40, fock Rel (5)

August 14-20 1987

Vol 6 No 32 60p

# COMPULAR COMPULAR COMPULAR WEEKLY

## **NEWS DESK**

Atari price cuts: 1040 follows 520STFM

Hewson's budget range – more details

Commodore 64 autumn bundles finalised

## HARDWARE

**Games consoles** 

Sega, Nintendo and Atari lined up for autumn launch

## **FEATURES**

Desktop publishing Learning Lisp Quicksilva takes The Tube



.4

COMMODORE

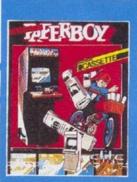
٠.

# WOOLWORTHS ► TOP 30 <

**AUGUST 1987** 









A STATE OF THE PARTY OF THE PAR			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	A COLLE	
POSITION	TITLE	SOFTWARE HOUSE	MACHINE TYPE	PRICE	
1.	Last Ninja	System 3	CBM	9.99	
2.	Barbarian	Palace	Spectrum	9.99	
3.	Enduro Racer	Activision	Spectrum	9.99	
4.	Wonderboy	Activision	Spectrum	9.99	
5.	6 Pack	Elite	Spectrum	9.95	
6.	Barbarian	Palace	CBM	9.99	
7.	Paperboy	Elite	Amstrad	8.95	
8.	6 Pack	Elite	CBM	9.95	
9.	Wonderboy	Activision	CBM	9.99	
10.	World Class Leaderboard	U.S. Gold	CBM	9.99	
11.	Army Moves	Ocean	Spectrum	7.95	
12.	World Games	U.S. Gold	Spectrum	8.99	
13.	Road Runner	U.S. Gold	Spectrum	8.99	
14.	F15 Strike Eagle	Microprose	Spectrum	9.95	
15.	Gauntlet	U.S. Gold	Spectrum	8.99	
16.	Big 4	Durrell	CBM	9.95	
17.	Game Over	Ocean	Spectrum	7.95	
18.	Metro Cross	U.S. Gold	Spectrum	8.99	
19.	Road Runner	U.S. Gold	CBM	9.99	
20.	Leaderboard	U.S. Gold	Spectrum	9.95	
21.	Game Over	Ocean	CBM	8.95	
22.	Living Daylights	Domark	Spectrum	9.95	
23.	Trio	Elite	Spectrum	9.95	
24.	Konami Coin Op	Imagine	Spectrum	9.95	
25.	Living Daylights	Domark	CBM	9.95	
26.	Trio	Elite	CBM	9.95	
27.	Paperboy	Elite	Spectrum	7.95	
28.	Konami's Coin Op's	Imagine	CBM	9.95	
29.	Quartet	Activision	CBM	9.99	
30.	6 Pack	Elite	Amstrad	9.95	









## WOOLWORTHS

A Great Deal in Entertainment



ATARI



At selected larger stores. Mastertronic games at £1.99 and £2.95

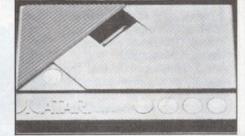
\* Items subject to availability





# August 14–20 CONTENTS

# Computing WEEKLY



#### News

- 6 News Desk Atari follows up the 520SI price cuts with a comparable reduction to the 1040STF... more on that Hewson/Mastertronic deal... Interceptor buys up the Pi-Man
- 13 Chess Board Martin Bryant brings you an account of a game where international grandmaster John van der Wiel lost to the Elite Avant Garde chess machine.
- **31 Communications** Graham Edkins explains how users of non-Commodore micros may soon be able to access Compunet, and how some non-Commodore 64 owners are already enjoying its facilities.
- 32 Soundcheck Mark Jenkins joined the crowds at the recent British Music Fair and reports back on the products on display.

#### Features

- **14 Games Consoles** With Mattel's Nintendo, Atari's XE, and the Sega Master System all trying to attract the games player back to the games console this autumn, we review all three machines, and their relevance to today's market.
- **17 AMX mouse** After what seems like a lot of waiting, the AMX mouse and software is now available for the Commodore 64. Chris Jenkins reviews the mouse and *Stop Press* pagemaking software.
- **18 Desktop publishing** In the second part of our feature on desktop publishing, we look at *Publishing Partner* on the ST, two low-cost PC pagemaker products and the future of the genre on the 8-bit machines.

#### Programming

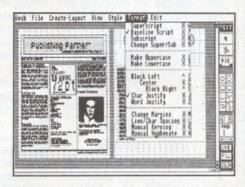
- 21 Learning Lisp Kenn Garroch explains Lisp's functions and recursion features in the second part of his guide to the language.
- **22 Listings** We kick off with the second part of Space Blaster on the Commodore 64, followed by part two of Discmon, the comprehensive selection of disc utilities for the BBC. Plus a sound sampling routine for the Spectrum, and Sharks, a 'Life' style program for the OI
- 28 Bytes and Pieces Short routines for you to type in.
- 29 Peek and Poke Kenn Garroch answers your programming queries.

#### Games

**41 New Releases** Your complete guide to all the games released this week, including the latest versions of *Spy Vs Spy*, on the C16 and BBCs, the *Epyx Epics* compilation and *Survivor* from US Gold. Plus *The Tube* from Quicksilva, in glorious colour.



Top: Atari's XE Games System. Above: AMS's Stop Press and AMX mouse. Below: Publishing Pattner from Softlogik. Bottom: Spy vs Spy, now available for the BBC and C16.





Editor Christina Erskine News editor John Brissenden Features editor Cliff Joseph Technical editor Duncan Evans Production editor Michelle Beauchamp Marketing and Advertisement manager David Osen Advertisement executive Athena Peerman Classified manager Susannah King Classified executive Robert Cole Editorial secretary Annmarie Allan Administration Carol Frith Credit control manager Gabriella Piscina Managing editor Peter Worlock Publishing director Jenny Ireland. Published by Sunshine Publications Ltd. 12–13 Little Newport Street, London WC2H 7PP. Tel 01-437 4343 Telex 296275 Fax 01-439 0681 Typeset by Magazine Typesetters, 6 Parnell Court, East Portway, Andover, Hampshire. Printed by McCorquodale Magazines, Andover, Hampshire. Distributed by S M Distribution, London SW9, Tel 01-274 8611, Telex 261643.

© Sunshine Publications Ltd 1987. ISSN 0265-0509



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. We cannot guarantee to return your programs – so please do not send your only copy. 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.

Popular Computing Weekly. Tel: 01-437 4343.

## **LETTERS**

## Encouraging piracy

read with interest the letter published in *Popular*, July 31, about software piracy and user groups. I feel I must express my views on the subject.

It is fairly obvious that the majority of younger computer users have illegal copies of games. Even the most powerful of tape based software can be easily copied with the use of 'back-up cartridges'.

What amazes me is the fact that these are allowed to be sold, even though each advert for these cartridges has a warning against illegal copying. That is hardly going to stop people using it for an illegal purpose.

One simple press of a button and the program is transferred straight to disc. Copies get passed around, some may be sold and it is easy to get lists of programs several pages long.

Another thing I cannot understand is the fact that on all these back-up cartridges adverts, it clearly states that the back-ups can be accessed independently of the cartridge. Surely this is encouraging piracy not only in small home users but also on a larger scale.

Adrian Soord Yeovil, Somerset

## Cutting their own throats

software piracy, published in the July 31 edition. I totally agree with the programmer's points. I feel the wider ramifications of software piracy should be discussed.

Copying of software is illegal and the law has now been strengthened. Unfortunately nothing can stop little Johnny copying his favourite game to give to his friends.

If they only sat down to think of the damage they are doing to the industry. For every copy they make they are denying the programmer their living. If it continues, it will not be worth the effort to produce new titles. We will then be lumbered with old style games and conversions. They are cutting their own throats, just as video pirates are destroying the movie industry.

I am not saying I am a saint, far from it, while at college I must have copied five major packages. The only difference



"This is our new promotional literature for the ST"

is I was only using them for convenience, the hard disc was unreliable, and I would not be buying them anyway.

Most business software is copied because of its high price. The software houses say it is because they sell so few packages, in some cases this is true, but have they ever thought if the price was lower they would sell more products.

Amstrad with its PC1512 showed the world that business software did not have to be so expensive, for example, Wordstar on an IBM costs around £200, but Wordstar 1512 on the PC1512 costs only £55.

This clearly shows software houses were selling packages for the maximum price they could get. By the way anyone with an IBM wishing to buy Wordstar should note Wordstar 1512 will not work on a IBM, it's been fixed!

The various forms of copy protection around today may make life a little harder for the 'professional copier' but that's all. It is the legitimate user that is penalised. It makes life harder by having to have the master disc in one drive when using a copy. I make copies in case of damage to the master disc; how would the above protection method deal with that?

I think copy protection is awaste of time, since it will not stop the determined copier. Education is required. Computer users should be made aware of what they are doing.

The attitude, especially at college, is to see who can make a copy first, which is good fun as long as the copy is not used illegally. I feel sure once users know the damage they are doing, most will stop. But it is also up to the software houses to

charge a reasonable price for their products.

To conclude, copying software may seem like harmless fun, but it is theft and will in time destroy the industry. The new Bond movie, *The Living Daylights*, was sold on pirate video weeks before it was even released. Hopefully software houses will charge fair prices for products, I know some have to be expensive but not all. Until then I feel copying will never die.

Trevor Monahan Skegness

#### Bringing CAT out of the bag

Thanks for publishing my CAT program for the QL in issue 30. However, the instructions provided with the listing are poor, and make no mention of the second command, DE-VICE which is essential if you wish to use CAT with your discs. Here are clearer instructions.

CAT can be invoked in three ways – 'CAT drive, channel', 'CAT drive', or simply 'CAT'. Where a parameter is not given, the last value given is used. On loading, the values for 'drive' (where the directory is taken from) and 'channel' (the channel where the output is sent to) both default to one.

DEVICE is used to configure CAT to work with various QL devices:

'DEVICE 1' to use CAT with MDVs (microdrives) (default on loading),

'DEVICE 2' to use CAT with FLPs (discs),

'DEVICE 3' to use CAT with FDKs (discs), or 'DEVICE 4' to use CAT with

RAMs (ram discs).

I hope that these instructions

I hope that these instructions will be of use to anyone who is having problems in using my program.

David Stewart Kilwinning, Ayrshire

## Curing the PCW printer

have come across the problem with the Amstrad PCW printer described by Mrs Lomas (Letters, July 17), ie, unwanted underlining and hyphens through the text at least a dozen times.

It has never failed to be cured simply by pushing the flat multiway printer connector more firmly into its socket in the back of the monitor.

It can be a bit stiff, which, I suppose, is why the problem tends to arise.

Tony Johnson Clarity Guides, Devon

#### From graffiti to respectability

am writing to congratulate Paul McKinley on his excellent series of articles on graphics packages.

I have an Amiga and Deluxe Paint and until I had read the graphics features, all I had managed to do with it was scrawl my name on the screen, graffitistyle.

But I was inspired by Paul's series to draw some decent pictures and using his guidelines I have managed to knock up some respectable copies of graphics from Rainbird's Guide of Thieves. Thanks for an excellent and useful feature.

Gary Whitton London E4

## A question of Forth

would be grateful if you could answer the following questions.

Where can I get binders for your magazine?

Where can I obtain a manual for a Brother MR5 printer?

Do you have the address for any British Forth user groups?

K Scott Ringwood, Hants

Binders can be ordered from Popular Computing Weekly (binders), 12-13 Little Newport Street, London WC2H 7PP.

Brother's address and number is Jones and Brother, Shepley Street, Audenshaw, Manchester M21 5JD, 061-330 6531.

Forth user groups: we don't have any information on file here, but there must surely be several out there – please let us know.

## Public Domain from Floppyshop

would like to inform your readers of a new ST use group and public domain library.

We are called Floppyshop ST and have only formed recently. We will be supporting owners of the ST series of computer and hope to increase the numbers of public domain programs in Britain by encouraging members to donate programs.

We charge a mere £5 a year for membership; this includes a subscription to the club magazine Floppyshop News, which is currently published on a bimonthly basis, although we may consider monthly publication if members support us.

The current issue is eight pages of information, reviews and examples of our artwork.

It is available free as part of our introduction pack from Floppyshop ST Public Domain Library, 50 Stewart Crescent, Northfield, Aberdeen AB2 5SR, with an SAE.

> Steve Delaney Aberdeen

#### Microdrives: a viable option

Your advice to Mr Davies about Spectrum microdrives (Letters, July 24) could have been misleading. To rig up a Spectrum with the Disciple or Multiface expansion units and a disc drive will cost from £150-250.

With the Atari 520STFM coming down to £299, this doesn't sound too good. As to being 'supported' by Amstrad, if you've already bought an Amstrad (or Sinclair) computer, then you've parted with your money and Amstrad won't want to know you anyway.

A few weeks ago I bought an Interface 1, Microdrive and a dozen cartridges for about £50. My Spectrum is mainly used for programming, and I was very impressed with the faster loading times. The microdrives are reliable if you handle the cartridges with care.

If you want a mass-storage device for your Spectrum, there are plenty of alternatives.

G Williamson Barrow-in-Furness

#### Amazement over Shauna

Last week, I read your review of the new graphic adventure by Robico, The Hunt – Search for Shauna.

Quite frankly, I was amazed. I run an adventure club for BBC and Electron owners and I have personally solved over 120 adventures, so I feel I can comment with some authority.

Having played the adventure to some considerable length, and not just a quick look around locations, I think it is first class.

Robico sets extremely high standards for its adventures and this one is no exception. The price is about right for this type of game and one must bear in mind the market for BBC and Electron is not as big as other computers.

Also one must remember that with the memory limitations of the BBC it is not possible to compare bigger adventures of other computers with this new release.

The graphics I feel are very good indeed, and bear no resemblance to those produced with GAC.

All in all, I would say it was one of the best releases I have seen for a long time.

I know it is all a matter of opinion, and hope you reproduce my letter if only to give readers another point of view.

Harry Bastien Tilbury, Essex

## Shauna: protest continues

The review of The Hunt – Search For Shauna published in the July 31 issue of Popular was both grossly inaccurate and unfair, and consequently I feel obliged to make the following comments.

The wire frame graphics screen depicted at the head of the review is not a screen shot from *The Hunt* which in fact features superb, atmospheric drawings that appear almost instantaneously on screen. [Our mistake; clarification appeared August 7 issue. Ed]. The 'instant death' location is so near to the start of the game that it is scarcely tiresome to replay once past the few moves which lead to it.

Cliff Joseph suspects wrongly that the game was written with *The Quill* or *GAC*. It was written by lan Muriss using his own graphics/text routines which, in my opinion, far surpass the capabilities of the aforementioned utilities, since neither could achieve such illustrated, detailed game play in an adventure of over 100 locations.

The text from past moves is left on screen deliberately so that the player may see what he/she has done before. Mr Joseph may not like this but at least the location pictures match the locations.

Mr Joseph, however, is correct in stating that *The Hunt* is not in the Infocom league. How can it be when Infocom does not write for the BBC, does not limit themselves to memory-based games, does not at the moment use graphics and text, do not produce cassette games and does not retail its adventures at £12.95 disc (nor, of course, at £9.95 cassette)?

Mike O'Leary Robico, Llantrisant

#### Wanted: Z88 users

am currently trying to start a Z88 Users' Club for owners of the new machine from Cambridge Computers. The club will be a spare-time activity, non-profit making and funded from members' contributions.

If any readers own the machine or have an interest in it, the club newsletter will be a forum for ideas, information and programs. For further details please send a stamped self-addressed envelope to Z88 Owners' Club, 68 Wellington Street, Long Eaton, Nottingham, NG10 4NG.

Roy A Woodward Nottingham

## Oric software for sale

You have recently had letters from Oric owners complaining about the lack of Oric software.

Our company was very active in this field a few years ago and we are currently ready to sell all of our stock of 4000 pieces, which consist of roughly 20 titles in various quantities at a very favourable one off price.

Should any distributor be interested, please contact us at Innelec, 110 Bis Avenue du General Leclerc, 93506 Pantin Cedex, France.

D Thebaud Directeur, Innelec PS: All software is in English.

We're sorry but Popular Computing Weekly cannot guarantee to reply to all letters requesting a personal answer. It helps us enormously if readers are prepared to have general queries answered on these pages, so, if possible, please do not send SAEs.

## King's side attack

n Game Two of our readers' versus *Colossus* chess tournament. The readers, playing white, have continued their king's side attack by bringing the queen to g5.

Colossus has defended by moving its pawn to f6: kicking the white queen.

Incidentally, our apologies for missing out some of the moves in our game guide a fortnight ago – we've filled in the blanks this week!

#### **Kicking back**

What do you think the readers should do next?

Send your suggested move to either Inter-Mediates (*Popular* Chess), Freepost, Sawbridgeworth, Herts CM21 9YA (no stamp needed) or *Popular* Chess, Unit 2, The Maltings, Sawbridgeworth, Herts CM21 0PG (with a stamp).

Only one vote per person please, and all entries must reach either address by Wednesday, August 19.

The move which gets the most votes will be entered into the game. Results and *Colossus's* response will be published in two weeks time.

Next week: we return to Game One, where the readers are playing back.

#### **Game Two**

The moves so fa	ir.
1 Pc2-c4	PC7-c5
2 Ng1-13	Nb8-c6
3 Pd2-d4	Pc5xd4
4 Nf3xd4	Pe7-e5
5 Nd4-b5	Pa7 a6
6 Nb5 d6	Bf8xd6
7 Od1xd6	Od8-I8
8 Qd6-d1	Ng8-e7
9 Nbf-c3	Pd7 d6
10 Bc1-e3	KeB-g8 o-o
11 Bf1-e2	Bc8-d7
12 Ke1-gf o-o	Bf8-C8
13 Od1-d2	Nc6-d4
14 Hal df	Nd4xe2+
15 Nc3-e2	Rc8-c6
16 Be3-g5	Qf6-e6
17 Bg5xe7	Qe6xe7
18 Ne2-c3	Bd7-e6
19 Rft-ef	Qe7-c7
20 Ref-e3	Rf8-c8
21 Re3-d3	Rc8-d8
22 Rd3-g3	Kg8-f8
23 Qd2-g5	Pf7-f6



# Code-**Masters**

CODEMASTERS is moving into the full-price market with a new label, Codemaster Plus.

The Plus division plans to release titles this autumn for the Christmas market, but the company has not yet decided exactly what its 'full-price' should be.

Codemasters has appointed Bruce Everiss - formerly of Imagine, Tansoft, and Oxford Computer Publishing - to be responsible for the Codemasters Plus



**Bruce Everiss** 

"Codemasters is often the first to do something new, and is bringing fresh thought and fresh ideas into the industry," Everiss said last week.

"I've been keeping my eye on the industry, and having got my fingers burnt I am obviously careful about making a move. Codemasters represents exact-

ly what I wanted," he added. Everiss "got his fingers burnt" in a succession of financial disasters which befell some of his former employers and started his own comapny, Abbott Computer Products, after leaving OCP.

"Bruce has a proven ability to innovate in this marketplace. We are looking to use his unsurpassed experience as a vehicle for our continued growth," said Codemasters' managing director Jim Darling.

Codemasters has enjoyed great success so far with its range of budget titles.

# Full price Atari follows up label for with 1040 price cut



£100 less from next

ATARI has announced that it is to cut the price of the 1040STF by £100 from September 1. The machine will then cost £499 inclusive, or £599 inclusive with the monochrome monitor.

The announcement comes only weeks after the company revealed plans for a similar re-

duction on the 520STFM (see Popular Computing Weekly, July 17).

That left some Atari dealers less than pleased about their ability to clear stocks before the price cut comes into effect, also on September 1. However, an Atari spokesman said there should not be any similar problems with the 1040 announcement.

"All price changes downwards tend to help dealers. Most of the trade were anticipating the 520STFM price drop and stocked accordingly," he

## ewson latest

HEWSON and Mastertronic have announced further details of the Hewson Rack-It budget range, which will be distributed by Mastertronic (see Popular Computing Weekly, August 7).

In addition to the eight titles announced last week, the release schedule has now been finalised up to the New Year. Other formats will be available for Mr Wino and International Bowls, while the period leading up to Christmas and shortly afterwards sees the release of Sunburst (C64), Into Africa (Spectrum), I-Xera (C64), Herobotix (C64), Super Cup (C64), Rex Harde (Spectrum) and Powerama (C64).

Conversions will also be re-

leased for other machines, including C16, Atari and MSX.

Hewson's Debbie Sillitoe had already made it clear that the company would be using the potential success of Rack-It to devote resources to 16-bit development, and last week confirmed: "We will certainly have a range of new (16-bit) products by next autumn."

For Mastertronic, Rachel Davies would not rule out the possibility of handling products for other houses in the future, but nevertheless preferred to concentrate attention on the Hewson deal:

"We've got three new labels plus the old established label plus this new label. There's



**Debbie Sillitoe** 

enough for the consumer to cope with before we start talking about tying up X, Y and Z,' she said.

# Electronic Arts name 26 titles available soon

ELECTRONIC Arts has announced a total of 26 titles which it will be releasing during August and September, in advance of the official launch of UK subsidiary Electronic Arts Limited, on September 8.

All the new titles have been previously unavailable in the UK on the formats listed below, although they are available in the US. A number of titles will also be re-released which were previously distributed in the UK by Ariolasoft.

"We are looking to support UK software artists designing high quality software," said Mark Lewis, EOA's director of European publishing.

"We are in discussions with a number of software developers and are happy to talk to those who believe they can offer creativity and quality programming," he added. Full details of the UK subsidiary's plans are expected at next month's official launch.

The 26 titles are as follows: Archon, Arctic Fox (Amstrad, £8.95 tape, £14.95 disc), Bard's Tale (PC, £24.95), Chessmaster 2000 (C64, £14.95 disc, Amiga, Atari ST, PC, £24.95), Music Construction Set (Atari ST, £24.95), Deluxe Paint II (Amiga, £69.95), Marble Madness (PC, £19.95), Earl Weaver Baseball (Amiga, £24.95), Pegasus (C64, £9.95 tape, £14.95 disc), Earth Orbit Station (C64, £14.95 disc), Legacy of the Ancients (C64, £14.95 disc), World Tour Golf (PC, £19.95), Chuck Yeager's Advanced Flight Simulator (PC, £24.95), Starflight (PC, £24.95), Degas Elite (Atari ST, £24.95), Lords of Conquest (C64, £12.95), Adventure Construction Set (PC, £14.95), Grand Slam Bridge (PC, £24.95).

## Police investigate BB

THE Obscene Publications Squad was last week investigating a Surrey-based bulletin board, after it emerged that pornographic material was being transmitted through it, and could be accessed accidentally.

The private mailboxes were inadvertently accessed by a Sunday Times reporter, who alerted the Squad. Police are understood to be concerned that paedophiles may use this and other networks to contact each other.

The board is run by computer systems manager Mike Parker. He was reported to be horrified by the idea that innocent people might be exposed to explicitly pornographic material.

Parker claims to have closed the system down, and was last week voluntarily helping the police track down any illegal users of the mailbox network.

Popular Computing Weekly attempted to question Parker about the affair, but he could not be contacted at home last week

## Martech buys Slaine licence

MARTECH has bought the licence for 2000AD cartoon character Slaine. The company has chosen the title of *Slaine the King* for a game based on the character which Martech hopes to release next month.

Slaine the King is being designed by Creative Reality, a group of programmers which has developed Reflex, a game control method which is de-

signed to make arcade gameplay more similar to an adventure format.

Slaine the King will be available on Spectrum, Amstrad and Commodore formats in late September, and prices will be as follows. Spectrum cassette £7.95, Commodore and Amstrad cassette £8.95 and Commodore disc £12.95.

## SOFTWARE HOTLINES

No sooner has a copy of **Gremlin's** *Mask* game plopped onto my desk, than the company goes and announces its plans for the sequel. *Mask II* will be a four part game in which you once more lead the Mask team into battle to save the world, etc.

Gremlin is getting into the licensing game with a vengeance at the moment. As well as the planned Mask and Death Wish games they've got titles planned to tie-in with footballer Gary Lineker, and the films Basil The Great Mouse Detective, and Master of the Universe (this is the game of the film of the toy, not to be confused with US Gold's Masters of The Universe, which was just the game of the toy).

It's also taking its first steps into the 16-bit market with a new space combat game for the ST. It sounds like it should be filed under *Elite/Starglider*, with filled vector graphics, but will have the advantage of the ST's sound and graphics capabilities.

However, you won't be able to buy it until Gremlin decides what the name of the game is going to be.

The name of **Tony Crowth- er's** next game is *The Centur- ions*. The centurions are an elite fighting force, armed with special mechanical exoskeletons which make them extremely hunky.

Their mission, in the game, is to penetrate a security complex and foil the plans of the evil Doc Terror before he can unleash the dreaded Tyron Dichromate upon the world (TD is a poisonous chemical, not a '50s film star). Centurions is due out on the Spectrum, C64 and Amstrad CPCs any minute now.

I don't remember seeing any Spectrum games from **Bubble Bus** for a while, but it is about to release a new one called *The Fifth Quadrant* guite soon.

It's an arcade adventure set on board an intergalactic spacecraft. The ship has been overrun by an alien race and it's up to you to control four robot crew members and regain control of the ship's systems.

The game has over 200 locations, and as well as zapping all the aliens you also have to crack their language before you can reprogram the ship's computers.

Another arcade adventure that's due soon is *Dizzy* by **Code Masters.** This isn't your average arcade adventure though. It's designed in a humorous cartoon style, with lots of bad egg/bird jokes.

One of your main enemies in the game is a flock of vampire ducks (well, it makes a change from invading aliens), and the aim of the game is to rescue the yolkfolk of Katmandu from the evil wizard Zaks.

Dizzy is written by the Oliver Brothers, who were behind the earlier Grand Prix Simulator and, attempting to follow up that success, Code Masters has got ATV Simulator as well as the Amstrad version of that excellent Imagine shoot 'em up, Transmuter.

Finally, there's a bit of good news for Amiga owners: Master-tronic/Melbourne House has announced a range of titles for the machine to go on sale this autumn. Mastertronic's budget discs (mainly conversions of existing titles) will cost £14.95 whilst the full-price games will be £19.95

Cliff Joseph



## DIARY DATES

#### AUGUST

#### 22 August ZX Microfair

New Horticultural Hall, London

Details: Latest innovations for Sinclair users

Price: £2.00/£1.50 on door, £1.50/£1.00 advance

Organiser: Mike Johnston 01-801 9172

#### SEPTEMBER

#### 23-27 September Personal Computer World Show

Olympia, London Details: Latest hardware. software and peripherals for business and leisure computing

Price: £3, £2 - (parties over 10) Organiser: Montbuild

01-486 1951

#### **OCTOBER**

#### 15-17 October **Desktop Publishing Show** Business Design Centre,

London

Details: Demonstrations of latest hardware and peripherals, plus seminars and user clinics

Organiser: Database Exhibitions, 061-456 8383

#### NOVEMBER

14 November National Einstein Exhibition National Motorcycle Museum, Birmingham

Details: Einstein software etc.

Price: 50p

Organiser: UKEUG (0473)

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. We cannot accept responsibility for any alterations to show arrangements.

## **Boots undecided on C64**

tumn bundling deals last week, it emerged that Boots may be considering dropping the C64.

A Boots spokeswoman confirmed that the company is currently putting the machine through tests. She said: "Testing is under way at our laboratory, and we haven't yet decided whether to continue with the Commodore 64 or not.'

No further details were forthcoming, but it could point to

the New Year, after the Christmas period the Boots bundling deal is aimed at is over. The spokeswoman made it clear that no decision would be made until all tests were completed.

Meanwhile the Boots C64 package goes on sale on October 30, and features a 64c, datacorder, six games and Cheetah 125 Plus joystick for £199.99, compared to the Commodore bundle of 64c, data-



C64 - future in doubt

corder, mouse and software at £249.99. There will also be 10 software vouchers worth £2.

## Mirrorsoft looking for testers

MIRRORSOFT is looking for play testers to evaluate programs scheduled for release towards Christmas.

Volunteers - there will be no

financial rewards - will extensively test out the new products for bugs, and their comments will be noted, and, if feasible. acted on by the company.

A spokesperson for Mirrorsoft said, "Testing plays an important part in game development, but our present group are already overworked with the amount of games we've got, so we're looking for new blood."

Would-be testers should apply in writing to Mirrorsoft Playtesters, Athene House, 66-73 Shoe Lane, London EC4P 4AB.

## **British micro** awards finalists

THE finalists were announced last week for the annual British Microcomputing Awards, which will be presented in conjunction with the PCW show in London on September 23.

The awards cover all aspects of the Industry, and are divided into the following five categories: Business computer of the year, business software, home/small business microcomputer, home/small busiyear. There are also three special awards. The finalists were chosen from 100 initial nominations.

An interesting result is predicted in the home/small business microcomputer category, which will be decided between Amstrad's PC1512, the Commodore Amiga 500 and the RISC-based Acorn Archimedes 300.

The judges will have to decide between the pricing strategy behind the Amstrad, the graphics capabilities of the Amiga, or the speed and technological advancement of the Acorn.

Home and small business software will be judged between Migent UK's Ability integrated business package, Database's Desktop Publisher and Compsoft's Bookworker.

Game of the Year could be Rainbird's Guild of Thieves, Electronic Arts' Marble Madness, or Mirrorsoft's Defender of the Crown.

Final judging will take place later this month, and the results announced at a special presentation dinner at London's Gloucester Hotel on September 23.

the Piman cartoon character, has been bought up by Interceptor Micros, which will be releasing four new Automata titles later this month.

The label is to be re-launched as a mid-price adventure range, and the distinctive Piman character is "more or less being abandoned, except for the small logo on the cassette inlay", according to Interceptor Micros' Albert Night.

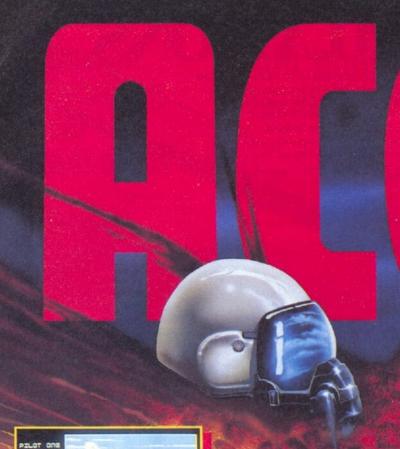
Automata attracted a cult following three years ago with titles such as Pimania and Olympimania, culminating with the ambitious Deus Ex Machina.

The forthcoming titles will cost £3.99, and are due to be released on August 23. Mythyhel on the Amstrad, Asiento and Sword of Kings on the Spectrum, and probably the existing Interceptor adventure, Warlord, on the C64.

## XE bundle finalised

FURTHER to our review of the three impending games consoles this week (see pages 14 and 15), Atari has finalised the software programs to be bundled with its XE Games System.

The XE Games System (formerly known as the 65XE) has Missile Command built-in, and two other programs, Flight Simulator and Bug Hunt, are to be supplied on cartridge with the special XE pack, which will sell for £119.99.





High speed one or two pilot action.

Computer opponent has advanced artificial intelligence at 20 skill levels.

Comprehensive options.

Commodore 64 Disk . . . . £14.95 Commodore 64 Cass. . . . . £9.95 Spectrum 48 Cass..... ....£8.95 Spectrum 128 Cass... .. £9.95 Commodore Plus/4 (64k) . . . £9.95 IBM PC . . . . £19.95 Atari ST. ....£19.95 Atari ST .....£19 (IBM and Atari for Christmas)



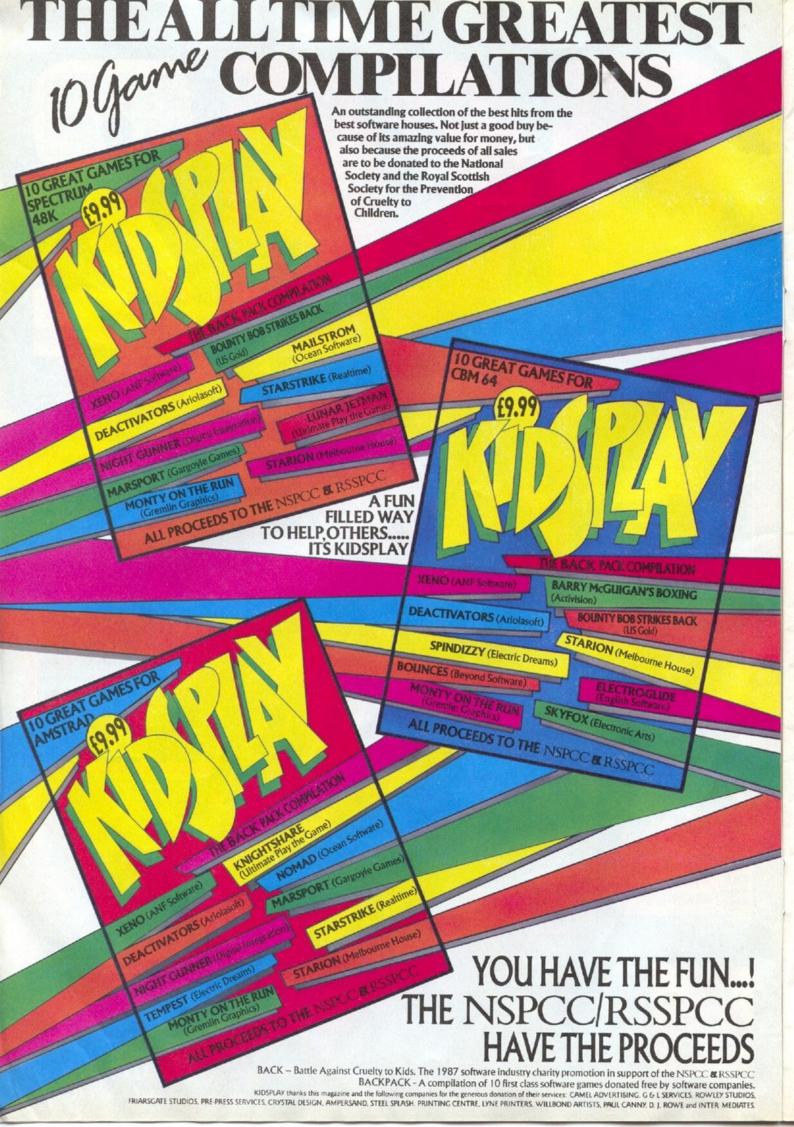


1-3 Haywra Crescent, Harrogate, HG1 5BG, England Tel. 0423 525325 24 hr telphone ordering 0423 504663 Telev: 265871 MONREE G Quoting 72:MAG31320



- Air-air and air-ground combat.
  - Real time, real space
    - Equipped with two aircraft types and a variety of modern missiles.

THE ULTIMATE HEAD TO HEAD CONFLICT



## Cheetah Marketing sold to Cannon St

PERIPHERALS marketing firm Cheetah announced last week that Cannon Street Investments has acquired its parent company, Hi-Tech Holdings, for a maximum figure over three years of £2.7 million.

Hi-Tech co-director Howard Jacobson was anxious to point out that his company was in good financial shape, and that the move was in no way a rescue bid.

"We just made record profits, so it's really an acquisition which will help us increase our business and enter markets like the music business," he said.

Jacobson added that Cannon Street's involvement will be almost entirely financial, with management support available when required. CSI's Dennis Baylin and lan Pratt will be joining the Hi-Tech board.

## Virgin announces 'Bastard' game

VIRGIN maintains its attack on the sophisticated end of the market with the licence to *How* to be a *Complete Bastard*, based on the best-selling book by Adrian Edmondson.

The plot features Ade, "the bastard", gatecrashing a party.

The idea is for Ade to wind other guests up, score "bastard points", and so on.

HTBACB will appear in late

HTBACB will appear in late September; on C64/128 at £8.95, Spectrum 48/128 at £7.95 and Amstrad CPC at £8.95 on cassette.

How to be a Complete Bastard



## W L. L.

NEXT

#### RISC and the Archimedes

The launch of Acorn's RISC machine, the Archimedes, has provoked much discussion about the potential of RISC in computer technology.

Next week, we look at RISC and its implications, with a full review of the Archimedes 300: a machine to bring Acorn back to the forefront of the micro market?

#### **Learning Lisp**

Kenn Garroch continues his guide to the language Lisp, its features and uses. Next week, Kenn will take a further look at recursion and other important elements of the language.

#### Video titling

You can add captions to your video pictures with a Commodore 64 and this package available in the UK through US Gold, Chris Jenkins reports on its versatility and ease of use.

#### Spectrum Magic Button

Mick West presents a 'magic button' kit for use with the Spectrum. Parts for the kit, which will cost you under £7, can be bought from most dealers, apart from the specially encoded Eproms, available only from Mick himself.

Once you've built your Magic Button, you'll be able to examine and alter memory, disassemble programs, back up to Microdrive and save screen pictures.

Please note that this is not a piracy tool. The Eproms, which are essential to the kit, are configured to prevent this type of abuse.

## BMF criticised over business bias

DAVID Fraser, British Microcomputer Federation chairman and Microsoft's UK MD, last week dismissed the games software industry as being "too volatile" to contribute to establishing credibility for the industry through the BMF.

His comments have provoked a strong reaction from several leading figures in the games software industry.

Asked to respond to criticism that the fledgling industry body failed adequately to represent the entertainment sector, he said: "If the BMF is to become stable, it will not be through being a fixing house for people's problems.

"All companies want credibitily to be achieved through people who can put in hard work, and the entertainment end of the market has too few people with a long enough perspective.

"It is too volatile, and within the BMF is often taking out, while not always contributing. I am very conscious of the need to represent the whole industry," Fraser added. But his strident remarks found no favour with those in the games sector who dismissed Fraser's negative attitude as one which the BMF should be trying to combat.

"I'd dispute the fact that we're a scummy bunch of people who can't see beyond tomorrow," said Paula Byrne, general manager of Telecomsoft, which is not a member of the federation.

"I'm looking ahead five years.



Fraser: "volatile"

I have to if Telecomsoft is going to stay successful. In any event, there's all these committees which never achieve anything unless you've got someone working at it full time," she added.

Mastertronic boss Geoff Heath represents the entertainment software sector on the BMF committee. He was puzzled by Fraser's comments.

"He must have amnesia," Heath said. "I've sat on the committee for the past few months, giving what I thought was a reasonable, serious contribution. One thing we are very serious about is this business; I can't quite figure out what he's trying to say."

#### Correction

In last week's New Releases, we referred to *Guild of Thieves* as a Firebird title. It is, of course, originated by Magnetic Scrolls and published by Rainbird.

## FREE SOFTWARE W

As illustrated value £9.99 (or similar subject to availability) will be sent with all completed repairs during

August. Maximum repair prices: Commodore 64 Amstrad 464

BBC'B' £38

Spectrum £38 £18

For a Professional and Efficient Repair Service

#### WHY ARE WE DIFFERENT TO MOST OF OUR COMPETITORS?

- The whole computer is guaranteed for 4 months!
- Every computer is fully soak tested before return!
- All leading makes of computer repaired.
- We don't say 24 hour service and then take 3-4 weeks!

Just pack your computer carefully, if in doubt include power supply. (ii) Include cheque/postal order to MICROSNIPS Ltd.

(ii) Or pay by ACCESS/VISA/SPECTRUM Charge Card/Lombard Tricity Card giving Card No. and Expiry Date

Prices shown are augranteed maximums - subject to no tampering! And include return postage (for Group 4 Courier - Add £8) PHONE 051-630 3013





#### COMMERCIAL AND COMPUTER SERVICES LIMITED 01 549 3028

Amiga Titles	Leaderboard20.00	Colourspace 16.00
Amiga ricios	Leaderboard Tourn 20.00	Cards 16.00
Bureaucracy29.00	LeaderDoard Tourn	Electronic Pool 16.00
Gotf29.00	Mean 18 24.00	Flipside16.00
Hacker20.00	Super Huey 15.00	PROSIDE
Portal24.00	Apshai Trilogy20.00	Goldrunner20.00
Shanghai	World Games20.00	Karate Kid II
Snangnal 20 00	Anco Gemes	Lands Of Havoc
Tass Times	Arico Gerries10.00	Major Motion16.00
Witness 25.00	AL-JOY	Mud Pies16.00
7 Cities Of Gold	Atari ST	Mud Pies 10.00
Archon 2	Hardware ATARI	Pinball Factory 20.00
Adventure Cons. Set 25.00	520 STFM275.00	Super Conductor35.00
MOVERHOLE COLIS. DEL 26.00	520 STFM 1 Colour 605.00	Time Bendits 25.00
Arctic Fex	320 3 FM 1 COIOUT	Trivia Challenge
Marble Madness 25.00	1040 STF475.00	Silent Service20.00
One To One 25.00	1040 STF+Mono 685.00	Crusade in Europe 20.00
Skyfox	Hard Disk (SH204)685.00	F15 Strike Eagle 16.00
The Pawn 20.00	Mono Monitor 135.00	FIB Strike Eagle 10.00
Guild Of Thieves 20.00	N/	Ultima III
Guild Of Thieves20 00	Commodore #	Balance Of Power 25.00
Faery Tale Adventure 39.00	Amiga Hardware AMIGA	Black Cauldron30.00
Borrowed Time	Amiga Hardware William	Kings Quest 2 30.00
Ballyhoo	Amiga 500 499.00	SDI35.00
Cut Throats	Colour Monitor399.00	Strike Force
Deadline	External Drive249.00	Strike Force
Enchanter 24.00	Amiga 2000 1150.00	Hades Nebula 16.00
Enchanter 24.00	runga 2000 1100.00	Mercenary
THHGTG24.00	3.5" Discs	Arkanoid 12.00
Infidel	Single Sided (White) 99p each	Chess
Leather Goddesses 24.00	Double Sided (Blue) 145p each	Football Fortunes 20.00
Mindshadow 20.00	Donces gross fornshimm 14-ob eacu	Golden Path 30.00
AMFV27.00	Atari ST Titles	Arena/Brattacus 30.00
Moon Mist 24.00	Gauntlet20.00	Deep Space30.00
Music Studio29.00	GLF Football	Jewels Of Darkness 20.00
Planetfall 24.00	GLF FOOtball20.00	Guild Of Thieves20.00
Planetiali 24.00	Macadam Bumper 17.00	Guid Of Thieves20.00
Seastalker 24.00	Art Director	The Paven
Sorcerer24.00	Film Director 50.00	Games Compendium 20.00
Spellbreaker24.00	Fleet St. Publisher 100.00	Check Mate 12.00
Starcross	Borrowed Time	Terrestrial Encounter 12.00
Suspect	Basketball	Liberator10.00
Suspended24.00	Bureaucracy	Mousetrep 12.00
Trinity27.00	Hacker 20.00	Plutos
100 24 00	Hacker 2	Timeblast
Witness	Placker Z	Apshal Trilogy20.00
Wishbringer24.00	Little Comp. People 20.00	Alternate Reality
Zork I24.00	Shenghei	Alternate Reality20.00
Zork II	Tass Times	Dungeon RealityPOA
Zork III	Strip Poker 15.00	Championship Wrest 20.00
Silent Service20.00	Tee-up	Phantasie II
Ultime III20.00	Skyfox	Leaderboard20.00
Original III	Bridge Pleyer 2000 15.00	Metrocross20.00
Balance Of Power30.00	ST Karate	Barbarian 20.00
Defender ± Crown35.00	Destruction 20.00	Questprobe15.00
Deja Vu24.00	Protector/Station20.00 Pro Sprite32.00	Roadrunner24.00
Sinbad30.00	Pro Sprite32.00	Hoadrunner 24.00
SDI 24.00	Pro Sound45.00	Roadwar 2000 20.00
Uninvited	War Zone/Fireblaster 20.00	Rogue20.00
Arena/Brattacus	Jewels of Darkness 12.00	Super Huey 15.00
Deep Space	Star Glider 20.00	Super Cycle
Deep Space	Trailblazer20.00	Super Tennis 20.00
Silicon Dreams	Typhoon15.00	Winter Games 20.00
Starglider 20.00	Passengers	World Games 20.00
Hollywood Poker 15.00	Phoenix 17.00	Xevious
Swooper 15.00		
O'TTOOPER THE THE TENTON TO THE	a fine a distanta had blic also a	seed Assess and Man Driven

Please make cheques payable to: Systems Architects Ltd. We also accept Access and Visa. Prices subject to evallability. See Amiga Listing for Prices of ST Indiacom Adventures. Products not listed please phane for prices. All prices include VAT and delivery in the UK.

Callers are welcome at our shop

#### SYSTEMS ARCHITECTS

Systems Architects, Dept. PCW1, Syndicate Dept. Store, Market Place, Kingston Upon Thames, Surrey KT1 4BR. Tel: 01-549 3028 (24-hr ansaphone)

#### SUMMER MADNESS AT THE

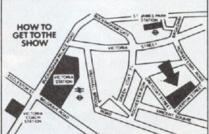


#### SIZZLING SINCLAIR BARGAINS YOU CAN'T AFFORD TO MISS

Come to the 24th ZX Microfair on August 22nd and you'll not only save a fortune, but you will also get to see some of the latest innovations in Sinclair computing. You'll see:

- \* Top manufacturers and the newest hardware developments, possibly even a Plus 3 (we had two at the last show)
- \* Games at knockdown prices (some as little as 50 pence)
- \* User Clubs
- \* Top Magazines
- \* Full QL support and developments
- \* and all the help and advice you could want

MICROFAIR - it's the user-friendly show that has outlasted all the rest because everyone enjoys themselves . . . and you can always find a bargain!



Underground: Nearest stations are Victoria, and St James's Park.

British Rail: Victoria Station.

Bus Routes: 11, 24, 29, 70, 76 and Red Arrow 507.

Road: Signposted (RAC AA) Horticultural Halls.

#### POST TODAY

Send to Mike Johnston (Organiser), Dept CR, ZX Microfairs, 71 Park Lane, London N17 0HG.

Please send me	Advance Tickets
(Adult) @£1.50	
Please send me	Advance Tickets
(Child under 14) @£1.00	
(Prices at the door are £2 50 and £1	50)



Name: Address

Please include a stamped self-addressed envelope and make cheques/POs payable to ZX Microfair Exhibitors: RING JOHN OR MOJRA ON 01-801 9172 FOR STAND AVAILABILITY

# Grandmaster loses to chess machine

Martin Bryant brings you Grand Master John van der Wiel's commentary of his match against the Elite Avant Garde chess machine.

In Rotterdam last year, International Grand Master John van der Wiel played a simultaneous display against 40 opponents. One of them was the Elite Avant Garde Chess Machine. Now, it is not every day that an IGM loses to a chess computer but this was the day, and generous in defeat John provided his own commentary after the game which I present here in his words.

White: John van der Wiel Black: Elite Avant Garde

1 c4 c5 2 Nf3 Nf6 3 g3 b6 4 Bg2 Bb7 5 Nc3 Nc6

The move is not optimal, though not very harmful yet. The Knight diminishes the effectiveness of the Bishop on b7. Black would do well to develop the King's Bishop by playing e6 or g6 and then to castle. **6**.0–0 Nd4?

#### Loss of tempo

Black cannot really afford this loss of tempo. It is not the first time I notice that computer problems arise in English openings rather than in others. Why should this be? Is the type of play less manifest or have its variations been neglected in programming? After 7 Nxd4 Bxg2 8 Kxg2 cxd4 9 Nb5 e5, Black would have little to fear, but White's next move neatly refutes Black's intentions.

7 e3 Nxf3+ 8 Bxf3 Bxf3 9 Qxf3 e5?!

Not very positional, but Black must now watch its steps closely. The normal looking move 9 .....e6 may be followed by 10 Nb5 (threatening Qxa8) d5 11 Qf4!, landing Black in a problem area. The best move would have been 9 .....a6 10 d4.

White fails to cash in. Two fine options exist. A) 10 d4! Black is clearly seen to be behind in development. The worst may be prevented by 10 ...exd4 11 exd4 Be7, but after 12 dxc5 bxc5, Black's d-pawn is retarded; he is also saddled with weak squares on the d-file. B) 10 Nb5! with the almost inevitable sequence 10 ...e4 11 Qf4 d6 12 Nc3 (or even better: b3) Qe7 13 f3 exf3 14 Qxf3 greatly to White's advantage. 10 ...Be7 11 e4 0-0

11 ...h6 seems more logical, because it impedes 12 Bg5, though, in the Knight versus Bishop position, White, in order to

progress at all, will have to allow some liberty to the Black Bishop.

I expected 12 ...Ne8 13 Bxe7 Qxe7, but after 14 Nd5 White also has a pleasant advantage

13 Bxf6 Bxf6 14 Nd5 Bg5 15 Qg4 h6

White now has a thematic position with an overpowering Knight on d5. Ultimately, f2-f4, the key moves could have been more carefully prepared by way of 16 Rae1! and 17 Re2, after which White's advantage could not have been gainsaid. I should have dwelt longer on this issue, but as matters stand, one is less careful in a simultaneous display.

16 f4 exf4 17 gxf4 Bf6

The Bishop is a major nuisance, stopping White from entrenching his rooks on the squares of choice.

18 Rabi Bd4+ 19 Khi Rb8 20 Rf3

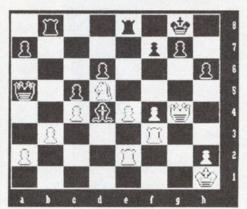
20 b3, followed by 21 Rbe1 and possibly Re2 would have been better at this juncture 20 ...b5 21 b3

White should have been consistent here, which leads into **21** Rg3 as a continuation (threatening **22** e5). His reaction **21** ...f5 **22** Qg6! is mediocre.

21 ...bxc4 22 e5 g6 23 Nf6+ is most jeopardising too. There is a more conservative and solid move: 21 ...Kh8 followed, if required, by Rg8.

Black now has ample scope for counterplay to be implemented with originality.

23 Rel Qa5!? 24 Re2



Van der Wiel vs Elite: position at move 24

24 ...Qa3

A most remarkable positioning of the Black Queen, a long way from home, but related to a tactical threat I overlooked. Had I seen it, I would have responded with 25 Kg2 (more accurate than 25 Rf1, Black responding with 25 ...Rb7 followed by a7-a5-a4; neither at once 25 ...a5, because of 26 Nc7! 27 Nb5); the continuation 25 ...Qcl 26 Rfl is not too useful, but after 25 ...Rb7 26 e5! threatening 27 Nf6+ is overwhelming. In summary, the Black Queen's sortle was unjustified, yet it trapped me nicely! 25 h4? Qcl+ 26 Kh2 Rxe4!

Oops, I overlooked that one. White loses an important pawn. White hopes to acquire an endgame which might be difficult for Black to win.

29 ...Qel!

Good thinking. White might create havoc with his f-pawn, but is greatly hemmed in by the Black Queen.

#### Decisive error

30 f6 Qhl 31 Kg3 Be5+ 32 Kf2 g6 33 Qh3?

The decisive error. White would still have had chances to let the outcome be doubtful by aggressive play. **33** Ne7+ and Nc6 or **33** h5!?, the latter appearing to be the better bet.

33 ...Qb1!

What a position for the Black Queen! White should have moved **34**h5 or **34** Ne7+, but seeks his salvation in a pawn sacrifice which he had computed all too shallowly. **34** a4? Bd4+! **35** Kg3 Rxb3 **36** Rxb3 Qxb3+ **37** Kh2 Be5+ **38** Kg2 Qxc4

Discouraging to say the least. Black would be hard put to it to win the endgame but is well able to nullify any mate threat.

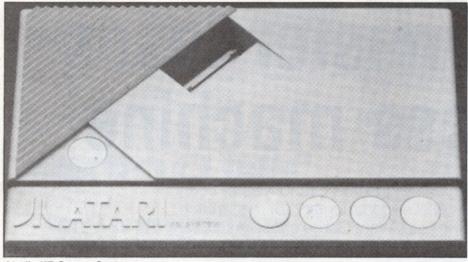
39 Qc8+

What else to try in desperation? 39 ...Kh7 40 Ne7 Qe2+

Lights start flashing now on the board, in preparation as it were for a black celebration! Being a fancier of parties, I decided to make this one last, even if the end was only three moves away.

41 Kgl Bd4+ 42 Khl Qfi+ 43 Kh2 Be5 mate Avant Garde meticulously proceeded to the coupe de grace.

Martin Bryant is the author of Colossus Chess



Atari's XE Games System

nyone who has followed the home computing industry during its short history will probably remember the early video games consoles – units such as the Atari VCS system, Colecovision and Intellivision. They started off simply enough, with games like *Ping-Pong* and *Tennis* and with the support of third party companies like Activision eventually achieved a fair level of sophistication, before dying out when cheap home computers took over.

Now, however, the games console has got a second chance. The new generation is unashamedly dedicated to flashy graphwide by eight inches deep. Two joystick ports are mounted on the front, along with the Ram card socket and the cartridge socket; pause and restart buttons are on top. The instructions are commendably clear and simple, and setting the system up took all of 30 seconds.

At just under £100, the Master System is priced comparably to the other two. The optional extras bump up the price, however. There is a light phaser (a light sensitive 'gun' that operates by being aimed at the screen) and also a set of 3D glasses. These cost £44.95 and £49.95 respectively.

two hand controllers and a Mario Brothers 'Game Pak'.

The Delux Nintendo is an extra £60 and includes the Zapper gun, ROB (the robot) and two games, *Gyromite* and *Duck Hunt* (no *Mario Brothers*). The Zapper gun and ROB are available as optional extras, and cost £19.99 and £44.99 respectively.

The basic system is a squat box constructed of sturdy plastic in two-tone grey and black. It measures a small ten by eight by three and a half inches and has sockets for the power supply, two game controllers, an RF output to a TV, and also video and audio (which aren't normally used). A big minus point is that the game controller sockets are not the Atari standard so you cannot use any joysticks and paddles you may already have.

Around the front of the Nintendo resides the power and reset buttons, along with the socket for the game cartridges.

Setting the basic system up is easy and painless. In a matter of minutes you'll be ready to go (assuming you have a spare plug of course). More confusing is setting up Robby the Robot with its plethora of plastic paraphernalia. The instructions are not in the main manuals, but within the actual Game Paks.

The graphics in the games are only average, although they are quite colourful. The actual screen resolution is 256 by 240 pixels and there are 52 colours available, although you can only have four colours to

# **CONSOLES FIGHT BACK**

Dedicated games consoles are back in force. Duncan Evans and Cliff Joseph assess how the machines have progressed since the days of Ping-Pong.

ics and bringing coin-op quality games into the home. Of those early manufacturers, only Atari is still going strong although in a virtually unrecognisable form, whilst the two new competitors are Nintendo and Sega, which have long and successful records in the coin-op business.

#### The Sega system

Like the Nintendo console, Sega's Master System (marketed in this country by Mastertronic) has the parent company's backlog of successful coin-op titles ready for conversion. This includes games such as Space Harrier and Enduro Racer, as well as third-party titles like Ghost Busters (Activision) and Choplifter (Broderbund).

The system itself consists of the console, two small joysticks, 9V adaptor and the various cables (a nice idea is the inclusion of a 'switcher' device that allows you to keep both the Sega and your TV aerial plugged into the TV so that you can switch between the two as required).

The console is fairly neat, about a foot

and both come with a game cartridge so that you don't have to buy additional software. The vast majority of games will work perfectly without them.

The only thing that you may find necessary is the advanced control stick. The two small pads that are included are a bit fiddly for the sort of firm, fast control arcade games need. They are also very much for right-handed people.

The console is fitted with standard Atari ports, so you may be able to use another type if you've got one but some games are designed so that they need two independent 'fire' buttons so you may find that you need to use Sega's own units.

The quality of graphics that can be achieved is clearly superior to any 8-bit home computer, and go some way towards emulating the arcades.

#### The Nintendo

Mattel's Nintendo is available in two formats. The first will set you back approximately £100 for which you get the control deck, each sprite. Eight sprites per horizontal line is the most that can be displayed.

In the audio department there is a rough sounding speech synthesiser and three channels of music.

The Nintendo has a 32K Rom, with the cartridges weighing in with two extra Rom chips. All of this combines to produce a system which is inferior to the Sega but significantly better than the Atari machine.

However, if the system itself is at least adequate, and the Nintendo assuredly is, then it is the quality of the cartridges that will sell, or not sell, the machine.

Of the 17 available now, with another 10 due out this year, it is really only the sports games which rise above the mediocre level set by the others. The games tend to fall into three main categories: sport, simple shooting games, and platform and ladders (which, if you like, you'll probably be very happy with). The prices range from £19.95 to a hefty £31.50 (the ROB series), athough most are in the low twenties.

Of the accessories Robby the Robot is superficially the most impressive, and in-

## HARDWARE

deed ROB games successfully incorporate the thing into the game play. ROB cannot move around on its own though, and is limited to arm movements in four directions and opening and closing its claws.

The hand controllers are not that good; there are plenty of buttons which are used intelligently by the software, but the actual control is not sufficient for high speed manoeuvring.

The Zapper light gun, though, is something else. At around half the price of the Sega gun, it is durable and most importantly very accurate. If you do buy a Nintendo you simply must get the excellent Zapper and a couple of the simple shooting games.

If you're looking for stunning arcade conversions then the Nintendo is, at the moment, not the console for you, but for families with younger children, the simplistic style of many of the games, and possibly the cheapes robot around, could combine to provide ideal Christmas fare.

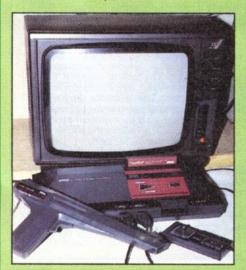
#### The Atari XE Games System

Of the three consoles reviewed in this games machine feature the Atari XE Games System (formerly called the 65SXE) is by far the oldest, being derived from the old Atari 400 and 800 series of computers. These



were first released in 1978, and that is starting to show, especially in the graphics department.

You can buy the XE System either on its own for £79.99 or, for the tidy sum of £119.99, in a special pack which includes two joysticks, a couple of cartridges (titles not yet decided) and a light gun which bears an almost uncanny resemblance to the Nintendo weapon.



Right: the Nintendo system, complete with ROB the robot. Below left: Excitebike and (right) Wild Gunman, cartridge software for the Nintendo. Bottom: The Sega Master System and light phaser gun



The console itself, then, is housed in a smart beige case that measures approximately fifteen by eight by two inches. It sports a power and four options buttons, two standard Atari joystick ports, power socket and a cartridge port set into the top.

As mentioned above, the XE is based on an existing product, the major change



being that it has no keyboard. Inside the machine there are still all the major chips, such as the Rom containing Atari Basic, which you can't use until you attach a keyboard.

One of the more awkward features of the original computer has thus been retained, namely the start up options menu, which is what the buttons are now for.

The technical specifications of the system run like this. The CPU is 6502, there is a 24K Rom, and 64K Ram when you add the keyboard, very good sound capabilities with four channels, and a number of graphics modes. Officially the best modes are 320 by 192 pixels in four colours, 160 by 96 pixels in four colours and 80 by 192 pixels in 16 colours (selectable from 256).

So, for software with a lot of colour the graphics are crude. However, and it is a very big however, for virtually all new software, programmers have tweaked the display to get 16 colours (done by interrupts) out of it while retaining a 160 by 192 resolution. This is respectable but doesn't compare well with the other two systems.

Moving on to the software side, this is where the XE currently has the advantage because although the other systems may have the more impressive hardware, there is a very large software catalogue (the majority of it on tape and disc, mind you) available. With games like *Impossible Misson, Summer* and *Winter Games, Super Huey,* and *Touchdown Football* recently being produced in a cartridge format, and the prices averaging at £9.95 (some of the top quality stuff retails for £14.95), then for sheer variety the XE wins hands down at the moment.

As far as the accessories are concerned, the light gun is not that well supported. Adding the keyboard, though, which comes with a cassette deck for £59.95, will turn the console back into the 64K computer it, at one stage, was. The world of non-games applications would then open up, though this would probably not be the main reason for buying this machine.

Once you have a disc drive or the tape deck, though, the catalogue of available software increases by more than tenfold. The other advantage is that you then have real access to the computer and can write your own programs.

Of course, if you had your aim set on turning the XE back into a computer then you should perhaps consider buying a 130XE or an 800XL (which should be heavily discounted if you can find one) because it undoubtably works out cheaper.

#### Conclusion

So, the question remains, which is the best console system? The answer I'm afraid is not clear cut.

For the games player who wants the widest range of software at the cheapest price to boot, and aspires to programming at some point, then the Atari XE Games System, the cheapest by £20, is the one to go for. As a purchase for families with younger children, the Nintendo, with its top notch light gun and the Robotic Electronic Buddy, and generally simpler software, would prove a worthy purchase.

But for those out and out gaming addicts who want the best hardware and top quality arcade conversions, and don't mind paying handsomely, the Sega system reigns supreme.

### 520 STFM NEW LOW PRICE Only £284 In stock now!

520STFM with 1MEG memory upgrade installed £343.00 SM125 M.monitor 1040 STF £479.00 £ 119.00 MEGA ST 2 £949.00 £1249.00 MEGA ST 4

All ST prices include; mouse etc. PLUS 5 disks full of s'ware including demos, utility, wordpro & game

Philips CM8833 Hi-res colour monitor c/w ST cable (ONLY £269.00 if bought with an ST)

1MEG MEMORY UPGRADE (STFM ONLY) £ (Requires soldering, free fitting if you buy a new ST from us) 59.00

disks

10...... £ 11.95 in 10 cap plastic case £ 13.95 25..... £27.95 in 40 cap plastic case £34.95 Fully guaranteed double sided media.

1640	1640ECD single floppy 1640ECD twin floppy 1640ECD HD 20MEG	£ 889.00 STANDAR £ 989.00 AMSTRAI £ 1299.00 MODELS
NOW!	1640ECD HD 32MEG (1 floppy) 1640ECD HD 32MEG (2 floppy) 1640ECD HD 42MEG (1 floppy)	£ 1329.00 32 & 42

## EVESHAM 32/42 MEG 640K SPECIALS

SD-MM DD-MM	3	579.00	STANDARD AMSTRAD	DD	-CM	3	649.00 759.00
HD20MEG SD 32MEG	345	949.00	EVESHAM	45.070	20MEG 32MEG		1019.00
DD 32MEG	3	949.00	32 & 42 MEG				1119.00
SD 42MEG	5000	1029.00			42MEG		1169.00

All 32 & 42 MEG models are upgraded to 640k (£20.00 extra on standard models). We use top quality MINISCRIBE hard disk units in our conversions (as used by you know who).

AMSTRAD OFFICE...Consists of PC1512 DD/MM, DMP3160 Printer, Wordstar & Supercalc...OUR PRICE ONLY...£729.00 EVESHAM OFFICE...As above but upgraded to 640K and fitted with 32MEG hard card...A USEFUL BUNDLE...£ 1089.00 32MEG HARDCARD...The easy way to upgrade to hard disk just plugs in. Supplied ready configured.....ONLY......£359.00

64C computer only	£ 149.95	Connoisseurs pack	£ 199.95
C128 computer only	£ 199.95	C128 starter pack	£239.95
1541C d.drive	£ 189.95	Music exp. pack	€ 75.00
Excelerator+ CBM co	ompatible		£ 159.95
Excelerator+ as above			£ 179.95

SCOOP

Complete brand new '64 circuit boards. Use for repair, spare or upgrade a VIC-20. Limited qty.

£45.00

A great offer on the fabulous new 500 model. Includes TV modulator, Skylox £ 529.00 Marble Madness & Deluxe Paint.

only

Philips CM8833 hi-res colour monitor, stereo sound, inc cable (ONLY £269.00 if bought with an AMIGA)

#### PRICES INCLUDE **VAT, DELIVERY & CABLE**

We use and recommend Star printers, they offer the best combination of features, print quality, reliability and value for money. Sheet feeders in stock. Star NL-10 New low price (state cartridge type)
Star NX-15 Wide carriage version of NL-10
Star NB24-10 Brilliant 24 pin printer 216cps 72cps NLQ
Star NB24-15 Wide carriage 24 pin £219.00 £319.00 £479.00 €599.00 PANASONIC KXP-1081 Best sub £200.00 model £179.00

Many other models in stock at competitive prices

All prices include VAT/delivery. Next day delivery £5.00 extra.

How to order Send cheque, P.O. or ACCESS/VISA details Evesham Micros
By phone with ACCESS/VISA details

63 BRIDGE STREET EVESHAM WORCS WR11 4SF (0386) 765500 By phone with ACCESS/VISA details
Govt., Educational or PLC orders accepted
Same day despatch whenever possible
Callers we loome, open 5 days 9.30-5.30
All goods subject to availability E.&O.E.
TELEX: 333394 EMICRO
Also at: 1756 Pershore Rd., Cotteridge, Birmingham B30 3BH



### Once Bytten

59 SWANLEY ROAD **ELLING, KENT DA16 1LL** Tel: 01-304 2631

(Callers by appointment only)
Cheques and P.O.s to AMTEN LIMITED please

#### **FACTORY FRESH FLOPPIES -**AT GIVEAWAY PRICE

Yes, we've reduced our Disk prices even further!!! And it's all your fault!! The more you buy the cheaper they get ALL WITH LIFETIME WARRANTY

With labels and hub ringed (51/4in with sleeves)

	10 Boxed in	25 Loose	50 Loose	100 Loose	200 Loose
51/4in SSDD 96tpi	£5.95	£10.95	£18.95	£33.50	€65.00
51/in DSDD 96tpi	£6.95	£12.50	£19.95	£35.50	£69.95
31/sin SSDD 135tpi	£13.50	€29.50	£57.50	£110.20	£209.50
3½in DSDD 135tpi	£14.95	£33.95	£62.50	£120.00	£225.00

#### IMPORTANT ANNOUNCEMENT

We are delighted to announce that we have been appointed sole UK distributor of all GEOS products, by the importers First Analytical Ltd.

We are sure you are already familiar with the features of the GEOS systems (if not check the reviews in CCI). So good it even rated a multiple page review in Personal Computer World, not many 64 programs can boast that. But to encourage those of you who have not yet brought your 64 into a new lease of life look at these Introductory prices to tempt you...

GEOS v 1.3 font Pack 1 Jesk Pack 1 Vriters' Workshop Jeo File Jeo Calc	£39.95 £21.50 £23.50 £32.95 £32.95 £32.95	SPECIAL OFFER GEOS COMPATIBLE CENTRONICS PRINTER CALBE, ONLY
JK Font Disc (Lots of new fonts with £ signs!)	£12.95	£17.50

PLEASE NOTE: All our prices (Disks and software) include VAT and carriage in UK. Export orders welcome, please add 10% to above prices.

#### WANTED

We want to buy your computer, your printer, your disk drive, your modem, your monitor, your software, your spilling shocker, FOR CASI.!!
WE WILL GIVE EVEN MORE IN PART EXCHANGE... Against the latest micros from AMSTRAD, ATARI, COMMODORE et al.
FOR A QUICK QUOTE (or a slow lingering one) ring:

KEITH McGOVERN on 01-407 8447 Mon-Fri 9am-6pm or 01-304 2631 Mon-Sat 8pm-10pm

ORDER LINE 9am to 10pm

#### YORK ELECTRONIC RESEARCH

#### Commodore 64/Plus 4 Products

6502 ASSEMBLER 64/Plus 4\* ...... tape/disk\* £12.99

A sophisticated two-pass symbolic assembler and text editor which supports tape and disk filing. The assembler, the editor, and your source and object code may all be resident in memory simultaneously, facilitating rapid and interactive code development. Recently extended manual with many examples.

#### Z80 EMULATOR/CROSS-ASSEMBLER 64 only ...... disk £12.99

A unique integrated Z80 development package. The emulator compiles Z80 source code into optimised 6502 which runs on the 64 at approximately one sixth the speed of a 2MHz Z80. It supports all but 20 of the 688 Z80 operations, calls to 6502 routines, and interrupts. The cross assembler generates hex or binary Z80 object files. The disk also contains a powerful editor and several example programs.

#### BI-DIRECTIONAL RS232 INTERFACE WITH COMMUNICATIONS SOFTWARE 64 +4\* . . tape/disk\* £29.99

The 64 KERNAL supports RS232 via the user port. This interface provides the necessary voltage conversion for direct connection to RS232 printers, modems and other devices. It is compatible with Easyscript and Superscript. The unit is supplied with 1 metre of cable (add 75p per extra metre\*) terminated in a 25-way male (or female\*) D-connector. The software includes a terminal emulator which supports split baud rates and auto-dial, file transfer utilities, a menu driven port initialisation program, and a transparent printer driver which vectors the KERNAL to redirect device 4 printer output to the RS232 port.

\*Please specify.

Prices are fully inclusive. Overseas orders add £2.50 Allow up to 1 week for delivery Manuals available separately £1.00

#### YORK ELECTRONIC RESEARCH

The Fishergate Centre, 4 Fishergate, York YO1 4AB Telephone: (0904) 610722

## HARDWARE FEATURE

# More Wimps on the C64

Chris Jenkins tries out the long-awaited AMX mouse for the Commodore 64.

any software companies have tried to press eight-bit micros into the desktop publishing field (see special feature in this, and last, week's issue) where really only the more sophisticated machines should be happy to tread.

The main problems with trying to implement dtp on the less sophisticated machines are that the memory, screen resolution and printer output are rarely up to scratch; megabyte memories, high screen resolutions and laser printers are the in thing if you want to make a convincing attempt to by-pass the processes of typesetting, layout and page makeup to produce your own publications.

Having said that, AMS's systems are an excellent attempt to do the business for eight-bit machines, and at last the long-awaited (and extensively advertised) Commodore 64 system has arrived.

The initial package is very comprehensive, containing an excellent three-button mouse and disc-based window/icon/mouse/pointer (WIMP) software for icon design, graphics and page layout. Before I get carried away let me emphasise that the limitations of the 64 and its supported printers mean that even the best 64 desktop publishing package – which this may well be – could not produce "professional" results.

However, it's ideal for producing newsletters, posters, labels, greetings cards, letter heads and so forth – anything where a simple word processor isn't enough.

The screen displays of the software are excellent, with large, clear icons and neat text fonts. The mouse too is well-designed, fitting easily in the hand and featuring a non-slip rubber ball, positive-action buttons and a gratifyingly long cable which plugs into the 64's joystick port.

Stop Press, the desktop publishing package, features a row of icons on the right of the screen, and a selection of options plus a message window across the top. Clicking over an option tag pulls down a further list; the system works in the same way as the Macintosh or Atari ST, though visually Stop Press looks nothing like a Gem program.

What facilities are available for page

design, then? The icons on the right allow you to select various composition and page handling options. The disc drive icon takes you into the storage dialogue, where pages, windows, fonts, and patterns can be saved or loaded to or from device numbers 8, 9, 10 or 11.

The scissors access the image editor, where you can copy, flip, rotate, stretch or zoom windows. In zoom mode you can pixel edit in a  $16 \times 16$  grid.

The Text function allows you to load text

from program or sequential Ascii files, then edit it in various ways; by centring, left or right justification, wordwrap, literal unformatted, and with various margin options.

You can even select Autoflow, by which the graphics act as margins for the text; so you can set text around an elliptical picture, or have it clinging along the edge of a diagonal. Creative stuff.

The Font option allows you to load, edit, or even create entirely new fonts, from  $16 \times 16$  to  $64 \times 64$  pixels, using the familiar grid method. There's also a pattern designer routine along the same lines.

The Graphics editor includes options to

draw using lines, pens, boxes, ellipses, sprays, or a variety or predefined patterns which can be used as "potato-prints", fills or brushes. Note that the graphics facilities have no colour options; since the idea is to produce a printed output, they would be redundant.

A "quick-click" reference box can be pulled up if you want to check the setting for, say, the size of the spray nozzle or the type of shape used, solid, pattern or outline. You can also select Ghosting, which is a form of Invert option.

Printer support is comprehensive, with driver files for parallel, serial and RS-232 devices provided. A total of 32 excellent fonts in a variety of sizes are provided on the data disc, along with a large selection of "clip art".

The Control routine is a Basic extension adding 30 commands for writing Wimp programs. Windows in any colour can be overlapped, icons and text placed on any pixel, screen areas stored and retrieved, and graphics routines such as line drawing implemented in machine language. The last section of the comprehensive spiral-bound manual is devoted to an explanation of the

Wimp command syntax, and suggestions for more advanced machine code programmers.

Graphics from the popular Printshop and Newsroom packages can be converted to Stop Press

format using the Cutout Convertor routine, which will also convert an area of the display from your pages into handy bitesized graphics files.

After some time working with Stop Press I feel I have only scratched the surface, and can understand why it took so long to produce. This is a remarkably intelligent and professional package which, within the limitations of the 64's printer output, will enable you to produce polished publications quickly and easily.

Program AMX Mouse and Stop Press software Micro Commodore 64 Price £69.99 Supplier AMS, 166–170 Wilderspool Causeway, Warrington WA4 6QA. Tel: 0925 413501.

# DTP and the 8-bit micro solutions

aving last week pointed out some of the deficiencies of desktop publishing packages on home micros, this week, we'll look at some more positive points.

At a simple level, the DTP programs we've mentioned in the feature will provide you with the means to take word processing activities a bit further. For example, you may wish to use different type styles (fonts) for your documents, or to mix two different styles, or use, say shaded or patterned backgrounds to improve the look, or emphasise part of your work. While many of the more sophisticated word processing packages these days offer a range of fonts, they don't cater for effects such as shading.

One aspect of word processing which certainly the 8-bit word processors haven't yet conquered is importing graphics, so that they can be integrated into your text, either as illustration or explanatory diagrams. Here, you could well consider a desktop publishing program, not so much for the well-publicised 'newsletter' use, but for word processing versatility.

The sophistication of various DTP products is, of course, going to vary with the computer. The Spectrum's capabilities don't make full-blown DTP an attractive prospect for any software developer, but Tasman Software, publisher of the ac-

claimed Tasword, produces fonts package for use with Tasword, which enhances the original if you want special effects.

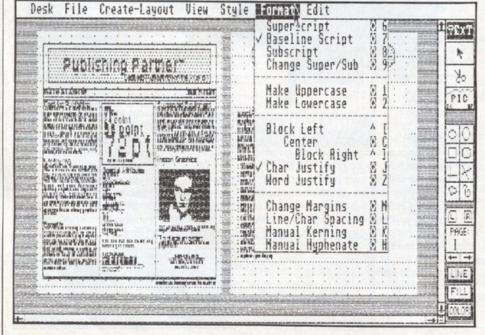
On the Commodore 64 and Amstrad CPCs, Advanced Memory Systems holds sway with its mouse and *Stop Press* (formerly *Pagemaker*) packages. The Commodore 64 version, newly available is reviewed elsewhere in this issue.

However, it is (inevitably) on the 16-bit machines, that you begin to get most idea of the power and versatility of desktop publishing.

SoftLogic's Publishing Partner and Mirrorsoft's Fleet Street Publisher on the Atari ST, with thier laser printer drivers (FSP's are, we understand, now available) can begin to tap the professional markets. With Atari's much-heralded DTP system (Mega ST plus laser printer, but with the choice of software being left up to the buyer) due to be ready this year, there is some competition to provide the best system.

Whether DTP for the smaller micro will take off in the way that companies appear to think it will, judging by the number of new DTP products, is a difficult question. It is perhaps more likely that it will be the word processors with plenty of fonts and an ability to port in graphics from established graphics packages which will suit many people's needs better.

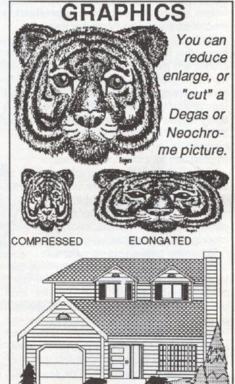
Publishing Partner: an easier way to integrate text and graphics?



# Publishing Partner

publishing Partner for the Atari ST will inevitably be compared to Fleet Street Publisher, which has been available for a few months now and now has the laser printer driver software which turns such packages into a really professional proposition. Publishing Partner has had such software for some time, and comes complete with a disc of clip art, a font editor, monochrome and colour version discs and a thick handbook.

The main difference between *Publishing Partner* and *Fleet Street Publisher* is that the former system has a slightly more powerful word processor, although it's still possible



Typefaces and styles: a selection from Publishing Partner

to prepare your text on another word processor and load it into the system. Publishing Partner also uses a slightly unconventional implementation of Gem – the text cursor is a sort of double bracket which moves around on a matrix of dots, giving you a clear indication of your page layout.

lcons on the right of the screen allow you to enter text or picture edit modes, to crop pictures, to draw shapes such as squares or circles, to select the thickness of lines and even the colour of fills, and to generally shoot about the page and move to other pages. As with Fleet Street Publisher you

continued on page 19 ▶

## SPECIAL FEATURE

can create rulers at the top and sides of the page to help in layout, and can show the page in full or in sections. Of course, the text becomes almost unreadable when you show a full page on the screen. The idea is to satisfy yourself as to details in word processor mode, and work on the general layout later.

Point size and fonts can be changed at will although there isn't such a choice of fonts as in Fleet Street Publisher. However, there is a little more flexibility in inserting,

them down your throat. There are also some (possibly) handy functions, some of which don't exist in Fleet Street Publisher. The editing functions include underline and double underline, invert characters, italicise or backslant, mirror words, strike through (as in - "not £200! Not £100! But £99!") and reverse text, which prints text in white on a black background.

You can also print characters in wide (double the normal size) and use subscript or superscript to raise or lower characters

Overall, Publishing Partner is a pretty attractive package. Apart from a slightly Americanised slant in the handbook it's fairly easy to get into and will offer you all the basic layout abilities which you may need to create handouts, broadsheets, amateur magazines and so on.

You can insert graphics and even digitised pictures stored in file-compatible manner fairly easily, and the word processing capabilities are better than on some com-

peting packages.

However, Publishing Partner is not the most versatile desktop system in the world, and if you already have some experience in printing you may find it under-powered for your needs.

It does work with laser printers however (the forthcoming Mega ST is needed here) and that will be an advantage if your publishing efforts take off and start to make you some money.

Mark Jenkins

Program Publishing Partner Micro Atari

ST Price £159.85 Supplier Silica Shop, 1-4 The Mews, Hatherley Road, Sidcup,

## **Publishing Partner**

editing and deleting text. Text can be 'imported' from any Ascii file while pictures can be imported from Degas or Neochrome. Both text and pictures can be re-sized to fit the available space.

An Apple LaserWriter or a PS800 laser printer will give the best printout quality, although it may be worth your while to wait for Atari's own upcoming laser device. Epson-type printers give perfectly acceptable results though, and overall page layout is completely at your command. You can set top, bottom, left and right margins, number of columns and space between columns, page numbers, picture sizes, box rules, and headlines in any size and degree of emphasis.

The main way in which Publishing Partner differs from Fleet Street Publisher is that it's simpler to use. Fleet Street Publisher makes the mistake of assuming that most of its users are experienced publishers who have lost everything on the stock market and who now have to rely on an Atari ST for their livelihood. This terms such as pica points, kerning and gutters are expected to be common parlance amongst users.

Publishing Partner, on the other hand, deals with these terms where necessary (pointing out that kerning refers to the way in which letters like A and V in "naval" can slightly overlap each other) but doesn't ram

as compared to the baseline. Justification, indents and other paragraph layout functions are, of course, all selectable and there are various search and replace modes normally associated with word processors.

Apparently, due to some delays with the GDOS printer control system, there's a limited number of fonts available for Publishing Partner at the moment. This is one of the system's main disadvantages

Backslant

Italicize

Outline Bold

Reverse Text

#### TYPE STYLES

Bold

Double Underline

Light

Mirror rorriM

Outline

## Shadow

Shadow Bold

Strike Through Underline

Upside Down

or Wide

or you can mix and match any style above, to give over 4000 different combinations, for example:

## **Suppliers** Guide

#### Amstrad CPCs

AMX mouse and Stop Press Price £79.99 Supplier Advanced Memory Systems, 166 Wilderspool Causeway, Warrington WA4 5QA (0925 413501)

Tas-Sign Price £29.95 (6128 disc only) Supplier Tasman Software, Springfield House, Hyde Terrace, Leeds LS2 9LN (0532 438301)

#### **Amstrad PCWs**

The Desktop Publisher Price £29.95 Supplier Database Software, Europa House, Hazel Grove, Stockport (061 456 8383)

## THESE RRE SOME

Of the many Feats

## THL EFFECTS

that are possible with

6006 006 6000

Some are more Useful

Fonts: a Font package can be used when you want something more than conventional matrix output (from Fontasy - see page 20).

Fleet Street Editor Plus Price £69.95 Supplier Mirrorsoft, Athene Huse, 66-73 Shoe Lane, London EC4 (01-377 4900) Newsdesk International Price £49.95 Supplier Electric Studio (0462 834864)

#### **BBC** series

Fleet Street Editor Price £49.00 Supplier Mirrorsoft, address as above

AMX mouse and Stop Press Price £79.99 Supplier AMS, address as above

#### Commodore 64

AMX mouse and Stop Press Price £69.99 Supplier AMS, address as above

#### Atari ST

Publishing Partner Price £159.95 Supplier Silica Shop, 1-3 The Mews, Watherley Road, Sidcup, Kent (01-3038 1111).

Supplier Mirrorsoft, address as above.

## SPECIAL FEATURE

ontasy and Newsmaster are two budget PC pagemakers that could not be more different in the way they work. The contrasting approaches taken have led to enormous differences in the ease of use and the quality of output. Both programs come with Colour Graphics Adaptor (CGA), Enhanced Graphics Adaptor (EGA), and monochrome graphics options.

Newsmaster is a menu and icon-driven pagemaker that is a dream to use – you can learn to drive it in ten minutes thanks to its logical design. The screen display is superb – very fast, icon-driven but not excessively so, with a clear display.

The page layout choices are fairly primitive. Almost any number of columns can be used, but they are all automatically set to the same size. There can be one headline which crosses all of the columns, again of a pre-set size, though graphics can override any of the current column settings. Text can be left, right, fully-justified, or centred. Fonts are selected from a menu or 'picked up' from the style under the cursor. Different types and point sizes can be mixed freely throughout the text and text can be imported from an Ascii file.

sults, as long as your typographical requirements aren't too great.

#### **Fontasy**

Fontasy uses a one-to-one system whereby each screen dot represents one dot on the page. This means that the 'size' of the screen page changes with the output device, eg, if you want to use a laser printer with a 640K PC you are limited to working on a fraction of the page. If you use a standard Epson you can work on the equivalent of a full A4 page.

To compensate, there are various tricks that allow you to magnify the printed image, either horizontally or vertically, or both, with a variety of software tricks employed to stop any reduction in quality. A variety of compensation factors are necessary depending on the pixel shape of the graphics adaptor used, and the size of dots on the printer. Full page images are therefore possible, but there is a lot more work involved – and it's memory expensive.

In common with most pagemakers, once text is committed to the screen it is 'forgotten' and subsequently indistinguishable



#### Effects created by Newsmaster

and line and free hand drawing.

Fontasy can read a command file from disc to take the place of instructions taken from the keyboard. This has many uses

# PC pagemaking

Editing the text is amazingly easy, just position the cursor and delete left or right or insert. It is possible to select areas of text for cutting and pasting or to change the font at a stroke. You can work on the page in a variety of sizes on screen. The normal one shows everything at its final printed size; this and the full page view are most useful.

Clip art is selected from a menu. The

from any other graphics, borders, etc. There is no automatic insert mode, and only the last printed character can be deleted easily – or a whole word at a time using a software trick that looks for a likely gap between the words. Unlike Newsmaster any graphics or other text that overlap the current cursor line are also deleted.

Once you have moved off a line you

ranging from creating rolling demonstrations, slide shows and so one, to producing templates of documents that load in text.

The output on a 24-pin printer is superb. Not only does it exploit the full printer resolution, it also has lots of features such as proportional spacing and kerning.

The optional upgrade, Fontasy Publisher (£39), adds a menu-driven control system and some extra features to your existing program. If you can afford it the extra help this gives is well worth while. Once this is installed you can add the EMS option (£49) which has the ability to support extended memory boards, such as the JRAM board. This is very useful for full pages of laser print, and can store several pages of normal resolution. It also adds the ability to use very large fonts which make it more versatile on the laser and 24-pin machines.

The basic Fontasy discs come with roughly the same number of fonts but fewer graphics than Newsmaster. There is an incredible range of optional fonts and artwork discs available, but at £25 a disc these can add an awful lot to the price of the package, and my own feeling is that they would sell much better at £10. A Font designer/editor utility is available at £25.

Tony Kendle

**Program** Fontasy **Micro** Any PC Compatible **Price** From £70 **Supplier** CTRL-ALT-DELI, Milton Keynes.

Program Newsmaster Micro Any PC Compatible Price £59 Supplier Polyrom Ltd, Poole.



#### Fontasy: a selection of available faces

supplied pictures are superb but none of the images are very large. They can be stretched but inevitably become more blocky as this is done. There are about 30 fonts and a hundred or so graphics.

The quality of print is also just reasonable, though it is very good for an ordinary Epson. Unfortunately it does not get any better if you use a 24-pin or a laser printer – even though these use smaller dots they are clumped together to give a facsimile of the ordinary 9-pin dot matrix resolution.

On paper the specifications of Newsmaster may look fairly basic, but I can't stress enough how enjoyable it is to use, and how quickly you can produce high-quality recannot easily go back to insert or delete. Having changed fonts getting back to the original position is also awkward. To make this possible there is a very good 'floating character' option that lets you position the start of the text with pixel accuracy. Things aren't all bad – it is perfectly possible to centre existing lines, or to justify them between chosen margins.

The strengths of Fontasy are, however, impressive. To start with, the graphics options are much more versatile than Newsmaster's. You can import screens created with other programs or 'grabbed' by a digitiser, and you have a selection of basic drawing tools such as patterned fills, circle

Desktop Publishing is a method by which documents can be produced using a computer, software and a printer. These occuments are near professional appearance and cost only a fraction of the price which you might otherwise pay to a designer, artwork studio and printer. Because the 'middle men' are eliminated from the production process, desktop publishing allows the user to retain total control over his or her documents, making last minute updates without panic and without incurring extra charges for 'rush' work.

As we all make use of the printed word in one way or another in our daily lives, the applications for Desktop Publishing are all around us. If you belong to a club or society or if you run your own business, the possibilities are endless! Our list of example applications will give you some other ideas.

Brochures Business Contracts Charts & Tables Club Certificates Club Newsletters Dance Tickets

Distribution Leaflets
Fayre Programmes
Invitation Cards
Invoices
Labels
Menus
Office Forms
Order Forms

O/head Transparencies Personal Cards Personal Letterheads Presentations Price Lists Special Offer Leaflets Technical Sheets Work Estimates

PUBLISHING PARTNER
Publishing Partner, from SoftLogik Corp\*\*, includes all of the features which you would expect in a good Desktop Publishing package. It combines word processing, page layout and graphics facilities all in one program, allowing you to create 'stunning' documents on your Atari ST. First you can do a rough page design and start adding blocks of copy. See how it flots. See how it flows onto the next page. Make some changes. Try a different type style, or a different size, or some borders, some different type style, or a different size, or some borders, some shapes, or even some pictures. Because Publishing Partner incorporates WYSIWYG (What You See Is What You Get), you'll see instantly if your new idea works or not. The computer's screen will show you just how the page will look when it prints - no more guesswork. You can adjust fonts, character sizes and even character. spacing, anytime and anywhere on the page. Watch an ordinary letter transform into a professional looking piece right before your eyes, as you experiment with mixing graphics and text. And, when you want to see a 'hard copy' of your masterpiece, just send it to any one of the printers which the program supports (the list is crowing all the time).



SoftLogik Corp™ was set up in the USA by Shawn Fogle and Deron Kazmaier to produce quality desktop publishing software with uncompromising power and features. Publishing Partner was developed after 1½ years of research, working with typesetters and printers and the results achieved are outstanding.

SIMPLE, POWERFUL, AFFORDABLE Printing and publishing is a fairly complex business which takes years of training and experience to master. You wouldn't takes years of training and experience to master. You wouldn't think so with Publishing Partner, which takes full advantage of the ST's user friendly GEM environment. It is so user friendly and easy to understand, most people find they can produce their first document without even opening the fully comprehensive 159 page manual which accompanies the program. Using the mouse to manipulate the self explanatory pull down menus and windows, you can be up and running in no time, creating a variety of documents quickly and easily. In addition, the flexibility of Publishing Partner allows you to choose between mouse or keyboard operation, whichever suits your personal preference. Although simple to use, Publishing Partner is by no means a simple program. Ouite the Publishing Partner is by no means a simple program. Quite the contrary. Behind the user friendliness of GEM, lies a most complex and powerful publishing tool. The combination of Publishing Part-ner and Atari's powerful low-cost ST computers has brought an affordable alternative to the desktop publishing systems currently available from Atari's competitors.

THOUSANDS OF TYPE STYLES
This is no exaggeration. Unlike most other desktop publishing software packages, which offer you 2 or 3 different fonts, Publishing Partner gives you true flexibility of over 4,000 type styles per font. Publishing Partner offers you 14 variations of each font:

BACKSLANT BOLD DOUBLE U/L **ITALICS** LIGHT

MIRROR OUTLINE REVERSED SHADOW

STRIKE THROUGH TALL UNDERLINE **UPSIDE DOWN** WIDE

And you can 'mix and match' any number and combination of styles to your own requirements. The total number of possible permutations is over 4,000. And that's not all, each style can be used in any one of 216 sizes in one point increments from 1 point to 216 points! All this is achievable on an unexpanded 520ST with just 512K RAM! Other competing packages require 1024K RAM just to get the larger sizes above 72 point and still cast's match all of the varieties. sizes above 72 point and still can't match all of the variations available

Publishing Partner is a trade mark of SoftLogik Corp\*

Publishing Partner contains the power and fea-tures that you would expect to find on a dedicated tures that you would expect to find on a dedicated word processing package. In addition it includes facilities which a professional typesetting machine would offer. For example the program can cope with 216 different type sizes, with over 4,000 style variations of each one. The following are some of the facilities you will find within the capabilities of Publishing Partner:

Adjust margins for any column Change block to uppercase or lowercase

Change block to uppercase or lowers Change margin indents Character spacing from -128 to +127 Copy text to and from the buffer GEM based

Import and export files Insert and delete pages

Justifies right/left/centred as you type Justifies to the character/word

Kerning from -128 to +127 Line spacing/leading in ½ points from -64 to +57

Link columns together

Macros
Manual Hyphenation
Merge files together
Optional grid & ruler display
Over 4,000 type style variations of each font

Page numbering Pica, Inches or Centimetre measuring system

Print to paper vertically or horizontally Read & merge any ASCII file

Search and replace Tabs for charts/tables

Unlimited headers & footers User definable page size

User variable superscript/subscript characters

PAGE LAYOUT
Whatever you require, custom logos, unique borders, unusual letterheads etc. Publishing Partner is your solution. After all, it was specially designed by professionals who realize that there's more to your

computer than just typing letters.
\* Accurate to 3 decimal places

Adjust character size from 1 to 216 points
Auto text flow between columns
Change columns on finished page
Display 15%-1500% of original size

Display actual size

Display multiple pages/rulers/text routing Layout multiple columns

Print to disk

Set auto text routing

Snap to guides

\* Superimpose text on tint or tint on text

ow easy it is to use. However, the recipients of your finished work ill only be able to gauge the package by the end results of your ork. The true test of any Deaktop Publishing partner excels. With organization of the produces and it is here that Publishing Partner excels. With syraphics capabilities and the thousands of type styles it produces, ere is no end to the design possibilities which you can create. And, ith drivers for a variety of printers, including Postscript at no extra harge, you can be sure that you will be able to output in the quality our work deserves. The output quality is truly remarkable. But draw hards a course of the produce of the p

Not only can you load any Degas, N-Vision, Neochrome or digitized pictures into your Publishing Partner files, you can also enlarge or reduce them for an exact fit. Or, you can copy just a section of a picture and then paste it into your document as many times as you want. You can still go back and resize it at any time or crop it to delete unwanted areas.

\*3 types of line ends, square/rounded/pointed \*7 types of line which are all editable.

\*7 weight lines ranging from ½pt to 6pt \*40 fill patterns each with a border option making a total of 80 fill options

Ability to produce separations for 2 colours Copy graphics to and from clipboard

Copy graphics to and from clipboard

"Cut, paste, copy or crop graphics

"Import graphics from third party graphic programs
such as Degas, Neochrome, N-Vision or any art program that produces compatible ASCII files

Select colours to use and print with Toolbox features include: Circles, ellipses, boxes, rounded corner boxes, horizontal/vertical lines, diagonal lines, polygons and free hand drawing

**OUTSTANDING OUTPUT**Publishing Partner is a unique program with a large variety of printer drivers for both laser and dot matrix printers. Dot matrix is supported in both 80 column and 132 column mode, so you could even produce a tabloid width newspaper (11½" wide) on a wide body printer. Drivers are also available for the new technology 24 pin dot matrix printers which can give a fine resolution of 360×360 compared with laser printers at 300×300. The current drivers (included FREE with the program) are as follows with new ones being written on a weekly basis:

9 PIN DOT MATRIX (Various Res)

Atari SMM804 Blue Chip M120/10 Cal Abco Legend 880 C Itoh Prowriter

Mannesman Spirit-8
 NEC 8023
 Panasonic KXP
 Star Gemini & SG

9 PIN DOT MATRIX

(240×216 Res)

Epson RX/FX/EX

\* Mannesman Tally MT \* Star NX/SD

**18 PIN DOT MATRIX** 

(240×288 Res)

24 PIN DOT MATRIX (360×180 Res)

(360×360 Res)

24 PIN DOT MATRIX

· NEC XL new s LASER PRINTERS

(300×300 Res)

Centronics PP-8 in Epson or H.P. Laserjet mode 15Mb RAM Any other H.P. Laserjet compatible with 15Mb RAM OMS PS800 or Apple LaserWriter - Postscript Any other Postscript compatible printer

OFFICIAL UK VERSION
The official UK version of Publishing Partner has a pound
(£) sign as a standard part of its character set. Other
versions have also been imported unofficially from the USA
and have a dollar (\$) sign instead of a £ sign. These versions
will not be supported by the UK distributors or their dealers.
The UK version also contains clip art, different fonts and a
full range of printer drivers. Ensure that you buy the official UK
version, not an unofficial import with incorrect characters.

(+VAT=£159.85)

Publishing Partner is available from Atari ST Dealers throu UK. If your local dealer does not have Publishing Partner

SILICA SHOP Ltd, 1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX Tel: 01-309 1111

To: Silica Shop Ltd, PCWK 1408, 1–4 The Mews, Hatherley Road, Sidcup, Kent DA14 4DX

Please send me further details on: DESKTOP PUBLISHING

Mr/Mrs/Ms: Initials:

Address:

Postcode:

am interested in the Atari ST I already own an Atari ST

PCW 0787

## PROGRAMMING: FEATURE

ast week, I discussed the fact the Lisp deals with lists of information, and that the lists can be split up with the car (head of list) and cdr (rest of list) commands.

Since Lisp is a programming language, it needs some method of writing programs. This is where the defun or de function comes in. What the function is called depends upon your version of Lisp. However, the two most common versions are DE and DEFUN [I'll use de since it is shorter; by the way, the case – upper/lower – does not usually matter].

de is used for defining functions, and comes in number of different forms, the main type is EXPR. This has the form:

(de finname (arg 1 arg 2 argn) (Some other functions to be executed)

Here the arguments are in brackets and as such are evaluated on entry to the function. There can be any number of arguments. For example the function:

(de prnt (arg) (print arg))

This simply prints the argument, ie, (prnt 'a) prints the letter a. Note that the a was preceded by quote [could also be written (prnt (quote a))].

This defines a function called *test* with an argument *torf*. Entering *(test t)* will give the result true, and print true, ie, in the first set of brackets after the *cond*, torf evaluates to true so the next set is evaluated, printing true. On the other hand *(test nil)* gives and prints false. Here the null function is used to invert the status of *torf* making it true. Note that the first set of brackets is *(torf (print 'true))*.

#### True or false

The torf is not bracketed because it need not be evaluated. It is defined in the argument to be true. The double brackets in the second cond argument ((null torf) (print 'false)) cause null torf to be worked out, giving the result true if torf is false, and false is torf is true. Try (test), ie, with no arguments: it gives false.

This is because if an argument is not given it is automatically set to be false or nil [empty]. Another thing to try is to enter torf. You will get the error that it is undefined. This is because it is local to the function, since it is an argument. What is more, it is local to that particular level of the function. If the function called itself, for example:

(de silly (arg) (silly (difference arg 1))) empty, ie, whether (null ()) - () is an empty list and therefore nil - gives true. If this is so, then nil is returned nil and the cond is ended.

Since on the first entry, the list is (a b c), it is not empty and so the next cond argument is checked. This starts with t or true so the following brackets must be evaluated.

These say (recur (cdr lst)) which means call recur again but this time take the first item out of the list and just pass the rest as the argument. At this point, the function recur is started again but with the new argument (b c), so the first print prints this. The same thing happens as before, since the list is still not empty, and continues until it is.

#### End of function

Now, the first cond argument comes into play, and nil is evaluated, ie, nothing is done, and the cond ends. This time, the second print in the routine is used to print nil, since that was the argument. The function then comes to an end. However, it was called from within the recur function and the flow reverts back to the calling function. The next thing to do is, therefore, to execute the second print and this time the argument is (c) since lst is local, its cdr

# FUNCTIONS IN LISP

Kenn Garroch continues his guide to the language Lisp with an explanation of functions and recursion.

A function, in its simplest form, consists of a series of other functions strung together, so

(de prnt (arg) (print arg) (print arg) (print arg))

will print the argument three times. Obviously this is not a very good method. The slickest method is known as recursion but loops are also possible.

Before looking at recursion, I'll describe the main decision function – cond. This takes a number of arguments, each of which consists of a list. The first item in the list [which can itself be a list as long as it gives true or nil] is evaluated, and if it is true, the rest of the items in the list are evaluated one by one. If the first item is false [nil in Lisp is the same thing] then cond goes on to look at the list. Once it has found a true [usually denoted by the letter t] and evaluated the cdr of the list [the rest of it], the cond comes to an end. It is similar to IF... THEN constructions in Basic.

For example: (de test (torf) (cond (torf (print 'true)) ((null torf) (print 'false)))) Say, (silly 10) were entered, first time through, this gives silly 9 since difference subtracts one from arg, then silly 8 and so on. Don't try this since it will probably hang up the computer.

This idea of local variables is important to recursion. The function

(de recur (lst) (print lst) (cond (null lst) nil) (t (recur (cdr lst)))) (print lst)

demonstrates the recursive process. Enter it with a list such as (recur (a b c)). This gives the result

(a b c) (b c) (c) nil (c) (b c)

and returns the value (a b c).

What is happening is that first of all, (a b c) is represented as *lst*, the argument. The first *print* prints this out. Then *cond* is used to check, first of all, whether the list is

(nil) was passed to the recur that has just been returned from.

The process continues until all of the recur's unwind themselves and the top level is reached giving the original arguments as the end result, (a b c).

#### Sophisticated

This may sound very complicated; however, changing the definition of recur to

(de recur (lst)
 (print 'in)
 (print lst)
 (cond (null lst) nil)
 (t (recur (cdr lst))))
 (print 'out)
 (print lst))

may make it a little clearer since it is possible to see which prints are being used, and hence where the program flow is.

Recursion is a sophisticated programming method and it takes a little practice to get used to it. However, once you do, you will be surprised how clever it is.

Next week, we'll have further examples of recursion, plus a look at more of Lisp's features.



## ZONEFOUR LTD All disks now sent 1st class or courier



MIMIC IN FREE LIBRARY CASES			
DS 96 TPI	10s	£7.60	
FLIPSIDED	10s	£7.15	
DS 48 TPI	10s	£6.80	
UNIVERSAL	10s	£7.95	

AMSOFT CF2 3"	10s	£20.00
MAXELL CF2 3"	10s	£20.00
3" MIMIC CF2DD	10s	£26.40

MIMIC 3.5"				
SS	10s in Library Case	£13.55		
DS	10s in Library Case	£15.95		

ACCESSORIES INC VAT			
IBM/Amstrad PC1512 Printer Cable GPR10125 × cent.	£7.15		
Disk Notcher/doublers	£3.60		
Disk cleaners 3.5"	£3.95		
5.25" cleaner	£3.60		
Mini Vac for printers and keyboards	£5.55		

5.25" BULK UNBRANDED DISKS (LIFETIME GUARANTEE)				
FULLY CERTIFIED	SS 48 TPI	SS 96 TPI	DS 48 TPI	DS 96 TPI
Try 10 and see	£4.75	£5.55	£5.55	£6.35
. 25	£9.60	£10.40	£10.40	£11.20
50	£18.40	£19.20	£19.20	£20.80
100	£33.60	£35.20	£35.20	£36.80
250	£76.00	£77.60	£77.60	£80.00
500	£144.00	£148.00	£148.00	£152.00

5.25" BULK COLOUR UNBRANDED					
FULLY CERTIFIED	SS 48 TPI	SS 96 TPI	DS 48 TPI	DS 96 TP	
10*	£7.15	£7.95	£7.95	£8.75	
25	£17.60	£19.20	£19.20	£20.80	
50	£32.00	£36.00	£36.00	£38.40	
100	£60.00	£64.00	£64.00	£72.00	
250	£140.00	£152.00	£152.00	£160.00	
500	£272.00	£208.00	£208.00	£300.00	

#### RED, GREEN, BLUE, YELLOW, WHITE

10 in single colour OR 2 of each please state in large quantities your choice. (If stocks are available) \* in library cases

3.5	BULK UNBRANDED DISKS	135 TRILIFETIME GUARANTEE
	SS	DS
10	£11.95	£13.55
25	£28.00	£32.00
50	£52.00	£64.00
100	£96.00	£120.00
250	£220.00	£280.00
500	£400.00	£520.00

# MIMIC HIGH DENSITY COBALT COATED 1.6 MEG SUITABLE FOR A.T.S. 10 50 100 £14.40 £64.00 £120.00 Verbatim preformatted for use with Kodak 6.6 meg drive or equivalent (5 Pack)

VERBATIM IBM AND COMPATIBLE ADD ONS	
6.6 Megabyte Internal Drive	£699.00
Databank 30 Megabyte	£699.00
C.P.U. Card DATI	£499.00

DISK BOXES INCLUDING VAT				
5.25"	50 capac	ity £6.95	100 capacity £9.35	
3.5"	40 capac	ity £6.80	80 capacity £9.55	
3"/3.5"	80/90 capac	ity £9.55		
10 × 3.5" or 5	.25" (library case)	£1.20		

SOFTWARE

We sell the full range of SAGE POPULAR SOFTWARE

£475.00
£140.00
£24.95

## ABC All in One Business Package £150.00

ALL 5.25" DISKS HAVE REINFORCED HUB RINGS, SLEEVES, LABELS AND WRITE PROTECTS.
ALL DISKS CARRY A LIFETIME GUARANTEE.
ALL DISK PRICES INCLUDE VAT AND P/P.
TO ORDER PLEASE CALL DIRECT DISK LINE: 10AM 6PM Please Note: We can now offer you a duplicating service and in-house printing, packaging and most services you require. If you require any of these services, please telephone for a quotation on 0707 331076.

ZONEFOUR, Unit 11, Mundells Court, Welwyn Garden City, Herts. Tel: 0707 334460

Please call for bulk and seasonal prices and a full list of Paper, Labels, etc. etc. and new catalogue

## Space Blaster

John Taylor

hen you've typed all the data in, run the program and if it is bug free you will be prompted to save the

code. The process takes five minutes so don't panic if nothing appears to be happening.

The resultant file can be reloaded as required and started with SYS 24576.

```
2020 DATA 8D,B1,5F,A9,9C,8D,FA,07,20,26,6B,60,A9,01,6D,AD,5F,A9,03,8D, 2301
 2030 DATA 82,5F,A9,9C,6D,FB,07,20,26,6B,60,A9,01,8D,AE,5F,A9,03,8D,B3, 2342
 2040 DATA 5F, A9, 9C, 8D, FC, 07, 20, 26, 6B, 60, A9, 01, 8D, AF, 5F, A9, 03, 8D, B4, 5F,
 2050 DATA A9,9C,8D,FD,07,20,26,6B,60,A9,01,8D,B0,5F,A9,03,8D,B5,5F,A9,
 2060 DATA 9C,8D,FE,07,20,26,6B,60,A2,04,BD,AC,5F,F0,20,DE,81,5F,D0,1B,
 2070 DATA A9,03,90,61,5F,FE,FA,07,BD,FA,07,C9,9F,D0,0C,AD,15,D0,3D,7B,
 2080 DATA 68,80,15,00,DE,AC,5F,CA,10,D8,60,FB,F7,EF,DF,BF,04,08,10,20,
 2090 DATA 40,0E,09,04,0C,0E,07,02,08,0E,07,0C,02,03,05,08,04,07,06,0E, 216
 2100 DATA 03,0A,04,07,08,09,02,AD,B6,5F,F0,01,60,AD,9E,5F,CD,1B,D4,90, 1844
 2110 DATA 51,82,04,8D,15,D0,3D,80,68,F0,44,8D,8C,5F,D0,3F,88,18,69,02, 2246
 2120 DATA 0A,A8,C8,B9,00,D0,C9,A4,B0,31,18,69,16,8D,0F,D0,88,B9,00,D0, 2405
 2130 DATA 8D,0E,D0,AD,10,D0,29,7F,8D,10,D0,AD,10,D0,3D,80,68,F0,08,AD,
2140 DATA 10,00,09,80,80,10,00,EE,86,5F,AD,15,D0,09,80,8D,15,D0,60,CA, 2448
2150 DATA 10,81,60,8A,18,69,02,0A,69,01,A8,B9,00,D0,69,15,CD,03,D0,B0, 1953
2160 DATA 01,60,E9,2A,CD,03,D0,90,02,18,60,AD,10,D0,29,02,F0,22,AD,10, 1957
2170 DATA D0,3D,80,68,D0,3C,A9,01,8D,B7,5F,AD,02,D0,8D,B8,5F,A9,00,8D,
 2180 DATA 89,5F,88,59,00,D0,8D,5A,5F,4C,93,69,AD,10,D0,3D,80,68,F0,1A,
2190 DATA A9,01,80,87,55,88,89,00,D0,80,88,55,A9,00,8D,89,55,AD,02,D0, 2511
2200 DATA 8D,8A,5F,4C,93,69,A9,00,8D,B7,5F,8D,B9,5F,AD,02,D0,88,38,F9, 2563
2219 DATA 00,00,50,0F,59,00,00,50,88,5F,AD,02,D0,8D,8A,5F,4C,93,69,AD,
2220 DATA 02,00,80,86,5F,89,00,00,80,8A,5F,38,AD,88,5F,ED,8A,5F,8D,8B, 2799
2230 DATA 5F,AD,B7,5F,ED,B9,5F,F0,02,18,60,AD,BB,5F,C9,18,B0,F7,38,60,
2240 DATA AD, 0F, D0, 18, 6D, BC, 5F, 8D, 0F, D0, C9, F0, 90, 0D, AD, 15, D0, 29, 7F, 8D,
2250 DATA 15,00,89,00,80,86,5F,60,89,00,85,FD,85,FB,89,04,85,FC,89,D8, 2794
2260 DATA 85,FE,A2,28,AC,1B,D4,A9,2E,91,FB,AD,1B,D4,91,FD,CA,D0,F1,E6,
2270 DATA FC,E6,FE,A5,FC,C9,07,90,E5,60,A9,40,8D,04,D4,A9,40,8D,04,D4,
2280 DATA A9,01,80,08,04,A9,0A,80,07,D4,A9,06,80,0C,D4,A9,FC,80,0D,D4,
2290 DATA A9,81,8D,0B,D4,A9,9C,8D,F8,07,20,62,6A,EE,F8,07,20,62,6A,EE,
2300 DATA F8,07,20,62,6A,A9,00,8D,15,D0,20,62,6A,20,62,6A,A9,80,8D,0B, 1951
2310 DATA D4,20,62,6A,20,62,6A,A9,05,8D,9D,5F,20,62,6A,20,23,62,20,8E, 1874
2320 DATA 69,AD,15,D0,09,01,8D,15,D0,A9,80,8D,F8,07,CE,27,04,60,A0,FF,
2330 DRTA A2,96,CA,D0,FD,88,D0,F8,60,78,A9,00,8D,04,D4,8D,08,D4,A9,20, 2874
 2340 DATA 8D,27,04,A9,00,8D,10,D0,A9,01,8D,26,D0,A9,0B,8D,25,D0,A9,FF,
2350 DATA 8D,1C,D0,A9,0F,8D,15,D0,A2,07,A0,A6,98,9D,F8,07,88,CA,10,F8,
2360 DATA A9,FF,8D,1D,D0,8D,17,D0,A2,07,BD,EC,6A,9D,00,D0,BD,FC,6A,9D, 2943
2070 DATA 27,00,CA,10,F1,20,62,6A,20,62,6A,20,62,6A,20,62,6A,A2,07,BD,
2380 DATA F4,6A,9D,08,D0,CA,10,F7,A9,FF,8D,15,D0,AD,00,DC,29,10,D0,F9, 2689
2390 DATA AD,11,D0,29,EF,8D,11,D0,A9,05,8D,27,04,4C,13,60,46,64,7A,64, 1985
2400 DATA C6,64,FA,64,46,96,7A,96,C6,96,FA,96,QE,06,QE,Q2,QA,QA,QA,
2410 DATA A9,50,60,00,D4,8D,02,D4,A9,03,8D,03,D4,A9,08,8D,05,D4,A9,F4, 2433
2420 DATA 8D,06,D4,A9,04,8D,01,D4,A9,41,8D,04,D4,60,A9,08,8D,0C,D4,A9, 2284
2430 DATA 02,8D,08,D4,A9,0A,8D,07,D4,A9,F9,8D,0D,D4,A9,81,8D,0B,D4,A9, 2517
2440 DATA 0A,80,80,5F,60,AD,80,5F,F0,04,CE,80,5F,60,A9,80,80,08,04,60, 2575
2450 DATA A9,00,85,FB,A9,20,85,FC,A9,83,85,FD,A9,68,85,FE,A0,00,B1,FD,
2460 DATA 91,FB,E6,FD,D0,02,E6,FE,E6,FB,D0,02,E6,FC,A5,FC,C9,29,D0,EA,
2470 DATA A5,FB,C9,C1,D0,E4,60,50,00,05,50,14,05,50,14,05,50,69,05,50, 1907
2480 DATA 96,05,50,96,05,50,96,05,A2,55,8A,A2,69,8A,A9,69,6A,A5,AA,5A,
2490 DATA A5, BE, 5A, A6, C3, 9A, A6, C3, 9A, F6, C3, 9F, F5, BE, 5F, FD, 69, 7F, F3, 55, 3418
2500 DATA CF,F0,FF,0F,F0,00,0F,F0,00,0F,00,50,00,05,50,00,05,50,00,05,
2510 DATA 50,00,05,50,00,05,50,00,05,50,00,05,A0,00,0A,A0,00,0A,A0,00,
2520 DATA QA,A0,00,0A,A0,00,0A,A0,00,0A,A0,00,0A,F0,00,0F,F0,00,0F,F0, 1440
2540 DATA E4,E9,03,A4,E9,03,A4,EA,AA,BA,AA,AA,90,0E,AA,40,03,E5,00,03, 2451
2550 DATA 21,00,03,21,00,03,E5,00,03,E5,00,03,E5,00,03,01,00,03,E5,00, 1001
2570 DATA 00,00,00,00,00,04,00,10,05,00,50,06,00,90,06,14,90,05,55,50, 595
2580 DATA A5,D7,5A,A5,14,5A,A1,14,4A,01,41,40,01,55,40,01,69,40,01,41,
                                                                   1516
2610 DATA A0,09,69,60,29,28,68,29,28,58,2A,AA,A8,2A,BE,A8,28,AA,28,0A,
2630 DATA 00,00,00,00,00,00,00,FF,00,AA,00,00,BA,00,02,BA,80,02,BA,80,03, 1246
₫ £640 DATA BA,C0,02,38,80,02,8A,80,0A,EA,A0,0A,EA,A0,0A,D6,A0,0A,69,A0, 2347
```

## PROGRAMMING: C64

```
2650 DATA 02,EA,50,02,BA,50,00,BA,00,00,BA,00,00,BA,00,00,BA,00,00,BA, 1610
2660 DATA 00,00,6A,00,00,8A,00,00,38,00,FF,00,AA,00,00,AA,00,3F,AA,FC,
2670 DATA 38, FF, FC, 38, FF, FC, 38, 00, 3C, 38, 00, 3C, 3A, 96, BC, 3A, 96, BC, 3A, 96,
2680 DATA BC,38,FF,FC,38,FF,FC,39,50,DC,39,FD,DC,39,FD,DC,39,50,DC,38,
                                                                   3179
2690 DATA DD,DC,38,DF,7C,39,5F,7C,3F,FF,FC,0A,AA,A0,FF,02,AA,00,02,AA,
2700 DATA 00,0A,9A,80,0A,9A,80,2A,9A,A0,29,99,A0,26,9A,60,26,9A,60,26,
2710 DATA 9A,60,26,9A,60,26,9A,60,29,99,A0,29,99,A0,2A,9A,A0,0A,AA,80,
2720 DATA 02,8A,00,02,22,00,02,22,00,02,8A,00,02,8A,00,00,88,00,FF,00,
                                                                   1700
2730 DATA 05,80,08,20,80,48,48,E2,06,19,22,4E,20,88,DA,66,10,29,A9,68,
2740 DATA 86,88,58,28,88,82,88,88,80,00,28,83,23,28,88,88,88,88,88,
2750 DATA A8,AA,FE,A8,AA,AA,A8,A8,00,A8,28,A8,A0,0A,AA,80,02,AA,00,00,
                                                                   1468
2760 DATA A8,00,00,00,00,00,00,33,33,30,33,30,33,30,AA,AA,AA,AA,AA,
2770 DATA AA,56,9A,9A,A6,66,66,A6,66,66,66,66,9A,9A,66,9A,9A,66,9A,
2780 DATA 66,66,68,66,66,66,66,66,56,98,98,88,88,88,88,88,88,33,33,30,
                                                                   2388
2790 DATA 33,33,30,33,33,30,00,00,A5,00,00,A5,00,00,A5,00,02,AA,00,02,
                                                                   978
2800 DATA 22,00,02,22,00,02,22,00,02,AA,00,00,A8,00,00,98,00,00,98,00,
2810 DATA 00,96,00,00,88,00,00,86,00,02,88,00,02,22,00,08,88,80,08,86,
2820 DATA 80,0A,AA,80,0A,AA,80,03,FF,00,00,00,55,00,05,55,40,0F,FF,F0, 1751
2830 DATA 05,55,40,02,AA,80,0A,8A,A0,2A,02,A8,2A,8A,A0,AA,AA,80,A6,AA, 2118
2840 DATA 00,98,88,00,98,80,00,98,80,00,86,80,00,88,83,00,88,88,00,88,
2650 DATA AA,80,2A,AA,A0,2A,AA,A8,0A,AA,A0,02,AA,80,00,A2,22,A2,A2,22,
2880 DATA A2,22,A2,00,00,00,CF,CF,CC,CC,CC,CC,CC,CC,CC,CF,CF,CC,FF,00,
2890 DATA F0,00,03,FC,00,03,3C,00,03,FC,00,00,F0,00,00,A0,00,A0,00,A0,00,
2900 DATA 00,80,00,02,88,00,02,28,00,02,28,00,08,28,00,08,88,30,28,88,
                                                                  914
2910 DATA A8,22,AA,AA,22,AA,AA,2A,AA,AA,2A,02,AA,0A,AA,A8,05,55,54,05,
2920 DATA 55,54,FF,06,C6,C0,0A,AA,A0,2A,AA,A8,38,28,2C,E8,28,2B,E8,28,
2930 DATA 28,E8,28,28,E8,E8,28,38,E8,20,28,E8,28,28,AA,AA,A8,25,55,58,26, 2146
2940 DATA AA,98,0A,00,A0,0A,00,A0,0A,00,A0,2A,82,A8,2A,82,A8,25,82,58,
```

## PROGRAMMING: BBC B

## Discmon

A Moulden

his week features the second part of the Discmon utility. The instructions continue

If a single character is keyed in, Discmon will insert the Ascii value into the sector at that position. To enter non printable codes type in the two character hex code.

To increase or decrease the value of the current byte enter +Hexno or -Hexno (+DO for example). This will then add or subtract the inputted value from the current byte.

Discmon can perform logical operations

on the byte at the cursor position. The logical operators supported are OR, AND, XOR, NOR, NAND, XNOR, NOT and NEG. Simply enter OR x for example, where x is a hex number or in binary. If binary it must be padded out with zeros to make it eight bits

The last part of Discmon is given next week.

17601FM1D\$(A\$, 2, 1) <>". "A\$="\$. "+A\$ 1770A\$=A\$+STRING\$(9-LENA\$," ") 1780CX=0: FX=0: REPEAT 1790C%=C%+1: IFA\$=FNupper(na\$(C%))F%=C% 1800 IFCHR\$ (ASC (LEFT\$ (A\$, 1))+128)+RIGHT\$ (A\$,LENA\$-1)=FNupper(nm\$(C%))F%=C% 1810UNTILF%GRC%=NUM% 1820 IFF%=0ENDPROC 1830AB%=st%(F%) 1840TR%=AB%DIV10:SC%=AB%MOD10 1850IFFNupdateyn: PROCsave 1860CLS: PROCloadsave (DR%, TR%, SC%, 1) 1870VDU26: 0%=0: E%=0: F%=0: f1g%=0 1880PROCshow: ENDPROC 1890: 1900DEFFNdectrk 1910B%=LENB\$: B\$=RIGHT\$(B\$, B%-3) 1920B%=LENB\$: B\$=LEFT\$ (B\$, B%-1) 1930FL%=0:FORP%=1TOLENB\$ 1940S\$=MID\$(B\$, P%, 1) 1950IFS\$<"0"DRS\$>"9"FL%=1 1960NEXT: IFFL%=1=-1 1970=VALB\$ 1980:

1990DEFPROCdrv: PRINT; 20000%=ASCRIGHT\$(A\$,1)-48 2010TFD%<00RD%>3ENDPROC 2020DR%=D%:\$&A00="DRIVE "+STR\$DR% 2030XX=0: YX=10: CALL&FFF7 2040PROCloadsave (DR%, TR%, SC%, 1) 2050PROCshow: ENDPROC 2070DEFPROClogops(X\$):AX=-2 2080B\$=RIGHT\$(A\$, LENA\$-LENX\$) 2090IFLENB\$=BA%=FNbin(B\$):IFA%=-1ENDPRO 21001FAX<>-2THEN2150 2110IFLENB\$=1B\$="0"+B\$ 21201FLENB\$<>2ENDPROC 2130IFFNvalidhex(B\$,2)=0ENDPROC 2140A%=EVAL("&"+B\$):PRINTA% 2150B%=mem%?0%: Z\$=STR\$B%+X\$+STR\$A% 21601FX\$="NAND"Z\$="NOT ("+STR\$BX+"AND"+ STR\$A7(+")" 2170 IF X \$= "NOR" Z \$= "NOT ("+STR \$BX + "OR" +ST 21801FX\$="ENOR"Z\$="NOT ("+STR\$BX+"EDR"+ STR\$A%+")"

21907%=EVAL7\$: IF7% < 07%=7%+256 2200VDU26: PROCchange (7%, 0%) 2210editf=1:ENDPROC 2230DEFPROCnot: VDU26:editf=1 2240PROCchange (255-mem%?0%,0%): ENDPROC 2260DEFPROCneg: VDU26: editf=1 2270PROCchange (256-mem%?0%,0%): ENBPROC 2290DEFFNbin(B\$):A%=0:fg=-1:FDRP=1TD8 2300Y\$=MID\$(B\$,P,1) 2310IFY\$<>\*0"ANDY\$<>\*1"fg=0 2320A%=A%+VALY\$\*2^(B-P) 2330NEXT: IFfg=0=-1ELSE=A% 2340: 2350DEFPROCdh 2360B\$=RIGHT\$(A\$,1FNA\$-2):CIS 23706%-VALB\$:FK1N1#4"HEx 15 "; 2380PRINT: "B%". Press space...": 2390REPEATUNTILGET=32: CLS: ENDPROC 2400: 2410DEFPROChd

continued on page 26

## PROGRAMMING: BBC B

continued from page 25 3010FDRP%=1TONUM% 34901F6>31ANDG<127VDUG: C=C+1:L\$(C)=CHR\$ 2420B\$=RIGHT\$(A\$, LENA\$-2) 3020nm\$(P%)=CHR\$?(mem%+7+8\*P%)+"." 2430B%=LENB\$ 3030nm\$(P%)=nm\$(P%)+FNmem(mem%+8\*P%,7) 3500IFC ANDG=127VDU127:L\$(C)="":C=C-1 2440IFFNvalidhex(B\$,B%)=FALSE:ENDPROC 35100=6:UNTIL6=13ANDC (>0 2450N\$="%"+B\$: B%=EVALN\$ 3050PROCscr:PROCshow:editf=0:\*FX15 3520VDU13, 10: FORP=1TDC: S\$=S\$+L\$(P) 2460PRINTm\$"Dec is "; B%; 3060ENDPROC 3530NEXT:=S\$ 2470PRINT" Press space..."; 3070: 3540: 24BOREPEATUNTILGET=32: CLS: ENDPROC 30BODEFFNin(L):LOCALS\$ 3550DEFPROCsavevn 2490: 3090C=0:0=65:S\$="":\*FX15 3560IFFNsure: PROCsave 2500DEFPR0Cadsub 3100REPEAT 3570CLS: ENDPROC 2510 IFLENAS) 3ENDPROC 3110VDU26:PRINTTAB(5,0);:A%=mem%?O% 3580: 2520B\$=LEFT\$(A\$,1):C\$=RIGHT\$(A\$,LENA\$-1 3120IFAX>31ANDAX<127VDUAXELSEVDU255 3590DEFPROCsave 3130PRINTTAB(5,1)"000";:A\$=STR\$A% 3600PROCloadsave (DR%, TR%, SC%, 0) 2530IFLENC\$=1C\$="0"+C\$ 3140PRINTTAB(8-LENA\$,1)A\$ 3610ENDPROC 2540IFFNvalidhex(C\$,2)=0ENDPROC 3150CALLbin 3620: 2550B%=EVAL("%"+C\$) 3630DEFPROCstar: A\$=RIGHT\$ (NS\$, LENNS\$-1) 3160PRINTTAB(29,3)SPC8TAB(29+E%,3)"\*" 2560A%=mem%?0%: IFB\$="+"A%=A%+B% 3170CALLstar:PRINTTAB(37,FX+5)"\*" : VDU26,12 25701FB\$="-"0RB\$="\_"AX=AX-BX 36400SCLIAS:PRINT "Press a key...";:8=6 3180VDU28,0,23,39,22:0\$=STR\$~0% 25801FAX<0AX=AX+256 3190IFLEND\$=1:0\$="0"+0\$ 25901FAX>255AX=AX-256 3200PRINTTAB(0,0)g\$"Pos:"LEFT\$(0\$,1); 36501F6=ASC"\*"PRINT""\*";:INPUT""A\$:60T0 2600editf=1:VDUZ6:PRDCchange(A%,0%):END 3210PRINTRIGHT\$(0\$,1)" >>";:VDU26 3660CALLscrn:PROCscr:PROCshow:ENDPROC 3220PRINTTAB(E%+3+3,F%+5)1e\$ 2610: 3230PRINTTAB(EX\*3+6,FX+5)ri\$ 3670: 2620DEFPROCset 3240PRINTTAB(11+C, 22); 3680DEFPROCass: DIMmc 4&250 26301FE\$="CHR"1FLENA\$<>4ENDPROC 32506=6ET: IFC=L:60T03500 3690F0Rap t=0T02STEP2 2640IFC\$="CHR"A\$=RIGHT\$(A\$,1):ch%=ASCA\$ 3260IFINKEY-1 SH=1ELSESH=0 3700P%=mc%: LOPTopt:.scrn LDA#22: JSR&FFE : VDH26: GDTD2690 32701FINKEY-2CT=1ELSECT=0 3:1 DA#7 2650A\$=RIGHT\$ (A\$, LENA\$-3): IFLENA\$=1A\$=" 3710JSR&FFE3:LDA#23:JSR&FFE3:LDA#1:JSR& 3280IF6=19PROCcase:60T03110 32901F6)135ANDCT=1:6=6+4 FFE3:LDA#0: 3 2660IFLENA\$<> ZENDPROC 33001F6>139AND6<144ANDCT=1ANDSH=1:f1g%= 3720FDRa=1T08:E0PTopt:JSR&FFE3:JNEXT:E0 2670IFFNvalidhex(A\$,2)=0ENDPROC 0:0%=0:E%=0:F%=0:6=6-4:PRDCmove(5):60T03 PTopt:RTS 2680VDU26:ch%=EVAL("%"+A\$) 3730.disc LDA&BO 2690PRINTTAB(20, 2);0;: IFch%(16PRINT; "ch 3310IF6>139AND6<144:flg%=0:0%=0:E%=0:F% 3740STAdb%:LDA#mem%MOD256 %ELSEVDUB: PRINT; "ch% =0:6=6-4:PROCmove(1):60T03110 3750STAdb%+1:LDA#mem% DIV256:5TAdb%+2 2700ENDPROC 3760LDA#0:STAdb%+3:STAdb%+4:LDA#3:STAdb 33201F6=31ANDf1g%=0:f1g%=1:0%=0%+128:PR 2710: OCprint(1):60T03110 2720DEFPROCchrin: VDU26: editf=1:PROCchan 3770LDA&83:STAdb%+6:LDA&B1:STAdb%+7:LDA 3330IF6=31ANDflg%=1:flg%=0:0%=0%-128:PR ge(ch%, 0%):ENDPROC DCprint(0):60TB3110 %82:STAdb%+8:LDA#%21:STAdb%+9 2730ENDPROC 33401F6=251PROCcase:60T03110 3780LDX #db% MGD256:LDY #db% DIV256:LDA 33501F6=252PRDCchrin:60T03110 #%7F:JSR%FFF1:RTS 2750DEFPROChew: IFNOTFNsure: CLS: ENDPROC 3790.print LDA#31:JSR&FFE3:LDA#0:JSR&FF 3360IFG=1350R6=9PROCinst:VDU26:PROCprin 2760CLS: RUN E3:LDA#5:JSR&FFE3:LDX&70:.vloop LDA#129 t(f1g%):VDU28,0,23,39,22:60T03110 3370IFG=250PRDCinfo: VDU26: PROCprint(flg 3800JSR#FFE3:TXA 2780DEFPROCinit:DR%=0:SC%=0:TR%=0 3810JSR printhex: INX: INX: INX: INX: INX: IN %): VDU28, 0, 23, 39, 22: 60T03110 2790flg%=0:E%=0:F%=0:0%=0:DIML\$(33) 33801FG=136ANDSH=1PROCwipe:0%=0%-E%:E%= 2800ws=CHR\$135:r\$=CHR\$129:g\$=CHR\$130 3820LDA#10: JSR&FFE3: LDA#8: JSR&FFE3 0:60103110 2810c\$=CHR\$134:m\$=CHR\$133:y\$=CHR\$131 3830JSR&FFE3:JSR&FFE3:TXA 2820ch%=0: #FX15 33901F6=136ANDE%<>OPROCwipe:E%=E%-1:0%= 3840AND#&7F:BNEvloop 0%-1:60T03110 2830\*FX4,1 3850LDX&70:LDA#31:JSR&FFE3:LDA #3:JSR&F 3400IFG=136ANDEX=OANDFX<>OPROCwipe:EX=7 2840\*FX225,250 FE3:1 DA#5: JSR%FFE3 2850\*FX219,31 :F%=F%-1:0%=0%-1:60T03110 3860.outerloop LDY #0 2860DIMdb%10, mem%256:FROCass:CALLscrn 3410IF6=137ANDSH=1PROCwipe:0%=0%+7-EX:E 3870.innerloop LDA #134:JSR%FFE3:TXA:PH 28701e\$=CHR\$129:ri\$=CHR\$134 %=7:60T03110 A: STY\$80: CLC 34201FG=137ANDE%<>7PRDCwipe:E%=E%+1:0%= 2880PROCloadsave (DR%, 0, 1, 1) 3880ADC &80: TAX: LDA mem%, X: JSR printhex 2890TRK%=((mem%?6 AND3) \*256+mem%?7)/10 0%+1:60T03110 :PLA: TAX: INY: CPY#8 34301FG=137ANDEX=7ANDFX 15PROCwipe:EX= 2900NUMX=nen%?5/B 3890ENE innerloop:LDA #130 0:FX=FX+1:0X=0X+1:60T03110 2910DIMnm\$(NUM%+1), st%(NUM%+1) 3900JSR&FFE3: JSR&FFE3 2920DIMen% (NUM%+1) 34401F6=138ANDSH=1PROCwipe:0%=0%+6\*(15-3910LDY #0:.inner2 TXA:PHA F%):F%=15:60T03110 2930F0RP%=1T0NUM% 3920STY&80:CLC:ADC &80 34501FG=138ANDF%<>15PRDCwipe:F%=F%+1:0% 2940st%(P%)=?(mem%+7+8\*P%) =0%+8: GOTO3110 3930TAX:LDA mem%, X:CMP#32:BCC printspac 29507%=?(nem%+6+8\*P%) 3460IFG=139AND5H=1PROCwipe:0%=0%-8\*F%:F e:CMP#127 2960IFZ%=2050RZ%=1st%(P%)=st%(P%)+256 3940BCS printspace: .back JSR &FFE3 %=0:60T03110 297019%=/(mem%+5+6\*P%) 3950INY:PLA:TAX:CPV#8 2980en%(P%)=ig%+st%(P%) 3940BNE inner2: INX: INX: INX: INX: INX: INX: 2990NEXT 02-8:60103110 INX: INX 34801F6>135AND6<14060T03250 3000PROCloadsave(DR%,0,0,1)

## PROGRAMMING: SPECTRUM

## Sound Sampler

R Wooberry

his program incorporates two routines for sampling and replaying sound through the Spectrums internal speaker or, if you have a 128K machine, through the television speaker.

The program is very user friendly and issues prompts for all inputs. To use the sampler enter (in 48K Basic) and run the listing. Then, try 200 for the length of the sample (in 50ths of a second), 35000 for the

address of the sample and 4000 for the address of the input/output programs.

When you are informed of a return to Basic connect the sound source (radio, cassette etc) to the ear socket and enter the appropriate RANDOMIZE USR statement.

After sampling, enter the other RANDOM-IZE statement to hear the sound through the relevant speaker.

5 REM Sound Sampler By R.J. Wooberry Village

Co The

10 BORDER 0: PAPER 7: CLS : INK 0: PRI NT AT 0,10; "Sound Sampler"; AT 1,9; "

20 PRINT AT 3,1; "Enter time of sample in 50th's"; AT 4, 10; "of a second."; AT 5,3 ;"(1/50th requires 64 bytes)"

30 INPUT a: LET a=INT a: IF a(1 DR a)5 12 THEN 60 TO 30

40 PRINT AT 8,2; "Enter address for sto rage of"; AT 9,10; "sample code."; AT 10,2; R IN DATA! ": STOP "(";a\*64;" byte space required)"

50 INPUT s: LET d=a\*64+s: LET e=INT (d /256): IF e+256<>d THEN LET e=INT (e)+1 60 IF s<32768 OR e>254 THEN GO TO 40 70 PRINT AT 12,3; "Start=";s; AT 12,19;" End=";e\*256-1;AT 15,2; "Enter start addre 53)-a\*256: POKE p+111,b: POKE p+112,a: L ss for I/D";AT 16,11; "programs.";AT 17,3 ET a=INT (s/256): LET b=s-a\*256: PDKE p+ ;"(199 byte space required)"

80 INPUT p: IF p>=s-199 AND p(e+256 AN D p<>23296 OR p>65325 OR p<32768 AND p<> 23296 THEN GO TO BO

90 PRINT AT 19,1; "INPUT - Start=";p;" End=";p+92;AT 20,1;"OUTPUT- Start=";p+93 ;" End=";p+198;#1; FLASH 1; " Press Any Key To Continue. ": PAUSE 0

100 CLS: PRINT AT 0,10; "Sound Sampler" ;AT 1.9;" ": PRINT AT 4,4; "Type RANDOMIZE USR ";p;AT 5,7; "to input a sample. ": AT B, 4; "Type RANDOMIZE USR " ;p+93;AT 9,6; "to replay the sample."

110 LET t=0: FOR i=p TO p+198: READ a: LET t=t+a: POKE i.a: NEXT i: IF t(>21298 THEN PRINT AT 13,2; FLASH 1;" ERRO

120 LET a=INT ((p+43)/256): LET b=(p+43 )-a+256: POKE p+18,b: POKE p+19,a: LET a =INT (s/256): LET b=s-a\*256: POKE p+24,b : POKE p+25, a: POKE p+32, e

130 LET a=INT ((p+153)/256): LET b=(p+1 117,b: POKE p+118,a: POKE p+142,e

140 PRINT AT 13,1; "You are now returned to BASIC." 200 DATA 243,237,94,62,24,50,255,255,62

,57,237,71,62,195,50,244,255,33,0,0,34,2

210 DATA 255, 33, 0, 0, 14, 64, 251, 118, 124, 2 54, 0, 32, 249, 62, 63, 237, 71, 237, 70, 251, 201,

220 DATA 6,64,229,104,6,8,22,0,30,3,219 ,254,129,56,1,29,219,254,129,56,1,29 230 DATA 29,32,1,20,203,10,0,0,0,0,0,0,0 16,228,69,225,114,35,0,0,0,0,0,0,16,210,

240 DATA 94,62,24,50,255,255,62,57,237, 71,62,195,50,244,255,33,0,0,34,245,255,3

201,243,237

PROGRAMMING:

250 DATA 0,0,14,254,58,72,92,15,15,15,2 30, 7, 198, 16, 87, 122, 214, 16, 8, 62, 64, 251 260 DATA 118,124,254,0,32,243,62,63,237 ,71,237,70,251,201,243,8,94,6,8,203,11,4

270 DATA 25,237,81,211,254,237,81,211,2 54, 237, 81, 211, 254, 237, 81, 211, 254, 16, 234,

280 DATA 32,225,8,201,62,4,61,32,253,12 2,214,16,0,0,24,235

## Sharks

J W Haworth

narks is a machine code interpretation of A K Dewdney's sharks and fish simulation described in the December 1984 issue of Scientific American.

To see the program in action have the QL in mode 4 and enter Lrun mdv1\_wator. Then enter Call a, d1, d2, d3, d4, d5, d6.

Where d1 is the initial number of fish (1-2048), d2 is the initial number of sharks (1-2048), d3 is the number of cycles that elapses before a fish breeds (1-63, but 1-5

is sensible), d4 is the energy level a shark needs to breed (1 to 15), d5 is the energy a shark gains from eating a fish (1-5), d6 is the random number seed (and can be omitted)

Pressing the Escape key returns to Superbasic.

1 RESTORE 100

2 r=RESPR (4096)

3 b=r+2048

4 a=b+146

5 REPeat loop: READ d: POKE b, d: b=b+1: IF EOF THEN 260 DATA 6, 3, 0, 128, 16, 3, 83, 65, 101, 14 EXIT loop: END REPeat loop: STOP

100 DATA 255,0,255,0,255,0,255,0,255,0

110 DATA 255,0,255,0,255,0,255,0,255,0

120 DATA 253,0,249,0,195,0,231,0,255,0

130 DATA 255,0,255,1,255,1,255,3,255,3 140 DATA 255, 6, 255, 254, 255, 124, 255, 48, 204, 252

150 DATA 0,149,6,70,6,5,2,70,7,255

160 DATA 78,117,212,252,0,64,12,70,7,192 170 DATA 101,4,148,252,8,0,78,117,83,138

180 DATA 229,78,74,6,102,4,212,252,0,64

190 DATA 228, 78, 78, 117, 148, 252, 0, 64, 12, 70 200 DATA 0,64,100,4,212,252,8,0,78,117

210 DATA 82,138,229,78,12,6,0,252,102,4

220 DATA 148, 252, 0, 64, 228, 78, 78, 117, 2, 66

230 DATA 0,48,36,73,78,187,32,182,6,66 240 DATA 0,16,74,18,78,117,65,250,255,108

250 DATA 48,60,1,255,66,160,81,200,255,252

270 DATA 97,0,255,132,17,128,96,0,83,0 280 DATA 106, 238, 96, 238, 16, 4, 83, 66, 101, 24

290 DATA 97,0,255,112,17,188,0,48,96,0

300 DATA 205,48,96,0,209,48,96,0,83,0 310 DATA 103, 228, 96, 228, 65, 250, 255, 40, 34, 124

320 DATA 0,2,0,0,116,31,114,63,69,250 330 DATA 255, 26, 8, 160, 0, 6, 74, 16, 103, 10

340 DATA 107, 4, 212, 252, 0, 16, 212, 252, 0, 16 350 DATA 112,7,50,154,210,252,0,128,81,200

360 DATA 255,248,146,252,3,254,81,201,255,216 540 DATA 255,30,112,0,78,117,9,1,0,0 370 DATA 210,252,3,128,81,202,255,206,48,60

380 DATA 7,255,97,0,255,20,67,240,96,0 390 DATA 189,66,8,17,0,6,102,114,74,17

400 DATA 103, 110, 106, 32, 114, 3, 97, 0, 255, 76 410 DATA 87,201,255,250,102,96,82,17,20,145

420 DATA 66, 17, 182, 18, 98, 82, 8, 209, 0, 7

430 DATA 20,188,0,129,96,72,126,48,206,17 440 DATA 159, 17, 114, 3, 97, 0, 255, 38, 91, 201

450 DATA 255, 250, 106, 26, 20, 145, 219, 18, 66, 17

460 DATA 184, 18, 98, 12, 226, 92, 20, 132, 226, 92 470 DATA 18,132,229,92,213,17,223,18,96,28

480 DATA 83, 17, 98, 4, 66, 17, 96, 24, 114, 3 490 DATA 20,7,223,17,97,0,254,244,87,201

500 DATA 255,250,102,8,20,145,66,17,8,210 510 DATA 0,6,81,200,255,124,225,94,220,80

520 DATA 220,81,20,5,112,17,71,250,0,18 530 DATA 78,65,26,2,12,1,0,8,102,0

550 DATA 0,0,1,2

## BYTES & PIECES

## Clover

#### R A Hewett

With this QL subroutine you can draw a four leaf clover which can be incorporated into your own programs for drawing scenery. The equation in line 125 can also be used to calculate something like a missiles trajectory.

90 DEFine PROCedure clover
100 SCALE 8,-5,-4
120 FOR n=1.33 TO -4 STEP -7E-3
125 t=SQRT(n^2\*((4+n)/(3-n)))
131 POINT t,n:POINT n,t
132 POINT n,-t:POINT -t,n
133 POINT -n,t:POINT t,-n
134 POINT -t,-n:POINT -n,-t
140 NEXT n
150 END DEFine

## Compressor

#### Amrit Mann

Compress your programs with this 48K Spectrum routine, by up to 25%. The routine works by inserting VAL statements around all the numbers found in a listing. Once compressed the number of bytes saved will be printed on the screen.

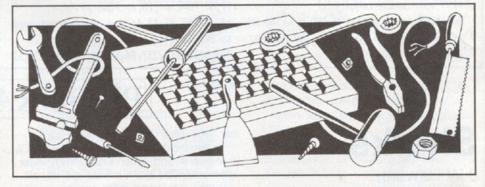
@ 1 REM TO SAVE TYPE "save val"CODE 65 0,237,67,101,254,229,205 000,125 120 DATA 36, 254, 225, 237, 75, 101, 254, 112, 2 CLEAR 64999 43, 113, 42, 73, 92, 193, 120 10 LET tot=0: FOR a=65000 TD 65124: RE 130 DATA 188, 32, 214, 121, 189, 32, 210, 237, AD x: LET tot=(tot+x): PDKE a, x: NEXT a: 75,103,254,201,35,126 IF tot >13753 THEN PRINT "Error in dat 140 DATA 211, 254, 254, 13, 200, 254, 14, 32, 2 Recheck code. ": BEEP 45,1,5,0,205,232,25,54 a statements .5,-15 150 DATA 34,229,43,126,205,27,45,48,249 20 PRINT "PRINT USR 65000 FOR DEMO THE ,254,46,40,245,1,2,0 N DO A LIST " 160 DATA 205, 85, 22, 35, 35, 54, 176, 35, 54, 3 100 DATA 33,0,0,34,103,254,34,73,92,229 4,42,101,254,43,43,43,34 170 DATA 101, 254, 42, 103, 254, 35, 35, 35, 34 ,33,73,92,205,15,25,42 110 DATA 73,92,205,110,25,35,35,78,35,7 ,103,254,225,24,191

## **Autoload**

#### Andrew Oakley

This Commodore 64 routine allows you to automatically load a program and run it. Once the program has been run simply enter the name of the file you wish to autoload, and then the autoload file. So, for example, entering MENU and BOOT would result in BOOT loading and running MENU.

Once an autoload file has been set up simple enter LOAD "autoload name",8,1 to use it.



#### 5 REM \*DISK BUTOLORD BY ANDREW ORKLEY\*

- 10 INPUT"FILE TO BE AUTOLOADED";F\$:INPUT"AUTOLOAD NAME";N\$:X≃679
- 20 READZ: IFZ>-1ANDZK256THENPOKEX, Z:X=X+1:GOTO20
- 30 DATA162,0,189,194,2,32,210,255,232,224,-1:POKE689,LEN(F\$)+14:X=690
- 40 READZ: IFZ>-18NDZ<256THENPOKEX, Z:X=X+1:GOTO40
- 50 URTR208,245,169,131,141,119,2,169,1,133,198,224,10,240,248,96,147,13,13,76
- 60 DATA79,65,68,34,-1:FORX=1TOLEN(F\$):POKE713+X,ASC(MID\$(F\$,X,1)):NEXTX:X=713+X
- 70 READZ:IFZ>-1ANDZ<256THENPOKEX;Z:X=X+1:G0T070
- 80 DRTR34,44,56,44,49,19,-1:X=631
- 90 READZ: IFZ>-1ANDZ(256THENPOKEX, Z:X=X+1:GOT090
- 100 DATA83,89,83,54,55,57,13,~1:PUKE198,7:PUKE251,198:PUKE252,0:X=49152
- 110 REAUZ: IFZ>-18NDZ<256THENPOKEX,Z:X=X+1:GOTO110
- 120 DATA169,1,162,8,160,255,32,186,255,169,-1
- 130 POKE49162, LEN(N\$):X=49163
- 140 READZ: IFZ>-1ANDZ<256THENPOKEX, Z:X=X+1:GOTO140
- 150 DATR162,28,160,192,32,189,255,169,251,162,213,160,2,32,216,255,96,-1
- 160 FORX≈1TOLEN(N\$):POKE49179+X,ASC(MID\$(N\$,X,1)):NEXTX:SYS49152:POKE198,0

REBUY.

## PEEK & POKE



with Kenn Garroch

## Completely baffled

Jim McLaughlin, of Carfin, Motherwell, writes:

I'm trying to learn machine code, without much success; I have an Amstrad CPC 464 (no disc drive) and plenty of spare time, and blank tapes.

I bought Amstrad Machine Language for the Complete Beginner by Joe Pritchard, and also Amstrad CPC464 Whole Memory Guide. I've read the first one and learned nothing. The second one had me completely baffled.

What's the big secret? I understand Basic to a certain level.

I also own the ADAM Ass/ Dis/Mon and would like to ask you something about this.

Suppose I load the ADAM at Hex 4000, then go to Basic and write a small program. After entering it, I go back to ADAM and disassemble from 368 decimal. When I try to assemble the result I get all sorts of errors. What am I doing wrong?

I would like to write a Basic program to allow Morse code to be played on the cassette, and then decoded on to the screen. Is this possible with the CPC464, and if not, which machine is it possible on? (Letter edited for length)

It seems that there is a little misunderstanding here. There is quite a difference between machine code and Basic. Basic is a 'high level' language, that is, it consists of sections of machine code linked together. The links are made by a program called an interpreter. This is in the Amstrad's Rom and takes the Basic program you have typed

in, and converts each command into a chunk of machine code, eg, it sees the PRINT command and runs the appropriate code for PRINT.

When a Basic program is entered in, it is held either as the text you typed in, or an encoded form of the text (not machine code) to save memory. In the coded format, the start of a Basic program will be denoted by, say, two zeros.

When you type RUN, the interpreter starts at the two zeros and says, OK, here we have the start of a Basic program. It then looks at the next piece of information and checks to see if it is a valid command code, say, 21 for REM (note that these numbers are not the real ones, they are examples used purely for this description).

It then goes to the Rom and finds the machine code routines for REM and does whatever is necessary. The upshot is that a Basic program is a set of instructions for an interpreter to run the program from. The interpreter itself is written in machine code.

Machine code consists of a series of numbers that the microprocessor understands as instructions. When you switch the Amstrad on, it always jumps to the same position in its memory, and looks at the number there.

This is always an instruction code that tells the processor to do something. It may be that the instruction tells the processor to load the next value in memory, into the accumulator (Have another look at the text book for a description of what this is and does). In this way, instructions and information can be intermingled in the same memory area. The instructions come first, and tell the microprocessor what to do with any information that follows.

To write programs in machine code, you need an assembler, and a list of what instructions are available for the processor – in this case, the Z80. These instructions can be strung together to form a program. Telling the processor to go to the start of them runs the program. For example, with the editor/assembler, enter:

Semi colons are used to start off a comment line – similar to REM. You needn't include them in the program. The microprocessor doesn't need them, but you might, to help understand what its going on.

ENT 2000 :This is the start of the

LD A,255 LD HL,49152

LD HL,4915 LD (HL),A :Put 255 in A ;Put 49152 in HL ;Store A at the address in HL, ie, 49152 ;Finished so return to main program (editor ;assembler most likely, or Basic)

program 2000

The only instruction in this program that the microprocessor will not understand is ENT 2000. This is a command to the assembler program to tell it that when it converts the commands into the instruction numbers (technically Op codes), the numbers should be stored starting from memory location 2000.

#### **Assembler**

You will have to look in the instruction manual for the assembler to find an equivalent command, ie, one that tells the assembler where to put the code (try the index ORG or FNT or even \* or \$). When the above program has been typed in, you will have to tell the assembler to assemble it.

The assembler is a program that takes the text of the program, and converts it into a form that the processor can directly understand. Once it is assembled, it can be run (usually GO or G — index under run, start, execute, etc).

The program simply loads the value 255 into the A register or accumulator of the Z80. Then loads the numbr 49152 into the HL register pair. The next instruction tells the processor to store the accumulator at the address given in HL, ie, 49152 which is in the screen memory. You should see a small bar of one character width appear on the screen somewhere.

So, to write a machine code program, you have to enter the mnemonics (LD, RET, CMP, JMP, etc, are mnemonics – simple words to help remember what the commands do) as text. Then assemble the text, save it, and then run it to see if it works.

The books you have should now, hopefully, make a little more sense. The first one should basically be saying what I have said only in a lot more detail. The second one documents all of the machine routines that are built into the Rom, plus all of the system variables (numbers and locations that the computer needs to keep itself up to date plus built-in subroutines to print things on the screen, etc). You might also try Z80 Assembly Language Programming by Lance Leventhal from McGraw Hill.

It may appear to be a little advanced but it does contain good descriptions of all the Z80 machine code instructions and what they do. Once you get the hang of it, it will come in very handy.

Your second question about reading morse code signals from tape is difficult to answer. It is true that the cassette works on a FSK (Frequency Shift Keying) or FM (Frequency modulation) system. The trouble is that the frequencies used for morse are almost certainly incompatible with the hardware normally used to read programs from tapes.

If it is to work, you will need a machine code program that reads the cassette directly (see the second book you have). You will have to look for ons and offs, and measure their lengths. It should then be possible to convert this to text.

Basic is not really fast enough to do this (not for a good Morse hand anyway). One of the advantages of machine code over Basic is that since there is no interpreter in between the program and what the computer is actually doing, things go an awful lot faster (usually 100 times approx). This is because machine code instructions are performed directly by the microprocessor.

If you cannot get the Amstrad to understand machine code, then you will need an extra piece of hardware attached to the back, say a frequency to voltage converter and a schmitt trigger or op-amp to rectify the signal.

This will easily convert the morse into ons and offs which can be timed, allowing them to be understood. After playing around with machine code for a whiel, you will get the idea about how to inferface things to the Amstrad, and be able to write the programs you want.

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 Kenn Garroch 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 WC2H 7PP.





#### SOFTWARE

60 HIGH STREET, HANHAM, BRISTOL BS15 3DR TEL: (0272) 604130

ATARI	8	BIT	CASSETTE
A1 .			

Arcade Classic	CS	/ .95
Arkanoid		7.50
Atari Aces		8.25
Boulderdash C	Cont. Set	8.50
Boulderdash		8.50
Colossus Ches	35	8.50
Footballer Of 1	The Year	8.50
Green Beret		7.50
Jewels Of Dar	rkness	12.50
	ection	
	5, 6, 7	
Spitfire 40	, 0, 0, 7	8.50

#### ATARI 8-RIT DISC

Boulderdash Cont. Set	12.50
Colossus Chess	12.50
Footballer Of The Year	12.50
Gauntlet	12.25
Leaderboard	12.50
Smash Hits 5,6	12.50
The Pawn	
Temahawk	12.50
Ultima IV	16.95

#### SPECIAL OFFER

Konami	Nemesis	Spectrum		2.99
Konami	Nemesis	Commodore	64	2.99
Leaderb	oard Exe	cutive Comm	nodore 64	3.99

to Lightspeed Software. All orders post free inside the U.K. Normally

despatched within 24 hours, but please allow 7 days.

Please make all cheques/P.O.s payable

A full list of titles available for Atari ST, Atari 8-Bit, BBC Electron, C16/+4, PCW, IBM and Amiga Please write or call for details

ELECTRON

7.75 7.75 10.50 Five Star Games 1, 2... French On The Run 7.75 7.75 Paperboy ..... Phantom Combat . Round The World 7.75 6.75 7.75 7.75 Yie Ar Kung Fu Yie Ar Kung Fu II.

Airball	
Auto Duel	19.00
Barbarian (Psygnosis) Bridge Player	20.00
Bridge Player	18.75
TNT	17.50
Flight Sim. II	39.95
Flight Sim. II Scenery 7	26.50
Guild Of Thieves	19.00
Gauntlet	19.00
Jupiter Probe	12.50
Leaderboard	19.00
Phantasie II	19.00
Pro Sound Designer	
Road Runner	
Pro Copy 1.41	29.95
Sub Battle Sim	19.00
Vegas Gambler	

# 1):119931 THE NEW DIMENSION

THE BEST IN SCOTLAND FOR DISCOUNT

#### CITY CENTRE COMPUTERS

136 Ingram Street, Glasgow G1. Tel: 041-552 4222

#### SUMMER BARGAINS AT LOW PRICES

CONTINUENT DANIES INTO ALL ECTIV	
AMIGA A500	£490
AMIGA 1000 + MONITOR 512K	£930
ATARI 520 STM + 1 MEG DRIVE	£365
ATARI 520 STFM	£340
ATARI 1040 STF	£525
ATARI 1 MEG. DRIVE	£160

Also available, Atari and Amiga add-ons

#### SPECIAL OFFER: 15% OFF ALL SOFTWARE PUBLISHING PARTNER £130 C64 AND VIC POWER SUPPLIES ONLY £10.50

**REAL BARGAIN:** 

3½" DS/DD DISCS £20 for 20 or £45 for 50 5¼" DS/DD DISCS £19 for 50

Huge discount for bulk orders Above prices do not include postage for mail order

# Not just for the 64

Graham Edkins reports that Compunet is not all inward-looking; it carries Amiga news and Psion organiser facilities too.

ith Compunet currently being accessible only to Commodore owners, not using the network may be surprised to learn that the computer chat and info areas are not solely related to that one micro.

A recent debate in the Arena area was about the relative advantages of the Amiga and the Atari ST, and the opinions expressed were as wide as one would expect from any open forum and did not show any

sign of undue bias toward Commodore. If you GOTO 242774 you will find that this debate has now moved on to a discussion about Acorns new RISC micro, the Archimedes, offering both technical detail and personal opinion.

Compunet's Amiga area (GOTO AMIGA) has been steadily growing as that micro has become more widely used. The Amiga User Group (GOTO AUG) edited by Tony Lacey includes a Problems Page, information on its BBS and details of the public domain software that it holds. This PD library has over 50 discs available (Fish 1–51). A list of the programs held on each is given with details of how to order them for £3.00 each via Compunet's e-mail system.

In the Amiga area you will also find Learning to Prog, which has information on books that are available, Amiga Buddies, which gives users an area to upload their name and e-mail address so that they can be contacted by other users, and Amiga Games Tips.

The Independent Commodore User Group (ICPUG) is a major source of information on Compunet. Its Amiga area, Amiga Forum, contains information covering Printers and Basic, Amiga Basic tips, 64 data transfer (from its newsletter) and a directory with problems and answers sent to BF6 who runs the area. The Amiga Forum is outside ICPUG's Closed User Group and can be accessed by all users.

Owners of the Psion Organiser pocket computer area also well served with information and even downloadable programs. In FD1's area (GOTO PSION), he gives details of how to use the Psion RS232 link in conjunction with a RS232 adapter for the 64. Using this method, programs for the Psion can be downloaded by the 64 as a sequential file and then transferred via Easy Script.

The Amiga (left) and Psion Organiser (right): both have their niches on Compunet

There are a couple of directories of these programs in the area and also a complete database of radio stations all of which can be downloaded with no charge. If you don't have the necessary hardware link then the sequential file can be typed into your Psion by hand.

Within the excellent Electric Frog Plate area there is another Psion area (GOTO FPSION). Here there are reviews and information under the titles Psion Hardware, Programming, OPL, Spell Checker and Organiser Comms. If you don't yet own a Psion Organiser, this area may well persuade you to buy one as soon as possible.

These areas dedicated to non-64 computing matters are just the beginning of the wider information base that will come about when other micros come online. I understand that Compunet will announce two new machines to gain access at the forthcoming *PCW* show with a running demo of them.

The latest speculation includes the Amiga amongst them with even the Archimedes at a latter date. We might well see Compunet take full advantage of the advance features available on new micros by breaking away from the familiar 'duckshot' and providing windows, etc.

For those with their interests firmly based around the 64 there is as always plenty to see and download with no end in sight to the astonishing variety of things people want to say and do on the system.

In the People Link directory (GOTO PEOPLE) there is now a very wide range of interests, these include Photonet, Airnet for those interested in Planes, Icthus, Pets Paradise offering help with domestic animals, Coarse Fishing listing places to fish, etc, and Motor bikes. Other vehicles are handled in great details by MWB1 in his Road Transport area (GOTO ROAD).



MWB1's other area, called the Blue Flush, is in the next directory (GOTO FLUSH). It is an amusing and somewhat risque magazine. In JJW1's area (GOTO METNET) there is now just about everything that you might want to know about the weather, from a weekly weather forecast to barograph, weather systems and atmosphere information.

On the free program front there are now three program crunchers, the latest has been uploaded by LH5 on page 300363 the others can be found from page 155751.

You can at any time show your opinion of any of these uploads or areas by voting against the appropriate page for everyone to see, and with the new mainframe in place this is now a very much faster procedure. Other effects brought about by the move can be seen in the chat area called Party Line (GOTO PARTY) where anything typed at the user's end appears in the chat area instantly making the natural flow of chat just what it should be. The overnight house keeping run is now very much quicker which leaves the system available off-peak for longer periods.

# Music on display

Mark Jenkins reports from the British Music Fair held at London's Olympia recently.

he third British Music Fair to be held at the London Olympia site proved pretty good for micro music, although it must be said that many smaller companies either lacking the qualifications for Association of Music Industries membership or the hard cash for a stand were not represented.

Thus we did not see XRI or Joreth (both of whom managed to take part in the computer music special feature last year) and Iconix was only there in the sense that Chris Palmer of Tigress Marketing was wandering around the show on a couple of days drumming up interest.

intermingle in a manner which should give you some of the flavour of this packed and rather hectic fair.

Akai is currently helping sax and trumpet players to program micro packages and control Midi instruments using its EWI and EVI wind controllers, which come with a rack-mounted synth but which are even more effective when playing a sampler.

more effective when playing a sampler.

Casio featured its FZ-1 sampling synth which is now in the music shops, plus Midi digital pianos, plus a whole new range of Midi guitars which will let you control micros or play Midi synths. The DG20 has plastic

and module, and sampled piano plus module, but promise a more innovative release for later in the year.

Korg UK had the most useful introduction for micro-based drum fans. The DSM-1 is a percussion sound module with sequencer, trigger-to-Midi conversion from tape signals and pads, 16 "kit" memories, remote control and compatibility with existing DDD-1 and DDD-5 sound memory cards.

MTR showed its usual superb value range of mixers, power amps, studio accessories, and speakers for the home studio.

Roland's professional D50 synth and D550 module version were overshadowed in the eyes of micro users by the multi-timbra MT-32 demo'd with their Contemporary Keyboard (electronic piano) range. With a stripped-down version of the new LA synthesis system, 28 onboard PCM sampled percussion sounds and built-in reverb for 450 it's a real phenomenon.

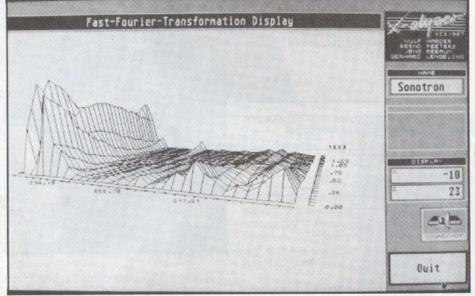
Sound Technology showed C-Lab's Creator package for the ST which we reviewed a couple of weeks ago. It's been updated since then with improved editing possibilities, and will soon be joined by X-Alyser, the editor package which can set up your DX synth's operators to imitate sample data dumped in via Midi.

Steinberg is now marketing Pro-24 Version 2.1 which has increased editing facilities and full music score function but which will now only work on a 1040 ST rather than a 520. The Soundworks editor for the Akai S900 Sampler is also being regularly updated, as is the company's DX editor package. Syndromic was showing Hybrid Arts SMPTETrack plus EZTrack and EZScore, its upcoming music scoring package, and its DX and CZ Android editors. Also on show were the FB01, TX81Z and Alpha Juno editors from Soundbits, a pre-release Roland D50 editor with a wonderful scrolling page effect, and much more.

Yamaha showed the REX50 budget reverb with distortion programs for guitarists, and the current DX7MkllD/FD and TX81Z synths plus a new DX7MkllS (which lacks their split and layer capabilities) and the TX802, a rack-mounting IID with multitimbral capability.

Like Akai, Yamaha had a wind controller which will let sax players program micros or Midi synths, and there were lots of multi-keyboards, and portables on show including a nice shoulder-worn Midi with drums and auto accompaniment.

Back to the detailed reviews next week with Commodore news from Sonus, ST products from Softwares, some interesting readers' packages and news from the US.



C-Lab X-Alyser for the ST

Of the computer hardware companies, Cheetah had the largest stand – and it has gone largely into non-micro-related musical instruments this year! Syndromic dominated on the software front, while Sound Technology showed its new *Creator* Midi composer for the Atari ST and Roland showed its educational software for the PC.

In micro terms the show was inevitably ST dominated. Sonus showed some Commodore 64 products at the show, and Cheetah mentioned their Spectrum and Amstrad based samplers and drum programs while allowing them to take second place to other new products.

Assuming you've already chosen your music micro – whether it's an ST or a Commodore or a BBC – there was a profusion of Midi-based instruments suitable for plugging in and you've exhausted the possibilities of the built-in sound chip. In the alphabetical listing below I've allowed hardware and software manufacturers to

strings so can't offer a particularly conventional feel, but built-in speakers and drum machine make it ideal for adding guitar phrasing to micro compositions – and for busking! There are also two professional Midi guitar controllers, the stylish MG500 and Strat-like MG510 models.

Cheetah de-emphasised its existing micro gear in favour of the ideal Midi controllers – the MK5 MkII five-octave keyboard, the MkIIV which adds velocity sensitivity, and a luxurious seven-octave version with pressure response which will sell for a mere £480. A £280 six-voice multitimbral DCO synth module and a £180 digital drum machine follow, the latter being programmable from a Spectrum.

Elka now has a superb range of digital FM synths and modules, an 18-note dynamic Midi pedalboard, drum machines, and a powerful 88-note Midi mother keyboard.

Ensoniq showed the DSK-1 (the stereo Mirage) plus the Mirage module, ESQ synth

## MICRO-FILE

SOFTWARE

### STORT SOFT

MAIL ORDER SPECIALISTS

ALL DISKS CARRY A NO QUIBBLE REPLACEMENT GUARANTEE, ARE CERTIFIED 100% ERROR FREE & COME WITH LABELS,  $5\frac{1}{2}$ " also have sleeves & write protects and reinforced hub rings.

#### BLANK 5 1/4" DISKS

DISK NOTCHER FREE WITH EACH 100 DISKS PURCHASED

					IU IN B
UNBRANDED	TRIAL 10	25	50	100	plastic lib. case
SS48 TPI	£4.50	£9.00	£17.00	£33.00	£5.50
DS48 TPI	£5.50	£11.00	£19.00	£35.00	£6.50
DS96 TPI	£6.50	£13.00	£21.00	£37.00	£7.50
DS96 TPI FLIP SIDED	£7.00	£14.00	£22.00	£38.00	£8.00
MIMIC FLIP SIDED DS96 TPI	£8.95	£20.00	£38.00	£70.00	£9.95
MIMIC HIGH DENSITY					
1.6meg	£23.00	£52.00	£100.00	£180.00	£24.00
COLOURED - mix & match or al	one colour				
SS48 TPI	£6.50	£12.00	£22.00	£42.00	£7.50
DS48 TPI	£7.50	£14.00	£24.00	£44.00	£8.50
DS96 TPI	£8.00	£16.00	£28.00	£50.00	£9.00
SPECIAL PRICE!! Dysan DS48TF	PI BOX OF 10	ONLY £10.9	5		

#### BLANK 3 1/2" DISKS

	10	25	50	100	plastic lib. case
MF1DD (SS/DD)	£12.95	£30.00	£58.00	£115.00	£13.95
MF2DD (DS/DD)	£14.95	£35.00	£63.00	£125.00	£15.95

#### LOCKING DISK BOXES

3\1" HOLDS 40	£7.95	3½" HOLDS 80	£9.95
En/on uning en 3" or on 31"	£9.95		

#### BLANK 3" DISKS

	10	25	50	100
CF2	£25.00	£60.00	£110.00	£200.00
CF2DD	£33.00	£80.00	£150.00	£280.00

All Hardware comes with free dust covers!! All STs come with 5 public domain disks including CPM emulator and the arcade game Megaroids, 5 blank disks to get you going. Basic language disk and manuals.

ATARI STFM

£289.95

520 STM & SF 314 1 meg drive £379.95

inc. First Word w/p and Spelling Checker

#### **FULL RANGE OF ATARI HARDWARE & SOFTWARE**

ACCESS/MASTERCARD/EUROCARD/VISA accepted. CREDIT CARD HOTLINE - 0279 89509

18 CROWN CLOSE, SHEERING, BISHOP'S STORTFORD, HERTS CM22 7NX (385)

#### **COMPUTER BARGAINS**

Commodore SX 64	£349.99
Commodore 64	£99.99
Commodore +	£39.99
Commodore 128	£149.99
Commodore 1541	£139.99
Commodore 1701	
Commodore 801 Printer	
Commodore 1101 D. Printer	
Commodore 1701 Monitor	
Amstrad 6218 Colour	
Amstrad 664	£199.00
Amstrad 464	£164.99
Sinclair +2	
lanstine Computers	£69.99
Commodore Data Cassettes	£24.99

Tons of computer equipment to clear

From: 2 BIT COMPUTERS

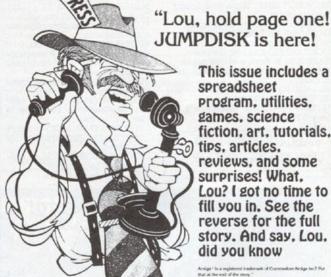
26-28 Bowesfield Lane, Stockton, Cleveland TS18 3ER Tel: 0642 604768

(404)

For the AMIGA MONTHLY MAGAZINE ON A DISK

AUG'87

## JUMPDISK



JUMPDISK is here! This issue includes a

spreadsheet program, utilities, games, science fiction, art, tutorials, tips, articles. reviews, and some surprises! What, Lou? I got no time to fill you in. See the reverse for the full story. And say, Lou. did you know

### **ATARI 520 STFM**

Available now

£269.95

#### MAIL CENTA

17 Campbell Street Belper, Derbyshire DE5 1AP

Phone order hotline: 077382 6830

For further enquiries please contact CATHERINE on 0543 262 976.

### ADVERTISING RATES FOR MICRO-FILE

Semi Display Lineage

£8 per single column centimetre (+VAT) 35p per word (+VAT)

CALL SUSANNAH KING OF ROBERT COLE ON 01-437 4343 FOR SEMI DISPLAY ADVERTISING



## JUMPDISK

For the AMIGA

#### **AUGUST ISSUE NOW AVAILABLE**

ARTICLES

ELPLAN: Documentation for the spreadsheet program
PD DISKS \$3 EACH: We "sell" public domain disks.

NEWSBREAKS: What's happening in

the Amiga universe.

TIPS: Readers share discoveries.

PROMPTMAKER: Tutorial on dressing up your AmigaDOS screens.

AMIGADOS PRIMER: Third instalment of a series aimed at beginners.

JUMPSTART BASIC: Make your Amiga characters talk.

FLOW: Documentation for program. RECURSION EXCURSION: A tutorial on recursive computer crt.
KICKSTART ELIMINATOR; Review

MARAUDER II: Review of disk copier. COMPARE: Documentation for the program. READERS' FORUM:

THE EDITOR'S TWO CENTS:
GETTING PUBLISHED: JUMPDISK is a paying market.

> **ALL OF THIS FOR** £8.50 inc. VAT

PROGRAMS

ELPLAN (512K): This spread-sheet program could be a use-

ful tool for years.

JOTTER (512K): Screen writer combining type and art.
THE LIGHTYEAR EXCUSE (512K):

Chapter 1 in a science fiction

series.

BANANA BOMBS (512K): Arcade game. Dodge those banana cream pies!

SOUTH AMERICA QUIZ (512K): Graphics test in full colour.

FLOW (512K): Simulates dynamics of a stream.

Ics of a stream.

BUSH (512K): Recursive art.

GOLDY (512K): Playful template
for your own multi-character

Amiga voice plays.

BLACKBOX (512K): Puzzle game

that will fry your mind. COMPARE (256K): Utility, verifies whether a copied file is

identical to source. SHOOTING STAR (512K): A weird but wonderful animation is our title screen.

PRINTALL (512K): Sends all arti-cles of this issue to paper. PLUS . . . Some surprise

Please send cheque or money order made payable to

#### GEORGE THOMPSON SERVICES LTD.

OLD REIGATE ROAD, BETCHWORTH, SURREY RH3 7DR TELEPHONE: 073 784 4675

Price includes first class P.&P. within U.K. & EUROPE SAME DAY DESPATCH OF ORDERS

THERE IS A GUARANTEE WITH EVERY ISSUE

(362)

#### DISCOUNT SOFTWARE

TAPE DISC POPULAR GAMES

2100		-	~
AMSTRAD 464/664 Mini Office 2 Illustrator Quill Illustrator Quill Tasprint Tasword	13.50 15.50 21.95 8.99	DISC 17.99 17.99 11.75 21.99	POF Elite Fist Rand Meth Arm Krak
AMSTRAD 6128/825 Cardboard Dbase 2 Art Studio New Word Super Celc 2 Tasword	<u>=</u>	52.99 109.00 17.99 62.00 44.95	Hyd Kine Endi Auf Sam The Indo Papi
COMMODORE 64 Easy Script Geos Mini Office 2 Paper Clip. Paper Clip Spell Checker Quill Illustrator. New Consultant Swift Spread Sheet	47.50 13.50 19.99	17.99 41.99 54.99 23.99 39.99 21.99	Tom Sho Futu Esca Hyp Ligh The Hear The
COMMODODRE 128 Dbase 2 C128 Compiler Swift Spread Sheet Super Script 128	= = = = = = = = = = = = = = = = = = =	109.50 36.50 21.99 65.95	Bloc Gau Foot Spa Trivi
SPECTRUM Art Studio	12.99 e. 19.95 12.99 5.50 12.99 12.95 8.50 12.50	HIHIHI	Your Baby Ace Cobo Jail I Gun: Brea Alier Siller Killer Dead
TOP TEN GAMES  1. Shadow Skimmer  2. Falcon  3. Oink  4. Barbarian  5. Whizz Ball  6. Shadows of Nurde  7. Exec Leaderboard  8. Mag Max  9. Wonder Boy  10. Football GFL	8.95 11.95 8.99 7.95 7.95 8.99 7.95	13.50 11.99 11.95 13.50 13.99 11.95 13.99 13.50	CO Acc Kor Ten Hit I 5 S The Nov
TOP TEN BUDGET  1. Milk Race 2. One Ball 3. BMX Simulator 4. Park Control 5. Denarius 6. Thunderbolt 7. Super Robin Hood		1.89 1.89 1.89 1.89	A

Gunship Breakthrough Aliens Silent Service Killed Until Dead Deadlined	7.95 7.95 12.99 8.99 7.99 8.99	11.95 13.50 16.99 13.50 13.50 13.50 22.99
Aliens Silent Service	7.95 12.99 8.99 7.99 8.99	11.95 13.50 16.99 13.50 11.50 13.50
Breakthrough	7.95 7.95 12.99 8.99	11.95 13.50 16.99 13.50
Breakthrough	7.95 7.95	11.95 13.50 16.99
	7.95	11.95
Jail Break	7.95	11.95
Cobra		
Ace Of Aces	7 90	12.50
Baby Boomer	13.50	18.50
Young Slavers	13.50	18.50
Trivia Pursuit	13.50	18.50
Space Harrier		13.50
Gauntlet Footballer Of The Year	9 00	13.50
Blood And Guts	8.50	12.95
The Last Ninja	8.99	13.50
Heart Land		13.50
The Double	8.99	_
Light Force	7.95	13.50
Hyper Ball	8 99	13.50
Escape From Finges Castl	8.95	13.50
Short Circuit Future Knight	7.95	11.50
Tomahawk	8.95	13.95
Paper Boy	8.99	13.50
Indoor Sports	7.95	13.50
The Big Slide	8.95	_
Samurai Trilogy	8.95	13.50
Auf Wiedersehen Monty	7.95	13.99
Kinetic Enduro Racer	7.95	13.99
Hydro Fall	7.95	12.95
Krak Out	8.95	13.99
Army Moves		13.95
Metrocross	7.95	13.99
Rana Rama	7.95	13.95
EliteFist II		12.50

COMPILATIONS	TAPE	DISC
Accolade Collection	. 8.95	-
Konami-F Coin-op Hits	8.50	12.95
Ten Computer Hits	.8.50	12.95
Hit Pak	8.50	12.95
5 Star Games	8.50	
They Sold A Million III	8.50	12.95
Now Games III		_

Software available for miga, Amstrad, Electron, Spectrum, Commodore. Price includes P&P for orders over £7. Under £5 add 50p.

Cheques and POs to:

#### CROWN SOFTWARE

47 Crown Drive, Spalding, Lincolnshire. Tel: 0775 69058

(313)

#### **CROWN SOFTWARE**

ANY PRICE AND WE WILL MATCH IT!!!

Available now

Atari 520 STFM ......£269.95 Commodore Connoisseur Pack...... Only £225.00 Spectrum +2.....£119.99 Spectrum +3.....£229.99

See quarter page advert for best rates on all software

#### 47 Crown Drive, Spalding, Lincolnshire

Hotline: 0775 69058

#### BRADWAY SOFTWARE (PW)

The specialists in Really Useful Utilities for the Spectrum 48 and 128 and +2

LETTA-HEAD PLUS. Design your letterhead, poster or label on screen, add text from the library of 25 different fonts, select the required output format and print all the copies you need. Price only £9.

DUMPY 3. Produces over 100 different size, shape, density and shaded screendumps. Price less than 1p per dump!! £8.50.

LIN-O-TYPE. Print out any ASCII wordprocessor file in high density NLQ in a choice of 25 fonts, or turn your Spectrum into a full WYSIWYG electronic typewriter. Price £8.50.

ASTRUM+. The very best Z80 assembler and monitor package. Full wordprocessor style editor, unlimited source code on microdrives or Opus Discovery. Command driven monitor with multiple breakpoints, single stepping, slow run etc. Price £13.50 (state microdrive or Opus version).

DISC MANAGER. Discovery disc sector editor and file management program. Erase, rename, copy groups of files, examine, modify and understand disc directory, recover damaged data. Price £10.50 on 3\(\frac{1}{2}\)in. disc only.

All programs drive all printer interfaces and are compatible with Microdrive, Wafadrive and Disc. Letta-Head, Dumpy and Lin-O-Type require an Epson compatible printer. Prices are for cassettes, include full instructions. P.&P. within Europe. Please add £2 per program worldwide airmail postage, £1.50 for microdrive cartridge or disc. Send for further details! (264)

33 Conalan Avenue, Sheffield S17 4PG

#### AMSTAT Modular Statistics and Mathematics Package MARKETED BY S. C. COLEMAN

Available for BOTH PCW AND CPC ranges ★ ★ New Amstat 7

Available for BOTH PCW AND CPC ranges \*\* \* New Amstat 7

AMSTAT 1 — means, standard deviations, variance, skew, kurtosis, 1-sample, 2-sample, and paired t-tests, 1-way AOV with single and multiple confidence intervals, 2-way AOV, correlations, regressions, histograms, scattergrams, transformations, file store and retrieve, output to wordprocessor file, manual. Flexible variables and observations to a total of 500 (+) data points.

AMSTAT 2 — 27 nonparametric tests in 4 programs providing a "complete Siegel". Sinomial, Chisquare (3), Kolmogorov-Smirnov (2), Runs, McNemar, Sign, Wilcoxon, Walsh, Randomisation (2), Fisher, Median (+extension), Mann-Whitney, Wald-Wolfowitz, Moses, Cochran, Friedman, Kruskal-Wallis, Contingency, Spearman, Kendall, Kendall partial, Concordance. "tremendous value" — Tony Kendle,



"tremendous value" - Tony Kendle, Popular Computing Weekly, 8-14th May 1986.

"I now give it an unreserved recom-mendation . . . " – Jo Stork, Business Computing with the Amstrad, July 1986.



**AMSTAT 3: FORECASTING** 

AMSTAT 3: FORECASTING
An array of business oriented mathematical and statistical software: Linear and Polynomial regression, Trend and Seasonal Variation, Multiple Regression Analysis, Transformations, Exponential Smoothing, Adaptive Filtering, Graphic display, full print-out, manual suited to immediate use and for teaching.

AMSTAT 4: RESOURCE MANAGEMENT — LINEAR PROGRAMMING MODULE General Purpose Linear programming + Specialised Transportation and Assignment variants. Capable of analysing and solving problems of sequencing, scheduling, blending, and allocation of scarce resources. 40 page manual, 18 worked examples.

AMSTAT 6: SFANOVA — Up to 8-way analysis of variance for equal cell sizes. Unequal cell sizes on 1-way AOV. Maximum of 2,000 data points (300 on unexpanded CP/M 2·2). Input for ASCII files. Output to screen or text file with full AOV table + main and interaction means and Newman-Keuls on main effects. Manual (disc only).

AMSTAT 7: RESOURCE MANAGEMENT II — STOCK AND PRODUCTION ANALYSIS Calculation of optimum re-order levels for both single and multiple items. Dynamic programming to calculate optimum production schedules for single items and consolidation of several results into a multiple schedule. Also Pareto and Lorenz analysis. Output to screen or printer. Includes operational manual with worked examples. screen or printer. Includes operational manual with worked examples.

The programs have applications in research of all kinds, education, sales, production planning, work and method study, financial planning, personnel, social work etc.

Price list:	CPC	PCW	Price list:	CPC	PCW
AMSTAT 1	£25.95	£27.95	AMSTAT 6	£25.95	£27.95
AMSTAT 2	£39.95	£39.95	AMSTAT 7	£25.95	£27.95
AMSTAT 3	£25.95	£27.95	AMSTAT 1+2	£49.95	£49.95
AMSTAT 4	£25.95	£27.95	AMSTAT 1+2+3+4	£99.95	£99.95

All prices include P&P within U.K.



S. C. COLEMAN 33 Leicester Road, Ashby-de-la-Zouch,

Cheques and P.O.s to:

Leics LE6 5DA. Tel: 0530 415919

### ATARI 520 STFM NOW IN STOCK FOR NEW PRICE ONLY £279.95 Includes mouse controller, manual, language disc and other utilities

PACK 1 - Atari 520 STM complete with mouse, 1 meg disc drive complete with manuals and demos £369

PACK 2 - Atari 520 STFM with mono monitor £379 complete with manuals and demos

PACK 3 - Atari 520 STM with 1 meg drive mono monitor manuals and demos at £459

#### ST SOFTWARE AT GIVEAWAY PRICES

Balance of Power £26.99 Championship Football £19.95	Brian Clough's Football Fortunes £19.95
Karate Kid II	Air Ball £19.95 Hard Ball £19.95
Prosound Designer£47.95	Crystal Castles £11.99
Colonial Conquest £24.95 Hades Nebula £16.95	Gauntlet £19.95 TNT £16.95
Guild of Thieves£19.95 Arkanoid £12.95	Roadrunner £19.95 Jupiter Probe £12.95
Arkanoid £12.95 Prohibition £15.95	Death Strike£12.95
Barbarian £19.95 Golden Path £19.95	Turbo G.T. £13.95 Kings Quest 3 £19.95
Golden Path	Kings Quest 5 L 19.95

3.5" DISCS 3.5" 10 for £12.95 3.5" 20 for £24.95 3.5" 50 for £55.95 All prices include p&p.

Lockable disc boxes 3.5" holds 90 .....£11.95

Amiga A2000 - £1095

#### AMIGA A500 NOW IN STOCK £529

#### AMIGA SOFTWARE AT GIVEAWAY PRICES

Balance of Power	£29.95
Defender of the Crown	£26.95
World Games	
Guild of Thieves	
Winter Games	
Star Glider	
Championship Football	
Swooper	
Deluxe Paint II	£129.00
Barbarian	
Instant Music	
The Surgeon	
Karate Kid II	£19.95
Viene Overs 2	C24 0F
Kings Quest 3	£24.95 £39.95
Portal	L39.95
Faerytale	
Kampfgruppe	£24.95
Amiga Karate	
Phalanx	
Space Battle	
Roadwar 2000	
Challenger	
Superhuey	
Uninvited	£24.95

More new releases this week phone for details Buy two games or more and deduct 50p off each game

Amiga 512 Rom upgrade.... Triangle 1 meg drive (Amiga) Cumana 1 meg drive (Amiga) Flight Simulator 2.... £99.99 £149.95 £39.95

This is just a small selection of our Amiga Software. Send S.A.E. for list

Other Commodore and Amiga peripherals in stock, please phone for details

We are Commodore appointed dealers

## SOUND N VISION 11 Silk St, Leigh, Lancs WN7 1AW.

Phone now for details — Tel: (0942) 673689
Cheques and P/Orders payable to: Sound N Vision P.&P./VAT INCLUDED

Visitors welcome in showroom, Send S.A.E. for price list.



### **MEMODEX - A MEMORY DOUBLER FOR THE AMSTRAD CPC6128**

Disc £8.99/Cassette £6.75 (transfers itself to disc)
FREE OFFER of DISCMENU program to Disc/Cass buyers

MEMODEX (462 bytes) is an advanced program offering 80K for Basic programming on the CPC6128 with no additional hardware needed. This package can provide a HIMEM of 42747 and is compatible with BANKMAN or DK'tronics RSX software. It may be used with DK 256K RAM, giving 272K for Basic programming. A 58K Manual shows how to store programs, screen and data all at a time using BANKMAN software. Send cheques/POs to:

Y. H. SIEW

57 Foundry Lane, Shirley Southampton SO1 3FX

Please print your return address clearly!

CRIBBAGE

The popular pub game six card cribbage is now available for the

Spectrum 48K/128K

Features include:

## SOVEREIGN MAIL-ORDER

289 St Saviours Road, Leicester LE5 4HG Tel: (0533) 490043 OPEN Mon-Sat 11a.m. to 7.30p.m.

#### ATARI-AMSTRAD-ST-COMMODORE SOFTWARE AND HARDWARE

5 DISCS ARE 10 FOR £6.50 3 DISCS SS/DD 10 FOR £14.00 DISCS DD/DD 10 FOR £16.00 MOUSE MATS AT ONLY £4.50

LOTS OF SOFTWARE ALL PRICES INC. VAT & P/P.

ATARI 520 STM meg (Atari) Drive. Mouse and 1st Word and FREE software **ONLY £399** 

**ATARI 520 STFM** £189 + FREE Mouse & Mat etc.

SEND LARGE S.A.E. FOR PRICE LIST AND STATE WHICH COMPUTER

DOUBLE-JAY SOFTWARE CASH BOOK

THE ELECTRONIC CASH ANALYSIS BOOK

(for the AMSTRAD CPC 6128, PCW 8256 and 8512)

#### **FEATURES**

- Fast compiled code
- Password protected
- Menu-driven Single screen activity
- \* Standard bank statement format \* 300+ current postings
- Self-perpetuating file
  As many files as you wish
- No periodic balance transfers
   Automatic old postings purge

- Automatic s/order calculation Automatic date sequencing
- Infinite choice summaries Hardcopy option

#### USES

- Household budget and
- forecasting \* Small business/club accounts
- \* Petty cash accounts
- \* Pocket money control
- \* Bank statements \* Income/expenditure summaries

#### CASH BOOK you'll wonder how

you ever managed without it!

#### PRICE £12.95 (overseas orders

add £1.00) Price includes software

supplied on 3" disc, compre-hensive manual, postage and packing.

(Trade enquiries welcome)

\* DESPATCH WITHIN 48 HOURS

cheques and postal orders to: **DOUBLE-JAY Software and Services** 

P.O. Box 5, Redruth, Cornwall TR16 4JJ.

(399

#### IMPRESSIVE FULL COLOUR 100% MACHINE CODE **AUTOMATIC SCORING**

PLAYING CARD GRAPHICS TWO LEVELS OF PLAY HELP OPTION FOR BEGINNERS

Six card cribbage is suitable for both beginners and experienced crib players and comes with full instructions and rules of the game.

\* MONEY BACK GUARANTEE \* \* If you are not delighted with six card cribbage then simply return the tape within 5 days and your cash will be refunded.

> \* \* \* \* \* \* Send cheque or postal order for £6.50 to

#### **ESEM SOFTWARE**

112 Wrington Close, Little Stoke, Bristol BS12 6EJ Tel: 0454 612811

(397)

#### THE COMPUTER DEPOT

205 Buchanan Street Glasgow G1 2JZ Tel: 041-332 3944



#### COMMODORE +4

64K computer datasette disc drive joystick and software

**★ ONLY £99.95 ★** 

#### 12in. Green Monitor Ferguson MMO2

SCOOP PURCHASE

**★ ONLY £59.95 ★** 

Suitable for Commodore, BBC, Electron, IBM, Amstrad PC, Spectrum, Atari, etc. (Specify type of lead.)



A veritable Aladdin's cave for the computer lover Visit or telephone (301)

Wordstar Professional Release 4 — Only £200 — £100 off
The Epson Users Group in conjunction with Micropro is pleased to bring you this very special one-off offer.
For more details ring 0836 200 504 now.

Epson software clearance — QX-10/16 and HX-20
The stock clearance announced two months ago has been extended and prices have been further reduced. I cannot emphasize strongly enough that you should buy now. Protect your investment as this will probably be your last chance to buy software for these truly fantastic machines especially at these CRAZY PRICES.

		UX-10/10	SOTTWARE:	
	NOW	WAS	NOW	WAS
Peachcalc	6.00	95.00	Peachtree Telecoms 6.00	95.00
Peachtext	6.00	125.00	Personal Pearl 7.00	190.00
Games 1 and 2 (fo	r both)15.00	90.00	Peachpak	
	QX-16	(MS/DOS 72	OK format) software:	
	NOW	WAS		
Dataplot	14.00	400.00	£386 OFF or 96.5% discou	int
		HX-20 s	oftware:	
	NOW	WAS	NOW	WAS
Ecalc (tape)	2.50	30.00	Correspondent 20 (Rom)2.50	40.00
DIY (tape)		20.00	Intext (Rom) 2.50	30.00
Games 2 (tape)	2.50	15.00		

Many of these are cheaper than the media they are recorded on!

All prices are in sterling and include p.&p. in the U.K.

For up to date availability and even more special pricing call 0836 200 504 RIGHT NOW.

DON'T WAIT OR IT WILL BE TOO LATE.

All items subject to availability.

(375)

## PROGRAMMERS GRAPHIC ARTISTS

Urgently required to join Britain's most productive and innovative software development house.

We can offer impressive all-round performance to talented and experienced 68000, 6502 and Z80 applicants, for major development projects.

Our reputation is spreading fast. . . .

★ Top rate royalty or outright payments.

\* Instant financial back-up and guaranteed payments

★ Europe's top arcade coin-ops and licensed projects
 ★ Professional programming support and development facilities

So discover your true hidden potential and join the team



THE FORCE BEHIND THE INDUSTRY

Contact:

Fergus McGovern, Probe Software Limited, P.I.F.C. House, 2nd Floor, 1a Church Road, Croydon, Surrey CR0 1SG

Tel: 01-680 4142 or 01-680 4454

(403)

#### COMPSWAP

BBC data recorder and tapes, £280. XXX disc drive, Acorn DFS, 27 discs of games, utilities, graphics, £150. AMX mouse, desk art utilities, 3D Zicon Roms, £50. Joystick adaptor, £5. Tel: 04024 44740.

COMPLETE W/P. CPC6128 mono, new, 2nd drive, DMP2000 printer, Protext (£79), computer desk, dozen discs, £400, consider split. Also JUKI2200 daisywheel printer/typewriter, £150. Tel: David (Plymouth) 0725 265142.

BBC B OS 1.20, solidisk, DDFS & 16K SW Ram, 40 track, d/s disc drive, monochrome monitor, cassette recorder, joystick, light pen, speech synth, lots of software, Roms & books etc, £500 o.n.o. Tel: Dorking 0306 885298. After 6pm.

TWO ATARI computers, 128K, 64K, with disc drive, cassette unit, software. All boxed, good condition, £180. Also selection discs, Strategy/Wargames for Atari £30. Tel: Stafford 0785 780187.

COMMODORE AMIGA A1000, 512K, colour monitor and external disc drive, around £400 of software, still under guarantee, £750 o.n.o. Tel: Mike, 0202 676720.

C64, 1541, C2N, printer, modem, books, Superscript, Macro assembler, utilities, program copiers, £600 of software, £300 worth of mags, cost over £1800, sell for £450, o.v.n.o. Tel: lan, Aldershot 20221.

C128, £750 worth of original tape games, sound sampler, books, manuals, magazines, joystick, worth £1100, sell for £375. For more information, Tel: Mark on 02407 3459, between 4pm-9pm.

PCW 8512, 20 discs, 10 books, £500 cash. No rubber cheques, prefer inspect/collect. Barratt, 9 Henbury Close, Torquay. Tel: 0803 37050.

AMSTRAD CPC 464, green screen with disc drive, music machine addon, modulator, firmware guide and over £100 software, mint condition. £250. Tel: Boscastle 336.

COMMODORE 64, disc drive, recorder, printer, sound sampler, music expansion, drumkits, speech, copier, joysticks, paddles, over £1700 of software + books, mags. Cost over £2,800, sell for £360. Tel: 061-432 4358.

ATARI ST PUBLIC DOMAIN SOFTWARE SERVICE. Prices start at £1. Hundreds of titles on over 100 discs, formed 1 year ago. We have a large list. Send stamped self-addressed envelope to: Paul Muad'dib, ST UK, 2 Marina Gardens, Cheshunt, Herts.

SPECTRUM 128K, serial printer, Opus disc drive, joystick, 50 original games, books, cassette recorder, v.g.c. £300 o.n.o. Phone after 6pm. 01-360 7652. All deals considered.

HALF PRICE. Mac Emulator for Atari ST with working software, £90. Daisystep printer, £150. Haba Writer II, £40. Other ST and QL software and books. Tel: Bristol 0272 741421. Evenings/weekend.

EPSON LX-80 printer. Perfect condition, £120. Tel: Clitheroe 0200 28163.

SPECTRUM +128 computer with data recorder, Kempston interface, software and light pen. Still boxed as new, £90. Tel: Upper Warlingham 088 32 5539. Evenings/weekends after 6pm.

AMSTRAD 6128, colour monitor, cassette deck, joystick, books, software worth £650 including Advanced Art Studio, Atlast Database, Mini Office II, plus games, blank discs, mags, etc. Tel: Ray 0707 372050. £400 etc. Tel: Ray 0707 372050.

COMMODORE 64 (in new slimline case), disc drive, data cassette, Eppyx fast loader cartridge, books, manuals and nearly £2,000 worth of disc software. Absolute bargain at £385. Tel: 0992 462555.

BBC 'B' including data recorder and green screen monitor, price only £185. Tel: 0732 823662 or 0493 661027, if no reply. Calls between 6pm-9pm.

FOR SALE. CBM 64 for only £100l Plus 6 computer games and datacassette. Also for sale The Hornet remote control car for only £50. Tel: St. Albans 59519.

ATARI ST OWNERS — vast p.d. s/w library available, laser printing service, setting up disc magazine and in need of articles. S.A.E. to Wilson, 56 Ecton Ave, Macclesfield SK10 1RD.

AMSTRAD CPC 464, colour monitor, disc drive, joystick, over 50 utilities, games, books, magazines – £260. Also Oric Atmos, £25 and ZX81 16K, £15. Tel: 0268 690850.

AN EXCITING OPPORTUNITY for the micro enthusiast. Start your own business. Free details from: RH Publications (CW1), 104 Louth Road, Grimsby, S. Humberside DN33 2JG.

ATARI 1040STF. 3 months old, fast basic cartridge, advanced user guide, word processor, monitor lead, worth f725, sell for £595 o.n.o. Tel: 0603 721216. After 7pm. INTERFACE 1 microdrive, plus 15 blank microdrives and box for only £45. Also joystick interface – Kempston, £5. Ring Chris after 5pm on 0772 717607.

FOR ATARI ST: WS4000 Modern plus FASTCOM and cable; as new £160. SUPERBASE £45, AEGIS ANI-MATOR £40, 'START' first year £25 set. Games from £10. All originals. Tel: 0822 852796

BBC SOFTWARE – Fontwise Plus/ Editor, Wordaid, Music Systems, books, games, mags, etc. Send S.A.E. for price list to Frank Sawyer, 13 Oakhurst Gardens, Bexleyheath, Kent DA7 5JP.

C64+ data recorder 1541D, MPS 801, software to the value of £1000 – many extras including Quickdisc – £320 o.n.o. Tel: 042 121 4561. Evenings.

ATARI ST PUBLIC DOMAIN SOFTWARE SERVICE. Prices start at £1. Hundreds of titles on over 100 discs, formed 1 year ago. We have a large list. Send stamped self-addressed envelope to: Paul Muad'dib, ST UK, 2 Marina Gardens, Cheshunt, Herts.

COMMODORE 128 disc drive, plus daisywheel printer, plus loads of software, including Vivwrite 128, all for 5500. Tel: 0277 363991. Evenings. Only or weekends.

QL 640K 16in. RGB monitor, HR5 printer, disc i/f (no drives), much software, v.g.c. QLiberator, QC etc, £300. Contact Bob Smith, Tel: 0704 35500.

BBC B 32K 40/80 disc drive, mouse, light-pen, tons of software on tape & disc, £400. Phone Matt on 01-363 2873.

Available for residential computer courses. We will provide catering, marketing information and other services as necessary. We need a partner/joint operator to run the courses.

Contact

Mr Copeman 0327 60165

#### MAKE MONEY WITH YOUR MICRO

Earn as much or as little as you like, working from home. A successful busi-ness ideall FREE details from: AMREX Promotions (C5), Freepost, Colchester CO1 1BR. No Stamp required (26

#### MORRIS SOFTWARE

AMSTRAD USERS FANTASTIC OFFER races? Like the excitement? Like betting? But don't like losing? At The Races for £1.99 — DERBY DAY Send chaptes/FDs to: Morris Software nt? Like the FOR SALE

# M.D.S. Computer Supplies

11 Church Street, Banbridge BT32 4AA Credit Card Hotline 10am-7pm (08206) 23477 51" DS/DD Bulk unbranded

25 50 100 150	£ £	19.95 34.95 52.95 85.95
300	3½" DS/DD Bulk unbranded	35.55
10	£'	11.50
25	€:	
50	E.	28.95
	£!	28.95
100	£10	28.95 55.75
50 100 150	£10 £10	28.95 55.75 09.05

#### **C128 DATAFILE**

Up to 1000 records, 8 fields, fixed, flixi search/sort, numer/alpha, memory read, disc drive + computer status, printouts + many more features. A comprehersive package for £3.59, disc only. Send cheques/P0s to.

K. J. Software, 78 Wood Avenue, Folkestone, Kent.

# **DEE JAY SAVERS**

All computer software at BARGAIN prices. Business Software also available. end S.A.E. stating computer

62 Eagles Close SITTINGBOURNE Kent ME10 3RA

# SERVICES

# **FAULTY SPECTRUM?**

As you are probably aware from press reports Sinclair Computers no longer have a repair department.

Our computer repair workshop has been an OFFICIAL Sinclair Repair Depot for the past six years and we are pleased to announce that we will continue to do your out of guarantee repairs as in the past.

Send your faulty computer DIRECT

SPECTRUM	£18.75 inc parts
ZX81	£11.50 inc parts
16K RAM	£9.95 inc parts
MICRODRIVE	£15.95 Inc parts
INTERFACE 1-11	£18.75 Inc parts

CALL OR SEND WITH CHEQUE OR P.O.

T.V. SERVICES OF CAMBRIDGE LTD FRENCH'S ROAD, CAMBRIDGE CB4 3NP Tel: 0223 311371

DRTV

# OMPUTER REPAIRS

Fixed Super Low Prices! Inclusive of parts, labour and VAT



FIRST AID FOR TECHNOLOGY

(374)

1 week turnround Free collection/delivery available for local area

 $\star$  INTRODUCTORY OFFERS  $\star$ £14 inc. + Free Game £22 inc. + Free Game SPECTRUMS C64 C16 VIC20, C+4 £18 inc. £22 inc. VIC20, C+4 £22 inc.
BBC £32 inc.
ELECTRON £19 inc.
AMSTRAD 464 £32 inc. + Free Game
C & N CASSETTE UNITS £19 inc.

C64 P.S.U. FOR SALE Please enclose payment with item - 3 month warranty on repair

Please enclose advert with repair W.T.S. ELECTRONICS

5-9 Portland Road, Luton, Beds LU4 8AT. Tel: 0582 458375. Telex: 265871

£20 inc.

## **EAST LONDON MICRO** SERVICE CENTRE

Spectrum, Commodore, Amstrad, Atari, MSX plus peripherals. Turnaround typical of 2-5 days. Three months warranty guaranteed.

Postal repairs undertaken. Computer IC's components sold. Budget games, software and accessories sold. Mail order welcome. Trade enquiries welcome.

Open 9am-8pm Mon.-Sat

## SAN ELECTRONICS

63 Plashet Grove, East Ham London E6 1AD Tel: 01-472 4871

Four minutes walk from Upton Park Tube Station,

(358)

ATARI OWNERS

A Avenue, Guern, Loug testerables Lift 2 8HD Teh 0509 412804

# EAST KENT COMPUTER

Computers and software for business and pleasure for most types of computers. Generous discounts on Atari ST, Commodore Amiga software and printers.

Late night Tuesdays and Thursdays

#### LIGHTHOUSE COMPUTER SERVICE

Telephone: 0304 362049 and 369313 minutes walk from Deal St rclaycard excepted.

## FAST COMPUTER REPAIR CENTRE - IN LONDON

BBC Micro, Commodore, Spectrum \*Amstrad Others \*We sell spare parts Used Micros bought and sold Eprom Programming Service Phone: 01-863 7166

# PROMPT ELECTRONICS

Unit 4, 15 Springfield Road, Harrow, Middx HA1 1QF (entrance in Amersham Road) (70)

# COMPUTER SERVICE AND REPAIRS BY THE SPECIALIST

Commodore 64..... £16.00 Interface II ..... £15.00

Vic 20, C16, C128 C+4 & BBC

All £20 + parts

All repairs carry 3 months' guarantee

Also many spares prices on application 
 Spectrum Membrane
 £5.00

 Spectrum+ Membrane
 £10.00

 Commodore 64 Power Supply
 £26.00
 

All prices include VAT. While-you-wait service or send computer with cheque to include £2.00 p&p to:

THOMAS WALKER AND SON LTD 37-41 Bissell Street, Birmingham B5 7HR Tel: 021-622 4475

# SPECTRUM REPAIRS

£17.00 ...90p ...50p ALL PRICES INCLUDE VAT AND POSTAGE RA ELECTRONICS

133 London Road South Lowestoft, Suffolk NR33 0AX Tel: 0502 66289 DEE JAY SAVERS. All computer software at bargain prices. Business software also available. Send S.A.E. stating computer. Dee Jay Savers, 62 Close, Sittingbourne, Kent ME10 3RA

C128, 1570 d/drive, C2N, Brother HR5 printer, Expert cartridge, Superbase 128, many discs, tapes, magazines, books, £550. Tel: 021-382

**DISK SALE** 

10 3.5" DISKS FOR ONLY £10.95 INC.

Quantity Price Description £11.95 inc. 3.5 DS/DD 10 3.5 SS/DD £10.95 inc. 10 Storage Box (10 disks) 1 £1.50 inc.

All disks by top manufacturers with a lifetime guarantee. Remember price includes VAT & postage. For Same Day Express Dispatch (1st Class Post) add £1/10 disks. E.C. customers please add £1 extra postage/10 disks. Quantity discounts - please call.



# **Athene Consultants**

33 Holly Grove, Fareham, Hants PO16 7UP. Tel: 0329 282083

(323)

# ☆ ST USERS! ☆

Star U.K. offers all Public Domain titles for £1!

Newsletter Service available.

(ST World): "Check it out if you dare."

For more details send S.A.E.

# Star U.K.

8 Flm Place Aberdeen

(Prestel 819992249)

(393)

# Atari 800 XL / 130 XE **Essential Utilities**

Transdisk Version 3.0

The most powerful tape to disc system for the Atari now made even better. Transfers commercial, machine code, "boot" cassette games or any other software to disc. Single, multi-stage and now even non-standard format tapes present no problem to Transdisk. Plus, enjoy the convenience of loading and running your newly transferred software from an autorum disc menu. No other tape to disc utility for the Atari is as powerful or successful as that £19.55 inc. Supplied on disc with instructions.

The Freezer!

An amazing new utility for the Ataril "Freezer" programs while they are BUNNING on your computer. The Freezer than takes over control and allows you to make a back-up copy of the freeze program. The back-up copy will load, and restart from the freezen point, on ANY Atari XL/XE computer, independent of The Freezer! Freezer disc OR tape programs even those that are heavely protected Easy to use — Int one key to freeze the program in memory then insert a blank disc and hit another key to seve it — that is if £19.55 inc. Transdisk Version 3.0

point, on ANY Atani XI,XIS computer, independent of The Financer Fire texted Easy to use – hit one key to freeze the program in memory ther £ 19.95 inc. Send an S.A.E. or phone for more details of these utilities. Special offer order both programmes for £3.00 Make Cheque or P.O. payable to DIGICOMMI and send your order to

170 Bradwell Common Boulevard, Milton Keynes, Bucks MK13 8B6. Tel: 0908 663708.

# LABELS

#### **Self Adhesive** Disk & Cassette Labels

DISK LABELS - 3" & 3½" Disk labels, 71 x 69 mm, on tractor feed backing for computer overprinting, White: 500 - £15.55, 1000 - £22.05, 2000 - £25.69. Tinted labels in - Blue, Fink, Grey, Cream, Yellow, Orange, Green: 500 - £21.3s, 1000 - £31.05, 2000 - £43.63. 514" Disk, 95 x 36 mm, White: 500 - £12.75, 1000 - £17.75, 2000 - £20.56. Tints as above: 500 - £15.20, 1000 - £24.65, 2000 - £34.36.

CASSETTE LABELS - On tractor feed backing, Rolls of 500 labels, White - £14.66, Tinted -£16.90. A4 sheets, 12 labels per sheet, 100 labels - £3.50, 200 - £6.00, 1000 - £21.85 All prices are inclusive of VAT & carriage.

We are specialist computer label makers and can provide printed labels in 24/48 hrs. For price list and sample brochure of our full range of self adhesive micro computer labels plus details of quantity discounts

Sittingbourne (0795) 28425 (24 hrs)



Smeed-Dean Sittingbourne Kent ME10 3RN

Self Adhesive Labels - SUPERFAST

# M.G. COMPUTER SERVICES

Offers best prices and best service on the repair of

COMMODORES AMSTRAD SPECTRUM BBC and all other makes

85-87 St John's Road Tunbridge Wells, Kent Tel: 0892 43433

(392)

# DO YOU HAVE A PROGRAM WORTH SELLING? TURNED DOWN BY A SOFTWARE HOUSE?

Then let me show you the way to turn your program, small or large, fair or excellent, into the cash it deserves!

is S.A.E. enclosing &1 cheque or P/O to V. J. Elliott, 30 Coppice Avenue, Harrogate, North Yorkshire

# AMAZING UNBELIEVABLE VALUE

Here it is, the new price for the ATARI 520 STFM - £275 (inc. VAT & carriage)

Call Theta Computers 0943 816133

2nd Floor, 126 Bolling Rd, Ilkley, West Yorkshire. MAIL ORDER

#### FLOPPYSHOP ST PUBLIC DOMAIN SOFTWARE LIBRARY

We're an independent user group dealing exclusively with the ST. Annual membership £5.00 including newsletter. We charge £3-£3.50 per disc including

Send SAE to the address below for details:

FLOPPYSHOP ST.

50 Stuart Crescent, Northfields, Aberdeen

(406)

#### S D MICROSYSTEMS

For the Sinclair OL and Amstrad CPC 6128: The SMALL TRADERS PACK with Accounts, VAT, Stock Control, Mailing List/Label Printer, Phone File, mais-calculator plus utilities. "Simple to use, a good deal for the money" – (QL WORLD). Only £24.95 on QL molv or CPC disc.

\*\* Fully menu-driven & Epson-compatible \*\*
SALES INVOICING: prints smart invoices & statements on
plain paper. Only £14.95 (£9.95 with pack) Tel: 04626 75106 or SAE for details: (368)

(Dept PCW) PO BOX 24, HITCHIN HERTS, UK

#### AMIGA **PUBLIC DOMAIN SOFTWARE**

We have the very latest Fish, w 52 to w 80, and Amicus, w 11 to w 20, disks in stock. Please send S.A.E. for latest release sheet. No membership fees. Quality guaranteed. All disks each \$3.00 inc. VAT. P/P is charged at cost. Courtesy of Jumpdisk. 1 Free Disk for every order of 10 Disks

George Thompson Services Ltd.
Old Reigate Road
Betchworth, Surrey RH3 7DR
Tel: 073-784 4675 (291)

# EDTX 81Z

From Softworks Fully mouse controlled 'Edit or parameters (inc)
' Performance and micro-tune ' Choice of graphic or alphanumeric voice editing.

Price £49.95 inc. VAT and P&P
Available mail order only

SOFTWORKS 32 Chalcot Rd, London NW3 8LP TRADE ENQUIRIES WELCOME (354)

# **PUBLIC DOMAIN**

Why reinvent the wheel? We have a large selection of languages, demo's, utilities, comm's and games etc, available. A stamp for our list will save you hours of frustration. No membership fees.

Discs from £3.00 to £4.50

MCSOFT

9 Abingdon Gardens, Bath, Avon BA2 2UY

## ATARI ST SOFTWARE

Need not be expensive Public domain software could be just what you need.

I have a full range of utilities, games, demo's etc, at just £3.00 per disc.

No fees or membership, send a stamp for list to:

> SOFTVILLE 55 Highfield Avenue Waterlooville Hampshire

Telephone: 0705 2266509

# DUPLICATION

We now OFFER THE FOLLOWING: data/audio cassette duplication for most computers; Disc dupli-cation (£5.25); blanks; PHOTOCOPIED LABELS & INLAYS PRINTED, with your LOGO, or dot-matrix.

Price list from: SSP, 20 WestEnd, Launton, Near Bices Oxon OX5 00F. Tel: 0869 252831

(283)

# BLANK CASSETTES

WITH LIBRARY CASES

C10 C15 C20 C30 20 7.50 7.70 7.90 8.70 50 16.00 16.20 16.90 18.50 100 29.00 30.00 31.00 35.00

Fully Inclusive (C.O.D. £1 extra)

## DISKS

10 5 1 DS/DD £6-50 inc. case 10 3½" SS/DD £16 inc. case 10 3" AMSOFT £26 inc. case

# MEMOTECH COMPUTERS AND ACCESSORIES

MTX 512 COMPUTER £43.00
DMX 80 PRINTER £150.00
RS232 £30.00
PASCAL ROM £30.00
SPECULATOR ROM £30.00
J mb. DISK DRIVE & INTERFACE £160
I mb. DISK DRIVE & INTERFACE £160

All the above prices are fully inclusive. We stock the entire Memotech Range. Order/Enquiries to:

UK HOME COMPUTERS
82 CHURCHWARD AVE, SWINDON,
WILTS SN2 1NH
24-hr Phone Service 0793 695034

# PANTHER SOFTWARE

Games and Educational Business Software for Amstrad PC and IBM compatible.

2 Riverway Gardens The Meadows Nottingham NG2 3LL Tel: (0602) 860664

# RIBBONS

# ALADDINK

**FABRIC RIBBON CASSETTE RE-INKING** Trial offer: £1 per ribbon Post used cassettes with payment to: ALADDINK (Dept PC), 4 Hurkur Crescent, Eyemouth, Berwickshire TD14 5AP Tel: 08907 50965

# BULLETIN BOARDS

# WIZARD

0703 631431 (300/300) 6pm-midnight

Eight words, no parity, one-stop bit. Sections on-line. (Coms/Hackers hotline). Information. Intelligence. Dracle. (Bright ideas, bloomers, club spot etc.). Electronics and computing maliboxes and much, much more to come!!!



1 THE SOUTH EAST

SOUTHEND-ON-SEA

# PERSONAL COMPUTERS

Commodore's Amiga A500 available NOW. Call for price.

Buy the Atari STFM at the new price – only £299 inc. VAT.

Software at discount prices.

Victoria Circus Shopping Centre (escalator from railway station) Southend on Sea

Tel: (0702) 614131

(289)

# **2 THE MIDLANDS**

# LICHFIELD

COMPUTER WORKSHOP 34–36 Market Street Lichfield Staffordshire WS13 6LH *Tel:* 0543 262976

PICK UP YOUR AMSTRAD OFFICE THIS SUMMER
PC 1512 512K twin drive, mono monitor, printer, word processing and Supercalc 3 software:

£699 + VAT, £10 postage OFFER CLOSES 31 AUGUST 1987

CF2 Amstrad discs:

10 £24.95	£55.95	£109.95	100 £199.95
	8256/8512 A	mstrad ribbons	:
10 £39.50	<b>25</b> £98.25	<b>50</b> £197.00	100 £320.00 (394

# SOUTHEND

# LONDON

# **TAMWORTH**

# A.S. and T. Ltd.

Largest Atari St dealer in Essex

Tel: 0702 510151 Unit 32/33 Rutherford Close Eastwood Industrial Estate Leigh-on-Sea Essex

(Progress Road/A127)

(388)

# **DIGITAL SHADES LTD**

\* Atari ST Special Offer!

Atari 520 STFM plus starter kit

Now ONLY £279.00

Mail order hotline (01) 471 7969

9 Selsdon Road, Upton Park London E13 9BY

# TRIANGLE TELEVISION

The Amiga specialist

★ A500 and A2000
★ External drive £148 inc. VAT
★ Full range of peripherals
★ Full range of software
★ Video/Graphic Specialists
★ Digi-Paint now in stock - £67.85 inc. VAT

Phone for details 130 Brookwood Road, London SW18 5DD Tel: 01-874 3418

WS4

# ATARI - Power without the price

NOW SELLING THE 520 STFM

AT £299.00

All this and much more at:

## **Magnetic Media**

1 Victoria Arcade Aldergate Staffs B79 7BR

Tel: 0827 59566

# **DEALERS!**

You can reach 40,000 readers for as little as £25 a week! For more details phone Susannah on (01) 437 4343



(401)





# **2 NORTHERN ENGLAND**

# MANCHESTER/HINCKLEY

# COMLEX SPECIAL PRICES WITH THIS AD! AMSTRAD SUMMER DEALS Amstrad 1640 20Mb Tandon £999 MCAL Wordstar printer - £449; Colour westion add £159; with

th Tandon 20 Meg hard o

AT - phone for others not listed.
STRAD PC   20Mb Uggrade for Amstrad PC [fitted if required] £345   22
77 Amstrad 128K memory upgrade£29
PRINTERS
ATARI D5 520STFM + Philips colour Hi-res
MMODORE

GOVERNMENT AND EDUCATIONAL ORDERS WELCOME, EXPORT ENQUIRIES WELCOME STANDARD BELIVERY 15 AND NEXT DAY 19.50 — ADD 15% TO ORDER TOTAL Comlex House, 28 Bradgate Road, Hinckley LE10 1 LA (0455) 635583. Manchester 061-976 3763 (342)

# CLEVELEYS

# ★ ELM COMPUTING ★

Large stockist of Amstrad, Commo-dore, Amiga. Used & quality second hand goods. Always for sale. Ample software always in stock NOW!

Awaiting new prices for ST.

Enquiries welcome. Stock list al-ways available, always changing. Send S.A.E. stating interest to:

3C York Avenue Cleveleys Lancashire FY5 2UG

Or phone hotline 0253 852 882 (Ask for Pete Wood). (3:

# LIVERPOOL

# CITY SOFTWARE

Specialists in:

AMSTRAD COMMODORE ATARI SOFTWARE AND HARDWARE

66 Lime Street, City Centre, Liverpool Tel: 051-708 7100 (263)

# KEIGHLEY

# NORTHERN DATA SERVICES

Airedale House Campbell Street Keighley BD21 3AA

For your computer rentals and personalised software

# JUST A FEW EXAMPLES

★ Amstrad PC1512 SD mono – £8 per week ★ Amstrad PC1512 SD mono 10Mb – £17 per week ★ Amstrad PCW 8256 complete - £8 per week Tandon PCX 10Mb - £17 per week

★ 20Mb hard cord - £6.25 per week

# SPECIAL OFFER

Video libraries complete package including software only £16.25 per week

Why pay over the odds? Ring N.D.S. (0535) 609456

Prices based on a rental period of 12 months. Dot matrix printers from £8 per week Special rate for daily and weekly hire

(380)

# NORTHAMPTON

# A-Z COUNTY SUPPLIES

Special discount prices on software for SPECTRUM

COMMODORE ATARI ST MSX AMSTRAD AMIGA



174 Kettering Road Northampton NN1 4BP Tel: 0604 24380

# 5 WALES

# **ABERDARE**

# VETA LTD

Your one stop computer shop. Business/home computers and software.

## Micro-Repairs Mail order service

13 John Street, Abercymboi, Aberdare, Mid Glam CF44 6BL. Tel: 0443 47 8777

\* Special offer while stocks last \* Amstrad PC1512 DDCM £775 incl. VAT

Delivery free UK mainland only

# **3 SCOTLAND**

# **CUMBERNAULD**

# MEGABYTE

Scotland's fastest growing ATARI Centre

Atari's always in stock! Come and see us for the latest and greatest IBM compatibles.

12 Ettrick Square, Town Centre, Cumbernauld G67 1ND Hotline: 0236 738398

# **GLASGOW**

# **GLASGOW**

# COMPUTER CENTRE

Atari appointed dealer and Service Centre Specialists in Atari ST Computers

VIRGINIA GALLERIES (1st FLOOR) 33 VIRGINIA STREET **GLASGOW G1 1TU** TEL: 041-552 1522 138

# COLDSTREAM

#### COMSOFT

Suppliers of hardware and software for the

Have your fabric ribbons re-inked for only £1. or re-ink your own DPM 1-DPM2000-DPM3000 using our kit comprising of 1 spare ribbon, 1 bottle special ink and full instructions.

Each ribbon will re-ink on average 50 times. ONLY £12.95.

Send for our catalogue of over two thousand titles all discount prices. All prices include p.&p. UK only. Exp. orders welcome.

MSOFT HOUSE, 48 DUKE STREET COLDSTREAM, BERWICKSHIRE TD12 4LF

Tel: 0890 2979 Tel: Ubsu 2375 24-hr order service on 0890 2854. (377)

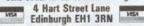
# EDINBURGH

# THE A AMIGA CENTRE SCOTLAND

Commodore Business Centre Amiga Specialists since 1985

Amiga A500 and A2000 now available. Technical and software support to our cus-tomers. Full range of AMIGA software and peripherals.

Send S.A.E. for our software catalogue



Tel: 031-557 4242 (24 hrs.)

# 4 SOUTH WEST

# BRISTOL

# FAST QUALITY, FULLY GUARANTEED

IBM compatible at breakthrough prices

# AT COMPATIBLE £1,195.00 + VAT

- 80286 CPV switchable 6/8/12 MHz Legal 32K Phoenix Bias 640K Ram

- 8 Expansion slots 20Mb hard disc

- 20Mb hard disc
  Western digital controller card
  1.2 Mb floppy
  2 RS232, 1 parallel, plus 1 games port
  Clock/calendar battery back-up
  Mono graphic/printer card
  High res 14" green or amber monitor with
  tilt and swivel
  200W power supply
  101 keys professional keyboard
  MS DOS 3.2
  Full set of manuals

- XT COMPATIBLE £790.00 + VAT
- \* 8088-2 CPU switcher board 4.77/8.00 MHz \* Legal Bias \* 640K Ram, 8 expansion slots, 30Mb hard disc

- 30Mb hard disc
  360K floppy
  1 RSS232
  Clock calendar
  Mono graphic/printer card
  High res 12" green or amber monitor with tilt and swivel
  135W power supply
  84 key professional keyboard
  MS DOS 3.2
  12 month warranty on all machines

Most other computers available at competitive prices, e.g.

AMIGA 500

£499 inc. VAT and postage

ATARI STFM £299 inc. VAT and postage

# Please phone or post coupon for further details.

I would like further details of	the following
COMPUTER	MODEL
NAME	
	Post code
Telephone:	Post code

## AVON COMPUTER EXCHANGE LTD

126 Church Rd, Redfield, Bristol BS5 9HH. Tel: 0272 542116 9am-8pm

# Your complete guide to all the software released this week



# Atari XL/XE

Program Decathlon Type Arcade Price £1.99 Supplier Firebird, 64-76, New Oxford Street, London WC1A 1PS.

Program The Pay Off Type Adventure Price £2.99 Supplier Bug-Byte, Victory House, Leicester Place, London WC2H 7NB.

# **BBC** Series

Program Crazee Rider Type Simulation Price £14.95 (disc) £9.95 (cassette) Supplier Superior Software, Regent House, Skinner Lane, Leeds LS7 1AX.

Sort of like Pole Position, but with bikes instead of cars. Speed demons will probably enjoy it, but the disappointing scenery (there isn't any) and odd viewpoint leave it short of greatness.



Program Spy vs Spy Type Two player arcade Price £9.95 tape, £12.95 BBC/Master disc Supplier Tynesoft, Unit 3, Addison Industrial Estate, Blaydon, Tyne and Wear NE21 4TE.

See panel for comment.



Amstrad CPC

Program Mask Type Arcade Price £9.99 Supplier Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.

Program Motos Type Arcade Price £2.99 Supplier MAD, 8-10 Paul Street, London EC2A 4BY.

Program Throne of Fire Type Arcade Price £8.95 Supplier Melbourne House, 8-10 Paul Street, London EC2A 4BY

Program Coin-Op Classics Type Arcade Price £9.99 tape Supplier US Gold, Units 2 and 3, Holford Way, Holford, Birmingham B6 7AX. See Commodore 64 for comment.

# Amstrad PCW

Program ACE Type Flight simulator Price £19.95 Supplier Cascade Games, 1-3 Haywra Crescent, Harrogate HG1 5BG.



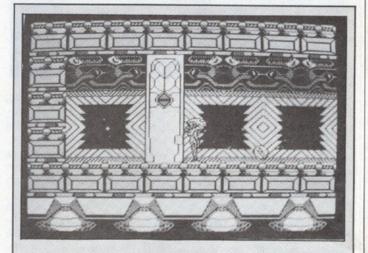
#### Program Templeton Type Arcade Price £2.99 Supplier Bug-Byte, Victory House, Leicester Place, London WC2H 7NB.

Program Star Clash Type Arcade Price £4.99 Supplier Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.

# Commodore 64

Program B-24 Type Strategy Price £19.99 (disc) £14.99 (cassette) Supplier SSI/US Gold, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX.

Not another flight simulator, but a much more unusual beast: a war game based on one of World War



he title of this game might as well be Alien - The Arcade Game, though I imagine somebody, somewhere might have objected to that.

There's a mild element of originality in the plot, in that instead of being the lone fighter against hordes of monsters. in Survivor it is you who are the monster. Your task in the game is to ensure the survival of your race by locating ten incubation chambers onboard a space ship, and then leaving pods in them, out of which the next generation of little monsters will spring.

The ship is quite large, consisting of some 140 rooms, divided into four zones which are interconnected by lifts and groups of platforms, and you find your way around by the usual left/right, jump/duck method.

Wandering the corridors of the ship are lots of little humanoid engineers and contact with these will drain your creature's energy level. But you can boost your energy by finding an incubator or by eating the engineers. To do this you spit paralysing acid at them, after which they're not in any state to object to being eaten.

The plot bears quite a similarity to the film Alien, and so do the graphics. The ship itself is colourful but fairly undistinguished, but the monster looks about as much like the creature from the film as you could imagine on a Spectrum.

That doesn't mean, though, that the game is anywhere near as exciting as the film. While all the graphics are slick and colourful the action is a bit on the slow side. The spitting action is novel, but it's difficult to aim and the alien itself plods along without looking terribly menacing.

The platform jumping is all fairly routine, with no really difficult obstacles to get past and it's only the sheer size of the playing area that keeps up the interest in the game.

Survivor is a competent enough game, but it really needs a bit more pace to stir it up and create a bit of excitement. Cliff Joseph

Program Survivor Type Arcade Micro Spectrum Price £8.99 Supplier US Gold, Units 2/3, Holford Way, Holford, Birmingham B6 7AX.



don't suppose there's any rational explanation for it, but Spectrum owners are currently enjoying an unexpected boom in classy software.

The latest game in this run of excellence is *The Tube* from Quicksilva, once one of the best and best-known software houses but which has suffered a thin time of it in the last couple of years.

The company believes that The Tube will herald a return to greatness. It will take more than one game to launch them on that road, but there's cause for optimism.

The Tube comes with the usual nonsensical justification for the game; a gigantic tube in space which sucks unwary spacecraft into an alien scrapyard. Guess whose ship is going down?

Once in the tube there are three scenarios.

The first is your trip down the

tube itself, done in D3, where you must dodge and blast, parasitic lifeforms that will drain your ship of energy.

Surviving this section is a doddle; the catch is how much energy you can retain when you emerge at the other end.

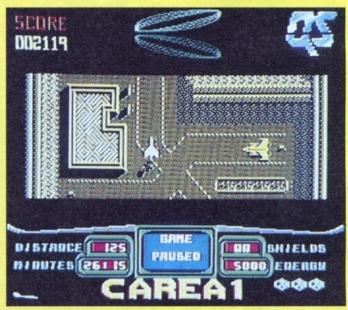
This takes you into section two, a kind of *Scramble* scenario in which you must make it past the tube's defence mechanisms designed to weaken any surviving spacecraft.

Then into the third section, the capture area, where derelict ships await the alien equivalent of Steptoe & Son.

This bit is a vertical scroller from a bird's eye view. You must make your way through the capture area, avoiding the raised embankments (which send you ricocheting like a billiard ball) and dock with other ships.

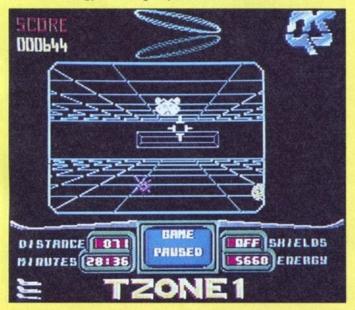
In order to dock you have to solve a kind of maze puzzle. If

# Tube lines



In the CArea (capture area) negotiate your way through the buildings and ramparts seeking to dock with, and plunder, wrecked ships. There's only one way out of this section.

Into the TZone (transfer zone) in which the bouncing weebles drain your energy. The aim is to make it through this section with as much energy remaining as possible.



successful, you can loot the ship of its energy crystals.

Energy is the key to the game. You start with a limited amount, and this decreases steadily as you progress. The ultimate aim is to escape from the tube, and robbing the scrap ships is the only way to acquiring more energy.

The graphics are very well done throughout, especially in the second and third sections. On the Plus 2 and 128 machines the program senses the extra memory and loads in extra data. There is some excellent title music, but the sound effects throughout are rather pitiful.

The major fault, though, is the splitting of the game design, always a doubtful tactic. I'd prefer a single, unified, style throughout.

A bit more action in the

capture area wouldn't go amiss either.

But there's a lot to like about The Tube and if Quicksilva can build on this, it could be the start of something big.

Quicksilva is already at work on the Commodore 64 version which, from early screen shots, does a lot better with the machine's graphics capabilities. If advantage is taken of the 64's sound chip as well, *The Tube* should be worth investigating.

Tape and disc versions will be released in the first week of September priced at £9.25 and £14.95 respectively.

Peter Worlock

Program The Tube Type Arcade Price £8.95 Supplier Quicksilva, Victory House, 14 Leicester Place, London WC2H 7NB.

Il's most famous aircraft, the B-24 Liberator.

You play a schizophrenic: both group leader judging targets based on weather, intelligence and enemy objectives, and pilot controlling the bombing raids.

The graphics are good rather than great, but the gameplay is well done, and it fills a gap for wargamers with an interest in air war.



Program Coin-Op Classics Type Compilation Price £9.99 Supplier US Gold, Units 2 and 3, Holford Way, Holford, Birmingham B6 7AX.

Compilation comprising the former number one Kung Fu Master, Breakthru and Crystal Castles. One to buy if you missed any first time round.

Program River Raid Type Arcade Price £1.99 Supplier Firebird, 64-76 New Oxford Street, London WC1A 1PS.

Program Zenji Type Arcade Price £1.99 Supplier Firebird, 64–76 New Oxford Street, London WC1A 1PS.



Program Epyx Epics Type Compilation Price £9.99 tape, £14.99 disc Supplier US Gold, Units 2 and 3 Holford Way, Holford, Birmingham B6.7AX

Program The Tube Type Arcade Price £9.95 tape, £14.95 disc Supplier Quicksilva, Victory House, Leicester Place, London WC2.

See page 42 for comment.

Program Beam Rider Type Arcade Price £1.99 Supplier Firebird, 64-75 New Oxford Street, London WC1A 1PS.

Program The Pay Off Type Adventure Price £2.99 Supplier Bug-Byte, Victory House, Leicester Place, London WC2H 7NB.

Program Alice in Videoland Type Arcade Price £2.99 Supplier Bug-Byte, Victory House, Leicester Place, London WC2H 7NB.

Program Mrs Mop Type Arcade Price £4.99 Supplier Reaktor, 68 Long Acre, Covent Garden, London WC2E 9JH.

You've killed aliens, defeated dragons, evil wizards and rescued princes/princesses, driven the fastest cars, broken Olympic records, taken Scunthorpe to the FA Cup Final.

What challenges remain? Reaktor has one for you: become Mrs Mop, staunch defender of clean floors at the dreaded Bounder Hall School. Armed with snap and cans of Gleamo it's time to hit the dirt.

Eminently missable.



Program Crazy Comets Type Arcade Price £1.99 Supplier Ricochet, 8–10 Paul Street, London EC2A 4BY.

Program Mutant Camels 2 Type Arcade Price £2.99 Supplier MAD, 8–10 Paul Street, London EC2A

Program Motos Type Arcade Price £2.99 Supplier MAD, 8-10 Paul Street, London EC2A 4BY.

Program Go For Gold Type Arcade Price £2.99 Supplier Ricochet, 8-10 Paul Street, London EC2A 4BY.

# Commodore C16/ Plus 4

Program Spy vs Spy Type Two player arcade Price £9.95 Supplier Tynesoft, Unit 3, Addison Industrial Estate, Blaydon, Tyne and Wear NE21 4TE.

See panel for comment.

# IBM PC

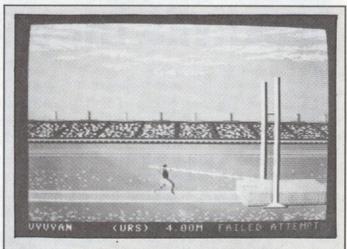
Program Daily News Type Business simulation Price £9.99 Supplier Panther Software, 2 Riverway Gardens, The Meadows, Nottingham NG2 3LL.

Program Company 87 Type Busi-

ness simulation **Price** £9.99 **Supplier** Panther Software, 2 Riverway Gardens, The Meadows, Nottingham NG2 3LL.

Business simulations have always been a good standby for entertainment, but have been increasingly regarded as a teaching tool.

These two programs suffer from



American software house Epyx has produced some good stuff in the past, so a compilation of Epyx games should be an interesting proposition. The advertising boasts, 'four classic games' – to which everyone in the office replied, 'three classic games and Breakdance', which just about sums it up.

The package's full quota is: games are Impossible Mission, Summer Games, Pitstop II and Breakdance. Impossible Mission is probably my favourite out of the four. It's basically a platform game set in the stronghold of a mad scientist.

As well as avoiding his robot guards and locating the passwords that are hidden in the various rooms you've also got a comuter code that has to be cracked. What makes it stand out from all those other platform games is the superb graphics and animation and the atmospheric voice synthesis.

Summer Games is one of the best of the sports simulations that swamped the shops during the last Olympics. The game included standard joystick-thrashing events such as swimming, relay racing and the 100 metre dash, but there are others, diving, pole vault, gymnastics—which require a bit more skill and timing in order to succeed. There are eight games in all, and they've been well chosen to provide a bit of variety rather than just giving you a sweaty joystick.

Pitstop II is a version of the coin op game, and one of the few games around that really merits the description 'classic'. It features six different racing tracks from all over the world, and although it's quite an old game by now, it's still one of the best racing simulations around.

Finally, there's Breakdance – the software equivalent of all those awful, cheap, rappin' movies that nobody went to see. It's brash, it's loud, and it's extremely daft. You jiggle the joystick in order to get your on-screen figure flapping around on the floor, making moves like the Gyro Moonwalk and Backspin. What can I say except that the other games on the tape are so good that the compilation is still worth buying despite Breakdance.

Cliff Joseph

Program Epyx Epics Type Compilation Micro C64 Price £9.99 tape, £14.95 disc Supplier US Gold, Units 2/3 Holford Way, Holford, Birmingham B6 7AX.

# 5 OFF

YOUR MICRO DESERVES THE BEST.

When your home or business micro costs several hundreds of pounds, it deserves the finest repair facilities in Europe (well, probably!). And the finest prices - £5 off trade rates for a limited period only. ★ How? At Verran we use our own range of advanced automatic test equipment (now sold worldwide), backed by stringent 2-8 hours soak-rack testing. That means speed, ultra-low prices and, most important, guaranteed reliability. For the first three months we'll repair any fault free. For the next three, at half these quoted prices. ★ It's the finest service available.

★ Currently we handle over 3500 products on average every day. Providing services for such leading companies as Amstrad plc, Commodore Business Machines, Sinclair Research, Rank Xerox, Dixons, Currys, Boots, W H Smiths, John Menzies and many more. ★ Join them and take up our special offer now.

Recommended and Approved by

**AMSTRAD** 

ATARI

**ACORN** 

SINCLAIR

COMMODORE

E14955 E14.95 SPECTRUM \* COMMODORE 64 \* BBC B STD BRD \* AMSTRAD 464 FELECTRON

# **EUROPE'S LEADING COMPUTER REPAIR CENTRE**

# AND UNBEATABLE DISCOUNTS ON ALL COMPONENTS!!!

\* With over £500,000 worth of spares in stock, we can meet many of your specialised requirements. We've listed a few examples and for anything not displayed just call us and we'll quote immediately inclusive of first class post.

SPECTRUM SPARES	
Z80 CPU	2.50
ULA 6C001	7.00
Power Supply	6.50
ROM	7.00
4116 RAMS	75
ZTX 690	.40
7TX 213	40

#### Keyboard Membrane Spectrum

4164 RAMS - Memory

Spectrum Plus

metal reniplates	
COMMODORE SPARES	
6510 Processor	12.00
6525 CIA	12.00
6581 Sid Chip	15.00
901225 Graphic ROM	10.00
901226 Basic ROM	10.00
901227 Kernal ROM	15.00
906114 House Keeper	10.00

# Power Supplies

(10)
All the above prices include VAT but please enclose
a further £1.50 post and packing on all component
orders.
HOW TO CONTACT US
For guotes on computers not listed or on

# any component, telephone 0276 66266. (Quoting POP/327)

★ To send us your micro for repair, mail it securely
packed, accompanied by cheque, postal order
(made out to Verran Micro Maintenance Limited) or
quote your Access or Barclaycard number. And to
obtain your special discount quote POP/327.



Verran Micro-Maintenance Limited, Unit 2H & 2J, Albany Park, Frimley Road, Camberley, Surrey GU15 2PL. Telephone 0276 66266:

300

8.00

3.00

18.00

limited use of graphics, and are too poorly documented for teaching purposes. That said, Company 87, in which you become a computer manufacturer, is entertaining enough.

Program ACE Type Flight Simulator Price £19.95 Supplier Cascade Games, 1-3 Haywra Crescent, Harrogate HG1 5BG.

# MSX

Program Streaker Type Arcade Price £1.99 Supplier Bulldog, 8-10 Paul Street, London EC2A 4BY.

# Spectrum

Program Book of the Dead Type Arcade Price £14.95 (disc) £8.95 (cassette) Supplier CRL, 9 Kings Yard, Carpenter's Road, London E15 2HD.

Program Back To The Future Type Arcade Price £1.99 Supplier Firebird, 64-76 New Oxford Street, London WC1A 1PS.

Program Header Reader Type Utility Price £1.99 Supplier Coxsoft,



31 Fulwell Avenue, Barkingside, Ilford, Essex (mail order only).



Program Roadrunner Type Arcade Price £8.99 Supplier US Gold, Unit 2/3 Holford Way, Holford, Birmingham B6 7AX.

Program The Tube Type Arcade Price £8.95 Supplier Quicksilva, Victory House, Leicester Place, London WC2.

See page 42 for comment.

Program Streaker Type Arcade Price £1.99 Supplier Bulldog, 8–10 Paul Street, London EC2A 4BY.

Program Omega One Type Arcade Price £1.99 Supplier Mastertronic, 8–10 Paul Street, London EC2A 4BY.

Program Motos Type Arcade Price £2.99 Supplier MAD, 8-10 Paul Street, London EC2A 4BY.

Program Coin-Op Classics Type Compilation Price £9.99 Supplier US Gold, Units 2 and 3, Holford Way, Holford, Birmingham B6 7AX.

See Copmmodore 64 for comment.

Program Survivor Type Arcade Price 28.99 Supplier US Gold, Units 2 and 3, Holford Way, Holford, Birmingham B6 7AX.

> Domark Bulldog

See panel for comment.

# DISTRICT OF THE PROPERTY OF TH

his is something of a surprise release from Tynesoft. I remember a couple of years or so ago, when Spy Vs Spy was released for the C64, there was some doubt as to whether it would even be converted on to the Spectrum because it was so complicated. And now here it is on the BBC machines, not to mention the Acorn Electron and Commodore 16!

The game is based on the somewhat crazed goings on in the Mad magazine strip of the same name. In it, two spies (one dressed in black, the other in white) do little else apart from setting ludicrously violent traps for each other as they attempt to steal each other's secrets.

The game follows the same format and is set within an embassy where the two spies are racing to locate various documents and escape with them.

The complicated thing about the game is the Simulvision screen display. This splits the screen in half, with a separate display for each player showing the rooms that they currently occupy.

You can play against the computer or another player, and Simulvision allows both players to control their spies together (no waiting to take turns).

As well as dashing from room to room in search of the documents both spies also control a Trapulator. This allows them to set the traps which are much of the game's fun.

You can set simple things like time bombs, or there are slightly more warped traps like the bucket of water or the spring which sends your opponent shooting across the screen. Or you can be even more basic and just punch each other about if you both arrive in the same room at any point.

You're playing against a time limit, and each trap either has a time penalty, or subtracts from your energy level. If you're lucky, you may be able to find 'remedies' which protect you from some of the traps, otherwise you may find yourself floating up to spy heaven.

A lot of games based on cartoons or cartoon strips have been disappointing because they've failed to capture the magic energy of the originals, but *Spy Vs Spy* manages to capture the feel of the comic strip, making it one of the more successful games of its type, it's probably also one of the best games released for the Electron and C16 for some time.

Cliff Joseph

Program Spy Vs Spy Type Arcade Micro Master Compact, BBC, Electron, C16 Price £9.95 tape, £12.95 BBC/Master disc Supplier Tynesoft, Unit 3, Addison Industrial Estate, Blaydon, Tyne and Wear NE21 4TE.

# **CHARTS**

# **Top Twenty**

1	(2)	Paperboy	Elite
2	(3)	BMX Simulator	Code Masters
3	(5)	Run for Gold	Alternative
4	(1)	World Class Leaderboard	Access/US Gold
5	(4)	Milk Race	Mastertronic
6	(10)	Gauntlet	US Gold
7	(7)	Barbarian	Palace
8	(8)	Four Great Games	Microvalue
9	(19)	Game Over	Imagine
10	(6)	The Last Ninja	System 3
11	(11)	I Ball	Firebird
12	(9)	Football Manager	Addictive
13	(-)	Kik Start 2	Mastertronic
14	(12)	Leaderboard	Access/US Gold
15	(-)	Road Runner	US Gold
16	(15)	Head over Heels	Ocean
17	(18)	Feud	Bulldog
18	(16)	Konami's Coin-on Hits	Imagine

All figures compiled by Gallup/Computer Trade Weekly

Living Daylights

Destructo

(13)

19

# A strategic plea

an avid wargamer and enthusiast of almost anything strategic – I would propose that this is one of the few classes of software that have any future in the home computer market. It is now clear to me that the standard of popular software is very close to reaching a peak.

For example, I am led to believe, by the computing press, that one of the finest games lately was *Enduro Racer*. Now I am not saying that it wasn't but if you take that game as an example of the finest modern software then, although it is well programmed and extremely playable, it scores zero for originality, being a conversion from an arcade machine.

This is true of most recent releases, ie, they are competently programmed, but are not original, and do nothing to advance the industry from its current stale situation. As one hardened computer hack once said: there are only five or six different game types, all the rest are just variations.

I am not really blaming anyone for the drying up of new ideas. After all it was inevitably going to happen at some stage, but I would propose that strategy games offer an alternative, or at least a stop-gap. I am referring to those games which give you a scenario and a game system, and then leave the rest largely up to you – this obviously gives the game a longer life when compared to the "find, unlock, rescue, escape" arcade adventures.

Also, at this point, I should just like to say that I do not feel that wargames in any way glamorise conflicts, and indeed I have learnt much from the excellent historic notes which accompany many games which has made me even more opposed to the concept of fighting.

The immense attraction of games of this sort is that their quality is not so reliant on

their difference from other games. Indeed it would be perfectly acceptable to have several companies, using different game systems, publishing each of their games with the same control method, but a different scenario each time.

An example of this is the three excellent programs written by the superb R T Smith, which use basically the same control system (although in each game it has been refined with excellent additions) but have different settings and scenarios.

The joy of wargames is that, of course, there is an objective, but the user is allowed many different ways in which to accomplish its goal, which makes a computer game slightly more lifelike, but more importantly – more enjoyable.

The serious user (the intelligent owner, who doesn't just want a home amusement arcade) is also able to become more involved in the entertainment.

For example, in wargames it soon becomes clear that the only way to succeed in most games is to realise that the square graphic counters on the screen actually represent live people, and to treat them accordingly, ie, let them rest when tired, and not send them into suicide situations unless there is no other alternative.

I become incredibly annoyed when users whilst playing a game just abandon relatively weak characters to die, because they are of no real use to them. I realise it is only a game, but surely such an attitude shows rather a sick and inhumane outlook in real life.

So to sum up, I make a call to software houses to encourage intelligent gaming, for a good strategy game requires much thought. It is a vast un-tapped market, with the greatest of potential.

P Tebbutt

#### Puzzle No 270

Tom, Dick, and Harry were comparing telephone numbers. By a remarkable coincidence each of the three numbers consisted of the same four digits, though of course differently arranged. Even stranger was the discovery that Harry's number was also equal to the sum of Tom's number and Dick's number.

For example, the numbers could have been

0459 +		4599
0495	or	4995
0954		9594

In fact, neither of these were the numbers referred to as the correct ones do not have any digit in any given position in more than one number. (In the numbers given, there is a zero in first position in all of the first set of numbers, and, for example, a '5' as second digit in two of the numbers in the second set).

Can you determine what the three numbers

#### Solution to Puzzle 265

The smallest possible set that has a spot count in excess of one million is one with a highest double of 125. This set would have 8001 pieces and 1000125 spots.

The program listing shown generates sets of dominoes, starting with a maximum double value of double one. It then counts the number of pieces and the total number of spots (line 40). After each operation, the value of the piece with the maximum spot value is incremented by one, to simulate the set of the next highest order.

At each stage, the results are printed out, until the time that the spot value first exceeds one million, at which time the program stops.

- 10 MAX=1:N=0
- 20 PIECE=0:SPOT=0
- 30 FOR A=N TO MAX:FOR B=0 TO A
- 40 PIECE=PIECE+1:SPOT=SPOT+A+B
- 50 NEXT:NEXT
- 60 PRINT MAX; " "; PIECE; " "; SPOT
- 70 IF SPOT>1000000 THEN STOP
- 80 MAX=MAX+1:N=MAX:GOTO 30

# Winner of Puzzle 265

This week's winner is Peter Davies, Monybent, Station Road, Bentham, Lancaster LA2 7LF, who will receive £10.

#### Rules

The closing date for Puzzle 270 is September 2.

# **HACKERS**



# NEW LOWER PRICES AND... EVEN BETTER SERVICE!

Now ALL Goods Despatched SAME DAY by 15t CLASS POST-FREE!

# PRINTER RIBBONS

Genuine AMSTRAD Printer Ribbons. Better Quality-Lower Price!

NEW PCW CARBON	€5.95
•STANDARD PCW	€4.95
•DMP 2000/3000	€4.95

All Ribbons-POST FREE! Please Specify Printer when Ordering

# PAPER

- High Quality 11"x 91/2"
- 60gsm Weight
- Micro-Perf all Round
- 2000 Sheets -

ONLY

14.95 Post Free!

# PCW SOFTWARE SPECIALS

- LOCOMAIL (Amsoft) £34 THE MAIL MERGE PROGRAM\_ LOCOSPELL (Amsoft) £34 THE SPELLING CHECKER NEWSDESK INTERNATIONAL
- (The Electric Studio) THE DESKTOP PUBLISHING SYSTEM\_\$244 SUPERCALC 2 (Amsoft) £44 THE SPREADSHEET.
- MASTERFILE 8000 (Campbell Systems) THE DATABASE.

FREE! Blank Disk with each of the above

# PCW STARTER PAK

- 10 CF2 Disks
- 1 AMS 201 Box
- 2000 Sheets of Paper
- 1 PCW Carbon Ribbon

SAVE ALMOST £6!

'Special Pak Price'

# **NEW IN ST**

High Quality PVC Dust Cover Set (for PCW)

# How to Order..



- Simply list your order, name and full address with a cheque or postal order (made payable to Compumart) and post to our address opposite or:-
- Phone any of our 3 order lines (24 hours) and order using your credit card. Please give your full name and address, daytime Phone number, details of your order and
- the name of the magazine you are ordering from.

  All goods are usually despatched same day 1st class post - FREE OF CHARGE!
- For SPEEDY GUARANTEED NEXT DAY DELIVERY by SECURICOR, Please add JUST £5 to goods total
- government and educational establishments etc. Goods will be despatched on receipt of order, 28 day invoice will
- Overseas orders:- please deduct VAT (15%) then add 25% for air mail and insurance. (All paymer
- All prices include VAT. Prices and delivery subject to availability. All goods fully guaranteed.

# 3"DISKS

New Low Price!

10 Pack £24.95

Post Free!

Genuine AMSOFT CF2 3" Microdisks from the U.K.'s largest supplier

(CF2 Disks are for CPC & PCW Machines).

- CERTIFIED 100% ERROR FREE
- LIFETIME GUARANTEE INDIVIDUALLY CASED
- USE IN 1st and 2nd DRIVE (on PCW)

Excellent Value ONLY from Compumart



The superd AMS ZUL DISK Storage BOX.
Save your Valuable Disks from Spilt drinks, dust etc.

HOLDS 21-3" DISKS (Cased)

- HOLDS 21-3" DISKS (Cased) HIGHEST QUALITY PERSPEX HINGED, LOCKABLE LID (with 2 keys) PRECISION MOULDED No DISK Rattle
- Excellent Value ONLY from Compumart

A GREAT DEAL MORE-FOR A GOOD DEAL LESS!

COMPUMART-DeptPOPUNIT 8-Falcon Street Loughborough · Leics · LEII IEH **2** 0509 - 262259 / 233893 / 266322

# New Yorks Scum Are About to Take Over which modern day vigilante Paul Kersey wreaks his own form of revenge on the scum and filth that terrorise the streets of modern day New York. For too long the gangs have run wild, unchallenged in their peverted attacks and violations of innocent citizens. Muggings and robberies have become a daily feature of city life. So when the chief of police 1 to 1 to 1 to 1 ALERS HALL STORY when the chief of police turns a blind eye you decide to take over where the law left off. Strap on your famous 475 WILDEY MAGNUM, turn yourself into a one man fighting force armed with pump action shotgun, machine gun and rocket launcher. Now turn the tables on the punks and creeps who certainly know how

to dish out the violence but may not be so good at being on the receiving end.

SPECTRUM 48/128K Cassette £7.99

MSX Cassette £7.99

CBM 64/128 & AMSTRAD Cassette £9.99 Disk £14.99

own lo Your lo

Gremlin Graphics Software Limited, Alpha House, 10 Carver Street, Sheffield S1 4FS. Tel: 0742 753423

् १९८६ Cannon Productions NV