

POPULAR COMPUTING

A FOCUS MAGAZINES PUBLICATION

December 3-9 1987

60p

WEEKLY

This Week

5p from every issue
sold to the Children
in Need appeal

News p. 1-10

- Superior show anger
Programmers' fury over
game..... p. 4
- Jeeves by Kempston
New desktop program for
Amstrad p. 4
- Programs for schools
British Telecom get into
educational market p. 5
- Robtek get surprise licence
Arnold Schwarzenegger's new
computer game p. 5

Software Hotlines

All the latest news in the
software world..... p. 8

Profile

Code Masters interviewed
How they came from nothing
to be number 1..... p. 11

Game of the Week

Test Drive by Electronic
Arts for the Amiga..... p. 15



Games p. 15-25

Airborne Ranger, MidiMaze,
Hunt for Red October,
Screaming Wings, F15 Strike
Eagle, and more reviews and
new releases

Show report..... p. 21

All the fun of this year's
Atari fair

Software review.... p. 26

A look at a Fast Basic
compatible editor/assembler

Hardware review... p. 28

A comprehensive look at the
new Z-88

Amstrad set to launch new 16-bit micro?

AMSTRAD looks set to launch a 16-bit computer early in the new year. The machine is on the production line in Taiwan, and Amstrad hope it will be ready for sale in early 1988; coming as a direct replacement for the 6128.

The new machine, as yet unnamed, was due to be released in December but there have been problems with the casing. The keyboard is a revamped version of the 6128 and there have been some minor technical problems putting in the 16 bits which has resulted in the delay of the machine. A source said:

"Dealers have been unable to get hold of the 6128 for the last few months. Amstrad planned to have the 16-bit machine out before Christmas, but because of the case design problem, was unable to do so."

The machine is apparently aimed at the Amiga/ST user but Amstrad remains adamant that it can create yet another niche in the market for computers.



The Amstrad 6128 - soon to be replaced?

"Amstrad is looking at a direct confrontation with the Amiga," the source said.

Exclusive

Amstrad was unable to confirm further details about the machine. Malcolm Tocher, U.K. Marketing Manager of Amstrad said, "We have plans to sell a new range of computers in January but they are the portables. We cannot comment on any plans for a 16-bit machine

as we are still selling the 6128 successfully."

Further details concerning specifications of the machine were not available as we went to press but, according to our source, "Amstrad is putting a 5 1/4 in. disc on the machine instead of the commonly used 3 1/2 in. disc used on Amiga and Atari ST computers".

Bob Gleadow, managing director of Atari, was surprised at the Amstrad plans but not too concerned by them. "If the machine is non-IBM-compatible, I would wel-

continued on page 6 ►

Martech joins Electronic Arts



Electronic Art's John Forrest.

ELECTRONIC Arts, the major U.S. software house, has just signed Martech as an affiliated label. After six months of talks, Martech is now the third U.K. affiliate to Electronic Arts, the others being CRL and Nexus. According to Lesley Mansford: "Everything which happens to our product will also happen to our affiliates. Our salesmen will be doing their utmost to sell all products."

In effect, from December 1 Electronic Arts will promote the sales

and distribution of all future Martech titles for Europe, excluding Spain, where it has a pre-existing agreement.

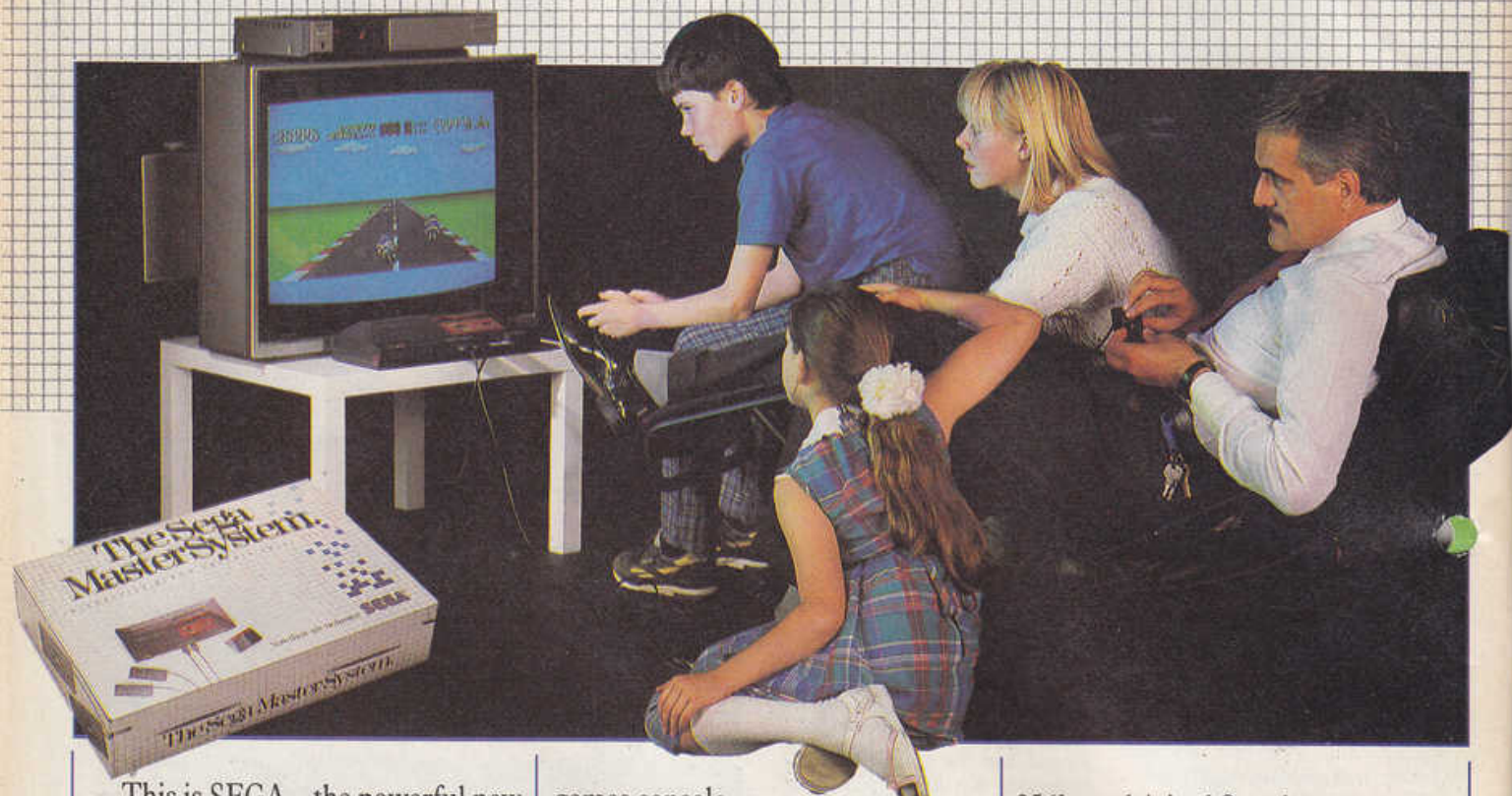
The launch title will be *Nigel Mansell's Grand Prix* for the Commodore, Spectrum and Amstrad. Conversions of other Martech hits, such as *Catch 23*, *Mega-Apocalypse* and *Slain*, are to follow.

David Martin, Martech managing director, is enthusiastic about

continued on page 6 ►

SEGA

THE ULTIMATE HOME VIDEO ARCADE MACHINE



This is SEGA – the powerful new video games system designed specially for the home and the whole family. It's compact and easy to assemble, and the high technology gives you sharp video images, vibrant colour and realistic sound!

games console (to run a card or cartridge), a FREE copy of the hit arcade game "Hang On", 2 control pads, a TV aerial fixture to let you watch TV even when the console's still connected as well as a fitted 3-pin plug and a special mystery game built-in and ready for you to find!

256k cards! And Sega has 1 megabyte and huge 2 megabyte cartridges to take the 40 new titles coming your way later this year including smash hits Out Run, Space Harrier and many more.

SEGA GIVES YOU ALL THIS FOR JUST £99.95!



LOOK HOW MUCH SEGA GIVES YOU

With Sega, you get a complete, ready-to-use system. All you need is a TV! The package includes

GAMES!

GAMES! GAMES!

Sports action, exciting thrillers and great arcade hits - there's a feast of fun covering



LIGHT PHASER

Take aim and fire at your targets

with ease – and stunning realism!

3-D VISOR GLASSES

Get more out of your game – More force, more action and more amazing 3-D realism!

SEGA
The Ultimate Games Machine For Your Home

Choplifter™



World Grand Prix™



Super Tennis™



Space Harrier™



F16 Falcon™



Out Run™



As we enter the week after the enormously successful Children in Need appeal, it is worth reflecting on the lack of support from the computer software industry. I would be the first to congratulate the industry on donating money to charity but, on a more day-to-day basis, children's computing needs are regularly being ignored. This week, as with most weeks, the staff of *Popular* has had numerous telephone calls on the subject of educational software. Parents ask which machines to buy children for Christmas, stating that they want to be able to use the computer as an educational tool as well as a toy.

A few years ago, the classified section of this and most other computer magazines was full of advertisements for educational software for almost every machine. The question we must ask is where have all those packages gone? The demand has certainly not fallen, nor are there any fewer children in need of education.

Even the trusty BBC Micro has faded, taking its educational reputation with it. How many of the machines now starting to dominate the market have a healthy number of educational software packages? Few, if any, unfortunately. The reason for this moan is simple - for computers to gain the reputation in the home market which will allow them to develop further, it must be for being more than just games machines.

It was satisfying to see that two of our major news stories of the last few weeks have caused a stir elsewhere. Our exclusive news on the *Jack the Ripper* game led directly to a news story in the *Daily Mirror* and possibly to a story in *The Guardian*. With more than 50 letters and hundreds of telephone calls about the Amiga virus, it must be one of the biggest stories we have ever covered. Jubilant, interested, damning, annoyed - they are the reactions we have had so far. We have even had a telephone call from the BBC.

Of those, the letter which aroused most interest was from a dealer, GB Microland. It pointed out that the virus would spread only if people copied discs, thus committing piracy. Unfortunately, if that was the case, the virus would not be a problem. The biggest single type of disc which has spread the virus has been innocently-infected freeware, one of the most valuable and refreshing aspects of computing.

Francis Jago

POPULAR COMPUTING WEEKLY

A FOCUS MAGAZINES PUBLICATION

Vol. 6: No. 48

Executive Editor Francis Jago
Deputy Editor John Brissenden
Features Editor Duncan Evans
Production Editor
 Yvonne Hartland
Chief Sub-editor
 Harold Mayes MBE
Staff Writer Nikki Carvey
Advertisement Manager
 David Osen
Classified Manager
 Susannah King
Classified Executives
 Robert Cole, Tim Owen
Managing Editor Brendon Gore
Publisher Trish Phillips
Group Publisher Paul Coster
Chief Executive Richard Hease

Financial Director
 Brendan McGrath
Published by Focus Magazines,
 Greencoat House, Francis Street,
 London SW1P 1DG

Typeset by Magazine Typesetters,
 6 Parnell Court, East Portway,
 Andover, Hampshire

Printed by McCorquodale
 Magazines, Andover, Hampshire

Distributed by SM Distribution,
 London SW9, Telephone: 01-274
 8611, Telex 261643

© Focus Magazines 1987.
 ISSN 0265-0509



Popular Computing Weekly. Tel:
 01-834 1717. Fax 01-630 6165

ABC

NEWS DESK..... 1-8

The *Star Clash* row continues... Micronet's music magazine launch... *Popular* supports Children in Need... and the latest software and hardware launches

MARKET MASTERS..... 11

Nikki Carvey ventured to the Oxfordshire HQ of fast-rising budget software house Code Masters where she spoke to the Darling brothers on why they are number one

LETTERS 12

More thought-provoking comments including a hacker's view on the Amiga virus

GAMES 15-25

Game of the week, plus *Airborne Ranger* on the Commodore 64, *MidiMaze* on the ST, *Hunt for Red October*, *Screaming Wings*, *F15 Strike Eagle*, *Erik Phantom of the Opera*, *Rygar*, *Tanglewood*, *I Alien* and *Superstar Soccer*

ATARI'S SHOWDOWN..... 21

Duncan Evans treks to this year's Christmas Atari Show

FAST ALL ROUNDER 26

A review of the Fast Asm program

JUST ANOTHER PIPE DREAM 28-29

Barry Smith gets to grips with the Z-88

ON THE BEATEN TRACK 31

Mark Jenkins with details of a new C64 package to help in any studio

TO COME..... 32-33

David King looks at some of the latest software packages for the Acorn new machine

KENN GARROCH 35

All you need to know about Oric Atmos, BBC Basic and more

POWER TO THE PEOPLE..... 36

Kenn Garroch concludes his series on interfacing

LISTINGS..... 38-41

The final part of the *UFO 2* program for the Commodore 64, and Sprites: two programs for the Amstrad by Joseph Halstead

COMMENT 54

Why I hate the new technology

PUZZLE..... 54

Back by popular demand

Programmers clash over computer code

TWO weeks ago, *Popular Computing Weekly* reported a row between Gremlin and Superior Software about a game called *Star Clash*. Superior was claiming that the game was a clone of its best-seller, *Elite*, and so Gremlin boss Ian Stewart withdrew *Star Clash* from sale while both companies investigated the matter further.

More recently, the row has been fuelled by a letter which *Popular Computing Weekly* received from *Star Clash* author, Julian Bushell.

The letter states: "The bug they have been talking about is due to hardware restrictions. A line can only be a maximum of 256 pixels; any longer and it will disappear."

Coping with longer lines is much too slow and cumbersome, requiring double-byte multiplication; also very near objects overspill the screen, so correct hidden line removal is not necessary. So this is a



Richard Hanson of Superior Software.

hardware restriction of an 8-bit micro rather than a bug".

In response to the letter, Richard Hanson, managing director of Superior Software, commented: "This bug is irrelevant to the one we were talking about initially.

This is a new bug we were not aware was there."

Bushell says the coding for *Star Clash* was originated by himself and that Superior wanted him out of the way.

"When I visited them in 1986 I saw another game called *Nautilus* under development which is also a vector graphic game. Could they be bull-dozing me out of the BBC games market further to increase their monopoly? Incidentally, at the time they asked me to convert *Nautilus* to other machines."

Hanson dismissed such a claim but conceded that Bushell was asked to write a conversion.

"We were dubious that *Star Clash* was an original so we asked him if he had copied *Elite* and he said No. We then asked him if he would consider writing a conversion of *Nautilus*; he seemed interested but we heard nothing more

from him."

To support his stance against Julian Bushell, Hanson added that independent reviewers had equated *Star Clash* with *Elite*. "Two commented that they expected *Star Clash* to be withdrawn from the market", he said.

David Braben, co-author of *Elite*, was also critical of Gremlin, saying: "If this sort of thing happened elsewhere, like the music industry, people would be sued for a few lifted lines."

The last word was with Ian Stewart, Gremlin managing director. "I hope we are adult enough to settle this out of court as the only people who would benefit from that would be the legal profession," he said.

Hit music

MICRONET last week launched its new on-line computer music magazine, *Music City*. It offers editorial information and permits computer users to download software directly into their machines.

The editorial will cover the latest developments in computer music, provide features and reviews and incorporate a letters and contracts section. Also on offer will be an extensive selection of music and instrument files for the BBC micro-based hybrid music system.

In addition, Micronet has an agreement with the Mechanical Copyright Protection Society whereby royalty payments will be made whenever appropriate. Micronet believes it is taking a lead in the area of music copyright, which it hopes will be followed.

Phil Godsell, Micronet software manager, is enthusiastic about the new venture, saying: "Other magazines can feature computer music but how many can supply readers with music software which can be played there and then?"

Micronet is the microcomputing area of the British Telecom Prestel network. Subscription costs £66 a year and Micronet is offering a free modem to all annual subscribers, while stocks last.

Nice one Jeeves



Jeeves is available for the Spectrum.

KEMPSTON has just released two new desk-top programs, *Jeeves*, for the Amstrad 8256/8512/9512 and one for the Spectrum +3.

Jeeves runs concurrently with most CP/M programs including *Supercalc*, *Wordstar* and *Cracker*. Mouse control formats, the user to select desk accessories from within these programs:

Disc File Management - directory of drives A, B and M as icons including report on free space available.

Disc Operations - file copy and file delete, achieved by dragging icons.

Calculator - a four-function, 14-digit calculator, with add, subtract, multiply and divide.

Calendar - a complete calendar from January, 1978 to December, 2000.

Phonebook - alphabetic storage of phone numbers in a window 32 characters by 12 lines.

Jeeves is available complete with Kempston mouse for £79.95 or singly for £29.95.

The Spectrum +3 desk-top program, on the other hand, has been designed to make optimum use of the new Spectrum +3 DOS and it is completely ICON-driven. The accessories available for this program are Disc Toolkit - format, copy, erase, verify, check and find information discs. Note Book - text editor with options to cut, paste and copy. Control Panel - mouse, keyboard, printer and screen housekeeping controls.

In addition, the clock, calculator and disc file management features are available.

The software can be used with a keyboard or joystick but is best-suited to the Kempston mouse. Complete with mouse, the program costs £69.95 or £24.95 if bought separately. For further information, contact Kempston Data Ltd on 0908 690018.

Mitsubishi BT launch programs for schools launch 386

MITSUBISHI will launch its new 80386-based, AT-compatible computer at the Which Computer? Show next month. The mp386 is a 32-bit machine and will be the second PC from Mitsubishi to enter the U.K. small computer market.

Accompanying its debut is the mp286 and a selection of Mitsubishi disc drives and high-resolution colour autoscans monitors.

Also on display at the show is Mitsubishi's business accounting software which has been developed and supported in Britain. Comprising 10 separate but integratable modules, Mitsubishi believes the business software will facilitate every aspect of company administration, from accounts ledgers to fixed asset analysis.

For further information, telephone Mitsubishi on: 0923 770000.

New DTP

A NEW, low-cost desk-top publisher for the Atari ST has been launched by Electric Distribution. *The Timeworks Desktop Publisher* costs £99 inc. VAT and according to Electric Distribution, "includes many features available in desk-top publishing packages costing up to seven times more".

The package has been developed by Cambridge-based software house GST, which is known for designing the *1st Word*, word processor. Versions for the Amstrad PC and IBM compatibles are being finalised.



The new Timeworks DTP package.

THREE new computer programs for older teenagers have been launched by British Telecom.

The software, aimed at 15 to 18 year olds, gives the pupils real life problems to solve. The intention of the programs is to make the school syllabuses relate more closely to industry and jobs. The programs were written for British Telecom by teachers working with the Computers in the Curriculum (CIC) team at University of London, King's Cross and have been carefully designed to reflect the latest classroom practice and teaching demands. The three programs are PICMAN, SIGTRAN and PULSMOD.

PICMAN allows students to experiment with some of the manipulations that can be made on a video signal once it has been converted to digital form. Students can then modify prepared images or create new pictures of their own.

SIGTRAN deals with the process of transferring a signal from one place to another. Students design a telephone link taking into account all the problems encountered with sending signals.

PULSMOD gives the student an insight into converting analogue signals either speech or video into digital form and decode them back to their original form. The programs cost £15 each and are available for BBC and RML computers commonly used in schools.

Apparently British Telecom



Katie Walker and Lisa Wilson from Garforth School in Leeds use BT's new educational software.

have subsidised the price of the programs.

A spokesman for British Telecom said, "We've been doing educational software for the last couple of years, we now have a two year plan extending into 1989 concerning the products we will be releasing." According to BT, the schools seem to be very happy with the products, "We've had a very good response from them."

At present, the products are science based, BT plan to expand on this, "We have English Studies

and General Studies products in development and for release."

One may question why BT should want to be involved in educational software but their answer is quite simple, "We see ourselves having a role in the training of people to ensure they become computer literate. In this day and age, computers play a more important role in business".

For further information contact; British Telecom Education Service, PO Box 10, Wetherby, Yorks LS29 7EL.

Popular supports children in need

POPULAR Computing Weekly is giving its support to the Children In Need appeal by donating 5p for every copy of the magazine sold this week.

Televised on BBC1 last Friday, the appeal has been an annual event since 1927, but has only been presented in its 'marathon' form, on radio and television, during the

past seven years.

Each year the millions of pounds made from the appeal is allocated by the BBC's Appeals Advisory Committees to various children's groups throughout the U.K. These range from grants to provide special equipment to welfare for deprived or handicapped children.

In 1986, over 7,700 groups benefited from the appeal, thanks to the generosity of the general public. Now *Popular Computing Weekly* has taken a leaf out of their book and will be making its own donation. If you want to help a child in need, buy this copy of *Popular* and we will do the rest.

Robtek's Terminator plans

ROBTEK will from the New Year be producing software mainly for 16-bit machines. The move is made at a time when Robtek has recently announced details concerning its plans to move into the American market.

Robtek is to be distributed by U.S. company Key punch and, ac-

ording to sales director Mike Se-grue. "The deal is worth at least \$100,000."

In the course of negotiations, Robtek has also secured the European rights to a number of Key-punch film licences. The first release will be the follow-up to Arnold Schwarzenegger's mega-

successful *Terminator* film, though according to Rank Films, "The sequel is not yet being made, we don't know when it will be made or when it will be released."

Despite the fact that Robtek has secured the licence of an as yet unmade film, they are hopeful of having some future success.

Krypton game to be released

TV GAMES will soon be releasing a computer game based on the successful TV series, *Krypton Factor*. For the last 10 years, thousands of contestants have written to Granada Television, hoping to appear on the show where they are subjected to physical and mental ordeals.

Obviously the game will lack the authenticity of the original *Krypton Factor* but TV games has attempted to keep it as close to the TV's format as possible.

Pitting your wits against either the computer or another player, you must complete various challenges if you are to become the supreme champion.

They include assessing your powers of observation and general knowledge, your ability to respond to stimuli and your competence with words and numbers. You will even have to prove your fitness in a simulated assault course.



Gordon Burns host of the *Krypton Factor*.

Krypton Factor, the computer game, is scheduled for release this month on the TV games label.

It will retail at £7.95 for Spectrum, Commodore 64 and Amstrad CPC computers.

Thalamus launch Hunter's Moon



Martin Walker.

THALAMUS has announced the arrival of a new programmer, Martin Walker. Once a training manager for Atari U.K., Walker's first venture, *Magic Window*, was published in 1982 by Quicksilva.

Following that he produced *Ru-*

pert and the Toymaker's Party for Quicksilva and then wrote games for Electric Dreams Software.

After seeing *Delta*, Walker approached Paul Cooper at Thalamus. "I think it is an ideal company to publish original games which need a different kind of marketing to tie-ins and arcade conversions," he says.

Hunter's Moon is his first creation at Thalamus and is due to be released this month. A galactic adventure, *Hunter's Moon* features full-screen, multi-directional scrolling with parallax starfield, information panels within the border and 128 levels set across more than 1,000 screens.

Hunter's Moon will retail at £9.99 (cassette) and £12.99 (disc). Inclusive in the price of the disc are free games, graphics and music demonstration.

Music program for Amstrad CPC

WESTHILL Music are claiming a first by releasing 'An Unusually Intelligent Music Program' for the Amstrad CPC. *Mastercomposer* is a new development in artificial intelligence and allows you to compose original melodies in three-part harmony.

The package is claimed to be easy to use and there is no need to enter any musical notes.

The program is the brainchild of Dr Brian James who has spent the last 7 years planning the program and also doing research into music theory.

Dr James says that the program started life on the Sharp MZ80K

computer and that he has spent the last 3 years refining the program on the Amstrad CPC.

According to Dr James, "The program is aimed at anyone who owns an Amstrad CPC and has an interest in music, though they don't need to be professionals to use the program."

There are ten styles of music that the user can have, these include jigs, waltzes, polka, march and calypso.

The program costs £29 on tape or disc from Westhill Music, 7 Beech Road, Westhill, Aberdeenshire AB3 6WR. For further details contact Dr James on 0224-740412.

Amstrad to launch new 16-bit micro

◀ continued from page 1
come it," he said.

Gleadow was unable to comment on how it would compete with the ST. "As I'm not aware of the specifications, I can't really say how it compares with the ST."

Steve Franklin, managing director of Commodore, said of the impending clash of the 16-bit Amstrad with the Amiga: "Unless it has all the benefits the Amiga offers, I can't see it competing. We'll have to wait and see how the

machine turns out." Like Atari, Commodore aren't too concerned about the machine, "Competition is quite healthy", Franklin added.

For the Software Houses, Gary Bracey, Software Manager of Ocean would welcome the release of a new Amstrad machine. "We've always supported Amstrad and will continue to do so," Bracey said.

A spokesperson for US Gold said of software support, "We have no immediate plans".

Martech joins EA

◀ continued from page 1

the deal, saying: "We have some tremendous products being developed and are looking forward to working with Electronic Arts in bringing them to the European market."

There was a similar reaction from John Forrest, director of European distribution for Electronic Arts. "We are delighted to have signed Martech as one of our affiliate labels. Martech is one of the most consistent producers of top-quality software in the U.K. and we feel sure that its products will complement others under the Electronic Arts distribution umbrella," he says.

On the subject of software, Martin states that production will continue as before. "We will work on the principle of about a dozen major titles across all formats in a 12-month period."

Mansford stresses that Electronic Arts is involved only in the capacity of distributor, saying: "We will have no control over the software produced."

She added that Electronic Arts would not remain idle with its acquisition but would seek new affiliates. She said, "Ideally, we would like to have about five but there are no other firm negotiations at the moment."

PROGRAMMER? ARTIST? MUSICIAN?



CAN YOU SPOT THE DIFFERENCE?

write, telex
or fax
JOHN LEWIS
today

Cascade Games Ltd.
1-3 Haywa Crescent
Harrogate
North Yorkshire
HG1 5BG

TELEPHONE: (0423)
525325

Telex: 265871
MONREF G.
Quote TELECOM
GOLD MBX REF 72:
MAG31320
Fax: (0423) 530054

We can't promise you a Porsche or a Ferrari. We can't guarantee that next years holiday will be on a Caribbean Island. We leave wild promises to others.

What we can promise is that if you have the talent, we can turn that talent into success.

Every Cascade release is backed by a PR, Marketing and Sales effort second to none. Our distribution covers every territory with a home computer market worldwide. But without original, quality products, no software company survives - for long. And that is where you come in.

*By joining one of our development groups, we offer the opportunity of letting your talent shine through. **You can work on staff, or free-lance** - its up to you.*

*Our creative staff are equipped with the most up to date IBM software development systems **and** we release on 6502, Z80, 68000 and 8086 formats.*

If you are interested in working with one of the country's most successful independent software companies, or if you have already written a potential number one, then telephone.

You don't have to be the biggest to be successful!



DIARY DATES

DECEMBER

December 5

6809 Colour Show

Grand Hall, Connaught Rooms, Gt Queen Street, London

Details: Show for Dragon and Tandy owners

Tickets £2 adults, £1 children

Organiser: John Penn (04203) 5970

December 9-10

IBM's Strategic and Tactical Directions: 9370, PS/2, SAA Seminar

Sheraton Park Tower, 101 Knightsbridge

Details: PS/2 and the communications capability needed for SAA, examines the 9370 product, contrasting with mini-computers

Organiser: EMAP Conferences, 12 Bedford Row, London WC1R 4DU, 01-404 4844. Contact Tessa Dwan or Sarah Gladstone

December 12

Christmas ZX Microfair

New Horticultural Hall, London SW1

Details: Latest innovations for Sinclair users

Advanced tickets: £1.50 adults, £1 children

Tickets on the door: £2 adults, £1.50 children

Organiser: Mike Johnson, 01-801 9172

FEBRUARY

February 4-6 1988

The Amstrad Computer Show

The Great Hall, Alexandra Park, London

Details: Displays and demonstrations of all the latest hardware, software and peripherals for Amstrad computers

Adults £3, Under 16's £2 - £1 off for advance tickets

Organiser: Database Exhibitions, 061-456 8383

This event has been postponed from January 28-30 to the above date.

MARCH

March 18-20 1988

The Electron and BBC Micro User Show

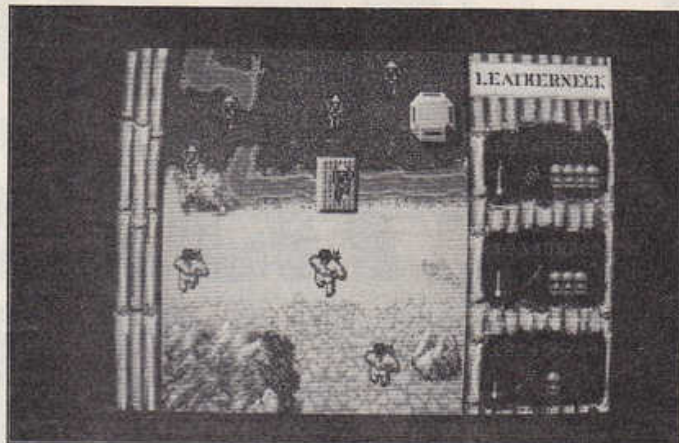
UMIST, Manchester

Details: Displays and demonstrations of all the latest hardware, software and peripherals for Acorn computers

Adults £3, Children (under 16) £2 - £1 off for advance tickets

Organiser: Database Exhibitions, 061-456 8383

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.



SOFTWARE HOTLINES

Hello again. After my two weeks in exile it's back in the hot seat again. The screenshot this week is of **Microdeal's Leatherneck**, an ST vertical blast game with a difference.

Not only are the graphics great, but up to four players can take part at once. This is facilitated by the use of a piece of hardware that plugs into one of the ST's ports, providing two extra joysticks. As **Gauntlet 2** is expected to use the same system it bodes well for multi-player games.

An up and coming Christmas release from **Ocean** for the C64 is **Madballs**. Programmed by Denton Designs, the objective is more than a little strange. You knock other madballs into goals to get them on your team, use captured madballs to get around and score, and collect refuse to feed your madballs and increase energy. Well, it all sounds pretty complicated to me, but check it out when it's released in mid-December.

Just seen some pictures of the imminent **Rainbird** ST releases. **Bubble Bobble** is platform and ladders and does not look too impressive. **Black Lamp** is being produced by Graham Everett, Steve 'Star Trek' Cain and Fred Grey, which explains why the graphics look very good indeed. Release date is (the infamous) coming soon.

Also from **Rainbird**, the Spectrum version of **Flying Shark**, which has some nice and large graphics. This one's due in December sometime, price £7.95.

Over at Maxwellsoft, sorry, **Mirrorsoft**, their release in the December club is **Andy Capp**. Yes, you play the suave sophisticated rogue, who has had his dole cheque

pinched and must expend, as the press release says, "every ounce of your Northern charm to find out who the '!'? made off with it." Now, coming as I do from the northern wastelands I found this just a teeny bit insulting, but I can live with it. The game will be available for the Spectrum, Amstrad and Commodore 64.

Three jolly interesting things have just arrived in the post. **Backlash** (at last) and **The Bards Tale** on the ST, and **Rampage** on the C64. Hmmm. Which one will be Game of the Week (roll of drums) in the next issue? Can you guess?

Software Publishing Associates have a couple of oddly named titles coming soon, **Larrie and the Ardies** on the Amiga (I kid you not), and **O.K. Yah!** on the Spectrum.

It's all change over at **Ariola-soft**, where Amanda Barry has called it a day and moved over to Activision, which has just lost its Ambassador, Andrew Wright. It's all fun and games when you're in the biz.

Just as you thought your bank balance was safe, yet another **Infocom** release is imminent - **Border Zone**, a spy adventure written by the co-author of **Zork**, Mark Blanc. Rest assured that this is the last one this year, though expect a similar deluge in 1988.

Although I can imagine Mike Gatting's **Reverse Sweep** game, as suggested two weeks ago in this column, would be appreciated, I am sure the sequel, **Kill an Umpire**, will be much more popular.

There is not much new material for the BBC these days but one company still plugging away is **Superior Software**. Its latest is **Bone Crusher** and casts you as a dragon selling soap for a living.

Finally, here's a little quiz for you. Who exactly was that 'Daniel McGrath' that so ineptly filled my shoes these past weeks? And no, it wasn't me.

Duncan Evans

CHARTS

Top Twenty

- | | | |
|----|------|-------------------------|
| 1 | (2) | Grand Prix Simulator |
| 2 | (1) | Game Set Match |
| 3 | (8) | Solid Gold |
| 4 | (9) | Pro Ski Simulator |
| 5 | (3) | Joe Blade |
| 6 | (14) | Star Wars |
| 7 | (4) | Soccer Boss |
| 8 | (6) | Renegade |
| 9 | (12) | Gizzy |
| 10 | (11) | BMX Simulator |
| 11 | (18) | Fruit Machine Simulator |
| 12 | (5) | World Class Leaderboard |
| 13 | (17) | ATV Simulator |
| 14 | (22) | Paperboy |
| 15 | (NE) | Combat School |
| 16 | (7) | California Games |
| 17 | (10) | Back To The Future |
| 18 | (19) | Thundercats |
| 19 | (20) | 10 Pack |
| 20 | (15) | Indiana Jones |

All figures compiled by Gallup

- | |
|------------------|
| Code Masters |
| Ocean |
| US Gold |
| Code Masters |
| Players |
| Domark |
| Alternative |
| Imagine |
| Code Masters |
| Code Masters |
| Code Masters |
| Access-US Gold |
| Code Masters |
| Elite |
| Ocean |
| Epyx |
| Firebird |
| Elite |
| Gremlin Graphics |
| US Gold |



Ram Electronics (Fleet) Ltd

"MANUFACTURERS OF QUALITY COMPUTER PRODUCTS"

SPECTRUM	CODE	SRP (Inc. VAT)	AMSTRAD CPC 464/664	CODE	SRP (Inc. VAT)
RAM MkII Interface	S001	£9.95	Music Machine — Tape	A001	£49.95
RAM Turbo	S002	£12.95	Music Machine — Disk	A002	£59.95
Music Machine	S003	£49.95	Speech Synth — Rom	A003	£39.95
Ramprint	S004	£34.95	Speech Synth — Tape	A004	£29.95
Keyboard	S005	£37.50	Light Pen — Rom	A005	£29.95
Light Pen and Interface	S006	£14.95	Light Pen — Tape	A006	£19.95
Centronics Interface	S007	£29.95	64K Ram	A007	£39.95
56 way Ribbon Cable	S008	£9.95	256K Ram	A008	£75.00
DKT Programmable I/F	S009	£14.95	256K Silicon Disk System	A009	£99.95
3 Channel Sound Synth	S010	£24.95	Printer Cable	A010	£12.95
Speech Synth	S011	£24.95	Real Time Clock	A011	£34.95
DKT Single Port I/F	S012	£9.95	TV Tuner	M006	£69.95
DKT Dual Port I/F	S013	£13.00			
Bus Extender Board	S014	£4.95			
AMSTRAD CPC 6128	CODE	SRP (Inc. VAT)	AMSTRAD PCW 8000	CODE	SRP (Inc. VAT)
256K Ram	A101	£75.00	Communicator	A201	£59.95
256K Silicon Disk System	A102	£99.95	Memory Upgrade to 512K	A202	£29.95
Speech Synth — Rom	A103	£39.95	DKT Joystick Interface	A203	£19.95
Light Pen — Rom	A104	£29.95	Music & Sound Synth	A204	£39.95
Printer Cable	A105	£12.95	Real Time Clock	A205	£34.95
Real Time Clock	A106	£34.95			
CBM 16/64/128	CODE	SRP (Inc. VAT)	SINCLAIR QL	CODE	SRP (Inc. VAT)
CBM64 Centronics Cable	C001	£17.50	Centronics Interface	Q001	£29.95
CBM64 128 Sprint	C002	£29.95	Serial Cable	Q002	£7.95
CBM16 16K Ram Pack	C003	£29.95			
BBC/ELECTRON	CODE	SRP (Inc. VAT)	CAMBRIDGE COMPUTERS	CODE	SRP
BBC Centronics Cable	B001	£12.95	Z88 Centronics I/F	Z001	£29.95
BBC Joystick I/F	B002	£9.95			
Commander 3 I/F	E001	£14.95			
IBM PC	CODE	SRP (Inc. VAT)	VIC 20	CODE	SRP (Inc. VAT)
256K Ram Board	P001	£89.95	16K Switchable Ram	V001	£34.95
384/512 Ram Board	P002	£124.95	32K Switchable Ram	V002	£49.95
Parallel Printer I/F	P003	£29.95			
Printer Buffer plus 'Side Print'	P004	£124.95			
			APRICOT	CODE	SRP (Inc. VAT)
			128K Fast Card	P101	£110.00
			512K Memory Expansion	P102	£124.95

WE ARE ALSO DISTRIBUTORS FOR THE FOLLOWING PRODUCTS

Quickshot 2	M001	£9.95	Quickshot 2 Turbo	M002	£12.95
Moonraker Joystick	M003	£6.99	Moonraker (Amstrad Ver)	M004	£7.99
Spec. Plus 2 J/X Adap	M005	£1.99			

RAM IS NOW ABLE TO OFFER THE WIDEST RANGE OF HOME
COMPUTER PERIPHERALS CURRENTLY AVAILABLE
ALL RAM PRODUCTS ARE MANUFACTURED IN THE UK AND CARRY
A FULL 12 MONTHS GUARANTEE

TO PLACE YOUR ORDER JUST SIMPLY FILL IN THE COUPON BELOW AND SEND IT TO:-
RAM ELECTRONICS, UNIT 16, REDFIELDS INDUSTRIAL PARK, REDFIELD LANE, CHURCH
CROOKHAM, HAMPSHIRE GU13 0RE OR PHONE US DIRECTLY ON

0252 850085/31



If you have an Access/Visa Card you may telephone
24 hrs on 0252 850085.



NAME _____
ADDRESS _____
TEL NO. _____
CHQ. NO. _____
ACCESS/VISA _____

I WOULD LIKE TO ORDER THE FOLLOWING:-

TOTAL

SIGNATURE _____

ALL PRICES ARE INCLUSIVE OF VAT AND PLEASE ALLOW UP TO 28 DAYS FOR DELIVERY.

SUPERPAC: COMPLETE SYSTEM FOR LESS THAN WHAT YOU WOULD PAY FOR A 520 STFM!

FOR ONLY
£259.95
 INC VAT
 THE SUPERPAC
 INCLUDES...



COMPUTER:

- v ATARI 520 STM computer.
- v 16 bit 68000 CPU, 8 MHz.
- v 520K bytes of RAM, 192K bytes of ROM
- v 128K ROM cartridge optional.

FD-200 DISC DRIVE:

- v Double-Sided 3.5 inch Disc Drive.
- v 720K bytes (formatted) of storage
- v Twice the capacity of the 520STFM drive.
- v Runs all protected software.

OUR PRICE PROMISE:

Yet a complete system, up to the mains plug, and with a double-sided disc drive, the MEGAPAC costs only £259.95 inc. VAT, actually less than the 520 STFM! You can be certain that this is the best price you would find anywhere, we will refund the difference if you find the same system cheaper from any official ATARI dealer. Please allow £7.00 for post and packing.

Public Domain software: only £2.00 per disc! Ring for list.

SOFTWARE:

- v ATARI Basic.
- v RAM disk, clock, Doodle.
- v Megaroids, ST Writer Wordprocessor.

DISPLAY:

- v UHF output for colour TV.
- v monitor output.
- Monitor optional.

Monitors (if required):

- ATARI monochrome, high resolution:
SM 125 £135.00 inc. VA
- Philips colour, medium resolution:
CM 8833 £299 inc. VA

Post and packing on monitor: £7.00

We stock the entire range of ATARI products including monitors, printers, Mega ST2 and ST Laser printer, ATARI PC and large selection software and accessories (leads, ribbons, paper discs, graphic tablets, video digitiser, hard disc, drum mechanism, sound synthesiser etc.)

SHOPPING HOURS AND ORDERING:

We are open Monday to Saturday, from 9.00am to 5.30pm (Saturday from 10.30am). We accept Access and Visa credit cards.

PHONE ORDERS:

(0702) 510151

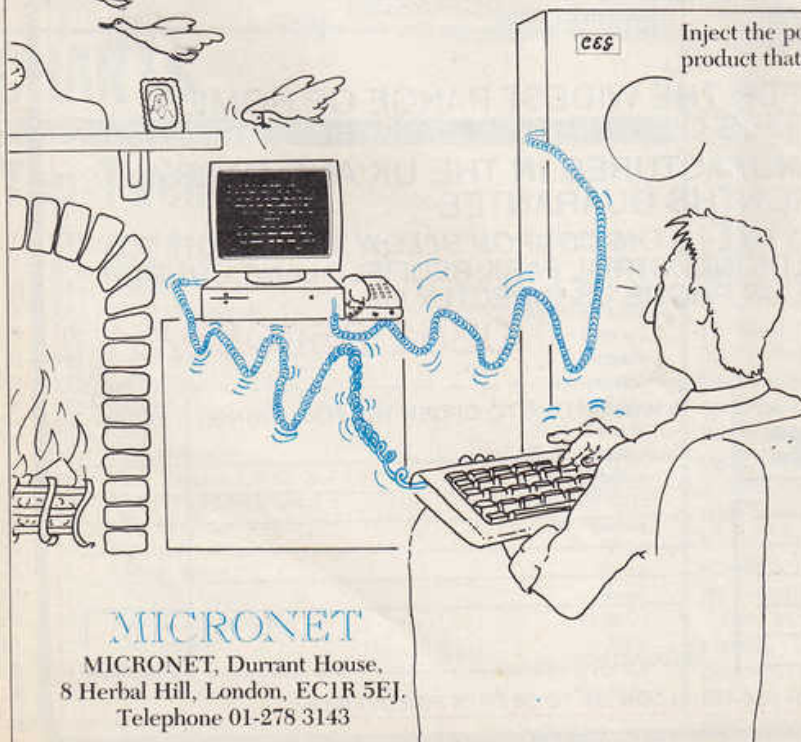
**ADVANCED SYSTEMS AND TECHNIQUE
 UNIT 32/33 RUTHERFORD CLOSE
 PROGRESS ROAD
 EASTWOOD INDUSTRIAL ESTATE
 SOUTHEND-ON-SEA
 ESSEX SS9 5LQ**

A.S.&T. EVERYTHING ATARI ST **(0702) 510151**
 Power Without the Price™

Monday to Saturday 9.00am to 5.30pm
 Southend

A.S.&T.
 M25 (25 miles) London

COME HOME TO A REAL LIVE WIRE



Inject the power of a mainframe into your micro. MICRONET is the only product that provides you with:-

- Real-time interactive chatlines
- Free and discounted telesoftware
- M.U.G.'s inc the UK's most popular SHADES™
- Daily computer news and reviews
- Free PRESTEL™ electronic mail
- Teleshopping - holidays, hotels etc.
- 70,000 PRESTEL users 56,000 Telecom Gold users
- National and International Telex
- Technical Support and Help Desk

PLUS: Access to PRESTEL and Telecom Gold, and there's much more - all for one low cost subscription. Modem owners call us now for an on-line demonstration.

With your first annual subscription MICRONET will give you a free modem. Complete and return the coupon for your MICRONET brochure.

Name _____
 Address _____

 Tel _____ Age _____
 Micro _____

MICRONET
 MICRONET, Durrant House,
 8 Herbal Hill, London, EC1R 5EJ.
 Telephone 01-278 3143

Market masters

Code Masters have increasingly been in the

"I cannot believe it has all happened," says Richard Darling. Who would? At just 20, he and his brother David, 21, run Britain's No. 1 budget games company.

Code Masters is the culmination of a fascination with computers which began in 1981 while they were at school in Vancouver, Canada. Computers had been introduced into their maths lessons and, according to Richard, they became hooked. "I liked the idea of controlling them and being able to make them do what you wanted," he says.

What they wanted to do was write games and when a friend bought a Commodore Vic-20, the brothers hogged it. Later, on their return to England in 1982, they bought their own computer so that they could continue to create games.

They soon noticed, from reading *Popular Computing Weekly*, that it was difficult and expensive for the public to buy computer games. Since they believed their games were of sufficiently high standard, they took the initiative to sell their own. A small classified advertisement was placed in *Popular Computing Weekly* and they waited for the response.

David was surprised by what happened, "We were completely swamped with orders and had to stay up all night copying them manually to meet the demand," he says.

They did not get rich overnight, but their hard graft eventually was rewarded. By the autumn of 1983 they had formed their mail order company, Galactic Software. The classified advertisements were replaced by full-page colour ones - the Darling brothers were in business.

While exhibiting at the LET Computer Show in 1984, they were approached by three software houses for which they subsequently produced games. Later, they struck up a joint partnership with the market leader, Mastertronic.

Richard explains the move as logical because Mastertronic offered them a marketing and distribution service they would not have had if they had continued as Galactic. "Mastertronic started budget software and since it was already involved in video, it had access to all the outlets which it sold videos to. They could then use these for computer games, too."

Although they produced a number of successful games as a result of the partnership, including *Master of Magic* and *The Last V8*, the brothers decided in the Spring

of 1986 to split from Mastertronic. "It was restrictive," says Richard, "there were games we wanted to release but Mastertronic did not. We were not getting the most out of the games."

They then spent the next few months developing a range of games to start their new company. In September, 1986, Code Masters launched with 12 titles and now they have a range of 54.



Richard Darling: spending time on products.

Seven are now featured in the Gallup Top 20 and the brothers believe that Code Masters will go on increasing its percentage of the market until the full-priced market is eliminated.

Their games are enhanced by the vivid graphics of artist James Wilson. A good friend of David's at school, he has been with them since the mail order days. The brothers are certain that stimulating graphics add to a game's longevity and interest so that the player has the incentive to continue playing.

James now supervises a team of freelance artists while the brothers supervise what their 100 or so freelance programmers are doing. According to Richard it is that orientation towards programming which again differentiates them from other companies.

"We tend to put our games through a

finer net, spending plenty of time on each product."

The brothers shy from the extensive advertising campaigns run by full-price houses - "if the games are good enough, it will get round by word-of-mouth" - preferring instead to advertise themselves.

They are signed to one of the biggest public relations companies, Lynne Franks, which gets them as much media exposure as possible. Appearances on Children's Channel and The No. 73 Show are among their past dates and they are scheduled for a signing at the HMV Music Store, London in January.

That latter appearance fits aptly with the launch of the Plus range this month. Based on the idea of record mixes, the new titles, *Super BMX* and *Jet Bike*, offer the player several versions of the same game. On *Super BMX*, Richard has also introduced for the first time a simultaneous four player facility.

David and Richard hope their new idea will catch on, intending to introduce other titles to the range. If it does they will continue to manufacture the £1.99 games, however, with plans to move into the American market. At present they have a Code Masters representative researching for them in the U.S. and schedules are being drawn up for shipment within the next month.

Tagged, inevitably, as computer whizz-kids; they are conscious not to portray that image to the public. Their profit is ploughed back into the company, with the brothers preferring instead to live modestly. "At the end of the year we discovered what we have spent and call that a salary," Richard says.

They work from two converted barns at the rural family home in Oxfordshire, which is just as well since the family plays a large part in the business. Their father, Jim, joined as financial adviser when they were Galactic. More recently, sisters Abigail and Elizabeth have been employed.

Richard and David may epitomise the young, successful entrepreneurs but they have slogged hard for it. David now devotes all his time to running the business while Richard is still involved in creating games. Having spent many nights programming *Super BMX*, Richard is resting and waiting for inspiration for his next project. Who knows what Code Masters will produce next? □

Help at hand

In *Popular Computing Weekly* Vol 6 No 44 you published a letter from D A John Wase of Bishampton ('In From The Cold') about his Spectrum +2 playing up, asking if any reader knew exactly what causes it and how to cure it.

May I say that I had exactly the same problems and I sent it to Mastercare Ltd of Doncaster who sorted it out very quickly indeed. The staff was really wonderful and very helpful, so if you could let him know and anyone else who is having trouble with a Spectrum you will be doing them a good turn. It seems that the problems mentioned are a regular thing on the 128 +2, but Mastercare is in my opinion the place to have them sorted out. Its full address is, Mastercare Ltd, Shaw Lane Industrial Estate, Ogden Road, Doncaster, S Yorkshire DN2 4SQ.

*Phil Houldsworth,
Woolwich, London.*

Editor's reply. It is good to see that there are some happy customers and suppliers, as well as annoyed ones.

Hackers' delight

What a restrained piece of writing on the part of *Popular Computing Weekly*. I refer to the SCA Virus problem on the Amiga. The SCA does exist - I have seen it happen but it is not a great problem because it is a problem which is very simple and easy to destroy.

No doubt we can expect a series of Virus programs to appear, thanks to *Popular Computing Weekly* explaining step by step how to write one. What about the two ST virus problems and those on the Apple 2? Any disc-based machine popular in Europe and the U.S. which has either a large PD software scene or a large hacking system, or both, is very prone to these programs.

I am sure that the rumours about a certain large U.K. software publisher installing the Virus to stop people spreading demonstrations and pre-release versions of its software is unlikely, even if similar things have been tried in the past and reported by the computer press.

Anyone who doubts the existence of the likes of Virus and tapeworm and trojan-horse programs should check some of the popular science magazines which have covered them for years.

As the SCA virus lives on, the 'invisible' boot sector using DIR would not reveal it. Installing a disc from the CLI is a simple way of blasting the virus. It can also be removed by writing a boot demonstration to the sector. Most hacked games now have them built-in.

Use the key disc principle when using a disc, boot with the original and then insert the copy once the game has loaded.

To remove the virus there are several virus-killing programs which scan the boot sector and allow you to delete or keep the virus. There are also a number of routines available which flush out the RAM, killing the virus. Finally, there is at least one program which can be written to the disc which will protect against catching the virus.

By the way, hackers are the people least likely to be bothered by the virus. As soon as it became known we produced counter-measures, which we use. The virus is now a somewhat endangered species in Europe, thanks to the spread of the virus-killer programs. The only way this problem will infect others is if certain software shops continue to deal in pirate software.

Then a customer buys a game after trying. If the disc is write-protected there is no problem, even if the virus does not always copy. The only other source is the person who copies the occasional game and does not have the contacts to resolve the problem.

I had Virus on my Amiga discs for three months. In all that time it managed to copy itself only to four other discs out of several hundred. None of the software I copied for friends was infected either.

A Hacker of DIS.

Searching for a rainbow

Sadly I have decided to throw in the towel after four years without missing an issue. I have observed the decline in standards for some time, the new look being the proverbial last straw.

I suppose it is what your younger readers want - but the re-expansion of the games review section to dominate the magazine once again is a great disappointment to me and, I suspect, many other more computer-mature readers.

As the only weekly on the stalls you have a marvellous opportunity to be the first with the news, so why throw it away by filling what

could be the best part of your product with trivial items like, say, minor personnel changes in the software industry?

My biggest complaint has been saved to the end. The quality of your recent articles has been dreadful. The piece about monitors the other week was a disaster. It was bad enough that we were taught nothing which really helped us to understand how they work, and what is compatible with what but the standard of prose and punctuation was pitiful and a sad reflection on those who let it go into print without substantial re-drafting.

This week, Kenn Garroch again rounds off a far too superficial introduction to I/O by telling us "the only limit is your imagination - microprocessors can control anything". We know that already. Your job is to tell us how. What does an OR gate package look like? Where do I get one? In which books do I look for further information?

Finally, this week in what was once Ziggurat, we are treated to the fatuous ramblings of an 8-bit owner who cannot afford a disc drive. How did you fill half a page with that?

*Paul Mooney,
Stretham, Cambs.*

Editor's reply. As you have found, we cannot please all the people all the time, and our new look magazine has overall met with very good response. Your criticisms of the monitor article are your views and to counter them we had many calls and letters praising both the magazine and its content, particularly Kenn Garroch.

Finally, to describe this week's Comment as 'fatuous' is unfair and untrue. The point of Comment is to let readers air their views and that is exactly what we do, whether or not everyone agrees with them.

Puzzle

I bought your magazine only for its final page and principally for the puzzle which varied from good to brilliant.

I almost always submitted an answer but my programs are not very good, though the puzzle taught me a good deal.

The other thing of merit was Kenn Garroch. I preferred the old picture.

My subscription has been cancelled. I will look from time to time in the newsagents and if the old

compiler returns - and his style is distinctive - I might buy again. You should make up your minds whether your publication is concerned with games and children's rubbish or serious computing.

*Douglas Nelson,
Folkestone, Kent.*

Editor's reply. It is back, what more can we say?

Yours, satisfied

First of all, I would like to congratulate you on your new look magazine. It looks more professional.

I would also like to contribute to the great Amiga vs Atari ST debate. While I consider the Amiga to be the better machine, from past experience the cheaper computer will dominate the home market.

However as computer hobbyists of yester-years have now come of age and are now probably earners, many would seriously consider the Amiga. I would most certainly be glad to own both and I predict a tie.

By the way, David Lester's article on Contracts was interesting and enlightening.

*Olusola Ogunde,
Iford, Essex.*



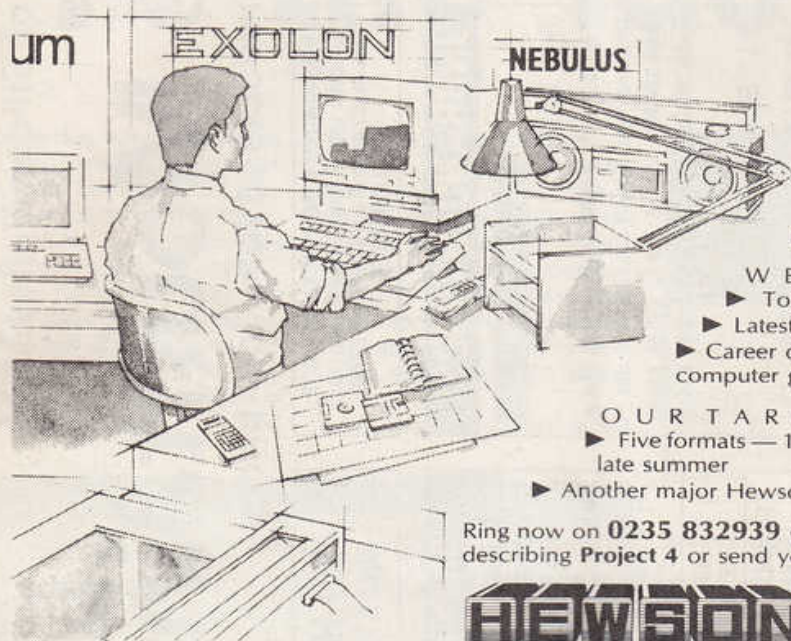
*"New computer?
What new computer?"*

We are 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.

**FREE
AUDIO CASSETTE**

BRITAIN'S LONGEST ESTABLISHED COMPUTER GAMES COMPANY

PROJECT 4



We are recruiting for **Project 4**—the great new software target for release in the autumn of 1988.

WE REQUIRE:

- ▶ An experienced team leader and two coders (permanent, full time)
- ▶ Graphic artists and musicians (freelance)

WE ARE PROVIDING:

- ▶ Top salaries and bonuses
- ▶ Latest development hardware and software
- ▶ Career development with Britain's most innovative computer games company.

OUR TARGET:

- ▶ Five formats — 16 bit and 8 bit — ready for production in late summer
- ▶ Another major Hewson release

Ring now on **0235 832939** (24hrs) for your FREE audio cassette describing **Project 4** or send your CV and samples of your best work NOW!



Hewson Consultants Ltd,
Milton Park, Abingdon, Oxon, OX14 4RX

SPECIAL OFFER POLAROID PALETTE FOR THE B.B.C. MICRO

System includes Autoprocessor, Cutter Moulder, Sample Films.

The simple way to instant 35mm presentation slides, prints and overhead transparencies.



£490 (+ VAT)

To take advantage of this limited period offer please send your order to: Robin Cartwright Polaroid (U.K.) Ltd., Ashley Road, St. Albans, Hertfordshire AL1 5PR.

- Please debit my Polaroid Account No:.....
- Cheque for full order value enclosed (£563.50 inc VAT).....
- Please debit my Access Account No:.....
Barclaycard Account No:.....

Name..... Address.....
..... Signature.....

ELECTRIC PROCESSOR/ILLUMINATED CUTTER MOUNTER £50 EXTRA (+ VAT)



Polaroid is a registered trademark of Polaroid Corporation, Cambridge, Mass, USA.

C.I.

D A T A

D
I
A
L

BRITAIN'S 1st INDEPENDENT
TELEPHONE COMPUTER
SOFTWARE REVIEW SERVICE

NEW GAME 1	0898 700 101
INCENTIVE SOFTWARE'S 'DRILLER'	❄️
NEW GAME 2	0898 700 102
IMAGINE SOFTWARE'S 'FREDDIE HARDEST'	❄️
NEW GAME 3	0898 700 103
IMAGINE SOFTWARE'S 'ATHENA'	❄️

❄️ **PHONE THESE NUMBERS WIN THESE GAMES!** ❄️

CHRISTMAS GAME 1	0898 700 104
VIRGIN GAMES' DELUXE SCRABBLE	❄️
CHRISTMAS GAME 2	0898 700 105
THE POWER HOUSES' MORPHICLE	❄️
CHRISTMAS COMPETITION	0898 700 106
INCLUDING LAST MONTH'S WINNERS THE REVIEWS THAT SPEAK FOR THEMSELVES!	

BROADSYSTEM LTD, THE ELEPHANT HOUSE, LONDON NW1, U.K. ONLY
CHARGEABLE AT 25p (OFF PEAK) AND 38p (STANDARD/PEAK) PER MIN INCLUSIVE OF VAT.

"You've heard of Silicon Valley?
Now you have . . ."

Micro Mountain!

Mountains of products at low, low prices



LOWEST PRICES

UNBRANDED DISC PRICES INCLUDE:
SLEEVES, LABELS AND WRITE-PROTECT TAGS.
ALL CARRY A CERTIFIED 100% LIFETIME
GUARANTEE

**NO HIDDEN EXTRAS . . .
WHAT YOU SEE IS WHAT YOU PAY!**

ALL PRICES INCLUDE VAT AND CARRIAGE
ALL PRODUCTS CARRY A NO-QUIBBLE
REPLACEMENT GUARANTEE FOR LIFE!!

WE SUPPLY

HOME USERS
USER GROUPS
TRADE
EDUCATION
GOVERNMENT
OVERSEAS
1-MAN BAND
TO
P.L.C.'s!!
WITH . . .

DISCS - 3", 3 1/2", 5 1/4" & 8"

TAPES - REELS & CARTRIDGES

STORAGE - BOXES, LIBRARY CASES

PACKAGING - SCREEN PRINTING, LABELS

CUSTOMISATION - FORMS, LABELS ETC

SOFTWARE - IBM ETC

CABLES - CONNECTORS

ACCESSORIES - CLEANING KITS ETC

PAPER, RIBBONS ETC, ETC, ETC . . .

UNBRANDED DISCS

	25	50	100	250
5 1/4" BULK				
Single Side 48T	£10.95	£19.95	£36.45	£84.85
Double Side 48T	£11.45	£20.15	£36.95	£84.95
Single Side 96T	£11.45	£20.15	£36.95	£84.95
Double Side 96T	£11.95	£20.95	£37.45	£84.45
3 1/2" BULK				
Single Side 135T	£29.00	£57.00	£98.00	P.O.A
Double Side 135T	£33.00	£62.00	£110.00	P.O.A

★ ★ ★ SPECIAL DEALS ★ ★ ★

25 x 5 1/4" DS/48T PLUS DP100 DISC BOX	ONLY £17.49!
25 x 5 1/4" DS/96T PLUS DP100 DISC BOX	ONLY £17.99!
50 x 5 1/4" DS/48T PLUS DP100 DISC BOX	ONLY £26.99!
50 x 5 1/4" DS/96T PLUS DP100 DISC BOX	ONLY £27.49!
25 x 3 1/2" SS/135T PLUS DP080 DISC BOX	ONLY £24.99!
25 x 3 1/2" DS/135T PLUS DP080 DISC BOX	ONLY £38.99!
50 x 3 1/2" SS/135T PLUS DP080 DISC BOX	ONLY £59.49!
50 x 3 1/2" DS/135T PLUS DP080 DISC BOX	ONLY £63.49!

BRANDED DISKETTES

WE CAN SUPPLY ALL MAJOR BRANDS AT LOWER THAN TRADE!!

Example:

5 1/4" VERBATIM DS/DD 48T	only £10.99 for 10
5 1/4" 3M's DS/DD 48T	only £7.99 for 10
5 1/4" MAXELL DS/DD 48T	only £10.99 for 10
5 1/4" DYSAN DS/DD 96T	only £13.99 for 10
5 1/4" DYSAN DS/RD 1-6Mb	only £16.99 for 10
5 1/4" XIDEX DS/DD 48T	only £4.95 for 10
3 1/2" SONY SS/DD 135T	only £14.99 for 10
3 1/2" SONY DS/DD 135T	only £17.99 for 10
3 1/2" SONY DS/HD 2-0Mb	only £45.99 for 10

DISC BOXES



DP070 Lockable with hinge, index dividers and two keys.

DP080

DP070 - Holds 70 x 5 1/4"	£8.90
DP100 - Holds 100 x 5 1/4"	£9.90
DP020 - Holds 20 x 3" or Holds 100 x 3 1/2"	£9.90
DP040 - Holds 40 x 3 1/2"	£7.90
DP080 - Holds 80 x 3 1/2"	£8.90

★ SPECIAL LIMITED OFFER ★

Solid Built Monitor or T.V. Swivel Stand

Special purchase enables us to offer you this **HIGH QUALITY ACCESSORY** at the remarkably **LOW PRICE OF**

£6.99

ONLY
Limited Stocks
So Buy Now!

TO ORDER

Call our Order Desk on **0525 853333** quoting your

ACCESS



OR



BARCLAYCARD

Number or send a cheque or Postal Order with your requirements to:

DATapro

Computer Supplies

DATapro House
North Street
Leighton Buzzard
Beds LU7 7EQ
0525 853333
(10 lines)

Fax: 0525 850485
Tx: 826717 SHARRET G-165
TRADE ENQUIRIES WELCOME!

SAVE DAY DESPATCH

24 HOUR ORDERLINE - 0525 853333

In the fast lane

Picture this. You are heading up a windy mountain road, more than 400 horsepower of pure Italian sports car at your disposal. Suddenly speed restrictions mean nothing, 80 . . 90 . . 100 . . 110 as you scream away you scream away you hear the unwanted wail of police sirens.

That is the scenario for *Test Drive*, the latest Amiga game to be released in the U.K. by Elec-

You have five cars from which to choose, all capable of almost three times the speed limit - remember we are talking about the U.S. speed limit of 55mph. The cars are the Lamborghini Countach, Ferrari Testarossa, Lotus Esprit Turbo, Porsche 911 Turbo and the Chevrolet Corvette - they had to have one yankee car.

As you would expect on the



tronic Arts. Programmed originally in the U.S. by Accolade, the company which released *Handball* and *PSI 5 Trading Company*, it is a car enthusiasts' dream game.

It places you as a multi-millionaire software company owner who has just sold out and has begun to indulge himself in his favourite hobby, fast sports cars.

Amiga, the graphics are out of this world. Each car is fabulously drawn and the Lamborghini Countach in particular is superb.

Once you have chosen the car you want to drive - each car's performance statistics are displayed on the screen for your perusal - you must prepare to set off on the course provided.

The route you have to drive is

LOTUS TURBO ESPRIT

Layout:	mid engine/rear drive	Approximate Price:	
Engine type:	dohc 4-v 16v-4 turbo		\$55,000
Displacement:	2174cc		
Compression ratio:	8.5:1	0-60mph:	5.6s
Bhp @ rpm, SAE net:	215 @ 6250	0-100mph:	14.6s
Torque @ rpm, lb-ft:	194 @ 5000	1/4 mile:	14.3s
Transmission:	5 sp manual	0-99mph:	8.95mph
Braking from 88mph:	251ft	Top speed:	152mph
Tires:	Goodyear NCT VR68 16/18p	16/18p:	13.5
	185/GRVR-15 front	Lateral Accel:	8.82g

TIME (SECS)

more reminiscent of the Lombard RAC Rally than anything, with vicious corners, punishing hills and, to make things really bad, a host of traffic. To make things slightly easier, the cars you are driving are capable of out-accelerating almost anything on the road - except the odd smokie - policeman to you and me.

The object is to travel along

The one small flaw in this game is the sound. Although there are a few reasonable tunes, the sound effects leave a little to be desired. It would have been pleasant if Accolade could have used different engine noises for the cars, particularly as a four-cylinder Lotus should sound nothing at all like a 12-cylinder Ferrari.

LAMBORGHINI COUNTACH

Layout:	mid engine/rear drive	Approximate Price:	
Engine type:	dohc 4-valve V-12		\$110,000
Displacement:	5167cc		
Compression ratio:	9.5:1	0-60mph:	5.2s
Bhp @ rpm, SAE net:	420 @ 7000	0-100mph:	12.4s
Torque @ rpm, lb-ft:	341 @ 5000	1/4 mile:	13.7s
Transmission:	5 sp manual	0-100mph:	17.0mph
Braking from 88mph:	252ft	Top speed:	173mph
Tires:	Pirelli P2F 16/18p	16/18p:	8.1
	225/38VR-15 (F)	Lateral Accel:	8.82g
	345/35VR-15 (R)		

TIME (SECS)

the route as fast and furiously as possible, avoiding the two main sources of grief, the police and accidents. If you crash, you must re-start from where you had the accident and thus lose valuable time.

The police, however, present a more serious threat. Although your cars are equipped with radar detectors to warn you of their presence if you choose to ignore the radar - and ignore it you must, to achieve a half-way decent average speed.

That apart, *Test Drive* is one of the best games yet on the Amiga. The scrolling is incredibly smooth and is very reminiscent of *Out Run* in the arcades. For any car enthusiast the game is essential, as it is for anyone who wants to see the capabilities of an Amiga.

Reviewer Daniel McGrath Program *Test Drive* Micro Amiga Price \$24.95 Supplier Electronic Arts, Langley, Berkshire.

PORSCHE 911 TURBO

Layout:	rear/rear	Approximate Price:	
Engine type:	turbo dohc flat-6		\$56,000
Displacement:	3295cc		
Compression ratio:	7.8:1	0-60mph:	5.8s
Bhp @ rpm, SAE net:	282 @ 5500	0-100mph:	12.5s
Torque @ rpm, lb-ft:	278 @ 4000	1/4 mile:	13.4s
Transmission:	4 sp manual	0-100mph:	17.0mph
Braking from 88mph:	245ft	Top speed:	170mph
Tires:	Dunlop SP Super Sport D4 245/55VR-16 front	16/18p:	11.4
	245/45VR-16 rear	Lateral Accel:	8.82g

TIME (SECS)

Your complete guide to all the software released this week

Amstrad CPC

Program *Basil the Great Mouse Detective* Type Arcade Price £7.99
Supplier Gremlin Graphics, 10 Carver Street, Sheffield S1 4FS.

The great mouse reaches the more colourful Amstrad, and looks all the better for it. Definitely one of the better releases for this machine of late, and perfect Christmas fare.



Amstrad PC

Program *Missile Attack* Type Arcade Price £14.95 Supplier Illimitable, 14 Clausentum Road, Portswood, Southampton SO2 0RZ.

Simple graphics but engaging gameplay make this mouse controlled blast from the past an essential purchase for those with a hankering for the good old days.



Airborne Ranger

With something of a change of pace, Microprose produced *Airborne Ranger*, a game which could easily be described as the thinking man's blast.

After getting through the preliminaries you must choose from the 12 missions on offer, which range from destroying a munitions depot, stealing a code book, disabling enemy aircraft, cutting a pipeline, disabling a SAM site, to the all-time favourite, liberating a POW camp.

The first part of your mission takes the form of flying over the target terrain in an Osprey and dropping three supply pods at

the desired point. Then it is the moment of truth as you parachute. The graphics of this little sequence are pokey but are not crucial to the game so it doesn't matter much.

The controls for your ranger, when you get down to the ground and into the serious action, include eight-way movement and 32-way firing. The latter is achieved by having a marker which points in the direction you are facing but can be moved clockwise or anti-clockwise two positions before your ranger moves.

Although it is a little strange initially, using the system soon becomes second nature and ena-

bles more precise aiming than you usually get in this style of game.

The other features are being able to run and crawl, though obviously not both at once. There are three counters - countdown clock, which shows how much time you have to complete a mission before the pick-up arrives to fly you out; fatigue bar, which shows the ranger's relative tiredness which affects his ability to run; and a wound indicator. Take three wounds and it is goodbye, soldier. Injuries can be treated with first aid but you have only one kit initially, though more medication is available in the pods you dropped earlier.

With a wide variety of missions, weapons, honours and promotions available, *Airborne Ranger* has the action appeal of Commando-style games plus the tactical elements of the more highbrow simulations. Once you get into it you will find that Microprose has produced the goods again.

Reviewer Duncan Evans Program *Airborne Ranger* Micro C64 Price £14.95 (tape), £19.95 (disc) Supplier Microprose, 2 Market Place, Tetbury, Gloucestershire GL8 0DA.

MidiMaze

MidiMaze is either the most clichéd game for ages, or the most original, depending on how you look at it. Produced by music specialists Hybrid Arts and programmed by graphics demonstration wizards Xanth FX, it certainly makes good use of the ST's large memory by allowing up to 16 players to compete simultaneously.

The plot is simple. You are a jolly-looking Smiley Face inhabiting a three-dimensional maze of featureless grey walls and open spaces. Your task is to seek other Smileys and massacre them mercilessly.

The big gimmick is that using the ST Midi ports, normally reserved for musical functions, you can network up to 16 machines and have each Smiley controlled by a different player who sees that Smiley's viewpoint on his monitor.

A feature called MidiCam allows one machine to be used to



entertain non-participants, showing the viewpoint of each Smiley in turn.

It will also display a map showing all the players, whereas the players can display only their own position.

While the action may soon begin to pall in single-player mode - the easy settings are too easy and the difficult ones too difficult - for team or free-for-all play, *MidiMaze* is unlimited fun. You can also use any word processor which generates ASCII

files to create your own maze designs, so the enjoyment is almost unlimited.

While it is a little expensive, if you are buying *MidiMaze* to play in a group you will find your investment has been worthwhile.

Reviewer John Renwick Program *MidiMaze* Micro Atari ST Price £34.95 Supplier Syndromic Music, 24-6 Avenue Mews, London N10 3NP. Tel: 01-444 9126.

cavendish commodore centre

EUROPE'S
SPECIALISTS
IN AMIGA'S

66 London Road
Leicester LE2 0QD
Tel: (0533) 550993

OFFICIAL
COMMODORE
BUSINESS
CENTRE

Amazing Amiga A1000 State of the Art in Multi-tasking

** BEWARE OF CHEAP GREY IMPORTS **

All our Amiga's are fully guaranteed and are the latest in UK specification they come with ONE years on site (home) maintenance at NO extra cost.

There is a single 880K 3.5" disk drive built in plus full function detachable and height adjustable keyboard

Each Amiga 1000 comes complete with 1.1 & 1.2 operating systems compatible with ALL Amiga software. Disk based operating systems allows one to upgrade cheaply in both directions.

Full intro & operating manuals
Amiga BASIC with manual
New Amiga users tutorial Disk
Graphics demonstration software

The BEST prices on Guaranteed Products

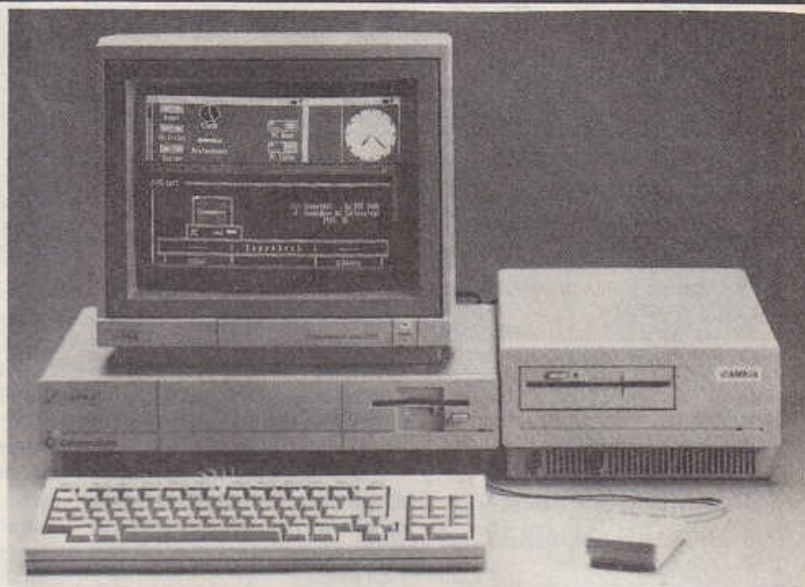
A1000...256K ram Computer.....£449.95
A1000...512K ram Computer.....£499.95
A1010...External 880K additional drive.£199.95
A1060...Sidecar Unit 256K ram & drive..£399.95
A1081...Amiga super Colour Monitor.....£299.95
A1050...256K Ram Cartridge for A1000...£ 79.95
Extra 256K ram for Sidecar giving 512K.£ 39.95

Super Saver System Prices (All 512K ram)

A1000+.A1081.....(save £50)£749.95
A1000+.A1081+.A1010.....(save £100)£899.95
A1000+.A1081+.A1010+A1060.(save £200)£1199

ALL PRICES INCLUDE VAT

There is an EXTENSIVE range of Amiga Software, hardware and books plus all other AMIGA related peripherals. WE ARE THE SPECIALISTS.



A1060 SIDECAR UNIT

Provides complete IBM PC hardware and software compatibility for the AMIGA. Allows MSDOS to run in an Amiga window while another software package runs in a different window. Contains three full size PC expansion slots. Connects to the Amiga expansion bus and contains it's own 5.25" disk drive. This is the latest version of sidecar and is complete with software.

UK(AUG) Amiga Users Group

The UK(AUG) is Europes largest Amiga only Users Group and has close links with the main groups in America and Australia. It produces a massive A4 newsletter bimonthly containing everything and more for the Amiga User. PUBLIC DOMAIN. The AUG has over 140 880K disks of PD software with more added each month from our contacts. These are £3 each including disk. There is a active BBS service with on line help from the vast membership. Product discounts for Members. JOIN NOW ONLY £20 per year (UK) £25-Europe £30 others.

Send Cheque or phone
for Visa/Access. Add
£10 per order for
insured next day
delivery (UK only).

Software guide continued



Atari ST

Program *Frostbyte Type Platform*
Price £14.95 **Supplier** Tynesoft, Addison Industrial Estate, Blaydon-upon-Tyne, Tyne and Wear.

Conversion of Platform and Ladders game that looks pretty in places but flatters to deceive. Nowhere near as good as this company's other similar game, *Mousetrap*.

Atari XE/XL

Program *Little Devil Type Arcade*
Price £7.95 (tape), £9.95 (disc)
Supplier Red Rat, 11 Fennel Street, Manchester M4 3DU.

Leapy, leapy, jumpy, jumpy, over a series of scenes from Hell. Entertaining enough in a limited sort of way, but not the best looking game I've ever seen to say the least.

Program *Basil the Great Mouse Detective Type Arcade*
Price £9.99
Supplier Gremlin Graphics, 10 Carver Street, Sheffield S1 4FS.

Bazzar the mouse on the Atari as well! Looks good, plays good. Crikey!



F15 Strike Eagle

Going in low for bombing run, reducing speed to 400. SAM launch detected, activating ECM JAMMING. Bomb released direct hit, target destroyed. Enemy aircraft at seven o'clock, missile locked on fire. Another enemy aircraft bites the dust.

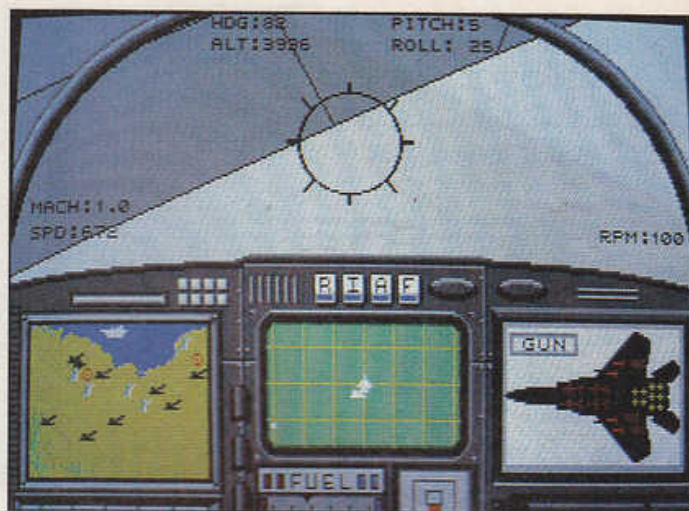
Welcome to the world of the *F15 Strike Eagle*, an aircraft combat simulation from Microprose.

You have eight missions to carry-out. Each is set in one of the Arab States.

The simulation was good on the CBM 64; it is even better on the Atari ST - the graphics are much cleaner and move smoother. The aircraft, are drawn using shaded vector graphics, but the ground targets are still flat, two-dimensional objects drawn on to the ground surface.

The F15 has a varied selection of weapons, including two types of missile, machine guns and for those all-important ground targets bombs.

The only problem is that the enemy shoots back and to help you avoid an early demise your aircraft is equipped with ECM jamming, for radar-seeking missiles and flares for the heat-



seeking missiles.

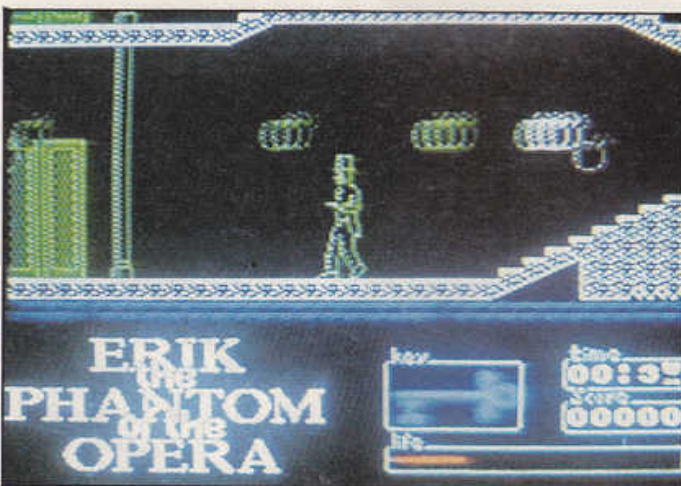
The screen is split into four sections. The first, which occupies the top half of the screen, is the pilot's view from the cockpit. Underneath it there are three smaller screens showing the map, radar with three ranges and a screen showing a graphical representation of your aircraft with the current number of missiles and bombs being displayed.

The simulation allows up to four players to play, not all at once, and has the facility to save the game in progress on a data disc. The combat action is fast and with four types of enemy

there is no lack of targets.

F15 Strike Eagle is a well-written simulation and with four skill levels will suit everyone from the novice to the ace. Assuming you can swallow the inherent gung-ho attitude the program is essential, for all simulation fans who like some action.

Reviewer Adrian Pumphrey
Program *F15 Strike Eagle*
Micro Atari ST **Price** £24.95
Supplier Microprose, 2 Market Place, Tetbury, Gloucestershire.



Erik, Phantom of the Opera

Now and again you will see a game which makes you seriously wonder whether the software company responsible has looked at the rival products on the market. Games of this type are usually advertised with supposedly funny cartoons, the humour of which makes you cringe with embarrassment. *Erik, Phantom of the Opera*, is just such a one.

Erik is an arcade adventure with endearingly awful graphics, resolutely two-dimensional, when even the least discriminating of budget software houses can now do a lovely ultimate-style 3D arcade adventure complete with fixtures and fittings for a reasonable £1.99. Needless to say, the sound effects are of the usual plip-plip-PLIP-plip-plip type, too.

As you control some top-hatted man around the sparsely-designed opera house in his quest to defeat the mad Erik and save

the heroine, you will soon be wishing Erik would just burn down the place and get it over.

As you search for the six keys which will gain you access to Erik's home-from-home in the sewers, the terrifying perils you will encounter include bouncing skulls, demonic heads and fireballs, depicted with all the graphic sophistication of, say, *Manic Miner*.

So far as I can remember, none of them appeared in Gaston Leroux's novel but this is the software business.

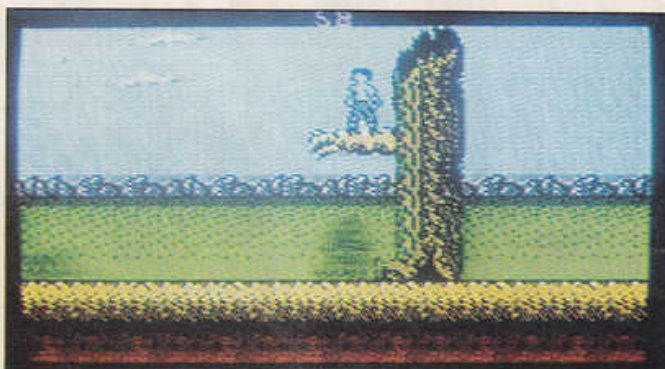
So amateurish is the whole effort, that seriously expected to see little gravestones appearing when you lose a life, or to hear the Dead March playing. All the other cliches are there, so why not?

Reviewer John Renwick
Program *Erik, Phantom of the Opera*
Micro Spectrum **Price** £7.95
Supplier Crsys/SPA, Units 1 and 2, Alice Owen Technology Centre, 251 Goswell Road, London EC1V 7JQ.

Rygar

Rygar certainly is not a game for the strategically-inclined. Based firmly on the popular coin-op, it is a bloodthirsty arcade adventure in which your trusty rotary saw is called on to disembowel all kinds of gladiators, reptiles, monsters, harpies and what look like Mayan turtles.

If you can swallow the stilted prose of the insert - "Many dominators have ruled in all their glory... but Time, their greatest enemy, ultimately defeated their reign" - you will probably enjoy the fast-moving action. Leaping over shattered buildings, using fossilised trees as shelter, *Rygar* fights off hordes of crawling, running and flying monsters. At the end of each level is a bonus screen which earns you points according to how many times your spinning blade has drawn blood.



Some of your victims leave tokens which can be picked up to increase your power, leap higher, slash further, get tougher and so forth.

While there is not a terrific amount of variation, especially in the backgrounds which consists mainly of trees, pits and blocks, *Rygar* is fast and furious enough to retain your interest past the point where you can easily cope with the deluge of enemies.

One of the better recent coin-op conversions, not perhaps as good as original titles such as Hewson's *Exolon*, but worth examination nonetheless. If nothing else, it is a good advertisement for Black & Decker.

Reviewer John Renwick
Program *Rygar* Micro Spectrum
Price £8.99 Supplier US Gold,
Units 2/3, Holford Way, Holford,
Birmingham B6 7AX.

Software guide continued

Commodore 64

Program *Street Sports Basketball*
Type Sport Price £9.95 Supplier
Epyx, Units 2-3, Holford Way,
Holford, Birmingham B6 7AX.

It all depends on whether you like basketball I suppose. Graphics and sound are good enough to please the people who do, but not those, like myself, who find the sport an exercise in yawning.

Program *Ninja Hamster* Type
Martial Arts Price £9.95 Supplier
CRL, CRL House, King Yard, Carpenters
Road, London E15 2HD.

What a great throwaway title. Sheer lunacy in this martial arts game in which you play a hamster, beset by all sorts of furry foes, like Sinister Rat and Lizard of Death.

Great fun, a game that doesn't take itself at all seriously that's well worth a look.

Program *Jet Boys* Type Arcade
Price £9.95 Supplier CRL, CRL
House, Kings Yard, Carpenters
Road, London E15 2HD.

The CRL deluge continues with a game so ordinary it makes you want to forget you ever took it off the shelf for a look in the first place.

Program *Vengeance* Type Arcade
Price £9.95 Supplier CRL, CRL
House, Kings Yard, Carpenters
Road, London E15 2HD.

Vertically scrolling shoot 'em up in part one, and hunt through the ship for eight components in part two.

continued on page 23 ▶

Tanglewood

Microdeals recent releases have, on the whole, been very good, so when a new ST game with graphics by Pete Lyon - *Goldrunner* and *Karate Kid 2* - emerges from darkest Cornwall, the disc is thrust into our office ST with eager anticipation.

Tanglewood is described as a graphics adventure but it would be closer to the truth to say arcade adventure as there is no text entry. The story contains echoes of *Terropods* but there is no real comparison.

You alone have the right to mine the planet on which the

action takes place but a rival company has stolen the requisite documents and hidden them inside the multi-storey complex which is their headquarters.

In 10 days an inter-galactic court meets to decide who is to strip the planet of its assets.

So, off you go with your five mining mobiles, attempting to recover the documents in time.

Most of the action takes place on a flat map, with your currently-activated mobile trudging round the various paths. With 3,000 screens, there is plenty of trudging to do.

It is just like Christmas shopping - you spend ages wandering around and still don't find what

you seek. The idea of using the mouse for the control is not a good one either, it makes moving around frustrating at times.

On the surface of *Tanglewood* are various items such as D-crystals and Ice Emeralds and many regions, including the earthquake zone, the underground mines, and areas where special computer programs are needed to make further progress. You will also need to cultivate the support of the native Tanglewoods, which should not be easy since you are only there to rape their planet.

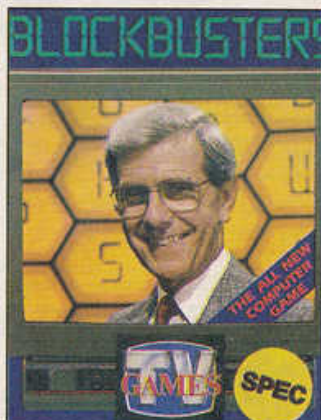
Underground the perspective changes in certain situations to a 3D view, which is pleasant to look at and effective.

The main map graphics, though, are at once sombre and horrible.

They are well-drawn and designed - it is just that the colour scheme leaves everything to be desired.

Not a game for those who give in easily, *Tanglewood* is something of a let-down after a string of excellent titles from Microdeal.

Reviewer Duncan Evans
Program *Tanglewood* Micro Atari
St Price £19.95 Supplier Microdeal,
PO Box 68, St. Austell,
Cornwall.



DON'T MISS..

BOARD GAME

COMPUTER GAME

THE BEST FOOTBALL GAMES YOU CAN BUY

FOOTBALLER OF THE YEAR

Enjoy the world of a Football League Player suffering the pain and winning the glory, starting at the bottom and becoming a legend... A Footballer of the Year.

GARY LINEKER'S



SUPERSTAR SOCCER

The most original computer football game of all time... Available on CBM64/128 disc and cassette, Amstrad disc and cassette, Spectrum 48/128K cassette, MSX Cassette.



Available Now £14.99



Available from October

Gremlin Graphics Software Ltd / Gremlin Board Games Ltd., Units 2/3 Holford Way, Holford, Birmingham B6 7AX

CBM64/128 · AMSTRAD £9.99C · £14.99D
SPECTRUM · MSX £7.99

ORDER YOUR GAMES NOW!!

If you would like us to rush one of these great games direct to your home at no extra charge fill in this coupon NOW and post to:-

GREMLIN BOARD GAMES/GREMLIN GRAPHICS SOFTWARE LTD.
Units 2/3 Holford Way, Holford, Birmingham B6 7AX.

I would like _____ copies of Gary Lineker's Footballer of the Year (Cheques made payable to Gremlin Board Games)
Name _____
Address _____
Postcode _____

I would like _____ copies of Gary Lineker's Superstar Soccer System (Cheques made payable to Gremlin Graphics Software Ltd)
Name _____
Address _____
Postcode _____

Total Amount Enclosed £ _____ CHEQUE/P.O. OR ACCESS/VISA ONLY
Please debit my Access/Visa account _____
Signature _____ Date _____

Once Bytten

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

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



CHRISTMAS SALETIME!!!

ATARI ST SOFTWARE AT SILLY PRICES - GRAB 'EM WHILE WE'VE GOT 'EM

ALL AT £9.95

Jewels Of Darkness, Silicon Dreams, Golden Path, Boulderdash Construction Kit, Pirates Of Barbary Coast, Tass Times In Tonetown.

ALL AT £12.95

Zork I, Zork II, Zork III, Ballyhoo, Hollywood Hijinx, Trinity, Spellbreaker, Moonmist, Wishbringer, Hacker, Hacker II, Borrowed Time, Mindshadow.

ONLY £29.95

Flight Simulator II (latest version)

AMIGA OWNERS TOO!!

Flight Simulator II (latest version) ONLY £29.95

WHAT ABOUT C64/128 OWNERS

GEOS (fully upgraded - Few only)	£39.95
Font Pack 1 (Few only)	£19.95
Desk Pack 1 (Few Only)	£19.95
C64/128 Tape Interface (for normal recorders)	£3.50

USED GOODIES !!

Commodore C128D (boxed - as new)	£350.00
Commodore C128 (very good condition)	£129.00
Commodore 1571 disc drive (v.g.c.)	£179.00
Commodore 1541 disc drive	£119.00
Commodore C64 + 1541 + Dolphin DOS fitted	£225.00
Commodore MPS801 printer	£99.00
Commodore MPS803 printer	£99.00
Commodore modem	£25.00
Atari SF354 disc drive (no PSU)	£59.00
Olivetti M10 Lap Top	£199.00
Commodore 1900M mono monitor	£69.00
Minor Miracles WS modem + Auto Dial	£89.00

ALL THE ABOVE PRICES INCLUDE VAT AND CARRIAGE IN THE UK
USED GOODS ARE GUARANTEED FOR THREE MONTHS

WANTED: We want to buy your computer, your printer, your disc drive, your modem, your monitor, your software, your spilling shocker. FOR CASH! 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)

TELEPHONE: 01-304 2631

9am-10pm for all orders, prices and technical info



TELETEXT

A world of information at your fingertips

A Microtext Adaptor turns your computer into a sophisticated Teletext receiver. Giving you a full colour display of any of the free pages from Ceefax or Oracle, you can save pages and print them out and even access Teletext from your own programs. On Teletext you'll find the latest news and sports results, there's road, rail and air travel information, what's on TV and weather reports. You can get an update on share prices or bargain holidays. And not only does Teletext cater for special interests, like computing, motoring, or gardening, but you'll also find things to do and places to go in your area, prize competitions and even your daily horoscope, plus much, much more. It's all free, easy to use and it's all at your fingertips.

When purchased separately, a Microtext Adaptor is supplied with a lead which connects to the "VIDEO OUT" socket of your video recorder so using your video as the tuner for the system.

Or, there's our own Tuner (UK only) which has been specially designed to provide the signal that the Adaptor needs. Just plug in an aerial, it tunes itself in (!) and channels are selected from the computer keyboard.

Tune into Teletext, a world of information at your fingertips.

	Commodore 64	Amstrad CPC	Spectrum
Microtext Adaptor:	£69.95	£74.95	£79.95
Adaptor and Tuner:	£114.80	£114.80	£124.80

Prices include VAT and P.&P.! (Overseas add £2)

Only from:

MICROTEXT

Dept. PW, 7 Birdlip Close, Horndean, Hants PO8 9PW
Telephone: (0705) 595694

Atari's showdown

London's Novotel Hotel was once again the host for this year's Atari Christmas Show, an event which gives the industry a last chance to show or release products before the season of excess gets truly into swing. The majority of the product was for the ST, although the XE/XL systems were still in evidence.

Atari machines are renowned for their games playing ability so it was a little disappointing to see such a poor showing from the games software houses. Only Microdeal, Red Rat and Tynesoft made any real effort.

New releases

Microdeal's only new release was Tanglewood (reviewed elsewhere in this issue), although Leatherneck, Goldrunner 2, and ST Soccer all got a previewing. Of the latter three only ST Soccer has an imminent release date.

Goldrunner 2 looked like more of the same, but with a smaller ship and a bigger playing area, so it should be good. Leatherneck is the one really worth waiting for though (due January), as it features up to four players in Rambo-style action.

Announced by Microdeal (0726 68020), but not seen, was Slaygon, which looks vaguely similar to Hacker 2.

Red Rat Software had a lot of new releases. Screaming Wings and Pengo were both for the ST while the XL/XE was treated to Nightmares and Little Devil.

More games

Tynesoft's big ST releases, Winter Olympiad 88 and Grand Prix missed the show unfortunately, but Frostbyte was there and also Mirax Force on the XE/XL. This latter game appears to be a Uridium clone (reviewed next week).

Other games were limited to Robtek's (01-847 4457) Alien Strike (ST) which looked pretty average, and a new company called Creation had Skyrider, another game not a million miles away from Uridium. Novagen weren't there, but Backlash was, being offered by many retailers at around £14.

Atari themselves put in an obligatory but very muted appearance. No new product, like the CD Rom, but I did see someone carting off a Mega 2 ST so at least they're now readily available.

Elsewhere on the hardware front inter-

Duncan Evans reports on this year's Atari Christmas Show.



The Atari stand.

esting things were afoot. Eidersoft (0268 541212) had a very impressive stand, Pro Sound and the Hi-Fi upgrade were booming out over the massed ranks of people peering at Quantum Paint (more on which later). Aladin, is a Mac emulator (another one) from Germany. And yes, you still need to get hold of the Apple Mac ROMs to plug into it. Cost will be £169.

Robtek was taking orders for PC Ditto, the PC emulator, and offering some very good deals on their entire range of products. If you want a new printer then the GPR 2000 daisywheel from Dataplus (0242 573573) is one to consider at only £237.35.

KKS Electronics (0594 26435) were displaying a couple of modems from Pace (0274 488211), the Linnet, a V21/V23 intelligent modem with autodial and answer, and the Nightingale, a low cost V21/V23 alternative.

Besides offering their range of excellent value for money disc drives Cumana (0483 503121) also had an OS-9/68000 V2.1 upgrade for those interested in a low cost (well, relatively), high performance UNIX style system.

Joysticks

There seems no limit to the wackiness of joystick manufacturers. Star Trak from RH

Design (0423 880520) doesn't have a stick! Instead there are sixteen movement buttons (still eight way control though) and a fire button.

If you have to do a lot of travelling then an expensive solution to the problem of protecting your BT equipment comes in the form of Joint Venture Systems (0793 693778) H-Bag. There's one for the keyboard, and one for a monitor. The cost is £39.95 each or £75 for both.

JVS also had an impressive scanner on show, capable of capturing images with resolutions up to 300 dpi with 32 shades of grey. The ST-Scan Image Scanner comes with scanner, interface, cable and software.

Serious software

There was a reasonable turn out in the serious software department, pride of place going to Eidersoft's Quantum Paint, which was in the final throes of being debugged. You should note that only the 129 colour mode will operate on a 500k system, 1000k or more is required for the 512 and 4096 colour modes. At £20 this, when it's finally released, has to be on every ST owners Christmas shopping list.

Computer Concepts (0442 63937) were showing and selling, Caligrapher, a document processor for the ST at only £69. This will be CC's last ST product for some time, as they are moving into the Archimedes market shortly.

Haba Marketing (01-8441202), Metacomco (0272 428781) and Electric Distribution (0954 61258) all exhibited their existing product lines, the most interesting of which was the latter company's Desktop Publisher (by Timeworks).

New recruits

It was good to see four user groups displaying their latest newsletters and sharing a stand downstairs. All of them are looking for new recruits so here's your chance to really get into the Atari community.

STutter (Tony Gosling - 0473 54602) is the UK ST club's newsletter, Attack! is by the London Atari Club (PO Box 319, London SE15 3NZ), Nugget is the newsletter of the Norwich User Group (0603 661149), and finally 8-16 is by the Bournemouth and Poole Atari User Group (248 Wimborne Road, Oakdale, Poole, Dorset). □

EIDERSOFT SOFTWARE LTD PRESENTS...

AN IBM PC ON YOUR ST!

Special package of PC Ditto and
the Triangle 5¼" IBM™
Compatible Disk Drive

PC-DITTO

PC Ditto is the superb new IBM PC emulator for the Atari ST which will run over 95% of IBM PC software! Coupled with our Triangle 5¼" Floppy Disk Drive you immediately transform your ST into an IBM PC!

PC Ditto, the official UK version imported by Robtek, is almost fully compatible with the IBM PC. Running in software, it operates in all screen resolutions, offering VGA and CGA graphics capabilities.

5¼" IBM DRIVE

Of course, the only way to get IBM software into your Atari ST used to be to transfer the files across the serial ports using appropriate comms software. Not any more! The Triangle 5¼" IBM compatible disk drive allows you to not only read files off an IBM 5¼" disk, but to write them back again. The files can then be read by a proper IBM machine without even having to think about serial ports, baud rates, hand-shaking or Xmodem!

The Triangle 5¼" disk drives also operates as a normal ST disk drive (but with 5¼" disks of course!) and can format to either the ST's normal 720K or, using special software provided, the standard IBM 360K (8 or 9 sectors per track). For IBM mode, the drive is switchable between 40 tracks (IBM) or 80 tracks (ST).

**PC-Ditto and a Triangle 5¼" IBM
Compatible Disk Drive costs just £199!**

EIDERSOFT

SOFTWARE LTD

• UNIT 4 STANNETS • LONDON NORTH TRADE CENTRE • BARNBON • ERMEX • SS15 6DJ •

Tel: 0268 541212

Triangle 5.25" IBM Compatible Disk Drive costs £147.75 if bought separately.

IBM IS THE TRADEMARK OF INTERNATIONAL BUSINESS MACHINES.
ALL PRICES QUOTED ARE EX-VAT.

NEW!

PC-DITTO

SOFTWARE BASED IBM
EMULATOR FOR THE
ATARI ST.

THIS PROGRAM RUNS ALL
POPULAR IBM PROGRAMS

INCLUDING:

LOTUS 123 – FRAMEWORK –
SYMPHONY – FLIGHT SIMULATOR
– SIDEKICK – WORDSTAR – WORD
PERFECT – AND MUCH MORE

PRICE £49.95

Available from:



MICHTRON U.K.



Box 68, St Austell, Cornwall PL25 4YB
Tel: 0726 68020



SOFTWARE CITY BARGAINS

New computers (includes 3 month warranty)

Spectrum +2.....	£129
Spectrum 128.....	£99
Spectrum +.....	£65
Electron.....	£59

(10 free games with each of the above)

Spares

Spectrum power supply.....	£7.50
Commodore 64 power supply.....	£15
Spectrum 48K membrane.....	£4.95
Spectrum + membrane.....	£7.95
Spectrum 48K template.....	£2.95
Aerial lead.....	£1.50
Cassette lead.....	£1.50
Electron cassette lead.....	£1.95

Repairs

Spectrum.....	£19.95
Commodore 64.....	£30

(5 free games with all repairs)

HOW TO ORDER

All prices include VAT. Please add £3 for P.&P. for computers.

Send cheque or PO to:

SOFTWARE CITY (PCW)

173 Mansfield Road, Nottingham NG1 3FR.

Telephone: 0602 410493

WANTED: All types of computers for cash

(604)

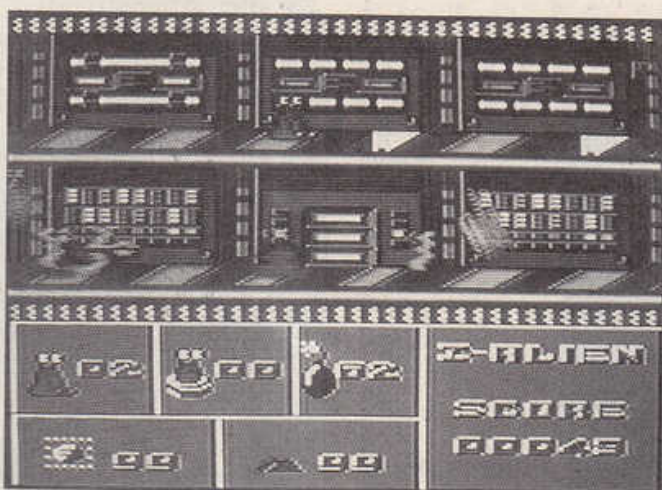
I, Alien

Something in the screenshots of *I, Alien* reminded me of the excellent coin-op *Xenophobe*. Unfortunately, the resemblance is purely illusory. *I, Alien* is a fairly undistinguished chase game in which the colourfulness of the screens is probably the best aspect of the program.

Set on a human slave ship, the game casts you as the lone alien battling mutants, droids and ice dragons in your attempt to escape the ship and reach an escape pod. The top half of the screen depicts the inside of the spaceship, the bowels of the planet and the surface, while the lower half is largely wasted with a few score counters.

While the graphics and animation are acceptable, there is nothing remarkably stimulating about the action, which consists merely of shooting or leaping over baddies, seeking prisoners and defusing the odd bomb which has been carelessly left lying around.

To make things more senseless, certain enemies, when shot, will leave behind a pile of "acid flesh".

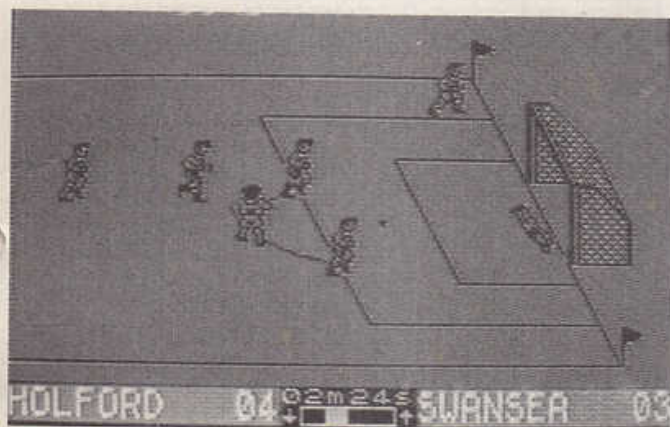


Contact with this, you might think, would do you no good but, to the contrary, it replenishes your firepower. On the other hand, certain baddies leave behind "transmitters" which, if hit, cause you to lose control of your legs; in other words, the joystick direction controls are reversed. Some droids leave behind energy crystals which restore your power.

If by now your sense of *deja vu* is almost overwhelming, let me agree that there is no single element of the game which sug-

gests any spark of originality. Mixing elements of *Impossible Mission*, *Paradroid*, *Shaolin's Way* and countless platforms-and-ladders games, it achieves a mediocrity which is almost supernatural. Best avoided unless you have an obsessive devotion to this kind of thing.

Reviewer John Renwick
Program *I, Alien* Micro CBM 64
Price £8.95 Supplier CRL, CRL House, 9 Kings Yard, Carpenters Road, London E15 2HD.



Superstar Soccer

After the poor *Footballer of the Year*, it is something of a surprise, and a pleasant one, to find that the latest Gremlin soccer program is at the other end of the quality scale. *Gary Lineker's Superstar Soccer* lets you manage teams and play in the matches and it is really good.

You take control of one of 64 teams which play in four divisions, 16 to a division obviously, for nine years. Each team starts with 10 players, rated on skill, playing position, age and injuries.

The main influence surfaces in the transfer section. Instead of buying a player offered to you, as in far too many other games, you are allotted trading points at the start of a season - and at the end depending on performance - which can be used to recruit, trade and generally improve a team. That draws heavily from the American football concept of relinquishing college draft choices in return for players or swaps.

For the first match of a season you pick the team to play and players, illuminated in yellow, are out of position, so their skill

level will be affected detrimentally.

There are three varieties of offensive and defensive attitudes, which determine how positive/negative you want the team to play. When there is a halt in the play you can change your plans.

You do not have to watch the matches but, if you do, do not select normal speed to play them because it takes forever to complete one game. That is where the arcade element comes in as you control the centre forward. The method of passing has to be committed to memory, as each joystick position corresponds to a member of your team.

The animation of the players and the variety of movements is excellent even if half the players appear to be Brazilian. It is a surprise to find that there is still life in the football manager genre, because Gremlin certainly has done well with Gary Lineker's *Superstar Soccer*.

Reviewer Duncan Evans
Program *Superstar Soccer* Micro Spectrum
Price £7.99 Supplier Gremlin Graphics, 10 Carver Street, Sheffield S1 4FS.

Software guide continued

◀ continued from page 19

Commodore 64 continued

Program *Lifeforce* Type Arcade
Price £9.95 Supplier CRL, CRL House, Kings Yard, Carpenters Road, London E15 2HD.

And yet more from CRL. This one is written by Software Invasion. Remember them? No? Produced some interesting BBC stuff yonks back. No? Ah well, maybe it's time to get acquainted.

In *Lifeforce* you play a mega-tank with enough firepower to level the Andies. Yeah, I can identify with that. You trog around this power station that's mutated into a lifeform, eradicating, repairing and eliminating.

Good graphics and reasonable sound effects make this one of CRL's better releases of late.

Program *G-Man* Type Arcade
Price £2.99 Supplier Codemasters, Lower Farm House, Stoneythorpe, Southam, Warwickshire CV33 0DL.

Nothing new in this reworking of the authors original C16 game, but for the price it's playable enough, has good graphics and should keep you occupied for a while.

Program *Deja Vu* Type Adventure
Price £14.95 Supplier Mirrorsoft, Athene House, 66-73 Shoe Lane, London EC4P 4AB.

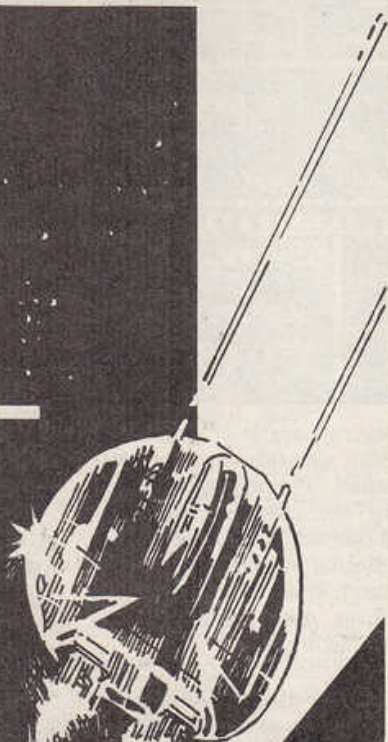
Deja Vu - a nightmare comes true. I'll say. Playing this insipid game is certainly my idea of a nightmare.

STAR-FORCE FIGHTER



THALAMUS

FAR FROM HOME -



FAR FROM...

Hunter's MOON

BY MARTIN WALKER

SOON! CBM 64/128



Evesham Micros

All prices include VAT and delivery

520 STFM NEW LOW PRICE

Only £279.00
 ATARI Good availability ATARI

520STFM with 1MEG memory upgrade installed £338.00
 1040 STF £469.00 SM125 M.monitor £134.00
 MEGA ST 2 £899.00 MEGA ST 4 £1199.00

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 £279.00
 (ONLY £269.00 if bought with an ST)
 Atari SC1224 Hi-res colour monitor £299.00
 Atari SMM804 Printer (Special, few only) £149.00
 1MEG MEMORY UPGRADE (STFM ONLY) £59.00
 (Requires soldering, free fitting if you buy a new ST from us)

3.5" 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.

Commodore

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 compat. disk drive (inc. GEOS) £159.95
 Excelerator+ as above c/w Freeze Machine cart. £179.95

SCOOP Complete brand new '64 circuit boards. Use for repair, spare or upgrade a VIC-20. Last few. **only £45.00**

AMIGA A great offer on the fabulous new 500 model. Includes Deluxe Paint & 5 disks of public domain s'ware. PLUS Silent Service & one of either Skytox, One on One or similar. **only £469.00**

Philips CM8833 hi-res colour monitor, STEREO sound, inc cable £279.00
 (ONLY £269.00 if bought with an AMIGA)

AMSTRAD 1512/1640

ALL PRICES VAT & DELIVERY INCLUSIVE

Select an Amstrad PC from our wide range

We have a full range of models including the highly popular Evesham upgraded models. Our single floppy 21/32 MEG models are professional internal installations leaving maximum expansion room. The twin floppy versions use a hardcard. 1512 models can be supplied with 640K RAM upgrade installed for £20.00 extra. Prices in light type are ex VAT.

STOP PRESS FREE with 1512... Migent Ability & 4 games (former retail value over £200.00)

	SD	DD	AMS 20MEG	SD 21MEG	DD 21MEG	SD 32MEG	DD 32MEG
MONO 1512	381.74 439.00	477.39 549.00	N/A N/A	588.26 688.00	693.91 798.00	841.74 738.00	737.39 848.00
COLOUR 1512	520.87 599.00	616.52 709.00	N/A N/A	737.39 848.00	833.04 958.00	780.87 898.00	876.52 1008.00
MONO 1640	494.78 569.00	581.74 669.00	868.70 999.00	711.30 818.00	798.26 918.00	754.78 868.00	841.74 968.00
CGA (COLOUR) 1640	625.22 719.00	712.17 819.00	912.17 1049.00	841.74 968.00	928.69 1068.00	885.22 1018.00	972.17 1118.00
ECD (EGA) 1640	755.85 869.00	842.61 969.00	1129.57 1299.00	972.17 1118.00	1059.13 1218.00	1015.65 1168.00	1102.61 1268.00

32MEG HARDCARD...Western Digital Filecard, supplied with XTREE file management software FREE (Normally £50.00)
 Supplied ready configured.....ONLY.....£299.00
21MEG HARDCARD...Western Digital Filecard, supplied with XTREE file management software FREE (Normally £50.00)
 Supplied ready configured.....ONLY.....£249.00

PRINTERS 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) £219.00
 --SPECIAL: 2 spare ribbons value £13.90 FREE with **NL-10**--
 Star **NX-15** Wide carriage version of **NL-10** £319.00
 Star **NB24-10** Brilliant 24 pin printer 216cps 72cps NLO £479.00
 Star **NB24-15** Wide carriage 24 pin £599.00
 PANASONIC KXP-1081 Best sub £200.00 model £179.00
 NEW..Amstrad LQ3500, 24 pin. In stock now..£379.00..NEW

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
 By phone with ACCESS/VISA details
 Govt., Educational or PLC orders accepted
 Same day despatch whenever possible
 Callers welcome, open 6 days 9.30-5.30
 All goods subject to availability E.&O.E.
 TELEX: 333294 FAX: 0386 765354

Evesham Micros
 63 BRIDGE STREET
 EVESHAM
 WORCS WR11 4SF
 Tel: 0386 765500

Also at: 1756 Parashore Rd., Cotteridge, Birmingham B30 3BH Tel: 021 458 4564



Red October

Based on the book by Tom Clancy, *The Hunt for Red October* casts you as a Soviet submarine commander in charge of the latest in Soviet technology. This being the world of righteous United States and big bad Soviet Union, the situation does not stay like that for long.

You and a select number of the crew have been overcome with a desire to give glasnost a miss and defect to the land of MacDonalds, drive-in movies, 24-hour TV and Ronald Reagan. Your ex-comrades are not too happy with

this and endeavour to make your next trip to the seabed permanent.

The layout of the controls and overall design is pleasant, with bas relief icons for accessing all the various functions. There are now multiple screens in the format of *Silent Service* which, considering the relative complexity of *Red October* compared to the Microprose product, could be considered disappointing.

The game starts in the Reykjanes Ridge, an area with deep rock formations interspersed with Soviet surface and submarine vessels, U.S. attack

submarines and an underwater listening network.

Initially your crew is unaware of the imminent defection and you must keep the truth from them as long as possible or the risk of being replaced, especially if you sail to odd parts of the map, are great. The other problem is detection. Although reasonable progress has to be made, creeping along quietly is more important.

There are three basic display types - sonar, contour and periscope. The latter gives you a view of the heaving sea, which is far from convincing, but at least the ships sailing around look good.

The controls may be icon-driven but it is still tricky to get to grips with them, very much so on the ST version which is unresponsive. On the Amiga things are much smoother but avoiding a watery grave is still difficult.

While *Red October* is more complex than *Silent Service* it is not so well-presented and, for me, less enjoyable.

Reviewer Duncan Evans
Program *Hunt for Red October*
Micro Amiga/ST Price £19.95
Supplier Argus, Victory House,
Leicester Place, London WC2H
7NB.

Software guide
continued



Spectrum

Program *Blockbusters Type Quiz*
Price £7.95 Supplier Domark, 22
Hartfield Road, London SW19 3TA.

You too can pretend you're on the telly, pretend you're winning super prizes, and pretend that eight quid was money well spent.

Program *Star Wars Type Arcade*
Price £7.95 Supplier Domark, 22
Hartfield Road, London SW19 3TA.

Remarkably good implementation of the coin-op originally, but the ST version is still by far the best. No sampled sound of course, and haven't we seen this sort of thing before in 3D *Star Crash*? If you haven't got that latter game though, this is one well worth buying.

Program *ACE 2 Type Combat*
Flight Simulator Price £8.95 Supplier Cascade Games, 1-3 Haywra Crescent, Harrogate HG1 5BG.

Hmm. Interesting one which divided office option in its other incarnations. If flight sim style combat games are your thing, it's one to check out.

Program *Venom Type Adventure*
Price £1.99 Supplier Mastertronic,
8-10 Paul Street, London EC2.

Nothing to do with the band, but rather an adventure game with illustrated locations. The usual pixie quest plot but uses icon control to speed things up. You could do worse in your next choice of adventure.

Screaming Wings

Red Rat is well-known in the 8-bit Atari market and is one of the few companies still supporting that range. Not even *Red Rat* is immune to the lure of the ST, however, and at the recent Atari Show launched a conversion of one existing title and a new one.

Screaming Wings is a vertically-scrolling shoot-'em-up in the grand tradition of all the other games of that ilk. That is not necessarily a bad thing, if carried off with gusto and style, but, unfortunately *Screaming Wings* has neither of those desirable attributes.

The aim is simple, if your aim is good. Enemy jets pirouette, twirl and float gracefully towards you, spurring lead-jacketed death at a prodigious rate. Armed with a similar cannon you must avoid the hail of fire and return the compliment.

At the end of the first level a large fighter-bomber lumbers into view. Destroy this aeroplane version of a mothership and a spot of R&R can be had back at the airbase - until the next sortie



by the foe, of course. The scrolling is well done, especially considering how much of the screen is on the move, but the scenery underneath the well-designed aircraft is very bland, both in use of colour and design.

Lacking from *Screaming Wings* is that vital element of excitement which gets the adrenalin flowing. The disappointingly weak sound effects do not help.

Although it is by no means a bad game, it is not up to the current standard of ST arcade games, so let us hope the next *Red Rat* production is an improvement.

Reviewer Duncan Evans
Program *Screaming Wings* Micro
Atari ST Price £9.95 Supplier
Red Rat, 11 Fenel Street, Manchester M4 3DU.

Fast all rounder

Adrian Pumphrey reviews Fast Asm, a Fast Basic compatible editor/assembler.

When BASIC is no longer fast enough and you want to get into the heart of a computer, machine code may be the only answer. High level languages such as C or Pascal are all very well, but if you want to produce programs featuring fast moving graphics, then machine code is the only option.

Machine code, however, is just a series of generally indecipherable numbers, so in order to make the job just a little easier you can use an assembler which turns mnemonics (more English-like commands which you type in) into their corresponding machine code numbers.

Fast Asm is a Fast Basic compatible editor/assembler from Computer Concepts. The disc and 35 page manual come in a stylish black plastic wallet with the claim 'ultra fast 68000 assembler' adorning the front. By fast they mean assembling up to 50,000 lines per minute.

Unfortunately, I did not have a 50,000 line assembly program lying around so you will have to take their word for it, but when assembling smaller programs the speed was certainly impressive.

Most packages fall down on the manual, but this is not the case with *Fast Asm*. The manual is written clearly and is easy to understand, although I did manage to find three undocumented commands.

The editor/assembler is simplified by the use of GEM and a mouse for selecting commands from the drop down menus. One feature worth mentioning is the save desktop command, which allows you to

"Most packages fall down on the manual, but this is not the case with Fast Asm. The manual is written clearly and is easy to understand."

save your own customised window setup for later retrieval.

Most assemblers can only have one program in memory at any one time, but with *Fast Asm* you can have up to 10 programs in memory simultaneously, the size of which depends upon the amount of memory in your particular machine.

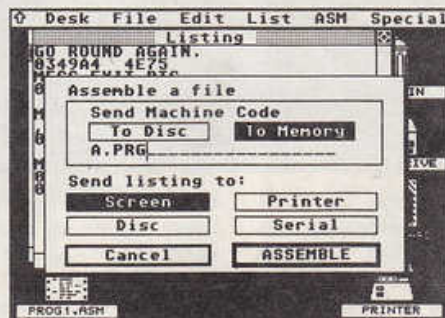
You can add programs on to the end of one another or you can insert programs



An assembly listing of Fast Asm.

into each other, which is very useful for adding subroutines. If you do not want to add subroutines while editing you can call them from disc when assembling. A clipboard facility can also be used with the cut and paste commands.

When a program is moved to the clipboard it is converted into ASCII code and can be saved in that format. To load an ASCII code program into *Fast Asm*, you



Preparing to assemble.

load the program into the clipboard and then transfer it into a segment.

Two useful programming functions are Evaluate Expression and Automatic case

conversion. The former is a calculator which will display results in both decimal and hexadecimal. The latter allows the programmer to type in lower case and if a recognised assembler command is entered it is converted automatically to upper case.

The assembling can be done in one of three ways, assemble placing object code in memory, assemble placing object code on disc or assemble and produce no object code - to save time producing object code from a source code that may not assemble.

If your program failed to assemble properly you can list the source code and the cursor will rest on the offending instruction and an appropriate error message will be displayed at the top of the screen. If, however, your program assembled correctly, you can run it without leaving the assembler, providing you assembled to memory and placed a return from subroutine instruction onto the end of your program. This option will show the final status of the registers on completion of the program run. It is also possible to display the variables used in the program together with their current values.

On the debit side, there is very little in the way of debug facilities. This may present problems to inexperienced programmers.

If you want a hard copy of your program *Fast Asm* will print a segment or the contents of the clipboard, or even the contents of a window, giving a program listing with an optional header showing a few details about the program.

Overall, *Fast Asm* is an easy to use assembler with some very nice features, £19.95 it is a great deal for someone looking for a good but cheap editor/assembler. In my opinion it is well worth the money and many companies should take note - good quality software at a reasonable price. □

Reviewer Adrian Pumphrey Program
Fast Asm Micro Atari ST Price £19.95
Supplier Computer Concepts, Graddesden Place, Hemel Hempstead, Herts HP2 6EX.



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 COMMODORE
ACORN SINCLAIR

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 ROM	6.50
4116 RAMS	7.00
ZTX 650	.75
ZTX 213	.40
	.40

Keyboard Membrane

Spectrum	3.00
Spectrum Plus	8.00
QL	9.00
Metal Templates	3.00

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
6569 - VIC	18.00
4164 RAMS - Memory	1.00

Power Supplies

C64	19.50
C16	15.00

All the above prices include VAT but please enclose a further £1.50 post and packing on all component orders.

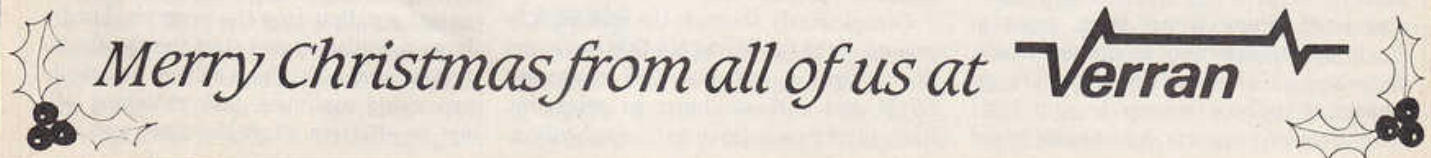
HOW TO CONTACT US

★ For quotes on computers not listed or on any component, telephone 0276 66266. (Quoting POP/4912).

★ 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/4912.



Verran Micro-Maintenance Limited, Unit 2H & 2J, Albany Park, Frimley, Road, Camberley, Surrey GU15 2PL. Telephone 0276 66266.



Just another pipe dream?

Barry Smith profiles the Z-88

The Cambridge Computer Z-88 avoids existing hardware standards. It is first and foremost a software machine, a microcomputer created with a particular kind of application in mind, designed to run a particular set of built-in programs. Although the Z-88 can make use of third-party software, the programs included with the machine form a comprehensive suite which most users should find sufficient for some time.

Its role

The Z-88 is aimed at fulfilling the need for a fully-portable computer which can take on the role of notebook, diary, calendar and calculator, as well as provide the functions of a computer word processor, spreadsheet and database. This combination will be a boon to anyone who moves around in the course of their work, or anyone who works in a situation where traditional desk-top and even portable computers would be too cumbersome.

Two kinds of built-in programs are provided - applications and pop-ups. The applications include an integrated word processor, database and spreadsheet called *PipeDreams*, a diary program, terminal emulation and file transfer software and a version of the BBC Basic programming language implemented for the Z-80 processor.

Pop-ups, including the calendar, clock, alarm and calculator, can be invoked from within an application. They appear over the main program in a window and can be put away again by hitting the escape key.

PipeDream

PipeDream is the key Z-88 application. For most users it will be where the bulk of their useful work is done. The diary, BBC Basic and the bundled comms software will all have their uses and the pop-up utilities are valuable extras but the most striking thing is the fact that they are all built into a stunningly lightweight and reasonably-priced computer.

Attempts to make other machines fulfil such a wide range of functions have foundered. There is not much point in having a computerised appointment book on your desk when you are elsewhere, an appointments book belongs in your brief case or under your arm. A computer-based

notebook should be usable wherever you are likely to want to make notes. Existing portable machines which deliver the range of software and the flexibility of the Z-88 are much heavier and bulkier. They are usually much more expensive and they take time to set up and use.

Instant access

The Z-88 is designed so that all your information is instantly accessible, as accessible as the information in a notebook or even more so. You can switch on the Z-88 and begin work instantly. You can switch from one task to any other with a single keystroke and pick up earlier tasks where you left off just as easily. This

“The Z-88 is aimed at fulfilling the need for a fully portable computer which can take on the role of notebook, diary, calendar and calculator, as well as provide the functions of a computer word processor or spreadsheet and database.”

instant access to data is partly a result of the fact that the Z-88 uses battery-backed RAM instead of discs for primary storage but it is also due to the thoughtful design of the Z-88 operating system software.

The Z-88 operating system is tightly, almost seamlessly, integrated with the application software, so much so that many users will remain virtually unaware of its existence. Despite that, the system provided with the Z-88 deserves close examination, since it holds the key to the machine's usefulness.

Conspicuously absent is the opening A> prompt of the CP/M and MS-DOS command line interface, but the Z-88 resembles CP/M and DOS machines in relegating Basic to its true position as an *application*.

The opening Basic prompt of many home computers, showing that Basic is doing double-duty as an operating system shell, is replaced by the bounce-bar menu called the Index. The Index lists all the installed applications and pop-up programs and it is accessible from within an application by pressing the Index key.

The index

The Index allows you to launch programs either by using the cursor keys to move the bounce-bar and return key to select them, or by pressing a key combination consisting of the [] key and one letter. Thus, PipeDream can be invoked by hitting [JP]. Unlike most existing microcomputer operating systems, the Z-88 OS allows you to launch as many programs as will fit in memory without closing any down. You can have several programs loaded, each holding data, and you can even have multiple copies of a single application.

If PipeDream is already running, selecting [JP] will display the PipeDream workspace with whatever data you are working on displayed. If you have launched PipeDream more than once, hitting [JP] repeatedly will circle you around the workspaces. To launch PipeDream again - or any other application - you press the Index key, and then choose PipeDream from the menu.

If you save a document from within PipeDream you have two copies of the data in the Z-88 RAM. The first copy is the PipeDream workspace which contains the working data - in the Z-88 that is an *activity* - and the second copy is the *file* which was created when you saved the document.

Suspended activities

While you work with a given activity, the other activities in RAM are frozen; in Z-88 terms, they are *suspended activities*. This distinguishes the Z-88 task-switching environment from true multi-tasking. If you start a long program written in BBC Basic, then try to switch to PipeDream, hitting the Index key of [JP] will not work unless you first stop the program. Load a large spreadsheet and start the re-calculation, or sort a database column and while processing continues, task switching will not be effective. Start the diary and look

up you tasks for the day. While you read about your forthcoming appointments, the Basic program is not running and the spreadsheet is not re-calculating but all the activities are still available and they are exactly the way they were when you left them.

Off and on

If you switch off the machine by hitting both shift keys, all the activities will be preserved. This is even true if a Basic program was running or a PipeDream sort of calculation was in progress. When you turn on the machine again, the program continues from exactly the point when you last switched off. This would be equally true even if the machine had been switched off for a week in the meantime.

Suspended activities are listed on the Index menu in a separate column; any suspended activity can be re-started by selecting it from the index. As you start more and more activities, you use more and more RAM. You need to purge memory of old activities periodically, either saving them as RAM or EPROM files or deleting them altogether.

Several of the Z-88 built-in programs are really extensions of the operating system, in the sense that they allow you to manage files stored using RAM and EPROM chips attached to your system, configure devices such as the serial port, and set system-wide parameters controlling the keyboard and screen.

The Filer

The most important of these utilities is the Filer. It is the equivalent of the file management commands included in most microcomputer operating systems and it will work with all the possible file storage devices which can be attached to the system, such as RAM, EPROM cartridges or disc drives.

The Filer supports a true hierarchical file system like the BBC ADFS Microsoft MS-DOS, or Unix. A hierarchical filing system, which allows you to create a tree-like system of named directory areas in which to store your files, may seem like overkill to owners of the basic 32k Z-88. With the 3MB chips which are on the way, however, the Z-88 would soon become unusable without such a system; once available storage exceeds 1MB, the number of files on the system would proliferate to the point where it would be impossible to find files when they were needed.

Unlike DOS, Unix or the Acorn ADFS, the Z-88 filing system is basically menu-driven. Short-cut keystrokes are available for most Z-88 operations, using the special diamond and [] keys, but there is not true command line interface. Using the menus, the Filer allows you to copy, delete and rename files. To provide for managing the

hierarchical file system, options are available to allow you to create new sub-directories, change the current working directory, or perform tree copies of whole branches of your filing system.

A name match command filters the current directory listing using the ? and * wildcards to match one or more character in a filename. The default pattern is *, meaning all files, but you could change this to *.bas to display only Basic programs. This wildcard facility is very much the same as the DOS and Unix equivalents.

As in Unix and DOS, you can specify on which files you want to perform commands by giving a pathname. The / character separates each successive directory name from the daughter directory or from the filename, thus:

finance/expenses/*
would identify all the files in the expenses sub-directory of your finance directory. Again, just as in Unix and DOS, the special

facility, in that it allows a sequence of commands stored in a text file to be passed to the operating system automatically and carried-out without your intervention.

The Execute function is both more and less powerful than the DOS batch file system. It is less powerful because it lacks some of the programming structures of its DOS equivalent - command line parameters, conditional branching and looping, string variables - but, on the other hand, once a Z-88 application is running, the execute file can continue to pass commands to the application.

Execute files can mimic most normal keypresses. For example, the up, down, left and right cursor keys are included in execute files as ^U, ^D, ^L and ^R. The return key is ^E. The [] key used to launch applications is coded as # and the diamond key used to issue commands within applications is represented by the vertical bar, |.



The Z-88: a wide range of functions.

symbol .. refers to the parent directory, so: ../.bas

would mean all the Basic programs in the parent directory of the current sub-directory.

Filer options are available for storing files to semi-permanent EPROM cartridges and fetching them back into RAM. Catalogue Files and Catalogue Eprom provide a fuller directory listing showing file creation and update dates and times, together with the size of each file. Finally, if more than one RAM chip is fitted, Select Device command allows you to switch from the default internal memory device, known as :RAM.0, to an external chip.

Execute

Perhaps the least discussed feature of the Filer so far is the Execute function. It is similar in many ways to the CP/M submit command or the MS-DOS batch file

Given those keystroke aliases, it is possible to drive any of the Z-88 applications from within a single Execute file; there is comparatively little the Z-88 can do which could not be included as part of an Execute program. This reach into the applications is a facility of which the MS-DOS batch file programmer can only dream; to achieve comparable results, he would have to use a memory-resident macro utility.

Although the key to the Z-88 is its applications software, in particular PipeDream, the underlying system software is an original but well-designed platform which maximises the usefulness of the applications. From the operating system through to the applications there is a single system of help screens and menus and a uniformity of user interface which allows the new user to feel at home with the Z-88 software surprisingly quickly. □

Computer Music at it's best...



MIDI INTERFACE

For ZX SPECTRUM - Compatible with 48/128k/+2

- MIDI DELAY FACILITY • STORES THOUSANDS OF NOTES
- MIDI IN/OUT/THROUGH • FULL MIDI COMPATIBLE ASSIGNMENTS
- CONTROL ANY MIDI COMPATIBLE INSTRUMENT
- FORWARD AND REVERSE SEQUENCE PLAYBACK
- REAL OR STEP TIME INPUT FROM INSTRUMENT OR COMPUTER
- SUITABLE FOR HOME OR PROFESSIONAL USE
- FULL SYNC FACILITY • 8 TRACK MIDI SEQUENCER
- COMPLETE WITH HARDWARE / FULL SOFTWARE
- TRANPOSE FACILITY • MICRODRIVE COMPATIBLE
- COMPREHENSIVE INSTRUCTION MANUAL
- MIDI LEAD INCLUDED
- EXCEPTIONAL VALUE

128k/+2 to Midi Lead
(BT style plug to 5 pin DIN)
ONLY £9.75
It is not necessary to purchase this lead with the Cheetah MIDI Interface

Extra 5 pin DIN
to 5 pin DIN Midi Leads
ONLY £4.99

SOUND SAMPLER

For ZX SPECTRUM - Compatible with 48/128k/+2

- SAMPLE ANY SOUND • SYNC FACILITY • MIXING OF SAMPLES
- SUITABLE FOR HOME OR PROFESSIONAL USE • SIMPLE TO USE
- REPLAY AT VARIOUS PITCHES FORWARDS OR BACKWARDS
- POWERFUL EDITING FACILITY • ECHO, REVERB ETC.
- SAMPLE SOUND EFFECTS INCLUDED • COMPLETE SYSTEM
- EACH SAMPLE SOUND STORED AS FILES IN MEMORY
- BANDWIDTH-AN AMAZING 17.5KHz
- OUTPUT THROUGH MOST HI FI'S • MICRODRIVE COMPATIBLE
- GRAPHICS SAMPLE DISPLAY • PLAYBACK FROM KEYBOARD
- REALTIME PITCH HARMONISER

Dog barking, Glass breaking, Drum beating, Car revving even make your voice sound like Mickey Mouse — it's all possible with this amazing add-on from Cheetah



SPECDRUM / AMDRUM

Digital Drum System for the Spectrum 48K 128K +2 and Amstrad 464.664.6128.

As featured on "Micro Live" and "Saturday Superstore"

- 8 DIGITALLY RECORDED REAL DRUM SOUNDS
- SIMPLE TO USE — UP AND RUNNING IN ONLY MINUTES
- A TRUE DIGITAL DRUM MACHINE
- 'REAL TIME' OR ON SCREEN PROGRAMMING
- COMPLETE WITH SOFTWARE
- EXTRA SOUNDS CAN BE LOADED FROM TAPE
- CREATIVE, EDUCATIONAL AND FUN

• THE MOST EXCITING PERIPHERAL EVER DEVELOPED

- DYNAMIC FILING SYSTEM — STORE OVER 1000 PROGRAMMED RHYTHMS
- SONGS CAN BE SAVED ON TAPE
- TAPE SYNC FACILITY
- POLYPHONIC • COMPREHENSIVE MANUAL
- JUST PLUGS IN TO MOST HI FI'S

Prices include VAT, postage & packing. Delivery normally 14 days. Export orders at no extra cost. Dealer enquiries welcome.

Cheetah, products available from branches of

Dixons Harrolds **LAKES**

WHSMITH • High St. Stores and all good computer shops or direct from Cheetah.

NOW AVAILABLE
Latin Kit & Editor
£3.99
Electro Kit & Editor
£4.99
Afro Kit & Editor
£4.99

128 to Midi Lead available now at... **£9.75**

Cheetah
Marketing



CHEETAH MARKETING LTD
Norbury House, Norbury Road,
Fairwater, Cardiff CF5 3AS.
Telephone: Cardiff (0222) 555525
Telex: 497455 Fax: (0222) 555527

On the beaten track

Mark Jenkins with details of a new C64 package to help out in any studio.

If you are making music with a micro you are probably recording it. If you are recording it you will probably want to work with a 4-, 8-, 16- or 24-track tape machine. *Ultrax* is a new Commodore 64/128 package intended for the professional musician but which will also be an invaluable aid to the home recordist. It costs £39.95 including postage and packing; an Atari ST version will be available soon as well and the manufacturer, Studio Utility Software, claims that both versions will be equally suitable for home users and will compare favourably by any other software on the market.

Running notes

Ultrax, or UTX-1 as it is otherwise known is intended to help you keep track of your recording work. Hurried notes on loose pieces of paper are far from professional and inevitably lead to your blasting of that brilliant solo which you had recorded on track 3 and forgotten to bounce down into the first mix. If you keep running notes using *Ultrax*, which replaces the paper-and-pencil tracksheet of old, that kind of thing should never happen again.

Ultrax includes full disc and printer facilities, a text entry screen cursor on three main screens, and a calculator section which allows you to enter the speed of your piece in beats per minute and read off a list of echo times needed to produce various types of repeated notes - 4th, 8th or 16th notes or triplets.

The *Ultrax* track sheet screen can show eight, 16 or 24 tracks and is coupled to a track notes screen which allows you to record details of instruments and effects used, sound numbers, Midi channel numbers and so on. The Track Q list screen allows you to keep a record of the song arrangement, tape counter times, sections of songs, number of bars per section, drop-in times and so on.

Disc handling

The disc handling page allows you to save, load, format, scratch, re-name and obtain a directory of all the track, notes and Q sheet pages you have made up. The printer option allows you to print-out information from any of the - not, unfortunately, from the Echo Times calculator - and each track

sheet printed-out includes a list of studio, engineer, artist, client and date, which you enter at the start of the session.

The program takes about 45 seconds to load and the resulting main menu allows you to access all the major functions. You would usually start with Write New Sheet, which asks you how many tracks you want

TRACK SHEET			
TITLE: ATLANTIS			
BPM: 120			
1	2	3	4
BASS	SNARE	HI-HAT	PERCSSN
5	6	7	8
SYNTH B	CHORDS	BRASS	MELODY1
9	10	11	12
MELODY2	EFFECTS	REVERB	NOTUSED
13	14	15	16
NOTUSED	NOTUSED	NOTUSED	TIMECODE

RECORDED AT : UNICORN
ENGINEER : MARK JENKINS
PRODUCER : MARK JENKINS
ARTIST : STEVEN SPENCER
CLIENT : NEW WORLD TAPES
DATE : 11/87

to display, the date and so on. If you know you are to use only four tracks on an eight-track machine, or eight tracks on a 16-track, the lower option will give you more space to write notes.

Track sheet

With equal speed you can flick to Load A File, Disc Utilities - which has its own options page - Calculate DDL, times, printer, exit to track sheet or quit. The track sheet is controlled using a white arrow cursor, the pointer. On the 24-track sheet there is only one line per track on which to write, but the eight-track sheet gives much more space. You can hit F1 to return to the main menu, F3 for the Q List screen, or F5 for the note page. The pointer is also used to move round the note page and you can get back to the track sheet and Q List from there, again by using the function keys.

On the Q List page you can use the time boxes to enter the start time, or tape counter reading, for the start of each section of your music. The bars boxes are used to enter the number of bars for each section and the notes box is to keep a record of drop-in cues; again, the function keys are used to change to other pages.

Inserting text

When you want to enter some new text you will find the pointer will move only along the particular field - box - you are filling in; you have to use the return key to move to a new field. Text cannot be inserted at the speed of a word processor but the package is fast enough. Use the delete key to remove any text you do not want. You will find that text to the right of the pointer is not pulled in but is left alone in case you still want it.

The program includes a good selection of disc error messages but if you have started with a reasonable quality disc and formatted it at the start of the session you should have few problems.

Overall, *Ultrax* is a very useful program. The printouts it produces are basic but functional and the ability to store so much information about your compositions is invaluable when you are trying to squeeze as much music as you can on to a limited number of tracks. For the four-track market it would have been useful to see an option which would allow you to keep track more easily of different sounds occurring at different points along the same track.

TRACK NOTES	
1	BOOST BASS EQ TO 7
2	BOOST MID EQ - REVERB 27
3	---
4	PAN LEFT - ECHO ON RIGHT
5	BOOST BASS EQ 7, MID EQ 6
6	MID EQ 4
7	PAN RIGHT, ECHO PATCH 35
8	FOR FIRST HALF
9	FOR SECOND HALF
10	ECHO PATCH CHANGED BY MIDI
11	REFER TO Q SHEET FOR PAN INFO
12	---
13	---
14	---
15	---
16	---
17	VIRTUAL MIDI TRACK: NOT USED
18	"
19	"
20	"
21	"
22	"
23	"
24	"

On the whole, though, a thumbs-up. What should be really interesting is the ST version, which you could run with Kuma K-switch or something similar to have it resident at the same time as a good sequencer package. □

Studio Utility Software, 51 Loveridge Road, London NW6 2DU. Tel: 01-872 5103.

Oasis in a software desert

Some software offerings for the Archimedes
by David King.

It has a completely non-standard 32-bit microprocessor and has only been available to the public for four months, so it is not surprising that the Acorn Archimedes super-micro has a very thin software portfolio at present. Things are gradually beginning to accelerate, however, and though there is not much choice many of the missing stones in the Archie fundamental software foundation are now falling into place.

Archimedes owners can choose from two types of program - slightly modified or even standard BBC Micro programs running under the Archimedes 6502 emulator or native ARM - Acorn RISC Machine - machine code programs written from scratch. The former are surprisingly plentiful; the emulator really works usefully, though many favourites will not run if they do not follow Acorn legal code guidelines.

Almost all BBC machine code arcade games will fail to run under the emulator as they poke screen memory illegally. As a rough guide, anything which is Tube - Beeb 6502 second processor - compatible will have a good chance of running under the emulator. Unfortunately there is an exception; service ROMs - those with numerous * command extensions - are not catered for by the emulator and will not work even if they are genuinely Tube-compatible. A surprising number of accomplished BBC programs are written in Basic, including a few entertaining arcade-style games. Many will run without the need of the 6502 emulator, in AFM Basic, and they will run very fast, too; be prepared for a speed increase by a factor of 30 or more.

Under the emulator

The Acorn View range of applications - word processor, database, spreadsheet, graph plotter and spell-check ROMs - will all work under the emulator but beware of some releases which have anti-sideways RAM copy-protection built in. *View Professional*, the Acorn new word processor with integral spreadsheet - also featured in Sir Clive Sinclair's Z88 as *Pipedream* - works well under the emulator, too. Acornsoft Comal also works but the ISO Pascal and Logo twin-ROM sets do not. Acorn can be contacted on 0223 214411.

Computer Concepts have modified its rival to the Acornsoft *View* system, the *Inter-series* range, to run under the emulator, even making use of extended Archie-only screen modes and extra colours, but it will not be releasing them until a ROM board module on which it is working is ready. *Wordwise Plus*, however, has been



With software, the Archimedes can emulate a PC.

released on disc for £20. CC is already well into several ambitious ARM projects, including a desk-top publishing system to rival an Apple Mac, but they will not be ready for another three or four months. Computer Concepts can be contacted on 0442 63933.

Logosoft

Logo fans will be pleased to know that their favourite language has been converted to run under the emulator, courtesy of Logosoft, for £35. Logosoft can be contacted on 01-891 0989.

Comms users will have to wait for some really good native comms packages to materialise, though one is almost ready. For the time being, Prestel/Viewdata users might like to know that the Watford Electronic original Modem 84 comms ROM appears to work most of the time under the emulator. It is not brilliant - after all, it was never designed to run on the Archie but it will get you on-line.

We have mentioned just a small selection of emulator-compatible programs but

if you want to try an old favourite ROM of yours, you need first to transfer the ROM image to disc. Then copy across to an ADFS 3.5in. disc for use in your Archie. You will then need to write (*BUILD) a short loader EXEC file, as follows:

```
*65ARTHUR (load in emulator)
*GO F800 (get into emulator OSCLI)
LOAD (ROM IMAGE) 8000
GO 0000
```

With luck you should see the familiar ROM welcome on the screen.

Real ARM packages

Clares Micro Supplies, a staunch Acorn-aligned software house, has already produced two serious packages for the Archimedes which do not owe their ancestry to 8-bit BBC origins. *ATM* - advanced Toolkit Module - is a multi-function programmers' aid in the form of a module, analogous to a ROM in the BBC, which provides utility commands for examining disc and memory contents.

String searching and ARM code disassembly is catered for, along with data comparing and disc/memory editing. Clares latest release is the *Artisan* art package. It looks like being the first in a long line of full-feature art systems for the Archimedes from various Acorn software houses. The package is completely WIMP-driven and facilitates many new drawing and painting features which were not possible on the old BBC.

You can select portions of the screen to be re-positioned and rotated at any angle almost instantly, selected parts of the screen can be distorted, the pen/brush can be user-defined as well as being made 'magic', which means you can paint over a pre-prepared section of the screen and affect only pixels of a chosen colour. Both Epson dot matrix and Integrex colour printer screen driver are provided.

Although *Artisan* was written specifically for the Archimedes, substantial parts of it are in Basic, though there is no hint at that when in use. *ATM* and *Artisan* each cost £39.95. Two more products are expected soon, *Alpha-Base* database manager and the *Image Writer* word processor. Clares can be contacted on 0606 48511.

Acorn has worked hard in the short time since the Archimedes has been available to

provide some heavy-duty languages for system designers and other software houses. ANSI standard C, reviewed recently, ISO Pascal, Fortran 77 and Cambridge Lisp are all available now, with Prolog X expected soon. The Pascal, Fortran and C compilers are in pre-release form only but their presence means that the Archimedes is no longer a high-tech novelty but a serious applications machine with Unix looming on the horizon. All these languages require a minimum of 1Mb either an A310 or A400 series machine, or an expanded A305.

Pre-release languages

The pre-release languages are £99 plus VAT but they are expected to be around 50 per cent dearer in final form. *Twin*, a multi-tasking editor developed by Acorn engineers in-house, has also been made available commercially at £90.

Closer to home, Acorn has also announced an Archimedes version of its *View Professional* word processor with integral spreadsheet. As it is written in C, Protechnics, the company behind all the *View* range, is working on a modified version of the existing code to take into account all the Archie extra memory and the WIMP desk-top. It should be available early next year.

For business users, Acorn is marketing the Logistix integrated *Lotus 123* compatible spreadsheet/database and personal manager package from Grafox. It is also written in C and has been available for IBM PCs and compatibles for some time. Expect to see a few PC packages being ported to the Archimedes next year.

Minerva Systems has finished three products for the Archimedes, two databases and a maze game. *Deltabase* is a ported version of its popular BBC Micro card index database manager. Its design permitted it to be converted easily to the Archie, as most of it is written in Basic which, in turn, accesses machine code drivers. Minerva quickly re-wrote the machine code to be one of the first companies to release a native Archimedes utility package.

Simple

Deltabase is relatively simple compared to *System Delta Plus*, a full-blown relational database which has sophisticated spreadsheet-like maths facilities and makes use of the WIMP desk-top. *Deltabase* and *Delta Plus* are priced £29.95 and £69.95 respectively.

For £14.95 you might choose the one and only Minerva game, *Minotaur*. It is a three-dimensional maze game which can be user-designed. It may be over-priced at £14.95, even though technically it is inter-

esting, as it represents a semi-arcade style game written entirely in Basic.

Zarch from Superior Software is definitely worth £19.95. What more can one say about the game from Elite co-author David Braben? It is a moot point whether Acorn could have done without *Zarch*, the demo instruction version of which is supplied on the Archie welcome disc and which has turned more heads in the direction of an Archie than any Acorn marketing campaign.

Deebug will be offering a similar specification package to accompany its Hayes-compatible modem module which should be out in January.

Another Emulator

If you have a PC at work, or simply must use the MS-DOS package, the Acorn MS-DOS emulator is probably well worth investigating. Supplied as a £89 plus VAT upgrade, or included in the A310M for £69



The Acorn Archimedes.

Zarch is state-of-the-art when it comes to three dimensional solid graphics animation. The scenario is not wonderful and sound is a joke in the game, but those criticisms make *Zarch* nothing but the most talked about game of the year. Watch for more *Zarch*-style games from Braben and company next year, and, of course, there is *Elite II* on the way.

Computer Concepts has not released anything 100 per cent ARM for the Archimedes, but in this spring it should be unveiling its professional desk-top publishing system, which includes extra hardware, to rival such packages as the Apple *Mac Author* and other similar laser printer drivers. CC will be bringing the Archie into the world of serious professional publishing and at a price it says confidently will stir the DTP market.

As for comms, despite a problem Acorn has experienced with the RS423 hardware, BBC Soft is promising a comprehensive viewdata/scrolling ASCII terminal, and

above the standard A310 price, the emulator gives you a 512K PC environment with MS-DOS 3.21. It will support 720K IBM format 3.5in. discs as well as standard 360K 5.25in. floppies if you have them.

Acorn has tested most popular packages with the emulator and although there is a display speed penalty on most of them, most of the programs tested worked successfully. Four-colour CGA graphics are supported and even the Microsoft's *Flight Simulator* is reported to work.

Only programs relying on non-standard hardware or PC cards, or those which are programmed illegally, appear to cause problems. Perhaps even more important for the Archie will be the 80186 PC-compatible card which will be available early next year.

The emulator works just a shade slower than the speed of a 4.77MHz PC, whereas the module will approach the speed of an AT and will probably support EGA level high-resolution colour graphics. □



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

MIMIC 3.5"

SS	10s in Library Case	£13.55
DS	10s in Library Case	£15.95

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

AMSOF2 CF2 3"	10s	£20.00
MAXELL CF2 3"	10s	£20.00
3" MIMIC CF2DD	10s	£26.40

ACCESSORIES INC VAT

IBM/Amstrad PC1512 Printer Cable GPR10125 x 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 COLOUR UNBRANDED

FULLY CERTIFIED	SS 48 TPI	SS 96 TPI	DS 48 TPI	DS 96 TPI
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

NEW CATALOGUE AVAILABLE NOW

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)		
£90.00		

DISK BOXES INCLUDING VAT

5.25"	50 capacity £6.95	100 capacity £9.35
3.5"	40 capacity £6.80	80 capacity £9.55
3"/3.5"	80/90 capacity £9.55	
10 x 3.5" or 5.25" (library case)	£1.20	

AMIGA HARDWARE

A500 Amiga	£475.00
Cumana compatible 1 meg disk drive	£140.00
Modulator	£24.95

SOFTWARE

We sell the full range of SAGE POPULAR SOFTWARE	
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



On the blink

A Searby, of Bradwell, Nr Sheffield, writes:

My Oric Atmos has gone on the blink - lost its display. A check indicates that it needs a new ULA, number HCS 10017, C DI-7C, 8315. Could you offer any suggestions as to where I may buy a new chip?

I do not know where you will get this chip. You might try an Oric user group for information IOUG, contact Gary Ramsey, 1 Kingsway Crescent, Burnage, Manchester M19 9GA, is the only one for which I can find an address.

More basic advice

L Fergusson, of Aberdeen, Scotland, writes:

I am writing a program in Basic which uses a good deal of text and would like to be able to code it so that it occupies less memory space. The program is written in Basic on a BBC B. Can you help?

The best method of coding English text is to use Huffman code. Normally, each character occupies one byte, i.e., eight bits, which is fairly wasteful. Huffman coding finds the frequencies of each of the characters and then assigns shorter bit-length code to characters which occur most frequently. The bits can then be strung together in memory, or a file, to obtain a space-saving of between 30 and 50 per cent. The method works as follows:

Find the frequencies of the characters in the text, i.e., the number of times they occur. Any with a frequency of zero can be ignored, since they never appear.

Find the two smallest frequencies and make a new frequency entry in the table which is the sum

of them. Pointers to the two characters which had those frequencies are also set up. The frequencies of the two characters/entries are zeroed to take them out of future searches. The smallest frequencies are then found again and another frequency is set as before.

This process is repeated until only one frequency remains; this is the same as the total number of characters in the string being coded. The array can then be used to code the text by starting at the character and then finding this number in one of the pointers. If the pointer is a '0' pointer, 0 is appended to the end of the character code. If it was a '1' position, 1 is appended. The array position where the number was found is then looked for in the array and the 1 or 0 is appended again.

This process is repeated until the top of the tree is reached, i.e., the last entry in the table. The bits are then the code for the character. To decode, start at the top of the tree - last entry in the array - and work down following the pointers in the 1 and 0 arrays until a character is reached.

The advantage of Huffman coding is that no character code has the same prefix as any other. That means the bits can be strung together one after the other and decoding starts with the first bit until a character is found. Then the next and the next - see program.

I have written the program in a standardised form of Basic which can be converted easily to any other Basic by adding line numbers and substituting them for labels. BBC Basic will also be able to use superior looping techniques, i.e., get rid of the GOTOS. It should also be fairly straightforward to convert to other languages.

The code from the program is placed in a string but, in practice, this will be placed as bits in consecutive bytes to give a compressed format. I will leave the packing and unpacking to you; it is straightforward and machine-dependent.

There are two ways of using the coding scheme; the first is to save the coding array along with each piece of text. This is really worthwhile only with long pieces, since the space-saving may be taken up by the array with short pieces. The other way is to create a code table for a long standardised piece and then use the same table for a number of files. This will save space on short files but will not be as efficient as it could be.

For more information see *Byte*, May, 1986.

Array pos	0	1	2	3	Step 1 - the frequencies
Character	A	B	C	D	
Frequency	10	5	15	7	

	0	1	2	3	4	Step 2 - combine two smallest to get new entry. Pointers give B (1) and D(3)
	0	1	2	3	4	
	A	B	C	D		
	10	0	15	0	12	

Pointers to array positions				
	1	3		

	0	1	2	3	4	5	Step 3 - combine again notice that freqs are zeroed to take them out of the search
	0	1	2	3	4	5	
	A	B	C	D			
	0	0	15	0	0	22	

	0	1	2	3	4	5	6	Final step - gives code tree.
	0	1	2	3	4	5	6	
	A	B	C	D				
	0	0	0	0	0	0	37	

Pointers to array positions				
	1	3	0	4

Codes are: A=10
B=110
C=0
D=111

Pointers denote 0 left and 1 right

```

DIM f(127),f$(127),p0(127),p1(127)
a$="This is text to be coded up as an example"
PRINT a$
GOSUB gfreq
en=1
GOSUB maketree
PRINT "The code is -"
FOR k=0 TO en
  b$=f$(k):GOSUB find
  PRINT f$(k),code$
NEXT
PRINT
GOSUB codeall
PRINT "Coded string is -":c$
PRINT "Which is ".LEN(c$);" bits. Whereas the
original was ".LEN(a$)*8;" bits."
PRINT "This is an improvement of ";
100-((LEN(c$)/(LEN(a$)*8))*100);"%."
p=1
PRINT "Decoding the string -"
FOR h=1 TO LEN(a$)
  GOSUB decode
NEXT
END
gfreq:
c=0:tt=0:t=32
gfreq:
fr=0
FOR s=1 TO LEN(a$)
  IF MID$(a$,s,1)=CHR$(t) THEN fr=fr+1
NEXT
IF fr=0 THEN t=t+1:GOTO gfreq
tt=tt+fr
f(c)=fr
f$(c)=CHR$(t)
p0(c)=0
p1(c)=0
t=t+1:c=c+1
IF tt<LEN(a$) THEN gfreq
ll=c-1
PRINT "Frequencies found."
RETURN
fsmall:
s1=0
s2=0
p=tt
FOR t=0 TO ll
  IF p>f(t) AND f(t)<>0 THEN s1=t:p=f(t)
NEXT
p=tt
FOR t=0 TO ll
  IF p>f(t) AND t<>s1 AND f(t)<>0 THEN
    s2=t:p=f(t)
NEXT
RETURN
find:
fnd:
t=0
code$=""
fnd1:
IF b$<>f$(t) THEN t=t+1:GOTO fnd1
    
```

Power to the people

In the last of our series on interfacing, Kenn Garroch looks at the various gadgets that can be attached to your computer, and the possibilities for future expansion.

There are basically two types of input and output which can be manipulated with a computer, switched ons and offs and varying voltages.

The former are easy to deal with since they can be fed straight into or out of the user port - so long as they are the correct voltages. For input, all ons and offs can either be 5V and 0V. Outputs are a little more complicated as they sometimes need to drive devices such as motors which require more power than the I/O chip can provide.

Driver circuit

The way around this is to use a transistor driver circuit as shown in figure one. There are two types, inverting and non-inverting, and it does not matter which is used so long as it works the right way around.

The power output from the driver is dependent on the current capability of the transistor which is governed by the resistor R.

Values

A table of transistor characteristics shows the current capability under the heading $I_c(\max)$ which is the collector current. If the device being driven requires 5V at 2 amps a transistor with an I_c of 2A or more should be used and the value of the resistor should be 2.5Ω or less and have a power capability of 10 watts. These

values are determined from the formula $V=RI$ i.e. Voltage equals Resistance times Current in Volts, Ohms (Ω) and Amps. So in the example, $V=5$ and $I=2$ making $R=2.5$.

The power consumption in Watts is $W=VI$ i.e., Watts equals Voltage times Current and in this case, it is 5 times 2 or 10 Watts.

The problem now arises that it is not possible to buy a 2.5Ω 10W resistor.

It is possible to go for the nearest values i.e., 10W at 2.2Ω which gives a maximum current of 2.3A - more than sufficient, and since it is still using 2A in practice, the wattage is the same.

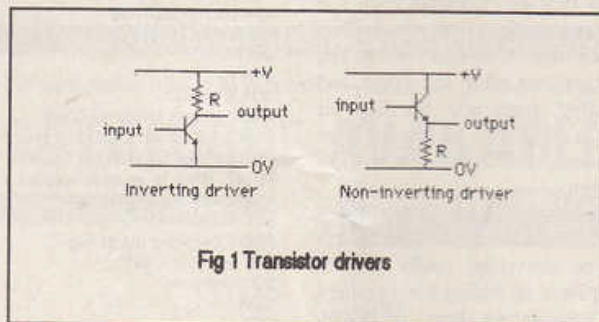


Fig 1 Transistor drivers

Input

The input to the transistor which turns it on and off comes from one of the user port outputs turning on and off.

One thing of which to make sure when driving powerful external devices is that an external power supply with the appropriate rating is used. It is no use trying to drive five stepper motors, each consuming 1A, from a power supply which can provide only 500mA of power; you will need at least 5A and possibly more to cover overheads and peaks.

Relay

Driving mains-powered devices e.g., turning the hi-fi on and off cannot be done directly from the user port since mains voltages are around 250V and are AC. A relay must be used with the port output driving the coil which turns the relay on and off.

A transistor driver between the port and

“Dealing with varying or analogue voltages requires some system of converting them into a form which can be read into the port.”

the coil is also necessary since most I/O chips will provide only 1mA or so of power and most relays require between 50 and 100mA to drive the coil.

The most important aspect of driving mains-powered equipment is isolating it from the computer.

The coil side of the relay must be completely disassociated from the switch side controlling the 250V.

This includes ground lines as well. If you do not isolate the

mains, it is possible to get an electric shock, and/or blow up your computer.

Converting voltage

Dealing with varying or analogue voltages requires some system of converting them into a form which can be read into the port. An analogue to digital converter performs this by comparing the incoming analogue voltage to a series of preset voltages.

The output is in the form of a binary number which can be connected directly to the port.

ADC's

ADC's are in various sizes and qualities from ultra-fast high accuracy e.g., a conversion time of less than $1\mu S$ into 12 bits to slow low accuracy types e.g., $100\mu S$ conversion into eight bits.

There are also a number of multi-channel ADCs which allow a number of inputs to be sampled - looked at at an instant of time.

The best type of ADC to use is 8-bit with

“One thing of which to make sure when driving powerful external devices is that an external power supply with the appropriate rating is used.”

as high a speed as you can afford. The 8-bit types are convenient for most user ports and high-speed conversions work just as well at slow rates.

ADCs can be used to measure any varying voltage ranging from a changing temperature to sound input from a microphone.

Obviously, the latter needs to be sampled much faster than the former - at least twice the frequency of the sound being sampled, e.g., for audible sources greater than 40KHz.

Binary numbers

Working the other way, it is possible to convert binary numbers into varying voltages by using a (digital-to-analogue converter).

This takes the outputs from the port as a binary number and converts them into a voltage representing that number.

For an 8-bit port, this gives 256 separate voltages and if the range is set between 0 and 5V it goes from 0 to 5V in steps of 20mV - 20-thousandths of a volt - or so

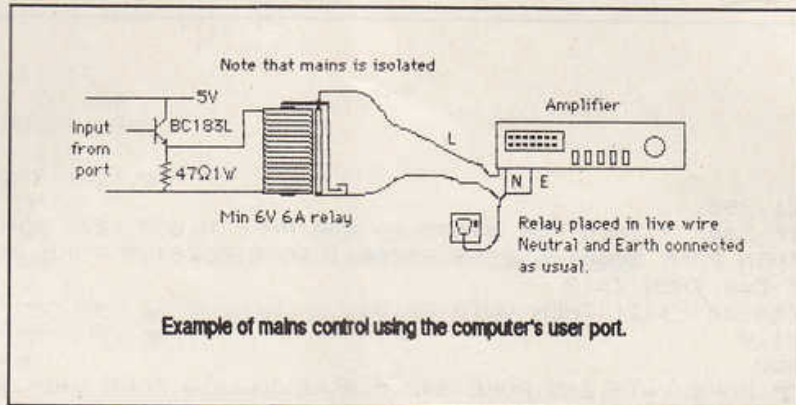
which gives a reasonably accurate output. DACs can be used to control applications where analogue voltages are required; in general there are very few of these.

A more obvious application is to turn sampled sound back into audible sound by connecting the DAC to a speaker, or

User ports

Most I/O systems are built around the methods already covered. There are, however, a few others worth mentioning. User ports can provide very fast links between computers since they work in parallel. They can also be used to interface to devices such as EPROM programmers, extra keyboards, serial transmission and reception devices extra display devices, sound generators, in fact any device which has a micro-processor interface.

As I mentioned earlier in the series, the limits are your imagination. I have tried to give the basic ideas and concepts behind interfacing; the practicalities are fairly straightforward and really require only a little experimentation. □



This is the last part of our series on interfacing. Next week Kenn Garroch starts a series on writing computer programs.



SIMTECH



ATARI ST	
520 STM	£206.99
520 STF	£269.95
1040 STF	£469.95
1040 STF + mono monitor	£569.95
MEGA ST2	£869.99
0.5 Mb RAM upgrade (excl. postage)	£80.00
BUSINESS SOFTWARE	
Signum	£184.00
1st Word Plus	£62.95
Fleet St. Publisher	£92.00
Publishing Partner	£127.50
Haba Writer III	£32.46
Accountant Plus (Sage)	£193.49
VIP GEM	£199.10
Fast Basic (Disc)	£38.60
Mark Williams 'C'	£123.98
Michtron BBS	£39.79
Talent RAM Disc and Spooler	£12.50
GFA Draft	£89.98
SOFTWARE/Games	
Airball	£19.95
Flight Simulator II	£37.95
Silent Service	£19.95
Barbarian	£19.95
Starglider	£19.95
Leaderboard	£19.95
Leaderboard Tournament	£8.59
Chess (Pson)	£19.95
Gauntlet	£19.99
Arkanoid	£12.50
Star Raiders	£17.65
Xenious	£19.95
Road Runner	£19.95

Pirates Of Barbary Coast	£10.94
10th Frame Bowling	£19.95
Pinball Factory	£19.95
Crystal Castle	£17.65
Gato	£22.99
SDI	£22.99
Shanghai	£10.95
Strike Force Harrier	£19.95
Arena/Bralaccas	£26.95
Phantasia II	£19.95
Phantasia III	£19.95
Barbarian (Palace)	£13.49
Blue War	£16.40
Balance Of Power	£24.20
Indiana Jones	£16.40
Defender Of The Crown	£24.20
Sentinel	£16.40
Battlezone	£24.20
Colourspace	£15.56
Liberator	£10.94
Tee-up	£12.50
Boulderdash Constr. Kit	£19.95
Timeblast	£8.59

SOFTWARE/Adventures	
The Pawn	£19.99
Guild Of Thieves	£19.99
Hitchhikers Guide	£24.20
Bally Hoo	£24.20
Hollywood Hijinx	£24.20
Stationfall	£24.20
Bureaucracy	£26.09
Silicon Dreams	£18.40
Jewels Of Darkness	£16.40

Star Trek.....	£19.95
Signum	£184.00
VIP GEM	£199.10

PRINTERS
EPSON and NEC
DISCS
Atari and Triangle

Call for latest prices and availability

Happy New Year

How to order:

By Post to: PCW,

118 Doggett Road, Catford,
London SE6 4QB
Call 01-690 3569

By Phone:

All prices include VAT and UK Mainland delivery.



UFO 2

Steven Pattullo

At last, the final section of UFO 2. To run the game from the beginning, load + run each section separately starting with RECON followed by SPRITES, CHARSET, ALPHACHARS, M/CODE, and finally UF02. Control is via the joystick in

port 2 (the rearmost). Push right and left to move across the screen, up and down to move across the playing area. Make sure you stay on the graphics background otherwise the ship will blow up. □

```
22130 POKE V+21,255
22131 GET Z$:IF Z$=" " THEN FOR N=837 TO 844:POKE N,060:NEXT X=1
22132 IF X=1 THEN POKE 53281,1:POKE 53280,1:POKE 53281,0:POKE 53280,0
22135 Z=Z-1:IF Z=0 THEN Z=10
22180 IF PEEK(56320) <> 111 THEN GOTO 22131
22185 POKE V+21,0
22190 GOTO 10000
30000 PRINT "☺":POKE V+16,255:POKE 842,0:POKE V+21,0:POKE V+16,0:POKE 837,0
30003 POKE V+23,8:POKE V+29,8:POKE 950,1
30004 POKE 828,0:POKE 830,3:POKE 831,0:POKE 832,0:POKE 833,0:POKE 950,0
30005 POKE V+21,0
30006 PRINT " 3YRHOOD YOU MADE IT AN OBVIOUS FLUKE":PRINT "☹"
30007 FOR N=1 TO 3000:NEXT:PRINT "☺"
30010 FOR N=1 TO 8
30020 PRINT "##%-./##%-./##%-./##%-./"
30030 PRINT "&+<+>&+<+>&+<+>&+<+>&+<+>"
30040 PRINT "(*)<=<*)<=<*)<=<*)<=<*)<=":NEXT
30060 X=0:POKE 51194,144:POKE 51196,139:POKE 51195,128:POKE V+16,8:F=0
30070 POKE V+1,150:POKE V,40
30080 POKE V+3,160:POKE V+2,50
30085 POKE V+7,150:POKE V+6,30
30090 POKE V+16,8
30100 POKE V+21,11
30110 POKE 831,5:POKE 950,0:POKE 837,0
30120 IF X=0 THEN POKE 51195,128
30130 IF X=5 THEN POKE 51195,129
30140 IF X=10 THEN POKE 51195,130
30150 X=X+1:IF X=15 THEN X=0
30151 IF PEEK(V+30)=7 THEN GOTO 60000
30152 IF PEEK(V+30)=15 THEN GOTO 61000
30160 IF PEEK(56320)=111 AND F=0 THEN POKE V+21,15:POKE V+5,150:POKE V+4,63:F=1
30170 C=PEEK(V+30)
30180 IF PEEK(V+30)=7 THEN GOTO 60000
30190 IF PEEK(V+30)=15 THEN GOTO 61000
30195 GOTO 30120
35000 POKE 51192,143
35001 FOR N=5 TO 5+24:POKE N,0:NEXT:POKE 5+24,15:POKE V+40,0:POKE V+28,253
36010 POKE V+1,140:POKE V,60
36020 POKE V+3,160:POKE V+2,80
36030 POKE V+21,3
36040 POKE 5+5,100:POKE 5+6,200
36042 FOR F=1 TO 10
36050 POKE 5+4,17
36060 POKE 5+1,PEEK(V+3):POKE 5,PEEK(V+2)
36061 POKE 5+4,129:POKE 5+1,PEEK(V+2):POKE 5+4,17
36062 POKE V,PEEK(V)+1
36063 POKE V+1,PEEK(V+1)+1
38100 POKE V+3,PEEK(V+3)-1
38110 POKE V+2,PEEK(V+2)-1
38111 NEXT F:RETURN
```


Sprites

Joseph Halstead

These two programs for the Amstrad are a sprite routine and designer.

The first sets up three RSXs, IPRINT, ITYPE and CHECK. IPRINT takes five parameters - IPRINT,xsize,ysize,x,y,address - where xsize is the width of the sprite in bytes, ysize is the height of the sprite in pixels; x is the horizontal graphics co-ordinate of the top left-hand corner of the sprite; y is the vertical co-ord of the TLHC; address is the address at which the sprite data is held in memory.

ICHECK uses the same parameters as IPRINT but does not place anything on the screen. It checks whether a sprite on the screen has been printed over.

If it has, 1 is returned in location &90B3; if not, this is 0.

The same parameters should be used to check the sprite as those used to print it.

ITYPE is used to select the method of printing. If ITYPE,1 is used, the sprites over-write anything underneath them. ITYPE,2 causes the sprite data to be ORed with the screen data and ITYPE,3 causes it to be ANDed. ITYPE,3 is XOR mode and, using this option, placing a sprite over itself causes the original sprite to be erased with the background untouched.

To use the sprite designer, the *Sprites* program must be run first, as utilities provided by it are needed.

The cursor is controlled with the cursor arrow keys and a pixel is printed in the selected colour by pressing the space bar.

To change the pen, press P and then use the cursor keys to select the colour. Press return when finished.

To change the ink colour, press I and then use space to select; return finishes this command.

To save to memory, press S and give the inputs as requested.

To load from memory, press R again, replying with the correct inputs.

To save from memory to disc use Q. The length is the width in bytes times the height in pixels.

To load from disc to memory, press L. The screen can be cleared with C.

In mode 2, one byte gives eight pixels across; in mode 1 it gives four, and in mode 0 it gives two.

The sprites are stored in memory from &2000 to &9000. Remember to use the & sign when entering addresses.

```

1 ' Sprites
2 ' by Joseph Halstead
3 '
10 DATA 21,14,90,01,09,90,C3,D1,BC,18, 967
20 DATA 90,C3,27,90,C3,45,90,C3,88,90, 1405
30 DATA 14,90,09,90,50,52,49,4E,D4,54, 926
40 DATA 59,50,C5,43,48,45,43,CB,00,CD, 1049
50 DATA 6A,90,C5,DD,46,08,E5,1A,AE,77, 1294
60 DATA 23,13,10,F9,E1,7C,C6,08,67,30, 1025
70 DATA 04,01,50,C0,09,C1,10,E6,C9,DD, 1147
80 DATA 7E,00,FE,03,20,06,3E,AE,32,30, 755
90 DATA 90,C9,FE,02,20,06,3E,A6,32,30, 965
100 DATA 90,C9,B7,28,06,3E,B6,32,30,90, 1060
110 DATA C9,AF,32,30,90,C9,DD,6E,02,DD, 1373
120 DATA 66,03,DD,5E,04,DD,56,05,B7,CB, 1122
130 DATA 1C,CB,1D,CD,1D,BC,DD,5E,00,DD, 1218
140 DATA 56,01,DD,46,06,C9,AF,32,B3,90, 1133
150 DATA CD,6A,90,C5,DD,46,08,E5,1A,BE, 1396
160 DATA 20,13,23,13,10,F8,E1,7C,C6,08, 924
170 DATA 67,30,04,01,50,C0,09,C1,10,E5, 875
180 DATA C9,3E,01,32,B3,90,E1,C1,C9,01, 1257
190 lin=10:FOR g=&9000 TO &90B3 STEP 10
200 FOR h=0 TO 9
210 READ a$:POKE g+h,VAL("&"+a$):x=x+VAL
("&"+a$)
220 NEXT
230 READ chk:IF x<>chk THEN PRINT"ERROR
in";lin:END
240 lin=lin+10:x=0:NEXT
250 IF HIMEM>&9000 THEN MEMORY &BFFF
260 CALL &9000

10 ' Sprite Designer
20 ' by Joseph Halstead
30 '
40 ON ERROR GOTO 1040
50 DIM in(15)
60 MEMORY &1FFF
70 ITYPE,3
80 INK 1,20:INK 0,0:BORDER 0
90 PAPER 0:PEN 1
100 INPUT "WHICH MODE (0-2)",m
110 MODE m:md=2-m:IF md=0 THEN md=0.5
120 IF m=0 THEN m=0.5
130 INPUT "HOW MANY BYTES WIDE (1-20)",w
idt
140 IF widt<1 OR widt>40 THEN 130
150 INPUT "HOW MANY PIXELS HIGH (1-30)",
height
160 IF height<1 OR height>30 THEN 150
170 CLS:FOR g=1 TO 4^md
180 READ a:in(g-1)=a:INK g-1,a
190 LOCATE g,25:PEN g-1
200 PRINT CHR$(143);:NEXT
210 PEN 1
220 WINDOW 1,40*m,21,23
230 WINDOW #1,1,40*m,24,24
240 DATA 0,26,15,6,24,22,20,18,16,14,13,
12,10,8,4,2
250 x=0:y=0
260 col=1:px=2

```



```

270 LOCATE #1,px,1:PRINT #1,CHR$(241)
280 MOVE x*md*8,320-(y*8),1,1
290 TAG:PRINT CHR$(129);
300 MOVE x*md*8,320-(y*8),1,1
310 PRINT CHR$(129);:TAGOFF
320 IF INKEY(2)>-1 THEN y=MIN(height-1,y
+1)
330 IF INKEY(0)>-1 THEN y=MAX(0,y-1)
340 IF INKEY(1)>-1 THEN x=MIN(((widt*4)*
m)-1,x+1)
350 IF INKEY(8)>-1 THEN x=MAX(0,x-1)
360 IF INKEY(47)>-1 THEN GOTO 450: ' fil
l pixel (space)
370 IF INKEY(27)>-1 THEN GOTO 510: ' cha
nge pen (P)
380 IF INKEY(35)>-1 THEN GOTO 1000: ' ch
ange pen's ink (I)
390 IF INKEY(60)>-1 THEN GOTO 580: ' sav
e to memory (S)
400 IF INKEY(50)>-1 THEN GOTO 700: ' rec
all from memory (R)
410 IF INKEY(67)>-1 THEN GOTO 910: ' sav
e to tape/disc (Q)
420 IF INKEY(36)>-1 THEN GOTO 960: ' loa
d from tape/disc (L)
430 IF INKEY(62)>-1 THEN RUN: ' clear sc
reen (C)
440 GOTO 280
450 MOVE x*md*8,320-(y*8),15,2
460 TAG:PRINT CHR$(142);
470 MOVE x*md*8,320-(y*8),col,1
480 PRINT CHR$(129);
490 PLOT x*md*2,398-(2*y),col,0
500 TAGOFF:GOTO 280
510 LOCATE #1,px,1:PRINT #1," "
520 IF INKEY(1)>-1 THEN px=MIN(4^md,px+1
):col=px-1
530 IF INKEY(8)>-1 THEN px=MAX(1,px-1):c
ol=px-1
540 LOCATE #1,px,1:PRINT #1,CHR$(241)
550 IF INKEY(18)>-1 THEN GOTO 280
560 FOR h=0 TO 50:NEXT
570 GOTO 510
580 POKE &902F,&7E
590 POKE &9031,&12
600 LOCATE 1,24
610 WHILE INKEY$<>"":WEND
620 INPUT "WHAT ADDRESS (&2000-&9000)",a
dd
630 !TYPE,0
640 !PRINT,wdt,height,0,398,add
650 !TYPE,3
660 POKE &902F,&1A
670 POKE &9031,&77
680 CLS
690 GOTO 280
700 WHILE INKEY$<>"":WEND
710 WINDOW 1,40*m,1,23:CLS
720 WINDOW 1,40*m,5,23:CLS
730 WINDOW 1,40*m,21,23:GOTO 740
740 INPUT "HOW MANY BYTES WIDE (1-20)",w
idt
750 IF wdt<1 OR wdt>40 THEN 750
760 INPUT "HOW MANY PIXELS HIGH (1-30)",
height
770 IF height<1 OR height>30 THEN 770
780 INPUT "WHAT ADDRESS (&2000-&9000)",a
dd
790 !PRINT,wdt,height,0,398,add
800 TAG
810 FOR z=0 TO wdt*(4*m)
820 FOR t=0 TO height-1
830 u=TEST(z*md*2,398-(2*t))
840 MOVE z*md*8,320-(t*8),u,1
850 PRINT CHR$(129);
860 NEXT
870 NEXT
880 TAGOFF
890 CLS
900 GOTO 280
910 INPUT "WHAT ADDRESS",a
920 INPUT "HOW LONG",l
930 INPUT "WHAT NAME",na$
940 SAVE na$,b,a,l
950 CLS:GOTO 280
960 INPUT "WHAT ADDRESS",a
970 INPUT "WHAT NAME",na$
980 LOAD na$,a
990 CLS:GOTO 280
1000 IF INKEY(47)>-1 THEN in(col)=(in(co
l)+1) MOD 26:INK col,in(col):LOCATE #1,5
,1:PRINT#1,in(col):
1010 IF INKEY(18)>-1 THEN LOCATE #1,5,1:
PRINT#1," ":GOTO 280
1020 FOR h=0 TO 50:NEXT
1030 GOTO 1000
1040 POKE &902F,&7E
1050 POKE &9031,&12
1060 !TYPE,0
1070 !PRINT,wdt,height,0,398,&8000
1080 !TYPE,3
1090 POKE &902F,&1A
1100 POKE &9031,&77
1110 PRINT"Error";ERR;"in line";ERL
1120 END

```

Pay attention!

From now on we are requesting that you include a suitable stamped addressed envelope for return of your submission. Not enclosing a suitable SAE will mean that your program will not be returned. You have been warned.

With regards to future submissions we are looking for articles on programming in general, utility programs and applications

software and lastly, good games. Here are a few types of program we don't want: Educational, hangman, pools predictors, mastermind, flashing borders, bank accounts, disc catalogues and clocks.

Please do not telephone regarding any queries or problems with the listings. If you cannot get a program listing in the magazine to work, write to me, care of *Popular*

Computing, and I will deal with it as soon as possible.

If there were problems then we will let you know. Corrections normally appear a couple of weeks later.

Thanks.

Kenn Garroch
Listings Editor

MICRO-FILE

FOR SALE

PHONE 01-471 8900
NOW

SEGA SEGA MASTER COMPUTER + HANG ON £99.95

SEGA GAMES
2 MEGA BYTE

OUT RUN	£24.95
ROCKY	£24.95
SPACE HARRIER	£24.95

1 MEGA BYTE

ASTRO WARRIOR	£19.95
BLACK BELT	£19.95
WONDER BOY	£19.95
ACTION FIGHTER	£19.95
PRO WRESTLING	£19.95
ALEX KIDD	£19.95
FANTASY ZONE	£19.95
QUARTET	£19.95
WORLD GRAND PRIX	£19.95
SECRET COMMAND	£19.95
CHOPLIFTER	£19.95
THE NINJA	£19.95
ENDURO RACER	£19.95

SEGA CARDS

MY HERO	£14.95
GHOST HOUSE	£14.95
TEDDY BOY	£14.95
SUPER TENNIS	£14.95
F-16 FIGHTER	£14.95
TRANSBOT	£14.95

PHONE FOR NEW
RELEASES

TRADE ENQUIRIES WELCOME ON SOFTWARE
SEND CHEQUES TO:

A.I.S. DISTRIBUTION
202/203 SHOPPING HALL, MYRTLE ROAD
EAST HAM, LONDON E6 (UK only)



ONLY £99.95

24-hour
Securicor
delivery on
machines

Or why not come
and pick up your
system from us
today?

Only £14.99!

ILLIMITABLE
presents



At last, a high speed version of the classic
game is available for the Amstrad PC1

Available at good software retailers or send cheque/PO
made payable to ILLIMITABLE, 14 Clausentum Road,
Portsmouth, Southampton SO2 0RZ.
Dealer Enquiries Welcome.

The ideal Christmas gift

GIANT TV PICTURES FOR ONLY £15

- ★ Play your games lifesize
- ★ Simple to build projector
- ★ Can be built in half an hour from everyday materials
- ★ Fits over your existing TV or monitor
- ★ Contains lens and easy to follow instructions
- ★ Terrific results for flight simulation and all 30 games

Send cheque or PO for £15 + 30p P.&P. to:

M. ROBSON

61 Mayfair Road, West Jesmond
Newcastle-upon-Tyne NE2 3DN

For more details phone: 091-281 7008

Central Media shop now open at address below

CENTRAL MEDIA

WE SELL
ATARI ST
HARDWARE
Ring for
details

520 STFM
£273

3.5 INCH DISCS
10 UNBRANDED DS/DD 135 tpi £9.89
AMIGA 500
ONLY £449!!!
ATARI 520 STM + 1/2 meg drive
ONLY £273

1040 ONLY £389
All Atari STs come with
mouse, 5 discs and basic.

All prices inc. VAT and p.&p.
TRADE ENQUIRIES WELCOME

ALL CHEQUES & PO's PAYABLE TO
CENTRAL MEDIA

101 SPRING BANK, HULL HU3 1BH TEL: (0482) 26744 (493)

We distribute the AMIGA
Genlock
computerised
video system,
ring for
details you
will not be
disappointed

ADVERTISING RATES FOR MICRO-FILE

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

CALL SUSANNAH KING, ROBERT COLE or TIM OWEN on
01-834 1717 FOR SEMI DISPLAY ADVERTISING

FOR SALE

**AMIGA A500 NOW IN STOCK
FOR ONLY £429.95**



AMIGA HARDWARE

AMIGA PACK 1 INCLUDES
Amiga A500 ★ Deluxe Paint ★ Workbench 1.2
★ Very First Steps Tutorial
£679.95

	RRP	OUR
Commodore PC		£499.00
Amiga 2000	£1259.25	£995.00
XT Bridge Card (Amiga 2000)	£573.85	£449.95
Internal 1 Meg Disc Drive (Amiga 2000)	£228.85	£199.95
1010 External Disc Drive	£286.85	£259.95
Amiga Internal 1 Meg Upgrade	£113.85	£99.95
Triangle 1 Meg Disc Drive		£139.95
Cumana 1 Meg Disc Drive		£139.95
Amiga (2000) 2 Meg RAM expansion	£458.85	£359.95
Commodore 64 C pack		£159.00
Philips 883 monitor (with lead)		£279.95

AMIGA SOFTWARE

King's Quest (3 pack)	£24.95	Chess Master 2000	£18.75
Barbarian	£18.75	Earl Weaver Baseball	£18.75
Gold Runner	£18.75	Seven Cities of Gold	£11.50
Terrapods	£18.75	Mean 18 Golf	£18.75
Ogre	£18.75	Deep Space	£19.95
Insanity Fight	£19.95	Area/Bratticus	£29.95
Flight Sim II	£37.95	Diablo	£14.95
Deluxe Paint II	£56.95	Road War 2000	£18.75
Marble Madness	£14.95	Portal	£29.95
Instant Music	£18.75	Test Drive	£19.95
Sinbad	£29.95	Grid Start	£9.95
Super Huey	£14.95	Tai Boxing	£9.95
Bards Tale	£18.75	Rock and Roll	£9.95

BOOKS FOR THE AMIGA

Ronkernel library and devices	£33.20
Ronkernel Exec.	£23.70
Amiga Intuition	£23.70
Amiga hardware	£23.70
Introduction To The Amiga	£9.95
Amiga Systems Handbook	£15.95

BUSINESS SOFTWARE

Word Perfect	£199.95
Super Base	£79.95

More Software than we can show please ring.



We are a Commodore appointed dealer
All trade enquiries welcome



**ATARI 520 STFM NOW IN STOCK FOR
NEW PRICE ONLY £279.95**

Includes mouse controller, manual, language disc and starter pack

	RRP	OUR
Atari 1040 ST + SM125 mono monitor	£599.95	£499.95
Atari Mega ST 2 + SM125 mono monitor	£999.95	£894.95
Mega ST4 + SM125 mono monitor	£1205.95	£1149.95
Atari 12" medium res colour monitor	£399.99	£369.95
Cumana 1 meg drive	£159.95	£134.85

ST SOFTWARE AT GIVEAWAY PRICES

Flight Sim. II	£37.95	Impact	£11.50
Knight Hawk	£14.95	Barbarian (Palace)	£12.95
Music Construction set	£18.75	Rama Rama	£14.95
Backlash	£16.50	Diablo	£14.95
Terrapods	£18.75	3D Galax	£15.95
Degas Elite	£19.95	Defender of the Crown	£22.95
Chess Master 2000	£18.75	Star Trek	£16.95
Art Director	£39.95	Supersprint	£14.95
Fantasy III	£18.75	Frost Bite	£14.95
Barbarian	£18.75	Tanglewood	£16.95
Indiana Jones	£14.95	Star Wars	£16.95
Trivial Pursuits	£18.50		

BLANK DISCS

10	20	50	100
£10.95	£21.50	£49.95	£97.00

Trade enquiries welcome



Lockable disc boxes 3.5" holds 80£9.95

Spend over £50 on Software and get a Free Calculator



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. (612)



**FORMAT
SERVICES**

5 1/4" DISC DISPLAY/WORK FOLDER..... £6.99

Each folder opens out to reveal two rows of untearable disc sleeves (12 in total). Extra disc labels are supplied and each folder comes complete with its own plastic dust cover.

5 1/4" DISC DISPLAY/WORK BOARD

Although similar to the display/work folder, this product is larger and is designed to hang on a wall, thereby allowing easy access to your discs.

The three versions available are:

Version 1

Capable of holding 24 5 1/4" discs £10.49

Version 2

Capable of holding 16 5 1/4" discs with a clip attached to hold A5 size paper £10.99

Version 3

Capable of holding 12 5 1/4" discs with a wipe on/wipe off board £10.99

Also available:

Magazine binder	T.B.A.
Book cover	£2.00
Clipboard	£2.00

Please send cheque/postal order to:

Format Services

PO Box 422, Christchurch, Dorset, England BH23 4TA
Free catalogue on request

(622)

RECRUITMENT

VIRGIN

PUBLISHING LTD

Programmer fully conversant with BBC/6502 to work on state of the art interactive product.

Please telephone William Beckett on 01-727 8070 to discuss the talents you have on offer.

Or submit a full C.V. to:

2/4 Vernon Yard,
Portobello Road,
London W11 2DX

(615)

FOR SALE

PROGRAMMERS

Over the last year the ZEN ROOM has produced some of Europe's top games, like TAU CETI, DRACULA, CYBORG, ACADEMY, DEATH OR GLORY, BALLBREAKER and THE ROCKY HORROR SHOW. Now Britain's most innovative software development team are looking for experienced freelance programmers to join them. If you have just written a game or are about to and would like the financial and programming back-up the ZEN ROOM can offer contact Michael Hodges on 01-985 2391 or write to the ZEN ROOM, Unit 7D, Kings Yard, Carpenters Road, London E15.

THE ZEN ROOM

A DIVISION OF CRL GROUP PLC



HARDSOFT · INTERNATIONAL

1A The Square, Sawbridgeworth, Herts. 0279 726488/726406

Office automation at a price that is affordable.
Lease an Amstrad PC1640 DD-MD + Epson printer + wordprocessor + spreadsheet, for under £7.00 per week.

As an approved dealer for Amstrad, Epson, Seikosha, Star, Olivetti etc., we offer free unbiased advice on various machines and software.

Our sales team can demonstrate any machine anywhere in Britain and will advise you on which of our eight different leases will suit your needs best. CONTACT US TODAY FOR A FREE QUOTATION

NATIONWIDE NEXT DAY DELIVERY ★ CONSUMABLES ★ FREE TAX & FINANCIAL GUIDANCE ★ CONTINUOUS STATIONERY ★ 24 hr MAINTENANCE CONTRACTS ★

PCW 9512 in stock £499 + VAT (including FREE maintenance)

SPECIAL OFFER - ATARI STFM £274.00

AMIGA A500 £439.00 inc. VAT & P.P. modulator + software (460)

JACKPOT 1

The ultimate pools development program forecasting systems for the ATARI ST

Analyses every team's past performance and forecasts the results. Three tuning levels. Not only draws but home and away wins. Create your own league tables with teams from any country. You can develop your own plans with any number of selections from the pools coupon and you will know what the percentage of you winning will be, if a predefined amount of draws by you, come. Thousands of plans are possible. They can be used for pools, correct score permutations and anything that requires you to forecast results from any number of selections up to 99!. Also keeps a file of every week's score draws for useful manipulation. B/W and colour.

ONLY £24.95 (inc. VAT & P.&P.)

Send cheques or postal order to:

FUTURESOFT

11 Meath Close, Hayling Island
Hants PO11 9QN (593)

IBM PC and AMSTRAD PC1512/1640 SHAREWARE/PUBLIC DOMAIN SOFTWARE

WATCH OUT! There are SHAREWARE SHARKS about, and they're after your money!!!

Why pay them £5 to £10 per disc when you can have a larger choice plus the latest releases from us, at only £3 per disc (less for quantity, Starter pack at only £2/disc!). Send SAE for a free catalogue.

NEW!!! Modula-2 compiler, 3D Chess, Bridgepal, Composer, UK General Ledger, plus many more.

PC-STAR

P.O. Box 164, Cardiff CF5 3YB (573)



STORT SOFT OFFER

If you have an ATARI 8-bit system, why not part exchange your hardware/original software for an exciting new ST system from STORT SOFT.

Ring with full details or just drop us a line

Write for more information. Cheques etc. payable to STORT SOFT (International orders remit in pounds Sterling by bank draft or international money order and send amount quoted which will be exclusive of VAT but include additional postage. Write for quote in any other currency)

ACCESS/MASTERCARD/EUROCARD/VISA accepted

CREDIT CARD ORDER LINE - 0279 89509

24 HOURS A DAY, 7 DAYS A WEEK - VAT & P.P. INC. NO HIDDEN EXTRAS - WHAT YOU SEE IS WHAT YOU PAY

18 CROWN CLOSE, SHEERING, BISHOP'S STORTFORD
HERTS CM22 7NX (580)

ROCK BOTTOM DISCS

(Lifetime Guarantee)

★ FREE CASE ★ FREE CASE ★ FREE CASE ★

	10	30	50	100
Unbranded 3-5" DS/DD	£11.50	£30.00	£48.00	£91.00
Unbranded 3-5" SS/DD	£10.95	£29.00	£47.00	£89.00
Branded Wabash 3-5" DS/DD	£15.00	£41.00	£65.00	£120.00
Branded Wabash 3-5" SS/DD	£14.00	£38.50	£63.00	£116.00
Unbranded 5 1/4" DS/DD	£5.70	£13.90	£22.00	£41.00
Branded Wabash 5 1/4" DS/DD	£7.00	£19.00	£29.00	£56.50

★ Special Christmas Offers ★

BRANDED 3-5" SONY DS/DD

Pack of 10 ONLY £19.95

FREE LIB. CASE (10) with 10 3-5" UNBRANDED or WABASH DISCS worth £1.30

LIB. CASE (10) 3-5" £1.30

LIB. CASE (10) 5-25" £1.30

Remember all prices include VAT & POSTAGE. For EXPRESS 1st class despatch please add £1 per 10 discs.

CREDIT CARD HOTLINE 0329 282083 (24 hour)

Cheques/PO to:



Athene Consultants

33 Holly Grove, Fareham
Hants PO16 7UP



(598)

FOR SALE

FREE SOFTWARE WITH EVERY COMPUTER

PC1512 single disc drive with 12" mono monitor + 4 U.S. Gold games & Midget Ability **£458.85**
 PC1512 single disc drive with colour monitor + 4 U.S. Gold games & Midget Ability **£631.35**
 PC1512 double disc drive with 12" mono monitor + 4 U.S. Gold games & Midget Ability **£573.85**
 PC1512 double disc drive with colour monitor + 4 U.S. Gold games & Midget Ability **£746.35**
 32 Mb Miniscribe hard card formatted and fitted to the above computers **ONLY £375.00 extra**
 PCW8512 disc based word processor with daisywheel printer + 4 free ribbons **£573.85**
 PCW8250 disc based word processor with monitor and printer + 4 free ribbons **£343.85**
 PCW8256 with memory upgrade and second disc drive fitted + 4 free ribbons **£458.85**
 CPC454 cassette based computer with green screen + 17 games + joystick free **£199.95**
 CPC454 cassette based computer with colour screen + 17 games + joystick free **£299.95**
 CPC8128 disc based computer with green screen + 16 games + joystick free **£299.95**
 CPC8128 disc based computer with colour screen + 16 games + joystick free **£399.95**
 DMP2000 over 100 typeface combinations including NLD + our ribbon re-ink kit free **£159.00**
 DMP2160 will operate with Amstrad PC or any IBM PC + our ribbon re-ink kit free **£228.85**
 DMP4000 15" carriage 200 cps draft - NLD speed 50 cps per second + 4 ribbons free **£407.35**
 LG3500 24 pin dot-matrix printer + 4 ribbons free **£407.35**

PRICE ON APPLICATION FOR PC1640

NEW LOW PRICE

MAXELL AND AMSOFT 3" DISCS

10 CF2 3" disc suitable for 1st and 2nd drive only **£24.95**
 5 CF2 3" disc suitable for 1st and 2nd drive only **£13.50**

DISC STORAGE BOXES

AMS 20L holds 20 x 3" discs + boxes **£12.95**
 AMS 20L holds 40 x 3" discs **£12.95**
 DD 100L holds 100 x 5 1/4" discs **£16.95**
 10 3" square disc boxes **£3.50**

CONTINUOUS PAPER AND DISC LABELS

2000 sheets 11 x 8 1/2 - 80gm **£14.95**
 2000 sheets 11 x 8 1/2 - 60gm **£12.95**
 2000 sheets A4 - 70gm **£21.95**
 1000 sheets A4 - 70gm **£11.95**
 1000 sheets A4 - 90gm **£14.95**
 1000 address labels 1 across **£9.00**
 500 address labels 1 across **£6.95**
 100 standard disc labels **£1.88**
 100 floppy disc labels **£3.00**
 100 cassette labels **£3.00**

PCW STARTER PACK

10 CF2 3" discs, 1 AMS 20L storage box, 2000 sheets paper, 1 PCW ribbon, 100 70 x 70 disc labels, 100 address labels **£49.95**

PCW GAMES

Software	R.R.P.	Our Price
Academy	19.95	17.95
Annals Of Rome	19.95	17.95
Brian Clough Football	17.95	16.18
Colossus Chess 4	15.95	14.38
Colossus Bridge	15.95	14.38
D. Coach Test Cricket	19.95	17.95
Head Over Heels	14.95	13.46
Hitchhiker's Guide	24.99	22.49
Leadboard	24.99	22.49
Leather Goddess	19.99	17.99
Planetfall	24.99	22.49
Scrabble	19.95	17.95
Sorcerer	24.99	22.49
Starfighter	24.95	22.48
Steve Davis Snooker Disc	14.95	13.46
Strike Force Harrier	19.95	17.95
Tomahawk	19.95	17.95
Trivial Pursuit Edit	19.95	17.95
Wishbringer	24.99	22.49

UTILITIES

Software	R.R.P.	Our Price
AMX Mouse with Desktop Program	79.95	71.95
AMX Mouse with Desktop Publisher	79.95	71.95
Master Scan Pack with parent	79.95	71.95
Desk Top Publisher	29.95	26.95
CP58256 Par/Ser Interface	67.95	61.00
Locospell II	39.95	35.95
Locospell II	39.95	35.95
Locoscript II	19.95	17.95
Magic Filter	69.95	62.95
Masterfile 8000	49.95	44.95
Menu Mate	6.99	6.30
Plan-it	24.95	22.45
Tapprint	14.95	13.45
Tas-Sign	23.95	22.95
Tapspell	16.50	14.85
Tapword 8000	24.95	22.45
Tempodisc	11.95	10.75
Temporate	4.30	3.87
Two Finger Touch Typing	24.95	22.45
ACE program + joystick + interface	29.95	26.95
Graphics like Universe and Everything	19.95	17.95

Send for our catalogue of over three thousand titles for Amstrad CPC — PCW — PC, Commodore, Spectrum, Atari/Atari ST, BBC, MSX, Electron Apple Series 2 — Apple Macintosh computers all at discount prices.

All prices include VAT post & packing UK only. Export orders welcome.

Comsoft Appointed Amstrad Business Computer Dealer
 Coldstream Computer Centre, 48 Duke Street, Coldstream, Berwickshire TD12 4LF
 Shop open Mon/Sat 9.30-12.00 1.00-5.30. Tel: 0850 2379. 24 hour order service on 0890 2854. (624)



£399.00 + free modulator

AUTUMN OFFERS FROM CITY CENTRE

AMIGA A500 (with modulator and Deluxe Paint) £429 inc VAT, p&p
 COMMODORE 64C sports pack £169.95
 (includes sports bag, joystick, data cassette and 5 games)

DISCS! DISCS! DISCS! DISCS!

All discs come complete with labels

3.5" ds/dd discs 10 £10
 3.5" ds/dd discs 25 £24
 3.5" ds/dd discs 50 £47
 3.5" ds/dd discs 100 (plus free lockable disc box).... £93
 3.5" ds/dd discs 200 (plus two lockable disc boxes) £183
 3.5" ds/dd discs 500 (plus five lockable disc boxes) £447

Lockable disc box — for 80+ 3.5" discs **£9.95**
 Disc labels 1,000 for **£14.95**
 Plastic library case holds 10 **£1.25**

Prices include VAT and carriage in the UK

(488)

CITY CENTRE COMPUTERS

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

FIXED ODDS/POOLS FORECASTER

Requires no updating of data; can be used in any league; Australian, Vauxhall/Opel, British etc.

Type in details from the fixtures list appearing in your daily paper for forecasts of Homes, Aways, Score and No-score draws of any match, displayed in seconds.

- LEAGUE AND/NON-LEAGUE
 - SIMPLE DATA ENTRY
 - PRINTER SUPPORT
 - PREDICTS
 - ADAPTABLE
 - SUCCESSFUL
- Prices include P&P



NOW AVAILABLE FOR PCW 8256/8512
ONLY £19.95

Send all cheques/PO's crossed and made payable to: B TRACEY SEARCHLINES PO BOX 3, CANNOCK, STAFFS WS11 3BQ

PRE-CHRISTMAS COMPUTER SALE

Commodore 64 compendium £134.99
 Commodore C16 compendium £39.99
 Commodore Modems £24.99
 SX64 portable (1 only) £279.99
 1541 C drives £149.99
 1570 drives £149.99
 Commodore monitors £69.99
 Spectrum + 48K bargains £59.99
 Spectrum 128K £169.99
 Musical Synthesiser keyboard (128K/+2) £29.99



2-BIT COMPUTERS



26-28 Bowesfield Lane, Stockton, Cleveland TS18 3ER

Telephone 0642 604768

Ask for Department PC

(616)

CORRESPONDENCE

Learn 'C', the modern computer language. From 'what is a computer?' to 'pointers to dynamic structures', you will learn how to write commercial quality software at your own pace, and in easy stages.

You will have a personal tutor to answer your queries and solve your problems at no extra cost.

This friendly course comes in ten spiral bound parts. The normal price is £149.50.

SPECIAL XMAS PRICE £99.50

(579)

STONE SOFTWARE, FREEPOST, LONDON SE7 7YZ

CROWN COMPUTERS!!!

ANY PRICE AND WE WILL MATCH IT!!!

In Stock now

Atari 520 STF 269.95
 Amiga 500 Sports Bundle 519.00

NEW

Commodore, Amstrad, Spec 10% off RRP

**6 High Street,
 Boston, Lincs.**

Tel: (0205) 53611

Phone now for orders!

(528)

FOR SALE

STORT SOFT

MAIL ORDER SPECIALISTS

INCREDIBLE LOW PRICES!

ALL DISCS CARRY A NO QUIBBLE REPLACEMENT GUARANTEE ARE CERTIFIED 100% ERROR FREE AND COME WITH LABELS, 5 1/4" ALSO HAVE SLEEVES AND WRITE PROTECTS. FLIP SIDED DISCS HAVE TWO INDEX HOLES AND TWO NOTCHES.

SPECIAL OFFER !!

25 SS 48TPI 5.25" DISCS & 100 CAP LOCKING DISC BOX	£16.00
50 SS 48TPI 5.25" DISCS & 100 CAP LOCKING DISC BOX	£25.00
100 SS 48TPI 5.25" DISCS & 100 CAP LOCKING DISC BOX	£39.95
25 DS 48TPI 5.25" DISCS & 100 CAP LOCKING DISC BOX	£17.00
50 DS 48TPI 5.25" DISCS & 100 CAP LOCKING DISC BOX	£26.50
100 DS 48TPI 5.25" DISCS & 100 CAP LOCKING DISC BOX	£42.00

5 1/4" DISCS FROM AS LITTLE AS 33 PENCE

BLANK 5 1/4" DISCS

DISC NOTCHER FREE WITH EACH 100 DISCS PURCHASED

UNBRANDED	TRIAL 10	25	50	100	10 in a 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 and match or all 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

LOCKING DISC BOXES

5 1/4" HOLDS 50	£7.95	5 1/4" HOLDS 100	£9.95
3 1/2" HOLDS 40	£7.95	80/90 (HOLDS 60 3" or 90 3 1/2")	£9.95

ANCILLARIES

ST/IBM/AMIGA/PC 1512 TO CENTRONICS PRINTER LEAD	£7.95
ST TO RS232 MODEM LEAD	£7.95
SWITCH BOX - 2 POSITION (ie 1 printer to 2 computers and vice-versa)	£29.95
Centronics or RS232 - please specify	£8.95
QUICKSHOT II MICROSWITCH JOYSTICK	

3.5" SPECIAL OFFERS

25 SS/DD 135 TPI(MF1DD) & 80 or 60/90 locking disc box	£32.00
50 SS/DD 135 TPI(MF1DD) & 80 or 60/90 locking disc box	£55.00
25 DS/DD 135 TPI(MF2DD) & 80 or 60/90 locking disc box	£35.00
50 DS/DD 135 TPI(MF2DD) & 80 or 60/90 locking disc box	£61.00

135tpi unbranded	10	25	50	100	500	10
SS/DD (MF1DD)	£10.00	£24.00	£47.00	£92.00	£399	in a case £12.95
DS/DD (MF2DD)	£11.50	£27.00	£53.00	£99.00	£429	£14.95

CUMANA DRIVES

ATARI ST 1 MEGABYTE	£139.00
AMIGA 1 MEGABYTE	£129.00
NO ADDITIONAL LEADS OR POWER SUPPLY REQUIRED	

ATARI HARDWARE - BARGAIN PRICES

520 STM, SF354 (1/2 meg drive)	£279.95
520 STM, SF314 (1 meg drive)	£339.95
520 STM, SF354 & SM125 mono monitor	£374.95
520 STM, SF314 & SM 125	£434.95
1040 STF & SM125 mono monitor	£570.00
Mega ST (2 megabyte RAM & 1 meg drive)	£845.00
Mega ST (2 megabyte RAM & 1 meg drive) & SM125	£935.95
Mega ST (4 megabyte RAM & 1 meg drive)	£1095.00
Mega ST (4 megabyte RAM & 1 meg drive) & SM125	£1190.00

All Hardware comes with free dust covers! All STs come with 5 public domain discs with 5 public domain discs including CPM emulator and the arcade game Megaroids, 5 blank discs to get you going or choose 5 additional discs from our public domain library, Basic language disc and manuals. 520 STM ONLY comes with 1st Word word processor and spelling checker.

COMPUTER ACCESSORIES

5 1/4" DISC NOTCHER (Double your disc capacity on a single sided drive)	£3.95
DISC CLEANING KITS Liquid non-abrasive type - protect your valuable software	
5 1/4" DCK	£3.95
3 1/2" DCK	£4.95

SPECIAL PRICE

MOSFT, SMM804 Printer, SC1224 Colour Monitor, 1st Word & Spell It plus as above	** £899.00 **
MEGA ST (2 meg), SMM804, SC1224, 1st Word & Spell It	** £1250.00 **
MEGA ST (4 meg), SM125 Mono Monitor, SLM804 Laser Printer & SH205 Hard Disc Drive	** £2699.00 **

Just write for more information. Cheques etc. payable to STORT SOFT (International orders add 10% and remit in pounds Sterling by bank draft or international money order. Write for quote in any other currency)

ACCESS/MASTERCARD/EUROCARD/VISA accepted. CREDIT CARD ORDER LINE - 0279 89509
24 HOURS A DAY, 7 DAYS A WEEK - VAT & P.P. INC. NO HIDDEN EXTRAS - WHAT YOU SEE IS WHAT YOU PAY

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

Phone for best price

Commodore 64 compatible drive	£129.95
Commodore 64 pack 1	£195.95
Amiga 500 pack	£439.00
Atari STM pack	£269
Neos mouse	£23.95
Commodore music expansion system	£77.50
Amstrad PCW 9512	£520
Amstrad DMP 3160 printer	£199
Amstrad DMP 4000	£345
Amstrad LQ 3500	£345
Sinclair +2	£138
Sinclair +3	£199

3 1/2" / 5 1/4" LIBRARY CASES	95p
3" MIMIC CF2 (10)	£20.00

5 1/4" DS/DD	3 1/2" DS/DD
10 £4.75	10 £9.50
25 £12.50	25 £23.50
50 £19.95	50 £45.00

80 capacity 5 1/4" LSB	£8.00
100 capacity 5 1/4" LSB	£11.00
3 1/2" / 5 1/4" library cases	95p
40 capacity 3 1/2" LSB	£7.95
Spectrum 128+	£99.00
Citizen 2 col. dot matrix printer	£28.95
Datex Microstick joystick	£8.99
C2N data recorder	£25.99

All prices include VAT and postage. ALL TRADE ENQUIRIES WELCOME. Ring now for Amstrad 1512 and 1640 ribbon paper and other computer consumables

M.D.S. Computer Supplies

11 Church Street, Banbridge BT32 4AA

24-hour Credit Card Hotline 08206 23477

Enquiries - Tel: 08206 23399

A Division of Brocklis Enterprises Ltd.

(468)

MICROWARE COMPUTER SERVICES

COMPUTER HARDWARE

Amiga 500 inc. Deluxe Paint modulator & Starter Pack	£449
Amiga 500 inc. Deluxe Paint modulator & Starter Pack & 1081 Colour medium res monitor	£739
Amiga 500 inc. Deluxe Paint modulator & Starter Pack + NEC 3 1/2" Disc Drive	£559
Amiga 500 inc. Deluxe Paint modulator & Starter Pack + 1081 Monitor & NEC disc	£849
Atari STFM built-in 1/2 Meg disc drive and modulator	£289
Atari 1040 STFM with colour monitor, free printer and software	£899
Atari desktop publishing with Mega ST monitor, lazer printer and software	£2,799
Amstrad PCW 9512 word processor with monitor, daisywheel printer etc	£499
Amstrad CPC 464 with colour monitor, tape deck, joystick and 17 games	£289
Amstrad CPC 6128 with colour monitor, disc drive, joystick and 17 games	£379
Spectrum +2 with tape deck, joystick and 6 games	£129
Spectrum +3 with disc drive, joystick and 6 games	£189
Atari XE computer games console with joystick and game	£79

PERIPHERALS

1081 medium res. colour monitor	£329
Philips 8833 med. res. colour monitor stereo	£279
Philips 8852 med./hi res. colour monitor stereo	£319
NEC 3 1/2" 880K disc drive	£129
512K RAM expansion with clock	£99
Diggi view II with A500 adaptor	£189
Easy drawing tablets for A500	£289
20Mb hard disc for A1000	£669
2Mb RAM expansion for A1000	£410

8 BIT HARDWARE

Commodore 64 package includes Computer data recorder joystick, 11 top games	£159
Commodore 64 + 1541C disc drive + joystick & 11 games	£299
1541C disc drive	£159
Commodore music expansion system	£99
Commodore sound sampler	£69

PRINTERS

Citizen 1200/40 CPS with interface	£199
Premier 35 daisywheel printer	£479
Cannon colour ink-jet printer	£479
Xerox 1420 colour ink-jet printer	£999
Epson LX86 120 CPS	£279

(Full range of top manufacturers' printers available)

THIS IS ONLY A VERY SMALL SELECTION OF OVER 250 PRODUCTS. PLEASE PHONE FOR CHRISTMAS SPECIAL OFFERS.

PO Box 2, Skegness, Lincolnshire PE25 2QL. Tel: 0754 610217

Order instructions: write name, address, postcode and phone number. Write order out clearly stating quantity, description and price, make cheques or POs payable to Microware Computer Services and send to above address. All prices are fully inclusive. Prices subject to change without notice on availability. E. & O.E.

(575)

FOR SALE

SPECIAL CHRISTMAS OFFERS

25 x 5-25" DS-DD DISCS
PLUS
100 CAPACITY LOCKABLE DISC BOX
FOR

ONLY £16.50

OR
50 x 5-25" DS-DD DISCS
PLUS
100 CAPACITY LOCKABLE DISC BOX
FOR

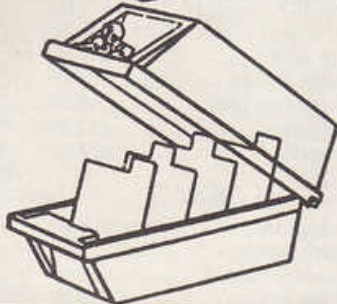
ONLY £26.00

20 x 3-5" DS-DD DISCS
PLUS
40 CAPACITY LOCKABLE BOX
FOR

ONLY £28.00

OR
40 x 3-5" DS-DD DISCS
PLUS
40 CAPACITY LOCKABLE BOX
FOR

ONLY £48.00



75 x 5-25" DS-DD DISCS
PLUS
100 CAPACITY LOCKABLE DISC BOX
FOR

ONLY £34.00

OR
100 x 5-25" DS-DD DISCS
PLUS
100 CAPACITY LOCKABLE DISC BOX
FOR

ONLY £41.00

50 x 3-5" DS-DD DISCS
PLUS
90 CAPACITY LOCKABLE BOX
FOR

ONLY £60.00

OR
80 x 3-5" DS-DD DISCS
PLUS
90 CAPACITY LOCKABLE BOX
FOR

ONLY £89.00

DISKS 5 1/4"

QTY	SS/48	DS/48	DS/96
25	£9.00	£10.00	£11.00
50	£16.00	£18.00	£20.00
100	£30.00	£33.00	£36.00
200	£58.00	£61.00	£68.00

All includes envelope, labels and fitted hub rings
100% guarantee

DISKS 3 1/2"

QTY	SS/DD	DS/DD
10	£10.00	£13.00
20	£19.00	£25.00
30	£28.00	£37.00
50	£46.00	£52.00
100	£90.00	£100.00

Price includes labels
100% guarantee

UK MADE LIBRARY CASE

5 1/4" or 3 1/2"
(10 capacity)

ONLY 95p
(if bought with discs)

PRINTER CABLE

ST/IBM/AMSTRAD 1512/CLONE

25 way D to 36 way cent

ONLY £7.75

REMEMBER THE PRICE YOU SEE IS ALL YOU PAY. (U.K. ONLY) THEY INCLUDE VAT AND CARRIAGE

Cheque or Postal Order to:



Manor Court Supplies Ltd

Dept PCW1, Glen Celyn House, Penybont, Llandrindod Wells, Powys LD1 5SY. Telephone: 0597 87784 or 0597 87792

HEAD CLEANERS

Special offer price if bought with discs + box offer

5 1/4" + Fluid£2.50
3 1/2" + Fluid£3.50

Both for use with single or double drives

EDUCATION AND GOVERNMENT ORDERS WELCOME

TRADE ENQUIRIES ALSO WELCOME

(601)

KENT BARGAINS

Generous discount on
ATARI ST and COMMODORE software

SPECIALISTS IN BBC, AMIGA AND AMSTRAD

Master Compact SAVE £300
— BUSINESS OFFER

Amstrad PC1512 SAVE £100
— BUSINESS PACK

BUY A PRINTER AND
WE PAY THE

V.A.T.

EDUCATIONAL SOFTWARE A SPECIALITY

Lighthouse Computer Service
4 Park Avenue, Deal. Tel: (0304) 362049

(537)

MICRODRIVE AND INTERFACE OFFERS

Express Service - order by phone. Free C.O.D. service over £20 in U.K.

STARTER PACK 1

Microdrive unit, interface 1 (to connect RS232, network and Microdrives to your Spectrum) plus a demonstration cartridge. Delivered for only £57.50

STARTER PACK 2

Two Microdrive units, interface 1 plus a demonstration cartridge. Delivered for only £83.50

EXTENSION PACK

Second (or third or fourth ...) Microdrive unit(s). Delivered for only £27.50

CARTRIDGE PACK

Five blank cartridges. Delivered for only £9

Make cheques payable to Applied Technology.

Export orders outside Europe: add £4 for Australia and countries bordering Pacific Ocean, elsewhere add £2. Where insured parcel service is not available goods are sent at customers' risk.

Delivery ex-stock at time of going to print, all units carry manufacturers' 1987 serial number.

APPLIED TECHNOLOGY

64 Tannery Drift, Royston, Herts SG8 5DE

Tel: 0763 41754 (572)

24 hours

0932 787568



COMPUTERS

24 hours

0932 787568

AMIGA

	£
A500 inc. Deluxe Paint	£499.99
A1081 Hi-Res Monitor	£349.99
A1010 Ext. Drive	£249.99
A501 512K Expansion	£119.99
A521 TV Modulator	£24.99
Pagesetter	£110.00
Faery Tale	£48.00
Flight Simulator II	£45.00
Word Perfect	£228.85
Sculpt 3D	£77.00
TV Text	£99.00

ATARI

	£
520 STFM	£299.99
1040 STF	£499.99
1040 STFM	£599.99
SM125 Mono Monitor	£149.99
SC1224 Colour Monitor	£399.99
Flight Simulator II	£45.00
Fleet Street Publisher	£115.00
Art Director	£49.95
Aegis Animator	£57.00
Kuma Range	Ring
Film Director	£59.00

AMSTRAD

	£
PCW8256	£343.85
PCW8512	£458.85
PCW9512	£573.85
PC1640 SDMD	£573.85
PC1640 DDMD	£688.85
PC1640 HD/MD	£1033.85
Colour Display	£172.50
EGA Display	£345.00
PC Write	£113.85
PC Planner	£113.85
Super Calc 3.21	£69.95
Wordstar Express	£69.95
Super Base Personal	£99.95
Windowworld	£59.95
1st Word Gem	£79.95

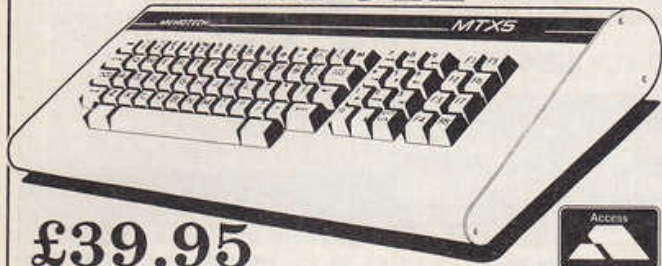
If you cannot find the computer - printer - modem - discs - paper - software - please ring

To order please send cheque and POs made payable to: ARB COMPUTERS, 40 Halliford Close, Shepperton, Middlesex TW17 8SL. (Callers only by appointment please)

All prices include VAT, postage and carriage charge. Please allow 5 days for delivery. (599)

FOR SALE

★ **MEMOTECH**
MTX 512 ★



£39.95

Plus £3.05 postage (total £43)

- ★ 64K User Ram ★
- ★ Z80 Processor ★
- ★ 3 Channel Sound ★
- ★ 16 Colours ★
- ★ Extensive Software ★
- ★ CP/M 2.2 Adaptable ★
- ★ Fully Guaranteed ★



Further details/orders to:

UK HOME COMPUTERS

82 Churchward Avenue, Swindon, Wilts SN2 1NH

Tel: 0793 695034

35 LONDON ROAD, TOOTING,
LONDON SW17 9JR

TIMESOFT TEL 01-685 9849

PLEASE PHONE IF YOU DO NOT SEE WHAT YOU WANT !!!



ATARI ST

NEW RELEASES

Super Sprint.....	£11.95
Karting Grand Prix.....	£7.95
Star Trek.....	£15.50
Backlash.....	£15.50
Star Wars.....	£15.95
Marble Madness.....	£19.95
Chessmaster 2000.....	£16.95
Degas Elite.....	£23.95
Tonic Tile.....	£14.95

AMIGA

NEW RELEASES

Test Drive.....	£19.95
Grid Start.....	£7.95
Thai Boxing.....	£7.95
Marble Madness.....	£15.95
Into Eagles Nest.....	£16.95
Chess Master 2000.....	£19.95
Guild Of Thieves.....	£18.95
Winter Games.....	£17.50
Bards Tale.....	£19.95
Mean 18.....	£18.95
Phalanx.....	£6.95
Q-Ball.....	£15.95
Impact.....	£11.95
Arena.....	£14.95
Terrotops.....	£18.95
Goldrunner.....	£18.95
Leaderboard.....	£19.95
Silent Service.....	£18.95
Earl Weaver Baseball.....	£17.95

SALE

Leaderboard.....	Phone for price
Silicon Dreams.....	£9.95
Jewels of Darkness.....	£9.95
Golden Path.....	£9.95
Boulderdash Con.....	£9.95
Pirates.....	£7.50
Taff Times.....	£9.95
Hacker 2.....	£9.95
Hardball.....	£13.95
King's Quest Pack.....	£19.95

Any Infocom titles £9.95

PLEASE MAKE ALL CHEQUES
PAYABLE TO TIMESOFT!

IF YOU DO NOT SEE WHAT YOU REQUIRE PLEASE
PHONE FOR A LOW PRICE.

(496)

Tornado Computer Services
AMAZING LAST MINUTE XMAS DEALS

ATARI 520STM + half Meg Drive, Mouse, First Word W/P
+ 5 P.D. discs £269

ST Games - Christmas Super Deals

	Our Price
Indiana Jones.....	£12.99
Impact.....	£12.99
Defender of the Crown.....	£24.99
Trivial Pursuit.....	£17.99
Tau Pan.....	£17.99

We have such good deals on all software we just dare not
advertise, so please phone for the amazing deals we offer.

4 Swan Court, Dunstable, S. Bedfordshire LU6 3DE
Tel: 0582 604610

(583)



COMPUTAMART
Used Computer Specialist

SELL USED COMPUTERS!

It's here at last - the only professional start-up package to enable you to earn a highly profitable FULL-TIME living from selling used computers and accessories. Ideal for shops, market traders, mail order etc. etc. Computamart, pioneer of the specialist used computer retail outlet, has just launched an associateship offer, similar to a franchise - but with NO ROYALTY PAYMENTS and with no experience necessary!

The deal includes use of the well known retail name, comprehensive operator's manual, regular buy-price guides, hotline support, exclusive trading areas and all the benefits of group trading, at an introductory all-in price of £550 to the first 10 applicants (£750 thereafter). If you are genuinely interested in entering this fast-expanding sector of the market, are over 18 and have the necessary start-up capital, then don't delay, write for more details immediately.

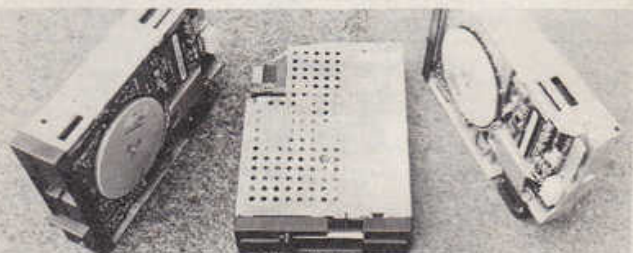
COMPUTAMART

195 Seabourne Road, Southbourne
Bournemouth, Dorset BH5 2HJ
Tel: 0202 433759

(586)

CHRISTMAS STOCKING FILLER OFFER
Cumana touch pads - You can transfer or trace sketches from this touch sensitive pad to a BBC model B only for £14.95. Amazing saving!

80 TRACK / DS DD 5 1/4"
HALF HEIGHT DISC DRIVES



Uncased bare drive.....	£60
Drives in cream metal cases.....	£70
Cased drive with connecting leads to suit BBC micro.....	£74.95

Special Offers on IBM compatible add-ons

Few only:	
Racal CP2123 plug in modem card V21/V23.....	£99
40 track DS/DD bare drives, black fronted (half-height) Suitable for up-grading PC.....	£60.00
AT and T CDC Wren 1 36mb hard disc drives (45µS) (uncased).....	£335
Irwin Tapes 20 meg streamer.....	£300

Money back if not satisfied and returned undamaged within 7 days.
Callers welcome Mon-Fri 9-5.

Callers only. A selection of green screen monitors £39.95 to £59.95

Pinboard Computers Ltd,

(477)

Unit 9, Bondor Business Centre, London Rd, Baldock, Herts SG7 6NG

Tel: (0462) 894410



Prices include VAT, packing and parcel post.



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 1/2 DS/DD

£6.00 inc. case

10 3 1/2 SS/DD

£11 inc. case

10 MAXELL 3" CF2
£20

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
1/2 mb. DISK DRIVE & INTERFACE	£160
1 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

Bargain Joysticks - Commodore Models

Standard plug suitable for Commodore, Atari, Spectrum etc., etc.

£2.50 each - 5 for £11 - 10 for £21

An ideal stocking filler. Send Cheques/PO to:
Pastel Craft, 90 Wellington Road,
Boston, Lincs PE21 0LE (595)

XADOMY. A 100 location, text adventure for the Electron/BBC. Send cheque/PO for £3.45 to Brassington Enterprises, 31a High Street, Keynsham, Bristol BS18 1DP.

AMSTRAD 6128, mono monitor, colour modulator, recorder, modem RS232 with honeycomb in Rombo box, Electronic Studio, pen + multi-text, books, mags, tapes, 38 discs, software, includes Tasword, Master File, Master Calc, High Soft C or Dr Graf, Dr Draw, Discovery games p.d. coms. £300 o.n.o. Tel: Billericay (0277) 659777.

ATARI STM, 1 meg Ram, twin Cumana, 1 meg disc drive, high-res mono monitor, backpack, cartridge, software, discs and books. £500 o.n.o. St. Albans (0727) 34566 or 37793 (evenings).

TWO 48K SPECTRUMS. Two Interface One's (1) faulty. Two micro-drives. Interface Two. Downsway programmable interface. Interface 3. 36 Micro drive Cartridges. VTX Modem. Hitachi b/w monitor. Transform adaptor. £100s original programs inc. utilities, mountains of mags. £300 the lot. Sorry, will not split. Tel: 01-278 2225.

ATARI ST. For sale. 520STFM, £210 (mint); backpack £22; Barbarian, £12; FSII, £22; Scenic 7, Knight Orc, Silent Service, £10 each. Word Writer ST £40, 6 'Faster', £18. Tel: 0822 852796.

AMAZING

This is the verdict from all our customers who purchased a copy of "The Gamerster". This is a truly unique utility that allows the user to gain infinite lives on most types of games, and includes the brilliant "Slomo" device, to slow down most programs to your desired speed. Win all those top prizes with "The Gamerster".

"Well worth buying..." CRASH

"Very easy to use..." A.S.D. Mid-Glamorgan

"Absolutely brilliant, now I play all those impossible games and easily gain high scores." R.D. Manchester

Spectrum 48/+/128/+2/+3

Compatible with Multiface 1/Multiface 128/Snapshot

R.R.P. £9.99.....MAIL ORDER £5

Cheques/POs to:

S.U., 155 Wash Lane, Yardley, Birmingham B25 6PX

SAME DAY DESPATCH

(540)

ATARI ST 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.

Discs from £2.50

MCSOFT

9 Abingdon Gardens, Bath,
Avon BA2 2UY (178)

AMIGA

CUMANA DISC DRIVES/JUMPDISK CHRISTMAS PACK

Using only the internal disc drives becomes tedious and frustrating. The Cumana disc drive for the Amiga is the answer. It is quite compact and highly reliable - we test each drive prior to the search and there is a 12 month guarantee. We include with all orders the Christmas issue JUMPDISK, the top two PD selling discs and a special software surprise. Immediately available for only \$129 inc. VAT & p&g.

George Thompson Services Ltd.
Dippen Lodge, Dippen, Brodick, Arran,
Scotland KA27 8RN. Tel: 077982 234 (291)

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 (338)

ST PUBLIC DOMAIN

Software from only £1.50 per disc. Huge range that covers all types of programs plus special compilations and unbeatable offers. For a full list send stamp only to:

SOFTVILLE

55 Highfield Avenue,
Waterloo, Hants PO7 7PY (492)

The Scrambler for BBC B, Master and Compact

PROTECT your files for as little as £19.95 (p&g incl.) The system to help you comply with the DATA PROTECTION ACT. ENCODES any file held on disc (ADFS/DFS). Menu driven. Unique PASSWORD. Supplied on ROM. Ideal for schools, colleges.

Number 3 Software,

3 Dairy Farm Court, Attleborough, Norfolk (618)

Britain's No.1 ST User Group and Finalists in the 1987 Desktop Publishing Awards can now offer you even more. With annual membership at £5, including free disc and prices from £2.50 per disc, you just can't beat us for value. Same day despatch on all orders guaranteed. Forget the rest and try the best by sending large S.A.E. to:

Floppyshop ST

50 Stewart Crescent

Northfield

Aberdeen AB2 5SR



(603)

PANTHER SOFTWARE

ATARI 520 STFM.....£285.99

Star Trek.....£17.49

Terropods.....£21.99

Roadrunner.....£21.99

Flight Simulator 2.....£57.90

Mouse Trap.....£13.49

Balance of Power.....£25.99

Star Glider.....£21.99

Silent Service.....£21.99

Goldrunner.....£21.99

Software for most computers, inc.

IBM PC, Amiga, Amstrad and BBC

Please send S.A.E. stating micro

2 Riverway Gardens, The Meadows, Nottingham NG2 3LL

MAIL ORDER HOTLINE 0602 888864

REPAIRS

T.M. COMPUTER SERVICES

FAST COMPUTER REPAIRS

Spectrum Plus.....	£15.95
Commodore 64.....	£22.00
Vic 20.....	£22.00
C16.....	£20.00
Plus 4.....	£22.00
Amstrad 464.....	£32.00

FREE collection and delivery in Leeds, Bradford and Huddersfield areas.

Phone Heckmondwike 0924 402715 day or night!

Computers direct to:

Mr. T. Marshall (PCW)
21 FOURELL STREET, HECKMONDWIKE,
W. YORKS WF16 0EA

enclosing cheque and brief description of fault

(580)

COMPUTER REPAIRS AT TRADE PRICES!!

All repair work guaranteed for 3 months!!
All prices include parts, labour, VAT and post!!
** No hidden extras **

SPECTRUM	£16.00
C64	£24.00
C16	£16.00
PLUS 4	£24.00
SPECTRUM 128	£22.00

MOST REPAIRS DONE SAME DAY

Please enclose payments with computer. Please make all cheques & PO to:

FUTRONIX

26b Heath Street, Golborne, Cheshire WA3 3AD (Nr. Wigan!), Tel: 0942 718423
Futronix are a stockist of a large range of software, hardware and peripherals for the ATARI ST, AMIGA A500, SPECTRUM and COMMODORE computers. Send S.A.E. for full details.

Futronix shop is open 9-5 six days a week

(597)

COMPUTER REPAIRS Fixed Super Low Prices!

Inclusive of parts, labour and VAT



FIRST AID
FOR
TECHNOLOGY

1 week turnaround
Free collections/delivery available for local area

★ AUTUMN OFFERS ★

SPECTRUMS	£14 inc. + Free Game
C64	£22 inc. + Free Game
C16	£18 inc.
VIC20, C+4	£22 inc.
BBC	£32 inc.
ELECTRON	£19 inc.
AMSTRAD 464	£32 inc. + Free Game
SPECTRUM 128	£16 inc.
C64 P.S.U. FOR SALE	£20 inc.

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

(182)

SPECIAL CHRISTMAS OFFERS



OFFERS



- Atari 520 STFM £279.95
- Monitor 12" mono £59.95
- Telemod modem £24.95
- Fantastik joystick £4.95
- CBM power supply £22.50
- Spectrum power supply £9.95

PRINTERS



- Star NL10 £219.95
- Citizen 120D £179.95
- Olivetti, spark jet £69.95
- 5 1/4" discs (box of 10) £4.99
- 3 1/2" discs (box of 10) £12.90

COMPUTER DEPOT

205 Buchanan Street
Glasgow G1 2JZ

Telephone: 041-332 3944



(569)

DIGIPIX Disk Price Special 3.5" DS/DD DISKS

Unbranded DS/DD 135tpi (MF2DD) inc labels & p&p

10	25	50	100
9.95	24.00	46.00	90.00

All Disks Fully Guaranteed

Disk customers may also purchase any amount of the following with their order. (Available only with Disk orders.)

Mouse Mat £3.50 ★ 40 capacity, locking 3.5" Disk Box £5.75
80 capacity, locking 3.5" Disk Box £7.00 ★ 100 3.5" Disk Labels £1.50
AMIGA OWNERS - FREE COPY OF VIRUS KILLER

Send Cheque or P.O. to:

DIGIPIX

1 Brasher Close, Bishopstoke, Hants. SO5 6PY

(494)

AMIGA A500 NOW IN STOCK FOR ONLY £439.95

British made video tapes E180 £2.99



Light the candles!

ATARI 520 STFM NOW IN STOCK FOR NEW PRICE ONLY £289.95

Includes mouse controller, manual, language disc and starter pack

And let's all be as happy
as children this Christmas!!!



Buy from Sound N Vision this Christmas.

SEE HALF PAGE FOR BEST PRICES ON HARDWARE/SOFTWARE ETC.



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. (542)

K & M COMPUTERS DISCOUNT SOFTWARE

NEW LOWER PRICES

ADVENTURE	CASS	DISC	ARCADE	CASS	DISC	Reports	£7.99	£11.95
Black Fountain	£3.95	—	Super Sprint	£6.99	£1.95	Cryer	£6.99	£11.95
Top Secret	£3.95	—	Renegade	£6.99	£11.95	Queen Of The Vampires	£2.95	£5.95
Big Squeeze	£3.95	—	Hybrid	£7.99	£11.95	ACCESSORIES		
Murder on the Atlantic	£11.95	£15.95	Indiana Jones	£7.99	£11.95	Amount 3" Discs £25.95 for 10,		
Stationfall	—	£21.95	Trantor	£7.99	£11.95	each £2.75		
Hollywood Hi-Jinx	—	£21.95	Enduro Racer	£7.99	£11.95	AMX Mouse + Art Pack		
Lurking Horror	—	£21.95	Flunky	£7.99	£11.95	DMP 2000 Printer		
Passengers on the Wind	£10.95	£12.95	Tank	£6.99	£11.95	Cover Set 464/6128 col/grm		
Silicon Dreams	—	£15.95	Elite	£10.50	£13.95	Cover Set DMP 2000		
Jewels of Darkness	—	£15.95	Starglider	£11.95	£15.95	MP2 Modulator		
Killed until Dead	£7.99	£11.95	Solomon's Key	£7.99	£11.95	Amstrad DMP 2000 Printer Ribbon		
The Hobbit (no book)	£7.99	—	Centurions	£7.99	£11.95	Lockable 3" Disc Boxes (Wild 20)		
COMPILATIONS			CASS			AMX Mouse Mats		
Live Ameno	£7.99	£11.95	Exolon	£6.99	£11.95	£4.95		
Comp. Hits 6 Volume II	—	£11.95	Woball	£6.99	£11.95	Phone		
Comp. Hits 6 Volume III	—	£11.95	Game Over	£6.99	£11.95	Amstrad JY2		
Hit Pack Six	£7.99	£11.95	Metrocross	£7.99	£11.95	Chestnut Mach I		
5 Star Vol 2	£7.99	£11.95	Bubble Bobble	£6.99	£11.95	Euronax Pro 5000		
Comp. Hits 10 Volume III	—	£11.95	Starflight	£6.99	£11.95	Duke Joyball		
Star Games II	£7.99	—	Paperboy	£6.99	£11.95	Stick Stick		
Sold a Million II and III (each)	£7.99	£11.95	Mutants	£6.99	£11.95	Chestnut 125		
Amix Accolades	£7.99	£11.95	Jack the Nipper II	£7.99	£11.95	Euronax Arcade		
Game Set and Match	£10.95	£14.95	California Games	£7.99	£11.95	Phaser One		
Hit Pack Vol II	£7.99	£11.95	Asphalt	£7.99	£11.95	Economy Joystick		
Now Games 4	£7.99	—	Athena	£6.99	£11.95	Konex Speedlink		
Summer Gold	£7.99	—	Mask	£7.99	£11.95	Starfighter		
Durall Day 4 Vol II	£7.99	£11.95	Road Runner	£7.99	£11.95	BBS/UTILITIES		
Trip (Elite)	£7.99	£11.95	Prohibition	£7.99	£11.95	Tax Sign 6128 PCW		
Eyes Open	£7.99	£11.95	Mystery of the Nile	£6.50	£10.50	Shop Press		
Hit Pack 6 Vol II	£7.99	£11.95	Death Wish III	£7.99	£11.95	Discology (Sinn)		
STRATEGY/SIMULATION	CASS	DISC	Enterprise	£6.99	—	Tascopy		
Match Of The Day II	£6.99	£11.95	Tai Pan	£6.99	£11.95	Tasprint		
F15 Strike Eagle	£7.99	£12.95	Jackal	£6.99	£11.95	Mini Office II		
Final Frontier	£7.99	£11.95	Not a Penny More, Not a Penny Less (POA)	£11.95	£14.95	Plan-It		
Silent Service	£7.99	£11.95	Driller	£11.95	£14.95	Adv. Art Studio		
Amagadon Man	£10.99	—	Thundercats	£6.99	£11.95	Adv. Music System		
World Class L'Board	£7.99	£11.95	Combat School	£6.99	£11.95	Prostat		
Goalmaster	£7.99	£11.95				Masterfile III		
Football Director (A04)	£7.50	—				Games Consoles		
Battlefield (Germany)	£10.95	£14.95				Nintendo Game Console		
						Nintendo Deluxe		
						Robotic Bulky		
						Sega		

SOFTWARE SUPPLIES FOR ● ATARI ST ● AMIGA ● COMMODORE 64 ● SPECTRUM ● BBC ● ATARI ● IBM ●

APPLE ● MSX ALL AT DISCOUNT PRICES
PCW & PC SOFTWARE AVAILABLE WITH BIG DISCOUNTS ● NINTENDO AND SEGA CONSOLES AND GAMES AVAILABLE WITH BIG DISCOUNTS

ALL PRICES INCLUDE POST AND PACKING ● IN STOCK ITEMS SENT BY RETURN ● ALL BUDGET TITLES STOCKED £5.99 FOR 3 (£1.99)

WE ALSO HAVE AN EXTENSIVE RANGE OF CPC SOFTWARE FOR HIRE ● FREE MEMBERSHIP ● SEND FOR DETAILS CASH WITH ORDER OR SEND FOR FULL LISTS ● ECU AND EUROPE AT NO CHARGE ● OTHER OVERSEAS ADD £2

BRITISH POSTAL ORDERS OR STERLING CHEQUES ● 24 HOURS PHONE 0695 29046 ● ALL NEW RELEASES ON DAY OF RELEASE

DIGITISING SERVICE FROM AMX STOP PRESS ● PRINTER RIBBON RE-INKING £1.50 PER RIBBON

**K&M COMPUTERS, 40 FAIRSTEAD, BIRCH GREEN
SKELMERSDALE, LANCS WN8 6RD**

(609)

clik

AMIGA
SOFTWARE
SPECIALIST

Unit 1, Willowsea Farm, Spout Lane North, Stanwell Moor, Staines, Middx TW19 6BW

GAMES

	RRP	OUR PRICE		RRP	OUR PRICE
Adv. Con. Set	29.95	21.50	Mindshadow	24.99	18.50
Archon 2	29.95	21.50	Mind Forever	34.99	24.75
Arena/Brat	34.95	24.75	Moon Mist	29.95	21.50
Arcus Fox	29.95	21.50	Mouse Trap	14.95	11.50
Barbarians	24.95	18.50	Music Studio	34.99	24.75
Borrowed Time	34.99	18.50	One On One	29.95	21.50
7 Cities/Gold	39.95	21.50	Pawn	24.95	18.50
Challenger	9.95	7.50	Planetfall	29.99	21.50
Cruncher Fact	9.95	7.50	Portal	34.99	24.75
Cut Throats	29.99	21.50	SeaTalker	29.99	21.50
Demolition	9.95	7.50	S.D.I.	29.95	21.50
Deadline	29.99	21.50	Shanghai	24.99	18.50
Deja Vu	29.95	21.50	Silent Service	24.95	18.50
Defender Of Crown	29.95	21.50	Silicon Dreams	19.95	15.50
Deep Space	29.99	21.50	Sinbad	29.95	24.75
Enchanter	29.99	21.50	Sorcerer	39.99	21.50
Fairy Tale Adv.	49.99	32.50	Space Quest	29.99	21.50
Flight Sim. 2	49.95	32.50	Space Battle	9.95	7.50
OLF Football	24.99	18.50	Spellbreaker	29.99	21.50
Coldrunner	29.99	18.50	Stationfall	29.99	21.50
Gold	34.99	24.75	Star Cluster	24.95	18.50
Guild of Thieves	24.99	18.50	Starcross	29.99	21.50
Hitch Hiker	29.99	21.50	Suspect	29.99	21.50
Hollywood Poker	19.95	15.50	Suspender	29.99	21.50
Indiel	29.99	21.50	Surgeon	49.95	32.50
Hollywood Hijinx	29.99	21.50	Super Haey	19.99	15.50
Instant Music	29.95	21.50	Swooper	19.95	15.50
Jewel of Darkness	19.95	15.50	Tax Times	24.99	18.50
Karate Kid 2	24.95	18.50	Terror Pods	24.95	18.50
Kampfgruppe	29.00	21.50	Temple Of Apahai	24.99	18.50
King Quest 3	29.99	21.50	Trinity	34.99	24.75
Knight Orc	24.95	18.50	Ultima 3	24.99	18.50
Leather Goddess	29.95	21.50	Uninvited	29.95	21.50
Leaderboard	24.95	18.50	Witness	29.99	21.50
Leaderboard	29.95	7.50	Wishbringer	29.99	21.50
L.C.P.	34.99	24.75	Zork 1, 2, 3	29.99	21.50
Mean 18	29.99	21.50			

UTILITIES

	RRP	OUR PRICE		RRP	OUR PRICE
Analyze	149.95	92.50	Organise	99.95	65.00
BBS PC	99.95	65.00	Pascal	89.95	59.50
Lattice C Proof	299.00	184.50	Publisher 1000	199.95	120.00
Lattice C	189.95	119.50	Scrabble	99.95	65.00
Lisp	149.95	95.50	T.V. Text	99.95	65.00
Music Studio	34.99	24.75	Zuma Fonts 1	34.95	24.75
Multi-Amiga File	99.95	65.00	Zuma Fonts 2	34.95	24.75
			Zuma Fonts 3	34.95	24.75

All our prices include VAT and First Class Post.

Tel: **0753 682988**

For personal service

Please make cheques payable to Clik and send to:

**CLIK, UNIT 1, WILLOWSEA FARM, SPOUT LANE NORTH
STANWELL MOOR, STAINES, MIDDLESEX TW19 6BW**

(626)

M



CRO SLE

1 THE SOUTH EAST

EALING

EALING COMPUTER CENTRE

19 Queens Parade, Ealing, London W5. Tel: 01-991 0928
West London's newest and best computer showroom

Special opening offers - VAT inc. (limited stock)

ATARI 1040 STF £399.99 1040 STF + SM125. £499.99
STAR NL10£199.99 OPUS PCIII TF £699.99

All models on display. 100s of titles for Atari, IBM

Authorised dealer

ATARI
Power Without the Price™

Opus
PC COMPUTERS

THE STAR
PRINTERS FOR BUSINESS
(584)

SWAFFHAM

GRAPHIX

Of Norfolk

Serious computer application based around the Amiga computer, video packages, gen-lock devices, titling packages, digitisers, cameras, monitors etc. Graphics packages, drawing tablets, input devices, all graphic software supplied.

Design, animation, cartooning, home desk-top publishing.

A500, A2000, disc drives, Ram packs and all major software titles supplied.

Phone 0760 24947 (9am to 9pm)

Monday to Saturday for prices on any of the above

(544)

2 THE MIDLANDS

NORTHAMPTON

GRIFFELL SERVICES LTD

UK distributor for Micro Com Systems

PC Public Domain/Shareware Software

5.25" diskettes£4.50

3.5" diskettes£5.75

Catalogues - £2.50 each inclusive of V.A.T. and postage.

Discounts up to 20% on brand name software. S.A.E. for list.

PO BOX 108, NORTHAMPTON NN3 5LP



Telephone: 0604 31613
(24-hr answering service)

(621)

LEIGH-ON-SEA

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)

PETERBOROUGH

DOOM IS BACK

Peter Killworth's classic BBC adventure countdown to *DOOM* is back - bigger and better than ever.

Can you escape from "Doomawangra" before the planet's corrosive atmosphere rots your ship - and you?

BBC DISC - £9.95
CPC DISC - £9.95
PCW DISC - £14.95
PC DISC - £17.50

All prices include VAT and p.&p.



Topologika, PO Box 39, Stilton,
Peterborough PE7 3BR
Tel: 0733 244682 (24-hr)

(625)

DEALERS!

You can reach 40,000 readers for as little as £25 a week!
For more details phone Susannah on 01-834 1717

2 NORTHERN ENGLAND

ASHCOM

Atari hardware

520 STFM, keyboard/mouse/0.5 meg drive	£259.95
1040 STF keyboard/mouse/1 meg drive	£439.95
1040 STF plus colour monitor	£799.95
SF 314 1 meg drive	£169.95

Commodore Amiga range

A500 + Offer Pack + modulator	£435.00
A1010 disc-drive	£249.95
3.5 inch discs DD/DS guaranteed (packed in 10s)	£12.00
25 bulk packed 3.5 inch discs DS/DD guaranteed	£25.00

Free public domain software on request with discs. All products fully guaranteed. Amazing prices on peripherals and all software. All prices include VAT at 15% and P&P on UK mainland. For more information call us on (0530) 411485 or send SAE for full price list. To order send cheques/PO or Visa/Access details to the address below or phone with credit card.

ASHCOM

10 The Green, Ashby de la Zouch, Leicestershire LE6 5JU (437)

COMLEX

NEVER BEATEN ON PRICE

Amstrad 1640 20Mb Tandon £949 + 10 discs of public domain software
Amstrad 1640 32Mb £999 + 10 discs of public domain software
Comlex floppy discs DS/DD £7 per box of 10 + 50p P.&P.

AMSTRAD PC

100 Mono	£379	Amstrad 1512 Mono (20Mb Tandon)	£649
100 Colour	£479	640K Memory	£799
200 Mono	£519	Amstrad Colour 1512 (20Mb Tandon)	£799
200 Colour	£619	640K Memory	£29
1640 20 meg ECD	£1099	Amstrad 128K memory upgrade	£29
1640 DDCD	£839		
1640 EDC	£749		
Tandon PCA20	£1299		
Mim Scribe 30 Meg card	£275		
Tandon 20 Meg upgrade	£199		
Tandon 20 Meg business card	£189		
20Mb Upgrade for Amstrad PC (fitted if required)	£245		

PRINTERS

New NEC 2200	£299
Epson LX800	£189
Star ML10	£185 inc. interface
Citizen 120D	£125

For further lists of printers and machines see PCW
NEVER BEATEN ON PRICE

ATARI

520STFM	£235	1040STF	£399
520STFM + mono monitor	£359	1040STF + mono monitor	£525
520STFM + Philips colour 8833	£459	1040STF + Philips colour 8833	£624

COMMODORE

Amiga 500	£439	Amiga Bridge + 5]	POA
Amiga 500 modulator	£25	PC Double Disk Drive	£799
Amiga I	£949	PC One Disk Drive 20Mb	£1099
Amiga II	£1049	AT 20Mb 1.2 Disk Drive 20Mb	£1795
Amiga 2000 1Mb	£1116		

GOVERNMENT AND EDUCATIONAL ORDERS WELCOME,
EXPORT ENQUIRIES WELCOME

STANDARD DELIVERY £7.50 AND NEXT DAY £9.50 — ADD 15% TO ORDER TOTAL
Comlex House, 28 Bradgate Road, Hinckley LE10 1LA
(0455) 635583. Manchester 061-976 3763 (342)

3 SCOTLAND

AIRDRIE

J.C.S.

☆ Atari 520 STFM — £299
Including starter pack

☆ Amiga A500 — £449
Including starter pack

☆ Sega Master Systems — £94.95

ALL HARDWARE AND SOFTWARE AVAILABLE
NOW!!

MAIL ORDER OFFER

4 Graham Street, Airdrie,
Scotland ML6 6BU
Telephone: (0236) 69874

(546)

GLASGOW

MEGABYTE

SCOTLANDS PREMIER COMPUTER CENTRE

PROUDLY PRESENT

A line up of computer and peripheral products to suit the taste and budget of all enthusiasts from all over the United Kingdom. We pride ourselves in attempting to satisfy the needs of all your computing interests. Call us on 0236 738398 or better still come up and see us some time.

ATARI 520STFM	299.00
ATARI 1040 STF	499.00
ATARI MEGA ST2	999.00
ATARI MEGA ST4	1299.00
ATARI 130XE PACK	129.95
ATARI 65XE CONSOLE	119.95
ATARI 2600 CONSOLE	49.95

All Atari computers and games consoles come with free s/ware. Phone or S.A.E. for details.

Commodore 64 Sports pack C2N cassette, 6 games, joystick, sports bag	★ £169.95 ★
Commodore AMIGA A500	★ £499.00 ★
Includes, Deluxe Paint, Modulator and Skyfox	
The fabulous SEGA games machine, unbelievable graphics on a TV	99.00
SEGA Games console	99.00
Phaser gun	45.00

The astounding NINTENDO games machine with controllers, light gun and R.O.B. the robot with two games to wet your appetite 159.00
NINTENDO games unit.....99.00

Sinclair Plus 2.....139.95
Sinclair Plus 3.....199.95
One with cassette drive, one with disc drive, the choice is yours. Both come with masses of free software. Call for details.

For the man who has everything. The husband or the father, always a problem at Christmas.
THE PSION ORGANISER.....99.00
Model CM.....135.00
Model XP.....135.00
Lots of add-ons and software always in stock. Send for details and price list.

All our computer and games machines come with free software. Check out the freebies you get with the list below.

Atari ST's:
5 Discs, 5 Public Domain discs, Neochrome, 1st Word, DB Master and Mouse Mat.
OR a 3 Game Entertainment Pack (titles may vary).

Sinclair +2 and +3:
6 Games and Joystick.

SEGA:
"Hang on" and controllers.

NINTENDO:
Mario Bros, Gyromite, Duck Shoot (depends on pack).

Atari 2600: Free Warlord and Breakout
Atari 65XE: Free Flight Sim II and Bug Hunt

MEGABYTE IS ONE STOP COMPUTER SHOPPING



12 Etrick Square, Town Centre, Cumbernauld G67 1ND
Telephone: (0236) 738398



(585)

Birkenhead's New Computer Store

All hardware and software at cut prices

Hardware examples:

Atari 520 STFM	£289.99
Amiga A500	£489.99
Atari 130XE complete kit	£138.75
C64C complete kit	£277.95

Software examples:

RRP	OUR
£29.99	£24.99
£24.99	£19.99
£19.99	£17.99
£14.95	£12.99
£9.99	£8.99

Wargames, Adventure
Simulation
Specialists!

Run by Enthusiasts
for Enthusiasts!

We stock:
Atari/520, Apple,
Commodore, Amiga
IBM, Amstrad PC

Mail order anywhere or visit our retail store
Send large S.A.E. for free price list and games stocked



Call in for coffee and a chat!

COMPUTER ADVENTURE WORLD

1A Charing Cross, Birkenhead, England L41 6EJ
Telephone: 051-666 1132 (Mon.-Sat. 10am-5pm)

(623)

EDINBURGH

The
AMIGA
CENTRE SCOTLAND
Commodore Business Centre
Amiga Specialists since 1985
Amiga A500 and A2000 now available.
Technical and software support to our customers. Full range of AMIGA software and peripherals.
Send S.A.E. for our software catalogue
4 Hart Street Lane
Edinburgh EH1 3RN
Tel: 031-557 4242 (24 hrs.)



(379)

GLASGOW

GLASGOW COMPUTER CENTRE

Atari appointed dealer
and Service Centre
Specialists in Atari ST Computers

WE'VE MOVED TO:
122 WEST NILE STREET
GLASGOW G1 2QZ
TEL: 041-332 8246

(136)

Mice are driving me bats

Am I alone in hating micro-driven software and computers? Hailed as the greatest thing since the disposable nappy, they produce nothing for me as a teacher but headaches.

On the old 8-bit computers in our school, the severely under-rated Apple IIe and IBM clones, it was possible to arrange for basic software applications such as the word processor, database, mother-in-law's hate list and some to boot automatically when you turn on the machine.

This cannot be achieved easily on mouse-driven equipment. Certainly, it's true that we highly-trained adults can do this for them but the pupils cannot do it easily, whereas on the Apple IIe, for example, a simple INIT WORDPRO command from a pre-loaded computer would ensure that the word processor would boot automatically from scratch each time the disc is used.

Imagine the sense of power this gives to a bespectacled, spotty 13-year-old schoolboy with only a half-eaten carrot for a brain who realises he can control the innermost functions of this roaring beast tucked away in the inner depths of the blood-stained walls of the technology department.

So we find ourselves in a position of not being able to boot an application from scratch. This, then, involves aforementioned pupils spending the next 20 minutes attempting to double-click the word processing program into life.

More often than not they will succeed only in single-clicking the program and freezing the activity on the screen, not being sufficiently deft of hand to move the cursor successfully off the program icon and unclick it.

There is a further problem when pupils are creating their programs in Basic. Applesoft Basic and Basic on the IBM are crude but adequate elementary forms of the language but which enable screen manipulation, colour graphics and even animation with a firm logical foundation. 16-bit versions of Basic, even Fast Basic, have all kinds of ready-made routines for manipulating the GEM environment, which are very difficult to explain in a simple, logical manner.

It is also true that to use the whole screen for running your program you again have to resort to the dreaded mouse and I have to make moronic comments like "Aim for that funny, triangular bit up there in the corner, Jenkins. No, not that one - the other one. Oh, what have you done now?"

Finally, we reach the point when you want to see a display of your programs on the screen. In Apple's DOS 3.3 it is simply CATALOG and in MS-DOS it can be achieved with DIR. Both instructions result in a simple, neat list of the current software on the disc you are using. Not so with the mouse-driven beasties.

They produce endless arrays of boring icons which invariably run off the edges of the screen. Consequently, young Jenkins has great fun whizzing all over the place with the mice.

I should like to finish by highlighting a problem even Atari did not consider. Is it aware that in an urban comprehensive school the temptation to take the little rubber ball out of the bottom of the mouse at the end of the lesson and take it away is too great, not just for Jenkins Minor but also for Swott Major? Have you tried to buy a replacement ball for a mouse from a supplier?

Bring back the 8-bit micro and rescue me. All is forgiven - even the chunky graphics which have now taken on an air of nostalgia. □

Andrew Stephenson

PUZZLE

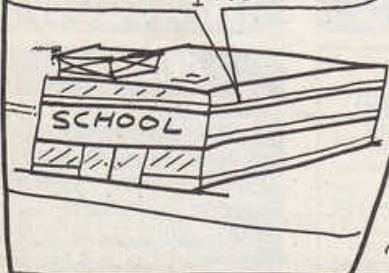
Our local cycle club recently ran a relay marathon from John o'Groats to Land's End over a period of nine days. On each of the days a team of cyclists covered the route between the towns and cities shown. As part of the support fund-raising, members of the public were invited to guess the distance, covered on each day of the event, and the best three entries are shown:

Day	Tom	Dick	Harry
1 John o'Groats-Inverness	144	124	157
2 Inverness-Edinburgh	197	162	155
3 Edinburgh-Carlisle	98	107	76
4 Carlisle-Leeds	100	113	125
5 Leeds-Nottingham	93	72	85
6 Nottingham-Oxford	107	115	98
7 Oxford-Salisbury	65	83	50
8 Salisbury-Exeter	88	101	92
9 Exeter-Land's End	134	157	122

By comparing the distance covered on each of the nine days it was seen that each of the three entrants had each made three correct guesses, but no entrant was correct on two consecutive days. If the total distance was 1,009, can you work out the correct distances covered on each of the nine days? □

HACKERS

It's amazing the way some kids who can't relate to other people CAN relate to computers!



...Like Ben Tribble in this class here for instance...



He's...



NEW LOW PRICE ST!



ONLY FROM SILICA

Finally, there's a personal computer that not only solves problems like other computers, but also solves the one problem that other computers have created. Affordability. Silica Shop are pleased to present the ST range of personal/business computers from Atari. The ST was designed utilizing the most recent breakthroughs in semiconductor technology, producing a personal computer that performs tasks with fewer parts. Which means it costs less to make. And less to buy. The latest ST computers now include built-in power supplies and built-in disk drives. The TOS operating system and GEM window environment are now on ROM chips which are already installed in the ST keyboard. This enables automatic instant booting when you switch on. Silica Shop are pleased to offer the complete Atari ST range. Our mail order department is situated in Sidcup and we have 3 retail outlets at Sidcup, Lion House (Tottenham Court Rd) and Setfridges (Oxford Street). We have eight years experience of Atari products; longer than any other UK company, and are well established as the UK's No.1 Atari specialist. With a group turnover of over £9 million and in excess of 80 staff, we offer you unbeatable service and support. We provide several facilities which you will find invaluable during your Atari computing life and most of these facilities are available ONLY FROM SILICA. We suggest that you read through what we have to offer, before you decide where to purchase your Atari ST.

FREE STARTER KIT - Only From Silica

When you purchase any Atari ST keyboard, you will not only receive the best value for money computer on the market, but you will also receive the following from Atari Corporation as part of the package:

- * BASIC Language Disk
 - * BASIC Manual
 - * ST Owners Manual
 - * TOS/GEM on ROM
- If you buy your ST from Silica Shop, you will also receive:
- * NEochrome Simulator - colour graphics program
 - * 1st Word - Word Processor
- In addition, we at Silica would like to see you get off to a flying start with your new computer, so we have put together a special ST STARTER KIT worth over £100, which we are giving away FREE OF CHARGE with every ST computer purchased at our normal retail prices. This kit is available ONLY FROM SILICA and is aimed at providing users with a valuable introduction to the world of computing. We are continually upgrading the ST Starter Kit, which contains public domain and other licensed software, as well as books, magazines and accessories all relevant to ST computing. Return the coupon below for full details.

DEDICATED SERVICING - Only From Silica

At Silica Shop, we have a dedicated service department of seven full time Atari trained technical staff. This team is totally dedicated to servicing Atari computer products. Their accumulated knowledge and experience makes them second to none in their field. You can be sure that any work carried out by them is of the highest standard. A standard of servicing which we believe you will find ONLY FROM SILICA. In addition to providing full servicing facilities for Atari ST computers (both in and out of warranty), our team is also able to offer memory and modulator upgrades to ST computers.

1Mb RAM UPGRADE: Our upgrade on the standard Atari 520ST-IM or 520ST-FM keyboard will increase the memory from 512K to a massive 1024K. It has a full 1 year warranty and is available from Silica at an additional retail price of only £86.96 (+VAT = £100).

TV MODULATOR UPGRADE: Silica can upgrade the 1040ST-F to include a TV modulator so that you can then use it with your TV set. This is an internal upgrade and does not involve any untidy external boxes. A cable to connect your ST to any domestic TV is included in the price of the upgrade which is only £49 (inc VAT). The upgrade is also available for early 520ST computers at the same price.

THE FULL STOCK RANGE - Only From Silica

We aim to keep stocks of all Atari related products and our warehouse carries a stock of over £15 million. We import many software titles direct from the USA and you will find that we have new releases in advance of many of our competitors. Unlike dealers who may only stock selected titles, we have the full range. In addition, we carry a complete line of all books which have been written about the Atari ST. A range as wide as ours is something you will find is available ONLY FROM SILICA.

AFTER SALES SUPPORT - Only From Silica

Rest assured that when you buy your ST from Silica Shop, you will be fully supported. Our free mailings give news of releases and developments. This will help to keep you up to date with new software releases as well as what's happening in the Atari market. And in addition, our sales staff are at the end of a telephone line to service all of your Atari requirements. If you purchase an ST from Silica and would like any technical advice, we have a full time technical support team to help you get the best from your computer. Because we have both the staff and the systems specifically dedicated to providing after sales service on Atari ST computers, we are confident that our users enjoy an exceptionally high level of support. This can be received ONLY FROM SILICA.

FREE CATALOGUES - Only From Silica

At Silica Shop, we recognise that serious users require an in-depth information service, which is why we mail free newsletters and price lists to our ST owners. These are up to 48 pages long and are crammed with technical details as well as special offers and product descriptions. If you have already purchased an ST and would like to have your name added to our mailing list, please complete the coupon & return it to us. This information service is available ONLY FROM SILICA.

FREE OVERNIGHT DELIVERY - From Silica

Most orders are processed through our computer within 24 hours of receiving them. Most hardware orders are sent by the overnight GROUP 4 courier service FREE OF CHARGE to customers within the UK. This method helps to ensure minimum delay and maximum protection.

PRICE MATCH - Only From Silica

We hope that the combination of our low prices, FREE UK delivery service, FREE Starter Kit and FREE after sales support, will be enough to make you buy your Atari equipment from Silica Shop. If however, there is something you wish to purchase, and you find one of our competitors offering it at a lower price, then please contact our sales department, providing us with our competitor's name, address and telephone number. If our competitor has the goods in stock, we will normally match the offer (on a 'same product - same price' basis) and still provide you with our normal free delivery. We realise that we are not the only company who will match a competitor's price. However, if you come to us for a price match, you will also be entitled to our after sales service, including free newsletters and technical support. This makes our price match promise rather special, something you will receive ONLY FROM SILICA. We don't want you to go anywhere else for your Atari products. So shop at Silica, the UK's No.1 Atari Specialist.

£260

+VAT=£299

SO MUCH FOR SO LITTLE!

There is nothing that can compare with the incredible value for money offered by Atari's 520ST-FM. For only £260 (+VAT=£299), you can purchase a powerful 512K RAM computer, with a 95 key keyboard (including numeric keypad), MIDI interface, GEM, a palette of 512 colours, mouse controller, and a 512K built-in disk drive. The 520ST-FM has a TV modulator built-in, and comes with a lead to allow you to plug it straight into any domestic colour television set. The mains transformer is also built-in to the keyboard, so there are no messy external boxes. You couldn't wish for a more compact, powerful and stylish unit. Atari ST computers are now firmly established in the UK, there are nearly 500 software titles already available for a wide variety of applications and the list is growing all the time. And that's not all. When you buy your new 520ST-FM (or any Atari ST computer) from Silica Shop, you will get a lot more, including a FREE Silica ST Starter Kit worth over £100. Read the ONLY FROM SILICA section on the left, to see why you should buy your new high power, low price 520ST-FM from Silica Shop, the UK's No.1 Atari Specialist. For further details of the range of Atari ST computers and the FREE Silica ST Starter Kit, complete and return the reply coupon below.

ATARI 520ST-FM NOW ONLY £260 (+VAT=£299)
520ST-FM with 512K RAM & mono monitor £399 (inc VAT) Upgrade from 512K RAM to 1024K RAM £100 (inc VAT)

ATARI 1040ST-F - NEW PRICE

We are pleased to announce a new reduced price point on the 1040ST-F which is now available for only £499 (inc VAT). The 1040 is a powerful computer with 1Mb of RAM and also includes a built-in 1Mb double sided 3 1/2" disk drive. The 1040 has been designed for use on business and professional applications most of which require a high resolution monochrome or colour monitor. It does not therefore have an RF modulator for use with a domestic TV set. Modulators can be fitted for £49 (inc VAT).
1040ST-F Keyboard - Without Monitor £499 (inc VAT)
1040ST-F Keyboard + High Res SM125 Mono Monitor £599 (inc VAT)
If you would like further details of the 1040ST-F, return the coupon below.

MEGA ST's NOW IN STOCK

For the user who requires even more RAM than the 520 or 1040 ST's offer, the new MEGA ST computers are now available. There are two MEGA ST's, one with 2Mb of RAM and the other with a massive 4Mb. Both new computers are fully compatible with existing ST's and run currently available ST software. The MEGA ST's are styled as an expandable Central Processing Unit with open architecture and a detachable keyboard. They are supplied with GEM, a free mouse controller and all extras as with the 520 or 1040. Prices are as follows:
MEGA ST 2Mb Keyboard + CPU £599 (inc VAT)
MEGA ST 2Mb Keyboard + CPU + SM125 Mono Monitor £699 (inc VAT)
MEGA ST 4Mb Keyboard + CPU £799 (inc VAT)
MEGA ST 4Mb Keyboard + CPU + SM125 Mono Monitor £899 (inc VAT)
If you would like further details of the MEGA ST's, return the coupon below.



To: Silica Shop Ltd, Dept PCWK 1087, 1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX

PLEASE SEND ME FREE LITERATURE ON THE ATARI ST

Mr/Mrs/Ms: Initials: Surname:

Address:

Postcode:

Do you already own a computer
If so, which one do you own?

SIDCUP (& Mail Order) 01-308 1111
1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX

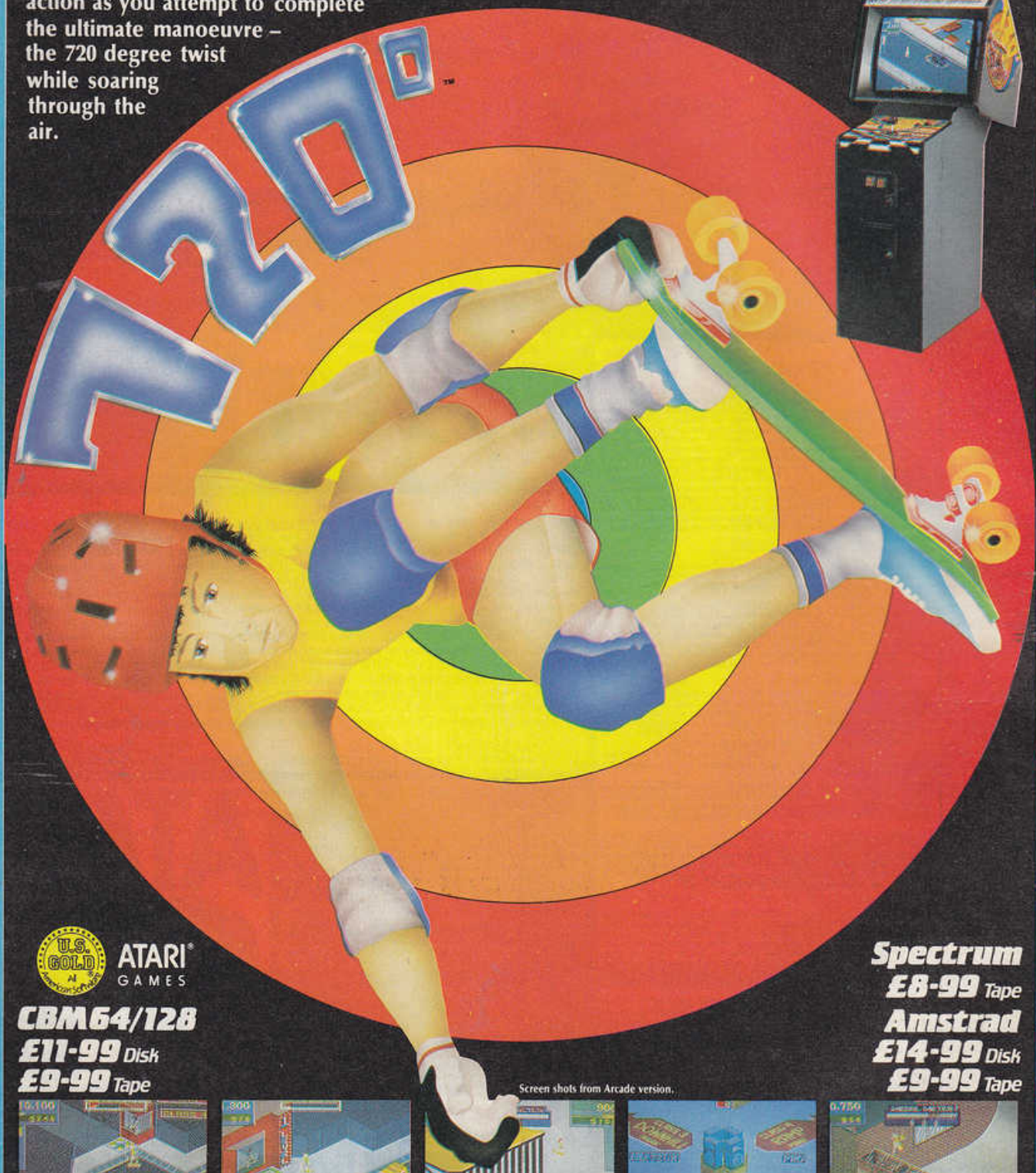
LONDON 01-580 4839
Lion House (1st floor), 227 Tottenham Court Rd, London, W1P 0HX

LONDON 01-629 1234 ext 3914
Selfridges (1st floor), Oxford Street, London, W1A 1AB



THE ULTIMATE AERIAL EXPERIENCE! NOW AVAILABLE FOR YOUR COMPUTER

All the thrills and skills of real skateboarding in this unique challenge to become champion of the skating world. Starting out from 'Skate City' test your abilities amongst the numerous skateparks, improving your techniques both in freestyle and competitive action as you attempt to complete the ultimate manoeuvre – the 720 degree twist while soaring through the air.



ATARI®
GAMES

CBM64/128

£11-99 Disk

£9-99 Tape

Spectrum

£8-99 Tape

Amstrad

£14-99 Disk

£9-99 Tape

Screen shots from Arcade version.



U.S. Gold Ltd., Units 2/3 Holford Way, Holford, BIRMINGHAM B6 7AX. Tel: 021 356 3388



720° Trademark & copyright 1986 Atari Games Corporation. All rights reserved. Licensed to U.S. Gold Ltd., Units 2/3 Holford Way, Holford, BIRMINGHAM B6 7AX.