-way expansion port.

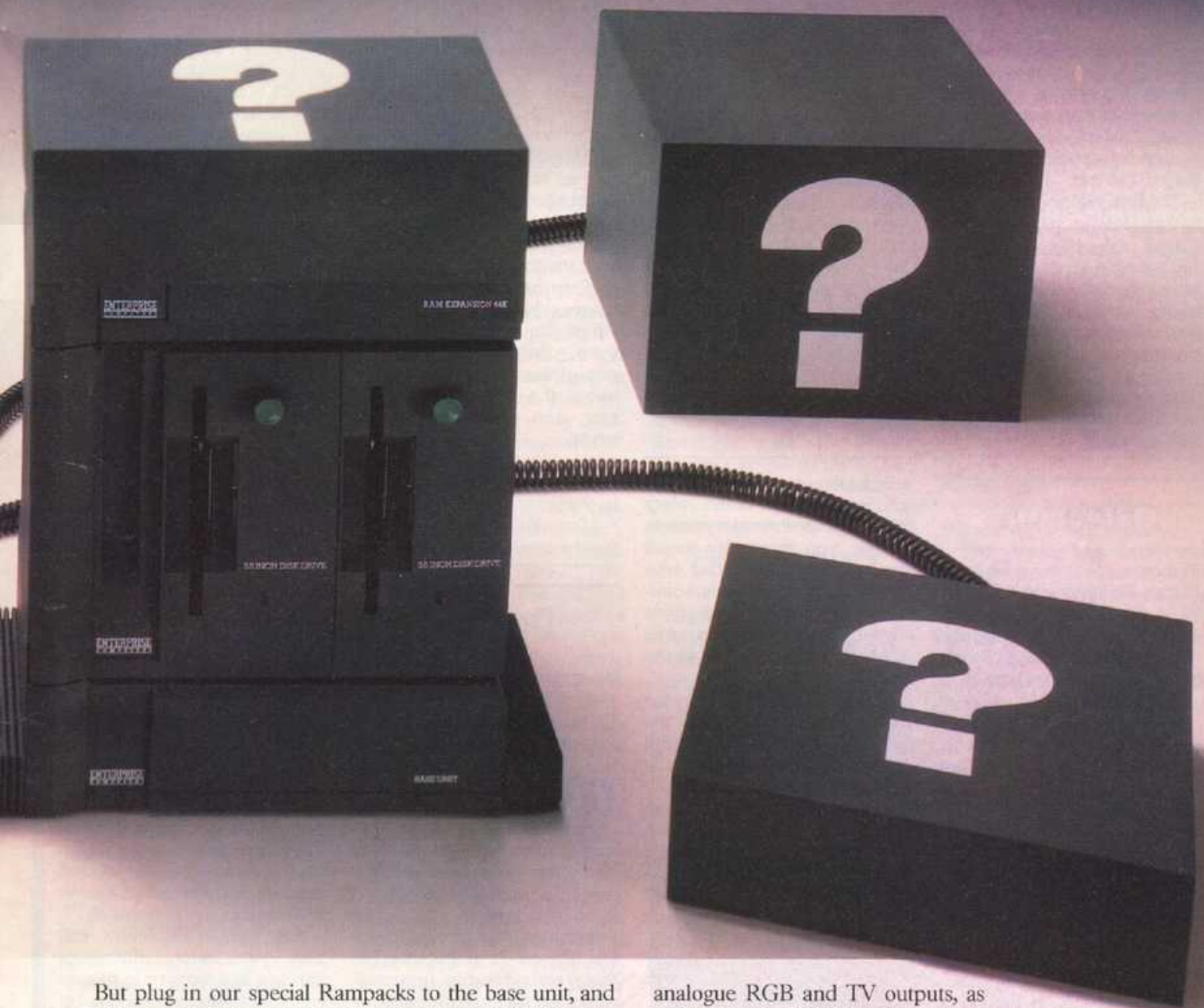
This will accept a whole range of new peripherals that are now in the pipeline.

Including those that are a mere twinkle in the eyes of our hardware designers.

We thought this expandability principle was such a good idea, we applied it to the Enterprise's memory, too.

Even in its most basic 64K form, this puts more user RAM at your disposal than almost any other competitor.

hing up with technology, tch up with a computer.



But plug in our special Rampacks to the base unit, and you can increase that figure to a truly extraordinary 3,900K.

Not that that's the only challenge we present to today's ambitious programmers.

With a screen resolution of up to 672 x 512 pixels, 256 colours and a high speed video processor, the Enterprise will outgun all but the highest quality TV monitors.

And the sophisticated sound chip generates no fewer than 4 voices across 8 octaves in full stereo.

Combine the two and you can create effects that leave today's games looking like pub video tennis of the mid-70's.

For anyone with literary aspirations, the Enterprise also comes complete with an integrated word processor.

Whilst the really serious user will be delighted to discover

analogue RGB and TV outputs, as well as parallel, RS423 serial and network ports.

Both Cobol and 'C' will be available with CP/M running, and you can even use Lisp, Forth and Z80 assembly language on cartridge without encroaching on user RAM.

The new Enterprise 64.

It hasn't just overtaken technology. It's left every other home computer straggling in the distance.

ENTERPRISE
COMPUTERS

WITH OBSOLESCENCE BUILT-OUT

Software Reviews

In colour

Program *Lightmagic* **Price** £14.95 **Micro** Spectrum 48K **Supplier** New Generation Software, The Brooklands, 15 Sunnybank, Lyncombe Vale, Bath BA2 4NA.

Of all utilities, graphics packages have to be the most popular, with some attaining relative fame. *Lightmagic*, the latest contender, could be set to leap to the top.

The first thing to emphasise is that, despite a multitude of single key commands, *Lightmagic* is easily understood thanks to its sensible menu system. Options include eight direction line drawing and banding, plus circles and fill; a brush mode with ten patterns, including a random spray gun; block mode which allows move-

ment, mirroring, etc of sections of pictures; text mode and UDG mode. UDGs are created with an integral, versatile designer, to be used in finished pictures along with alphanumerics.

Various aids are provided, such as the very necessary superimposed grid that helps avoid colour clashes, and a return cursor to reference point facility, useful for starting several lines from one place. Finished artwork can be saved to tape or to a buffer, which encourages experimentation as previous versions of a picture can always be recalled. Sadly there's no printer option and the potential of this package could lead one to wish for hard copy. However documentation is admirably clear and *Lightmagic* should provide hours of pleasure.

John Minson



Frog fun

Program *Gribbly's Day Out* **Micro** Commodore 64 **Price** £7.95 **Supplier** Hewson Consultants Ltd., Hewson House, 56b, Milton Trading Estate, Milton, Abingdon, Oxon.

Gribbly's *Day Out* is aimed at the younger game-playing generation.

Gribbly, the hero is a full-grown Blabgorian. Entrusted to his care are the baby Blabgorians, known as Gribbles. The hills surrounding their lands are infested with mutant creatures whose favourite delicacy is little Gribbles. So you have to control Gribbly in his quest to

rescue the innocent Gribbles and return them to the safety of the caves. To make matters worse, you must also avoid Seon, the insane spider who is unable to control his homicidal tendencies. Gribbly is able to bounce, fly and even blow bubbles at some of the nasties.

The graphics for this game are excellent. Some of the landscapes are truly beautiful with great details and superb colour schemes. I especially like the Gribbly smiles when you're doing well, and then grimaces when you make a mess of things. I can recommend *Gribbly's Day Out* to all you youngsters of whatever age.

Tom Hussey



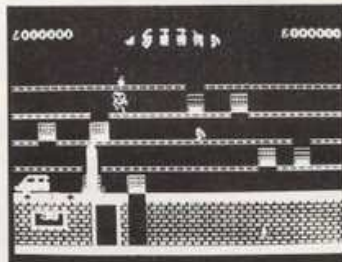
Just junk?

Program *Junkyard Jalopies* **Price** £1.99 **Micro** Commodore 64 **Supplier** Scorpio Gamesworld Ltd., 307-313 Corn Exchange Building, Manchester 4.

In *Junkyard Jalopies*, Jim is out to do what we all like doing best - make money. To do this, he collects old automobile parts from the junkyard and puts them together to make new "cars". What a little earner!

First, though, you have to guide Jim to the junkyard. This isn't very difficult as you end up only having to jump three barrels. However, when Jim reaches the junkyard, matters are not so straightforward. He has to avoid the deadly rust monster, and a weird creature made entirely from remoulds. A couple of bombs also need to be defused within the time limit.

Like other platform games, you can walk and jump as you



explore the two-screen scrapyards. An intricate series of lifts must be used to reach the higher levels. After he had collected the parts, our hero drives over to the garage to sell his car. Then it's back to a harder junkyard (barrels to jump as well) with more parts to collect.

As you may have gathered it's pretty much your standard *Manic Miner* derivative and is therefore hardly original.

I must say that I found *Junkyard Jalopies* rather boring. The game seemed to lack inspiration, with rather slow gameplay and dull graphics.

Tom Hussey



Dr who?

Program *Doctor Who and the Warlords* **Micro** BBC **Price** £9.95 **Supplier** BBC Publications.

The kindest thing that could be said about the first attempt to immortalise the Doctor in computer game form is that it was quite some time ago, and best forgotten. But just enough of the dire memory lingers on to underline the very considerable improvement in this latest effort, a text-only adventure which, if it lacks the special effects of the TV series, has a very definite character and humour of its own.

You, the player, are the Doc's companion when the Tardis lands on the planet of Quantain, to find a land in the last throes of a lengthy civil war. The Doctor insists (as usual) in getting involved in the troubles, this time because his old friend King Varanger may be in danger. But you get separated in the confusion and, when you wake up from the effects of a

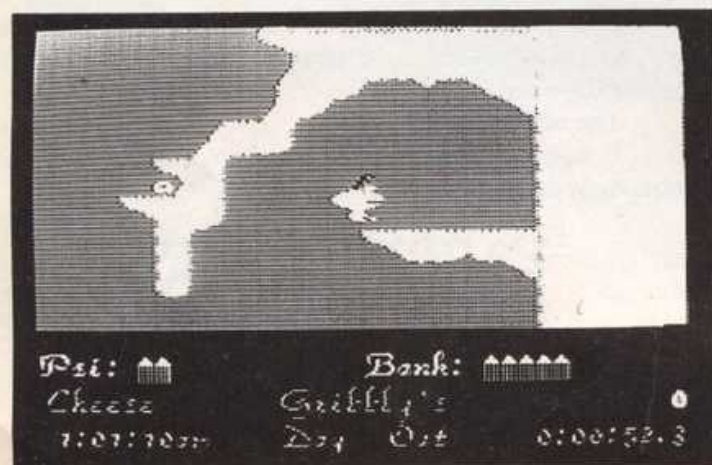
stunning blow to the head, you are alone near the battlefield with only a two-way radio to your name and no idea where the Doc has gone.

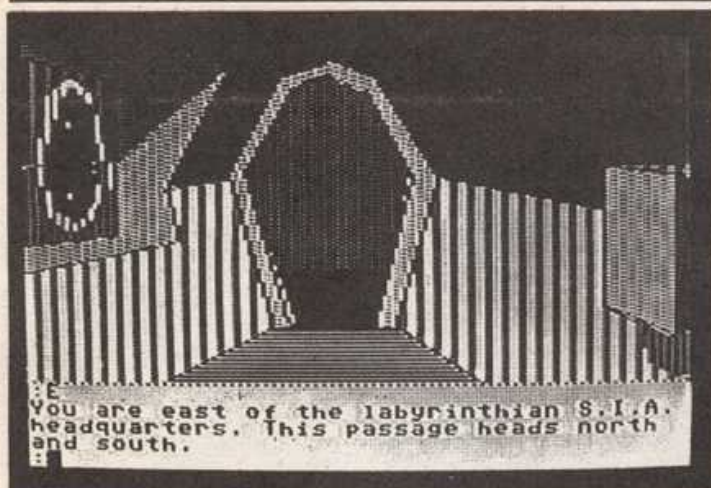
Wandering around the terrain can be a very risky business, with your own natural greed as a treasure-seeker (that isn't the main aim here, and it can be fatal) as much a danger as anything else. There are some very curious booby-traps scattered around and brigands lie in wait for unwary travellers.

But a little ingenuity will stop you being blown-up, robbed and/or torn to pieces by suspicious royal bodyguards, and will even get you some comfortable transport and an escort into the City. Or nearly into it. Even if you work out this route, your troubles are far from over and, despite signs of the royal favour, you will need to keep your wits about you to save yourself, the Doctor and the situation.

A scenario with good descriptions and some nice touches of humour. This time voyage is worth the trouble.

Barbara Conway





Right tracks

Program *The Tracer Sanction* **Micro** Commodore 64/disc drive **Price** £19.99 **Supplier** Activision, 15 Harley House, Marylebone Road, London NW1

The *Tracer Sanction* is very similar in layout and presentation to Activision's other new disc adventure, *Mindshadow*. However, the two games have totally different plots.

In *The Tracer Sanction*, you take the role of a tracer – an interplanetary secret agent. The adventure starts in your boss's office. He assigns you a new mission – to catch the famous criminal, "the wing". Nobody knows what the wing looks like nor where he is. With this minimal dossier, you set out on a trail which will probably cover most of the galaxy.

It's probably a bit easier to make progress in *The Tracer Sanction* than in most other adventures, but that's not necessarily a bad thing. Sometimes, adventures get a bit too frustrating. What I liked about this one is that you can try virtually anything at any location, though you may have to suffer some wry comments from the computer. For instance, try "waiting" and you get the sarcastic response "Amazingly, the galaxy goes about its business". So much better than the usual "You can't do that here", eh?

It has to be said though, that this is a typically American adventure. I mean, what British adventure would contain the description "It smells like old sneakers in here"? However, like its sister game, *The Tracer Sanction* is certainly a good adventure and well worth playing.

Tom Hussey



Fast facts

Program *Microspread* **Micro** CPC 464 **Price** £49.90 **Supplier** Amsoft, Brentwood House, 169 Kings Road, Brentwood, Essex CM14 4EF.

This spreadsheet has been written by a different company to *Microscript* and *Microopen*, also put out through Amsoft and it certainly shows in the manual which, although lacking frills, contains all necessary information in an accessible form and has even been written with some evidence of humanity!

Another wonder for this

range is the screen *Help* menu which summarises all available commands. What it does have in common with the others is that the emphasis is quite strongly on the ability to produce documentation and reports from the data – the program can be used as a basic word processor for producing letters and so on that have selected rows, columns and labels from the spreadsheet inserted into them. It's a nice feature.

Surprisingly, the spreadsheet itself does not take advantage of disc filing – each sheet fills 16K with a maximum of 560 cells – this makes it faster than I expected but also throws it into much closer competition with the

new spreadsheet written by Campbell Systems for Amsoft. The latter has some very nice touches which perhaps make it a better mainstream utility, and it is also cheaper. *Microspread* however is stronger on block commands and, of course, text, which will be just what some people are looking for. The formula options did

strike me as a bit strange by offering functions such as *ArcCos* but not *Log* but its a small point. Files produced by the sheet can be used to drive the *Micrograph* business graphics program in the same range but this was not available for review.

Tony Kendle

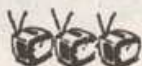


Reports

Program *Microopen* **Micro** CPC 464 **Price** £49.90 **Supplier** Amsoft, Brentwood House, 169 Kings Road, Brentwood, Essex CM14 4EF.

This CP/M database will justify itself to most people more through its ability to exploit files as large as there is free room on the disc rather than any particular sophisticated facilities. About 80K is free per side of disc on a single drive system which is quite reasonable.

Tony Kendle



Hollywood

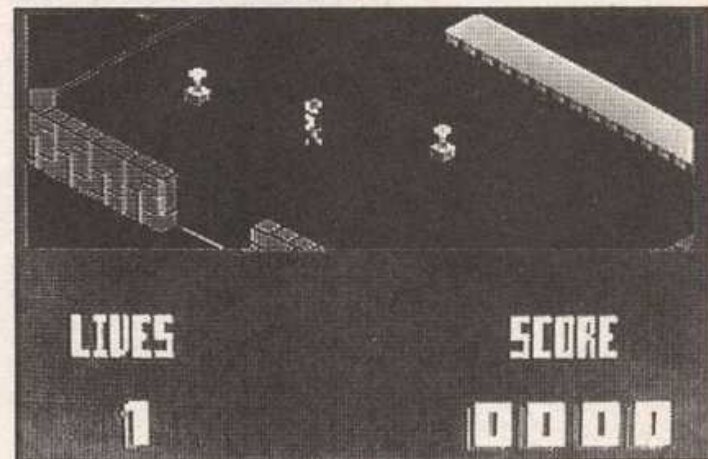
Program *Blogger Goes to Hollywood* **Price** £9.95 **Micro** Commodore 64 **Supplier** Alligata Software Ltd., 1 Orange St., Sheffield S1 4DW.

Time for some cinema action! You've seen *Superman 3* and *Rocky 3*, now it's the turn of *Blogger 3*.

stars from the big screen.

The studios are drawn out in 3-D you must find the right prop in each. Great music is included from the appropriate films to give you clues on the props.

My favourite character is Jaws. He rushed around complete with authentic doomy music. Whereas the graphics were good, I thought that a few more features could be added to the film sets. Still,



Blogger has decided his way to fame and fortune is in the movies – not as an actor, but as a producer. But once inside Hollywood's famous film studios, he finds himself in conflict with some of the

the game involves fast action and brain power. Can't be bad.

Tom Hussey



Wargames

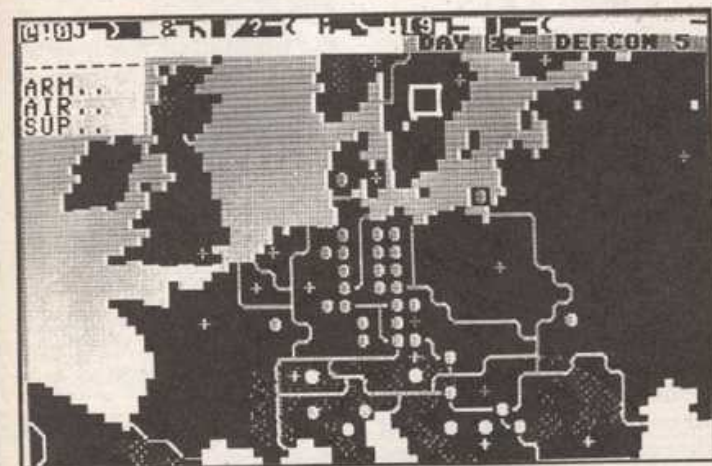
Program *Theatre Europe*
Price £9.95 **Micro** Commodore 64 **Supplier** PSS, 452 Stony Stanton Rd, Coventry CV6 5DG.

You could say that to put the old Hippy Anthem 'Give Peace a Chance' on a wargame called *Theatre*

structures - there's even a bibliography at the back of books on the subject.

Playing the game is mainly a matter of joystick control and you can be either Nato or Warsaw Pact - though this doesn't mean that the game is easy to play and insubstantial - you definitely need to read the manual.

If being a non wargame purist you opt for the Action screens you get a short ar-



Europe in which you fight a Russian Invasion of Europe is kind of schizophrenic to say the least.

Politics and taste apart though the game is pretty special, probably one of the best wargames we've yet seen with lots of maps, status lists and even screens of nuclear explosion. The game has a horrible realism derived from its firm basis on actual military and political

cade game where you launch missiles and kill things - it's not state of the art but it's O.K. Then the other side gets its turn. It gets more complicated - you can choose to launch special missions to achieve special ends and, ultimately, go nuclear even to the point of launching everything you've got.

Graham Taylor



Disappointing

Program *Pinball Wizard*
Price £5.95 **Micro** CPC 464 **Supplier** CP Software, 10 Alexandria Road, Harrogate HG1 5JS.

The first time I heard of pinball on home computers it struck me as weird choice of game to write. I've since come round to the opinion that it can be marvellous fun - if well programmed it can play as well as a conventional machine but add all sorts of animated or zappy screens to play that couldn't possibly be created in real life - all in the comfort of your own home.

Unfortunately *Pinball Wizard* represents a wasted op-

portunity. As you so often find with average quality software they have done all the hard bits but completely forgotten the small details that can make a game a joy to play. In this case they have got the movement of the ball off perfectly but have let it down by surrounding it with dull pedestrian features. There is only one, boring screen with the absolute minimum of flashing lights etc and only the barest of sound effects. It should, and could, have been full of zaps and pows and all sorts of amazing things happening that would have driven lesser mortals from the room in seconds.

Pinball Wizard could have got by as a budget title but for six pounds you could find a lot more worthwhile things to spend your money on, for



Formula One

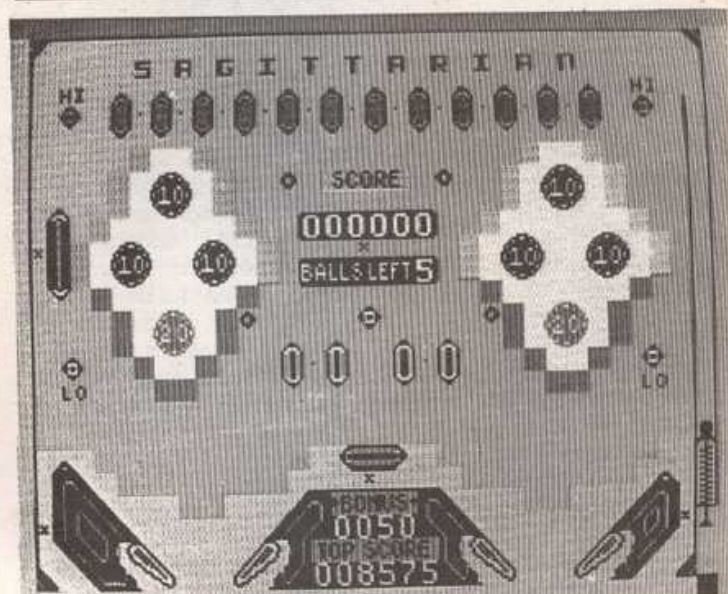
Program *Pole Position* **Price** £9.95 **Micro** Commodore 64 **Supplier** US Gold Ltd, Unit 10, Parkway Industrial Centre, Heneage St, Birmingham B7 4LY.

Back to that old favourite, *Pole Position*, this time marketed by US Gold. As I'm sure you know, this is the original Grand Prix game that began the racing car craze in the arcades. Now, of course, it's been surpassed by video machines like the TX-1 and others, but you can still find this "old-time" in most arcades. The Commodore 64 conversion is very similar to the original - though, with slightly inferior graphics.

In addition to a practice session, there are three different races you may enter -

Monaco Grand Prix, Namco Speedway and the Datasoft 500. The training run gives you a chance to practise driving the car around the course without any opponents. Before you can enter one of the three races, you must enter a qualifying round to gain a place on the starting grid (your position will depend on the lap time). Then the race (you can choose the number of laps) begins. The screen shows the view from the car as if you were actually seated behind the steering wheel. The joystick can be used for moving left/right, accelerating and slowing down, and swapping between high and low gears. The handling of the car is very good. It's great fun tearing past a car on the outside of a bend at 200 mph. Just the stuff for people with nerves of steel.

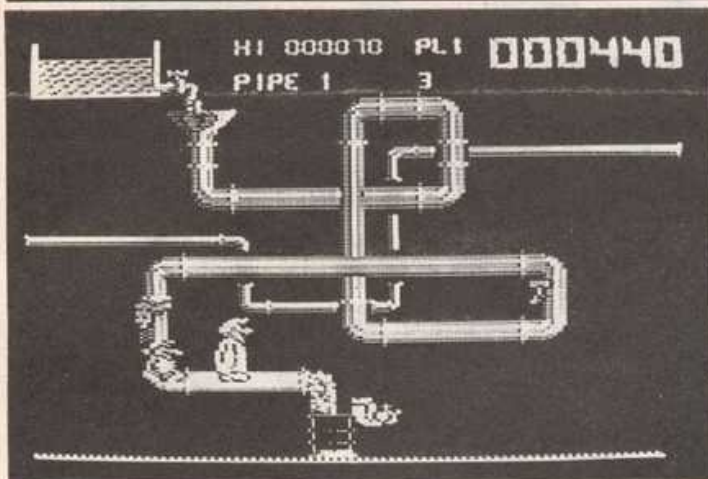
Tom Hussey



example going to play sixty games of pinball!

Tony Kendle





Exotic

Program *Super Pipeline 2*
Price £9.95 **Micro** Commodore 64 **Supplier** Taskset Ltd.,
13 High Street, Bridlington
YO16 4PR.

Ages ago, when *Super Pipeline* was first released, it was a truly excellent game. It combined neat graphics with great sound effects. Now, the follow-up, *Super Pipeline 2* is in the shops. This is one follow-up that was certainly worth waiting for.

In case you didn't see the original, the game action is as follows. All you have to do is keep a pipeline in good working condition until it has filled the barrels at the bottom of the screen. Simple, eh! Well, not quite. You control Foreman Fred. To fix any leaks in the pipeline, he has to grab one of his two obedient workmates and take him to repair the damage. The trou-

ble is the pipeline runs through many hostile lands populated by evil insects and vicious tools. These have to be avoided or shot as contact with them is fatal. Fortunately, the workmen are expendable; when one is killed a new one starts running round. (In fact, a good tactic is to use the workmen as shields from the baddies. How ruthless can you get?)

Once you've filled the barrels, it's on to the next network of pipes. Between screens, the odd bit of cartoon action takes place. On one, a workman smashes up a Sinclair C5 with a mallet.

Compared with the original, there are a lot more nasties, so the gameplay involves much more dodging and shooting. The graphics have also been improved and a few extra features have been added. In short - mad, hectic, chaotic fun! I can't wait for *Super Pipeline 3*.

Tom Hussey



Fast loader

Program *Microdrive Fast-Load* **Price** £3.99 **Micro** Spectrum **Supplier** Specialist Programs.

Microdrive Fast-Load is, according to its cover, 'the key to your microdrive'.

You start by connecting up to eight drives with cartridges inserted. You then load *Fast-Load* from cassette, though it can be duplicated to cartridge. After a short wait a screen appears, listing all files present in the left hand section; top right are the vari-

ous functions and below them is an area for prompts.

These include erasing a selected file; initialising a cartridge, wiping all old information; listing all the files and/or sending the list to a printer; displaying file type (*Basic* or *code*), size and other details; checking the cartridge capacity and finally downloading a chosen file.

All of this is carried out very smoothly and *Fast-Load* does all that it claims. My main reservation is how useful it really is. If you think that it is and you're careful not to crash it, then this utility should satisfy.

John Minson



Bad hobbits

Program *Bored of the Rings*
Price £5.95 **Micro** Spectrum 48K **Supplier** Delta 4 Software, The Shielding, New Road, Swanmore, Hants SO3 9PE.

Iadmire honesty. I admire Delta 4 for admitting that they've been forced to parody a certain trilogy by J. R. R. T*lk**n because somebody else owns the rights. From this situation has arisen a game with an odd atmosphere, in part humorous spoof, in part serious epic



fantasy adventure.

Certainly the former shouldn't offend anybody but the most po-faced hobbitophile. Indeed there's much to enjoy here, such as the fact that the only reason you take the ring is you're too stupid to avoid it. But the quest itself,

which stretches over three programs, is challenging and atmospherically written.

Interestingly it's all been produced with the *Quill* and *Illustrator*, and to excellent effect. The typeface is suitably archaic, and the pictures are far better than those of the *Hobbit*, which it frequently parodies.

There's an added bonus, if that's the right word, of a

What was Fordo to do?
**3
However, Fordo couldn't go in that direction.
Bingo stood up on his chair at the far end of the tent. The noise quietened down to a dull roar.
"My fellow hobbits", he began. There was a chorus of belching from the fellow hobbits.
"As much as I'd love to stay and annoy you, I can't. So, goodbye!"
There was a large explosion which killed several of the guests, and when the smoke cleared, Bingo was gone!
Fordo wandered outside.

spoof bulletin board on the final side of the tapes, much of which claims to have been removed for legal reasons.

Even if it's not 100% successful, and the tone is uncertain at times, it's better than many adventures and the price is extremely reasonable. So if the idea of 'ASCII runes' appeals or you can't wait for the official adaptation, don't hesitate from buying.

John Minson



Doubled-up

Program *QL Super Backgammon* **Price** £15.95 **Micro** QL **Supplier** Digital Precision, 91 Manor Road, Higham Hill, London E17 5RY.

Backgammon simulations have, I think, largely suffered through poor screen display; often the screen just isn't big enough to depict the 'daggers', background and counters all in different colours without the whole thing looking messy.

Digital Precision has more or less succeeded, with red background, black and white daggers, green and grey counters.

The game itself is straightforward bog-standard backgammon - you have an option to let the computer roll dice for you, or you can roll your own and input the result. I have only played the former; I would have been far too tempted to cheat otherwise.

I have no idea how the difficulty levels are graded, since I thrashed the computer repeatedly on level 4 (the most difficult) and struggled to win on level 1. The computer's idea of tactical play is distinctly at variance with my own, but then, how relevant are tactics in a game reliant on the dice?

However, the game does allow for fast input of moves, by keeping key presses down to a minimum, which is a relief, but there's no doubling cube, not even as an option. The computer is also a stubborn beast, and refuses to resign - or let you resign - even when it's plain who will win, which can lead to some very tedious bearing-off sequences, and the congratulatory winning screen is liable to give you migraine.

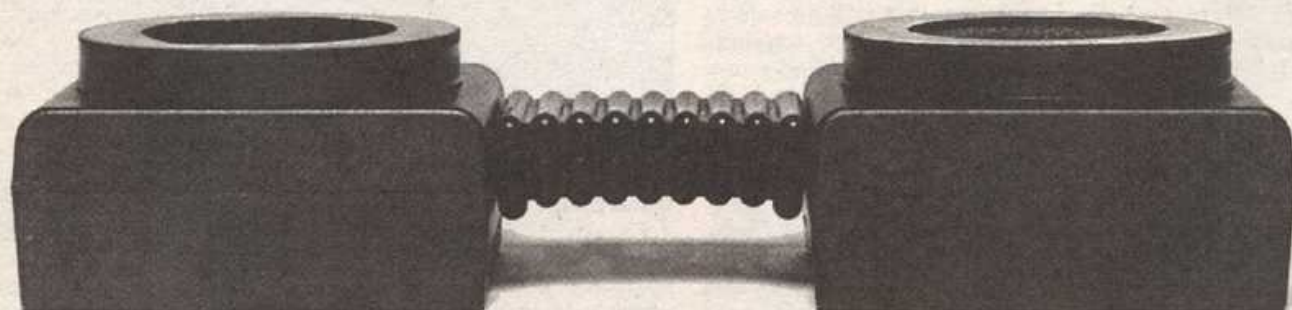
Like all board game simulations, it's useful for a rainy day, when no-one else wants to play, but is not a patch on the real thing.

Christina Erskine



THE TALK OF BRITAINS COMPUTERS...

PROTEK 1200 BAUD MODEM



* **Acoustic Coupler**

* **Baud Rate Mode 1 = 1200:1200**
Baud Rate Mode 2 = 1200:75

* **Portable 4AA Batteries**

* **BATB Approved**

* **RS232C/RS432 Compatible**

* **Prestel & BT Gold Compatible**

**BATB
APPROVED**

	Normally	Now	Save
1200 Modem	£59.95	£29.95	£30
ZX Spectrum Pack inc: Modem, interface, cable & software	£84.95	£39.95	£45
BBC Model 'B' inc: Modem, cable & software	£79.95	£39.95	£40
Commodore 64 inc: Modem, cable & software	£79.95	£39.95	£40
Amstrad CPC 464 inc: Modem, cable & software	£89.95	£49.95	£40
Acorn Electron inc: Modem, cable & software	£89.95	£49.95	£40
Epson PX8 cable only	£19.95	£9.95	£10

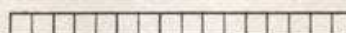
Postage & Packing U.K. £2 (Overseas £3)

**WRITE OR PHONE
FOR IMMEDIATE DESPATCH**

All prices include VAT where applicable.

NAME _____
 ADDRESS _____

 POSTCODE _____
 SIGNATURE _____



Protek=

Protek Computing Ltd, 1A Young Square,
 Brucefield Industrial Park, Livingston, West Lothian. 0506 415353.

The Mersey byte

John Cook visits England's second city to meet the brains behind Beyond's *Shadowfire* – Denton Designs

I've always had a healthy respect for anything vaguely Liverpudlian. ... Brookside, the Spinners and Emlyn Hughes notwithstanding that is. ... on the basis that any city with a spare cathedral, a spare football team and its own dialect of the English language definitely knows what it is doing. And perhaps it's not surprising that the same north-western hotbed of creativity that took the music biz to its heart all those years ago has produced a fair crop of 'software stars'.

Denton Designs, formed out of the chaos of the Imagine collapse just under a year ago, is working on a new approach to games creation. "The Dutch talk about total football – at Denton we talk about total programming." So says Denton's Steve Cain.

Denton is about the nearest thing to an anarcho-syndicalist programming commune that I have yet come across – the credits on their latest opus ran to twelve persons – but it's an approach that definitely works, as does the mix of programmers and artists within the company. It may not be run of the mill, but then, something radical was called for when six of the *Bandersnatch* 'megagame' team suddenly found themselves out of work in a big way.

Now, installed in its HQ in the shadow of cathedral number two near the famous Lime Street station, with one minor hit already ((*Gift from the Gods* for Ocean) together with some solid conversion work, and now the revolutionary adventure game, *Shadowfire*, things are a bit different.

If anything, it is the *Shadowfire* project – the idea which started the company off in the first place – that incorporates all of the elements that have made Denton successful so quickly. Originality, great graphics, technical excellence and teamwork.

Shadowfire is an icon-driven adventure (absolutely no text input) in which you control a 'super-team' of five characters whose mission impossible type task is to rescue a hostage from the clutches of the evil General Zoff.

I spoke to Dave Colclough (Commodore programmer) and Steve Cain (artist) who were largely responsible for the finished product – although Steve was quick to mention that everyone in the company had contributed to some extent. "We're not isolated teams," he explained. "We're like a big family here, including the arguments!"

So who had the idea for using icons in an adventure? Steve again. "There were always a lot of crazy ideas knocking around at Imagine. Ian Weatherburn had the idea for some sort of adventure with

icons. When Imagine crashed we took it to Beyond, and they told us to go ahead."

However, *Shadowfire* has gone through several incarnations since then; originally the game had some text input – and only four team members. "The brief changed as it developed. We felt the overall team need more balance, so we created Sevrina – a female thief. We hope it gives the game a wider appeal."

The game scenario is set in a futuristic hi-tech world with cyborgs, time machines, and transporter beams ... not unlike the equipment used to create it! I asked Dave to describe the various large black boxes in front of him.

"We use Sage micros as development machines," he told me. "This one's a Sage IV. It has a 68000 chip running at eight MegaHertz – effectively about eight times faster than a home micro." Other statistics include one MegaByte of Ram, together with twelve Megs worth of memory on hard disc. "It's not just that it's faster," Dave explained. "If you're writing for more than one machine, you can use a cross-assembler to assemble the source code – one that has the same syntax for both machines – and then download into the target."

Dave, like the rest of the Denton programmers, had no formal computing experience before picking up on home computers – initially he studied naval architecture, while John Heap (Spectrum *Shadowfire* programmer) taught himself Z80 code while on the dole. The arts side of Denton on the other hand, are all ex-Liverpool School of Art. I asked Steve how, technically, they made the transition from other forms of art to computer graphics?

"You tend to learn very quickly or you don't learn at all. The same principles of design apply, you've just got different limitations – size, shape, colour and

resolution."

So how do they start designing on screen images? "The girls (Ally Noble an ex-graphic designer and Karen Davis previously specialising in textile design) prefer to design on graph paper before putting it on-screen. I use a graphics tablet connected to the Sage – and then download the data to the target machine," said Steve.

The results, as seen on *Shadowfire* are unusually good – and there is yet another unusual aspect of the game yet to be released – A 'tuner' program that will allow the player to alter the strengths of the team and the opposition, which started life as in-house utility. An invaluable aid for those who like to dissect their games byte by byte.

But what does the future hold for Denton Designs after *Shadowfire*? Their next 'biggie' is *Frankie Goes to Hollywood* for Ocean, now in its final stages, and then some more conversion work. "Conversions are a waste of ability and creativity really," said Steve, "but they do pay the wages!"

Shadowfire II is in preliminary design stages with great promises of character animation. Three of the original team will survive to fight the next mission ... but which three? (My money is firmly on Sevrina.)

The project after that will be a joint Denton/Beyond venture, which Steve promises to be "a cross between Rollerball and Squash." I can't wait.

What comes across most when chatting to the Denton team, is their enthusiasm for writing and designing their games. They enjoy what they're doing ... and they do it very well. Combined with their firm ideas on how a business should be run – without fast cars – expect to hear a lot more of Denton Designs.



Could YOU get a Newspaper Scoop?

► Addictive launch **STRINGER** ◀
Reporter Extraordinaire in 'The Hotel Caper'



STRINGER is an arcade adventure game in which you are a press photographer for the "Daily Blurb" set the task of snatching a shot of a Film Star, Polly Platinum in an hotel. To hinder your attempts your camera, flashbulb, press pass and the key to the lady's room have been hidden in the hotel and these items have to be recovered before the all important shot can be taken. To add to your troubles the hotel staff are bent on catching you before you reach your goal and your Editor has set you a strict deadline for the completion of the task.

The game has 5 skill levels and 10 screens of increasing difficulty. It is tantalisingly playable, graphically excellent and, of course - Addictive! Available... Commodore 64 £6.95

ALSO AVAILABLE

Football Manager - The All Time Classic.
Available for... Spectrum 48K £5.95...
Commodore 64 £7.95... Amstrad CPC 64 £7.95... BBC 'B' £7.95... Electron £7.95...
Oric-1/Atmos £7.95... Dragon £5.95...
Vic 20 £5.95... ZX 81 £5.95

Software Star
It carries the Kevin Tomlin hallmarks of attention to detail and carefully tuned difficulty. *Popular Computing Weekly*, February 1985.
"The game can be incredibly subtle." *Pick of the Week*, *Popular Computing Weekly*, February 1985.
Available... Spectrum 48K £6.95...
Commodore 64 £7.95... Amstrad CPC 64 £7.95

When you open an
Addictive Game, there's a
new world of discovery
waiting for you.



To: Addictive Games Ltd, 7a Richmond Hill, Bournemouth, Dorset BH2 6HE

Please send me:

- ☐ cassette(s) of Stringer for (computer)
☐ cassette(s) of Software Star for (computer)
☐ cassette(s) of Football Manager for (computer)
 I enclose cheque/postal order for £.....
 Please debit my Access card No.....

* Delete as applicable

Name.....
Address.....

Postcode..... Tel.....

Access orders can be telephoned through on (0202) 296404



• Addictive Games •

7a Richmond Hill, Bournemouth BH2 6HE
Telephone: 0202 · 296404.

Hardware Review

Unfriendly

Product Cheetah Sweet Talker Micro Commodore 64 **Price** £24.95 **Supplier** Cheetah Marketing, 24 Ray Street, London EC1.

Sweet Talker didn't have many sweet nothings to whisper to me – it's a classic example of "you get what you pay for", since it's probably the cheapest speech synth on the market but also offers the least in the way of user-friendliness.

Like other products, such as the Speech 64 from DK'Tronics/Currah, Sweet Talker comes in the form of a cartridge which plugs into the back of the C64, with a connecting lead to the audio/video socket.

Speech is synthesised by modulating an output signal with a filter designed to reproduce the sixty or so 'allophones' which can be combined to reproduce English words.

This is certainly preferable to having a limited preset vocabulary of digitally recorded real sounds, but the disadvantage is that allophonic speech synthesisers sound like British Rail announcers gargling yoghurt.

Sweet Talker might still have been worth having, since it's partly the unreal speech sounds which make voice synths so much fun, but in order to keep costs down the chip used has not been supplied with any extra firmware. In other words, you have to load the driving software every time you want to use the Sweet Talker, and when you want it to

speak you have to type in strings of numbers rather than words. After typing in the short loader program, or loading it from the tape provided, words are entered in the form of data lines – for instance DATA 50,19,13,15,0,-1 would, when run, make the synth say cheetah, since these are the code numbers for the allophones CH, IY, TT, A, Pause, End.

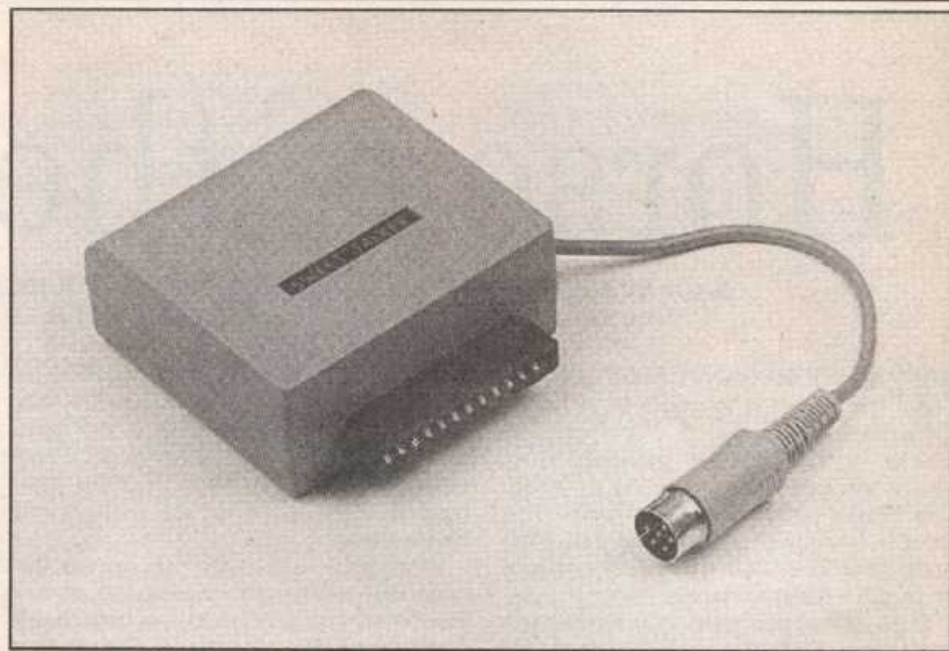
It's all a lot simpler with the rival Speech 64, where there's no software to load and the interpreter lets you just type in 'cheetah', and gets on with the job of selecting and voicing the allophones itself.

The manual supplied with Sweet Talk-

er is sketchy to say the least. A list of all the allophones available and their code numbers is given, but there are few suggestions on how to incorporate the unit in your own programs (though the demo routine on tape does illustrate some possible uses). There's no mention made of using machine code, and no prospect of any commercial software using the system.

Overall, it's hard to see Sweet Talker being very popular. Why settle for such an unfriendly device when there are better ones available for only a little extra outlay?

Chris Jenkins



Take it easy

Hardware Slomo Program Speed Controller Micro Spectrum/Commodore 64 **Price** £14.95 **Supplier** Nidd Valley Products, Stepping Stone House, Thistle Hiull, Knaresborough, N Yorks.

Some arcade games start off at such a speed that it takes time to adjust to the controls. How pleasant if all games could take you slowly up from gentle beginnings. The Slomo is designed to do just that, as it slows down the processing in an infinitely variable sweep from normal speed, through dead slow to completely frozen. Some people may regard it as an unfair method to cheat your way to high scores, though this it certainly one use for it.

The Slomo is available for several different computers and I have been looking at the Spectrum version, which plugs into the user port. At the other end of a short cable is a little black box with one rotary speed control and two push buttons, labelled 'Slow Motion' and 'Freeze Frame'. I tried it first on *Decathlon* and managed to do a little better than usual.

If, like me, you wish your reactions were a little faster in some games, and can cope with accusations of cheating, this could be just what you're after.

John Scriven



Keeping contact

Hardware Power Switch Micro Spectrum/Electron **Price** £4.95 **Supplier** Rainbow Electronics Glebe House South Leigh Witney Oxon

What's the difference between a BBC micro and an Amstrad, and an Electron or a Spectrum? Apart from a hundred and one other things, one small but irritating difference is the absence of an on/off switch. Most owners of the afore-mentioned machines are probably used to unplugging the power cables, but this undoubtedly increases wear and tear on the contacts, which will eventually wear out, particularly with a micro like the Spectrum that doesn't provide a hard reset.

Rainbow Electronics is one of several firms to produce an in-line on/off switch. This consists of a small black case about 8x4x2 cm, with a rocker switch and LED on the top.

What more can I say? – it works very well and £4.95 is a small price to pay compared to the expense of getting a power socket replaced.

John Scriven

Horse of the Year

A clear round for *Graham D Walkden* with this show jumping simulation for the BBC B

This is a two player game in which the object is to guide your horse over a course of show-jumping fences in the shortest possible time. There are five different types of fence; The Water Jump, The Bush Jump, The Double Bar Jump, The Water and Bush Jump, and The Wall. They differ in size so require different tactics.

Type in the program as it appears in the listing. (Disk users set *Page* to &1100 first and on no account press *Break*, as this will mean goodbye to all your typing). Save it in case of power-cuts, acci-

dental *Break* pressing etc, then type *Run*. You will be greeted by the title page and the theme tune. If the tune drive you potty then press *Escape* and type *FX210,1 then *Run*, and the tune (and all other sound for that matter) will be no more.

When you choose the play option the tune will cease (so unplug the cotton wool) and you will be asked how many screens you want per round. Choose any number between 2 and 9 and the game will start. You control the white horse at the top left hand side of the screen by

using the following keys: *A* -accelerate, *Z* -brake/reverse, *Return* -jump.

The parabolic trajectory of the horse depends on its speed at the take-off point. The faster the horse is going, the further it will jump. Great skill is required when calculating the jumping speed as the 5 different fences require different approach speeds (The Bar Jump requires two seperate jumps at slow speed). When in the air you cannot control your horse, which is logical because short of equestrian retro rockets there is no way you can alter its speed.




```

)LIST
10REM Horse of the Year.
20REM (c) 1984 Graham D. Walkden
30:
40*FX9,6
50*FX10,6
60IFPAGE%1100VDU7,7:PRINT"PAGE should be set t
o 1100 !":END
70PROCchars
80MODE2:VDU22,7,23;8202;0;0;0;
90PROCvars
100PROCinit:CLS
110CLS:y=5:d$=CHR$131+CHR$141+"How many screens
per round ? (2-9) ":FORi=1TO2:PROCTelex:NEXT
120maxI=maxX-1
130REPEAT:INPUTTAS(0,10);maxI:PRINTTAB(0,10);"
*:UNTILmaxI<1ANDmaxI<10
140FORpI=1 TO 2
150xI=0:spI=40:yI=798:scrnI=1
160CLS:y=10:d$=CHR$141+CHR$130+"Press any key pl
ayer "+STR$plI+" ":FORi=1TO2:PROCTelex:NEXT:A=GET
170MODE2:VDU23;8202;0;0;0;
180PROCscrn
190SCOL0,0:*FX15
200spI=40:ctI=0:plI=pI:yI=798:timI(plI)=0:REPEAT
210IFjpI=1THEN240
220IFINKEY-66ANDspI<48 spI=spI+4
230IFINKEY-98ANDspI=-20 spI=spI-4
240IFxI<10ANDyI<800ANDspI<0 spI=0
250VDUS:MOVExI,yI:PRINThorse$(pI):VDU4:xI=xI+spI
260c=ctI/(1-(INT(SQRABS(spI)))):IFc=INT(c)ANDjpI
=0 SOUND0,4,clopI(plI),1:SOUND0,4,clopI(plI),1
270SCOL3,7
280IFINKEY-74ANDjpI=0ANDspI>0 jpI=1:ji=1:IFRND(9
-clI)=1 PROCrefuse
290pI=plI
300IFjpI=1 PROCjump
310IFxI<1150 xI=0:yI=yI-320
320IFxI<0 ANDyI<600 xI=1100:yI=yI+320:refI=0
330IFxI<0 xI=0:spI=0
340SCOL3,7:VDUS:MOVExI,yI:PRINThorse$(pI):VDU4
350IFPOINT(xI-4,yI-60)<0 DRPOINT(xI+116,yI-60)<
)0 PROCit:SCOL3,7
360IFc<INT(c) THEN390
370IFpI=1 plI=2 ELSEplI=1
380IFspI=0 ORjpI=1 plI=1
390IFspI<0 ctI=ctI+1
400IFyI<300ANDxI<1100ANDscrnI<maxI scrnI=scrnI+
1:CLS:PROCscrn:xI=0:spI=40:yI=798:SCOL3,0:jpI=0:re
fI=0
410timI(plI)=timI(plI)+1:COLOUR129:COLOUR3:PRINT
TAB(14,0);timI(plI):" *:COLOUR128
420UNTILrefI=3 ORscrnI=maxIANDyI<300ANDxI<1100
430FORi=0TO150STEP5:SOUND1,1,1,2:SOUND2,1,1+10,2
:SOUND3,1,1+20,2:NEXT
440VDU22,7,23;8202;0;0;0;
450y=d$:d$=CHR$141+CHR$133+"Player "+STR$plI+" yo
ur time was "+STR$timI(plI)+" *:FORi=1TO2:PROCTelex
:NEXT:y=y+1:IFclI=d$=CHR$141+CHR$135+CHR$136+"Y
ou had a clear round ! ":FORi=1TO2:PROCTelex:NEXT
460IFrefI=3 d$=CHR$141+CHR$136+"YOU WERE DISQUAL
IFIED !":y=10:FORi=1TO2:PROCTelex:NEXT:TIME=0:REPE
ATUNTILTIME=400:CLS:PROCinit:GOTO110
470*FX21,0
480jpI=0:A=INKEY(300):NEXT:*FX21,0
490CLS:IFtimI(1)=timI(2)d$=CHR$141+CHR$133+CHR$1
36+"A dead heat ! Commencing jump-off ":y=10:FORi=
1TO2:PROCTelex:NEXT:A=INKEY(200):CLS:GOTO110
500IFtimI(1)<timI(2) d$=CHR$136+CHR$141+CHR$130+
"Player 1 is the winner by "+STR$(timI(2)-timI(1))
+*". ELSEd$=CHR$136+CHR$130+CHR$141+"Player 2 is t
he winner by "+STR$(timI(1)-timI(2))+*".
510y=9:FORi=1TO2:PROCTelex:NEXT
520PROCinit:GOTO110
530DEFPROCchars
540VDU23,224,3,3,2,3,2,15,31,63
550VDU23,225,4,15,31,184,112,224,224,240
560VDU23,226,240,240,48,16,8,4,6,0
570VDU23,227,127,63,58,51,64,128,128,0
580VDU23,228,3,3,2,3,2,15,31,63
590VDU23,229,4,15,31,184,112,224,224,240
600VDU23,230,240,240,48,16,32,64,128,0
610VDU23,231,127,63,58,51,8,4,2,0
620VDU23,232,146,186,84,68,40,40,16,16
630VDU23,233,16,16,16,56,108,198,238,254
640VDU23,234,16,56,16,0,0,0,0,0
650VDU23,235,0,0,0,0,145,219,255,255
660VDU23,236,0,0,0,0,18,182,254,254
670VDU23,237,0,0,24,60,60,62,126,126
680VDU23,238,0,0,0,0,0,0,12
690VDU23,239,30,62,63,127,127,127,62,8
700VDU23,240,124,254,254,124,124,24,24,24
710VDU23,241,255,136,189,189,157,189,184,255
720VDU23,242,255,136,173,173,173,173,168,255
730VDU23,243,255,149,181,145,213,213,149,255
740VDU23,244,0,126,126,126,126,126,126,0
750VDU23,245,127,127,127,127,127,127,127,127
760VDU23,246,3,3,2,3,2,15,31,63
770VDU23,247,4,15,31,184,112,224,224,240
780VDU23,248,240,240,48,16,8,4,6,0
790VDU23,249,127,63,58,19,8,4,6,0
800DIMhorse$(2):horse$(1)=CHR$224+CHR$225+CHR$10
+CHR$8+CHR$8+CHR$227+CHR$226:horse$(2)=CHR$228+CHR
$229+CHR$10+CHR$8+CHR$8+CHR$231+CHR$230
810s$=CHR$232+CHR$8+CHR$10+CHR$233
820DIMjump$(16)
830jump$(1)=CHR$17+CHR$3+s$+CHR$17+CHR$6+CHR$235
+CHR$236+CHR$17+CHR$3+CHR$11+s$:jump$(2)=CHR$17+CH
R$7+s$+CHR$17+CHR$2+CHR$11+CHR$237+CHR$238+CHR$10+
CHR$8+CHR$8+CHR$240+CHR$239+CHR$17+CHR$7+CHR$11+s$
840jump$(3)=CHR$17+CHR$3+s$+CHR$17+CHR$2+CHR$11+
CHR$237+CHR$10+CHR$8+CHR$240+CHR$17+CHR$6+CHR$235+
CHR$236+CHR$17+CHR$2+CHR$11+CHR$238+CHR$10+CHR$8+C
HR$239+CHR$17+CHR$3+CHR$11+s$
850jump$(4)=CHR$17+CHR$135+CHR$17+CHR$1+CHR$10+6
TRINGS(3,CHR$244+CHR$244+CHR$11+CHR$8+CHR$8)+CHR$1
7+CHR$128:jump$(5)=CHR$17+CHR$1+s$+CHR$17+CHR$7+CH
R$11+s$+CHR$11+" *s$+CHR$11+CHR$17+CHR$1+s$
860land$=CHR$17+CHR$2+STRING$(20,CHR$245)
870fin$=CHR$17+CHR$11+CHR$17+CHR$140+CHR$241+CHR
$242+CHR$243+CHR$17+CHR$128
880DIMtimI(2),x(5):hsI=0:spI=40:pI=1:FORi=1TO5:R
EADx(i):NEXT
890DIMjpI(20):FORi=1TO19:READjpI(i):NEXT
900DIMclopI(2):clopI(1)=12:clopI(2)=14
910refI=CHR$246+CHR$247+CHR$10+CHR$8+CHR$8+CHR$2
49+CHR$248
920ENDPROC
930DEFPROCscrn
940COLOUR7:COLOUR129:PRINTTAB(0,0);"PLAYER *":
TIME *timI(plI):SPC(4-LENSTRtimI(plI)):COLOUR128
950COLOUR3:COLOUR129:PRINTTAB(7,0);pI:COLOUR128
960FORi=9TO29STEP10:PRINTTAB(0,i);land$
970IFyI<750j=RND(4)
980IFyI<750j=RND(5)
990PRINTTAB(x(j),j-2);jump$(j)
1000NEXT
1010IFmaxI=scrnI PRINTTAB(17,22);fin$
1020ENDPROC
1030DEFPROCvars
1040x=0:y=798:timI(1)=0:timI(2)=0:scrnI=1:jpI=0
:maxI=1:plI=1:clI=1:refI=0
1050ENVELOPE1,4,0,0,0,4,4,4,0,-3,-3,126,126:ENV
ELOPE3,1,1,1,4,4,4,0,0,-1,-1,126,126
1060ENVELOPE4,1,0,0,0,1,1,1,-12,-12,-12,-12,126,1
2
1070ENDPROC
1080DEFPROCjump
1090yI=yI-jpI(jI):jI=jI+1:IFjI=20 jpI=0
1100ENDPROC
1110DEFPROCinit
1120IFxI<1000TIME=200 ENDPROC
1130TIME=0
1140IFclI<6 clI=clI+1
1150timI(plI)=timI(plI)+20
1160VDU19,0,7;0;0;SOUND0,-15,10,8:TIME=0:REPEATU
NTILTIME=10:VDU20
1170ENDPROC
1180DEFPROCrefuse
1190IFyI>790 ENDPROC
1200refI=refI+1
1210VDUS:SCOL0,0:MOVExI,yI:PRINThorse$(plI):SCOL3
,7:MOVExI,yI:PRINTrefI$
1220COLOUR8:VDU4:PRINTTAB(6,11);"REFUSAL !"
1230SOUND1,3,100,1:SOUND2,3,101,1:TIME=0:REPEATU
NTILTIME=200:*FX12,0
1240jpI=0:spI=0:A=SET:PRINTTAB(6,11);" *:
VDU5
1250SCOL0,0:MOVExI,yI:PRINTrefI$:VDU4
1260ENDPROC
1270DATA8,6,7,9,5
1280DEFPROCtelex:x=(40-LENd$)/2:PRINTTAB(x,y);d$:
y=y+1:ENDPROC
1290DATA-20,-20,-20,-16,-16,-12,-8,0,0,0,0,8,12
,16,16,20,20
1300DEFPROCinit
1310d$=CHR$141+CHR$157+CHR$129+*****+CHR$132+"Ho
rse of the Year"+CHR$129+***** *+CHR$156:y=1:FORi
=1TO2:PROCTelex:NEXT
1320y=y+2:d$=CHR$131+"By Graham D. Walkden":PROCTelex
1330y=12:d$=CHR$141+CHR$133+"Press "+CHR$131+"I"+C
HR$133+"for instructions or "+CHR$131+"P"+CHR$133+"
to play"
1340FORi=1TO2:PROCTelex:NEXT
1350ENVELOPE2,1,0,0,0,1,1,1,-3,-3,-3,-3,126,126
1360DATA8,b,1:Fa=-10 ORb=-10 RESTORE:FORi=1TO24:R
EADx:NEXT:READa,b
1370SOUND1,2,a,b/1.5:SOUND2,2,a+1,b/1.5
1380a=INKEY(0):IFa=80 ENDPROC
1390IFa=73 PROCins:CLS:GOTO1310
1400GOTO1340
1410DATA89,5,89,5,89,10,77,5,77,5,77,10,97,5,97,5
,97,5,89,5,81,5,77,5,69,10,77,5,77,5,77,10,61,5,61
,5,61,10,81,5,81,5,77,5,69,5,61,5,61,5,49,10,97,5
,97,5,89,5,81,5,77,5,69,5,61,10,77,5,77,5,77,10,61
,5,61,5,81,10,81,5,81,5,81,5,81,5
1420DATA81,5,81,5,69,10,89,5,89,5,89,10,77,5,77,5
,77,10,97,5,97,5,97,5,97,5,97,5,81,10,53,5,53
,5,53,10,41,5,41,5,41,10,61,5,61,5,61,5,53,5,45,5
,41,5,33,10,41,5,41,5,41,10,25,5,25,5,25,10,45,5,45
,5,41,5,33,5,25,5,25,13,10
1430DATA97,5,97,5,89,5,81,5,77,5,69,5,61,10
1440DATA-10,-10
1450DEFPROCins
1460VDU22,2,23;8202;0;0;0;0;COLOUR14:PRINTTAB(4,2)
;"INSTRUCTIONS"
1470PRINT"":FORi=1TO4:PRINTTAB(4);jump$(i)"";NE
XT
1480x=11
1490COLOUR7:PRINTTAB(x,8);"WATER":TAB(x,13);"BUSH
ES":TAB(x,18);"MIXED":TAB(x,23);"WALL"
1500COLOUR11:PRINTTAB(4,28);"PRESS ANY KEY":a=GET
1510VDU22,7,23;8202;0;0;0;0;d$=CHR$131+CHR$141+"KE
YS :":y=0:FORi=1TO2:PROCTelex:NEXT
1520y=y+2:d$=CHR$131+"A"+CHR$129+"to speed up.":P
ROCTelex:d$=CHR$131+"Z"+CHR$129+"to slow down.":P
ROCTelex:d$=CHR$131+"RETURN"+CHR$129+"to jump.":P
ROCTelex
1530y=y+2:d$=CHR$130+"The Z key may also used to
reverse.":PROCTelex
1540y=y+3:d$=CHR$133+CHR$141+"Press any key ":FOR
i=1TO2:PROCTelex:NEXT:a=GET:ENDPROC

```


The name game

Keep all those names and addresses on tape with this useful program by **Andrew Dagnall**

This program is an address book program for the Commodore 64. The program will let you input: Name, Surname, Address in full, Post Code, Home Telephone No. and Work Telephone No. The address then has to be labelled residential or business by using keys (R) or (B) respectively. When you run the program you will be presented with a Menu.

Input - the cursor will appear under Name waiting for your input; type in the name, then press **return**. When **return** is pressed the cursor will jump to the next label. Enter required details (address, etc) using the same method. Repeat for all labels.

Change - you will be asked to enter one item of data, ie name, surname, post code, home number or work number.

If no details are known then just enter **R**

or **B** to find all entries under Residential or Business respectively. If the file found is the one you wish to change, Press **C** then the display will change to the input mode.

To change any details, overwrite existing details; any characters after the cursor will not be entered when **return** is pressed. Any details you do not wish to change, just press **return**. To leave any of the details blank, enter a space then press **return**.

When all details have been entered, press **C** to re-change or **return** to continue. You will then be asked to enter **F** to find any more files you wish to change or **return** for Menu.

Find - To find an address you will be asked to enter one item of data as for change. Use **F** to find more data or **return** for Menu.

Save - When you have finished with the

program, if you have changed any files press **F7** to save data to tape.

Before the program is used for the first time, save program as listed, then change Line 10 to `DimA$(200,9):Goto 60` then run. Enter some addresses and save the data on tape.

On all subsequent uses the program can be loaded and run as listed.

Program Notes

Line No	
10-80	Read data from tape.
60-80	Set variables and sound.
90	Routine to simulate print at.
100-200	Input routine.
210-420	Up date screened at.
430-810	Print file card with labels.
820-1255	Input and Change routines.
1260-1830	Find routine.
1560-1700	Menu.
1710-1750	Save data to tape.

```

10 DIMA$(200,9)
20 OPEN1,1,0,"ADDRESS DATA"
30 INPUT#1,V
40 FORI=1TOV:FORJ=1TO9:INPUT#1,A$(I,J):NEXTJ,I
50 CLOSE1
60 CS$=""
70 CC$=""
80 POKE54296,6:POKE54272,0:POKE54273,90:POKE54277,0:POKE54278,
  240:GOTO1560
90 POKE781,V:POKE782,X:SYS65520:RETURN
100 POKE190,0
120 M=1:L$="":IFR$(Z,T)="THENPRINT"###":GOTO140
130 PRINT"###";LEFT$(A$(Z,T),1);"###";
140 GETM$:IFM$="THEN140
143 IFM$=","ORM$=","ORM$=","ORM$=","THEN140
144 IFM$="N"ORM$="J"ORM$="S"ORM$="J"ORM$="H"ORM$="I"ORM$="I"
  THEN140
145 IFM$=CHR$(13)ANDLEFT$(L$,1)=" THENL$="-----"
150 IFM$=CHR$(13)ANDM=1THENL$=A$(Z,T):IFL$=" THENL$="-----"
160 IFM$=CHR$(13)THENPOKE54276,33:FORD=1TO50:NEXTD:POKE54276,0:
  RETURN
170 IFM$=CHR$(20)ANDM=1THENM=M-1:L$=LEFT$(L$,LEN(L$)-1):PRINT
  "IL ###":GOTO140
180 IFM$=CHR$(20)THEN140
190 IFM$>L$THENPOKE54276,33:FORD=1TO50:NEXTD:POKE54276,0:GOTO140
200 L$=L$+M$:M=M+1:PRINTM$;"J":GOTO140
210 Y=7:X=2:GOSUB90
220 PRINTLEFT$(CS$,16)LEFT$(CC$,16)"A$(Z,1)
230 Y=7:X=20:GOSUB90
240 PRINTLEFT$(CS$,18)LEFT$(CC$,18)A$(Z,2)
250 Y=10:X=11:GOSUB90
260 PRINTLEFT$(CS$,27)LEFT$(CC$,27)A$(Z,3)
270 Y=13:X=2:GOSUB90
280 PRINTLEFT$(CS$,36)LEFT$(CC$,36)A$(Z,4)
290 Y=16:X=2:GOSUB90
300 PRINTLEFT$(CS$,36)LEFT$(CC$,36)A$(Z,5)
310 Y=21:X=2:GOSUB90
320 PRINTLEFT$(CS$,12)LEFT$(CC$,12)A$(Z,6)
330 Y=21:X=15:GOSUB90
340 PRINTLEFT$(CS$,11)LEFT$(CC$,11)A$(Z,7)
350 Y=21:X=27:GOSUB90
360 PRINTLEFT$(CS$,11)LEFT$(CC$,11)A$(Z,8)
370 Y=3:X=35:GOSUB90
390 PRINT"###";Z;"###"
400 Y=3:X=14:GOSUB90
410 PRINT"###";A$(Z,9);"###"
420 RETURN
430 X=1:Y=2:GOSUB90
440 PRINT"###"
450 Y=3:GOSUB90
460 PRINT"### FILE DETAIL"
470 Y=4:GOSUB90
480 PRINT"###"
490 PRINT"###"
500 PRINT"###"
510 PRINT"###"
520 PRINT"###"
530 PRINT"###"
540 PRINT"###"
550 PRINT"###"
560 PRINT"###"
570 PRINT"###"
580 PRINT"###"
590 PRINT"###"
600 PRINT"###"
610 PRINT"###"
620 PRINT"###"
630 PRINT"###"
640 PRINT"###"
650 PRINT"###"
660 PRINT"###"
670 Y=5:X=6:GOSUB90
680 PRINT"### NAME "
690 X=26:GOSUB90
700 PRINT"### SURNAME "
710 Y=10:X=2:GOSUB90
720 PRINT"### ADDRESS "
730 Y=18:X=3:GOSUB90
740 PRINT"### POSTCODE "
750 X=22:GOSUB90
760 PRINT"### TELEPHONE "
770 Y=19:X=15:GOSUB90
780 PRINT"### HOME "
790 X=32:GOSUB90
800 PRINT"### WORK "
810 POKE53281,2:RETURN
820 PRINT"J":Y=V+1:Z=V
830 PRINT"J###:### INPUT NAME & ADDRESS ###"
840 GOSUB430
850 PRINT"###":GOSUB210:Y=7:X=2:GOSUB90
860 L=15:T=1:GOSUB100:A$(Z,1)=L$
870 GOSUB210
880 Y=7:X=20:GOSUB90
890 L=17:T=2:GOSUB100:A$(Z,2)=L$
900 GOSUB210
910 Y=10:X=11:GOSUB90
920 L=26:T=3:GOSUB100:A$(Z,3)=L$
930 GOSUB210
940 Y=13:X=2:GOSUB90
950 L=35:T=4:GOSUB100:A$(Z,4)=L$
960 GOSUB210
970 Y=16:X=2:GOSUB90
980 L=35:T=5:GOSUB100:A$(Z,5)=L$
990 GOSUB210
1000 Y=21:X=2:GOSUB90

```



```

1010 L=11:T=6:GOSUB100:A$(Z,6)=L$
1020 GOSUB210
1030 Y=21:X=15:GOSUB90
1040 L=10:T=7:GOSUB100:A$(Z,7)=L$
1050 GOSUB210
1060 Y=21:X=27:GOSUB90
1070 L=10:T=8:GOSUB100:A$(Z,8)=L$
1080 GOSUB210
1090 Y=23:X=1:GOSUB90
1100 PRINT"R R RESIDENTIAL OR B BUSINESS "
1110 GET$:IFR$=""THEN1110
1120 IFR$="R"THENA$(Z,9)="-RESIDENTIAL-":GOTO1150
1130 IFR$="B"THENA$(Z,9)="-BUSINESS -":GOTO1150
1140 GOTO1110
1150 GOSUB210
1160 POKE198,0:Y=23:X=1:GOSUB90
1170 PRINTLEFT$(CS$,38):FORW=1TO200:NEXTW
1180 GOSUB90
1190 PRINT"R R C TO CHANGE ADDRESS OR RETURN "
    :FORW=1TO60
1200 GETI$:IFI$<" "THENPOKE54276,33:FORD=1TO50:NEXTD:
    POKE54276,0
1210 IFB$="B"ANDI$="C"THENW=60:NEXTW:GOTO830
1220 IFI$="C"THENW=60:NEXTW:GOTO830
1230 IFB$="B"ANDI$=CHR$(13)THENW=60:NEXTW:GOTO1490
1240 IFI$=CHR$(13)THENW=60:NEXTW:GOTO1560
1250 NEXTW:GOTO1160
1255 PRINT"***** CHANGE NAME & ADDRESS *****":GOTO1270
1260 PRINT"***** FIND NAME & ADDRESS *****"
1270 D$="":H=0:U=1:GOSUB430
1280 Y=23:X=2:GOSUB90:INPUT"ENTER ONE ITEM OF DATA ";D$
1290 POKE54276,33:FORD=1TO50:NEXTD:POKE54276,0
1300 Y=23:X=0:GOSUB90
1310 PRINTCS$
1320 X=1:GOSUB90
1330 PRINT" "
    :PLEASE WAIT
1340 FORI=UTOV:C=1:POKE53280,CAND15
1350 IFD$=A$(I,1)THEN1470
1360 IFD$=A$(I,2)THEN1470
1370 IFD$=A$(I,6)THEN1470
1380 IFD$=A$(I,7)THEN1470
1390 IFD$=A$(I,8)THEN1470
1400 IFD$=MID$(A$(I,9),2,1)THEN1470
1410 NEXTI:IFH=>1THEND$="MORE DATA"
1420 POKE53280,6
1430 Y=23:X=1:GOSUB90
1440 PRINT"NO "IN FILE "
1450 FORW=1TO2500:NEXTW
1460 GOTO1560
1470 POKE53280,6:Z=I:H=H+1:GOSUB210
1480 IFB$="B"THEN1160
1490 Y=23:X=1:GOSUB90
1500 PRINT"R R F TO FIND MORE DATA OR RETURN "
1510 GETU$:IFU$=""THEN1510
1520 POKE54276,33:FORD=1TO50:NEXTD:POKE54276,0
1530 IFU$="F"THENU=I+1:GOTO1320
1540 IFU$<CHR$(13)ORU$>CHR$(13)THEN1510
1550 I=V:NEXTI
1560 PRINT"***** MENU *****"
    :POKE53280,6:POKE53281,2
1570 PRINT"1 = INPUT NAME & ADDRESS -----"
1580 PRINT"2 = CHANGE NAME & ADDRESS -----"
1590 PRINT"3 = FIND NAME & ADDRESS -----"
1600 PRINT"4 = SAVE DATA -----"
1610 POKE198,0:Y=20:X=20:GOSUB90
1620 PRINTLEFT$(CS$,26):FORW=1TO200:NEXTW
1630 GOSUB90
1640 PRINT"SELECT OPTION ?":FORW=1TO50
1650 GETB$
1660 IFB$="1"THENW=50:NEXTW:GOTO820
1670 IFB$="2"THENW=50:NEXTW:GOTO1255
1680 IFB$="3"THENW=50:NEXTW:GOTO1260
1690 IFB$="4"THENW=50:NEXTW:GOTO1710
1700 NEXTW:GOTO1610
1710 PRINT"*****SAVE NAME & ADDRESS DATA*****"
1720 OPEN1,1,1,"ADDRESS DATA"
1730 PRINT#1,V
1740 FORI=1TOV:FORJ=1TO9:PRINT#1,A$(I,J):NEXTJ,I
1750 CLOSE1

```

Computer Support **PRESENTS**

A whole new range of affordable software and hardware products for every *Atari user.

Hardware	
80 COLUMN PACK.....	£69.95
ULTIMON.....	£49.95
THE GAP.....	£29.95
ROM EMULATOR.....	£29.95
OVER-WRITE.....	£14.95
BADSECTOR.....	£19.95
PORTPRINT.....	£29.95
MONITOR CONNECTION LEAD.....	£ 8.95
HI-FI CONNECTION LEAD.....	£ 4.95
REPLACEMENT ARIEL LEAD.....	£ 2.95
SERIAL FLYLEAD (1 metre).....	£11.95
SERIAL FLYLEAD (2 metres).....	£12.95
SERIAL I/O PLUG.....	£ 3.95

Software	Cass	Disk
SUPER DISASSEMBLER	—	£24.95
FILE LOADER	—	£14.95
BOOT LOADER	—	£14.95
BIORHYTHM	£ 6.95	£24.95
MAILING LIST	—	£12.95
UTILITY PAC ONE	£ 8.95	£ 9.95
DISK DUPLICATOR	—	£16.95
DISK DUPLICATOR 128k	—	£19.95
CARTRIDGE DUPLICATOR	£15.95	£16.95
CASSETTE DUPLICATOR	£ 9.95	£10.95
MACRO LIBRARY (MAC 65*)	—	£12.95
ZAPPING-ZOMBIES	£ 6.95	£ 9.95

We are continually adding new products to our range.
Please send SAE for full details.

Computer Support (Dept PCW)
26 Seacourt Road
Abbey Wood
London SE2 9UW
Tel: 01-311 7339

*ATARI is a registered trademark of ATARI CORPORATION
*MAC68 is a trademark of O.S.S. Inc.

PD98

PROGRAMMERS

Digital Integration Limited is an expanding software house specialising in high quality original video games.

We require proficient machine code programmers for the design and development of home computer software. Applicants must have an extensive knowledge of Z80 or 6502 assembly language programming, creative talent, self motivation and a strong interest in home computers. CP/M experience would be an advantage.

Highly competitive salaries offered according to experience, plus a profit sharing bonus scheme. Excellent working conditions.

Please send c.v. to:
Digital Integration Limited
Watchmoor Trade Centre, Watchmoor Road,
CAMBERLEY, Surrey, GU15 3AJ
Telephone: 0276 684959

DIGITAL INTEGRATION



Life in the fast lane

Make your Basic programs run faster
with Part Two of Compiler by A. Mehmood

This week we present the remainder of the Basic listing and the explanation of the supported functions.

Pause - The *Pause* command works in a different way from the way it works in standard Sinclair Basic, in that the pause command in the compiler has the effect of *Pause 0*. The *Pause* command however uses the same format as it does in standard Sinclair Basic (eg, *Pause x*, *x* being any integer between 0-65535). It should be noted the value of *x* is not taken into account and is only used to overcome the standard Sinclair Basic syntax checking.

Strings - No Strings or String variables are supported, including string printing, or anything using double quotes.

Rnd - The *Rnd* command works in exactly the same way as it does in standard Sinclair Basic except that it produces a random number between 0-14 rather than 0-99.

Border - The *Border* command works slightly differently from the Sinclair version. To get the required border colour the standard Sinclair Basic format should be used, (ie,

Border x) where *x* has the result of the equation: $(y*8)+z$. *y* is the colour of the border required and *z* is the ink colour of the lower half of the screen (bottom two lines), where all the error reports are produced.

Variables - Variables names can consist of any letter of the alphabet, and may be coupled with the number 1. This format allows a maximum of 52 variables. To assign a variable the standard Sinclair Basic format should be used.

Arithmetic - Any arithmetic using +, -, *, /, can be performed. Brackets may be used. Although the compiler can handle fairly complicated arithmetic it is advised to keep equations short.

Print - The *Print* command works approximately as it does in standard Sinclair Basic, however it can only have the following formats:

Print At *x*, *y*; Chr\$ *z*; Chr\$ *z* or

Print Tab *y*; Chr\$ *z*; or

Print Chr\$ *z*; Chr\$ *z*

Print

This where *x* is the line number, *y* is the

column number and *z* is the code of the character to be printed or any variable that exists within a program.

Draw - The *Draw* command uses a slightly different form from those used in standard Sinclair Basic, in that all negative numbers must hold the result of the following: (negative number required) -1. The format of the command however is exactly the same as in standard Sinclair Basic, eg, *Draw x*, *y*.

All the above changes sometimes makes programs that are to be compiled incompatible with the way that standard Sinclair Basic works, however, this can be overcome by using commands which are compatible with both the Basic and the Compiler, changing commands before conversion or by simply omitting commands which are not compatible.

Type in the compiler as shown in the listing taking great care, especially with *Line 1* which should have at least 200 characters in it.

Next week, how to convert your own programs, plus a demo program for the Compiler.

If you would like a tape copy of Compiler without typing it in, write to the author at 30 Webber House, North St, Barking, Essex, enclosing £2.75.

```

300 LET P=P+W
301 GO SUB W8: LET R$=CHR$ PEEK P: GO TO VAL "200"
302 GO SUB W8: LET R$=CHR$ PEEK P: IF R$<>" " AND R$<>"k" THEN LET P=P+W: GO TO VAL "302"
303 GO TO VAL "200"
310 GO SUB W8: LET V=FN V(PEEK P)
311 LET E$=CHR$ V+E$
315 GO SUB W7: LET P=P+W: LET B$=B$+"E5"+M$: GO SUB W5
316 IF R$<>" " THEN GO TO VAL "390"
317 LET B$=B$+"E5"+M$: GO SUB W7: GO SUB W5: IF R$<>" " THEN GO TO VAL "390"
320 LET R$=E$(W): LET B$=B$+"D1"+("7CB2577DB35F" AND R$="o")+("7CA2577DA35F" AND R$="a")+("7CA577DAB5F" AND R$="x")+("E1"
350 GO TO W4
390 LET X$="Wrong number of arguments": GO TO Wf
400 LET Q=W: LET Q1=W
401 LET A=Y: GO SUB VAL "12": LET Z=C: LET A=D: GO SUB Wb: LET A$=A$+"21"+C$: LET A=Z: GO SUB Wb: LET A$=A$+C$
405 LET Z=P
410 LET P=P+W
415 IF PEEK P=CODE "" THEN LET X$="String printing not supported.": GO TO Wf
422 POKE Y,PEEK P: LET Y=Y-W: GO TO VAL "410"
450 PRINT "bad line":END
460 LET A=P-Z-W: GO SUB VAL "12": LET Z=C: LET A=D: GO SUB Wb: LET A$=A$+"11"+C$: LET A=Z: GO SUB Wb: LET A$=A$+C$+"CD7D5D"
462 GO SUB VAL "95": LET R$=CHR$ PEEK P: GO TO VAL "740"
600 GO SUB VAL "14"
602 LET R$=CHR$ PEEK P: IF R$<>" " THEN LET X$="LET (Invalid variable name)": GO TO Wf
604 LET P=P+W
610 GO SUB W4: LET B$=B$+"22": LET A=VAR: GO SUB Wb: LET B$=B$+C$+N$: LET A$=A$+B$: GO TO W4
621 GO SUB W3: LET A$=A$+B$
622 LET S=R$
623 IF S$=CHR$ VAL "203" THEN LET X$="Syntax error ( IF x THEN .. ) ": GO TO Wf
624 LET A$=A$+"E5"
626 GO SUB W3
627 LET A$=A$+B$+"545DE1"
630 IF S$=">" OR S$="<=" THEN LET A$=A$+"EB"
631 LET A$=A$+"A7ED52"
635 LET A=VAL "194"+(VAL "8" AND S$="<>")+ (VAL "16" AND (S$="<" OR S$=">"))+(VAL

```



```

L "24" AND (S$=">" OR S$="<"))
636 GO SUB wb
642 LET a$=a$+c$+"xx": LET a=line+w: GO SUB VAL "12": LET r$="": LET a$=a$+c$
643 GO TO wc
645 LET p=p+w: LET a$=a$+"xx": GO SUB VAL "192"
647 LET a$=a$+CHR$ PEEK p+CHR$ PEEK (p+w): LET p=p+w1
649 GO TO we
700 GO SUB w7
701 LET r$=CHR$ PEEK p: IF r$=":" OR r$=k$ THEN GO TO wc
702 IF r$=CHR$ VAL "172" THEN GO TO VAL "750"
704 IF r$="," OR r$=";" OR R$=";" THEN LET a$=a$+("3E06D7" AND R$=",")+( "3E0DD
7" AND R$=";"): GO TO VAL "700"
705 IF r$=CHR$ VAL "194" THEN GO TO VAL "730"
706 IF r$>=CHR$ VAL "217" AND R$<=CHR$ VAL "222" THEN GO SUB VAL "183": GO TO
VAL "701"
707 IF r$=CHR$ VAL "173" THEN GO TO VAL "720"
708 IF r$=""" THEN GO TO VAL "400"
710 GO SUB w4: LET A$=A$+B$+"E5C1CD2B2DCDE32D": GO TO VAL "756"
720 LET A$=A$+"3E17D7": GO SUB w3: LET A$=A$+B$+P$+P$: GO TO VAL "740"
730 GO SUB w3: LET A$=A$+B$+P$
731 GO TO VAL "740"
740 LET s$=r$: GO SUB w8: LET r$=CHR$ PEEK p: IF R$=k$ OR R$=":" THEN LET A$=A
$+("3E0DD7" AND (S$<>"," OR S$<>";" OR S$<>";)): GO TO wc
742 GO TO VAL "701"
750 LET A$=A$+"3E16D7": FOR Z=w TO w1: GO SUB w3
751 LET S$=R$: LET A$=A$+B$+P$: NEXT Z
756 GO TO VAL "740"
763 GO SUB w3: LET a$=a$+b$+"4D": GO SUB w3: LET a$=a$+b$+"45": LET a$=a$+"CDE5
22": GO TO we
767 GO SUB w3: LET A$=A$+B$+"E5": GO SUB w3: LET A$=A$+B$+("EBE173" AND Q$=CHR$
VAL "244")+("C1ED69" AND Q$=CHR$ VAL "223"): GO TO we
770 GO SUB w3: LET A$=A$+B$+"E5": GO SUB w3: LET A$=A$+B$+"EBE1"+("CDB503" AND
q$=CHR$ VAL "215")+("CDF65C" AND Q$=CHR$ VAL "252"): GO TO we+(Q$<>CHR$ VAL "215
")
772 GO SUB w3: LET A$=A$+B$+"7D32485C210000110000CDB503"+M$: GO TO we
773 LET a=y: GO SUB VAL "12": LET a=d: GO SUB wb: LET a$=a$+"21"+c$: LET a=c: G
O SUB wb: LET a$=a$+c$: GO TO VAL "740"
780 GO SUB VAL "14"
781 GO SUB w4
783 GO SUB w3: LET a$=a$+B$: GO SUB VAL "11": LET F$=CHR$ VAR+C$+" "+F$: LET A
=VAR: GO SUB wb: LET A$=A$+"22"+C$+N$
785 LET L$=C$+L$
787 GO SUB w3: LET c$=1$( TO w1): LET 1$=1$(w2 TO )
790 LET A$=A$+B$+"ED5B"+C$+N$+"A7ED52DANN"+CHR$ VAR+"."
791 LET a=LEN a$-w: GO SUB VAL "12": LET f$(VAL "4" TO VAL "5")=c$
792 GO TO we
802 GO SUB w7
806 LET c$=CHR$ PEEK p: LET v=(FN v(PEEK P)-VAL "97")*w1
807 FOR z=w TO LEN F$ STEP VAL "5": IF F$(z)=CHR$ V THEN GO TO VAL "810"
808 NEXT z: LET x$="" NEXT without FOR ": GO TO wf
810 LET A=V: GO SUB wb
811 LET a$=a$+"2A"+C$+N$: LET a$=a$+"23C3YY"+f$(w1 TO w2)
812 GO SUB VAL "11": LET a=CODE f$(VAL "4")+CODE f$(VAL "5")*wd: LET a$(a-w1 TO
a+w)=""YY"+c$
815 LET f$=f$( TO z-w)+f$(z+VAL "5" TO )
820 GO TO VAL "300"
830 IF f$<>"" THEN LET x$="Too many FOR 's": GO TO wf
832 RETURN
833 GO SUB w3: LET A$=A$+B$+"CD195D": GO TO we
850 POKE 23692,-1
851 PRINT "AT 19,0; FLASH w;"Error"; FLASH 0;" in line ";line;" , statement ";
S
852 PRINT ";x$: STOP
900 CLEAR 65535: GO SUB VAL "940": LET L$="": LET E$="": LET A$="3E02CD0116": L
ET F$=L$
901 LET k$=CHR$ VAL "13"
902 LET P$="7DD7"
903 LET y=FN A(23675)-1
910 LET M$="210000"
911 LET A=PEEK VAL "23733": GO SUB wb: LET N$=C$
912 GO TO VAL "999"
915 PRINT TAB 5;"STORE ADDRESS BETWEEN ";TAB 8;"50000 AND ";65280-(20+LEN A$/2)
916 INPUT "STORE CODE AT ";F: IF F<50000 THEN GO TO 916
920 POKE 23730,79: POKE 23731,195
921 LET G=F: FOR B=1 TO LEN A$ STEP w1: IF a$(b)<>"x" THEN GO TO VAL "924"
922 LET z=CODE a$(b+w1)+CODE a$(b+w2)*wd: FOR k=w TO LEN 1$ STEP VAL "4": LET j
=CODE 1$(k+w)+wd*CODE 1$(k): IF z>j THEN NEXT k: LET x$="" GO TO line number bey
ond program": GO TO wf

```



```

923 LET A=CODE 1$(k+w1)+w2*CODE 1$(k+w2)+6: GO TO VAL "926"
924 IF A$(B)<>"Y" THEN GO TO VAL "927"
925 LET A=CODE A$(B+w1)+CODE A$(B+w2)+6
926 GO SUB VAL "12": POKE INT (B/w1)+F,w,C: LET B=B+w1: GO
TO VAL "928"
927 LET C=CODE A$(B)-VAL "48": LET D=CODE A$(B+VAL "1")-VAL "48": LET C=C-VAL "
7"*(C>VAL "9"): LET D=D-(VAL "7" AND D>VAL "9"): POKE f+INT (B/w1),C*VAL "16"+D
928 NEXT b
929 CLS
930 PRINT AT 9,0;"CODE STORED AT ";F
931 PRINT AT 12,0;"LENGTH OF CODE =";LEN A$/2+10
932 PAUSE 0: CLEAR
935 STOP : STOP
940 LET w=VAL "1": LET w1=VAL "2": LET w2=VAL "3": LET w3=VAL "20": LET w4=VAL
"21": LET w5=VAL "49": LET w6=VAL "50"
950 LET w7=VAL "95": LET w8=VAL "96": LET w9=VAL "100": LET wa=VAL "128": LET w
b=VAL "191": LET wc=VAL "201"
960 LET wd=VAL "256": LET we=VAL "301": LET wf=VAL "850"
965 BORDER 0: PAPER 7: INK 9: CLS
970 PRINT AT 5,12;"COMPILER"
971 POKE 23755,0: POKE 23756,0
975 RESTORE 980
976 LET C=0: FOR F=0 TO 189: READ A: POKE F+23759,A: LET C=C+A: NEXT F: CLS : I
F C<>22460 THEN PRINT AT 20,0;"CHECK SUM ERROR CHECK DATA .....": STOP
977 RETURN
980 DATA 234,197,229,193,33,0,0,122,179,32,2,193,201,9,27,24,246,197,122,179,32
,2,207,5,1,0,0,167,237,82,56,3,3,24,248,197
981 DATA 225,193,201,217,229,217,213,193,17,1,1,203,120,40,5,22,255,121,47,79,2
03,124,40,5,30,255,125,47,111,65,77,205,186,36,217
982 DATA 225,217,201,235,33,0,0,34,7,92,34,120,92,213,255,209,58,8,92,167,192,4
2,120,92,167,237,82,32,240,201,217,229,217,229,193
983 DATA 205,43,45,1,75,0,205,43,45,237,75,118,92,205,43,45,1,255,255,205,43,45
,239,161,161,15,15,192,2,161,15,4,161,3,224,50,2
984 DATA 49,56,205,162,45,237,67,118,92,1,255,255,205,43,45,239,161,15,5,4,39,5
6,205,162,45,197,209,217,225,217,201,122,179,200,126,215,35,27,24,247,111,111,11
1,111,111,111,111
999 LET R$=k$: LET P=FN A(VAL "23637")-VAL "1": GO TO VAL "201": REM
          
```

Interactive BASIC Programming for 48K ZX Spectrum & Spectrum + ATTENTION ALL SPECTRUM USERS!

LEARN BASIC WITH YOUR HANDS ON THE KEYBOARD, NOT WITH YOUR HEAD IN A BOOK! Now you can learn ZX BASIC programming with your Spectrum. 'Interactive BASIC Programming' is a unique package in twelve parts. Look at these features:

- * Plain English (yes, real English not jargonese).
- * Due to an amazing programming technique you will have **complete** control over Spectrum BASIC. So you can write, save and load programs while using 'Interactive BASIC Programming'.
- * All ZX BASIC is covered.
- * You'll learn about graphics (see some on this ad), colour, sound, motion, system variables, menus and much more, explained simply.
- * Problems are given with hints and answers in the form of programs that are put into BASIC for you to look at, run and alter.
- * You'll learn how to write your own games (by way of examples) and how to put your machine to serious use (e.g. graphs, problem solving, filing system).
- * More than 250K (yes, two hundred and fifty kilobytes).
- * After sales support at no additional cost: write or telephone if you have any questions about Spectrum BASIC.
- * "An educational program which shows real inventiveness - better still it teaches Sinclair Basic."

-Popular Computing Weekly 7/3/85

Britain is the Software Capital of the World - far superior to the U.S.A. The computer revolution is just beginning and as the emphasis shifts from hardware to software WE are best placed to shape the future. The writing's on the wall: get actively involved while the industry is young.

(Amstrad, MSX, Atari 800XL, CBM 64, BBC/Electron versions are in preparation.)

To receive the whole package by return of post send £9.95 (p & p free) to:
EIGEN SOFTWARE 45 Bancroft Road, Widnes, Cheshire. WA8 0LR
Tel. 051-423 6201

$\hat{H}\psi = E\psi$

EIGEN SOFTWARE create reality



PSYCHEDELIA

Light Synthesiser

Si

AN ENTERTAINMENT by Jeff Minter.....

An Explanation of the Concept... PSYCHEDELIA is really the culmination of several months' idle thinking. I love games, but occasionally I'd think 'there must be some OTHER way of enjoying yourself using the computer...' I also love music, and I'd daydream about creating... something... you could do to music, something you could put on the screen at a party and anyone could come up and have a go, something you'd do just because you enjoyed it, something others could enjoy even if they weren't actually doing it themselves. Gradually the idea solidified into the concept of a light-show generator, something interactive, creative but simple enough so that anyone could do it, yet complex enough to produce breathtaking results once learned well. A program to do for light, in fact, what a synthesiser does for sound.

PSYCHEDELIA is the realisation of that dream. Some idle tinkering on a Sunday afternoon produced such startling results that all other work was dropped in order to pursue the development of my Light Synthesiser at last. Many evenings were spent in darkened rooms just freaking out to music and DOING it. Demos were given, minds were blown and a good time had by all. PSYCHEDELIA is a completely new way of enjoying your micro. If you love music, if you love graphics, if you are creative then you'll enjoy PSYCHEDELIA. You'll boot it in when you turn on your hi-fi. You'll find an appeal totally different to that of even the best games. You won't get bored, because the pleasure is as fundamental as that of listening to music, and you'll create different, dynamic light shows each time you use the program.

PSYCHEDELIA is the high point of my designing career so far. The concept is simple, the programming not too complex but the parts combine synergistically to create a whole which has given me the most pleasure to use, and the biggest pride in design, of anything I've ever programmed.

Enjoy PSYCHEDELIA. This one comes straight from the heart.

PSYCHEDELIA IS NOW AVAILABLE FOR VIC 20,
 CBM 16, CBM 64, SPECTRUM 48K, MSX AND SOON FOR
 THE 32K ATARI AND AMSTRAD COMPUTERS



Key to numeracy

An on-screen calculator to use within your own programs
from **David T Payne**

This program displays a calculator face on screen and operates as such using the number keys and '='. The arithmetic functions have been moved to F1/F4 as indicated on screen; this has been done in order to avoid having to use the shift key and thus

maintain single keypress operation.

Two calculator windows are opened, the upper shows the first operand (Mem\$) together with the function (OP\$(OP)) and the lower displays the second operand (Get\$) or the result after the '=' is pressed.

This utility could be altered to form a complete procedure which could be called from a larger program as and when required.

Procedures

Setup - Draws the calculator face and opens two windows for the calculator displays.

Get-Value - Selects valid keypresses and calls the next two procedures as required.

Put - Writes operands and results to calculator display.

Calculate - Does the calculation after = is pressed and calls PUT to display the result.

Keep - Can go in any programs; after alteration it is very easy just to enter Keep in order to bring the file up to date.

```

100 REMARK
110 REMARK
120 REMARK
130 REMARK
140 REMARK
150 REMARK
160 REMARK
170 :
180 SETUP
190 GET_VALUE
200 :
210 Define Procedure SETUP
220 RESTORE
230 MEM$="":GET$="":OP=0:DIM OP$(13,1)
240 OP$(0)=" ":OP$(1)="+":OP$(5)="-":OP$(9)="X":OP$(13)="/"
250 :
260 REMARK >>>>> The + is obtained by CTRL and [ <<<<<
270 :
280 FOR N=1 TO 2:WINDOW #N,448,200,32,16:PAPER #N,0
290 MODE 8:OVER 1
300 FOR ROW=154 TO 286 STEP 44
310 FOR COL=50 TO 120 STEP 26
320 BLOCK 32,18,ROW,COL,1
330 BLOCK 32,18,ROW-4,COL-4,5
340 INK 0:IF NOT ROW MOD 286:INK 2
350 CURSOR ROW+4,COL
360 READ A$
370 PRINT A$
380 END FOR COL
390 END FOR ROW
400 INK 2
410 FOR COL=52 TO 160 STEP 26
420 CURSOR 320,COL
430 READ A$
440 PRINT A$
450 END FOR COL
460 BLOCK 76,18,242,154,1
470 BLOCK 76,18,238,150,5
480 CURSOR 246,154
490 PRINT "CLEAR":INK 4:OVER 0
500 OPEN #8,SCR_164X26A102X0:PAPER #8,4:INK #8,0:CLS #8
510 OPEN #9,SCR_164X26A102X28:PAPER #9,4:INK #9,0:CLS #9
520 END Define SETUP
530 :
540 DATA "7","4","1","0","8","5","2","."
550 DATA "9","6","3","=","+","-","X","/"
560 DATA "(F1)","(F2)","(F3)","(F4)","(F5)"
570 :
580 Define Procedure GET_VALUE
590 REPEAT LOOP
600 X=CODE(INKEY$)
610 SELECT X
620 =48 TO 57: REMARK Numbers 0 to 9
630 TF=X-48:
640 GET$=GET$+TF$
650 PUT
660 =46: REMARK Decimal point
670 GET$=GET$+","
680 PUT
690 =232,236,240,244: REMARK F1 - F4
700 IF NOT OP
710 DO=X
720 OP=X-231
730 MEM$=GET$
740 GET$=""
750 PUT
760 END IF
770 =61: REMARK "="
780 CALCULATE
790 =248: REMARK F5
800 MEM$=""
810 GET$=""
820 OP=0
830 PUT
840 END SELECT
850 END REPEAT LOOP
860 END Define GET_VALUE
870 :

```

```

880 Define Procedure PUT
890 CLS #8:PRINT #8\MEM$:OP$(OP)
900 CLS #9:PRINT #9\TO 12-LEN(GET$):GET$
910 END Define PUT
920 :
930 Define Procedure CALCULATE
940 IF MEM$="" OR GET$="" :RETURN
950 SELECT DO
960 =232:GET$=MEM$+GET$
970 =236:GET$=MEM$-GET$
980 =240:GET$=MEM$*GET$
990 =244:GET$=MEM$/GET$
1000 END SELECT
1010 OP=0:MEM$=""
1020 PUT
1030 END Define CALCULATE
1040 :
1050 Define Procedure KEEP
1060 DELETE MDV1_CALCULATOR
1070 SAVE MDV1_CALCULATOR
1080 END Define KEEP

```

£1.12÷

4.55

7 8 9 + (F1)

4 5 6 - (F2)

1 2 3 % (F3)

0 . = ÷ (F4)

CLEAR (F5)



Lothlorien's



THE BULGE

BATTLE FOR ANTWERP
For Spectrum 48K and Commodore 64

- **Accurate strategic simulation.**
- **Real-time combat with full scrolling graphics.**



Liberty House,
222 Regent Street,
London W1R 7DB
Telephone 01 429 0666

LOTHLORIEN

NAPOLEON'S SANDWICHES



It is June 1815. Napoleon has escaped from his exile on Elba and has rallied the disillusioned soldiers of France to his side. Now, poised to invade Belgium, he has left behind a most important package... can you deliver it?

The first of a new series of 60K machine code adventures for the Commodore 64, Napoleon's Sandwiches is both challenging and witty, and will test your ingenuity to its limit.

£7.95

Mail Order from:

Simsoft
4 Long Road
Kinson
Bournemouth BH10 5NL
PD405

TIPSTER SPECTRUM+/48 AMSTRAD CPC464/COMMODORE 64

The most accurate horse race predictor on the market

- ★ Tipster V2 took 18 months of trial and error before we arrived at the system that makes it the most accurate race predictor on the market.
- ★ Fully tested against other computer race predictors.
- ★ Tipster even performs better than the human tipsters from the top nine newspapers.
- ★ Many winners found at high prices.
- ★ For both flat and national racing.
- ★ The system will never go out of date.
- ★ We reveal the secrets of profitable betting.
- ★ Special tutor for the absolute beginner to racing.
- ★ Tipster also includes a program to calculate your returns for you.

If you can buy a more accurate race predictor we'll refund your money

Don't be tempted to buy cheap or inferior products.
£14.95

E. I. SYSTEMS
PO Box 171, Wolverhampton, West Midlands WV10 0PJ

Leaves all other race predictors in the paddocks.
(Please state computer)

PD133

POWERFUL UTILITIES

AMSTRAD SPEEDMASTER

Fed up with waiting for programs to LOAD? Speedmaster is the answer. Convert all your software to load at double speed (more or less speed) 100% successful. Incorporates a sophisticated reader reader. An invaluable piece of software.
ONLY £7.95

Tape to disc utility due shortly.

B.B.C. TAPE TO DISC UTILITY

A very useful utility to help shift those stubborn tape programs onto your own discs. Produces a shift code to relocate the memory position of programs to suit the DFS workspace.
ONLY £9.95

ATARI TAPE TO DISC UTILITY

A dual purpose program that allows single stage boot programs to be shifted onto disc. Very easy to use with menu options. Includes output to tape. Works on all models.
ONLY £9.95

COMMODORE 64

THE BEST RANGE OF UTILITIES FOR THE 64. WRITTEN BY PROFESSIONAL SOFTWARE ENGINEERS.

DISC DIRECTOR V2.8

At least a really powerful disc copier and utility program. Incorporates a range of powerful programs. Includes "Fastcopy" Takes just 4 minutes to read and write a whole disc. "Error Copy" automatically reads and writes all error types, now you can make a backup of those expensive business programs. "Diskette" more than halves disc loading time. Very useful. "File Copier" allows selective copying from directory. "Track and Sector" a clever but very thorough program. Also includes the following useful utilities: Wipehead, File Format, Unformat, Disk Monitor, Menu Maker, Index, Retime, Rename, Scratcher, Disc to Tape and Tidy. If you have a 1541 you must have Disc Director. Supplied on disc with full instructions.
ONLY £29.95

QUICKDISC

Interpreting Menu Maker

NOW EVEN FASTER
Speed up your 1541 disc drive with this new program. Loads most programs at 4 times normal speed. A handy package that allows you to incorporate a menu and fast loading on your own discs. Also includes a file exchanger for programs put on disc with "Disket" (Tape to disc utility), another way of making fast load disc programs. A must for all disc drive users.
ONLY £11.95

FASTBACK

Fast Load Utility

Convert your slow loading software to high speed load with Fastback. The most sophisticated program of its type allows you to produce "turbo" loading versions of most single and multi-part programs. Simple to use no programming skill needed. Example: Load "The Hobbit" or "Mandrill" in 180 secs. Tried and trusted (over 2000 sold).
A very professional program.
ONLY £7.95

DISCO

THE TAPE TO DISC UTILITY

We guarantee that this is the best tape to disc utility on the market. Very easy to use no programming knowledge needed. Automatically handles device numbers and multi part programs. Programs auto load and run once transferred and can also be made to fastload with "Quickdisc". Handy for making your own disc programs auto run.
ONLY £9.95

ROCKET

Fed up waiting for programs to load and save? Rocket is a utility for the programmer, speeds up loading and saving by about 8 times while still allowing for normal speed operations. Does not affect the speed of BASIC as no wedge is used. Programs can also be saved with high speed system to reload independently. A must for serious programmers who have no disc drive.
ONLY £7.95

BIGMOUTH

The superb new speech synthesis program for the '64. Uses "speak" as a basic command. Very easy to use. Can be incorporated into your basic programs. Words are entered in phonetic English, ie. spell as they sound. Therefore vocabulary is unlimited. Great fun and good for educational purposes.
ONLY £7.95

DOUBLER

DOUBLER

The amazing new cassette port adaptor for the '64, with special software. Requires access to two cassette units but is 100% successful, even with "fast" loaders. They said it couldn't be done.
ONLY £12.95

PATENT APPLIED FOR

SPECTRUM

Yes, after spectacular success on the '64 Doublor is now available for the Spectrum. Tests have proved 100% successful.
ONLY £12.95

PATENT APPLIED FOR

COMMODORE CONVERSION

Convert any "Commodore" type program to run on the '64. Free includes list and software on cassette with special disc conversion program.
ONLY £14.95

Simple to use and very reasonably priced

ONLY £14.95

3M SCOTCH DISCS
Lifetime guarantee Box of Ten
SS/DQ. £16.00 DQ/DQ. £23.00



DATARECORDER
A dedicated disc recorder designed for use on the Commodore 64. 2000 characters in CPM text with pause button. Shows status and error messages.
ONLY £29.95

All prices include P&P and VAT. Send cheque. Postal Order or Credit Card (Amex, Visa, Mastercard) accepted by phone. Orders outside UK add postage. Goods subject to availability. Trade enquiries welcome. Exchange rates subject to change. All prices in UK pounds. All prices in UK pounds. All prices in UK pounds.

MICRO CENTRE
BRIDGE STREET, Evesham
WORCESTERSHIRE
Tel: 0336 95041

MICRO CENTRE
125A PERSHORE ROAD,
COTTERIDGE, BIRMINGHAM
Tel: 021 455 4544

CHEAPEST SOFTWARE

SPECTRUM	RRP	Our Price	COMMODORE	RRP	Our Price
Shadow Fire*	9.95	6.99	Shadow Fire*	9.95	6.99
Gyron*	9.95	7.45	Impossible Mission	8.95	6.70
Alien 8	9.95	6.90	Pit Stop II (Free Poster)*	10.95	7.46
Knight Lore	9.95	6.50	Tir na Nog	9.95	7.40
Everyone's A Walley	9.95	6.99	Slap Shot	8.95	6.71
Moon Cresta	6.95	5.20	Gremkins	9.95	7.40
Dragon Torc (Avast II)	7.95	5.95	World Series Baseball	7.95	5.75
Mega Hits (10 Top Titles)	19.95	12.95	Mega Hits (10 Top Titles)	19.95	12.95
Technician Ted	5.95	4.46	Moon Cresta	6.95	5.50
Bruce Lee	7.95	5.90	Ghostbusters	10.99	8.24
Spy Hunter	7.95	5.90	Regards to Broad St.	7.95	5.96
Gremkins	9.95	7.20	Archon*	11.95	9.95
Grand National	6.95	5.20	Lode Runner (Free Poster)	9.95	8.25
Chuckie Egg 2	6.90	4.75	Super Pipe Line II	8.90	6.68
Starion (Free Poster)*	7.95	5.25	Pole Position	9.95	7.40
Brian Jacks Superstar	7.95	5.95	Super Huey	11.95	8.95
Wizards Lair	6.95	5.20	Brian Jacks Superstar	8.95	6.71
Fantastic Voyage	6.95	5.40	Blogger Goes to Hollywood	9.95	7.46
World Series Baseball	6.95	5.25	Breakdance	8.95	7.50
Sherlock Holmes	14.95	9.99	Rock 'N' Bolt	10.99	8.24
Valhalla	14.95	4.99	Spitfire 40	9.95	7.50
Gt. Space Race	14.95	4.99	Super Gran	9.95	7.46
Tasword II*	13.95	10.46	Mini Office	5.95	4.75
Formula 1	7.95	5.90	BBC		
The Quill	14.95	11.21	Sabre Wulf	9.95	7.46
Skool Daze	5.95	4.46	Elite	14.95	11.95
Project Future	8.95	5.21	AMSTRAD		
Brian Bloodaxe	6.95	5.21	Ghostbusters*	10.99	8.24
Death Star Interceptor	7.95	5.25	Daley's Decath	8.95	6.71
Mini Office*	5.95	4.75	Millionaire	8.95	5.21
Super Gran	9.95	7.50	Technician Ted	7.95	5.96
911TS	7.95	5.50	Jet Set Willy	8.45	5.95
Ghostbusters	9.95	7.46	Mini Office	5.95	4.75

* Highly recommended

P&P Inc. In price UK

75p per tape in Europe £1.00 per tape elsewhere

Send large SAE for full list (state machine)

All computers catered for

When ordering send cheque/PO to:

Bargain Software (Dept PCW5)
Unit 1, 1 Esmond Road, London W4 1JG

Ring 01-995 2763 for special offers

PD412

Super simulation

Making waves on any Amstrad machine – from the keyboard of John Kennedy

This program simulates the superposition of light – that is the resultant wave formed by two combined incident waves. It should be of interest to physics students as it shows constructive and destructive interference in a simple and easily understood manner.

When the program is run, it will ask for some data. The user should enter the wavelength of the two waves, noting that only wavelengths between 1 cm and 1 m are accepted. The computer will then ask for the wave offset. This is the number of degrees that B is ahead of A, eg

180 is half a wavelength ahead; 90 is a quarter; 0 and 360 will produce a zero offset.

The program will then draw a grid in which each square represents 1 cm and with a horizontal axis across from left to right representing zero displacement. The waves and their resultant will be drawn out in different colours and then made to flash, highlighting the two sets. Pressing space at this point will re-run the program.

Some example input data is given above.

Wavelengths	Offset	Result
5 and 5	180	destructive
5 and 5	0	constructive
5 and 5	90	mixture
2 and 1.5	0	'beats'

Beats are the regular changes in the amplitude of the resultant waves. They can be heard when two sound sources of similar amplitude but slightly different wavelength are used. Even the sound generator of the Amstrad will cause beats, try; Sound 1,1500,30000 followed by Sound 2,1501,30000.

Program Notes

The program has so many REM statements notes are almost unnecessary.

Line

70	If program broken into, re-run.
150-340	Get data from user.
490-630	Draw grid and axis.
640-770	Draw actual waves.
780-950	Re-run?
960-970	On error routine.

```

10 REM -----
20 REM --- WAVE INTERFERENCE ---
30 REM --- (C) John Kennedy ---
50 REM -----
60 '
70 ON BREAK GOSUB 960
80 '
90 REM clear screen
100 '
110 BORDER 0:INK 0,0:INK 1,23
120 PAPER 0:PEN 1
130 MODE 1
140 '
150 REM prompts
160 '
170 WINDOW £1,2,38,10,14
180 MOVE 4,164
190 DRAW 614,0,1
200 DRAW 0,100
210 DRAW -614,0
220 DRAW 0,-100
230 INPUT £1,"Wave length of wave A.(cm)";wa
240 IF wa>100 OR wa<1 THEN 230
250 PRINT £1
260 INPUT £1,"Wave length of wave B.(cm)";wb
270 PRINT £1
280 IF wb>100 OR wb<1 THEN 240
290 INPUT £1,"Offset of B to A (in degrees)";offset
300 DEG
310 wa=wa/5.65
320 wb=wb/5.65
330 amp=75
340 '
350 REM set screen
360 '
370 MODE 1
380 INK 2,5
390 INK 1,23
400 INK 3,15
410 LOCATE 1,1
420 PEN 2
430 PRINT " WAVE INTERFERENCE BY J.KENNEDY"
440 LOCATE 13,2
450 PEN 1:PRINT "RESULTANT WAVE"
460 LOCATE 13,3
470 PEN 3:PRINT "INCIDENT WAVES"
480 '
490 REM draw grid
500 '
510 FOR a=0 TO 640 STEP 16
520 MOVE a,0
530 DRAW 0,384,2
540 MOVE 0,a
550 DRAW 623,0
560 NEXT
570 '
580 REM draw central axis
590 '
600 FOR A=0 TO 623 STEP 4
610 PLOT A,200,2
620 NEXT
630 '
640 REM draw actual waves
650 '
660 FOR t=0 TO 1240 STEP 8
670 x=SIN((t/wa)*amp)
680 y=SIN((t/wb)+offset)*amp
690 z=x+y
700 x1=SIN(((t+8)/wa))*amp
710 y1=SIN(((t+8)/wb)+offset)*amp
720 z1=x1+y1
730 PLOT t/2,x+200,3:DRAW (t+8)/2,x1+200
740 PLOT t/2,y+200,3:DRAW (t+8)/2,y1+200
750 PLOT t/2,z+200,1:DRAW (t+8)/2,z1+200
760 NEXT
770 '
780 REM print RE-RUN message
790 '
800 PAPER 2:PEN 0
810 LOCATE 12,22:PRINT " "
820 LOCATE 12,23:PRINT " SPACE TO RE-RUN "
830 LOCATE 12,24:PRINT " "
840 '
850 REM flash different waves
860 '
870 SPEED INK 60,60
880 INK 1,1,26
890 INK 3,26,1
900 '
910 REM act on reply to RE-RUN message
920 '
930 WHILE INKEY$<>"":WEND
940 WHILE INKEY$="":WEND
950 RUN
960 SOUND 1,500
970 RUN

```


FREE SOFTWARE FOR LIFE!

Probably the best offer ever made to the micro user...

Directors: Alec Fry ARPS, FRSA; Erna Fry BA.

New Gold Star life membership of The Software Library is your key to a vast treasure trove of tapes costing up to £18 each. They are yours whenever you want them, three at a time... and a full week's rental won't ever cost you a penny in hire fees!

Only the original Software Library has the resources to make such an amazing offer—free software for life! Our ten megabyte computer ensures fast service; our illustrated, descriptive catalogue makes it fun to choose from over 80 top arcade games, 124 Adventures, simulations and other games, and over 120 great utilities and serious applications; 65% are for the Spectrum, the rest divided between Commodore 64 and ZX81. New releases are constantly being added.

Joining this money-saving scheme should cost you £24; as an introductory offer, you can join this month at half price—£12. From then on, you can take away three tapes from our shop whenever you wish; or if you order by post, all we ask is 30p post/packing per tape. The rental is perfectly free in either case.

What's more, you can sell your surplus software to other members (we have over 5,000!) and recoup the cost of membership in no time at all. We offer huge discounts on peripherals and tapes... and so much more. Phone us now on 0730 892732, quoting your Access number, or return the coupon without delay!

GUARANTEED to save you more than any other software library scheme!

SOFTWARE LIBRARY FARNHAM ROAD, LISS, HANTS GU33 6JU

Please enrol me at the introductory offer, and send my membership pack by return.

NAME..... I enclose cheque/P.O. for £

ADDRESS.....

OVERSEAS: join here for £18, or join one of our foreign branches: Postfach 7809, 4800 Bielefeld, W. Germany; Jacobusstraat 75, B-2400 Mol, Belgium (also covers Holland); 122 S Circular Road, Dublin 8; Peder Lyngvej 35, 2300 Copenhagen S; Box 1709, Manzini, Swaziland, France & Italy soon. Branch terms vary. All software hired with supplier's permission. PCWIK.

THE ORIGINAL SOFTWARE LIBRARY!

CIRKWIK Schematic drawing on the BBC micro

A lightpen or trackerball driven CAD package orientated to the production of schematic drawing, such as circuit diagrams, flow charts, power systems, pipe-work diagrams, fluid logic diagrams and many similar professional and engineering applications

- * Lightpen or trackerball driven
- * Virtual screen 8x the BBC's mode 4
- * Uses standard dot matrix printer to produce excellent quality diagrams
- * Automatic parts list generation
- * Up to 640 symbols may be in use in any one diagram
- * Total symbol library unlimited in size
- * Create your own symbols with the lightpen on a highly magnified scale
- * Many electronic symbols already included in package



Datapen

CIRKWIK program for lightpen and trackerball £24.95 inc VAT & P/P
CIRKWIK program for lightpen only £19.95 inc VAT & P/P
DATAPEN lightpen £26.00 inc VAT & P/P
MARCONI Trackerball £59.50 inc VAT & P/P

DATAPEN MICROTECHNOLOGY LTD.
Dept. 10, Kingsclere Road, Overton, Hants. RG25 3JB
TEL: (0256) 770488

MOVEMEAD DISCOUNT SOFTWARE COMPANY

Spectrum	RRP	Our Price	Commodore 64	RRP	Our Price
Raid over Moscow	7.95	6.95	Raid Over Moscow	9.95	7.45
Bruce Lee	7.95	6.95	Bruce Lee	9.95	8.95
Everyone's a Wally	9.95	7.45	D/T Decathlon	7.90	5.20
D/T Decathlon	6.90	4.90	Summer Games	14.95	10.30
Beach Head	7.95	5.95	Fighter Pilot	9.95	6.95
Knights Lore	9.95	6.90	Impossible Mission	8.95	6.95
Underworld	9.95	6.90	Moon Cresta	6.95	5.45
Tir Na Nog	9.95	7.29	World Series Baseball	7.95	5.45
Gift of The Gods	9.95	7.45	Jacks Superstars	7.95	6.90
Alien 8	9.95	7.45	Gremilins	7.95	7.45
Ghostbusters	9.99	7.99	Slapshot	9.95	7.45
Hampstead	9.95	4.45	Bristles	8.95	3.95
Valhalla	14.95	3.95	Boulder Dash	8.95	4.95
GT Space Race	14.95	3.95	Astro Chase	8.95	3.95
World Series Baseball	6.95	5.25	Flip & Flop	8.95	3.95
Brain Jacks Superstars	7.95	6.20	World Cup	7.95	3.95
The Hobbit	14.95	7.95	Hunchback II	7.90	4.99
Match Point	7.95	4.95	Kong Strikes Back	7.90	4.99
Potty Pigeon	6.95	2.95	Gyropod	6.90	2.99
Full Throttle	6.95	2.95	Poster Paster	6.90	2.99
Frank 'N' Stein	5.95	3.35	Hampstead	9.95	5.95
Kosmic Kanga	6.95	2.95	Firequest	9.95	5.95
Psytraxx	7.95	4.25	Colossus Chess	9.95	4.95
Psytron	7.95	4.45	Valhalla	14.95	7.95
Dragonator	7.95	5.95	The Hobbit	14.95	7.95

All prices include VAT, Postage and packing is **FREE** on orders in excess of £15.00. All orders of less than this amount are charged 0.75p towards the cost. 1,000's of more titles available for all machines. Send a S.A.E. for full list. Send your cheque/P.O. for the full amount (plus postage, if required), to:—

MOVEMEAD (MARKETING) LIMITED
55 ALESBURY STREET
BLETCHLEY, BUCKS., MK2 2BH Dept PCW
Telephone: (0908) 79232/3

Order despatched within 3 days of receipt of your order and cheque/PO. All tapes are offered subject to availability. E&OE.

GOOD BYTE

GAME	RRP	OUR PRICE
THE HOBBIT	14.95	10.95
FIGHTER PILOT	7.95	5.95
MINI OFFICE	5.95	4.75
BATTLE FOR MIDWAY	9.95	6.99

SPECTRUM

GAME	RRP	OUR PRICE
DALEY THOMPSON	6.90	4.99
BEACHHEAD	7.95	5.95
KNIGHTS LORE	9.95	6.50
UNDERWORLD	9.95	6.50
LODS OF MIDNIGHT	9.95	5.95
DOOMDARKS REVENGE	9.95	5.95
COMBAT LYNX	8.95	5.25
DARK STAR	7.95	4.75
STAR STRIKE	5.95	4.50
GREMILINS	9.95	7.25
ANIMATED STRIP POKER	6.95	5.25
MATCH DAY	7.95	5.25
EVERYONE'S A WALLY	9.95	6.99
RAM TURBO INTERFACE	18.00	
BRIAN BLOODAXE	7.95	5.25
ALIEN 8	9.95	6.95
PROJECT FUTURE	6.95	3.99
TAPPER (Av 1 May)	7.95	5.95
SPYHUNTER	7.95	5.95
DEATH STAR INTERCEPTOR	7.95	5.25
MEGA HITS	19.95	12.95
DRAGON TORC OF AVALON	7.95	5.95
GRAND NATIONAL	6.95	5.50
WIZARDS LAIR	6.95	5.50
MOONCRESTA	6.95	5.50
WORLD SERIES BASEBALL	6.95	5.25
SHADOW FIRE	9.95	6.99
SPY VS SPY	9.95	6.99
GIITS	6.95	5.50
STARION	7.95	5.75
GYRON	9.95	7.50
ROCKY HORROR SHOW	8.95	5.75
ROMPER ROOM	9.95	6.99
BRIAN JACKS	7.95	5.95
TWIN KINGDOM VALLEY	7.95	3.99

AMSTRAD

JET SET WILLY	7.95	5.95
SORCERY	7.95	5.95
DARK STAR	7.95	5.95
DALEY THOMPSON DECATHLON	8.95	6.50
KONG II	8.95	6.50
QUASIMODO REVENGE	8.95	6.50
ALL INTERCEPTOR	6.00	4.50
GHOSTBUSTERS	10.99	8.99
ANIMATED STRIP POKER	6.95	5.25
3D STAR STRIKE	6.95	5.25
COMBAT LYNX	8.95	5.75
TANK BUSTERS	7.95	5.95

BBC/ELECTRON

TALES OF THE ARABIAN NIGHTS	7.00	5.20
COMBAT LYNX	8.95	6.25
SABRE WOLF	9.95	7.50
MINI OFFICE	5.95	4.75
BRIAN JACKS	7.95	5.95

COMMODORE 64

GHOSTBUSTERS	10.95	8.25
BEACHHEAD	9.95	7.50
MY CHESS II	11.95	8.25
ZAXXON	9.95	7.50
PSI WARRIOR	9.95	4.49
RAID OVER MOSCOW	9.95	7.50
STAFF OF KARNATH	9.95	7.25
SPY VS SPY	9.95	5.99
BREAKFEVER	7.00	4.95
COMBAT LYNX	8.95	6.50
IMPOSSIBLE MISSION	8.95	6.75
LODS OF MIDNIGHT	9.95	5.99
MEGA HITS	19.95	12.99
AIRWOLF	7.95	5.95
TIR NA NOG	9.95	7.50
WORLD SERIES BASEBALL	7.95	5.75
HOBBIT DISK	17.95	14.00
MINI OFFICE	5.95	4.75
CYPHOD 9	9.95	6.99
SHADOWFIRE	9.95	6.99
MOONCRESTA	6.95	5.50
ROMPER ROOM	9.95	6.95
HOBBIT DISC	17.95	14.95
ENTOMBED	9.95	7.50
PITSTOP II	10.95	8.50
EVERYONE'S A WALLY	9.95	6.95
SPITFIRE 40	9.95	7.50
GREMILINS	9.95	7.25
BLAGGON GOES TO HOLLYWOOD	9.95	7.25
CALDRON	7.95	5.95
ARCHON	11.95	8.99
RAID ON BUNGLING BAY	9.95	7.50

SPECIAL OFFER QUICKSHOT II £8.99

ALL PRICES INCLUDE P&P

PLEASE NOTE IF OUR ORDER EXCEEDS £50
YOU GET 10% FURTHER DISCOUNT

SEND CHEQUES/P.O. TO
GOODBYE PCW10
94 LEATHER LANE, LONDON EC1
(TEL: 01-404 4245)



Ace of clubs

A Moran, of Wolverhampton, writes:

Q I have owned a Jupiter Ace for over a year now, and having survived the shock of Jupiter Cantab's demise, I am still programming away.

It would help me in my efforts to master Forth if I could get in contact with other Ace users. Do you know of any clubs which would be of use to me or of any other Ace users in my vicinity?

A It's strange how things work out. . . a few weeks ago someone asked me how many Aces had been made, and I said that I did not have the figures but that it could not be many. Not long after I received a letter from John L Noyce who runs the 'Jupiter Ace Users Club'. As well as informing me of the activities of the club, he also kindly informed me that the total number of Aces sold would appear to be below 8,000.

John can be contacted at PO Box 450, Brighton BN1 8GR.

Character building

Allan Smith, of Ferryhill, Co. Durham, writes:

Q I own a 48K Spectrum which I got for my birthday. Whilst experimenting with different Pokes I came across an interesting effect. If you Poke 23606 with 100, all the characters in the character set seem to get mixed up. Why is this and how do I get the characters back? I have to switch my machine off at the moment.

A Location 23606 is the variable which holds the current displacement of the character set from its normal location. By changing the value of this variable (normally zero) you effectively shift the start address of the character set, but of course do not move. Hence you get peculiar values appearing. Poking this variable with zero restores matters to their original state.

Try this Allan. . . it is an interesting demonstration of the effects that changing this value can cause.

```
10 DIM A$(704): FOR A=1 TO 255: POKE 23606,A: PRINT AT 0,0;OVER 1;A$
20 NEXT A
```

Domestic drives

P Kernick, of Cardiff, writes:

Q Since my introduction to the world of home computers I have looked forward to the use of discs (or microdrives) as a means not only of information storage but also as an expansion of the computer's memory capabilities by the use of Dynamic Data Transfer. That is to say the transfer of data during the running of a program. The computer could then dump a predetermined part of its data and fill the space with new information possibly by means of a Load command. It is true that short time might be lost in doing this and it might not be suitable for arcade games, but it seems to me that it would be useful for domestic utilities where time is not important and where the file is divided into sections anyway. Please could you tell me whether DDT is possible with any home computer and if not why not? I have a 48K Spectrum.

A I must confess that the term Dynamic Data Transfer is new to me, although the concept is extremely well known. It is in fact what most programs written for large computer systems use. They of course have the advantage of being able to use extremely high speed discs (many times fast-

er than floppies, and capable of transferring more data in one go). Having said that it is certainly feasible to implement this philosophy on any micro (even the cassette based ones), although performance is unlikely to be very good. The best approach would be to keep the amount of data being transferred as small as possible. In that way the delay experienced by the user of the program would be as little as possible. It has, I believe, been used on a number of American Adventure games on disc for the Commodore.

Array of errors

Andrew Robertson, of Kilwinning, Ayrshire, writes:

Q I have recently purchased an Amstrad CPC 464 and I am keen to get started on finding out its capabilities.

While typing in a program I accidentally typed in g\$ rather than q\$. I edited the program but each time I run it I get "Array already dimensioned in 70" error. I have tried to erase it out but with no success. The line concerned is: 70 Dim s\$(21,4), q\$(21), q\$(30), v\$(4), b\$(30,1), n\$(30), n\$(30). Could you please help as I do not wish to retype it all again.

A Your problem is quite simply that in the line you specify there are two declarations of the array q\$. My guess is that there is actually an array g\$ also used in this program, and that one of the two declarations in line 70 should be for G\$ and not q\$. This will also mean (if I am right) that some of the other editing you have already done will also be incorrect. I presume that you have changed all the g\$ variables to q\$, this would seem to be incorrect.

One last possibility is that q\$(21) should actually be

s\$(21), thus fitting in with some of the other declarations in that statement. I'm sorry that I cannot be more specific but without seeing the entire program that's the best I can do.

Text mess

K Morren of Chelmsford Essex writes:

Q I own a Commodore Vic 20, and I am fed up with having to mess about to get my text screen displays lined up properly. I am of course suffering from the Vic's well known 'missing Tab facility'.

Can you offer me any advice?

A Try this:—
20 POKE 781,X : POKE 782,Y
30 POKE 783,PEEK(783) AND 254

40 SYS 65520:RETURN
This subroutine will cause the cursor to move to the coordinates specified by X and Y.

Integral microspeech

Q A number of readers have written to me over the past weeks with queries regarding disabling the Currah Microspeech.

A When the microspeech is plugged in it becomes an integral part of the spectrum operating system and Steve Currah who designed it; unfortunately doesn't know of any way that the installed unit can be disabled.

To eliminate potential damage to the expansion port (by removing and reconnecting the unit), Steve designed the Microslot motherboard expansion system. This is still available at around £14.95.

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem Peek it to Phil Rogers and every week he will Poke back as many answers as he can. The address is Peek & Poke, PCW, 12-13 Little Newport Street, London WC2R 3LD



GoGo crazy

As promised last week here are a whole host of tips and pointers for the excellent Firebird cheapie *GoGo the Ghost* for the Commodore 64.

They come from Paul Flowers of Ipswich who has a high score of 34,000. Although you may feel this isn't very high Paul says he aims to "explore rather than score". In the long term he hopes to be able to offer detailed tips for each room which we can look forward to. First of all Paul offers these two passwords - Polly Paradise for Room 12 and Headache for Room 15, and continues with the following advice:

"You may find that if you rush straight into a room the ghosts have been timed to just get in the way of open barriers etc. The trick is to wait around and they will often get out of synch. The time limit shouldn't be a problem since collecting one object can restore it completely. The new boost you get, which can be lives, time, power or points, is that which is lit up just as you collect an object. Wait around near the object until the one you want comes round.

"At the start of the game collect as many extra lives as possible (five should do) then replenish lives, time and power as necessary. Don't worry about points until completely safe. Power is replenished anyway as soon as you enter a room and running out of time only loses one life - it's not the end of the world.

"Only use the invisibility spell if you have to and, if you must, don't leave it till the last minute. Don't forget it only works on the phantoms, not on any other object. If you use it wisely you will have enough to get you through the hardest screens but always keep your finger near the fire button in case a ghost appears from nowhere.

"Use the pause button to

study the screens but remember that the easiest looking route often has the most awkwardly timed phantoms. More narrow passages often turn out to be easier. One problem is that in some rooms you have to rely on precise positioning not to be killed - all I can say is don't get nervous, don't use a loose joystick and fix it to something solid e.g. a table or a rock (as the song goes).

"There are a number of dead ends which are not worth visiting at all, and also some one way passages. The chequered block in Room 1 won't kill you and you get extra points for eating it. There are also switches that open doors but do they do more than this as well? Can anyone help?

"Remember the disappearing walls are obviously only safe to pass when they are completely gone but sometimes you have to wait a bit longer than this or for some reason you get killed anyway. On the other hand if you wait for the moving barriers to be fully out of sight they will come down on top of you - you should get as near as possible and cross just as they reach head height.

"Finally, can anyone help with tips cheats or anything for *Bruce Lee* from US Gold, or give some high account numbers for *Ghostbusters*?"

Paul says that *Ghostbusters* is his favourite game which just goes to show how tastes differ when you consider this letter from an old friend of the Avenue, Stuart Young of Glasgow: "Having shelled out £10 I expect something better than small flickery graphics, a

laughable tune, practically no gameplay, built in unplayability and radio interference to pass for speech. And talk about slow! You have time to travel from John O'Groats to Lands End by C5 before you spot a building flashing red.

"The thing is the Commodore version is almost as bad. It is a bit more challenging and the graphics are better but the non-existent gameplay is still there (or not there). All it is is a pretty good rendition of a popular tune".

This is pretty strong stuff Stuart but judging from the letters I get agreeing with you someone really should whisper in Activision's ear about the quality of their Spectrum conversions and their prices.

However, I have to say that regarding the C64 original you have to accept that some people prefer a slow-paced game, and perhaps more to the point it did represent a landmark in terms of the style of presentation, if not content, that really puts it into another league compared to *Space Race*. Hopefully we can look forward to them combining the marvellous details of *Ghostbusters* with a better game idea.

Since we're already running out of space again, I shall go through the names and scores of the latest champions of our Games Wizard Competition next week, but there is one thing I really must deal with. There is a sizeable stack of letters here on my desk from people who want to know if they are the first to complete Virgin's *Sorcery* on the Amstrad. Unfortunately it is difficult to give a definite

answer because so many people forget to date their achievements, but the first name that arrived in the mail was N Attwood of Churchdown, Gloucestershire.

Anyone else who is on the verge of writing in will have to accept that they aren't first, and it also goes without saying that we can't publish any of your tips since it is a competition game. Concerning the highest score, the leader to date is Mark Buttle of London with 91,250.

Now a letter has come from Stephen Kirby of Peterlee in Co Durham, who has finished *Ultimate's Staff of Karnath* for the C64 on March 24th. He gives us some tips, most of which have been printed, except that *Menhir* is the spell that destroys the Staff at the end of the game, should you be so lucky to get that far. Please write again Stephen and tell me how to get the library piece before I go mad.

Ultimate has also now released the follow-up to *Staff of Karnath* - *Entombed*, which looks very good indeed.

Finally, talking of saving people from insanity, many will jump for joy thanks to this poke from Robert Muir of London to get rid of those blasted grinning Sidhe in *Tir Na Nog* - *Poke* 34202,200. Robert says he has nearly finished the game having found Nuada's Sword, Lugh's Spear and the Stone of Fal and I'm sure we would all like to see your tips on how to get these, but I think etiquette demands that you should send them to Tony Bridge's column rather than here.

Tony Kendle

We are searching for the top UK computer games player - the best there is!

The very best of Britain's game players will get to fight it out on a number of top secret new games - scheduled for release in the autumn.

Here's how it works

Study the table below and look at the column for the machine you have - these are the games you'll need to master. Send your high scores in on the form below, making sure that your scores are authenticated by a responsible individual signing the form. Any score achieved using technical short-cuts - such as infinite lives Pokes - will not be accepted.

Between now and September Tony Kendle will be keeping you up to date on the *Arcade Avenue* page with just who has the scores to beat. Then, in September, the top three scorers on each machine will battle it out for a place in the final and the chance to be the first to play our 'top secret' games.

	Commodore	BBC	Spectrum	Amstrad
Game 1	Suicide Express	Elite	Technician Ted	Sorcery
Game 2	Beach Head	Jet Pac	3D Star Strike	Splat!
Game 3	Shoot the Rapids	Chuckie Egg	Cyclone	Manic Miner

Game Wizard Entry Form

Micro

Game 1 score:

Game 2 score:

Game 3 score:

Name

Address

.....

.....

Your signature

Witness's signature

.....

Subscribe now to Popular Computing Weekly and receive any one of these Sunshine Microcomputer books free of charge.

Please enter my subscription to *Popular Computing Weekly*.

II K

Overseas

1 year ☐ £19.95

☐ £37.40 (airmail)

☐ I enclose a cheque or postal order made payable to **Sunshine Publications Ltd.**

☐ Please charge my Visa/Access card no:

Expiry date:.....

Signature:

Send my choice of Sunshine Microcomputer Book:

- ☐ The Working Commodore C16
- ☐ The Commodore C16/plus 4 Companion
- ☐ Spectrum Adventures
- ☐ Quill, Easel, Archive & Abacus on the Sinclair QL
- ☐ The Working Sinclair QL

Name:

Address:.....

Postcode: Country:

Return this coupon with your payment to:
PCW Subscriptions, 12-13 Little Newport Street, London WC2H 7PP, UK.

MA 13

PRINTER BARGAINS

VAT AND CARRIAGE
INC. (DUTY)

Shinwa CPA80	£229	Brother M1009	£178
Smith Corona TP-1	£209	Mannesmann Tally MT80 +	£219
Epson RX80FT	£264	Kaga Taxan KP810	£299

INTERFACE/CABLES

QL serial	£11	QL parallel ...	£29	Amstrad parallel	£12
Spectrum interface 1 serial	£12	Spectrum parallel	£35		
BBC Dragon, Oric etc	£12	Trippler CBM 20/64	£45		

QL BARGAINS

VAT AND CARRIAGE
INCLUDED

Micro-P 7.2 KB Single Drive 3½" Disc System	£299
Micro-P Second Drive	£159
Full 3½" Dual System	£449
QL computer	£379
10 cartridges + box for 20	£24
Microvitic CUB 1451/DQ3 monitor	£254
Philips V7001 Hi-Res monitor & cable	£92
Psion Chess	£16
4 cartridges	£8.00
CUB monitor stand	£25

STRONG COMPUTER SYSTEMS

Bryn Cottage, Peniel, Carmarthen, Dyfed, SA32 7DJ
Telephone: 0267 231246 for assistance!!!!

PM7A

NEW MD1b/WD1b for TAPE TO DRIVE TRANSFER

48K Spectrum owners with Micro/Wafa/Disc drives can NOW transfer the MAJORITY of their programs (inc headerless, long programs, + those with LOW addresses - say 16384) with our newly IMPROVED package (incl bytes chop/split in one go, VAL creator (reduced Tasword by 1000 + bytes in 2 secs) remklib, make visible, etc).

To transfer from tape you must convert the program, and then transfer the converted bytes. MD1B (or WD1b) has the programs giving you the tools to do the modifications to get them running. MD1 also has extra erase + true CAT program. (See your Spect No. 9 for recommendation.)

MD1b (WD1b for disc or Wafadrive owners) costs a mere £6.99. As an EXTRA option to conveniently transfer converted bytes, with integrated header reader, option to alter program names, STOPS programs, etc, we have MTb at £3 (for M-drive) or Wafatape at £4 (for Wafadrive owners).

UPDATE SERVICE: old customers can get the latest version on any product with a £2 reduction by sending old TAPE only. + SAE (large).
ALL PRODUCTS CARRY OUR MONEY BACK GUARANTEE (not updates).
OVERSEAS: add £1 Europe, £2 others for each product. SAE for enquiries.

FDL/2

LERM. DEPT PCW

10 BRUNSWICK GDNS, CORBY, NORTHANTS

SOFT INSIGHT

	HRP	OUR	ALL LEVEL 9 GAMES
SPECTRUM			SORCERY
DEATH STAY INTERCEPT	7.95	5.20	JET SET WALLY
WIZARDS LAIR	6.95	5.20	EMERALD ISLE
MOON CRESTA	6.95	5.20	ANDROID I
EVERYONE'S A WALLY	9.95	7.20	DARK STAR
DRAGON TORC OF AVALON	7.95	6.20	GHOUSTBUSTERS
SOFT AID		4.99	CHUCKIE EGG
ALL LEVEL 9 GAMES		7.20	MILLIONAIRE
TIR NA NOG	9.95	9.90	TANK BUSTERS
WHITE LIGHTNING	14.95	10.40	COMBAT LINK
RAD OVER MOSCOW	5.99	5.90	30 STAR STRIKE
UNDERWORLD		6.90	GALLIES DEATHCLON
KNIGHT LORE	9.95	6.90	GOLD STINKES BACK
BRUCE LEE	7.99	5.90	COMMODORE
SKOOL DAZE	5.95	4.45	ALL OF US GOLD
MATCHDAY	7.95	5.65	AIR WOLF
J. SARRINGTON SQUASH	5.95	5.40	ALL ACTIVATION
SPY HUNTER	7.95	5.90	ALL LEVEL 9
GRAND NATIONAL	9.95	5.20	UP AND DOWN
B. JACKS SUPER STAR		6.20	TIR NA NOG
MEGA HITS	19.95	12.95	B. JACKS SUPER STAR
ALEX & B	6.95	6.90	GREMLINS
EMERALD ISLE	6.95	5.40	PIF STEP II
ILLUSTRATOR	14.95	10.50	POLE POSITION
WORLD SERIES BASEBALL	6.95	5.40	11 BASKETBALL
GYRON	9.95	7.50	IMPOSSIBLE MISSION
SNOWFIRE	9.95	7.50	J. SARRINGTON SQUASH
AMSTRAD			ROCKET BALL
THE HOBBIT	14.95	10.50	WORLD SERIES BASEBALL
ALL AMSTOF GAMES	8.95	7.00	WHITE LIGHTNING
			SPY HUNTER

DISCOUNT SOFTWARE

9.95	7.00	LODOS OF MIDNIGHT	9.95	8.90
9.95	7.00	SUPER HULK	11.95	9.00
8.95	7.00	CAUTION	7.99	8.20
9.95	5.40	SOFT AID		4.99
7.95	8.50	THEATRE EUROPE	9.95	7.60
7.95	8.50	SHADOWWIRE	9.95	7.70
10.99	8.50			
7.95	8.50	ATARI		
7.95	6.20	DECATHLON	9.99	7.40
7.95	6.20	GHOSTBUSTERS	10.99	8.50
8.95	6.20	PITFALL 2	9.99	7.40
9.95	6.20	RIVER RAID	9.99	7.40
9.95	6.20	SPACE SHUTTLE	9.99	7.40
9.95	6.20	POLE POSITION	9.99	7.40
9.95	6.20	DRIVE ZONE	9.99	7.40
9.95	6.20	REACH HEAD	9.99	7.40
		BLUE MAX	9.95	7.40
9.95	7.40	BRUCE LEE	14.95	12.00
7.95	6.20	FLAX	9.95	7.40
9.99	7.40	FORT APOCALYPSE	9.95	7.40
9.95	7.40	SPRITE AGE	9.95	7.40
9.95	7.40	ZAXXON	14.95	12.00
9.95	6.90	SOLD FLIGHT	14.95	12.00
9.95	7.40	F15 STRIKE EAGLE	14.95	12.00
9.95	7.40	QUASAR	9.95	5.50
9.95	7.40	CONAN (DISC)	14.95	11.50
9.95	7.40	GHOSTBUSTERS (DISC)	14.95	11.50
3.75	5.00			
6.75	8.00			
9.95	6.20			
7.95	6.20			
7.95	6.20			
19.95	14.95			
9.95	7.40			

All prices include free fast delivery**
 **Please make cheque payable to Soft
 insight and send to SOFT INSIGHT, 17
 Burgess Grove, Greenfield, London
 SE10. Access orders/enquiries 01-305
 0790

QL BANK ACCOUNT

Fed up with infrequent Bank Statements? Avoid Bank charges and keep up to date with QL Bank Account. Check your mortgage, HP, Standing Orders etc.

- ★ Automatic Posting of Standing Orders.
- ★ Delete, Amend and even back date entries. Scroll through your statements. 80 col print out and display.
- ★ 6 different entries search routines.
- ★ Post items to heading chosen by you. Print out individual accounts and summary, eg all payments to Building Society.
- ★ Output of Bank Statement to most Epson compatible printers. Makes automatic use of memory expansion.

CARTRIDGE AND MANUAL £19.95 + 50p P&P
CHEQUE/PO'S TO CENPRIME SOFTWARE, DEPT 2,
10 CASTLE STREET, RUGBY CV21 2TP.
TEL: COVENTRY (0203) 686162

PDMS

Tony Bridge's Adventure Corner



Club collection

Adventure Clubs have been springing up all over the place in recent months, and although I've mentioned one or two, experience has shown that they are generally not successful. Apart from asking people to part with money for something which most people will be only too glad to give you for nothing (I mean help, of course; the Adventure Helpline in this magazine is designed to bring adventurers into contact to give mutual help), the clubs, being run in the main by keen kids who eventually get snowed under by the response, often just don't deliver. If you are tempted to send money to any club of this nature, be sure that you can afford to lose it.

Having said all that, I have been sent some literature about a new club, thrillingly known as *The Adventurers Club* - this one is being run as a business and offers quite a lot. It's also a bit more expensive than the others, £10 a year in fact, so think hard before joining. What the club offers is the usual Helpline service, both by mail and phone, and they say that they have solved "most adventures, even for the Dragon and other less popular machines...". Also, you'll be sent a 20-page monthly member's Dossier, which includes details of all the latest adventures, comprehensive reviews of all (!) the programs released in the past 5 years in the UK (I'll believe that one when I see it!), monthly step-by-step articles on how to write your own adventures, plus discounted software (typically 20% off retail prices).

In no way do I personally endorse this

venture, and remind you of the disappointment other people have experienced after sending money to other Clubs - but the people behind this latest Club seem determined to make a go of it - and they can spell!

I've had one or two letters (two, actually) from Amstrad owners, telling me off for not mentioning their machine too often. I wouldn't agree with that; in the past few weeks, I think the elf has spoken about most of the Amstrad programs that he has been sent. The Corner has to reflect what is selling, and there are not too many adventures available for the Amstrad as yet, and practically all those are conversions from other machines. So, if you see mention of *Jewels of Babylon*, for example, you can assume that it is more or less the same on one machine as another.

One such adventure is *Message from Andromeda*, from Interceptor, who have translated all of their fine adventures to the Amstrad. Scott Turner has written with advice on the game - "In the Mirror room - you must first of all collect the Rod, and then go to the Room. Now type 11,33,16,42. Then you will find yourself in another room, in which is a Crystal Sphere. 13,24 and 34,7." Scott also solved *Forest at World's End* (in just 3 hours! - although *Message* took 5 weeks). He has compiled a Help sheet and this is available to anyone sending him a SAE to Scott Turner, 1 Church Gate Cottages, Udimore, nr Rye, East Sussex.

On the subjects of *Jewels*, Gary Wilson had a query at the beginning of March about a certain key in the adventure. Now Sergeant Ivor Williams from BFPO 24 supplies the answer. "I imagine Gary has solved the problem now, but a tip for finding the key is: 6,29,40,14. Further tips to anyone starting off - a map is helpful also 35, 19, 40, 2 - 6, 35, 29, 40, 45, 4, 37, 10, 28, 21. Mazes - in thicket maze to Village, from Pool go 32,25,25,32,25, from Village, the exit is 443,43,1,1,1. Rocky path to Lion in Jungle is 1,1,1,1, and out from grassy slope through Jungle is 25,25,43,32,32,25." Ivor goes on to say "I found *Jewels* to be a fantastic challenge and have written to Interceptor for *Forest at World's End* and *Heroes of Karn*, hoping that they will be of an equally high standard."

Thanks for that information, Ivor, and thanks also for your offer of help to other

adventurers working through this game. Write to him, with the usual SSAE, of course, to 910 Sgt Williams, I, 226 Engr Regt Wksp RE ME, BFPO 24.

Another address to try is that of John Wilson. He has solved *Jewels* and *Heroes of Karn*, as well as *Mikro-Gen's Witches Cauldron*. Ask for his help: 26 Spotland Tops, Cutgate, Rochdale, Lancs.

Gary Wilson was also asking about Foilkade's *Adventure 200* - I've since found my notes on this one, Gary, but I can't tell you very much. The fish in the Rock Pool near the start is a Red Herring, of course, and you will need the coin from the pot-hole in order to cross the bridge. Can anyone help him any further?

Melbourne House's difficult program *Sherlock* is still baffling many Spectrum owners. I've passed on a few clues, and regular readers should now be able to prove Foulkes innocent! The problem now seems to be getting to Old Mill road. Evan Terras has *Sherlock'd* his way to the location, and says: "You must first prove that Brown killed herself, that Jones killed Tricia Fender, prove Foulkes innocent and decode Basil's notes. Now, 3,12,27 and say 36,15,20. Then say 17,38,30,46,26,41."

Evan, incidentally, offers help in this adventure, as well as a long list of others, including *Hampstead*, *Lords of Time*, *Hobbit* and so on. Evan Terras, 9 Leslie Terrace Prestwick, Ayrshire.

To prove that Brown killed herself (the chippings on the bridge indicate that the gun was dropped) 44,27,12,31,8,47, and to prove that Jones killed Tricia, 18,9,40,23,39,48,5,9,12,27.

Incidentally, the Record is a major clue - just examine it to find that the music is Baroque, whereas Basil is supposed to be playing Chopin. In the eternal quest for Sherlockbugs, which took over from Hobbitbugs as a relaxing pastime for Melbourne adventurers, Mr A'mour (I think, but he/she is AKA Bilbo), points out that if Lestrade is in the Brown's or Jones' house on Monday, and you say to him: "Go to Cobden Lane", every character in the game freezes for ever. This happens, too, on a couple of other occasions - which is very frustrating when it happens.

Finally, David Swain, who has been quiet lately, has written offering help to anyone working on *Wheel of Fortune*, from Epic software. David is very knowledgeable about most BBC adventures, including Acornsoft's epics, level 9 and so on. David Swain, 31 Beech Croft Road, Oxford.

1 NORTH 2 FISH 3 GO 4 COCONUT 5 TAKE 6 YOU 7 SPHERE 8 EXAMINE 9 HER 10 SEXTANT 11 POINT 12 TO 13 WEAR 15 HAS 16 AT 17 SAFE 18 SHOW 19 EAT 20 PLANS 21 EYEPATCH 22 HER 23 BLOODSTAINED 24 GLOVES 25 SOUTH 26 MILL 27 LESTRADE 28 SHOE 29 NEED 30 IN 31 CLOSELY 32 EAST 33 ROD 34 ROTATE 35 DON'T 36 BASIL 37 SKULL 38 LOCATION 39 CLOTHES 40 THE 41 ROAD 42 PLATE 43 WEST 44 ASK 45 BOTTLE 46 OLD 47 STREAM 48 THEN

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair - help is at hand.

Fill in the coupon, explaining your prob-

lem, send it to us, and a fellow adventurer may be able to help.

Remember - the system only works if those adventurers who have solved the puzzles get in touch. Every week is Save An Adventurer Today (SAAT) week!

Adventure..... on (Micro)
Problem.....
Name.....
Address.....

CALL 01-437 4343 FOR SEMI/DISPLAY ADVERTISING

GAMES SOFTWARE

GAMES WORLD

Commodore 64 disks. U.S. Gold, Ariolasoft, Activision, W.H.C.S., Commodore, Level 9 and many more labels.
Ring or send for list
200 CBM64 games always in stock. Also, huge range for Spectrum, BBC, Electron, Amstrad.

Access/Barclaycard

Tel: 01-741 4467

129 KING STREET,
HAMMERSMITH,
LONDON W6

PL337

Budget price and bargain software

For most popular micros from:

£1.99 to £3.99

Hulk (CBM4 + Specc) £2.75

CS Clive (Spec) £1.99

Lunar Jetman (Spec) £2.50

The Maze (Electron) £1.99

Ghost (BBC B) £1.99

Mr Winery (Spec) £2.50

BMX Racers (CBM 10) £1.99

Froggy (Dragon) £1.99

Chopper (Vic 20) £1.99

Large selection of budget and ex-chart titles by leading software houses.

If ordering now, please add 20p per game p&p or send SAE for list, state computer

STEWART (DISCOUNT) ELECTRONICS

83 Penny Meadow, Ashton, Lancs OL6 6EL

Callers welcome - please note all titles originals and boxed - we do not sell copies

PL291

REALITY SOFTWARE PRESENTS

3 games for the unexpanded VIC:

HELPII! - "A frantic new game..."

SLIPPERY SID - Positively sensational!

MISTERMIND - a real brain buster!

AT REALISTIC PRICES!!

Only £3.50 each inc p&p.

(Cheques payable to L. Ball)

REALITY SOFTWARE,

20 Ashburnham Road, Pembrey,

Dyfed SA16 0TP

PL113

ACCESSORIES

BBC 27128 EPROM

Hitachi 250 nS prime stock
For BBC sideways ROM, etc.
1-2 pieces £8.26 + VAT = £9.50
3-49 pcs. £7.39 + VAT = £8.50
50-99 pcs. £6.92 + .100 up £6.52 + .
Delivery normally by return of post
Send UK cheques, Money Orders to:

Dept. PCW, SILICON CITY,
1 Milton Road,
Cambridge CB4 1UY.

Access/Visa orders,
phone 0223 312453

PL320

BBC/EVI CAMERA. Movie graphics kit, red 'invisible' grid compensates at drawing stage for vertical distortion and centre blind line. Lighting exposure and focusing scales. Supplied as set of 10 re-usable register punched A4 size overlays, with rigid plastic drawing/filming base (translucent front or back lighting), black Staedtler AV pen. £17.50 + £2.00 P&P

SPECTRUM owners: KIT SP/42 5 re-usable plans, silk-screened on flexiplastic A4 sheet; scaled full res trace overlay, matching base sheet, pixel rule, freehand design sheet, register lock grip, multi UDG planner, enlarged quarter sheet, 2 Staedtler AV pens. £5.50 + 45p P&P
TELEPLAN Floppy overlay 'sticks' by static to TV or monitor screen. Easily peeled off and replaced, it identifies print positions, plans co-ordination directly on screen. With red Staedtler, for 14" or 16" screens (state size). £1.50 + 25p P&P

Cash saver: SP/42 + TELEPLAN only £8.50 inc P&P. All prices inc VAT. Same day postal service. See us at the ZX MICROFAIRS up Ally Pally!

ORION SOFTWARE PRODUCTS
Pippbrook Mill London Rd Dorking Sy RH4 1JE

USE VTX 5000 on Bulletin boards!
"Specnet" program £5.95. "Spectrum" for any hardware RS232 board, £5.95 (both full facilities, down/up load, microdrive/tape, send control chr\$). Stephen Adams, 1 Leswin Road, London N16 7NL. Tel: 01-254 1869.

ADVERTISERS

PLEASE NOTE

VAT

MUST BE ADDED TO

ALL ADVERTISEMENT RATES

AT 15% FROM MAY 1st

BLANK DISKS SPECIAL OFFER

MEMOREX (UNLABELLED WITH FREE CASE)
55/50 5 1/4" BLANK DISKS ONLY

£12.95

INC VAT, P&P FREE

S. J. B. DISK SUPPLIES (DEPT PCW)

11 OUNDLE DRIVE, NOTTINGHAM NG8 1BN

MAGNETIC
MAG
<<IT'S ELECTRIC>>
MAG ON A TAPE
Send a cheque/
PO to:-
Priests Avenue,
ROMFORD, Essex,
RM1 4RJ. D. WOOD
ONLY £2.50
Spectrum 48K111

CLUBS

THE BRAINDRAIN SOFTWARE CLUB

If you own a ZX Spectrum, Commodore 64 or Amstrad CPC464 then you simply must join the BRAINDRAIN SOFTWARE CLUB.

For a £2.00 membership fee you will receive:

- A plastic Membership Card
- Introductory Letter
- Competition Entry Form
- Newsletter
- Discounted Software List

As a Club Member you are able to order software at greatly reduced prices from our large supply of excellent games.

In addition you can enter monthly prize draws and major competitions which give YOU the chance to win some FABULOUS prizes including dot-matrix printers and computers! You will also receive regular copies of our magazine, 'SOFT CHAT'. Inside are news and views of the software world, games reviews, details of our special offers and competition announcements.

Cheques and Postal Orders can be made payable to BRAINDRAIN.

BRAINDRAIN SOFTWARE CLUB,
Dept. PCW,
11 Park Hill Road,
London E4 7ED.

BUT HURRY IF YOU WANT TO ENTER OUR £100 WORD SEARCH COMPETITION

PL321

AMSTRAD Users Club offers: monthly newsletter, cheap tapes, round robins, discounted software, competitions + free gifts etc. £1 per issue, £10 yearly. Cheques payable to Mr C. A. Bryant, 11 Havenvue Rd, Seaton, Devon EX12 2PF.

BUSINESS & COMPUTER SERVICES are also computer consultants, specialising in small (and very small) businesses. Write or phone us at 294a Caledonian Road, London N1 1BA. Tel: 01-607 0157.

CLASSIFIED ADVERTISING RATES:

Line by line: 25p per word,
minimum 20 words.

Semi-display: £6 per single column centimetre, minimum length 2 cm. (Please supply A/W as PMT. Or supply rough setting instructions.)

Conditions: All copy for Classified section must be pre-paid. Copy date 7 days before publication.

If you wish to discuss your ad, PLEASE RING Diane Davis 01-437 4343.

Here's my classified ad.

(Please write your copy in capital letters on the lines below.)

Please continue on a separate sheet of paper

I make this words, at per word so I owe you £

Name

Address

.....

.....

Telephone

Please cut out and send this form to: Classified Department, Popular Computing Weekly,
12-13 Little Newport Street, London WC2R 3LD.

SERVICES

TO ADVERTISE YOUR SERVICES IN THIS SECTION CALL; P.C.W. CLASSIFIED ON 01-437 4343.

FAST SPECTRUM AND DRAGON REPAIRS

First company in all UK. to introduce while-u-wait service. Now first to offer an international repair service.

I have come across a firm that will be more than willing to advise you as to how to remedy your problem. They are called MANCOMP, and as well as repairing faulty Spectrums, are also quite willing to discuss your problems with you, and offer reasonably cheap, and (more importantly) correct cures

PHIL ROGERS 'Peek & Poke' 'POPULAR COMPUTING WEEKLY' January 1985 (Vol IV No 1).

- MOST SPECTRUMS REPAIRED IN 45 MINS
- PLEASE PHONE FOR APPOINTMENT FIRST
- OR PHONE/SEND SPECTRUM FOR FREE

**AVERAGE
£15**

ESTIMATES. ENC £1.80 (U.K. I.O.M. EIRE, C.I.)

£6.50 (EUROPEAN/SCANDINAVIA)

● NO HIDDEN HANDLING CHARGES

● 24 HOUR TURNAROUND ● EVERY MICRO INSURED FOR

RETURN JOURNEY ● OPEN TILL 7PM MON - SAT

● KEYBOARD FAULTS £9

MANCOMP LTD.

(Dept PCW), Printworks Lane,

Manchester M19 3JP.

Tel: 061-224 1888

Z80 - £1.95* (p&p 20p)
4116 - £1.10* (p&p 20p)
4532 - £3.00* (p&p 20p)
Upgrade Kit - £27.00 (p&p £1)
Upgrade Fitted - £34.00

Engineers Wanted

MANCOMP LTD.

HEMEL COMPUTER CENTRE LTD.

For fast reliable repair service, send your 16/48K Spectrum computer to us. We will repair and return for £20 + £1.60 p.p. Also BBC, Commodore, Atari and Dragon service.

Hemel Computer Centre Ltd.
52 High Street,
Hemel Hempstead,
Herts HP1 3AF.

Tel: 0442 212436

PL60

T.V. SERVICES OF CAMBRIDGE LTD REPAIRS - SPECTRUM ZX81

Fast reliable repairs by experienced engineers, having serviced Sinclair computers since the introduction of the ZX80. Our price is inclusive of all parts, labour, postage and VAT irrespective of fault*. No hidden charges.
Spectrum £18.75, ZX81 £11.50, 16K Ram £9.95.

*While-you-wait service available.

Call or send with Cheque or P.O. to:
TV SERVICES OF CAMBRIDGE LTD.
French's Road, Cambridge CB4 3NP
Tel: 0223 311371

PL111

CHILTERN COMPUTER SERVICE

FOR FAST RELIABLE REPAIR SERVICE
SPECTRUM £18.00
WE ALSO REPAIR COM 64 & BBC, VIC 20, ORIC, DRAGON, AMSTRAD, PRINTERS & DISC DRIVES

Ask for details.
We give 3 months warranty on replaced parts.
Send computer with details of fault and cheque made out to: New Crown Computers Ltd.

CHILTERN COMPUTER CENTRE
76B DALLOW ROAD, LUTON, BEDS
TEL: 0582 455684

PL261

MICRO-SERV

The home computer repair specialist in Scotland
BBC, SPECTRUM, VIC 20 AND ALL PERIPHERALS. 3 MONTH WARRANTY ON ALL REPAIRS.

UNIT 4, Denny Workspace,
Denny, Scotland FK6 6DW.
Tel: Denny (0324) 823468

PL38

Computer Repair Centre

Have you got problems with your computer? Then call us for:

Commodore, BBC,
Spectrum, Dragon

Mail order or call in

Enfield Communications

135 High Street, Ponders End, Middx
Tel: 01-805 7772

PL143

SINCLAIR COMPUTER REPAIRS

SPECTRUM £17.50
ZX PRINTER £18.50

Inc. parts, p+p, and return insurance. Spectrums upgraded to 48K for £28. At present we cannot upgrade issue one. We like to take care of your computer - please pack carefully - and send with cheque or P.O. to:

I.T. (WESTERN) ELECTRONICS
97 Newdown, Trowbridge,
Wilt BA14 0BB.
Tel: 02214 64074

PL54

SPECTRUM REPAIRS

We expertly repair Spectrums for £17 inclusive of parts, labour and return postage. Spectrums upgraded to 48K for £34 including post.

R. A. ELECTRONICS,
133 London Road South, Lowestoft NR3 0QZ
Tel: (0502) 66289

PL45

TO HIRE a computer from Spectrum 48K upwards, please phone or write to: Business & Computer Services, 294A Caledonian Road, London N1 1BA. Tel: 01-607 0157 or 01-997 6457.

COMMODORE REPAIRS by Commodore approved engineers. Vic 20 Modulators £6.50. Vic 20 from £14.50, CBM64 etc. for more details write or tel: G. C. Bunce & Son, 36 Burlington Road, Burnham, Bucks SL1 7BQ. Tel: 06286 61696.

COMPUTER REPAIRS IN SOUTHEAST

SPECTRUM, BBC, ELECTRON,

CBM 64, VIC 20

MINNIE MICRO ELECTRONICS

12 Eastern Esplanade, Southend

Tel: 0702 62033/615809

Open 7 days a Week

PL119

BBC SPECTRUM REPAIRS

* Spectrum repairs £18.50 inc. parts insurance and p.p.
* BBC B repairs £18.50 + parts, insurance and p.p.

Send your computer with cheque or P.O. for £18.50 and description of fault to:

SUREDATA (PCW)

Computer Service

45 Wychwood Avenue, Edgware,

Middx.

Tel: 01-951 0124

PL53

SOFTWARE DESIGNED for any application to your own specifications for most micros. Full after sales support guaranteed. You retain program copyright. We offer flexible terms and unbeatable rates. Write for free quotation - Digital Design Studios, Frant End, Forest Road, Tunbridge Wells, Kent.

Faulty Spectrum

Ramco-Mecina

- We will repair your Spectrum correctly
- Test your Spectrum for 24 hours
- Find any other hidden faults and repair these free of charge

Send unit with cheque/PO for £18.75 to:

Ramco-Mecina, Dept S, 34 Murray Street,

Salford 7, Manchester M7 9DU

(NO CALLERS AT PREMISES)

Tel: 061 792 2260

PL120

UTILITIES

CAR CURE

CAR owners, let your home computer start saving you money. Use this revolutionary new tool CARCURE to help you find faults on your car, EXPLORE 300 symptoms & 900 faults with the support of your own expert mechanic. TRACE symptoms, LOCATE faulty parts, DETERMINE corrective actions and much more. 48K SPECTRUM version available now only £9.95.

or send SAE for detailed guide to the program.

SIMTRON
PROGRAMS TO HELP YOU

Tel: 0342 25188

4 CLARENCE DRIVE,
EAST GRINSTEAD,
W. SUSSEX RH19 4RZ

PL185

QL KEYDEFINE

- * 100% rvc multi-tasking routines.
- * 41 user-definable function keys.
- * 2K of text or basic on each key.
- * QUIL and ARCHIVE compatible to enable command sequences, addresses, paragraphs or even complete letters to be entered with a single key press.
- * Complete with pre-defined versions to run with basic, Quill or an editor/wordprocessor.
- * Free superbast cartridge copy and free scrolling (SR) with file length routines.

ONLY £9.95

Including P&P and manual

PSIENNIFIC SOFTWARE

37, COTTESMORE ROAD, HESSLE,

NORTH HUMBERSIDE HU13 9TQ

Tel: 0482 649187

QL PROOFREADER Qspell

AT LAST! Qspell - the missing wordprocessing link

CHECKS saved Quill (Version 1 & 2) files for spelling mistakes. Highlights erroneous words, giving the user an option to supervise the operation or just to sit back and watch. Also SOLVES crosswords, anagrams and word puzzles. Easy to use, menu driven program, with large in-memory dictionary, utilising very fast machine code search techniques. Supplied on microdrive cartridge with user guide, at only £15.95 inclusive. Cheques/POs to:

QUANTUM MECHANICS

5 Twickenham Green

London N19 7ER

PL301

ALL TYPES OF BUSINESS COMPUTER SYSTEMS BOUGHT, SOLD AND EXCHANGED

SAGE SOFTWARE AVAILABLE
ALL TYPES OF NEW EQUIPMENT
SUPPLIED

CALL: 0602 761067

AURAGOLD

COMPUTING LTD

"MAINLINE", ST. ALBANS ROAD,
BULWELL, NOTTINGHAM

ADDRESS BOOK

* COMMODORE 64 *

FULLY MENU DRIVEN * USER FRIENDLY * COMPREHENSIVE ENTER * AMEND * DELETE * SEARCH * SEARCH BY CLASSIFICATION * BIRTHDAY LIST * DIRECTORY * PRINTOUT OPTIONS * 1520 P/PLOT-TER COMPATIBLE
ONLY £9.95 inc P&P

FINISOFT
7 BARLOW ROAD, WILMSLOW, CHESHIRE
SK9 4BE

HOME ACCOUNTS. Put your house in order! Comprehensive coverage of bank accounts, credit cards, HP, etc., inbuilt accuracy check. Projects cash flow for any period. Available for CBM64, VIC 20, BBC & Electron £8.45. Free details from: Discus Software, Freeport Windmill Hill, Brixham TQ5 9BR. Tel: 808 45 55532.

FULL SCREEN COPIER

Three Hi-Resolution routines include Full Size Double Size & Giant (7"x10") 'pseudo colour' (shaded) copy. Unlike some copy routines this is a Full Screen copier (24 rows x 32 columns) or versatile Part Screen copier. For almost all combinations of full size Dot Matrix Printers/Interfaces & Spectrums. SAVE to Microdrive option. For professional Letterheads/ornate Invitations/mail shots - illustrative presentation of graphics or just fun posters - Make your presentation more impressive. F. S.C. £9.95

SPEEDY PRINT 15 FISHERTON STREET
SALISBURY, WILTSHIRE SP2 7SU

INVESTORS - 48K SPECTRUM

MONITOR - SHARES - GILTS - UNITS - BONDS
Automatic valuation and performance details. Aids decision making. Invest more actively. Can you afford to be without it?

THE INVESTMENT MONITOR £12 inc. p&p
Michael Stratford Software, 3 Campden Road,
S. Croydon, Surrey CR2 7EQ. SAE for details.

TELETEXT ON YOUR SPECTRUM 16K/48K £4.95

Create your own full-colour teletext system using 'ZXTEXT'. Up to 900 pages of text and graphics, 24-hour clock, alarm, rolling pages - it's all here! Free sample system included to get you started.

£4.95 from
IAN STEWART, 17 Torry Drive, Alva FK12 5NQ

PL316

WDSoftware

FOR THE QL

WD Utilities (3rd ed) (base £5.50)

PRINT 80-file Directory or view it on one screen, one-key LOAD, COPY or PRINT 80 files with one key (all for namesakes). Multiple FORMATING to prevent corruption by stretching of tape. TOOLkit to give dated, numbered modules in program development. PRUNE old files to release space (one key DELETE a file). Full instructions in QUILT file. Use up to 6 EXTRA MICRODRIVES (add on your Spectrum ones).

WD Utilities for CST Discs (base £8)

100-file capacity, for CST/Computimate disc system WITH all microdrive facilities.

WD Morse Tutor (base £4)

Specification as for Spectrum, but no speech (hurry up, Currah!)

Ref QL (1st ed) (base £1)

100+ useful QL references in an ARCHIVE file.

For the 48K Spectrum

WD Morse Tutor (base £4)

From absolute beginner to beyond RYA and Amateur Radio receiving. Adjust pitch. Set speed to your test level (4-19 wpm). Learn from single characters, via groups with wide spaces to random sentences; decrease spacing to normal. Write down what you hear, then CHECK on Screen or Printer or LISTEN to phonetic TALKBACK from Currah MicroSpeech if fitted. Also own message, random figures, letters or mixed.

Tradewind (base £4)

Sailing/trading strategy game with graphic surprises.

Jersey Quest (base £4)

Text adventure with Bergère and the Dragon.

Prices

Spectrum Cassettes - base price only
QL or Spectrum Microdrives - £2 cartridge plus base price
5.25" floppies £2 plus base (SPDOS for Spectrum)

Two or more programs on one medium - pay medium + base. E.G. WD Utilities and RefQL for £8.50, but IMPOSSIBLE to mix QL and Spectrum programs on one medium. Send OUR cartridge and 25p to update earlier editions.

WDSoftware, Hilltop, St Mary, Jersey Tel: (0534) 81392

AMSTRAD

AMSTRAD CPC464 ADVENTURES

CAN YOU HANDLE ANGELIQUE?

"A Festival of entertainment", top rating HCW March '85 "So I recommend it highly" PCW March '85
ANGELIQUE: A GRIEF ENCOUNTER £6.50 BRAWN FREE! Nearly free £2.00

A full size adventure, a silly price (UK only)

ALL ARNOLD adventures still available at £6.50 each

Cheques/POs for immediate despatch, or enquiries to:

NEMESIS (PCW), 10 Carlow Road, Ringstead,
Kettering, Northants NN14 4DW

PL294

AMSTRAD CPC464 ADVENTURES

CAN YOU HANDLE ANGELIQUE?

"A festival of entertainment"

Top rating HCW March '85

"I recommend it highly" PCW March '85
ANGELIQUE: A GRIEF ENCOUNTER £6.50
BRAWN FREE! Nearly free £2.00

A full size adventure, a silly price (UK only)

ALL ARNOLD Adventures still available at £6.50 each

Cheques/POs for immediate despatch or enquiries to:

NEMESIS (PCW)

10 CARLOW ROAD, RINGSTEAD,
KETTERING, NORTHANTS NN14 4DW. PL214

AMSTRAD CPC 464

TOOLBOX. Our best-selling Graphics & Sprite creator, plus M/C Monitor utilities. Still only £4.95.

GRASP. Fast & easy graphs and function plots. Education, business, hobbies, £8.50. Special Offer

For PCW readers only, as a thank-you for your support, our new graphics adventure SMUGGLERS COVE is offered for only £1.99 (normally £5.50). SEND THIS AD WITH ORDER.

Cheques/POs to:
CAMEL MICROS, Wellpark, Willeys Ave.,
Exeter EX2 8BE. Tel: (0392) 211892.

PL306

AMSTRAD "THE DESIGNER"

A comprehensive graphics MANAGEMENT utility featuring:

- * No more symbol statements (all characters/ designs usable in basic prog)
- * 6 x 6 character matrix displayed simultaneously as work area (16 x magnification) and actual character display
- * Fill * Invert * Mirror * Display/Alter character set
- * Totally menu driven via Joystick or Keyboard
- * Definable Keys & Colours * Load & Save Facilities
- * PLUS many other features

"HEADER DOCTOR"

- * Very user friendly * Create/Modify all fields including protection * List & Save protected programmes

Limited Offer - Both on one tape * £4.95 inc P&P, cheque/PO to:

CB SOFTWARE (Dept A)

43 FISHERS LOCK, NEWPORT, SHROPSHIRE TF10 7SU

DISCOUNT SOFTWARE FOR

AMSTRAD/MTX

BIG NAMES FROM THE BIG NAMES

E.G. SORCERY £9.95-7.50

Send 17p stamp + SAE

FOR PRICE LIST & ORDER FORM TO:

RAMESES (Dpt ADV3)

12 WINSLEY RD, COLCHESTER, ESSEX

CO1 2DG

PL336

AMSTRAD CPC464

Crystal Theft, a new adventure, challenging, different - can you survive?

Introductory price £2.99

WICCA-SOFT, 107 Bollington Rd,

Bollington, Macclesfield,

Cheshire SK10 5EL

WICCA-SOFT

PL319

AMSTRAD ★★AMSTRAD

I am Mr M. Sanaullah and I am going to form an Amstrad software company. Owners and members and programmers all share profits equally so, if you have spare cash or a good program or a financial mind or all, please write to

Mr M. Sanaullah,
15 Balham Park Road, London SW12.
(I will reply straight away)

PL333

THE MEDDLER - CPC464

Convert your slow loaders! Protection can be removed as required and programs re-saved at a choice of 8 speeds from 1000-4000 baud.

Now your 10 minute loader rattles in at under 3 minutes (YES IT DOES WORK ON NEMESIS ADVENTURES, AND THE WELCOME TAPE).

ONLY £4.50

All Arnold adventures still all at £6.50 each. CN/PO for immediate despatch or enquiries to:

10 Carlow Rd, Northants NN14 4DW

PL330

AMSTRAD NEW TAPE UTILITY V2.0

Convert all your slow loading software up to 4 times faster. Easy to use choice of 10 reliable speeds, removes protection, the only one that handles headerless files now comes with more! Only £5.95 + integral header reader £13.50 on disk

SIREN SOFTWARE
76 Bridge St
Manchester M3 2RJ

SOFTWARE

QL SPECTRUM SALE EIDERSOFT SPRING SURPLUS SALE

All items new unless stated.
All prices include VAT but not delivery.
Epson FX80 printer new £300
Quendata daisywheel printer demonstrator serial £200
Kaga KP910 10800i demonstrator serial/par 3K buf £220
Vision QL monitor £220
Kaga KG12 green monitor £80
Kaga KG1X col monitor with Spectrum RGB int £180
Wallerdrive Spectrum plus waters £70
Lots of Spectrum software at 50% off
Lots of Spectrum + BBC software at £1.50
Phone 01-478 1291 for full details or send SAE to:
Eidersoft
Freeport PO Box 54,
Ilford, Essex

PL334

SPECIAL OFFER FOR ATARI 400/600/800 OWNERS

Hire first 2 games FREE from our extensive range of software. Latest releases! Apply now! Also, Atari hardware & modems for sale at discount prices.

For further details send SAE to
CHARWOOD GAMES, 27 WARWICK
AVENUE, QUORN, LOUGHBOROUGH,
LEICS.

TEL: 0509 412604

MAKE YOUR PROGRAMS MAKE MONEY!

If you have a game, utility or application to sell, with a view to publishing (particularly CBM64 or BBC B) phone
JOHN COOK ON:
01-437 4343

PL40

LEARN 'BASIC' programming in luxurious surroundings. We have places on our Autumn course. For details of a holiday with a difference telephone 'INOMINATE' on (0704) 36894 or (0942) 724342.

FOR SALE

SPECTRUM 48K + taperecorder and big selection of games + joystick + interface, books and DKTronics lightpen. £160 o.n.o. Tel: 883 5950.

PIXY three pen graphics plotter, including RS232 serial interface. Hardly used. Cost £700 will take £300. Tel: Cambridge (0223) 243410.

BLANK CASSETTES WITH LIBRARY CASES

	C10	C15	C20	C30
10	3.65	3.85	4.00	4.00
50	14.00	14.15	14.30	14.30
100	25.00	26.00	27.00	27.00

Fully inclusive (COD 65p extra)

Superior Tapes. Don't Settle for Less!

★ ★ ★

5 1/4" DS/DD DISKS

10 for £13.00 fully inc

★ ★ ★

RING US NOW! (0793) 695034

UK HOME COMPUTERS

82 CHURCHWARD AVE,

SWINDON, WILTS SN2 1NH

PL305

OKI Microline 82a printer RS232 + Centronics interfaces, 80 column 120 cps. Suit most computers. Cost £350. Excellent condition. Will accept £170. Tel: 0276 65944

BBC B with: DFS, Rom board, Forth-83, DiscDOC, WORDWISE, Cub monitor, 40/80 switchable disk drive, Shinwa CP80 printer, plus many extras. £800. Tel: 01-363 7919.

BBC Model B for sale. User guide, software, books. Excellent condition. £230 for quick sale. Tel: 01-870 0794.

NEW MAKE MUCH MORE OF YOUR COMMODORE 64 BATTERY RAM PACK

£39 including p. & p. and VAT

Store your own utilities on our plug-in ram pack. Ready for use at the flick of a switch. Make back-ups of your rom cartridges. Complete with instructions and selection of FREE utilities software.

Send S.A.E. for full details to:

LOFTAS LTD.,

34 Pier Avenue, Whitstable, Kent

Answerphone (0227) 265263

THIS SPACE FOR SALE

£18 + VAT

TELEPHONE:

PCWCLASSIFIED

01-437 4343 Ext 206

HA1

commodore HORIZONS

COMMODORE HORIZONS

Special offer! For a limited period only!

Take out a year's subscription to Commodore Horizons now and receive one of three Sunshine books - absolutely free! Simply send us £10, together with your name and address and your choice of book to:

Commodore Horizons, Special Subs Offer

12-13 Little Newport Street

London WC2H 7FP

Don't delay - post now!

Books

1 Machine code graphics & sound on C64

2 Artificial intelligence on C64

3 Building with Logo on C64

PL186

LEARN TO USE COMPUTERS

AT: COMPUTER WORKSHOP

Details: 01-778 9080

PL112

DUPLICATION

Dear Reader, my name is Simon Stable. I specialise in real-time data duplication for most cassette based micros. Dual copying for BBC 40-80 (protecting available) dot matrix printed labels blank - Blank Cassettes.

FAST
TURNAROUND 0869 252831 COMPETITIVE
PRICES
P/L FREEPOST 45 WATSON LADYMAN ROAD AVE 912 PL31

"DATATAPES" for highest quality blanks and data duplication, call now for a sample quote. You will find us VERY competitive. The Midland Railway Grain Warehouse, No 2, Derby St, Burton Upon Trent, Staffs. (0283) 38199.

DATA DUPLICATION and BLANK CASSETTES M.G. COPIES

Burnwood, Walsall, West Midlands
Tel: 0543 480887 or 0543 675375 (24 hrs)

PL136

Own Business

MAKE MONEY! All you need to know to set up your own software company. Package includes advertisement rates, marketing, duplication, etc. Send £2.50, including P&P, to A. Elford, 114 Northcott, Hanworth, Bracknell, Berkshire RG12 4WS. Thank you!

Computer Swap 01-437 4343

Free readers entries to buy or sell a computer.
Ring 01-437 4343 and give us the details.

Acorns for Sale

ACORNELECTRON. Plus 1, Joystick, software for sale, £170 ono. Buyer collects. Tel: 061 724 0431.

ACORN DFS 326. Swap for other Roms. Mark. Tel: 0525 370438.

BBC MODEL B 1.2 O/S. £250. Micro Vitex cub colour monitor, £125. Tel: Wellingborough 0933 76849 after 6pm.

BBC A 1.2 O/S upgraded + analogue interface, VGC, £200. Tel: Uxbridge 52641.

ACORN ELECTRON as new 10 months' guarantee only used once with original software £75. Haydn Barker. Tel: 0709 813042.

BBC MONITOR. Microvitec Cub. Model 1451 MS, medium resolution, as new, little used, RGB output, £200. Tel: Basingstoke 51623.

BBC B + ATPL BOARD including latest roms (Slueth, Wordwise, Exmon II, Disc Doctor, Toolkit) and Acorn speech system + 16K sideways Ram, advance user guide + other software, £500 no offers. Tel: (92) 54716.

BBC SOFTWARE. All original, third of cost. Meteors, Planetoid, Hunchback, Mogger, etc. £3 each. Snowball, Hobbit, £4 each. Also Viglen 'Ashtray' rom socket, £7.50. Tel: Basingstoke 51623.

BBC ORIGINAL SOFTWARE. Ghoulis, 747, Superfruit, Aviator, 3D Grand Prix, Moonraid, Sabre Wulf, Graphic Rom, Logo II, 3D Deep Space, for sale, 30 Cherrytree gardens Balerno, Midlothian EH14 5SP. Tel: 031 449 2277 ask for Craig.

FOR SALE BBC Software and programming book, all as new. Value £67, sell for £25. Tel: 05512 3122.

A BBC MODEL B FOR SALE at £275 ono. This includes a few books, a few utilities, a few games and a few magazines. Good condition. Tel: 01-852 0368 after 6 ask for Stephen or Chris.

BBC B + DISC FILING SYSTEM. Single sided Opus disc drive, VGC, hardly being used, £480. Tel: 01-398 1168.

BBC LATEST MODEL. £270. Inc tape cassette. Top arcade games (original) books as Basic and machine code programming. Joystick, dust cover, 1 year's guarantee. Tel: Lifford 5159.

ELECTRON PLUS ONE INTERFACE. New and unused bargain, £50 also software sale, Elite 737 adventure and Electron programmers' book. Tel: 096 323 468 evenings (ask for Paul).

ACORN ELECTRON. Just over 2 years old. S/W inc elite, Space Shuttle, Quickshot II, Joystick + I/F. Sell £95 ono. Must sell. Tel: 01-253 7372.

ELECTRON USERS

Make full use of your computer. We have an expanding library including most of the latest software for the Electron. For details please write to:

Elderhurst,
Lobby Hill Road,
Meadowfield,
Durham.
Tel: 0385 780753

PL11

ACORN ELECTRON. Two months old, leads, manuals, plus software. Hardly used, £115 or swap for BBC 5.25in 100K disc drive, any make.

BBC MOD B Cumana 40 track dual disc drives, sideways ram board with Elite, 'The Key' replica, Paintbox, Random/A filing system, BCLP, Pascal, Forth, Assembler, Compiler, Watford DSF, Toolkit, D/Doctor. Many more, £700. Tel: 0346 32683.

FOR SALE BBC Micro model B OS 1.2, Basic II and official cassette recorder. £170 worth of software (including Elite, Aviator) + magazines and books, only £250. Tel: Swindon 762135.

BBC MODEL B + dual disc drive. Double density DSS + graphic Rom, all leads, manuals and lots of disc s/w. £520. Tel: Ongar (0277) 362487.

BBC B + DFS + 2 disc drives, £300 ono. Tel: 01-580 3766 or 01-673 6068 (evenings).

BBC phloopy starter pack, drive cartridge cleaning cartridge excellent condition only months old quick sale £67

ono. Ring 0233 84 207 (Pluckey 207).

BBC B 1.2 o/s plus DFS with view wordprocessing chip, dual 400K diskdrives, monochrome monitor £625 also Juki 6100 Daisywheel printer £295 five months old. (0223) 811436 evenings/weekends.

BBC B 1.2os basic 2 excellent condition, games, graphics and assembler books, plenty of software inc. Planetoid, Monsters, Fortress, Jel-pac etc. T-lead welcome cassette user guide, must sell, bargain £270. Tel: Mr Andrews 452 5075.

Disc Drive for BBC Micro double sided, 40/80 track switchable 400K. Only 4 months old, bargain at £130. Phone 01-959 3788 after 5pm weekdays, anytime weekends.

BBC model B with data recorder, dust cover + over £130 worth of games £275 ono. Tel: Theyson Bois 2935.

BBC B operating system 1.2 with over £150 s/w: tape recorder, joystick — graphics, Rom for £315, also modem at 250. Tel: 01 458 3660 David.

Acorn Electron + tape deck + 14 games + 3 books on assembly language + 1st style joystick interface and joystick + mags, £180. Tel: 0642 551049 after 4pm.

Acorn Z80 second processor inc. complete bundles s/w. all perfect, boxed with purchase receipt £200. Tel: eves 01-455 3709.

Acorn Electron five months old, boxed, little use due to Spectrum, includes

original software, Elite, Chuckie Egg, TK Valley, etc. £110 ono. Tel: Mark on 13677 464 evenings.

Commodores for Sale

CBM64, C2N, 2 joysticks, Programers Reference Guide, 3c extended basic, £180 of original s/w, blank tapes, magazines, computer disks. £250. Tel: Crayford 56911 after 6pm.

ORIGINAL s/w for CBM64, Simons Basic, Future Finance, Easyscript, Programers utilities, lots of games on disks & cassettes. All cheap. Some unused & sealed. Tel: 021 384 2756.

CBM 64 approximately 100 original games cassettes £4 each or buy four and get one free. Tel: 01-458 2955 after 5pm.

VIC 20 1 joystick, 2 paddles, 3 games, Basic Introduction to Basic 1, 2 cassettes + book, 16k expansion + cassette player. £90. Tel: 01-682 3522.

CBM 64 C20 cassette deck, Simon basic, £150 worth of games, 2 joysticks + books + mags. £240. Tel: Michael 01-680 0053 after 7pm.

COMMODORE C16 starter pack + game + large games book £65. ZX81 + 16k + Flight Simulation game £25. 19 colour TV £30 or £100 the lot. Tel: 01-942 1580 (evening).

VIC 20 original adventure games £4.00 each or swap. Tel: Exeter (0392) 217322 any time.

COMMODORE 64 1541 disk drive + 5 disks + C2W recorder + 10 original games tapes. Free delivery UK. May split. £290 ono. All new Jan '85. Genuine reason for sale. Tel: 0204 47427.

VIC 20 21K ram, Spectra video joystick, C2N cassette recorder, £100 of original s/w, 60 mags, cartridge, manuals, excellent condition. £99. Tel: St Albans 57525.

CBM VIC 20, C2N data recorder + starter pack. £40 ono. Tel: Wilmslow 531234.

CBM 64 C2N and joystick for sale with lots of latest software including Ghostbusters, Raid Over Moscow and Spy vs Spy. £200. Tel: 01-878 6993.

VIC 20 cartridge games Adventures, GCE, CSE revision packs, Mastermind, Sargon Chess, etc. £4 each or write first with offers Mr Taylor, 5 Mitcham Rd, Hull, HU8 0RL.

CBM 64 SOFTWARE. Staff of Karnath £5: Astro Chase, Circus (Brian Howarth Graphic Adventure), £4 each, or all three for £10. All in original boxes etc. Tel 042879 2226 (after 6pm).

VIC 20 complete starter pack 16K, Switchable Ram pack. Joystick and games, £90. Tel: 0708 540452.

CBM mPS 802-1526. Top of range CBM printer, £345, sell for price of 801, only £199. Ian. Tel: 01-595 8822 any time.

CBM VIC 20 S/W. In Wunder, Walter, £4; Hunchback, £3; Invaders, £2.50; Grid Runner, £4 (originals only). Tel: Ramsey 0487 812061 after 4pm.

FAST COMPUTER REPAIRS

VIDEO VAULT INTERNATIONAL 10★ REPAIR SERVICE

Spectrums repaired for £19.95 inc. Parts, Insurance and P & P No Hidden Extras.

BBC, Commodore 64, Vic 20, Atari, Quoted for.

Are you fed up with waiting weeks for your Home Computer to be repaired!!!

Why not try the Experts, we offer a full repair service on any Home Computer.

All repairs carry a full 3 months guarantee, plus on every Spectrum repaired we

send you a free game worth £5.95 for your enjoyment and pleasure.

★ While you wait Service by Professional Computer Engineers.

★ 3 Months written guarantee on all repairs.

★ International repair company.

★ All computers sent by mail order turned around in 24 hrs.

★ Most Spectrums repaired within 45 minutes.

★ All Micros insured for return journey.

★ Open 7 days a week.

★ School repairs undertaken-discounts available.

★ Free software with each Spectrum repaired worth £5.95.

★ Over 8 years experience working with computers.

ONLY GENUINE SINCLAIR PARTS USED.

Phone today for your free estimate or send your computer to us with £1.75

(UK EIRE I.O.M. C.I.) or £6.50 (Europe/Scandinavia) we will contact you the

same day by phone or 1st class Mail should you require quotation first.

TRADE ENQUIRIES MOST WELCOME ACCESS WELCOMED

VIDEOVAULT INTERNATIONAL LTD (DEPT R25) THE LOGICAL CHOICE

Video Vault

Telephone: Glossop (STD 04574) 66555.
140 High St. West, Glossop, Derbyshire, England.

FREE GAME WORTH
£5.95 WITH
EACH SPECTRUM
REPAIR.

COMPUTER SWAP

Computer Swap entries are limited to 30 words. Either fill in the accompanying form and send to Computer Swap, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD or telephone 01-437 4343.

All software offered through computer swap must be in original condition and for private sale only.

It cannot be swapped.
Warning: It is illegal to advertise pirated software.

COMPUTER SWAP

Please write your copy in capital letters on the lines below.

Name

Address

Telephone

COMMODORE 64 plus C2N cassette deck plus Quickshot 2 joystick plus 3 books plus £140 worth of software. Titles include Ghostbusters and D.T. Decathlon. Sell for £200 ono. Tel: Nottingham 866692 any time.

16K VIC 20 + CASSETTE UNIT. Books and software, incl. Bewitched, Jelpac and Gridrunner. Two carts, joystick, Stack Light Rifle. Also Programmer's guide. Sell for £95 ono. Tel: Reigate 21172 after 4.30pm.

CBM/PET COMPUTER. 32K dynamic Ram machine. New Rom complete with C2N Datasette and software, very good condition and perfect working order. Accept £135 ono. Tel: 0244 675717.

COMMODORE 64 cassette deck, 1520 printer/plotter, manuals, joystick, £200 worth of software and magazines, £280. Tel: Reigate 43905 after 6pm.

CBM 64 DISC SOFTWARE SALE. Includes Tapper, Frak, Pole Position, Buck Rogers, Ghostbusters Zaxxon, plus many more. All converted speed load. Originality guaranteed, all cheap. Tel: 0742 616528.

CBM 64, C2N cassette recorder. Simons Basic, games, mags, books, £240. Tel: 01-680 0053 after 7pm (S. London area).

VIC 20 16K. £150 worth of S/W, joysticks, manuals, Basic Part I. C2N cassette unit, or swap for Spectrum. £100. Tel: 0487 812061.

1530. C2N 22+2 unit for CBM 64, £25. CBM 64 original S/W. Valhalla, £8; circus, £4; Hobbit £5 and others. Vic 20 16K expansion in Grandmaster Chess, £750. Spelling II (for ages 7-11yrs), £5. Tel: Milton Keynes 684679.

VIC 20 + C2N RECORDER. Intro to Basic, Chess, cassette, cartridges and books, £55. Williams. Tel: 01-800 3966.

VIC 20, TAPE RECORDER C2N. Games and books, all for £75. Tel: Haysam 01-431 1790.

CBM 64. CN2, 1541, Disc drive, excellent condition, with lots of software on disc and tape, 2 joysticks, books, manuals, mags. Cost over £500. Nearly new, sell for £420 ono. Tel: Bradford 635068 after 6pm.

CBM 64 SOFTWARE FOR SALE. F15-Eagle, Cadcam Warrior, Imp Miss, Ghostbusters, Fighter Pilot, Matchpoint, Summer games, Astro-Chase, Beachhead (all originals) and more. Must sell. Rob. Tel: 061-928 8354.

VIC 20, 16K RAM, over £80 worth of software, cassette recorder, manuals and magazines. Will swap for Spectrum or Spectrum plus with tapes: Janus Wodzinski, 10 Park Street, Cowdenbeath, Fife, Scotland. Tel: 511646.

CBM 64 CASSETTE RECORDER. Two modems 1200/1200, 1200/75 and 300/300 Baud RS232 interface, joystick, £50 worth of software. Must go to good home! £250 all in. Tel: Cov 594017.

COMMODORE 64. Hardly used. Still in box. Plus C2N cassette recorder, joystick, software and magazines, £190 ono. Tel: 021 550 0673.

CBM 64 DISCS. Spy Hunter, Boulderdash, Raid over Moscow, Epyx Jumpman, Alligata, Chartbuster, Zoom 64, £7 each. Tales of Arabian Nights, £4. All £35. Contact Norman Parker. Tel: (037186) 666 after 6pm.

COMMODORE 16 starter pack with guarantee and 17" colour tv. some software. Best condition, unwanted gift, two months old £150 bargain price! For details phone 01-346 0508 after 4.30.

CBM 64 + C2N + joystick + loads of top software + assembly tutor + b/w tv + over 200 mags, cost well over £450 sell for £260 o.v.n.o. Tel: Steve on Coventry (0203) 418809, after 5pm.

CBM 64 beginners assembly (honeyfold) 100. Page manual, assembler, Rom calls. Never used £7.00. rfc Forth 48K Spectrum with manuals. Never had time to use £5. Tel: 0922 52230 anytime.

VIC 20 for sale, offer includes 16K

switchable, 8k, C2N, loads of software including Perils of Willy, Pharaoh's Curse & more £75 phone (0276) 74234 anytime.

COMMODORE 64 with C2N data recorder, two joysticks, over £50 worth software, offers around £180. Contact Bookham 56825 after 5.30.

For Sale CBM 64, mint condition, with C2N cassette player, Quickshot two joystick, all leads, all boxed, over £100 of software including many U.S. Gold titles like Stellar 7, Phone (Whalley) 2831.

COMMODORE 64 software Whitby softchip two for £20. Disk backup £15. Assembly language programme cost £22. Sell for £10 all original and as new. Tel: 0222 865067.

CBM 64 disk drive, Ferguson tape recorder, over £400 worth of software, joystick, covers, manuals. Cost £900+. Sell £650 ono (will not split). (0452) 75494 after 4pm (Marty).

COMMODORE 64, cassette recorder, joystick, software, £230 ono. Tel: Manchester 7208362.

CBM 64 plus disk drive, plus datacorder and over £100 software, books etc. Six months old cost new over £600 will accept £300 ono. Tel: 061 748 4292 after 6 pm.

COMMODORE 64 computer, 1541 disk drive, C2N cassette, 1011A RS232 adaptor (for Epson or modem), joystick, Commodore macro assembler software, £295. 01-450 0520.

For Sale Commodore future finance new unused (disk) £45. Will consider swapping for other disk based software up to same value. Tel: 0625 75019 after 6pm.

CBM 64 C2N £400 worth software, three joysticks, computer desk £100 worth magazines all for £350 ono. Tel: 01-223 4219 after 5.30pm.

CBM 64, 1541 disk drive, 1530 cassette + s/w on tape and disk. Books etc. Sell 2350. Tel: 01-550 0931.

VIC 20 8K, tape recorder, s/w (rom + tapes) £85. Tel: 01-337 9194.

CBM 64, with 1541 disk drive, MPS 801 printer. Centronics Interface. Easy script + easy spell, £450. 01-735 8495.

VIC 20 16K switchable Rom pack, cassette unit, lots of s/w. All originals. Introduction to B Part 1, mags. All vgc worth £230, sell £85. Tel: 01-889 5646.

£105 of original s/w for CBM. Inc Spy vs Spy, World Series Baseball £45. Bristol 644770.

COMMODORE MPS 1526 printer. Cost £345, sell £199. Tel: 01-595 8822.

For Sale

ORIC ATMOS 48K, compatible cassette recorder, programmable joystick interface, original software (16 titles) including Hobbit, Xenon-1, Zorgans Revenge, Scuba Dive. Cost £290+ sell for £130. 021 777 8347.

QL latest 'JS' rom with Issue 2 software (very fast) with 8 cartridges + 1 year Qlub + joystick adaptor £360. Centronic interface £25. Tel: 01-638 4891.

RAPSCALLION by Blico Byte cost £6.95 bargain £3. Tel: Eardsley (05446) 202 after 5pm.

CASIO PT-20 organ. New from xmas, given to totally unmusical Spectrum freak with proper keys, chords and beat/base accompaniment. Costs £60, sell £45ono. Richard 01-699 7093.

ORIC 48K in original packaging + forth + manual over £40 of software all in very good condition + some Oric owner mags. All for £80 (worth over £200 new). Tel: Alan on 061-483 3691 (4pm - 6pm during week).

Broken ZX printer plus 3 rolls paper. Good condition except that it does not work. £10 ono. Tel: 0922 52230.

TEAC double sided 40 track half height disk drive. 3 months old complete with leads formatting disc etc, for BBC £100 ono. Tel: 0782 619096.

QUALSOFT Division One 85 and Soccer Supremo for BBC B or rom cassette and disc. Various prices. Tel: 05436 72055.

AMSTRAD CPC 464 Colour monitor perfect condition in box. Nine months guarantee approx. Some software and magazines £290 Tel: Brilley Hill 71698.

SOFTX 'FP' COMPILER for sale (compiles basic into machine code) Brand new only £12 (rrp £20) Tel: 0243 692128 after 5pm.

ORIC ATMOS 48K plus two manuals and games. Still under guarantee (six months plus to run) in original box. £100. Tel: 0698 424010.

AMSTRAD CPC 464 Colour monitor version with comp pro joystick and software including Hunchback, Roland in the Caves and colossal adventure. £300 for the lot. Tel: 0342 834705 (Surrey).

AMSTRAD CPC 464 System, modular books, joystick, cover, clubs, basic tutor etc. Cost £400 + £500 software £299 Bags the lot. Local Enquiries welcome. Tel: 041-649 0037 after 6 pm (Glasgow area).

SINCLAIR FLAT SCREEN POCKET TV. Boxed with earphone and case only a month old. Battery unused. Quick sale hence price of £59 RRP £99. Tel: (Glasgow) 649 0037 after 5pm.

LYNX Serial Printer pack £4. Dust cover £2. Tel: 0422 75366.

AMSTRAD CPC 464 colour monitor version. Perfect in box, 8 months g/tee. Some s/w + mags. £275. Tel: Briely Hill (0384) 71698.

ROM BOARD 8 socket rom board for BBC 'B' in good working condition £20 ono. Tel: 0332 556381.

AMSTRAD CPC 484 Colour monitor, manuals + s/w. £250. Tel: Basildon 415357.

JUPITER ACE + manuals, power supply + games £40. Trans-Am, Tuscan F100 system 8K + residen basic, power supply + keyboard. £170. Tel: 01-251 3220 after 6pm.

ORIC 48k f/s lots of original s/w inc: Ultra etc. As new. Cost £200 sell £90. Tel: 01-603 7815.

DOLPHIN BBC 80B printer, dot matrix full size £80. Tel: High Wycombe 38602.

SHARP PC 1251 pocket computer + printer micro cassette interface, machine code manual. Application s/w inc disassembler £140 ono. Tel: 01-521 1058.

PLUS 1 for Electron computer, used once £59.90 sell £35. Tel: Dunbarton 61100 after 6pm.

NEW VTX 5000 modem for ZX Spectrum + s/w. Cost £99 sell £50 or swap for Daytel sound sampler. Fareham (0329) 46983 after 6pm.

SEIKOSHA GP700A 7 colour dot matrix graphics printer £220. Or exchange for Pet disk drive. Also sell Commodore 1520 printer plotter £55.00. Tel: Radlett 5543 eves.

SONAR MSX computer with lots of s/w £200. Tel: 05827 69152.

MODEM for BBC, Print 2000 Micronel rom £60. Inc p&p. Luton (0582) 412368 eves.

SINCLAIR QL with Psion packages + mags and extra cartridge. JM Rom immaculate condition £325 ono. Phone (0278) 684770 evenings.

MSX software by PSS. Time Bandits, Les Filis Maxima and Champ (assembler monitor) £25 ono the lot. Tel: Gosport 527256.

MEMOTECH 512 vgc s/w + book, manual and recorder (reliable) exc. Buy at £180.00 ono. Tel: 061 633 6030 eves.

FOR SALE Premier Microsystems Dragon disk system 200K drive + manuals, leads, psu. Good condition £130. Tel: 01-556 6091.

MONITOR hi-res, 12 inch, green. Made by KGM for Reuters. Ideal for business or home computers. £30. Tel: Chris 0525 378437.

MAGAZINES! Your Computer March '83 to April '85 inclusive £12; or split also Scrabble, £4; Valhalla, £4; Manic Miner,

£3; Arcadia £2 (Spectrum). Tel: John 01-659 2924 after 6pm.

NEUBRAIN A complete £100. Apple II +, E Titan Accelerator II complete £250. Microsoft 280 system including CP/M, Mbasic, utilities £200. Cis-Cobol with animator £300 any offers. Phone 021 358 7572 evenings between 7.30 and 10.30.

CASIO PT-20 organ for sale with original batteries, proper keys & chords, base/beat accompaniment, new Xmas '84, costs £60, given to unmusical Spectrum freak, only £40 ono. Richard (01) 699 7093.

ORIC ATMOS 48K 8 weeks old still boxed software worth £35 plus extra handbook £50. Tel: Hull 563142 after 6.30pm or weekends.

AMSTRAD DMP-1 dot matrix printer original box £130 one very little used. Tel: 01-502 2681 after 6pm.

BRAND NEW Amstrad CPC464 colour computer. Quick sale £300. Tel: Paul on 01-949 0225.

ICL 7075 Termi-Printer. Own keyboard needs interface £10. Ring Iver 654445 eves.

FOR SALE home computer advanced course volumes 1, 2, 3 bound cost £40.65. What offers? Carriage paid. 0360 70142.

SINCLAIR flat screen pocket TV with case and earphone and one unused battery. Cost £100 sell for £80. Phone 041 649 0037 (that's in Glasgow).

CYRUS CHESS. Supercode III, Flight Simulation, Vucalc etc, all originals. £12 buys the lot. Also 4 x AA Nicad charger, auto, with 4 Nicad batteries 27. Phone 527 5493.

INTERSTATE Pro Prog joystick interface still under guarantee. £15. Tel: Framingham Earl 3789.

ORIC ATMOS 48K + games £85 ono or swap Spectrum 48K. Tel: Southport 25167.

SEIKOSHA GP-250X matrix printer, 50 cps serial and parallel interfaces, character and graphics modes, as new, in box, £140. Also ZX interface one, £20. Tel: 01-773 0495 (Wallington) evenings.

KEMPSTON joystick interface. Amazing condition. Wanted quick sale £10 or offers. Tel: 01-267 1376 London area.

EPROM PROGRAMMER. Acorn Atom, monitor, cassette recorder, books and software. Complete working system only £99. Tel: Hemsworth 611395. 4, Mill Close, Ackworth, Pontefract, Yorkshire, WF7 7PU. Buyer collects or postage extra.

AMSTRAD software, originals, Forest World's End, Message From Andromeda, Roland Ahoy, Flight Path, Er'Bert, Harrier Attack, and Oh Mummy. £3 each. Tel: 0630 57129.

TEXAS instruments Speak 'N' Maths, Talking Maths tutor, £20. Gosport 527256.

DISK DRIVES. Cumana twin 40/80 track switchable half-height with integral power supply. Including utility disk, manual and leads for BBC micro. £175. Tel: 048 67 4755 (near Guildford).

CURRAH micro speech for sale unwanted gift for Spectrum 48K. £20 ono. Write to B. Clark, 30 Mayne Crest, Springfield, Chelmsford, Essex.

S/WARE Personal Pearl £20. UCS D-P System £15. After Osbourne/CPM s/w to swap. Tel: 01-485 1462.

SEIKOSHA GP100 VC printer inc Vic writer. WP software £125. Tel: Reg on Tilbury 71554.

SINCLAIR QL, excellent condition. Reason for sale. Offers around £370. Tel: Chesterfield 71997.

NEW never used Hellstar BBC disk drive with leads and disks. Cost £125 sell £85. Tel: (0656) 69175.

TOKAI strat guitar, Marshall 30W combo amp, chorus pedal. Swap/sell for C64 s/w, disk etc, or £300 ono. Buyer/swapper collects. Tel: (0248) 670264 (N. Wales).

AMSTRAD DMP 1 PRINTER with lead. New at Christmas £150. Tel: Clare 277550.

Spectrums for Sale

SPECTRUM Dungeon Builder, Graphic Adventure, Creator, with manual, unused. Cost £10. Yours for £5. Tel: Andy on 0532-657038.

UNUSED 48k Spectrum, Interface 1, Microdrive, Cartridges, Currah Speech Unit, Data-Recorder, Amplifier plus software and magazines £460. Ideal package for enthusiast. Highest offer accepted. Tel: 0669 20426 after 5.30pm.

SPECTRUM 48k, Interface Two, quickshot Two. £90 software including Psytion, Beach Head, Combat Lynx. Boxed as new. Magazines. Books on machine code. £110 ono. Tel: Stirling 814805 after 5pm.

SPECTRUM GAMES to sell, Inc. Underworld, Knight Lore, Ghostbusters, Match Day, Oeux machine, Pole Positive + more all originals. Tel: Mark, Radlett 7447.

URGENT: For Sale 48k Spectrum tape recorder £100. S/W, Kempston Interface, Quick Joystick still under guarantee + Grandstand Scramble. All manuals + leads worth £250. Sell for £140 or swap for CBM 64. Tel: 01-289 0511. 266 Eigin Avenue, London W9.

48k SPECTRUM Interface One, Microdrive, Sanyo DR101, Cassette Recorder, over £100 worth of s/w cost over £450 sell for £250 ono. Tel: Paul on 0274 584915 after 4.15 pm in the evenings.

SPECTRUM original software for sale, Valhalla £6. Wheelie £3. Maziacs Arcadia, Chopper Rescue, Maze Delta, Death Race, shuttle Frenzy £2.50 each or all for £18. Tel: 041 883 0987.

SELL 48K SPECTRUM, interface 1 & 2, microdrive, 6 cartridges, tape recorder, books, joystick, & £160 + of software. Worth £470 +, sell for £300. Tel: (0908) 679661. Will swap for BBC 'B' or Amstrad, (colour).

SPECTRUM software for sale. All originals, worth over £300 plus carrycase, first offer around £195 accepted. Contact by post Mr Ken Edwards 4 View Road, Eastwood, Rotherham, South Yorks.

48K SPECTRUM quick shot II joystick + interface, Currah Microspeech, lots of mags + software. Sell £155 ono. Tel: 051 336 3165.

SPECTRUM 48K £60.00. 8-Disk interface £60.00. Original software, £2.00 each. Send sae for list, Bryan, 5 Hertford Road, Clare, Suffolk. Tel: (evens only) 0787 277518.

SINCLAIR SPECTRUM 48K assorted s/w all original. Set pack, Altic Attack, Sabre Wolf + Quickshot II joystick, DK Tronics interface, assorted mags. Cost £160. Sell £75. Ian Philips 04012 2529.

SPECTRUM original s/w for sale. Title inc Brian Bloodaxe, Son of Bagger, Monty is Innocent £3 each. Scuba Dive, Kong £2 each. Gambler £1. Tel: (0642) 469058 after 4pm.

48K ZX SPECTRUM with manuals. Excellent condition, cassette recorder with counter, £80 software (fully boxed), £90. Tel: Rossendale, Lancs (0706) 220892 after 5pm.

BARGAIN: 48K Spectrum Plus (upgraded) with manual only £89.95. Also Fuller Master Unit software and booklets only £39.95 or swap for interface 1. Both in excellent condition.

SPECIAL OFFER 16K Spectrum never used, boxed, plus Protek joystick interface and joystick plus over 50 mags, plus £80.00 of 48K games only £84.00 ono. Ring 67307 after 4.00.

SINCLAIR QL J.M. rom. Perfect condition £250 ono. Swap for anything. Tel: Richard 0732 841638.

KEMPSON joystick and interface for Spectrum C16 also some software for Spectrum. Write to Paul Stevenson, 19 Marland Hill Road, Sudden, Rochdale, Manchester OL11 4PQ.

SPECTRUM rubber keyboard for sale £6 only also orig software e.g., Altic Attack, Daley Decath, etc, £3 each. Tel: 01-859 5498 after 4pm.

SPECTRUM 48K, 2 brand new cassette recorder with £100 s/w and 2 stonechip programmable joystick interface. Worth about £275, sell for £160. Tel: Sulptan 61091 after 6pm.

SPECTRUM 48K wafadrive, tape recorder + s/w. Swap for CBM 64 or sell £190. Tel: Fleetwood 10179.

48K SPECTRUM, Alpha Com 32 printer paper £200 of original games, Alien 8 etc. Crash magazines, excellent condition. Cost £390. Sell £200. Tel: 01-449 1571.

48K SPECTRUM, Kempston interface, Quickshot 2 joystick, carrier case + s/w. Offers! Tel: 01-674 8821. Shahid Malik.

SPECTRUM 48K + tape recorder for sale £100, all manuals + leads inc, loads of games. Tel: Paul 01-504 0823.

SPECTRUM s/w for sale. All originals incl Knight Lore £5; Underworld £5; Zaxxon £4; Boulder Dash £3; Full Throttle £3 and at least 35 more! Phone 0293 22042 after 4pm.

FOR SALE 16 and 48K games + Quickshot II joystick, worth £220, will accept £130 ono within reason, may possibly separate. Tel: Steven 804 7306.

ABERSOFT Forth 48K Spectrum £7 high resolution 16K ZX81 £3. Tel: Girvan 0465 4048.

48K SPECTRUM with brand new keyboard, also joysticks and interface plus a library of modern games. Only £100 complete. Tel: Wickham Market (Suffolk) 746 520.

SPECTRUM original games clearout, Moon Cresta, Everyone's A Wally, Brian Bloodaxe, Project Future, Boulder Dash, Knight Lore, Psytion, Pyjamarama, Automania, Pyramid. Offers around £32. M. Pratt 8 Lockeyes Tce, Whitby, North Yorkshire YO22 4HH.

SPECTRUM PLUS (as new under guarantee) with protective cover, books, compatible cassette recorder, over £90 worth original software (including Ghostbusters, Scrabble, Chequered Flag). Only £145. Tel: Hitchin (0462) 34999.

48K SPECTRUM interface, 2 cassette recorder, £400 of s/w. £200 ono. Tel: Alex on 01-242 4433 ext 5208 8-4 Monday-Friday.

48K SPECTRUM £600 of original s/w, Interface 1 + microdrive, 14 cartridges, 6 Pet. RAF Infra Red Remote joystick, Currah Speech sound synthesiser. For details tel: 01-809 2841.

SPECTRUM expansion system: interface 1, microdrive, software, only 1 mth old, £75. RS232C interface; Epson RX80/ Spectrum + cable, £35. Original BBC B software + books. Offers? Tel 01-668 5906 evenings, 0344 426888 ext 6242 office.

48K ZX SPECTRUM, Fuller keyboard I/F I & II, microdrive, Alpha Com 32 printer, I/F II, 2 joysticks, S/W. Cost £500, sell for £275 ono. Will split. Tel 0590 23733.

SPECTRUM Fuller FOS keyboard £25. Centronics interface. £25. Tel Romford (0708) 46948.

48K ZX SPECTRUM + ZX printer + Kempston joystick with I/F. £70 of S/W. £15 of books + mags. £120. Tel Barford 624574.

NON WORKING SPECTRUM 48K PCB for spares or repairs. £25. Tel 0382 74559.

SPECTRUM plus low profile keyboard, 2 joysticks, interfaces, Quickshot II ZX printer, 10 rolls of paper, light pen, Currah speech synthesiser, 2 rom cartridges + S/W. £220. Tel 01-521 3472 after 6pm.

SPECTRUM 48K low profile keyboard, interface, microdrive VTX 5000 modern Kempston joystick 2nd centronics interface, 7" B+W monitor, loads of software, bodies, magazines, manuals, cassette recorder, £450. Tel South Ockendon 0708 857010.

SPECTRUM wafer drive with II waters. £110. Tel Gospel 581 734.

TWO ORIGINAL SPECTRUM KEY-

BOARDS. Mint condition. One with few scratches on the back. Both function perfectly, £10 and £5. Tony. Tel: 01-888 0839.

SPECTRUM 48K MICROVITEC MONITOR, Twin microdrives/interface, tape recorder, DK keyboard, RD tracer, over £600 software, accept £500 ovno. Also Epson FX80 friction feed printer, £200. Tel: 01-398 0930 after 6pm.

SPECTRUM FOR SALE all leads and manuals included only £80. Tel 01 348 3924 and ask for Graham.

48K SPECTRUM AND TANDY TAPE RECORDER contained in foam filled 'custom' attache case plus 'Quickshot' joystick and programmable interface, 20 Assorted programs, books/manuals for only £150. Tel: 01-656 6581 (evenings).

48K SPECTRUM with manuals and cassette recorder and Comcon Interface and joystick and mags and lots and lots of games and books on how to learn programming and about computers. Ideal for beginners. Worth £450 sell for £130. Tel: 0204 76215.

COMPLETE SPECTRUM 48K SET UP. Inc almost new ZX printer and paper. Kempston Interface, cassette recorder. £150. Tel: Clere 277550.

SPECTRUM 48K, Kempston joystick I/F, approx £250 or original software inc: Alien 8, Knightlore, Boulderdash, Technician Ted, Pyjamarama, £160. Tel: 0243 692128.

SPECTRUM S/W. Original inc: Bootie, £1.50, Jet Set Willy, £3; Ant Attack, £2.50; Chequered Flag, £3; Fighter Pilot, £3.50. Tel: Retford (0777) 817975.

SPECTRUM 48K, £300 S/W + Interface and joystick II for £200 + 2 books. Tel: 01-455 2993.

SPECTRUM 48K + software + joystick interface, £60 ono. Tel: Scarborough 77781.

48K SPECTRUM, Alphacom 32 printer. Lots of software (latest), books and mags, all worth over £300. Will swap for Commodore 64 or sell for £180. Tel: Northampton (0604) 404009.

SPECTRUM Currah Speech, £20, games Pyjamarama, Full Throttle, Starstrike, £3 each, Wheelie, World Cup, TLL, £2.50 each Maziacs, Bugaboo, Luna Crabs, £1.95, Voyage into Unknown 90p. Tel Uttoket 5287.

DK'TRONICS KEYBOARD FOR SPECTRUM, £30; Sony tape recorder suitable for Spectrum only £25; 'Learn Basic' instruction manual for Spectrum £12.50. Telephone 01-348 3924 and ask for Graham.

FOR SALE Spectrum Wafadrive, £60, Comcon joystick interface, £10, DK Tronics interface, £5 and software for sale (Bruce Lee, etc). Interested? Robin. Tel: Thetford 3654.

I kill the Bat and the Spirit? Ian Stevenson, Jag Sim, RAF Wildenrath, W. Germany, BFPO 42.

Advent A on Spectrum 48K. How do I wake the Grend Man; how do I pass the forcefield; how do I get out of prison the second time? J. S. Russel, 21 Thorney Close, Fareham, Hants.

Hobbit on Spectrum 48K. I can get out of the Goblin's Dungeon, but where is Gollum's ring? Steven Quinn, 27 Royal Avenue, Onchan, Isle of Man. **Jewels of Babylon on Amstrad.** Where do I find the key to open the door in the dusty corridor? Lorraine Tinsley, 23 Liverpool Rd, Page Moss, Liverpool, L14 9PG.

Zkul on Sinclair QL. How do you open the door in the 'Pool' room, and what is a cossai? Pete Coombes, 2 Castledene Cres, Parkstone, Poole, Dorset.

Hampsted on Commodore 64. How do I get into the filing cabinet in my office? Graham Daly, 183 Hinchcliffe, Urton Goldhay, PE2 0ST.

Pyjamarama on Spectrum 48K. How do I get past the Space Invaders on the Moon? Gregory Watson, 76 Dunsire St, Kirkcaldy, Fife, Scotland.

Return of Eden on Amstrad. How do I avoid being killed by the Snowball's enemies? Steven Bateman, 28 Crescent Rd, Dukinfield, Cheshire, SK16 4ET.

Jewels of Babylon on Amstrad. In Cannibal's village, how do I survive? (This is my first adventure game!) Gary Jarvie, 29 Perryhill Priors Park, Tewkesbury, Glos, GL20 5JG.

The Count on Vic 20. How do you get to the Count and how do you open the door in the Work Room? Robin Hinch, 2 Chapel Way, Brigg, S. Humberside.

Aural Quest on Spectrum. How do I get past the mugger in Central Park? Derek Ford, 14 Kendal Avenue, Birmingham, B45 9QA.

Giants Revenge on Spectrum 48K. I am on the first sheet and cannot get out of it. I am always being attacked. Help! Robert Vickers, 83 Dorset Ave, Cheadle, Hulme, Cheshire, SK8 5RQ.

Lords of Time on C64. I cannot find the sword to kill the Black Knight. James Stevenson, 102 Beckwood, Catterick Garrison, North Yorks DL9 4QB.

Message from Andromeda on CPC 464. I would like to escape from the mirrored room, after much perseverance! Mrs Atkinson, 72 Westbourne Street, Woodcock Street, Hull HU3 5BS.

Program Power Adventure on BBC. How do you deal with the owl? J Gregory, 5 West Way, Broadstone, Dorset.

Castle of Terror on C64. I cannot get into the castle. Mark Simpkins, 1 Wellmeadow Cottages, Cobham Road, fetchum, Leatherhead, Surrey KT22 9RT.

Quest on Spectrum. How do I prove that the river has no water in it, and what is mirror in forest used for? Daniel LeClerc, 17 Monkswell, Cambridge CB2 2JU.

System 15000 on Spectrum. I have got into Midminster Bank, any help from there on? Christopher Jay, 19 Lodge Gate, Denholme, Bradford, West Yorks BD13 4BB.

Velnor's Lair on Spectrum. I cannot get through hole or cross bridge - help! Danny O'Hara, 20 Moor Lane, Gomersal, Cleckheaton, West Yorks BD19 4LE.

Return to Eden on CPC 464. After feeding the Oujia bird how do I get the house plant? Any other tips? Steven Miller, Oakdene, Old Station Road, Halesworth, Suffolk IP14 8JJ.

Kentilla on Spectrum. How do I cross the boat without sinking? How do I get in Tylon's chest? C S Rainer, 21 Mill Hill Road, Hinckley, Leicestershire.

ADVENTURE HELPLINE

Pirate on BBC B. How do you open door in cave; how can items be got out of the treasure chest? Sue Bramham, 4 Parklands, Darras Hall, Newcastle on Tyne, NE20 9LL.

Stolen Lamp on Electron. What does "two humps are better than one" mean? Simon Aldridge, 3 Rowan Rd, Tadley, Basingstoke, Hants.

Heroes of Karn on Amstrad. How do

- Vic 20**
- (1) Mickey the Brick (9Firebird)
 - (2) Doodlebug (Mastertronic)
 - (3) Flight 015 (Craig Comm)
 - (4) Perils of Willy (Software Projects)
 - (5) Wizard and Princess (Mel. House)
 - (6) Psycho Shopper (Mastertronic)
 - (7) Space Scramble (Mastertronic)
 - (8) Duck Shoot (Mastertronic)
 - (9) Phantom Attack (Mastertronic)
 - (10) Sub Commander (Thorn/Emi)
- (Compiled by Websters Software)

- Commodore 64**
- (3) Chiller (Mastertronic)
 - (1) Airwolf (Elite)
 - (5) Booty (Firebird)
 - (4) Brian Jacks Superstar (Martech)
 - (1) Daley Thompson's Decathlon (Ocean)
 - (1) Football Manager (Addictive)
 - (9) 1985 (Mastertronic)
 - (8) Ghostbusters (Activision)
 - (1) Extra (Firebird)
 - (1) Big Mac, Mad Maintenance Man (Mastertronic)
- (Compiled by Websters Software)

- Spectrum**
- (1) Death Star Interceptor (System 3)
 - (2) Bruce Lee (US Gold)
 - (5) Everyone's a Wally (Microgen)
 - (7) Raid over Moscow (US Gold)
 - (1) Chuckie Egg 2 (A'n'F)
 - (1) Gremlins (Adventure Int)
 - (1) Booty (Firebird)
 - (10) Finders Keepers (Mastertronic)
 - (1) Daley Thompson's Decathlon (Ocean)
 - (1) Dukes of Hazard (Elite)
- (Compiled by Websters Software)

- BBC B**
- (1) Frak (Aardvark)
 - (9) Football Manager (Addictive)
 - (5) Scrabble (Leisure Genius)
 - (1) Snooker (Visions)
 - (2) Castle Quest (Micropower)
 - (1) Manic Miner (Software Projects)
 - (1) Challenger (Mastertronic)
 - (1) Mini Office (Database)
 - (6) Mr EE (Micropower)
 - (7) Star Maze (Mastertronic)
- (Compiled by Websters Software)

- Atari**
- (1) Smash Hits Vol. 1 (English Soft)
 - (3) F15/Strike Eagle (Centresoft)
 - (2) Attack of Mutant Camels (Llamasoft)
 - (6) Computer War (Atari)
 - (5) Sub Commander (Thorn EMI)
 - (1) Bruce Lee (US Gold)
 - (1) Fort Apocalypse (US Gold)
 - (1) Mr Do (Collins)
 - (1) Blue Max (US Gold)
 - (7) Encounter (Hi-Tech)
- (Compiled by Websters Software)

- C.16**
- (1) Wizard & the Princess (Mel. House)
 - (1) Classic Adventure (Mel. House)
 - (1) Vegas Jackpot (Melbourne House)
 - (6) Games Tape 2 (Melbourne House)
 - (7) Borka (CRS)
 - (9) Williamsburg Adv. (Microdeal)
 - (5) Games Tape 1 (Melbourne House)
 - (1) Flight Path 737 (Anirog)
 - (1) Skramble (Anirog)
 - (3) Roller Kong (Melbourne House)
- (Compiled by Websters Software)

- Amstrad**
- (1) Ghostbusters (Activision)
 - (2) Jet Set Willy (Software Projects)
 - (5) Fighter Pilot (Digital Intervention)
 - (1) Sorcery (Virgin)
 - (4) World Cup (Artic)
 - (6) Flight Path 737 (Anirog)
 - (1) Chuckie Egg (A'n'F)
 - (8) Snooker (Steve Davis) (CDS)
 - (3) Millionaire (Incentive)
 - (1) Stock Market (Amsoft)
- (Compiled by Websters Software)

Event	Dates	Venue	Admission	Organisers
Apple 85	May 9-10	Novotel London W8	Free in advance from organisers	Database Publications 061-456 8383
	May 11			
Electron & BBC Micro User Show	May 9-11	New Horticultural Halls London SW1	£3.00 adults £2.00 children	Database Publications 061-456 8383
	May 12			
6th Commodore Computer Show	June 7-8	Novotel London W6	£2.00 adults £1.50 children	D + CS Marketing Ltd 01-630 6165
	June 9			
	June 10			

Readers' Chart No 22

1	(1)	Alien 8 (Spectrum)	Ultimate
2	(3)	Soft Aid (Spectrum/C64)	Various Artists
3	(2)	Knight Lore (Spectrum)	Ultimate
4	(4)	Everyone's a Walley (Spectrum/C64)	Mikro-Gen
5	(7)	Sorcery (C64/Amstrad)	Virgin
6	(6)	Ghostbusters (Spectrum/C64)	Activision
7	(-)	Football Manager (Spectrum/C64/BBC/Electron/Oric/Atmos/Dragon/Vic20/ZX81)	Addictive Games
8	(9)	Impossible Mission (C64)	CBS/Epyx
9	(5)	Bruce Lee (Spectrum/C64)	US Gold/Datasoft
10	(10)	Tir Na Nog (Spectrum/C64)	Gargoyle

Winning phrase No 22: "Naked earl lost in fog" from B Bamberger, Craigdale Road, Hornchurch, Essex who receives £25. Others who came close were "All-night snooker? Daft!" from T Burdis of Second Avenue, London and "Adolf Hitler is no gen!" from Humphrey Dunn of Shrewsbury.

Now voting on week 24 - £25 to win

Each week *Popular* is compiling its own special software top ten chart - compiled by YOU.

And each week we will send £25 to the person who sends in, with their chart votes, the most original (witty, neat or clever - but never rude) phrase or sentence made up from the letters (you don't have to use them all) in the titles of the top three programs in this week's chart, published above.

You can still vote in the chart without making up a slogan - but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to: Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Voting for Week 24 closes at 2pm on Wednesday May 8 1985. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

Name	My top 3: Voting Week 24
Address	1.....
.....	2.....
.....	3.....
My phrase is:	

New Releases

ONE OF THE BEST

Arnhem is, quite simply, one of the best computer wargames I have yet seen. Visually it's very attractive indeed, with a neat, easily understood map and large chunky units.

There are four separate scenarios covering various aspects of the Arnhem operations, and a fifth scenario which links them all together as a campaign game.

Giving your troops orders is simplicity itself, using a menu driven system, although after a while it may become rather too basic.

You can choose to play a one, two or three player game, although I personally think the only one worth its salt is the option to play the computer. I can never understand why companies think people want two player wargames!

Once you have ordered all your units around, you sit back and watch them run. The great thing about the game is that you can change a force's size - small and you can move

along roads and cross bridges, large and you fight better. On screen, they grow and contract rather like some strange anemone.

I don't know yet how good an opponent the computer makes, but it wiped the floor with me the first two times.

It's also worth noting the new style packaging that CCS are using.

Program *Arnhem*

Price £8.95

Micro Spectrum

Supplier CCS

14 Langton Way
London SE3 7TL

COLLECT AND DODGE

'Most irritatingly infectious music' vote this week goes to *Kong Strikes Back*, an Ocean game originally on the Commodore and now converted to the Amstrad.

It's basically 'collect and dodge', the plot involving a series of screens of big dippers, complete with roving buggies that move around the track - you climb the track collecting bits and pieces and then rescue the helpless damsel.

Success means knowing when to climb to safety up a ladder and when to make a dash for it over the next bit of track. The music is horribly fairground-like. Still the game's pretty addictive.

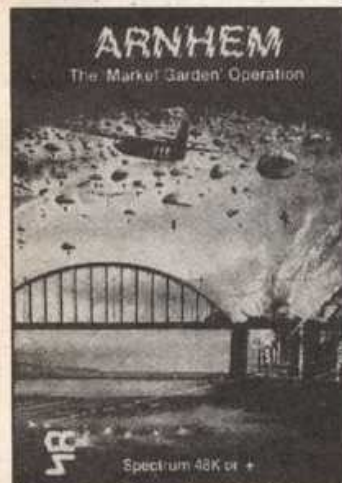
Program *Kong Strikes Back*

Price £7.95

Micro Amstrad

Supplier Ocean Software

Ocean House
6 Central Street
Manchester
M2 5NS



Pick of the week

BLITZKRIEG



Entombed is Ultimate's follow up to *The Staff of Karnath* and it proves, if proof were needed, that the company is as capable of wiping the floor with most other Commodore houses as it has been capable of blitzkrieking the Spectrum market.

Entombed has Sir Arthur Pendragon trapped in the vaults of a mysterious pyramid seeking scrolls which have the secret of escape. The scenario, like *Staff*, is in three dimensions; you may move both into the screen and out from it into new rooms and corridors.

There are both dangers and puzzles. Puzzles include how on earth to release the giant statue that blocks you way in the beginning and get worse. So far I've mastered that, found the magic whip and have wandered about until I die - I think I know what to do with the raven though and next time... baddies include a mummy complete with loose bandages, a very angry sounding insect and a scorpion which sounds like it's tap dancing.

The graphics are, of course, stunning; wall upon wall of Egyptian drawings and hieroglyphics, a perfectly animated raven, excellent tumbling fireballs and so on.

So far my two favourite features are the jump option, where the extremely dignified Arthur Pendragon

on tucks in his arms like a pair of pawns and bounces up and down like a rabbit (it cracks me up everytime) and the whip. The magic whip which replaces the ubiquitous laser gun found in lesser games swishes and cracks with utter realism - you tend to use it just to get the sound effects.

Entombed has everything: graphics about ten times better than most other Commodore games and adventure elements that will keep you baffled for ages. The best Commodore game this year - no question.

Program *Entombed*

Price £9.95

Micro Commodore 64

Supplier Ultimate

The Green,
Ashby de la
Zouch
Leicestershire

This Week

Program	Type	Micro	Price	Supplier	Best Four Math	Ed	BBC	£19.95	ASK
Funhouse	Ad	Amstrad	£5.95	Pacific	Super Teams	Ut	BBC	£10	Gilvale
Death Pit	Arc	Amstrad	£6.95	Durell	Blogger	Arc	C16	£6.95	Alligata
Ghostbusters	Arc	Amstrad	£10.99	Activision	Tower of Evil	Arc	C16	£6.95	Creative Sparks
Forth	Ut	Amstrad	£19.95	Kuma	Entombed	Arc	Commodore 64	£9.95	Ultimate
Kissin Kousins	Arc	Atari	£6.95	English	Gates of Dawn	Arc	Commodore 64	£8.95	Virgin Games
Assassin	Ad	BBC	£9.95	Robico	Rock Man	Arc	Commodore 64	£1.99	Mastertronic
Nightworld	Arc	BBC	£7.95	Alligata	Spooks	Arc	Commodore 64	£1.99	Mastertronic
Best Four Language	Ed	BBC	£19.95	ASK	J.B. Squash	S	Commodore 64	£7.95	New Generation

New Releases

SKILFUL

Jonah Barrington's *Squash* is a technically excellent version of the sport of advertising and media people everywhere. It's on computer for those of us whose thighs lack ripple and whose grim competitive determination extends as far as insisting to smaller members of the family that *The Day the Universe Changed* be turned to another channel.

The game play and graphics on both the Spectrum and Commodore versions are very much *Match Point* in style - neatly animated figures and sharp control responses that let you introduce a good deal of skill into the game which, for those of you unfamiliar with it, involves hitting a very small ball against a wall with such determination and force that your face and neck muscles get locked into the kind of facial grimace that made Kirk Douglas the kind of man he is today. You also go *Euuuuupffffffffff* and *eurrgggg* a lot.



The Commodore version of the game has excellent speech à la *Ghostbusters*, using a technique New Generation call *Reprosound*. Here it has Jonah Barrington himself calling "one love, two love, three love..." (you get the idea). The speech works fine except that on the version we have there is some sort of but and the second time round Jonah appears to have turned into Harold Macmillan: "ooooooooooooo lowwwwwwwfff, towghooo lowwwwwwwfff," etc. Maybe that's what happens to real squash players if they play two games in a row.

The speech on the Spectrum version doesn't have that fault, but instead, it sounds as though Jonah Barrington has been gagged and tied up in the dressing room: "nnnnn lloooo, terrrr lloooo," and so on. Personally I think it's pretty addictive and if my neck muscles keep on going the way they are I'll be ready to lead Roman slaves in rebellion any day now.

Program Jonah Barrington's *Squash*
Price £7.95
Micro Spectrum, Commodore
Supplier New Generation Software
The Brooklands
15 Sunnybank
Lyncombe Vale
Bath
Avon
BA2 4NA

BURSTING FORTH

Now the Amstrad can run Forth, the programming language where the fundamental

concept is the word - a bit like the Old Testament really. Forth has two massive virtues - it is very fast and comparatively easy to learn.

The original Forth was a fairly dry affair, concerned with mathematical calculation, lists and the like. Consequently versions of the language for home micros tend to be somewhat customised for each machine. The Amstrad Forth has, obviously, commands for sound and graphics and also uses the tape as a kind of Virtual Memory System.

The program has also been designed to be compatible with all Amstrad Roms and other extensions to Rom, so should work with the new 664 as well. For programming ease, there are such useful things as a cursor screen editor and a stack print-out. The manual is better than usual - with some effort you might be able to learn Forth with it although a separate Forth manual might still be a good idea.

Program Forth
Price £19.95
Micro Amstrad 464
Supplier Kuma Computers
12 Horseshoe Park
Pangbourne
RG8 1JW.

RIGHT TRACKS

Mastertronic's marketing techniques may be as subtle as a *Sun* editorial, but you and I get to do very well out of it.

Aside from the fact that Mastertronic is causing a lot of companies to start similar budget software operations - expect more announcements soon - the quality of the soft-



ware at £1.99 is getting very good.

Loco Motion for the Spectrum is basically a sliding-block puzzle where what you have to do is rearrange railway tracks such that a little engine can travel along over every square on the screen. It's not original but it's beautifully programmed with sprites, sound effects, explosions and lots of smooth movement.

Here's an example of the kind of effort that has been put into the game: you can temporarily halt the train whilst you think how on earth you are going to rearrange the track and a stop watch ticks away the time, a little shutter moving round as the seconds pass by. It looks marvelous and is the kind of detail that is frequently lacking in considerably more expensive games. Buy it.

Program *Loco Motion*
Price £1.99
Micro Spectrum
Supplier Mastertronic
Park Lorne
111 Park Road
NW8

This Week

Operation Whirlwind	S	Commodore	£9.95	Ariolasoft	ZX Bigshot	UI	Spectrum	£5.99	Buttercraft
QL French	Ed	QL	£11.20	Camsoft	Doodle Bug	Arc	Vic20	£1.99	Mastertronic
QL Bank Account	Ut	QL	£8.00	K Goulstone					
Ashkeron	Ad	Spectrum	£5.95	Mirrorsoft					
Funhouse	Ad	Spectrum	£3.99	Pacific					
BC II Grog's Revenge	Arc	Spectrum	£9.95	US Gold					
Loco Motion	Arc	Spectrum	£1.99	Mastertronic					
Type Rope	Ed	Spectrum	£1.99	Mastertronic					
J.B. Squash	S	Spectrum	£7.95	New Generation					

Key: Ad - adventure. S - strategy-simulation
Arc - arcade. Ut - Utility
Ed - education.

ANTI-NUKE

Assassin is the latest in Robico Software's series for machine code text adventures of the BBC. Its previous offering, *Island of Xaan*, was highly regarded among adventure purists for the quality of its location descriptions and deviousness of the puzzles.

Assassin is more of the same: text is compressed to prove a substantial game with 220 locations and extensive, atmospheric descriptions. This is an adventure with a specific task - assassinate General Garantz who is threatening to nuke the world.

Opening locations are very effective - it took me several goes before I managed to avoid being blown up by the tape recorder containing my orders - it self-destructs and you only get one go to issue the right command. Congratulating myself on this lucky escape I was immediately assassinated myself.

There are characters whose help you'll need and a lot of different problems before you make it to the mili-

tary base where the General resides. Good to see there are still a few programs around that can make you envious of BBC owners.

Program *Assassin*

Price £9.95

Micro BBC

Supplier Robico Software
3 Fairland Close
Llantrisant
Mid Glamorgan
CF7 8QH

ONE-OFF

I am sometimes a little wary of commenting upon certain kinds of educational software, because, apart from anything else, the perception of a program by young children will (sometimes) be different from my own.

That said, I really don't think that there can be any justification whatsoever for the whopping £20 price tag Wiley/Jacaranda software have put on *Raft Away River*, other than what they think the schools will pay. A goodish program at, say, £8 becomes a rip-off at that price.

Raft Away River is an educational game where the secret of winning is for two or more players to co-operate and set tasks into the right order. You are on an island and to survive and move around you will need to eat and build a raft - to do these things you must give the computer instructions in the right order, eg, cut tree, carry logs, etc, and since different players have different objects with them they must do different things, eg, one fishes, another cuts the tree, etc.

Instructions are simply a matter of pressing a key from

A to U - the manual says which key does which action. I'm sure the game does teach some logical thought but the programming involved must have been pretty trivial. Essentially it's a program that can only be played once, although the problem may be solved in a number of ways, since once the basic sequences of instructions are found, that's it.

Program *Raft Away River*

Price £19.95

Micro BBC

Supplier John Wiley
Baffing Lane
Chichester
Sussex

SLOW & SUBTLE

Operation Whirlwind is the latest of Ariolasoft's imported American hits to be released. It is a wargame in the classic mould but with all commands (well, most commands) issued through the joystick.

The game is the kind of things experienced wargamers will love - it's all a matter of working out resources, planning movements meticulously, and using devious tactics. There are few concessions to arcade freaks apart from the occasional battle noise, since the computer simply displays a



map and the location of units and other defences.

It's a game of great subtlety where thought is all and it hardly matters how slow you are on the joystick. What does matter is paying close attention to the movement patterns of the computer's forces and checking relative strengths constantly - know when to stop and dig in for a while.

Program *Operation*

Whirlwind

Price £9.95

Micro Commodore 64

Supplier Ariolasoft
Retail outlets

JUMP FOR JOY

Blogger is now available for the C16. In the past I have been fairly unenthusiastic about the game and I still find all (well nearly all) the M.M. derivatives somewhat tedious but then this is the C16 we're talking about.

Blogger on the C16 is actually a remarkable programming achievement - the game looks much like the Commodore 64 original and has 20 screens - that's a lot for little memory.

The game involves moving a little figure around various wacky screens collecting keys, dodging various wacky objects like lightbulbs and trucks. The art is to know when and where to jump. Compared with the general level of C16 software it's extremely good.

Program *Blogger*

Price £6.95

Micro Commodore 16

Supplier Alligata Software
1 Orange Street
Sheffield S1 4DW



This Week

ASK, Applied Systems Knowledge, London House, 68 Upper Richmond Road, London SW15 2RP, 01-874 6046. **Actvision**, 15 Harley House, Marylebone Road, London NW1, 01-486 7588. **Alligata**, 1 Orange Street, Sheffield, S1 4DW, 0742 755796. **Ariolasoft**, Retail. **Buttercraft**, 14 Western Ave, Riddleston, Keighly, Yorks, 0535 661493. **Camsoft**, 25 Newmarket road, Cambridge, CB5 8EG. **Creative Sparks**, Thompson House, 296 Farnborough Rd, Farnborough, hants, 0252 543333. **Durell**, Castle Lodge, Castle Green, Taunton TA1 4AB, 0823 54489. **English**, Box 43, Manchester, M60 3AD, 061-835 1358. **Gilvale**, 10 Sidford Close, Hemel Hempstead, Herts, HP1 2LF, 0442 56968. **K Goulstone**, 45 Burleigh Avenue, Wallington, Surrey, SM6 7JG. **Kuma**, Kuma

Computers, 12 horseshoe Park, Pangbourne, RG8 7JW, 07357 4335. **Mast5ertronic**, Park Lorne, 111 Park Road, London NW8 7JL, 01-402 3316. **Mirrorsoft**, Mirror Group, Holborn Circus, London EC1P 1DQ, 01-353 0246. **New Generation**, Freepost, Bath, BA2 4TD, 0225 316924. **Pacific**, Pacific House, 44 Buttermere Grove, Beechwood, Runcorn Cheshire WA7 2RF, 09285 61954. **Robico**, 3 Fairland Close, Llantrisant, Mid Glamorgan, CF7 8QH, 0443 227354. **US Gold**, US Gold, Unit 10 The parkway Ind Centre, Heneage Street, Birmingham B7 4LY, 021-359 3020. **Ultimate**, Ultimate Play the Game, Ashby de la Zouch, Leicester, LE6 5JV, 0530 411485. **Virgin Games**, 2-4 Vernon Yard, Portobello Road, London W11 2DX, 01-727 8070.



Decline and fall?

All the signs would seem to show that the home-computer boom, if not almost over, is certainly on the decline.

Almost certainly one of the causes of the decline we all hear and read so much about is the fickle 'craze' element. Having sampled micros, people are now going on to the next craze, whatever that is.

But another, possibly more significant element is quality. Whatever happened to quality? The lack of it could prove to be a major contributory factor to the demise of the British home computer industry.

Take Oric. On paper the Oric-1 had a much better specification than the Spectrum, better sound (what hadn't?), an RGB output and Centronics interface built in. The keyboard, although pretty lousy, at least had a slight resemblance to a typewriter keyboard, and was far less confusing for the keyboard novice. The Basic, too, was much better than the Spectrum's toy town version. The early Orics were plagued with video level problems, however, and although these were later fixed, the damage had been done.

Another lack of quality showed in the bug-laden Rom, and rather than offer everyone free (or extremely cheap) Rom up-grades, (a plug-in cartridge would have been perfectly feasible) as I feel they should have done, Oric alienated users by launching the Atmos. This did have a better keyboard, but still drew elliptical 'circles' and lacked what I would call true file handling, only being

able to store and recall arrays.

Another case in point is the Sinclair QL. On paper the idea of a cheap machine with an almost 16-bit processor, 128K of Ram, and very high-resolution graphics is pretty good. But how a large company like Sinclair Research could manufacture and sell a machine with such a terrible design fault as the edges of the picture being outside the edges of the TV Monitor screen is beyond me. The QL may be cheap, but this advantage is off-set by the need to buy a specially modified monitor to 'squash' the picture.

The main disadvantage, though, is the microdrives. The spread of independent disc systems for the QL must be an indicator of opinion. No-one would trust important data to those things - I know I wouldn't.

To cap all this, the QL was launched long before it was really ready, and has already gone through several changes of Rom.

If Atari deliver the goods with their ST, offering a proper keyboard, real discs, 68000 processor and GEM as an operating system, I know which I'd prefer to buy.

The computer market seems set to split into three groups.

Firstly, the business user, people with IBM PC's and Apple Macintoshes.

Secondly, the consumer goods market, people who buy home computers like they buy microwave ovens or video recorders or stereos. A prime example of the consumer goods market machine is the Amstrad CPC 464. Coming complete with a monitor and cassette deck, it is a complete take home, plug it in and use system - the music centre of the computer world, with no plates of spaghetti hanging out the back.

The third market? Where it all began, the true enthusiasts. They started it all way back, and they'll keep it going in the original spirit. The enthusiasts want a versatile, expandable, no-limit machine, and are willing to get down where no software exists and write their own, wield a soldering iron, and get to the heart of their machine.

Antony J. Shepherd

Recurring nightmare

Puzzle No 156

The evaluation of reciprocals in decimal form can have some curious results. Take the following examples: The decimal value of $\frac{1}{3}$ has a single recurring decimal: 0.33333... The decimal value of $\frac{1}{11}$ has two recurring decimals: 0.090909...

Other reciprocals have an even larger number of decimal places which recur in cycles. For example the decimal value of $\frac{1}{97}$ has a cycle of ninety-six such numbers.

Can you determine the 7,6989 digits in the recurring cycle in the reciprocal of 7699? We don't expect you to list all of them - just tell us the eleven digits which are found at the 7000th to 7010th decimal places.

Solution to Puzzle 151

A triangular pyramid of 15 tiers (680 tins) can also be formed into two smaller pyramids of 8 and 14 tiers (120 and 560 tins respectively).

```
10 DIM T(100),P(100)
20 S=0
30 FOR N=1 TO 100
40 S=S+N
50 T(N)=S
60 NEXT N
70 S=0
80 FOR N=1 TO 100
90 S=S+T(N)
100 P(N)=S
110 NEXT N
120 FOR A=1 TO 99
130 FOR B=A+1 TO 99
140 Z=P(A)+P(B)
150 FOR C=B+1 TO 100
160 IF Z=P(C) THEN PRINT P(A);P(B);P(C)
170 NEXT C
180 NEXT B
190 NEXT A
```

A triangular pyramid, or 'tetrahedron', is formed by building successive tiers of 'triangular' numbers: ie $1+3+6+10+\dots$ The triangular numbers are worked out in sequence and placed in the array (T). These are then converted into the corresponding 'pyramidal' numbers in array (P). Once this has been done the array (P) is tested to determine if two different numbers in that array sum to a third such number.

Winner of Puzzle 151

The winner is M A Broomfield of Leicester Row, Coventry, who receives £10.

Rules

The closing date of Puzzle 156 is May 27.

The Hackers



We'll take you beyond the Spectrum.

QUICKSHOT II AUTO RAPID-FIRE JOYSTICK

SPECTRUM INTERFACE



SPECTRUM UPGRADE KIT



TURBO INTERFACE



Four great new add-ons from Ram, Number One in everything for the Spectrum...

TURBO INTERFACE

Outperforms any other Spectrum interface. Supports Kempston, Protek, Interface 2 and ROM cartridge software, with a full expansion bus at the rear. The Turbo works with two standard joysticks, making the most of the Quickshot II's rapid-fire action. Features a unique built-in power safety device. Amazing value at £22.95.

QUICKSHOT II AUTO RAPID-FIRE JOYSTICK

The top games joystick with its sleek trigger fire button and an auto-fire switch for continuous shooting – a snip at only £9.95.

SPECTRUM INTERFACE

This Kempston-compatible interface adds real games power to your Spectrum. Costs just £9.95.

SPECTRUM UPGRADE KIT

Boost your 16K Spectrum to a full 48K, allowing you to run all the latest and greatest software. Only £21.95

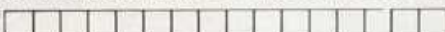
Where can you get your hands on Ram's amazing Spectrum add-ons? You can see them at branches of Boots, Menzies, Greens, Spectrum Group computer centres, and good computer stores everywhere.

Ram Electronics (Fleet) Ltd (Dept PCW), 106 Fleet Road, Fleet, Hampshire GU13 8PA.
Credit Card hot line: 02514 25252. (Access & Visa).

Please send me _____ Spectrum Turbo Interface(s) at £22.95.
_____ Quickshot II Joystick(s) at £9.95.
_____ Spectrum Interface(s) at £9.95.
_____ Spectrum Upgrade Kit(s) at £21.95.
(Please state issue 2 ☐ or 3 ☐)

+£1 per order P+P (£3 Overseas) **TOTAL £**

☐ I enclose cheque/postal order ☐ charge my Access/Visa



Expiry Date ____/____/____

Name _____

Address _____

Postcode _____

Telephone _____

24 Hour despatch for credit cards and postal orders (7 days for cheques.)
All products are fully compatible with the Spectrum, Spectrum +
and Sinclair Microdrives.

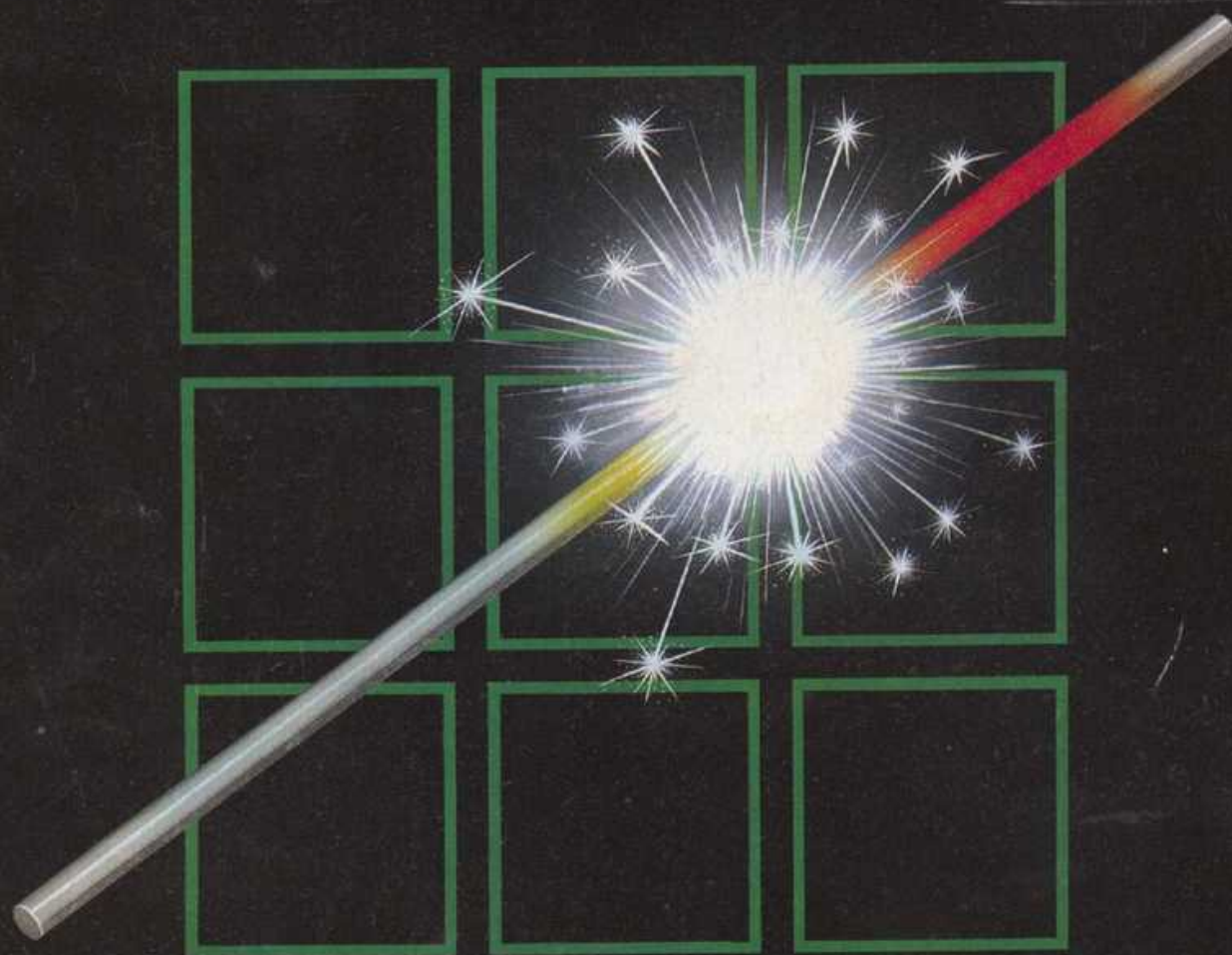
Ram Electronics (Fleet) Ltd
(Dept PCW), 106 Fleet Road,
Fleet, Hampshire GU13 8PA.



Trade and Export enquiries welcome.

INCENTIVE

CONFUZION



THE FUZION OF MIND AND MACHINE

★ AMSTRAD ★ SPECTRUM ★ COMMODORE 64 ★ BBC B ★ ELECTRON ★

Price £6.95 Trade and Credit Card orders: Telephone (0734) 591678

INCENTIVE, 54 London Street, Reading RG1 4SQ