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•What to do •Where to go •What it costs – page 8

R.I.P. ST

LONG LIVE THE STE

page 2

WIN!

- An EPSON Printer
- PC Virus busters page 24

A WALK ON THE DARKSIDE

Freescape arrives on 16-bit

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EXPRESS VOUCHERS page 43

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- Data by satellite
- Classified bargains
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SECTIONS FOR Amiga • Atari ST • PC • PCW • Spectrum • CPC • C64 • QL • BBC • MSX • Archimedes

BLAST OFF!

Atari's amazing enhanced ST to smash through at £399

Atari is planning to phase out the current 520 STFM – and replace it with a remarkable enhanced model later this year with a specification better than that of its rival the Commodore Amiga.

The new improved ST will still be priced at £399 and should be bundled with the current line up of 20 top games as well as a music package. It will be called the Atari STE (E for enhanced). Atari is refusing to talk about its future plans but it is understood that the STE will replace the current configuration later this year and with the minimum of fuss.

The Atari STE will boast an Amiga-beating graphics configuration of 4,096 colours of which 256 can be displayed at once. The current ST has only 512 colours displaying 16 at a time. And whilst the Amiga also has 4096 colours it can only display a standard 32 at once.

The ST will be brought up to the Amiga's high sound standards with four channel stereo with frequency and amplitude modulator. ST buyers can also look forward to extremely rapid multi directional hardware scrolling which will free valuable processor time, thus speeding up the machine's performance.

Otherwise, the STE will look much the same as the present machine and will still run at 8Mhz with a 68000 processor.

It is understood that developers' models are on their way to software houses at the moment. Programmers will be writing normal ST code on the top side of ST disks with additional graphics and sound on the bottom half. Software will therefore be completely compatible with both STs but will be able to exploit the new computer's superior capabilities.

An Atari spokesman confined himself to saying: "There are always plans to upgrade the quality of our machines but we have no plans to make any announcements as yet. You can speculate as much as you like."

All the same, a high ranking Atari official confirmed that the STE will be in circulation by the end of this year providing everything goes to plan.

Commodore will not allow Atari to outwit it with this thrusting development. It too is said to be putting together a mysterious new deal for potential Amiga owners.

You can catch a full run-down on Atari's multifarious plans in issue 1 of our sister paper *S T Format* on sale July 20th. ■

• 1ST among equals: But will the STE beat the Atari ST, and everything else?

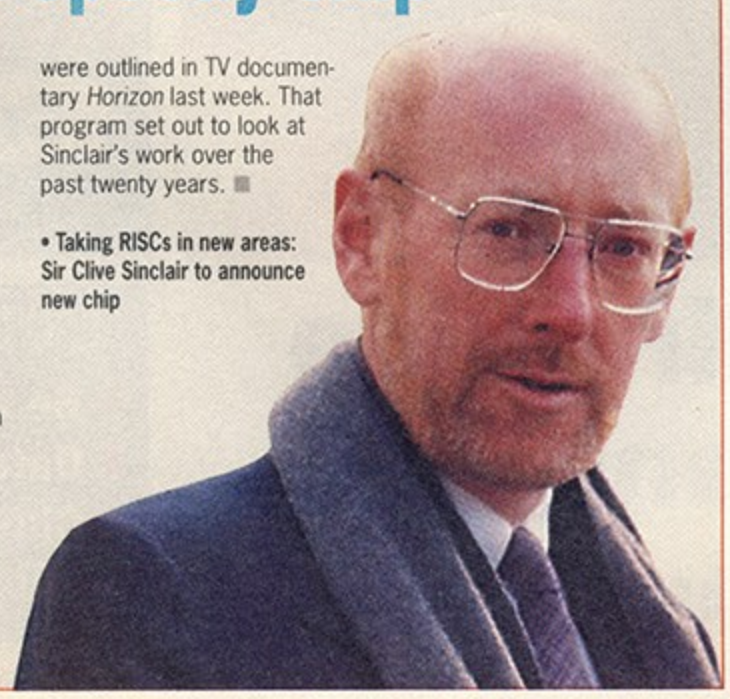
Sinclair's speedy chip

Barrier-breaking brainbox Sir Clive Sinclair is close to announcing a new chip capable of incredible speeds.

The chip, designed by scientists at Sinclair Research, is based on RISC technology and is capable of a blistering 250 MIPS (millions of instructions per second). Compare this to Acorn's speedy Archimedes which runs a RISC chip but can only manage four MIPS.

Sir Clive is refusing to talk about the details of his new chip, dubbed the PCG-1 processor. It is thought likely that it will be used in low-cost graphics workstations.

First glimpses of his plans were outlined in TV documentary *Horizon* last week. That program set out to look at Sinclair's work over the past twenty years. ■



• Taking RISCs in new areas: Sir Clive Sinclair to announce new chip

A load of balls

Computer tennis has come an awful long way since the days of *Pong*.

The latest sensation is called *Passing Shot* and will be coming to you via Imageworks. Licensed from Sega in Japan, the coin-op offers impressive graphics, lots of options and original gameplay. Tennis fans can play matches all over the world on grass or clay and can pull off all the slices, lobs and spins they fancy

Imageworks programmers are currently beavering away on conversions which will arrive in the autumn on most major formats. ■

• The latest racket: I say, anyone for tennis?

HOME SHOPPING BY COMPUTER ARRIVES

A scheme to provide three million British homes with free computer terminals for home shopping is nearing reality.

A powerful consortium of 20 big name high street stores, mail order outfits, banks and bookies have backed the project which could be home computing's biggest step forward yet.

The Keyline project plans to install 500,000 of the computers over an eighteen month period starting next year. Anyone who applies for the Keyline terminal will simply have to link it up to their telephone line.

They will then be able to shop from home and will be able to choose from the likes of Littlewoods, Asda, Gateway and Mothercare. They will also be able to indulge in home banking through NatWest and Midland. Punters will also be able to bet from home through giants Ladbroke and William Hill.

● Keyline beeline: Will British buyers be convinced?

Any products ordered will be delivered to their home. People wanting to join in will only have to pay a £35 deposit for the simple terminal. The companies involved will pay 15p to 25p every time someone uses their service.

Keyline has been masterminded by computing pioneer Christopher Curry who founded Acorn and designed the BBC micro. He has spent the past seven years planning the "next revolution in home computing".

The machine itself only costs £40 to manufacture. It has a small screen and runs on batteries. Orders can be typed in normal English.

The companies backing the scheme are extremely interested because it puts their products in people's homes. Purchases can be made on the spot and without bother.

Curry reckons his idea is "a 95 per cent certainty". He told Express: "It's a complete myth that people enjoy their standard shopping. I think it's far fetched to suggest that most shopping will be done like this in the future though a lot of people will do all their regular shopping on computers."

An advertising campaign will kick off later this year with people being offered the system on a 'first come first serve basis". ■

Opus and the clutter basher

Computer owners are generally a messy lot, leaving important manuals and software all over the place.

But prospective PC buyers who like to keep everything nice and tidy might be interested in a new offer from Opus. The British firm is giving away a "smart" desk and swivel chair with every one of its 286 PCs.

The "System Solver" desk is designed to carry a computer and all the bits and bobs that go with it. Inside is a built in lockable disk box and tidy tray. Opus reckons buyers will appreciate being able to keep everything on a super neat desktop. The 286 costs £1199 with the freebie furniture worth £200.

● Cleaning up? Opus' System Solver

A most sincere Opus spokesman said: "I wish I'd been given a desk with my PC. For the moment it's on a tatty wooden surface with manuals all over the place." ■

Micro will beat Big Brother –Reagan

Former US president Ronald Reagan last week predicted that technology and the microchip will bring down big brother states.

Speaking in London's Guildhall, he said that advances in communications technology would be the greatest weapon against repressive "big brother" governments.

"The Goliath of totalitarian control will rapidly be brought down by the David of the microchip," he said. "The biggest of big brothers is increasingly helpless against communications technology. Information is the oxygen of the new age.

● Ich bin ein Programmer: Reagan calls for freedom through technology

"All this technology has breathtaking consequences for freedom."

Reagan went on to say that the Iron Curtain is "like lace" against the flow of information through technological means. He spoke of totalitarian states fearing freedom of information most of all, but said that they are powerless against even small computers.

Reagan also called for more computers, photocopiers and fax machines to be sent to the Soviet Union when ordinary people are allowed access to them. There is currently a limit on how much technical knowhow can be exported to communist countries. ■

Must try harder! Teachers still don't understand computers

Despite the increasingly important role of computers in schools, our teachers are still not being trained properly in new technology, says a new report.

A study set up by education secretary Kenneth Baker has found inadequate resources in Britain's teacher training colleges. Janet Trotter, head of the working group involved – and a principal herself – said: "We were greatly disturbed by the patchiness evident in all dimensions of information technology provision."

She pointed out that the capability of staff to handle computers leaves a lot to be desired.

Trotter has urged Baker to look carefully at the situation and to pour some resources into the colleges. One idea is for the teacher training centres to forge links with industry involved in information technology.

The Government has already acceded to the request that all teachers should undergo computer training. ■

CONTENTS

FEATURES

GET A FIX 8
How to save your micro from certain death...

BOOKS 14
...and two books that could help you do it

LIVE – BY SATELLITE! 16
Dishy data

AMAZE YOUR FRIENDS 18
Expertise on the C64

A to Z 21
M for Micro

WIN A PRINTER! 28
And 25 PC Virus Busters in the Express competition

REGULARS

COMMENT 4

LETTERS 12

EXPRESS SALES 34
Pick up some great bargains here

JOBS 35
The best in computer vacancies

TECH TIPS 36, 37

READERS' CLASSIFIED 45

GAMES 39
Dark Side, Starray, Personal Nightmare

UPDATES 40
Silkworm, Forgotten Worlds, Microprose Soccer, Battlechess, Vindicators

PREVIEWS 50
Castle Warrior, Battlechess, American Civil War, Paladin, Barbarian II

VOUCHERS 43, 44
Buy *Express* for 58p and save £10!

BACK PAGE 46

YOUR MACHINE

ST 32
Amiga 33
PC 34
CPC 35
Spectrum 36
Commodore 64 37
PCW, QL 38
BBC, MSX 39
Archimedes 41

COMMENT

Talking shop?

The idea of shopping from home has been around many years, but is yet another sci-fi idea that is apparently about to become a reality: a supermarket in your front room.

For those who find trudging to the supermarket difficult or impossible – the elderly and disabled, single parent families – it will be a boon, though this raises the question of computer literacy. For many elderly the burden of ordering the weekly groceries will fall on the home help. In any case it must require no familiarity with computers or machines to take advantage of the system: the level of difficulty of a cashpoint is as far as it can go.

Questions that must be answered are: what sort of passwords can a user put on a system – to stop young Luke and Sophie ordering cigarettes and cases of lager? What will the supermarkets charge to deliver your weekly shopping? Will details of your purchases be available for inspection by companies putting together mail order lists? The companies involved in the scheme are too responsible and have too much to lose to avoid addressing those problems.

One thing the system certainly will not do is end shopping as we know it. It sounds a dream not to have to trudge down to the supermarket every week to get essentially the same arm-stretching bags of groceries, and the cost of the system would certainly work out cheaper than the petrol or bus fares.

Town centres won't be deserted. They'll be fuller than ever, as shoppers have more time to browse round books, records, clothes, computers and other leisure goods.

As ever, new technology will not particularly save time or money; It will, however, take out most of the drudgery, and make life just that little bit less of a hassle.

EDITOR Rob Ainsley
NEWS EDITOR Colin Campbell
FEATURES EDITOR Andy Storer
REVIEWS EDITOR Rik Haynes
TECHNICAL EDITOR Jerry Glenwright
ART EDITOR Angela Neal
ART ASSISTANT Harriet Athay
PRODUCTION EDITOR Rod Lawton
ADVERTISEMENT MANAGER Mark Salmon
AD EXECUTIVES Sarah King, David Lilley
AD TYPESETTING Terry Turner
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Snippets

● *Erstwhile Atari technical whizz Les Player is to appear at the Atari Computer Show this weekend to answer all your Atarish questions. For every one he and his panel of pals get wrong some money goes to charity. Details: The West Hall, Ally Pally on June 23rd.*

● *On the subject of computer shows it comes to our attention that the "first Shrewsbury show is heading for a sell out success". Apparently some 30 exhibitors from Wales and the Midlands will be showing up at the Music Hall from September 1st to 2nd. More on 0743 231172.*

● *Yet another PC286 has dipped in price. This time it's Zenith's Z286/LP which goes down from £1995 to £1795. Buyers will also be treated to a choice of VGA compatible monitors.*

● *Scuttling out from Pink Software is a brand new mouse called Turbomouse. It costs £49. And, er, that's it.*

● *Recent reports of hacking in the City where defrauders are let off in return for spilling the beans on how they did it, could be costing companies up to 2.5bn a year.*

● *Having problems with your ST? Go along to the Atari Show this Friday and meet Les Player, Atari's former technical boss. He'll be leading a panel of tech-tippers.*

NEW DEAL FOR A3000 BUYERS

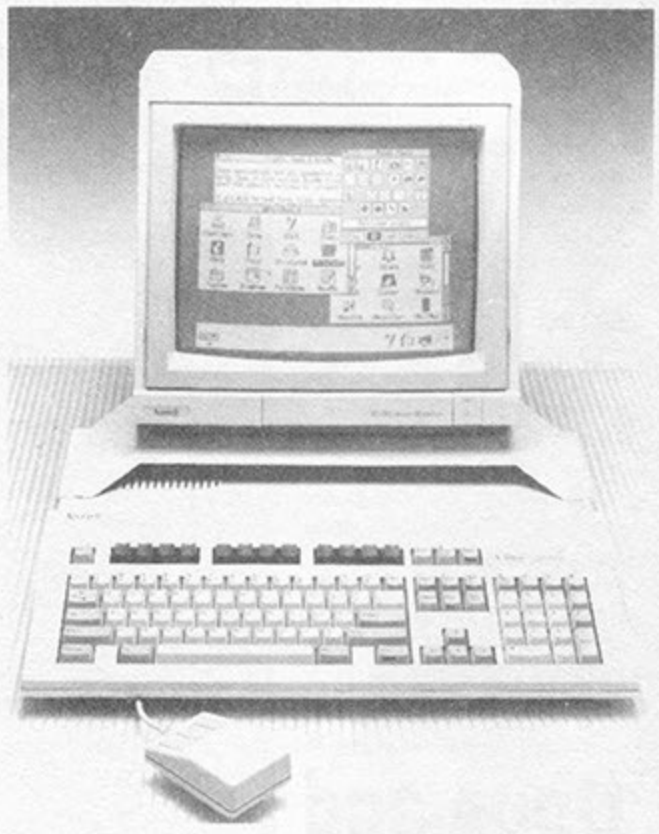
Computer lovers salivating over Acorn's new A3000 are to be given the chance to buy the machine at 0% finance.

The machine appears to have caught everyone's imagination but is out of many people's reach pricewise. However, visitors to next month's BBC Acorn User Show will be able to pick the machine up and take it home for a mere £62.50 downpayment.

Buyers will then have to pay the rest off once a month over the next year. The BBC A3000 costs £649 plus VAT.

"It's a great deal for people coming to the show and seeing this machine for the first time. They can have a good look at it and take it home straight away," offered a show spokesman. The Acorn stand will be linked up to Mercantile Credit's database to make sure potential purchasers are kosher.

The show runs from 21st to 23rd July at Alexandra Palace in London. Acorn must reckon on shifting big numbers of its new baby with some 18,000 visitors expected. Most of those will be wanting to get their first glimpse of the new A3000.



• Theory of Archimedes: Buy now, pay later

Express readers will be able to win an Archimedes A3000 and monitor in the competition in issue 35.

Back to the future

A display of computing is to be set up at the Bethnal Green Museum of Childhood .

The display hopes to cover as many aspects of home and education computing as possible. The museum, a branch of the Victoria and Albert, has one of the world's largest collections of children's artifacts and toys. but now they recognise the need to cover computers.

Computer company Network is currently on the look out for as many computerish bits and pieces as possible for kids to look at. The Computer dungeon workshop will be run at the museum every afternoon throughout August.

• Wide eyed: Kids at the Bethnal Green museum

Coders in car crash

Three top programmers were involved in a nasty car crash whilst returning home from working at Code Masters recently.

Peter Williams, Chris Graham and Gavin Raeburn were driving home from their offices in Southam when the car spun off the road and hit a hedge. Graham was on the critical list but is understood to be recovering quickly. Williams and Raeburn received lesser injuries.

The three, all under 22 years of age, are highly regarded at Code Masters and have worked on such projects as Rock Star, Four Soccer Sims and Super Stuntman.

Sounds good

Sound-starved STOSers will soon have access to all the sampled noises they require thanks to publisher Mandarin.

A whole library of sampled sounds will be available on Public Domain disks including the revving up of a car, a drilling machine in full flow and sundry other bleeps, boings, booms and bangs. Now the thousands of budding games designers can graft in all the sonic effects they desire. Further details from Mandarin on 0625 878888.

DISABLED INTERFACE SPREADS ITS MAGIC

A remarkable gadget which enables disabled people to interface with an Apple Mac is to be converted to the PC and Atari ST.

Merseyside based Bit 32 wants to bring the innovative gadget over to more mainstream machines. It enables tetraplegics to utilise a computer in the same way as able-bodied users by simulating the action of a mouse.

Essentially it works by blowing and sucking and moving the head around in a special "box of tricks". The impulses these movements generate are transmitted to a special mouse. Typing is done through an on screen pointer controlled keyboard.

Much of the gadgetry works on the Doppler effect. That describes the changes in pitch made by, for instance, an ambulance siren as it passes you.

Three microphones inside the headset pick up all the user's head movements. The signal is then interpreted and the mouse goes into action.

Bit 32 hopes that hundreds more tetraplegics will be able to lead professionally satisfying lives with the device. Among the disabled unemployment now stands at 76 per cent, with most the others engaged in low skilled jobs.

"Using this people can do absolute anything you or I can do on a computer. it's not terrifically difficult to use either," said Bit 32's Roy Stringer. He added that the £32,000 needed is a good investment for local councils and companies since it turns a disabled person into a skilled computer user.

• Taking the Bit between the teeth: Good news for disabled computer users

Virus wreaks poll tax chaos

Political hackers claim to have placed a virus in two Scottish computer systems in an attempt to tamper with Poll Tax records.

The specially devised virus is a self-producing program which systematically destroys genuine poll tax records. It takes out a name every fifteen minutes and replaces it with the name of a child or a dead person.

The virus was planted in Lothian and Tayside regional councils last March, and according to the hackers, has been destroying names every quarter of an hour since.

However, the councils concerned insist they have checked all their computer systems and have found no such virus.

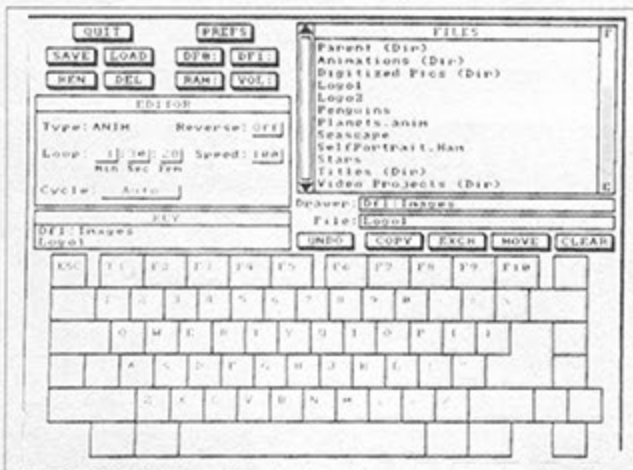
The hackers reckon any attempts to "disarm" the virus will result in the entire system breaking down.

The poll tax is extremely unpopular north of the border. Lothian councillor Keith Simpson who is campaigning against it said: "This is not the virus, it's the antibody. The poll tax itself is the virus. We wish this computer infection well in its endeavours and hope that it has a long and productive existence."

Assembler Line

CRL is set to launch a new Assembler –a program which converts written instructions into a form directly understandable by the computer.– for the ST later this month called Instinct.

It costs £49.95, and is a full specification Assembler, Disassembler and De-Bugger with real-time memory editor and a suite of disk utilities. Details from CRL on 01 533 2918.

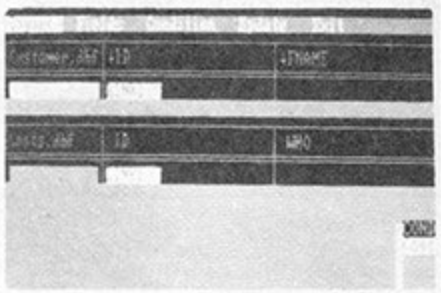


Elan Design has launched a nifty professional presentation package for the Amiga. Costing $59, Elan Performer allows you to access and display graphics and animations from various sources – without all the hassle normally involved. For instance, you would be able to mix and match animations from completely different paint packages. Unfortunately, anyone interested will have to call California on 0101 415 621 8673. Let's hope a UK company ships the program over.

dBase freebie...

Registered dBase IV users are to be offered a free upgrade this autumn.

Publisher Ashton-Tate is to launch version 1.1 which, it claims, will include "significant enhancements" on previous versions. The well known PC database package normally costs £595. As yet no price has been announced for the upgraded version.



• dBase IV: Free to upgrade

There are currently tens of thousands of dBase users in the UK. "We're giving the upgrade free of charge so that people can buy dBase IV and develop applications with full confidence that they will be able to upgrade to the next release," said Ashton-Tate's UK boss Paul Sloane. More info on 0628 33123.

TOP 20 *Full Price* GAMES

1	Robocop OCEAN	*Spectrum, C64, CPC, ST, Amiga, Others*
2	Microprose Soccer MICROPROSE	*Spectrum, C64, CPC, ST, Amiga*
3	Dragon Ninja OCEAN	*Spectrum, C64, CPC, ST, Amiga*
4	Forgotten Worlds US GOLD	*Spectrum, C64, CPC, ST, Amiga*
5	Emlyn Hughes AUDIOGENIC	*Spectrum, C64, CPC*
6	Running Man GRAND SLAM	*Spectrum, C64, CPC, ST, Amiga*
7	Run the Gauntlet OCEAN	*Spectrum, C64, CPC, ST, Amiga*
8	Populous ELECTRONIC ARTS	*ST, Amiga*
9	Silkworm VIRGIN	*Spec, C64, CPC, ST, Amiga*
10	Kick Off ANCO	*C64, ST, Amiga*
11	Dalglish's Soccer COGNITO	*Spectrum, ST, Amiga*
12	In Crowd OCEAN	*Spectrum, C64, CPC*
13	Football Manager 2 ADDICTIVE	*Spectrum, CPC, ST, Amiga, Others*
14	Crazy Cars II TITUS	*Spectrum, CPC, ST, Amiga*
15	3D Pool FIREBIRD	*Spec, C64, CPC, ST*
16	Arcade Muscle US GOLD	*Spectrum, C64, CPC*
17	Operation Wolf OCEAN	*Spectrum, C64, CPC, ST, Amiga*
18	Renegade 3 IMAGINE	*Spectrum, C64, CPC*
19	Middle Earth MELBOURNE HOUSE	*Spec, C64, CPC, ST, Amiga, Others*
20	FM Expansion Kit ADDICTIVE	*Spectrum, C64, CPC, ST, Amiga, Others*

TOP TEN *Budget* GAMES

1	Enduro Racer HIT SQUAD	*Spec, C64, CPC, ST, Others*
2	Fast Food CODE MASTERS	*Spectrum, CPC*
3	Road Runner KIXX	*Spectrum, C64, CPC, ST*
4	1942 ENCORE	*Spectrum, C64, CPC, Others*
5	Arcade Flight Sim CODE MASTERS	*Spectrum, C64, CPC*
6	Shanghai Warriors PLAYERS	*Spec, C64, CPC*
7	Daley Thomps Dec HIT SQUAD	*Spec, C64, CPC, Others*
8	Treasure Island CODE MASTERS	*Spec, C64, CPC*
9	Turbo Esprit ENCORE	*Spec, C64, CPC*
10	Rambo HIT SQUAD	*Spectrum, C64, CPC*

RE re-entry • NE new entry • Last week's positions Δ
Compiled by Gallup
The charts shown are based on the Open Market, that is retailers who stock a broad range of products. All charts shown are copyright of Gallup.

Atari's final show?

A total of fifty new products are to be launched at the Atari Computer Show at the Alexandra Palace on Friday, June 23rd. Possibly the most revolutionary, and certainly the most controversial, will be HiSoft's Spectre 128 - the £199 Mac emulator reviewed in Express issue 24. Also worth a look will be Bath Computer Shack's Tweety Board - a £50 add-on which provides the ST with stereo sound.. Signa Publishing will also be featuring heavily - their Imagic movie show creator might interface quite nicely with Digita's £199 Multigen genlock device. Along with seminars and workshops for DTP, programming and music, the event might be the last. It's likely to be replaced by the new all-formats Computer Shopper Show this Xmas.

Chain store masterplan

Fledgling independent software retail chain Software Plus is coming to a town near you in the near future.

The 18 strong chain from the South East is expanding into the West country in the next few months with the opening of six new stores in such places as Weston-Super-Mare and Bristol. Busy Software Plus boss Nick Yates expects to have 30 shops up and running before the peak Christmas period.

Each outlet sells games software and peripherals for all the major micros. His efforts were rewarded with the accolade 'Retailer of the Year 1988' by trade mag CTW.

Magnetic attraction

Award-winning adventure-writing company Magnetic Scrolls is currently working on a new adventure game which it predicts will take the genre a step further.

Mag Scrolls boss Anita Sinclair told Express that "the new project will be just as big a leap in adventure gaming as The Pawn was back in 1985".

The as yet unnamed project should be finished sometime in the Autumn.

APRICOT'S 486 WORLD FIRST

British hardware manufacturer Apricot have produced the world's first 486 PC, the VXFT Server.

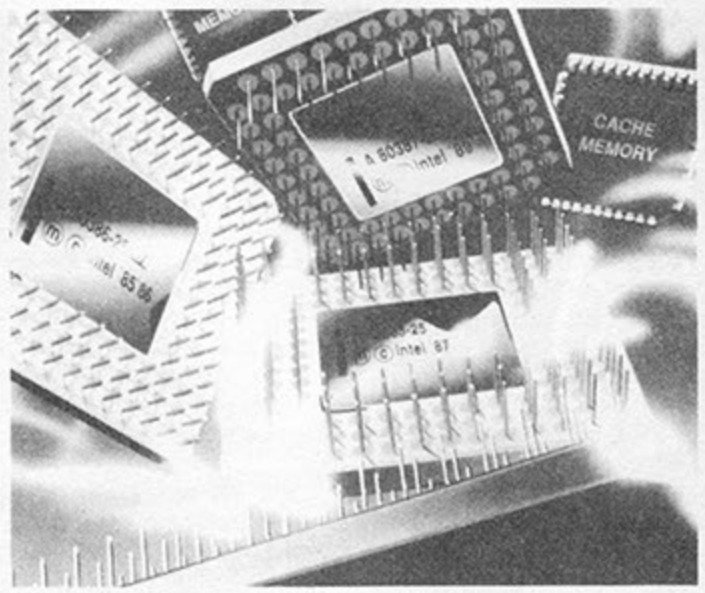
Based on Intel's 80486 chip, the tower system will be available in September, with desktop versions due early next year. With on-board RAM of up to 16Mb, the system can address a hard disk of 1047Mb and up to five additional drives allowing a maximum storage capacity of 5Gb (5,000,000K). Backup is provided by DAT ('digital audio tape') tape capable of holding 1.2 Mb.

Appealing to Networking and Unix users, the Server currently runs at 25mhz, but Intel have promised parts to run at up to 50Mhz leaving the current top end standard of the 33Mhz 386 standing.

The new 486 machine has its own floating point maths unit built in, and for price performance compares very well with its workstation rivals.

The top-end 1Gb disk,16Mb RAM supporting up to 64 power users, will rush you £22,000 - still some £14,000 cheaper than a similar 386-based Compaq configuration.

For those interested Apricot are on 021 456 1234.



• Intel's 486: Taking computing into the next decade

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ARCADE GAMES

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ATARI ST

ST COMPUTERS

The range of Atari ST computers offers something for everyone. From the games enthusiast who wants the challenge of the very best in arcade action, to the businessman who wants to make financial forecasts or faultless presentations. The ST offers high quality graphics, sound and speed for the gamer, whilst providing a fast, user friendly and affordable solution to business. The ST is now firmly established in the home environment and boasts a wealth of users in education, local government, television, and a variety of different businesses. Software for the range stretches to cover applications as diverse as ENTERTAINMENT, ACCOUNTS, ART, COMMUNICATIONS, COMPUTER AIDED DESIGN, DATABASES, DESKTOP PUBLISHING, EDUCATION, MUSIC, PROGRAMMING, SPREADSHEETS, WORD PROCESSING and more. For a full list of the software available, as well as details of the ST range, complete and return the coupon below.

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Desktop Publishing (DTP) is one of the fastest growing applications for personal computers. We are pleased to announce a powerful low cost package for the Atari ST called PageStream. PageStream costs only £149 (+VAT=£171.35) and, because it works with an Atari 1040ST and a Seikosha SP-180AI printer, you can be up and running with a complete system for less than £1000. Some of the features of PageStream are listed to the right. If you would like further information on this program, complete and return the coupon below, ticking the 'DTP' box in the corner.

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Before you decide when to buy your new Atari ST computer, we suggest you consider very carefully WHERE you buy it. There are MANY companies who can offer you a computer, a few peripherals and the top ten selling titles. There are FEWER companies who can offer a wide range of products for your computer and expert advice and help when you need it. There is ONLY ONE company who can provide the largest range of Atari ST related products in the UK, a full time Atari ST specialist technical helpline and in-depth after sales support, including free newsletters and brochures delivered to your door for as long as you require after you purchase your computer. That one company is Silica Shop. We have been established in the home computer field for ten years with an annual turnover in excess of £8 million and can now claim to meet our customers requirements with an accuracy and understanding which is second to none. But don't just take our word for it. Complete and return the coupon below for our latest literature and begin to experience the Silica Shop specialist Atari service.

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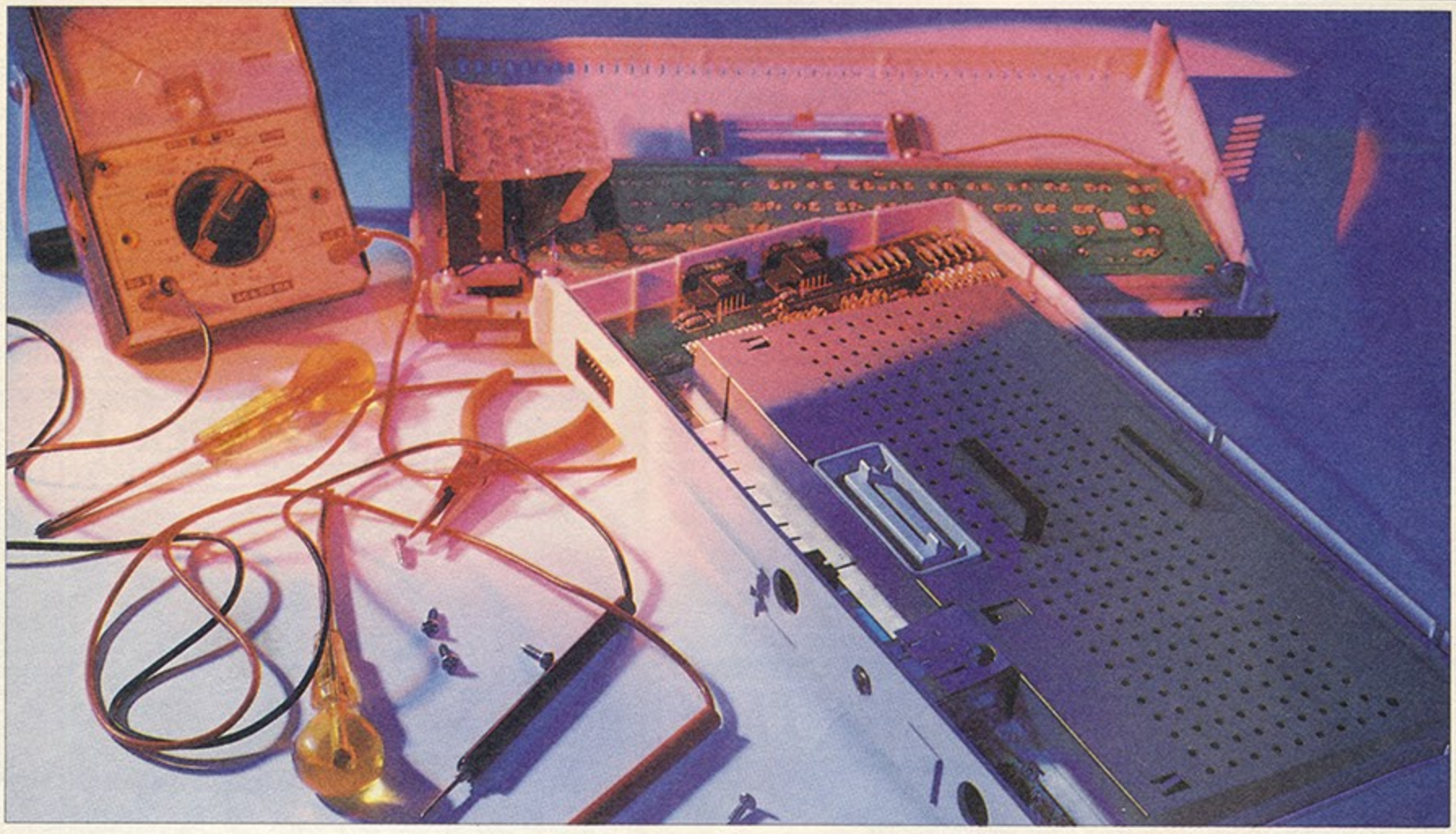
Do you already own a computer
If so, which one do you own? ..... DTP ☐



EMERGENCY SURGERY

Computers are like any other machine: they sometimes break down, always at the worst possible moment, always unexpectedly – but not always beyond repair. Jerry Glenwright looks at what to do when your machine goes wrong...

Where to go

Check out our list to find a computer repair centre willing to handle your machine...

- Spectrum: WTS Electronics, Studio Master House, Chaulend Lane, Luton, Beds LU4 8EZ. Tel. 0582 491949. WTS offers a fixed-price repair service ranging from £14 to £32, depending upon which Spectrum you have. Prices are inclusive of parts, labour and VAT and they offer a turn around of only one week.
  Electronic Services, 176 Victoria Road West, Cleveleys, Blackpool FY5 3NE. Tel. 0253 822708. Electronic Services stocks a complete range of spares for the Spectrum computer and offers a repair service for the fixed price of just £9.99 plus parts and return carriage.

- Commodore 64: Video Vault LTD, Old Kingsmoor School, Railway Street, Hadfield, Cheshire SK14 8AA. Tel. 04574 66555/69499. To make use of Video Vault's repair service, just send your broken C64 and a cheque or PO for the inclusive price of £35 to the address above or take your machine along to them for a one hour while-you-wait repair.
  W.T.S. (address as for Spectrum). Complete repair for the inclusive price of £22.

- Amstrad PCW: Isenstein Computer Systems, Unit W11, Chester Enterprise Centre, Hoole Bridge, Chester CH2 3NE. Tel. 0244 822768. Isenstein can supply all PCW spares from main system boards to the smallest capacitor. They also offer inclusive price repairs e.g. Keyboards £15, Printer £15, Monitor £30.

- Amstrad CPC464/ 664/ 6128: VSE Technical Services, Unit 6, 8 Nursery Road, London SW9 8BP. Tel 01 737 0234. VSE repairs the 464/664 for an inclusive price of £21.90 and the 6128 for 24.90 which include a 4 months guarantee and all parts, labour, return carriage etc.

- BBC/Electron: WTS Electronics, Studio Master House, Chaulend Lane, Luton, Beds LU4 8EZ. Tel. 0582 491949. You can have your Beeb repaired for an all-in price of £38 and the Electron put back together for £29. Repairs include a three month warranty, parts, labour and VAT.

- Commodore Amiga: Commodore Business Machines, The Switchback, Gardener Road, Maidenhead, Berkshire. Tel. 0628 770088.

- Atari ST: Atari UK, Railway Terrace, Slough, Berks. Tel. 0735 33344.

It might come with a flash of sparks – or with a blank and lifeless screen. Your pride and joy has just taken a nose dive into the silicon graveyard. The ideal solution is to buy a new machine, maybe upgrade to something better. However, if – like most of us – you simply can't afford to, you'll have to think about having your machine repaired.

The first step on the road to repair is to determine whether your computer is still under its original guarantee. If so, then a phone call to the manufacturer to obtain a return number is all that's needed. Parcel the machine safely – the Post Office isn't renowned for delicate handling – mark it as fragile, take out postal insurance and send it off. You should have the computer back within a couple of weeks as good as new. The legal position is quite clear – unless the problem is due to excessive wear and tear, anything that goes wrong should be put right for you.

Some manufacturers allow you to 'renew' your guarantee by paying a small fee, others automatically provide a new guarantee for the work carried out.

Bin and gone

If the guarantee is that bit of paper which went into the dustbin five years ago, then you're going to have to find a company with sufficient stocks of spares willing to carry out the work for a reasonable sum.

Due to the Sinclair habit of sending out new replacement machines to owners of Spectrums, ZX81s and the like, that had arrived intact but

non-working, there are lots of spares around for these machines. Both the Spectrum and the ZX81 used standard technology such as the Z80 CPU and its support components, all of which were incredibly popular a few years ago. For instance, you can buy a Z80 chip for just £2.99. Sinclair parts such as the ROMs, main PCB (Printed Circuit Board to the un-initiated), TV modulator etc, are all readily available at little cost.

Consequently, there are more companies providing repairs for the humble Spectrum than for all the other (home) machines put together.

Typically, repair companies offer an 'all in one' price which covers anything that may be wrong with the machine. You simply send off your Spectrum with a description of the problem and it's returned 14 days later as good as new for around £10 to £15.

You could of course attempt the repairs yourself, but without the necessary test equipment such as a logic probe, oscilloscope, and multimeter it would be difficult for you to locate faults with chips and discrete components. If the fault lies with the keyboard then it is possible to repair this without the need for costly tools. A keyboard membrane will cost you anything from £5 to £10, templates cost around a fiver and the keyboard mat about £6.

All these bits are easy to install providing you take your time and use a little common sense. You'll need small crosshead and flat blade screwdrivers, long-nose pliers and perhaps a pair of tweezers.

The Commodore 64 was, along with the Spectrum, one of the most popular home machines ever made and like the Spectrum, there are a lot of repair centres around the country.

The C64 commands a significantly higher repair price over the Spectrum, but at least there are people still carrying out the repairs. Typically, charges will be around £30 fully inclusive.

Dying PCW

Probably today's most popular 8-bit machine must be Amstrad's PCW range of machines. Although well made and reliable the computer does occasionally go sick, but fear not! PCW parts are readily available from a number of outlets for reasonable prices or you can elect to have your computer repaired for a fixed sum of which you will be notified before the repair is carried out.

It is a fairly straightforward task to take apart a PCW, although because the disk drive(s) are housed in the monitor case it's sometimes a little difficult to find enough clearance for a screwdriver, so nimble fingers and watchmaker's screwdrivers will win here.

Amstrad's other 8-bits – the CPC464/ 664/ 6128 also have support centres providing comprehensive repairs for an all-in price of around twenty pounds. You can also buy spare parts separately at minimal cost but, as with the Spectrum, unless you are suitably equipped, component repairs are a little difficult.

As for the other 8-bit machines such as the BBC, Electron, Dragon etc, there are companies willing to repair these machines. They're usually a little more expensive than the mainstream computers, but then it's cheaper than buying a new machine.

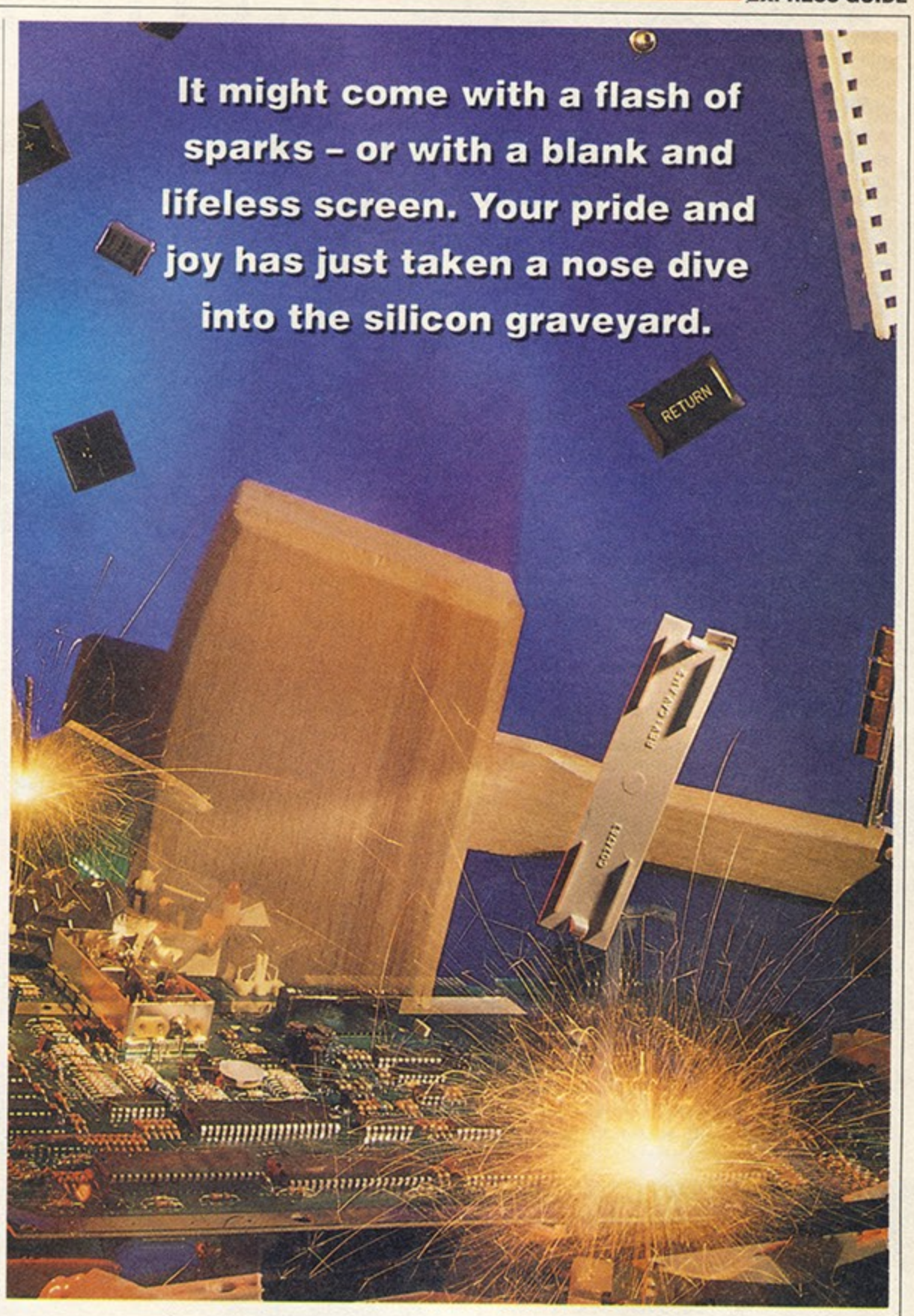
What about the Amiga and ST? They're very popular machines, so surely there must be lots of companies ready and willing to repair them? Take a look through the classifieds of any computer mag – no-one!

The best thing to do with these machines is to contact Atari and Commodore directly, who will be able to give you the address of your local officially-appointed service centre.

How safe are you?

Just how reliable is your micro? Well, if your machine makes it through the first week it should last several years. Chips have a 'burn-in' period of a few days; once over that, they should work practically indefinitely.

One common problem reported by computer repairers is machines that have blown because things have been plugged in and out while it's switched on. As a general rule, never plug in or unplug a joystick, interface or printer while the machine is switched on – the power surge caused can blow your machine, and it'll cost you to get the thing repaired.



Most micros are, of course, perfectly reliable and will give you several year's faithful service. But read on to find out the Achilles Heels of your machines...

● **PC** Generally reliable. The thing most likely to go is you hard disk – most of the cheaper ones only have a designed life of about two years.

Tools of the trade

Carrying out your own computer repairs is feasible if you exercise care when handling delicate components, equip yourself with the necessary range of tools and get a good book which explains the basic principles of computer repair.

Tools? Well, you'll need a range of screwdrivers of both the crosshead (otherwise known as 'Phillips') and flatblade types. The best thing is to buy a set of jewellers'/ watchmakers' screwdrivers. They cost about £10 to £15 and with them you should be able to open anything even vaguely electronic. You'll also need a soldering iron. Get one which is rated between 15 and 17 watts. Anything larger will destroy delicate components. Snub and long-nose pliers are necessary, as is a mini multi-meter for test purposes (available from Tandy for about £10). A good pair of tweezers are a boon and if you can afford it get some wire strippers and a sharp knife.

This is the (very) basic kit, which will let you get machines open and poke about inside.

The most important requirement is knowledge – without it, you'll almost certainly make things worse. The best books on computer repair are reviewed in this *Express* on page 14.

They're very susceptible to shock especially if moved when switched on! Power supply problems can also occur, but the most likely thing to affect your machine is wear and tear.

● **ST and Amiga** Again, pretty reliable and you won't have too many problems. (Avoid unplugging the printer on the Amiga when it's switched on, though, as this can blow one of the chips).

The most common problem is that a chip springs out of its socket, causing your machine to appear dead. Try picking it up and putting it down on the table again firmly – it can jiggle the chip back into place. Otherwise it's a simple job for the repair people to put it back for you.

Mice wear out pretty quickly but there's a simple remedy to that – buy a new one.

The ST keyboard can hang occasionally when the keyboard chip goes. It might just work again after rebooting, but possibly only for a few seconds. Again, a simple and inexpensive job for the repair people.

● **PCW** Very reliable – the main enemy is wear and tear. The keyboard is not well thought of by many and once it gets 'spongy' (a dead 'E' key gives away the writer or journo!) you're best having it repaired professionally. If the dot matrix printer pins wear out (losing tops and bottoms of letters) you can stave off repair by altering the pressure setting knob at the right underneath the black plate at the front of the printer.

● **Spectrum** 99% of problems with the Spectrum are caused by plugging in joysticks with the machine switched on. Normally this just takes out a transistor though it can cause quite a lot of damage to the memory. WTS Electronics say normally the ZTX650 has gone, a straightforward repair.

The membrane on the keyboard can also go and the connection sockets can get worn pretty quickly too by careless pulling out and plugging in.

Symptoms of a sick Speccy are crashes a couple of seconds after switching on, little flecks on the screen or colour blocks.

Failure to load a full 48K game is the sign of damaged memory chips, a minor repair. The +2 is notorious for tape deck problems, and if the keyboard goes down you'll have to get a new one. The +3 has also been known to have problems with the disk drive.

● **C64** 'Not too bad', say the engineers – but not too good either. Replacement parts for the C64 are difficult to obtain.

The most common problem is not with the computer but with the power supply. VSE Engineering's Tim Morris told us that 9 out of 10 broken C64s had been zapped by an over-enthusiastic power unit. 'They're supposed to deliver 5V,' he said, 'but some of the ones brought in by people with dead C64s were producing 11V – 5.3V is enough to cause damage!'

If your C64 dies on you, take the power supply to a computer shop and get it checked out – it could save your C64 going again!

● **CPC** The Arnold has a good name in reliability and few common problems are reported. The main things to watch for are the 6128's disk drive and the cassette motor on the 464.

● **BBC** Reliable, say the engineers. The power supply is the most likely thing to go down. If you can't type anything at the keyboard it's probably the 6522, they say, and the memory occasionally fails. BBCs are difficult to repair as there are so many bits and pieces inside them, so it's just as well they're reliable!

Technical centres covering every kind of repair for almost all of the popular home and small business machines are dotted around the country. The repairs are usually relatively cheap and come with a guarantee. Don't consign your broken machine to the trash – have it repaired! ●

On the RAK

Unlike the repair centres servicing home computers, the IBM-PC engineering world is an exclusive, highly specialised – almost elitist – industry which prospective repair companies must jump through hoops to join.

Before ever being allowed near an IBM PC, the company wishing to undertake repairs must pass several stringent tests in order to satisfy IBM of its engineering ability.

Engineers employed by the company travel to an IBM examination centre and sit several papers which – if they pass – qualifies them as Field Service Engineers.

No only are the engineers tested, but the premises are inspected and the tools and equipment checked.

If after completing and passing all these checks the company still hasn't incurred any black marks, then it is awarded the coveted (!) IBM dealership and Service Centre status, and can embark on the selling and repair of the PC.

Ironically, the IBM-PC and its many compatibles are probably the easiest of all small computers to repair due to the open architecture design of the machine. Spares are also readily available so there's never the long waiting periods associated with the repair of some of the home micros.

One such IBM Service Centre is RAK Computer Services based in Norwich.

The company has been in the computer industry for many years and RAK began by selling CP/M business machines and bespoke software to local businesses in and around Norwich.

Once the IBM-PC began to attract a large business following the company invested a lot of money and effort in setting up a capable and efficient engineering department able to deal with all problems associated with the machine and its peripherals.

The engineering department boasts five full-time engineers who – whilst conversant with all aspects of computer, monitor and printer repair – are especially adept at solving arcane problems buried deep in the hardware of the PC.

After hard drives, probably the least reliable components are the expansion cards that every PC seems to have plugged into it in wild abandon.

Usually emanating from third-party peripheral manufacturers, these cards covering everything from screen display, RAM expansion and real-time clocks, to network adaptors and joystick connectors are usually the first to blow should anything untoward happen to the computer, such as a power surge or sharp knock.

Effecting a repair is a simple matter of opening the PC's case and unplugging each card in turn, in order to locate the defective adaptor.

Once discovered, the offending card is tested using an oscilloscope and logic probe to determine the actual problem.

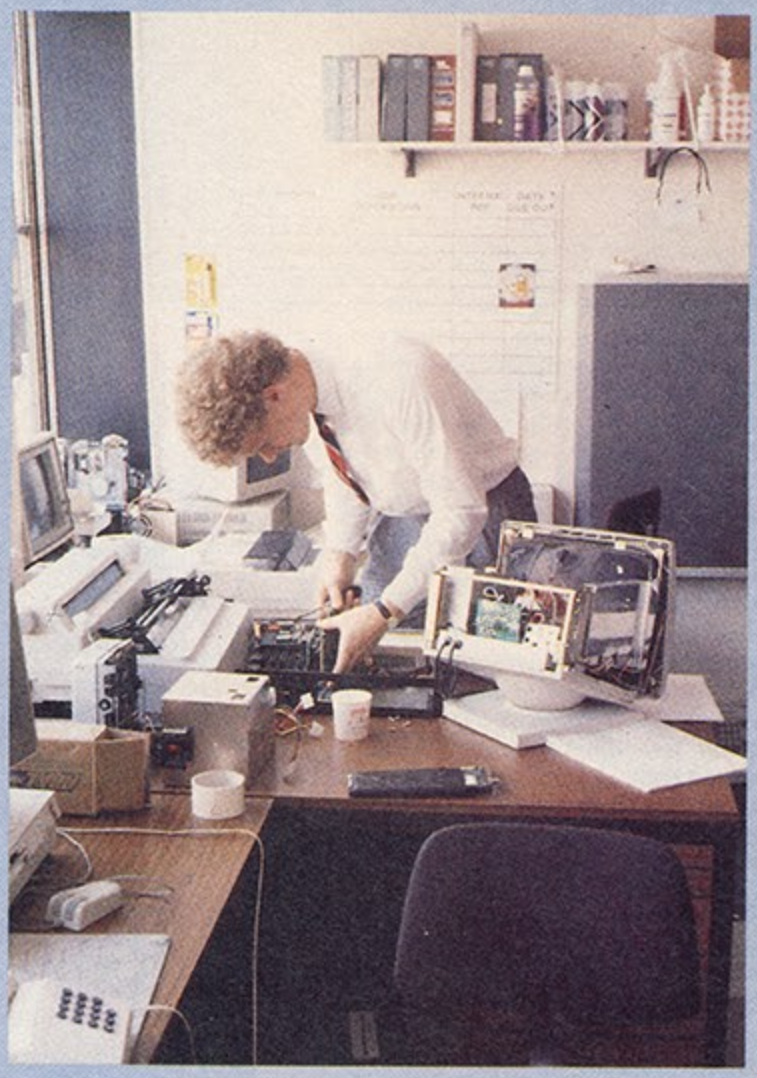
Often, after locating faulty components on a card, it may be decided that the repair isn't cost effective, the card is binned and a replacement plugged in its place – and this happens quite often. You'd be amazed at the peripherals consigned to the trash, disk drives, RAM cards, network cards all in the bin without turning a hair!

Your PC may cost a little more to repair than the average home computer, but you can be sure that servicing will be carried out by qualified personal using the latest equipment.

For all your computing needs, RAK can be contacted on 0603 617674.

• There's a small planetful of manuals and servicing data necessary to tackle all aspects of PC repair

• Dead printers and monitors, power supplies, cables and bits of wire – all casualties of the repair centre



• Next to disk drive problems, the peripheral adaptor cards are the most likely to fail. Removing these cards is a simple matter of opening the PC's case and un - plugging the card from the expansion slots – it's then that the fum begins. Unless the faulty component is simple to locate, the card is likely to be consigned to the dustbin!

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EXPRESS MAIL

Dear Reader

More pages packed with another selection from our postbag and Rob Ainsley's replies. Have you got something to say? Make your voice heard in computing's liveliest letters page! Send your contributions to: Express Mail, 4 Queen Street, Bath, Avon BA1 1EJ

PS. Sorry, we just don't have the time to give personal replies, whether you include an SAE or not. We're too busy putting Express together!

MSX MAG

Could you publish the following address in your magazine somewhere where MSX users may see it. It is simply for those still pining for a mag.

MSX PD Software have published one consisting of 20 pages of info, tips, small ads, letters and a huge selection of 3.5 inch PD disks. As of yet there are no games reviews but if you are into programming it has a complete PD catalogue and I'd recommend it. The address is:

MSX Cat-Mag, 396 Park Lane, Maghull, Merseyside, L31 2HQ. Tel: (052) 531 7497

The first issue is £3 with free quarterly updates of around the same length.

Wayne Morrison, Gateshead, Tyne and Wear

● ***Thanks Wayne. Who said the MSX is dead, eh! (Answers next week).***

PDQ PD

I keep reading in your magazine about people who are unable to afford to buy games and software they would like. Perhaps you could remind the readers that there is some excellent PD software available for a very reasonable price of £2 to £3 a disk. I myself subscribe to ST Club, but I am sure there are other libraries for other users. You can get languages, games, utilities demonstrations and discounts for clubs off software. It seems a pity that people should miss out when excellent software is available. And of course, there are the classified advertisements in your mag.

Janet Lord, Selby, North Yorkshire

PIGG IGNORANT?

I was interested to see your article by Basil Pigg on BASIC English, but I am still surprised by the lack of knowledge where the Atari 8-bits are concerned.

There are numerous guides to Atari BASIC but three good ones are:-

Atari BASIC: R.Albrect and others.

Atari Basic Source Book: B Wilkinson and others.

Basic Reference Manual: by Atari.

Ron James, Preston, Lancs

● ***Thanks – er, no chance of getting the prices, ISBN numbers, publishers etc? It's difficult to order them otherwise, and (in our humble experience) bookshops do not stock 8-bit specific titles.***

PATIENCE OF JOB

I thought I would reply to S Lyle's letter (*Express* 31) regarding my own letter about the shortage of jobs in the computer industry.

While I welcome S Lyle's views, what they fail to appreciate is that computer operations is a different sphere of work altogether to that of programming/ systems analysis and design – they may be rungs on the career ladder, so to speak, but it's not the same ladder! I wouldn't normally expect an operator of several years experience to progress to a programming post or indeed for a senior programmer to become an operator.

As I suspect S Lyle found out, operations jobs don't normally require any previous experience as an operator – except for senior positions, whereas programming posts usually ask for a relevant qualification, and experience gained in a commercial environment.

Regarding the comment about trying to start at the top, well the course I am about to finish is wholly concerned with programming/ systems analysis and design – consequently I've been applying for trainee/ junior programmer vacancies which as you can see are the bottom rungs on the ladder. If I was aiming for the top I would be applying for posts as systems analyst/consultant – wishful thinking! – rather than those above. Thank you.

Timothy Smith, Colwyn Bay, Clwyd

● ***Perhaps your best chance of getting work is to move to the South-East of England – though how you're expected to buy a flat at £60,000 on a salary of £9,000 I don't know. Just shows how well the economy is doing.***

COPY PROTECTION PT. 365

In reference to Mr Musson's letter (*Express* 29), have you at *Express* ever played *Insanity Fight* or *Technocop* on the Amiga? Try playing these games with the write protect on and they'll both crash at a certain point, *Insanity Fight* doing so when one saves high scores. Many games have high score tables which must be kept on the original disks, and are only going to be saved if the disk is write protected.

On the issue of protected software, why do the software houses bother? Anyone who really wants to copy a game will do it, for every original game I've seen a hacked copy. At times before any advertisements have appeared. Novella protection can be by-passed by ripping the game apart or someone will load it again and again and make notes of the words.

On a different subject, don't the people who do these things have anything better to do with their time, something constructive perhaps? One hardly ever sees serious software protected, and *GFA BASIC* on the ST is an example of how a package can survive with any protection and set too. So why must games software be protected?

Ahmad Alam, Liverpool, Merseyside

● ***Serious software – a spreadsheet, say, or DTP package – is often unusable without the manual. (It's all too often unusable with the manual, but there you are). So, the theory goes, it is less vulnerable to copying.***

I'm not convinced by the argument that it's pointless to protect because it'll be cracked anyway. Isn't that like saying it's pointless locking your front door because burglars will get in if they really want to, that it's pointless locking your bike up, guarding your Access card etc.

WELL BASICALLY...

While reading your review of the new Archie A3000, I found myself checking out the features which I thought impressive. Plenty of them too – the RISC processor of course, eight channel sound, mega hi-res, *BBC BASIC*...

BBC BASIC? Is that meant to be impressive? I'm not knocking *BBC BASIC* here, but seeing it mentioned in the ➤

Incompleteness theorem

MYSTER INNER PRIZE

I am writing in answer to your request for readers views upon the practice – of some magazines – of reviewing incomplete software. It's just not right is it? I want to read about the finished product to see if it's worth buying but I don't mind reading previews of games as long as it is stated as such.

You tend to read any review with a pinch of salt anyway as people's individual opinions differ wildly and you take these into account. But to unwittingly read a review which is under the guise of the finished product can colour your opinion of the game. How often do you read conflicting reviews of one particular game and end up confused, not knowing whether to buy it or not? This can only be damaging to everyone. Long live the reviewers at *Express* and long may they prosper.

Moving swiftly on, it pays to shop around. I was down at the Commodore show in Hammersmith the other day and I think it was one of the better shows I've been to. Although I got stung for a tenner on the way in (£5 entrance fee x 2 – I was with my wife), I soon found that prices differed greatly for both hardware and software.

For instance £199 for a Star LC-10 printer at one store and £165 at another (Megaland) plus free lead and friendly service. The *Protext* word processor was obtained for £65 although it was being sold elsewhere for £89 ("won't get it cheaper squire").

Games varied a lot and there was, as you'd expect, a lot of competition. I had one poor bloke whose games were a bit pricey and presumably weren't shifting virtually begging with me to buy a "head cleaning kit". I told him I was skint and fled. He saw me later buying my printer so I hid behind my wife feeling somewhat guilty. All in all, if I'd just bought my stuff at the first place I'd seen I would be about £80 worse off.

Verdict, great show but too hot. All my cheap stuff works perfectly too, so it is not always the case that the cheap stuff is rubbish as some people seem to think. Anyway my Repetitive Strain Injury is giving me jip and I'll have to stop typing with my feet.

Neil Barnes, Birmingham, West Midlands

● ***Thanks for your support on reviewing practice – it's something we feel quite strongly about. It's very easy for a games reviewer on a magazine to recommend everything, because we get them for free of course! But you have to put yourself in the punter's shoes – is this game really, honestly, worth spending ten or twenty quid on? That quickly cuts down the number of games you 'must go and buy' from a dozen a week to a dozen a year.***

So, no apologies at all for making this the letter of the week as it makes us feel smug and righteous! Tell us your machine and we'll send you the finished product of a game we think really is worth the money.

review got me thinking about the use of BASIC in general, and why people seem to love *BBC BASIC* so much. The usual reason for liking *BBC BASIC* seems to be because it is highly structured. But the only thing that really matters is that it works.

I think that the majority of BASIC users see the language as a quick and easy means of knocking together programs which do not depend too heavily on speed, and while they take a bit of care, they don't particularly worry too much what the listing looks like.

I would have thought that *Microsoft BASIC* scores way above the BBC equivalent, as it is undoubtedly more friendly (eg nice little commands such as CIRCLE), and is fairly standardised. Before upgrading to my Amiga I used a Dragon, on which I have written several short BASIC programs. To run these on the Amy, I simply made a 256 x 192 pixel window, copied the *Dragon BASIC* programs almost verbatim and they worked fine, with no fiddly little Dragon emulators.

I'd be interested to hear other readers views on the subject.
Zennan Green, Kingussie, Inverness-shire

● ***So would I***

TEN WORST THINGS ABOUT COMPUTING...

1. The inaudible 'Loud' speaker in the Spectrum 48.
2. Diagonal function keys (for people with diagonal fingertips?), and nowhere to put a label, on Atari STs.
3. All the machines without a 'Reset' button that leaves the RAM contents unchanged, so that you lose the last two hours work when the program hangs up.
4. Machines without the operating system in ROM, so that you sit around for ages waiting for them to start (or restart after a crash) – several minutes in some (MS-DOS) cases.
5. Programs that allow you to access information, such as disk directories, but scroll it rapidly through a tiny window (eg AMX *Superart*).
6. Machines that insist on loading programs from tape all in one go, and erase the lot if the tape produces an error.
7. Disk drives that don't retract the heads when not in use, so that they corrupt disks at power up and power down.
8. That perforated bit at the left hand side of the original BBC Micro's keyboard that Acorn never did find a use for.
9. All the daisywheel printers that are enormously wide (and heavy) despite the fact that no one ever prints anything but A4 paper with a daisywheel.
10. Lockable disk boxes that all open with the same key, and can be broken open with your bare hands anyway.

John Goldsmith, Bury St. Edmunds, Suffolk

● ***Anyone else fancy sending us their ten most unfavourite things about computing?***

BIAST?

Coming onto the Atari ST, why does *Express* always seem to promote it? Have you got a contract with Atari or something? Everyone knows as a fact that the Amiga beats the ST in everything, sound, graphics, games, etc., even ST owners with more than one brain cell admit this once they see the Amiga in action!

So why do you call the ST a good all-purpose computer, as if suggesting the Amiga isn't? Anything the ST does the Amiga does ten times better.
Keith Grant... An Amiga Owner (in case you hadn't guessed yet!), Reading, Berks

• An Atari ST in a dustbin – another blatant demonstration of our anti-ST bias.

● ***Such as crash, perhaps? Enough has been said on the ST/ Amiga debate for the time being. Suffice to say no, we're not on a contract from Atari, in fact they're always complaining about our anti-Atari bias, quite clearly demonstrated in our cover picture of an Atari 8-bit blowing up.***

FROM LITTLE ACORNS – BIG PORKIES?

I, and probably many others along with David Dyball (*Express* 31) have also been conned by Elite Micros. My cheque was cashed 7 days after I posted it off and the only correspondence I have had was a letter which appeared to have been written by a four year old and void of any address, saying that their computer had a virus and there would be no catalogue.

If I thought it would achieve anything I would write to G Acorn of Elite Micros but I honestly believe it would be a waste of a stamp.
T McLaughlin, Ely, Cambs

Dear Sir/Madam,

We are sorry to inform you that we have recieved a virus from an unknown source. Therefore no catelogue. We picked it up in our Computer System. We are sorry.

We now advise you to send your list; We'll then send the price invoice; after paying you recieve the software We have everything. Thankyou and we're sorry for the inconvenience

G. [illegible]
Sales director.

WHEN I'M 64

I only recently discovered your mag and am now buying it regularly. My only complaints are the small print and the fact that you haven't yet reviewed my favourite computer – the Cray 2 Turbo Laptop, with built-in ice-disk and free ice-pick (and GEM Eskimo Icons).

I gather from the tiny print and the heavy games emphasis that it's mainly for young people, so I must apologise for liking it: I'm so old that I remember when Paul McCartney wrote decent songs and had taste in women!

Could you please give a free gift with each issue, like other computer mags, e.g. a cheap plastic magnifying glass and a sticker for Mac IIs saying "Amstrad PCW – Half Price"?
Neil Foster, Prescot, Merseyside

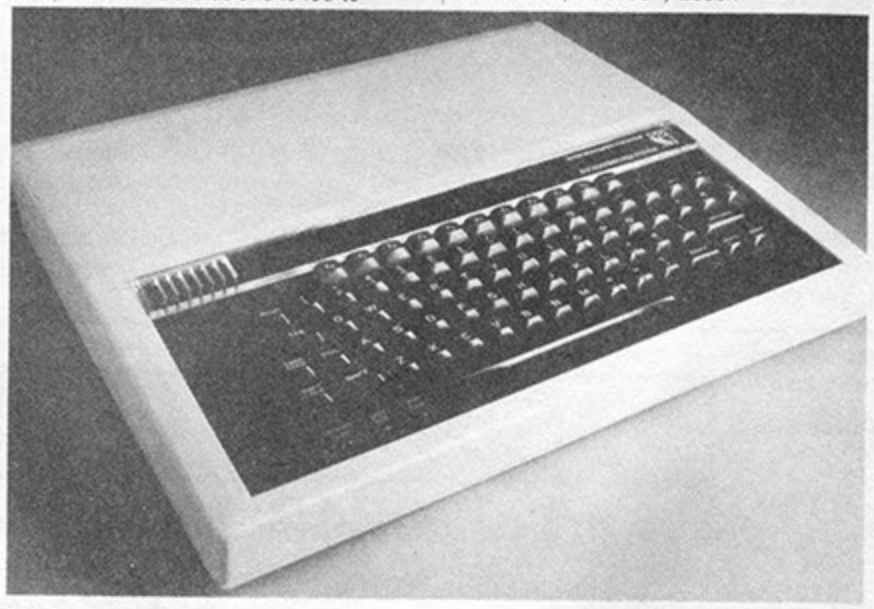
● ***Sorry about the small print; we're just trying to cram in as much into the magazine as we can without felling more trees. We don't aim Express specifically at any age group, just anyone with an interest in computers. All the Express staff are in their twenties.***

BBC BIAS?

Why do magazines such as yourself pretend to cater for a wide range of machines, but in reality favour only one or two, with the coverage of the others hardly worth the effort. In this respect the Beeb seems to suffer more than others. This trend seems prevalent in the four/ five general mags I read from time to time, so much so that one is led to suspect a deliberate anti-Beeb bias.

Finally, not a bad mag for 58p – a good little read and it's a plus to find out what other people are selling floppies etc for.
D E Williams, Cardiff, South Wales

● ***Well, we have a special column for the Beeb and always mention it in our features so I don't think you can accuse us of anti-Beeb bias. We try to cater for as many machines as possible while still retaining enough depth for each to be useful.***



• Too many magazines are biased against the BBC, reckons D E Williams

FAST WORK

The recent announcement by US Gold that some of its 16-bit products will soon be sold for around £15 is a good sign that attitudes are changing. But in the long run it is the at times, 'cartel' type collusion in the setting of industry leisure software prices that must be removed.

If FAST really wish to do some long term good they must make some changes in their own industry before laying all the blame at the consumers' feet who, though not innocent, is only trying to maximise his enjoyment and utility in a major investment, the computer hardware itself.
Yan Fa Li, Milton Keynes, Bucks

● ***Budget 16-bit software is still a long way away, I think, but at least more less expensive games, as it were, are on the way.***

PRESS FOR AUCTION

I would like to congratulate you on the article on 'Computer Auctions' in issue 30.

Not only did I find the article very informative and well written, but it also inspired me to make my first visit to an auction.

This visit resulted in the purchase of a Brand New Amstrad DMP 3160 printer for the more than reasonable price of £90.

I find your magazine very interesting and full of useful information and helpful tips and hints. Keep up the good work.
A D Baker, Basildon, Essex

● ***Thanks. A reminder that there are auctions coming up at Bristol on July1st (details 0527 579120) at Hemel Hempstead on July 29th (01 681 5413) and soon in Surrey (0276 692260).***

AND FINALLY, ESTHER...

I've enclosed a misprint from our local free press, the Caerphilly Campaign which employs ex-Telegraph typists as I feel it has something to add to the ST/ Amiga battle.

I, incidentally, own an Amiga, which doesn't even faintly resemble a commode! I thought it would be wasted on 'That's Life'.
Nigel Nock, Caerphilly, Mid Glam.

COR, WHAT A LOVELY REPAIR

Want to repair that old micro you've got? Or just want to fiddle around and be techie? Basil Pigg gets his soldering iron and looks at a couple of books that might help you...

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Repairing your micro, or even just tinkering about with it, is a risky business. Most repair companies advise you not to attempt any repair yourself. OK, so they would wouldn't they, but it's all very involved, and not for the dabbler.

Tinkering about with something that makes car maintenance look like changing a light bulb is for real enthusiasts. And for them this book is ideal.

You can't do repairs without understanding how a computer works, and all the functions of the innards (memory maps, registers, processor minutiae, disk drive engineering etc.) are described in detail.

There's also a special section on repairing PCs and the processors up to the Intel 80286 are covered.

There are BASIC routines to test the various bits of your machine and comprehensive trouble-shooting. It details all the tools you need and has plenty of circuit diagrams and pinouts.

There are few repair books on the market, but this is undoubtedly the best. It's detailed, comprehensive and methodical, and for the budding techie it'll tell you everything you could ever want about computer repair.

✪ ✪ ✪ ✪

UPGRADING AND REPAIRING PCS

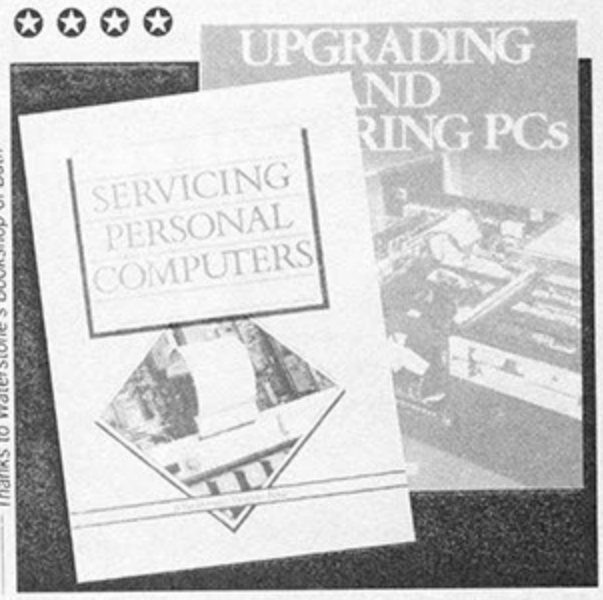
● SCOTT MUELLER ● QUE
● £22.95 ● ISBN 0-88022-395-2

Mueller's book is set out in sections in that very American style which tells you what you're going to learn in this section beforehand, and what you've learned afterwards. However, it's very straightforward and easy to follow. It even starts off with a brief description of the history of computing to get you in the mood.

The book covers everything from installing another disk drive and changing hard cards up to component level repairs. Layout and explanation is perhaps clearer than the more wide-ranging Tooley book, though they're both very good and you wouldn't complain if you got either for your birthday.

Another good book, very comprehensive (700 pages) and well worth the money.

✪ ✪ ✪ ✪



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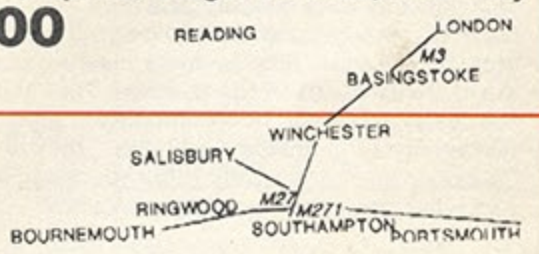

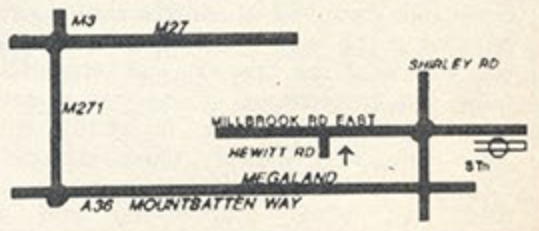

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BEAM ME DOWN...

Data broadcasting may be a fledgling industry, but there are big plans afoot and they include you. Andy Storer visited the recent Data Broadcast Expo, found the sky's not the limit and returned looking more dishy than usual.

The mass transmission of electronic data has been with us since the early eighties, when the Oracle and Ceefax teletext systems began to deliver an ever increasing diversity of news and information into the home.

Teletext used the spare bandwidth, the Vertical Blanking Interval between TV frames, to store data for handset recall. VHF radio transmissions also carried a range of data from finance to machine code. Even Radio 4 got into the act – remember Barry Norman's *Chip Shop* of 83/84 broadcasting BBC and Spectrum code? Somewhat more upmarket, FM transmissions, on 57 and 69KHz, still carry City updates to desktop receivers and dedicated hand-held units.

Above and beyond

Although pioneering the principle of data broadcasting – one-way, point to multipoint communication or sending data by radio from one centre to many receivers – these early media have been superseded by the major advances in computing and communications set for the nineties.

The trend towards distributed computing, resting on large, fast intelligent networks, the sophistication of SNA and X.25 protocols, cheap bandwidths and fibre optics, is already in evidence to some extent in the current terrestrial TV transmissions of private companies. Corporate broadcasting by hotel groups, travel agents, betting shops, chain stores and banks is now firmly entrenched.

In addition, there are some 40 subscription services available in Europe, mainly featuring the quotes, reporting and analysis that drives the world of finance, along with retail and betting. The U.K. has more traffic than the rest of Europe put together with 26,000 reception sites throughout the country.

From a company perspective, the advantages are clear – simultaneous and reliable updating of data across a wide geographical area, centralised network management and a uniform response time for all users. But the main disadvantage is the one-way nature of the medium. That and the relatively primitive data formats. After all, teletext-style graphics, whether they're on Ceefax or Micronet, hardly leave you staggering. And what about the sound? What sound?

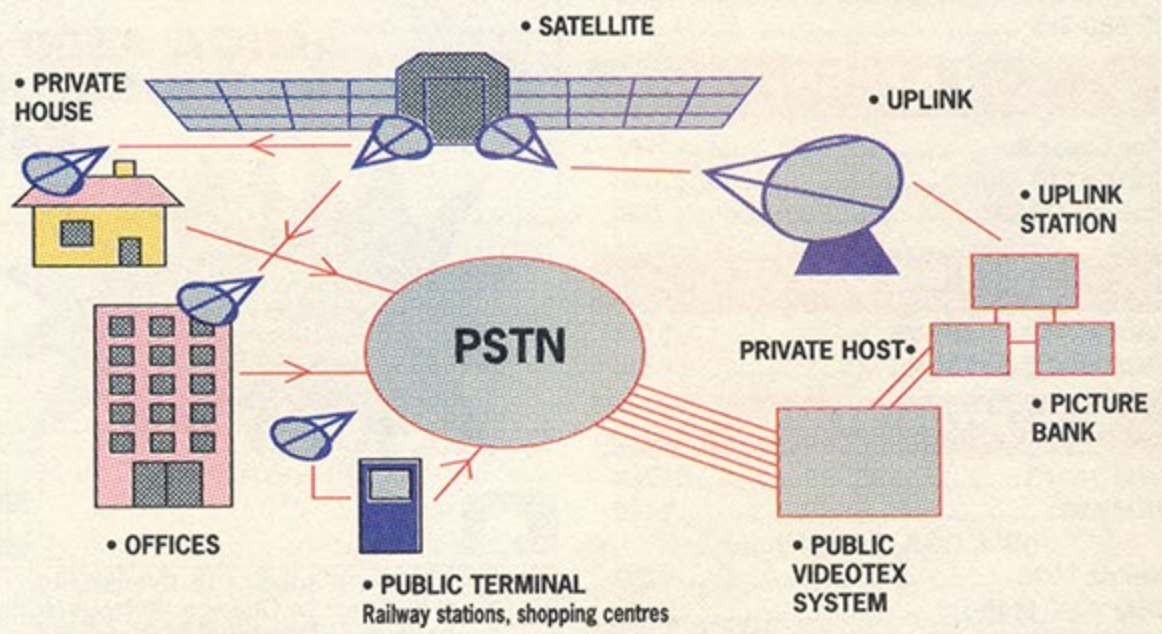
Lighting up the skies

Data Broadcast 89 was an exhibition and conference designed to address these problems by paving the way for new standards. What emerged were the first signs of terrestrial and radio data transmission giving way to satellite networks. No doubt spurred on by 1992 and the 'New European Market', these systems are designed to intergrate fully interactive voice, data, fax, video conferencing and video broadcasting across networked geostationary satellites – the D-MAC standard nearly all suppliers want to see employed will allow 2Mbytes per second of data to be combined with video on a single channel. To date, trans-European data broadcasts are largely confined to finance and news but next on the agenda will be training and education. Perhaps most significant of all are the plans for electronic publishing.

With the likes of Murdoch and Maxwell seemingly owning half the sky, it's only a matter of time before the broadcast newspaper hits your home. The idea being that you subscribe to the type of news you require and download the material to your TV receiver for printout. Beaming tits and bums over Europe may not seem a fitting application for hi-tech advances but it's a probability that's already paralleled in conventional satellite broadcasting. Hopefully, it'll only be a matter of time before tabloid transmissions have to compete with high brow. Until then, suspend your disbelief, watch the skies and stay tuned ●

• CSR's Pandata 1 receiver and satellite modem – opening your office to the airwaves?

• Gilat's U-Cord system – a receive-only terminal for data communications able to incorporate different satellites and antenna diameters and capable of handling up to 112Kb per second of data. Prices for this remote terminal start at £800.



• Although truly interactive satellite systems are few and far between, Tandata's Hybrid Service goes some way to offering two-way communications. Data and photographic images can be broadcast to offices and homes from satellites fed via uplink stations from host computers. Recipients can navigate the system via the Public Switched Telephone Network and an infra-red remote control keyboard to link up with the host via the public videotex system

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Quickly dodging the *Expert* cartridge's dubious "back-up" facilities, no one can deny its excellence as a C64 programming development tool. With the cartridge in action, you can freeze any program, use *Expert's* machine code monitor to examine and change anything currently in the C64's memory, and restart the program at the point you froze it. Add to this the capability to display all the sprites in memory and numerous other utilities, and you should begin to realise how useful *Expert* can be.

However, there was a price to pay for these superb features, namely having to wipe your program in memory if you wanted to reprogram the *Expert's* utilities. This is where *Expert Upgrade V4.1R* comes in, as it allows you to swap from one *Expert* function to another while keeping your current program completely intact.

Features

As well as being a completely menu-driven modular operating system, *EU V4.1R* also offers numerous enhancements to the standard *Expert* OS software, such as option-packed real-time sprite, character and picture editors, and an improved machine code monitor with both bi-directional scrolling and function key commands, and – probably more importantly – full unlisted opcode support. Plus all the *Expert* features found before: infinite lives, sprite killer, disk utilities, etc.

User Interface

Easy as pie to use, perhaps the most significant enhancement included in *EU V4.1R* is the bidirectional scrolling in the machine code monitor – users of previous *Experts* will know what we mean!

Documentation

The 30-page manual may feel a tacky photocopied affair, but then again the whole package costs only a tenner.

Nevertheless, the manual incorporates all the operating procedures and technical information you'll require, and also contains a table of all the C64's 6510 opcodes, including all the unlisted ones.

Verdict

Not much to say, except that if you're a disk-owning C64 machine code programmer you *must* have the *Expert* cartridge and *Upgrade V4.1R*. Nothing else comes close... we just wish *Expert* was available for the Amiga!

★ ★ ★ ★ ★

HIGHLIGHTS	DRAWBACKS
• A MUST for all C64 coders	• Why wasn't it released earlier!

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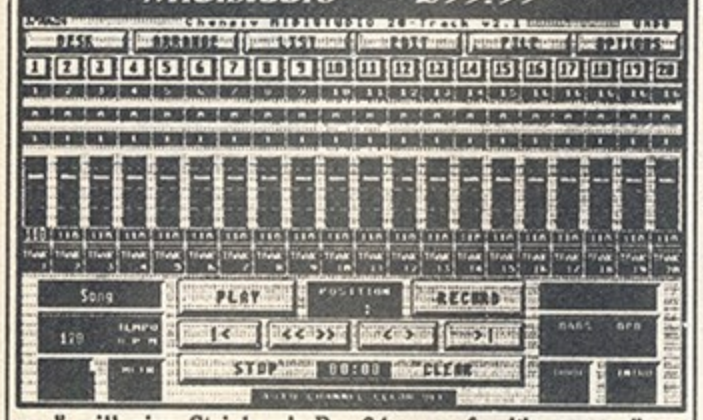

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M

MACHINE CODE (L): Instructions which are directly understandable by a computer in the form of hex numbers: 05, C8, 4F, 32 and so on. All programs eventually get 'translated' into machine code before the comptuer can perform them. Contrast with ***assembly language, high-level language***. See also ***hex***.

MACHINE INDEPENDENT (T): Programs which can be run on any machine regardless of configuration. This is usually achieved using a standardised compiler or operating environment such as Unix.

MACINTOSH (C): Fast, modern microcomputer designed and marketed by Apple Computers. The machine incorporates a Motorola 68000 processor and was one of the first computers to make use of the WIMP (Windows, Icons, Mouse, Pointer) interface. The Mac, as it's affectionately known, is very popular in the USA where it was first launched, although it is gaining greater momentum in the UK due to its use in desk top publishing applications, to which it is ideally suited – fast, with a good selection of very professional packages available.

• **Apple Macintosh II: Ideal DTP machine using fast Motorola 68000 processor**

MACRO (L): A single command which represents a series of individual instructions. The macro allows a programmer to gather together similar commands or those necessary for a particular task and issue them as one command. For example, to make a cup of tea you may carry out the following instructions:

1. fill kettle with water
2. switch on kettle
3. put tea bag in teapot
4. when kettle boils, pour water into teapot
5. wait 5 minutes
6. get cup
7. pour tea into cup

A simple macro which would handle all of these instructions would be: Make-tea. Giving this one command would cause all the others to be performed automatically

MACRO ASSEMBLER (L): An assembly language assembler which allows groups of instructions to be assigned to macros. See also ***macro***.

MAGNETIC DISK (T): Generic term to describe floppy and hard disks. See also ***floppy disk, hard disk, magnetic tape.***

MAGNETIC SCROLLS (CO.): Award winning software development company responsible for a range of

• **Guild of Thieves: Classic adventure software from Magnetic Scrolls**

graphical adventures including *The Pawn, Guild of Thieves* and *Fish.*

MAGNETIC TAPE (T): Before the advent of floppy disks, magnetic tape – exactly as that used in domestic cassette machines – was used to store vast amounts of computer data. Although comparatively fast, tape doesn't compare to disk speeds due to the former being a sequential access device. That is, the tape is read from beginning to end, one piece after another, until the desired data is located. The disk drive can move to anywhere on the disk that the data is stored without having to read the rest of the disk (much like a CD player). However, tape is still used in vast quantities in order to make 'back-ups' of hard disks, i.e. storing all the data on a hard disk to tape in case the disk should suffer a head crash. See also ***magnetic disk***.

MAIL BOX (T): Mainframe, Mini and Networked computers, due to their inherent large user base, provide a form of electronic mail that allows those users to communicate to each other across the machine or network via electronic 'notes'. Each user of the system has a mail box of their own and this is used to store incoming and unread mail from other users.

MAILMERGE (T): A facility provided by the better word processors which allows you to design one letter using your word processor and then send it to large numbers of people using a stored database of names and addresses – the 'Prize Draw' type letter we all receive from time to time.

MAINFRAME (C): Generic term used to describe a range of computers which are the largest and most powerful available at any one time. All of the early computers were mainframes, due in part to the fact that using the technology of the day, it simply wasn't possible to make computers smaller than several large rooms. Today there are few manufacturers still in the mainframe market, with the exception of IBM and CRAY Research. Contrast with ***minicomputer, microcomputer***.

MAIN MEMORY (T): This is the main bank of RAM memory contained within the computer and used as a measure of its size i.e. 'that Jones X-1 machine is simply a monster, it has 64K!'. See also ***RAM, ROM***.

MANDARIN (CO.): Software company responsible for the hugely popular *STOS* replacement BASIC and add-ons for the Atari ST. Mandarin is about to release a version for the Amiga known as *AMOS*.

• **Sprites 600: Part of Mandarin's highly successful STOS games creation package**

MAINTENANCE PROGRAMMER (P): The 'bread and butter' programmer of the computer world. Whilst others are engaged in new and exciting development work, the maintenance programmer is toiling away with existing computer software in an attempt to remove a bug or adapt it to new circumstances. Maintenance programmers receive the lowest salaries within the programming sphere.

MARAUDER (UTILITY): Infamous American software copying program for the Amiga. The program is designed and marketed by USA software company Discovery.

MASTER DISK (T): Usually, after buying an expensive software package, you are encouraged to make a back-up of the original disks, that is, make a copy of them and store the original or 'master' disk(s) away for safe keeping. Unfortunately, many software houses use protection methods with their software to stop you from making illicit copies for distribution to your friends. The practice of protecting software means that you have to use the master disk.

MASTERTRONIC (CO.): Formed in 1984, the company is responsible for the infamous budget game. After being bought by Richard Branson's Virgin conglomerate the company began to distribute the Sega console.

MATCHDAY (G): Football game greatly beloved of Spectrum owners, released by Ocean.

MATRIX (T): The matrix is originally a mathematical construct composed of a series of numbered columns and rows which make up cells where the columns and rows bisect one another. Each cell can be individually accessed by quoting the numbers of the column and row which form it. The matrix forms the heart of computer perennial the spreadsheet.

MATRIX PRINTER (T): This is the generic term describing printers which use a impact pin or ink jet matrix to form characters on a sheet of paper.

MBASIC (L): *Microsoft BASIC*. The adopted standard for BASIC within the home computer market. Almost all BASICs supplied with these machines are a bastardised version of the original. See also BASIC.

MEDIAGENIC (CO.): The corporate name for Activision. See also ***Activision***.

MEMORY (T): 'Notepad' store within a computer used to store programs, data etc. See also ***main memory, RAM, ROM***.

MEMORY CHIP (T): An integrated circuit which – installed in a computer – provides a portion of the memory available to the computer. The memory chip can be thought of as a series of little 'pigeon holes' in which data can be placed and later retrieved. Memory chips, particularly the DRAM, are in very short supply at the moment due in part to the trade sanctions imposed upon Japan by the United States. This shortage has led to large increases ➤

in the price of new computers where previously they were decreasing at an exponential rate.

MEMORY MAP (T): This is a document which gives a breakdown of how ROM and RAM memory is divided up within a computer. Several publishers have produced memory maps for some of the more popular home computers, but one of the best is *Mapping the Atari* from Compute! which gives a complete description of all memory locations and examples of how to use them to best advantage.

MENACE (G): Popular horizontally scrolling shoot-em-up from Psygnosis. See also ***Psygnosis***.

MENU (T): The computer menu is exactly the same as its restaurant counterpart. It provides a selection of possible options, some of which you to another menu (nested menus) or into/ out of a program.

METACHARACTER (T): A symbol which is used as a control character within a computer program or instruction. The metacharacter is used to switch a screen to inverse display mode, switch a printer into graphics mode etc.

METACOMPCO (CO.): Bristol-based company which stepped in at the eleventh hour of the Amiga's development to produce AmigaDos – a version of Tripos.

MGT (CO.): Miles Gordon Technology. The company began life supplying a range of peripherals for the Spectrum but for the last couple of years has been involved in the development of a 'super Spectrum' clone with various ports and goodies.

• Bruce Gordon: Member of MGT and designer of new MGT SAM Coupe

MHZ (T): Megahertz – one million cycles per second. MHz is used as a measure of processor speed. For example, the standard IBM-PC processor runs at 4.77MHz, many of the PC clones offer running speeds of 8MHz, the ST's 68000 processor runs as standard at 8MHz. Unfortunately, a MHz speed rating doesn't necessarily mean that two machines are running at the same speed, faster or slower. As well as processor speed any performance rating has to account for the rest of the system architecture, such as the address and data buses, speed of drives etc.

MICROCOMPUTER (T): Generic name for small desktop sized computers which are cheap and available to the person in the street. The first widely-available microcomputers used 8-bit CPUs such as the Z80 to provide a reasonable amount of speed and power. Today's 32-bit processors coupled with hard drives offering vast storage abilities have practically ensured the demise of the minicomputer and offer almost as much power as the mainframe. Certainly, they are significantly faster and more powerful than the mainframes of just a few years ago. See also ***mainframe, minicomputer***.

MICROCHIP (T): A tiny silicon chip which has many thousands of components etched onto its surface.

MICROCODE (L): A collection of sub-commands or instructions which are held within a computer's ROM memory and which are executed when power is applied to the machine. The microcode defines the machine language instruction set of a computer. See also ***assembly language***.

MICRODEAL (CO.): Originally producing software for the Dragon 32, Microdeal pre-empted the 16-bit craze by being the first with hits for the St and Amiga.

MICRODEALER (CO.): Big league software distribution company.

MICRO ILLUSIONS (CO.): American software company producing a range of utility programs but notable for the application *Photon Paint*.

MICRO PROLOG (L): A microcomputer implementation of the artificial intelligence language Prolog. See also ***Prolog***.

MICROPROSE (CO.): Business alter-ego of crazy 'fly-boy' Wild Bill Seally, the company is responsible for a large range of flight simulation games such as *F-15 Strike Eagle*, *Solo Flight* and *Gunship*. MicroProse recently bought Telecomsoft putting it in the top three software companies.

MICROSOFT (CO.): Software company based in Belle Vue, Washington USA which is responsible for the MS-DOS/ PC-DOS operating system, *MBASIC*, *Word*, *Windows* and many other notable products. The company was formed in 1975 by Bill Gates and Paul Allen. Microsoft applications play a large part in dictating the way that microcomputer software applications will progress, due to the immense influence the company has on the computer market.

MINDSCAPE (CO.): American software house responsible for hit games *Shadow Gate* and *Deja Vu* who set up in the UK at the beginning of this year.

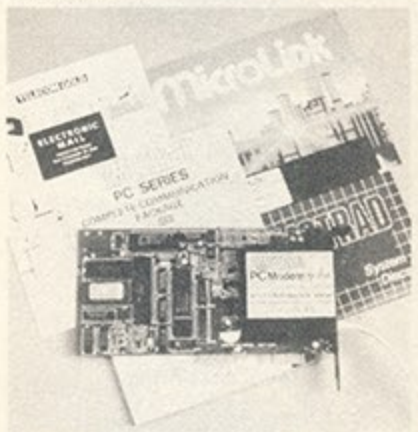
MINICOMPUTER (C): Generic name for a range of computers which were smaller than mainframes but significantly larger than the desktop sized micros. Many companies made their name by designing, manufacturing and marketing minicomputers such as Data General, and NCR. Today, the powerful, fast, convenient and above all cheap micro has all but killed off the minicomputer.

MIPS (T): Millions of Instructions Per Second – how many instructions a computer can perform in a second. MIPS is used as an overall measure of computer speed.

MIRRORSOFT (CO.): Just one tiny part of the Robert Maxwell empire, Mirrorsoft has consistently produced high quality games such as *Dungeon Master* (the biggest selling game for the ST) and *Falcon*.

• Dungeon Master: Mirrorsoft game that became a classic

MODEM (T): MOdulator DEModulator. A device which, when attached to a computer and telephone line, allows the transmission of data between two computers. The modem is able to operate at a range of speeds typically from 300 to 2400 BAUD (Baud is used as a convenient measure of transmission speeds) depending on the condition and suitability of the telephone line in use. Modems are becoming extremely popular at the moment with the advent of the computer bulletin board and nary a week goes by without some mention of the computer 'hacker' (someone who uses a modem to gain unauthorised access to some ones else's computer and data files) in the tabloid press.



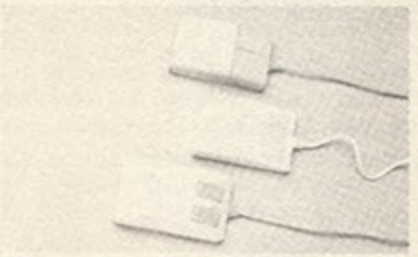
• Modems: Hardware devices which connect to ordinary telephone lines for data and file transfer

MODULA-2 (L): Designed by Niklaus Wirth, the language is designed as an extension of and replacement for Pascal. Due to its ease of use and modula approach to programming (that is, writing small pieces of code which can be joined together to provide a solution for a particular problem) the language is being adopted by many University computer science courses. It remains to be seen whether the business community will adopt the language for applications writing. See also ***Pascal***.

MONITOR (T): The television-like display device used by computers to communicate with human operators. Monitors come in many shapes and sizes but the most popular is the green screen (green text and graphics as its name implies). The green screen is easy on the eyes for prolonged use. Other popular monitors are the amber screen, paper white and colour screens.

MOTOROLA (CO.): Semiconductor manufacture responsible for the design and implementation of the 68 series. In its 8-bit form (6809) this CPU chip was used in the Dragon and Tandy Co-Co. Today's fast and powerful micros such as the Atari ST, Apple Macintosh and Commodore Amiga use the 16-bit 68000 version of the chip to provide powerful processing capabilities.

MOUSE (T): Input device similar in manner to a joystick in that it is used to move around a pointer onscreen to select programs and data. The mouse is a plastic case which fits into the palm of the hand. Its underside has a revolving ball. When the mouse is pushed around on a table top the ball moves and the movement is interpreted by the computer it is attached to, moving an onscreen cursor. The case has one or more buttons which can be pressed in order to make the selection when the cursor/pointer is suitably positioned. The mouse is so-called because it is roughly the size of the rodent of the genus mus and has a tail-like cable to connect it to a computer.



• Mouse: Device to move on-screen pointer – built rather like an inverted tracker-ball

MS-DOS (OS): MicroSoft Disk Operating System – system developed and marketed by Microsoft and employed by IBM's PC range of machines as well as many PC clones.

MUG (G): Generic acronym meaning Multi User Game, i.e. one which runs on an electronic bulletin board and which cab support many 'logged-in' players at the same time.

MULTI TASKING (T): The ability of a computer to process one or more tasks at the same time. In fact, the each task is performed in sequence by allocating it a tiny fraction of the processor's available time. This action happens so quickly, that to a human user the machine appears to be doing several things at once.

MUSIC STUDIO (MUSIC): Musical creation package available for a large range of machines. Version 3.0 for the PC and compatibles was reviewed in *Express* 30.

MYLAR (T): Brand name for a form of polyester film (plastic) developed and marketed by DuPont which is used in the manufacture of floppy disks.

Key: C - computer Co - company DB - database DTP - desktop publishing G - game GG - game genre Gr - graphics Int - integrated software L - languages P - personalities SS - spreadsheets T - tech spec WP - word processor

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The five characters below all work at Lombard Megaholdings, and have been attacked by a virus – obviously they should have had a virus protection routine. Fortunately, the virus could only wipe the directory track of their shared hard disk before it was caught. So their data was intact, but they can't work out whose is whose.

Use your skill and judgment to match the printouts of the data they lost to the people you think they belong to. Then write your answers on a postcard and send it to us. For example, if you think that example A goes with person 1, write 'A-1' and so on. Do this for all five examples, add your name and address and send it to: **'Sleepsafe' Virus-Buster Competition, *New Computer Express*, 4 Queen St, Bath BA1 1EJ.**

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1 Eric Lombard: Managing Director
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5 Sharon Collins: Typing Pool

PRINTOUTS

A ...my hair dryer. After that we can go to the disco and meet up with Kevin and Shane. Kevin and I are going on holiday to Corfu next week. He wanted to take the Capri but I thought, I bet I end up driving...

B ...the toilet. If you ask me the ballcock needs replacing too. As far as the gutters, I don't mind if you want to leave them to next year but they will need some patching up mean time...

C ...my third mortgage. I've sold the Porsche and bought a timeshare apartment in the Algarve, and I'm renting my second flat to the people who sold it to me for a hundred quid a week more than my mortgage, and my yacht...

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E ...the golf club. The shop floor workers want an extra 5%. This is too much. 2.3% is quite enough, given the extension of the tea break as agreed. As for the stewards, they are a bunch of Marxist troublemakers. When you employ typists check they're not planning a family – I don't want to get tangled up in maternity leave and such nonsense...

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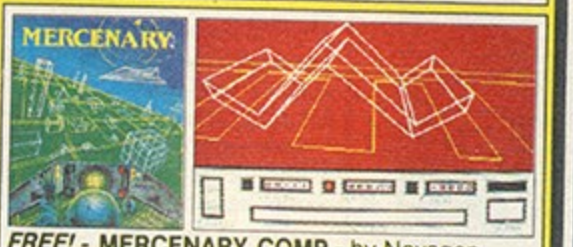

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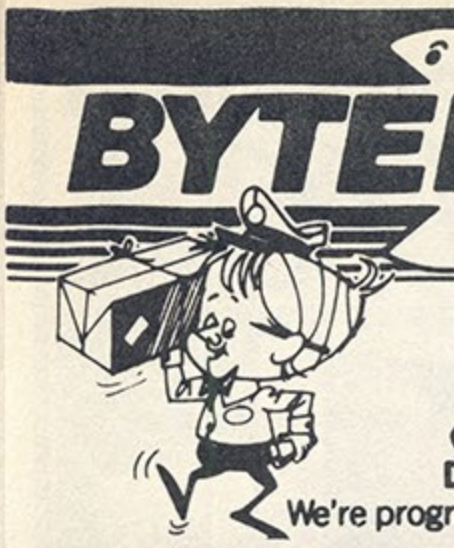

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Dance away

Steinberg's latest, *Avalon*, will appeal to sampling sophisticates; it's a tool for editing and storing sampled sounds.

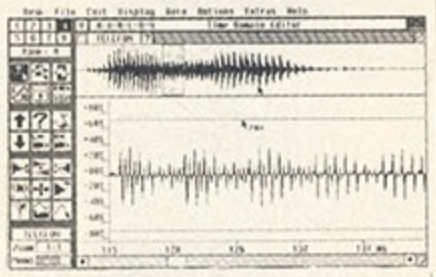
Avalon requires at least 1Mbyte of memory, a monochrome monitor and £200 in your wallet. *Avalon* automatically recognises up to 10 different samplers connected via MIDI. New samplers can easily be integrated into an existing network. *Avalon* is capable of converting between 8 and 16-bit samples.

Avalon can edit mono and stereo samples. There's even a feature for generating pseudo stereo samples from mono samples. A zoom mode allows very fast and precise adjustment of the visible sound-range. Similarly extremely precise lowpass, highpass, peak and notch filters are available. Scratches and blips can be removed from waveforms. It's even possible to work on up to eight samples at once.

Frequency domain editing represents the most complex editing level available today. After undergoing fast fourier-analysis, sounds are split into a spectrum of sine waves. You can select single frequencies (or all frequencies at a specified point in time) or the envelope of a single frequency... display them with logarithmic or linear scaling and edit them!

With the optional Steinberg D/A-Board it is possible to sample 16-bit data directly into the ST's memory from a CD player with no loss of quality. The D/A-Board can replay samples at 12-bit.

Evenlode Soundworks, distributor of Steinberg Software in this country, can fill you in on the rest of the details: **The Studio, Church Street, Stonesfield, Oxford, OX7 2PS** (099 3898484)



• **Steinberg's professional sampling software, Avalon**

Read Mac disks

The only real problem with *Spectre 128* (distributed by HiSoft) is the package's inability to read and write Apple Mac disks directly. HiSoft reckon *Gadgets* by Small will finish work on a device that makes it possible for the ST's internal drive to read and write Macintosh disks. That really will be something, but it's not expected to arrive before August.

In the interim you can always try the *Discovery* cartridge from Happy Computers. This converts a Mac disk to Magic format (as used by Spectre) and vice versa.

The *Discovery* Cartridge is claimed to be five times faster than using a wire and the Translator supplied with *Spectre*. In takes *Discovery* roughly three minutes to convert a Mac disk to Magic format. Either MFS or DFS, single or double sided, can be converted.

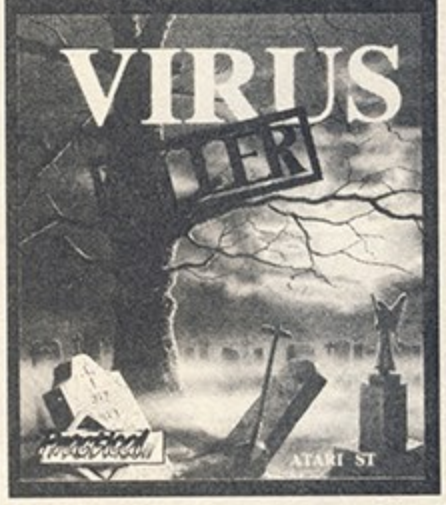
It's possible to get the *Discovery* Cartridge with sockets for fitting 128K ROMs. This saves you unplugging *Spectre* when you need to convert a Mac disk.

The *Discovery* Cartridge also acts as a backup device, containing a sophisticated disk controller. The device is said to be able to back up Amiga and PC disks as well.

The complete system for disk backup and Mac disk conversion costs $249.95 while the same system with provision for housing the ROMs cost $319.95. Happy Computers is at **PO Box 1268, Morgan Hill, CA 95037, USA** (0101 408 7793830).

Shot in the arm

Here's a turn-up for the books; version 3.6 of Richard Karsmaker's virus killer is currently being sold by Practical (a CRL label). An earlier incarnation, VDU, was sold by a leading public domain library (but not as PD – if you catch my drift). Virus Killer, as the latest release is uninspiringly called, can detect and destroy 20 types of virus. Price is £9.95. Details on 01-533 2918.



Universal patch editor

The universal MIDI instrument patch editor is an idea that has been floated around for several years, but until now has never been achieved. Zadok reckons *Uni-Man* fulfils that feat. Features follow:

- A number of device drivers are supplied for the D50, R8, K1, DX7, DW8000, M1 and A3 (*Are you sure these guys haven't confused MIDI instruments for motorways*).
- All sound/patch data files created by other software – MIDI file format, *Omni Banker, Gen-patch, Synthworks*, Dr T's – can be used.
- You can theoretically organise, edit and exchange all your MIDI sound patch data within one program.
- A management/editing environment can be created for any new MIDI equipment.

Sadly there isn't a distributor for *Uni-Man* in this country. Let's hope that changes soon. If you're desperate to get your hands on this unique package then get in touch with Zadok, **PO Box 1192, 2260BD Leidschendam, The Netherlands**. Telephone: 31 (0)70 200209. Price for *Uni-Man* is 500 Dutch guilders.

TOS 1.4 tips

With the latest revision of TOS imminent, here are a few things you might not know about version 1.4.

All bugs in previous TOSs are claimed to be removed (that doesn't mean new ones haven't been added). While the new TOS is first destined for the laptop ST, it will also feature in the forthcoming 68030-based TT.

It's common knowledge that a soft reset is available from the keyboard by using the PC-standard Control-Alternate-Delete combination, but what isn't appreciated is that there's also a hard reset available. By pressing Control, Alternate, right Shift and Delete simultaneously, all RAM will be cleared as though the machine had been powered off.

Points of more interest to programmers include an OS pool of a similar size to pre-Mega ROMs, the archive bit works properly, the malloc restriction of 20 blocks has been lifted and Frename will rename a folder.

Adrion McHerriot

AMIGA BLITZ

Anco's (football) strip

It seemed impossible, but Anco has produced a game that does not feature even the slightest hint of female flesh. The game in question is *Kick Off*, and I can tell you now that it's a real corker!

If you're after a game that will keep you chained to your Amiga for months to come, then check out *Kick Off* (I never thought I'd see the day when I'd recommend an Anco game!). *Kick Off* is best played between two players, so grab a friend and dump a joystick in their hands everytime they come within a mile of your machine.

A-MAX At Last!

The Amiga's first Macintosh Emulator has finally arrived. After many months staring at the advertisements in the American press, ReadySoft's *A-MAX* has finally arrived in the UK, thanks to Entertainments International.

I've only just managed to get my hands on one (it arrived on the same day that this column was written!) and so I can't comment on how well it performs. Look out for next week's *AmigaBLIT* for a complete run down on this groovy piece of hardware.

Hard Facts for LORS

I recently recieved a letter from an irate Londoner, Iain Mackenzie, concerning MirrorSoft's *Lords of the Rising Sun*. In the manual for *LORS*, is specifically states that the game can be backed up to hard disk using a supplied hard disk installation program. Iain bought the game, took it home and prepared to back *LORS* onto hard disk only to find that with the UK version of the game you can't.

Thankfully, for all of you suffering from the same problem, Iain was kind enough to include complete instructions on how to put *LORS* onto hard disk yourself.

Firstly, you must copy all the files from both *LORS* disks onto your hard disk (eg. COPY DF0: DH0: ALL). Next, edit your StartUp-Sequence to the following:

```
MOUNT DH0:
ASSIGN RisingSun1: DH0:
ASSIGN RisingSun2: DH0:
RUN MAIN
```

Note that you'll have to copy the CLI Mount command and the MountList file to your *LORS* boot disk. Now when you reboot your Amiga, after *LORS* has checked to make sure that the disk in drive 0 is an original, control will be transfered to your hard disk.

Mouse resuscitation

Amiga owners will know that the first thing to go wrong is usually the mouse. The most common problem is malfunctuning buttons. These can be fixed as follows:

Firstly, open up your rodent and carefully remove the sticky tape holding the two mouse button leaf switches. Next, swap the pressure pads and re-apply the sticky tape. Put the mouse back together; chances are that your mouse buttons should now work fine!

Surely the other mouse button will stop functioning? Well the problem isn't just with the leaf switches, but the actual mouse button itself which can become worn. Thanks to David Collins in Kent for that tip.

Jason Holborn

Throwing down the Gauntlet

Here are a couple of little cheat programs for those of you struggling to overcome the forces of evil in either US Gold's arcade conversion Gauntlet 2, or Elite's Space Harrier. Type the following into AmigaBASIC, save them (just in case!) and then run them. Note that you should turn off your Amiga before trying to use either of these cheats.

```
10 REM **** GAUNTLET 2 CHEAT ****
20 CHECKSUM = 0
30 START = 262144:FINISH = 262271:GOSUB 60
40 RESTORE 270:START = 304:FINISH = 355:GOSUB 60 50 GOTO 100
60 FOR N=START TO FINISH STEP 2
70 READ A$:A=VAL("&H"+A$)
80 CHECKSUM=CHECKSUM+A
90 POKEW N,A:NEXT N:RETURN
100 IF CHECKSUM <> 758822 THEN PRINT "DATA ERROR":END
110 PRINT "PLEASE INSERT GAUNTLET II IN DF0:"
120 PRINT "EVERYTIME HEALTH REACHES 500, YOUR ENERGY WILL BE"
130 PRINT "KNOCKED BACK UPTO 25000"
140 PRINT "ACTIVATE THIS WINDOW AND PRESS <RETURN> TO RUN GAME"
150 INPUT A$ 160 CALL START
200 DATA 6100, 0036, 337c, 0002, 001c, 42a9, 002c, 237c, 0000
210 DATA 0400, 0024, 237C, 0003, 0000, 0028, 4EAE, FE38, 33FC
220 DATA 0000, 0003, 0088, 33FC, 0130, 0003, 013E, 4EF9, 0003
230 DATA 000C, 2C79, 0000, 0004, 93C9, 4EAE, FEDA, 45FA, 009C
240 DATA 2480, 43FA, 0086, 4EAE, FE9E, 43FA, 002E, 4280, 4281
250 DATA 41FA, 0014, 4EAE, FE44, 43FA, 001E, 45FA, 006A, 234A
260 DATA 000E, 4E75, 7472, 6163, 6B64, 6973, 6B2E, 6465, 7669
270 DATA 6365, 23FC, 4EB8, 013E, 0000, 0C90, 4EF8, 0800, 23FC
280 DATA 4EF8, 0150, 0000, 53C0, 4EB9, 0006, B534, 4E75, 0879
290 DATA 0001, 00BF, E001, 317C, 07D0, 000E, 4EF9, 0000, 53B6

10 REM **** SPACE HARRIER CHEAT ****
20 CHECKSUM = 0:CHEAT = 12806
30 FOR N = CHEAT TO 13486 STEP 2
40 READ A$:A=VAL("&H"+A$)
50 CHECKSUM = CHECKSUM+A
60 POKEW N,A
70 NEXT N
80 IF CHECKSUM <> 254217& THEN PRINT "ERROR IN DATA":END
90 PRINT "PLEASE INSERT SPACE HARRIER DISK IN DF0:"
100 PRINT "CLICK TWICE ON 'CANCEL' THEN PRESS <RETURN>"
110 INPUT A$
120 CALL CHEAT
200 DATA 2C78, 0004, 207C, 00FE, 88C0, 43F9, 0007, 0000
210 DATA 303C, 0145, 12D8, 51C8, FFFC, 22FC, DBFC, 0000
220 DATA 22FC, 007E, 4E5D, 32BC, 4E75, 4EB9, 0007, 001A
230 DATA 41FA, 000A, 2948, 0176, 4EEC, 000C, 31FC, 3E2E
240 DATA 3BE0, 4EF8, 38A0
```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PC UPDATE

Restricted characters

I came across an interesting problem with a batch file the other day. I had several 'echo' statements in a batch file one of which read something like:

```
Return to the A> prompt and...
```

For some reason, every time I ran the program none of the line would display. I began to have serious worries about my hardware. What was there in an echo statement that could cause a normal screen write to be ignored?

I tried a variety of ways around until a friend, who had become interested in the problem, suggested looking at each character in the offending line. As you can see from the extract above, the only character which is not a straight alphabetic is the '>' (greater than) symbol. How many readers have twigged what the problem was? In DOS, the '>' character is a redirection operator which sends the output of the preceding command to the succeeding device name. In this case the command was 'echo' and the succeeding device was taken to be a disk file called 'prompt'. The command was sending the start of the line:

```
Return to the A
```

to this file, so that part wasn't displaying. Since the batch processor only allows one command per line, the rest of of the line after the '>' was ignored.

The solution, of course, was to replace the '>' in the line with a ':', whereupon everything returned to normal. The moral of this little tale is, as Sherlock Homes once said "When you have eliminated the impossible, what remains, however improbable, must be the case."

SuperHelp

When you first buy a PC and start to use DOS it's very easy to become completely confused with the many different commands and operators that the operating system provides.

On-line help, which you can call up at the flip of a hot key, may be the answer. One such system for hard disk users (it takes up nearly a megabyte on disk) is *SuperHelp*, distributed by somebody in this country whose name was lost in transit (or it could have been a *Sherpa* or a Renault *Trafic*). The price is also unknown at this stage, though I'm sure lots of people will let me know as soon as they read this. Anyway, the program itself is very good, giving lots of details of DOS and including some animated descriptions, all in a pop-up package. Probably well worth the money!

Wasted space

One of the bones of contention with PCs marketed with 1Mb or more of memory, is that a good part of the extra memory may be wasted due to the memory mapping of the PC. As it was designed, the IBM PC could address 1Mb of main memory, with up to 640K available to the user. All users have to give some of this over to DOS, so there's actually less than 640K available. The area of memory between 640K and 1Mb is broken down into small sections and assigned to various ports and video areas. There is, for instance an area of 64K assigned to displaying a CGA screen. There's also an area of 256K assigned to displaying an EGA screen. These two areas do not overlap, even though you're very unlikely to run a CGA and an EGA monitor from the same PC.

The assignments, or mappings as they're often called, fill all the available space and it's very hard to make use of it, even when you're not using the peripheral to which the space is allocated. There's a partial way round the problem which involves jiggery-pokery with the memory map to fit usable memory into the space above 640K. A combined hardware and software device called 10PC does this for you, and is especially useful if you have a Monochrome or CGA machine with 640K of memory. It contains 64K of RAM which it slides into the memory map in the area normally reserved for EGA displays. This gives you 704K which can be used by any program. The card costs £149 plus VAT and more details are available from Comtech on (04352) 5688.

Simon Williams

Laptop Power

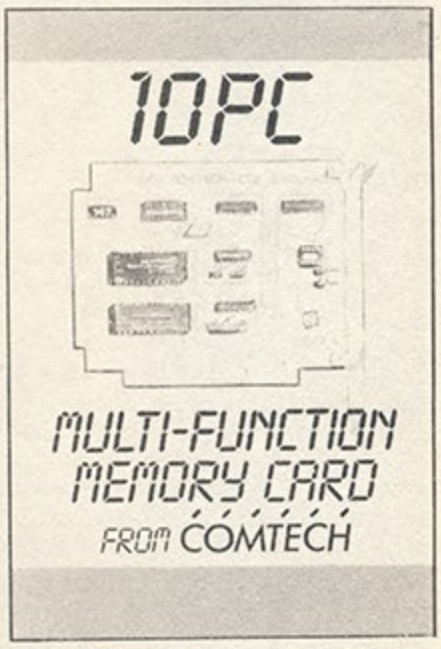
If you have a laptop, one of your continuing fears is that your battery will run out at an inconvenient time, when you're away from a mains outlet. Manufacturers invariably quote a figure which is generous, and allows for little use of your disk drives. It's worthwhile testing your batteries in the worst case condition, so you know how little time you actually have before your data will flit away into the ether.

Try the following little batch file:

```
copy battest.bat + battest.bat
battest.new
copy battest.bat + battest.bat
battest.old
battest
```

Save it as BATTEST.BAT, copy it to your laptop, charge up the battery, and unplug the mains. Now type TIME and reset the system clock to 00:00:00. Type BATTEST and leave the system running until the battery and the machine go to sleep. Plug in the mains lead again and check the timestamps against the BATTEST.OLD and BATTEST.NEW files on the disk. They represent the total time the program was running.

The program is a good overall test for laptop usage as it uses the processor, the screen and the drives. As you can probably work out from the program lines, all the program does is to copy itself to two other files and then call itself recursively to repeat the job. The reason it copies itself to two files is in case the power goes down while the program is actually copying, and the file isn't correctly timestamped. The small error incurred by the time it takes to type BATTEST at the start of the run is insignificant when the batteries are likely to last for over an hour.



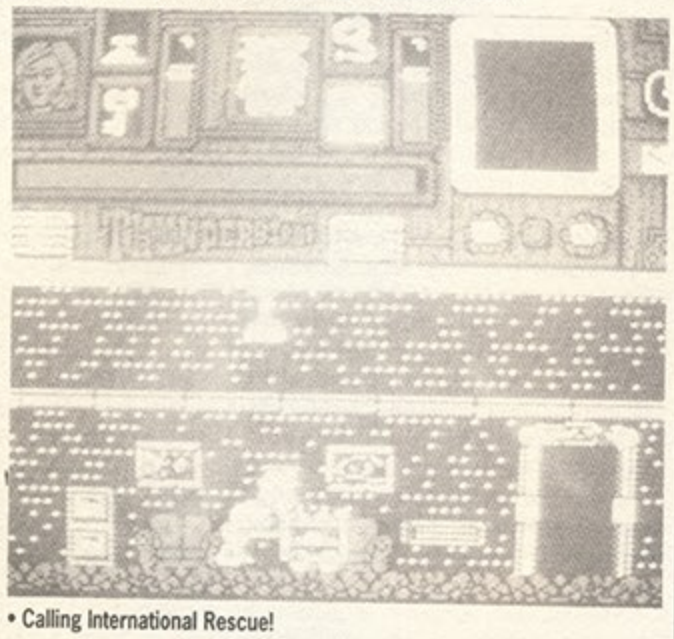
• 10PC: Hardware/software device to give your 640K PC another 64K of RAM

CPC centre

Thunderbirds are go!

Grandslam's got hold of one of *the* licences of '89: *Gerry Anderson's Thunderbirds*. And what good value you get! For £13 on tape and £15 on disc (now that's what I call a sensible price difference) you get double play *and* an audio cassette of that evocative, nostalgic theme music.

Furthermore the game itself is not the superficial flashy-but-trashy effort Tracy fans were fearing. There are four separate complex missions for you to undertake, each within a tight schedule. And the general tone of the thing is just right, too, with humour aplenty but no mickey-taking of our favourite woodentops – as if they'd dare! Gerry Anderson himself has been involved in the project, so it ought to be good.



• Calling International Rescue!

Grandslam appears to be pinning its hopes on this being one of the great successes of mid-'89, and I'd say that on gameplay and value for money they should succeed. What troubles me slightly is whether enough young people – and in this context that means the under 20s – are excited by the prospect of a game based on a long-extinct puppet series. It's beginning to look, these days, as if anything that was considered naff or irredeemably kitsch back in the '60s or '70s – *Batman, The Monkees, Thunderbirds, Bill and Ben* – is now hailed as a high point of western civilization in the mid to late twentieth century. What's happened, of course, is that time has given these often badly made and frequently desperately dull period pieces a sepia tint that obscures their mediocrity. Things aren't what they were: but then again, they never were.

Incidentally my friend Trent – who hardly seems old enough to suffer such a bad attack of nostalgia – fancies his chances on the next series of *Mastermind*, with *Thunderbirds* as his specialist subject. Anyone willing to challenge him to a competition, with a copy of the game as a prize? Write to: *Trenton Fancies Himself, New Computer Express*, 4 Queen St, Bath BA1 1EJ.

Sound of silence

Just been playing EA's *Skate or Die*.. It's fun, and I'd even go so far as to say I think they've done the right thing by Lester and his surfpunk sidekicks in opting for monocrome so they can fit more action in. All in all, a very creditable showing.

But... What I don't agree with is EA's decision to sacrifice the in-game sound to save what surely can't be more than about 5K of memory. I said a few weeks ago when I saw a preview that sound effects would make a big difference to the overall atmosphere of the game, and I stand by that observation.

Compare what they've done with Grandslam's *Thunderbirds* (see above) where not only do you get in-game effects but an audio cassette of the theme tune too. Admittedly there was something there to begin with, but even so it seems to me that music and in-game effects are vital to the atmosphere of any game. Has there ever been a truly brilliant CPC title that didn't feature decent sound effects?

A pair of briefs

A final reminder that it's not yet too late to enter the *CPC Centre* competition to win a free copy of Swift Software's £30 *Pandora*, the new machine-code program generator that means you can write professional quality games without knowledge of machine code. All you have to do is tell me who Pandora was – jot it down on a postcard, or the back of an envelope, and bang it off quick as you like, to: *Steve Carey's CPC Centre, New Computer Express*, 4 Queen St, Bath BA1 1EJ. Entries close at the end of the month.

The other brief

The keener-eyed among you will have noted that I was so thrilled by the *Gauntlet* poke I offered you free, gratis and for nothing in this column a couple of weeks ago that I gave it you *twice*.

Apologies – though I doubt any of you lot would be daft enough to type the thing in twice!

Steve Carey

By Jiminy – no cricket!

The Aussies don't appear to be quite the pushover many of us were expecting, and we appear to be in for a thrilling Test series after all. But oddly enough there hasn't been a decent cricket simulator for the CPC (nor indeed for any other machine, as far as I know).

And yet you'd have thought cricket would be eminently suitable as a simulator subject – especially when you compare its poor showing against the veritable avalanche of soccer efforts that have cascaded upon us (God knows what it'll be like next year, with the World Cup and all). Audiogenic's Graham Gooch Test Cricket is about the best of a surprisingly poor bunch. (Unless, of course, you know different...) I'm at a loss to explain this state of affairs, and welcome any thoughts you may have on the subject.

Incidentally there's no truth, unfortunately, in the rumour that a CPC version of Anco's stupendously wonderful Kick Off is planned. It's a terrible pity, because as Rik "The Hitman" Haynes says it's "simply the best football sim we've played on any micro." Still, there's a Commodore 64 (boo!) version, so who knows? If enough of us make a fuss, perhaps we'll get lucky after all!

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SPEX

Enigma variation

I often get letters from 128, +2 and +3 owners ranting about the way their machine rarely gets its extra 80K put to any use. Two devoted believers in 128K called Jon Rose and Hamish Rust have now decided to stop ranting and do something about it.

The result is *Enigma*, a new tape mag especially for those of you in the audience endowed with a larger memory. This dynamic duo were kind enough to let me have a looksee at their earliest attempt, and I'm suitably impressed.

The first issue has been shoehorned onto one side of a C90 cassette and comes complete with no end of twiddly bits in the form of an excellent soundtrack, numerous graphic FX and screenshots. These are really welcome and help it stand apart from more traditional paper efforts. The reviews section is particularly good with some hard-hitting views, obviously written by a Speccy gaming expert who knows his stuff, and a selection of screenshots which let you see how the game actually looks on your TV. Importantly, the reviews also inform you of any enhancements to the 128 version.

As well as the normal selection of news, views and tips there's also a section specially designed for techies. It seemed to impart some pretty useful info, although I'm no expert.

Something that's planned to be included on each issue of *Enigma* are separate programs and routines recorded after the main meat of magazine itself. In issue 1 this included a musical extravaganza from Players, some simple games and a full size assembler, no less. Good to see the tape-based nature of the mags being put to good use, and extras like the above certainly improve its value for money rating. The Eds seem keen to get the readership involved and the mag provides an excellent way for budding programmers to see their creations on screen.

Enigma only works on machines with 128K and initially is available on tape with the possibility of +D version. Hopefully, the creative geniuses behind the project will get around to producing a +3 disk version, I'm certain the demand is there. Still, +3 owners and everyone else who thinks, like me, that the 128/+2/+3 doesn't get a fair suck of the pineapple is advised to purchase a copy forthwith. Each bi-monthly issue costs a reasonable £1.99 or £1.50 if you supply your own tape (C60/C90 length). The address for orders is **Hamish Rust, 15 Westfield Road, Inverurie, Aberdeenshire. AB5 9YR**.

Enigmatic advice

It's always nice to be able to help a fellow comrade with his Speccy-owning problems (everything else is best left to Marjorie Proops). David Sheldrake's list of problems appeared in issue 30, some of them were answered but an annoying few weren't. Well, as if by magic one half of the Editorial team behind the aforementioned Enigma tape mag has written in and answered them. That man is Hamish Rust.

David wanted to know about a +3 compatible assembler. Hamish unbiasedly suggests the one given away with Enigma 1 (ordering details above). On the problem of the +3 RAM paging this Scottish marvel puts forward the following:

LD BC,32765
LD A,RAM PAGE (16, 17, 19, 20, 22 or 23)
OUT (C), A

He points out that you must "keep the stack below 49152 as well as any code doing RAM paging (to move stack – LD SP, ADDRESS)".

Hmmm, yes, heaven knows what that means but I'm sure it's helpful. Readers put your hands together for Hamish!

Sticky tapes

Here follows a warning for +3 owners, courtesy of Grant Punchard. He's been having problems with some +3 software whose save-game option only allows a save to tape and not disk. What with the +3's tape loading and saving being a bit erratic and everything this is a far from ideal situation.

Examples of troublesome games include Martech's *Catch 23* and CRL's *Jack the Ripper*. Apparently, Martech has promised to rectify this in the future, which is good news because, as Grant said in his letter "we do pay over the odds for +3 software and do expect it to support proper disk-based loads and saves, and not to be simply the cassette version transferred onto disk." Hear, hear!

Another possible source of blood pressure rise-inducing frustration is when a +3 release turns out to be a cut-down 48K version. As an example he cites the version of *Starglider* found on Beau Jolly's +3 *Supreme Challenge* compilation, which has none of the music or speech of the original souped-up version. Also *Elite*, included on the same compilation saves to tape. Enough to make any +3er go ARRRGGH!!, or as Grant put it "GRRR!".

Hopefully no more examples of this obvious computerist policy will arise because, believe you me, we +3 owners are pretty mean when roused.

Hot tips

I've got yet another selection of tips for you on a veritable cornucopia of games. Well, three anyway:

- **Barbarian:** Force your opponent into a corner and give him a few kicks to the nether regions. He soon dies. When you come to Drax, jump the first lightening bolt and roll into him. Pressing Symbol Shift and Extend mode slows things down.
- **Navy Moves:** When you see a marine, duck. They don't know you're there.
- **Airborne Ranger:** Go into the guard house

for a disguise. Sneak up to the PoW camp and if you are attacked run for it. Throw a grenade at the pyramid and walk over lever. Burn machine gun at top.

Many thanks to the managing director of Concept Software, head of the +3D user group, prolific letter-writer and teenage entrepreneur Lee Davis for those. Since his Public Domain software house was plugged in SPEX he has been inundated with orders. So much so, tape software has had to be withdrawn for the meantime. He also tells me that you can now send a blank disk with your order and get a fair amount of dosh knocked off. Probably the best way to get all the low down dirt would be to send an SAE to the address printed in *Express* 31.

Robin Alway

SECTOR 64 SECTOR

Coming soon

Just about to be released by Grandslam (also responsible for the *Running Man* licence) is *Thunderbirds*. The game is based on the cult TV series and its string puppets.

A game called *Thunderbirds* was released some time ago by Firebird, but met with mixed feelings from the media. But Grandslam's version looks like it will knock the socks off that outing. The game will cost £12.99 on cassette and £14.99 on disk. It includes two cassettes which have the four games on, plus an audio tape of the original *Thunderbirds* sountrack to blast out on your hi-fi.

You can control two characters from the list on each level. If you can't remember any of the Thunderbirds characters, then here's a recap: Scott, Brains, Jeff Tracy, Virgil, Alan, Lady Penelope and Parker (who is controlled on Level Three).

The C64 version features music from northern lad (!) Ben Daglish, who has not been doing too much recently.

Thunderbirds will also be available on the Amiga.

Dates

Coming up on September 27th is the Personal Computer Show at Earls Court. To be honest, we much preferred the show at Olympia, but as so many people attended that this year, there was too much of a strain on the place. What we most hated about the PC show at Earls Court was the confusing layout. We were getting lost all the time! Never mind.

• Coming up in September – the Personal Computer Show. Will you be there this year?

Help

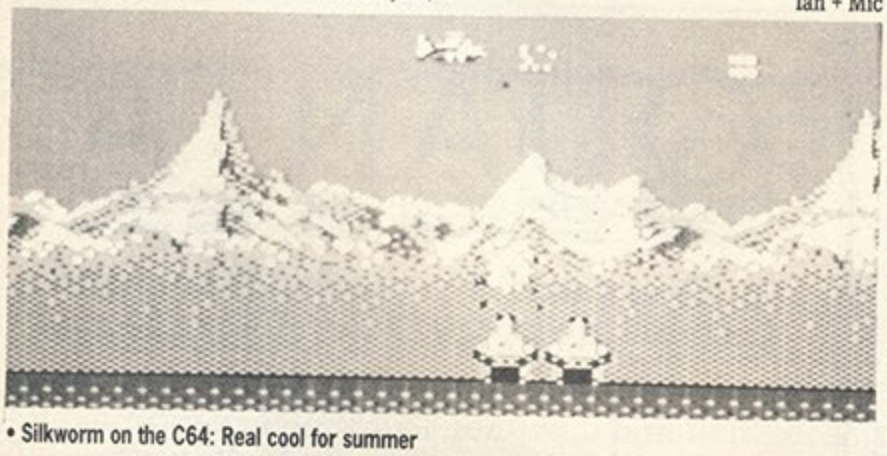
Sector 64 reader Ron James needs help for his Commodore 1520 printer/plotter. If anyone has any information on where Ron can obtain pens and paper rolls for the printer, then write to *Sector 64*. Who knows – if you actually sell the things, it could even be a bit of good publicity!

Blast!

If you're looking for a cool shoot-'em-up this summer for your 64, then why not get your hands on *Silkworm*. Written by Random Access for Virgin, this a cool mixture of jumping and flying. The game is quite an old coin-op now, but nevertheless is quite stunning. The conversion comes complete with a smooth-scrolling background and cool graphics, and you control either a helicopter or a jeep on your mission of destruction.

The only thing that really didn't impress us was the sound effects – but overall, it's brilliant.

Ian + Mic



• Silkworm on the C64: Real cool for summer

Directory listing

```
1   B=52992
2   FORL=0TO114:READA:POKEB+L,A:NEXTL
10  DATA 169,36,133,2,169,1
20  DATA 162,2,160,0,32,189
30  DATA 255,169,8,170,32,186
40  DATA 255,32,192,255,169,8
50  DATA 32,180,255,169,0,32
60  DATA 150,255,169,0,133,144
70  DATA 160,3,132,143,32,165
80  DATA 255,133,195,32,165,255
90  DATA 133,196,164,144,208,53
100 DATA 198,143,208,238,166,195
110 DATA 165,196,32,205,189,169
120 DATA 32,32,22,231,32,165
130 DATA 255,166,144,208,30,170
140 DATA 208,9,169,13,32,22
150 DATA 231,160,2,208,205,32
160 DATA 22,231,32,228,255,201
170 DATA 0,240,227,32,228,255
180 DATA 170,240,250,208,219,169
190 DATA 8,32,195,255,76,204,255
200 REM ****************************
210 REM * USE SYS 52992 TO DIRECTORY *
220 REM ****************************
230 SYS52992
```

Oh, wicked! Just what you need!

This listing is a directory routine, so that there's no excuse for saving your programs and quitting BASIC just to get a directory of a disk.

All you have to do is simply type the small listing in, and once done you can directory the disk onto screen any time you wish simply by entering the command "SYS 52992" (followed by RETURN).

It will then load off disk each name and print it onto the screen without entering BASIC. When the computer is doing a directory you can stop it at any time by pressing SPACE. This stops and starts the scroll.

Write away

Your listings and ideas are welcome, so get pen to paper and send them in to the usual address:
Sector 64, New Computer Express, 4 Queen Street, Bath BA1 1EJ.

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PCW PATCH

Base actions

Sir Edward Elgar once said that it was straightforward composing music: you just "pluck it out the air, and take as much or as little as is required".

As most writing – especially non-fiction – involves repackaging essentially the same chunks of text over and over again (just read any computer magazine!), a writer's version of this would involving plucking your ideas from chunks of text (a database of 'free text') already stored on disc. Find the right bit, cut and paste the bit into your document, and away you go.

Encyclasoft has brought out two 'free text' databases – ideal for writers who manipulate several chunks of text at the same time. *Script2Base* works with *LocoScript 2* and *Text2Base* with *Protext*. They look good too – review next week. Meanwhile more info on 0270 811890.

Snap decision

Photographer A: This gypsy beggar with a crippled child came up to me in Madrid and asked me for a thousand pesetas.

Photographer B: What did you give her?

Photographer A: I had slide film so I gave her 1/125 at f8.

Now that it's summer you'll want some way of cataloguing all those holiday snaps. *Fotocall Professional* could be the answer. Its a database specially designed for keeping tabs on your photos and is recommended by the British Association of Picture Libraries. Costs £24.95; details from **Pro-Am Software** at **28 Chestnut Ave, Maldon, Essex, CM9 7BA**.

Pigg book of records

Biggest file

The biggest file on any commercially released piece of software was a 300K library file on Pecan's Pascal compiler released November 1988. This was so big it took several minutes to load and made use of the program virtually impossible.

● Know of any PCW superlatives? Send to: The Pigg Book of Records, New Computer Express, 4 Queen St, Bath BA1 1EJ.

A (bleep, bleep) tip

Robin Cope of Winchester writes in to tell how much he enjoys *PCW Patch*, and wonders why we don't make it fortnightly, and why we bother having it at all. Thanks for that vote of confidence, Robin. He notes that the BASIC command OUT 248,11 will turn on a continuous bleep – perhaps useful for a "burglar alarm"? – and OUT 248,12 turns it off again. OUT 248,1 reboots the disk. "Maybe someone can find a use for these", he adds.

Quids in

Robin also notes that the 'Special Reserve' Club which advertises regularly in *Express* let you buy cheap PCW software. For £1.50 per disk postage and £4 a year subscription you can get bargains like *Clock Chess 88* for a fiver, *Mini Office Professional Plus* for thirty, *Armageddon Man* or *Catch 23* for four quid.

Basil Pigg

QL corner

B-Tree File Management

Most file management systems use at least two files – a main file in which all the records are stored, and one or more index files, which contain keys, usually in the form of an ordered list.

B-tree indexing uses keys which are stored in a b-tree, somewhat similar to a binary tree, but giving much more efficient retrieval and storage.

Lightning Special Edition

Digital Precision's popular Lightning 'accelerator' program has been enhanced. It is now available on ROM, giving something like 25% – 30% more speed, as well as cartridge and disk.

You can now have different fonts in different windows, and pixel scrolling – that is, scrolling a pixel at a time, rather than a character at a time.

The price is £39.95, and £5 has been knocked off the standard version. DP is on 01-527-5493.

For programmers who want a set of b-tree routines that they can use with a conventional programming language, such as C, b-tree packages consisting of a set of sub-routines are available for the PC, and some of these packages are even available in source code form, so can easily be ported to any machine with a C compiler.

When Leon Heller (former *Quanta* chairman) and I wanted a b-tree file management system for the QL, we looked around for a suitable low-cost package, and eventually chose the *Softfocus BTree* package available from Grey Matter for £80.

When we had transferred the package to the QL (it comes on a PC disk), we put all the source code through the *Lattice C* compiler, and encountered several problems due to the many bugs in that product. It took us two days to get it working.

How does it perform? We tested it with 3,000 records on a floppy disk, and any record could be retrieved in under two seconds. With 7,000 records on a QL equipped with the CST Winchester, retrieval times were something like one second.

The theoretical limits of the package are as follows: index files with up to 16.7 million entries, and data files with up to 16.7 million records. Key and record sizes are virtually unlimited.

Leon Heller has supplied several *Quanta* members who have purchased the package from Grey Matter with a library file of the compiled *BTree* routines, ready to link into their programs. Grey Matter is on (0364) 53499.

More Bugs

If you open the ser2 port (either explicitly, with the OPEN command, or, implicitly, with LOAD, COPY, etc.), the channel cannot be properly closed.

John Torofex

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BEEB BOX

Whale of a time

Educational software house Topologika has several new programs out, including long-delayed *The Myth of Moby*, which is a three-part graphic adventure. Part of its *Whales and Dolphins project*, the package catches the flavour of the month with it's 'green' feel. Also late is *The Curves Software pack*, which is not a manual for lechers, but an aid to teaching kids about maths. I notice also that PC and Nimbus versions feature in its other new offerings, *Catch up with your Punctuation*, and *Stock pack*.

Nidd Valley has combined and enhanced its *Illustrator* and *Colourbox* software into one package, called naturally enough *Illustrator-Colourbox*. Costing £59.90 including its own mouse, it's good value, but as the lager advert says, 'not **that** good!'

A3000 MIDI

If you're still not quite sure exactly what specs the A3000 machine has, then you're probably not the only one. However I can clear one thing up for you. The MIDI interface is **not** built-in, but **will** be available as an internal upgrade, price to be decided.

Warp factor nil

I've already looked at *Return of the Jedi*, but I was still pleased to receive a pukka copy through the post. I was less pleased to see that no mention at all was made of the Beeb on the packaging, apart from a tiny little sticker. Makes you wonder how they are going to engender the forking out of money for the product doesn't it?

High stakes

People who gamble on horse racing never admit to losing money, so for them and others who can defy the implacable laws of statistics Blue Ribbon have brought out *Turf-Form*. At £2.99, less than the cost of a good Yankee it offers the gullible punter a chance to "Beat the Bookies" Their words, not mine.

DTP snag

Acorn's DTP package is now ready, but be warned all you A310 owners. Before you rush out to lay down £149 (plus VAT) the program really requires 2Mbyte of RAM to run well. Before you wail and gnash teeth however, I do hear rumours of a third-party memory expansion board for that machine. More details when I get them.

Broad tip

A neglected BASIC keyword is the WIDTH command. Use it when spooling listings for use in wordprocessors to avoid problems with wordwrap.

Andrew Brown

Conspiring to plot

Schoolteachers pay attention, because you could win one of those sumptuous flatbed plotters for your school. Linear Graphics ltd is organising the competition in support of the DTI's Design & technology programme. Get the details on 0686 29292.

MSXTRA

Konami magazine

At last it looks as if the Konami Software Club magazine has been distributed, although, as I write this week's column, I have yet to receive my copy. Talking to Mark Smith, the mag's editor, it seems that all members should have received the magazine by now, but he had to admit that a few members had phoned him asking where their copy had go to.

The only explanation he could come up with was that they were using a new company for the distribution of the magazine, and they seemed to be having a few problems. He apologised for the delay, and hoped that by the time you read this all members will have received their copy.

Regarding software from Konami for the MSX user, it seems that it will be placing more emphasis on producing software for the games consoles, such as the Nintendo. This does not mean that Konami has finished with the MSX, but it is possible that we will only see one more title from them this year.

Turning Japanese

Some good news regarding software is that more and more titles seem to be arriving from Japan, and games such as *Barbarian* and *Terropods* have been converted to the MSX. As soon as they are available in the UK, you're sure to read about it in this column.

Joysticks plus

De Gale Marketing has now enlarged its range of joysticks, as witnessed in issue 30 of Express. I mention this fact again because De Gale Marketing points out in the press release for these products that all the joysticks in this range are true MSX joysticks, and have the independent fire button feature that many MSX cartridge games require.

Prices for the four joysticks in the Quickjoy range start at £8.95 for the Supercharger, up to £19.95 for the top of the range Quickjoy V Superboard.

Self drive

Fancy building yourself a disk interface that will allow you to use any Shugart disk drive on your MSX computer? Well, in this month's *MSX TECH* newsletter, detailed instructions on how to build this device are presented.

This is not a task for the complete novice, I can assure you, but for anyone with a little technical knowledge, the task isn't too daunting.

The main problem will be obtaining the MSX Disk Operating System, although it does say in the article that Sony would probably sell you a Rom if you asked nicely. If you can build one of these interfaces you are bound to save yourself quite a bit of cash, as you should be able to build the interface, and add a disk drive, all for under £100.00. Even a second hand MSX drive, and interface would set you back more than £150.00, so this project, and how to obtain a copy of the MSX TECH newsletter, send an SAE to **J Whiting, 8 Blackheath Crescent, Bradwell Common, Milton Keynes**.

Keith Neal

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VISA

ARCHIMEDES LORE

Showtime at the Alexandra

Only one more month and the 1989 BBC Acorn user show will be in full swing. It's being held in the west hall of the Alexandra Palace in Wood Green, London between the 21st and 23rd of July. Opening times are 3pm-9pm on Friday 21st and 10-6pm on Saturday and Sunday 22nd and 23rd. Entry charges are adults £3.50, children under 16 £2.50, with a pound off if you buy the tickets in advance.

The show promises to be very interesting to all Acorn users, with approximately 80 exhibitors and 100 stands covering a wide range of products including the latest hardware, software and peripherals.

This is the biggest ever Acorn-specific show, and representatives of all the major software and peripheral manufacturers including Watford Electronics, Computer Concepts, Minerva Systems and Clares Micro Supplies will be there.

It's here that the new A3000 will be on sale for the first time. There will be lectures and seminars from Acorn's own experts and plenty of razzmatazz.

Hot hints

You may remember I asked for a wrinkle to increase the speed of the machine as a joke – who needs a speed increase when we have the fastest micro available to the home owner anyway? Well, I had a letter from Matthew Treagus of Southampton which wiped the smile off my face. There *is* a way to increase Archie's speed and here's how to do it.

Simply fire up BASIC and type SYS "OS_UpdateMEMC",64,64. By entering this line, the ROM clock speed is doubled, matching the RAM clock speed. Unfortunately, this only works with some machines (those with fast enough ROMs). ROM chips will become warm if you push them at double the speed, so use this tip at your own risk (!).

Wot, no DTP?

I'd hoped to be able to get a copy of new Acorn's new DTP package for this week' – unfortunately I still haven't got it, sorry! I shall try to get the package for next time.

Share and share alike

As with any newish machine, there isn't much software around for the Archie and what's available is relatively expensive so how about some cheap shareware products. Shareware is software that you receive for free, try out, then if you like it, send off a small donation to the author who will keep you informed of upgrades, send you full manuals etc.

Norwich Computer Services have produced 13 shareware disks to date. Priced around £3 each, the disks contain approximately 800K of utilities and other programs. You can contact Norwich Computer Services on 0603 507057. The company also produces a magazine *Archive*. More details on the number above.

See you next time.

Lucy Brown

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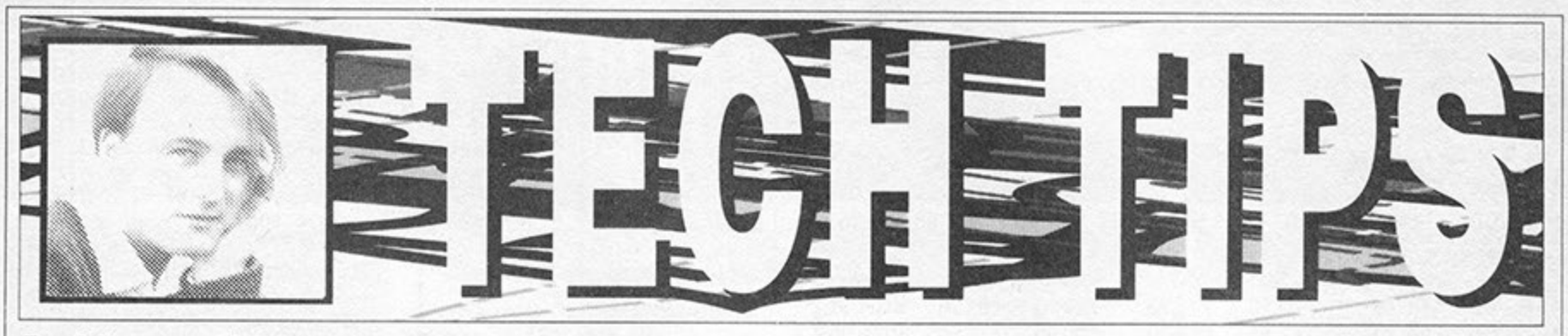


Problems with your computer? Express's Agony column has the answer. Write in strictest confidence to Uncle Techtip.

Best tips win a freebie – so don't forget to tell us your address and machine

HELP!

Monitoring progress

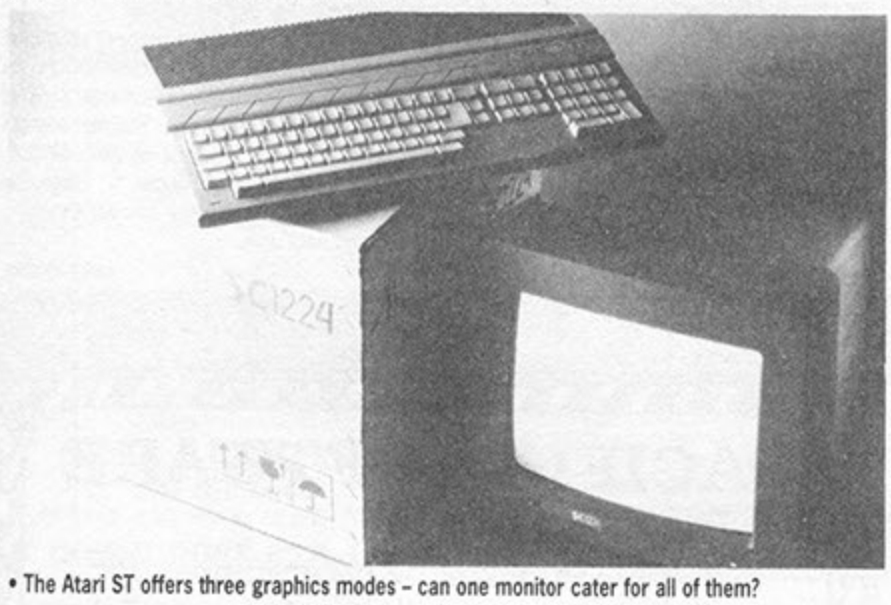
I'm on the verge of buying an Atari ST and until last month was satisfied that my impending purchase would be great, for along with the ST, I was going to buy a colour monitor and printer. However, last month, I saw an article on multi-synch. monitors which completely confused me.

Am I right in thinking that the ST has several 'discreet' modes of monitor output? If so, do you have to have a different monitor for each one? Is a multisynch my best option? Or output to a TV? Can the TV show all the modes?

I'm going to be using the ST mainly for games but also want to run some serious word processing stuff.

I realise that this is easy-peasy stuff, but no less confusing to me for that! Finally, does software give you a choice of output mode?

Kevin Crocombe, Cleethorpes



• The Atari ST offers three graphics modes – can one monitor cater for all of them?

• The Atari ST does indeed offer several display modes and to view all of these you must have two distinct screen types. The modes themselves are high resolution, medium resolution and low resolution.

The low and medium resolutions can both be viewed using a domestic television set or ordinary colour monitor, but to make use of the high resolution mode you must have a high-res monochrome monitor. A – more expensive – multi synch monitor will allow you to display all modes. If you plump for the colour monitor/TV as your display then you can still make use of the high-res mode by obtaining a utility from the public domain (try Alpha Computing 32 Meadow Drive, Halifax, West Yorks) which fools the ST into thinking it has a monochrome monitor attached.

A TV set if fine for games, but will soon strain your eyes if you plan to word process for any length of time. Buy a multisynch monitor if you can afford it, if not, then an ordinary colour monitor.

HELP!

Writing games

This is not really a technical problem as such, but I hope you can help. I have mastered *Amiga BASIC* and want to upgrade to a better language such as assembly or machine code. I am very keen on writing games like *R-Type* etc, and I would appreciate it if you could tell me all the necessary items I would require to write games and some good books to go with it.

Also will it be possible to transfer the musix from Aegis *Sonix* into this language? Yet another question is, if I designed sprites using *DeLuxe Paint 3*, would I be able to include these in the language?

I'll understand if you don't answer this letter, since you probably get hundreds of letters from budding games writers.

Derek Stacey, Ayrshire, Scotland

• Have you heard of the *STOS BASIC* language product for the Atari ST? *STOS* is a replacement BASIC which has lots of extra commands to enable you write arcade or any other types of games, which runs very fast and looks good. As well as the *STOS BASIC* package itself, there are a sound sampler, sprites collection and compiler for the BASIC – all at reasonable prices.

Soon (very soon, I'm assured) Mandarin Software will launch a version of this language for your Amiga. Known as *AMOS*, it will allow you to write the kind of games you want easily and effectively. For more information call Mandarin on 0625 878888.

HELP!

Hot cross assembling

I am interested in writing machine code programs on my Amiga, but for use on my C64. Is it possible to develop 6502 code on the Amiga (what software would I need and where could I get it from) and connect the two machines together via the RS232 port to transfer my projects onto the C64 for testing?

Christopher Gill, Flint, Clwyd

• If you mean that you'd like to test the programs under a 6502 emulator running on your Amiga, then unless there's an emulator lurking in the public domain, I'm afraid you're out of luck. I know of no emulator to allow you to run 6502 code on an Amiga.

If you simply want to write the code using your favourite Amiga text editor then port it across to the C64 via a serial cable, then this is feasible, although a little long-winded and pointless. Stick to the C64 and a good assembler to write your source code. The keyboard is usable, there are plenty of good text editors around (or you can use the one that comes with the assembler) and 6502 code is the machine's native language. It'll be faster and easier than using an emulator (even if you can find one).

HELP!

Stopped in its tracks

I've just purchased a copy of *Lombard RAC Rally* and to my disappointment it did not work. When the game loads, it stops half way through a stage and you can't get out of it. But then if you load the game in again you can play it until three bombs appear. I analysed the disk with a disk editor and found track 79 to be damaged. A friend of mine purchased a copy of *Lombard* as well and exactly the same problem occurred – track 79 again! Do you think it could have been a faulty batch of disks or could it be a virus, if so why do the three bombs appear?

• You've got me! There's no news of a faulty batch of disks and I think the idea of a virus is unlikely. If a virus was present then you'd almost certainly receive a message of some kind. Did your friend experience difficulty with their disk on your machine, or did it refuse to work on both yours and their computers? If any Techtippers can shed some light, call me...

• Mandarin's Lombard RAC Rally. Is it bugged?

HELP!

Feed the PET

I have recently been fortunate to lay my hands on a 3032 model CBM PET

BUG OF THE WEEK

On the Amiga and C64 versions of *Micro Soccer* there's a crafty bug that will allow you to score frequently against the toughest of components.

Run with the ball on the far right hand side (up the pitch or down). As you near the end of the pitch get an opposition player to follow behind you. Stop just before the very end of the pitch to prevent a goal kick. Now the player behind you will tackle – forcing the ball out for a corner every time. Now take the corner in the usual way and another of your players will always be waiting to hammer the ball into the net. Just hold the button down and move in the appropriate direction.

Graham Ruston, Hodge Hill, Birmingham

• Lissodema cursor

The two species of this genus found in central Europe and Britain live in dry branches, various deciduous trees and programmers' cranial cavities. They occasionally drop onto RAM chips, where they feed voraciously on any bits of code to do with wood

and have found it a very competent machine considering its age and specification. However, I would be most grateful if you could help me with some of my queries.

1. Is there a user group that I could join which would help me in laying hands on second hand soft/hard ware for my PET?

2. I have become interested in collecting vintage computers like the PET, Atari 400/800, ZX80 etc, wear a nylon anorak, wire rimmed spectacles and attend a train spotters club on a regular basis! Is there a cure on the NHS for my disgusting disease?

James Coldfish, Manningtree, Essex

• 1. Contact ICPUG at **30 Brancaster Road, Newbury Park, Ilford IG2 7EP**, which should be able to help with PET bits 'n' pieces.

2. I have a pristine Oric Atmos which is surplus to requirements (even Uncle Techtip gets caught occasionally) that I could let you have for a modest sum.

By the way, I'm still trying to dig up some guff about *PET BASIC*. Hopefully, I'll be successful in a week or two, so hang in there. If any Techtippers have a PET BASIC manual they don't need, send it in and I'll pass it on – you'll be rewarded.

HELP!
XLent!

I have an Atari 600XL and an Atari 800XL which have the revision *B BASIC* in them. Can thou tell me where I can get the revision *C BASIC* ROM ICs and is there any way of upgrading these machines?

I have bought an Atari 1010 cassette recorder without a power supply unit, can you tell me what the power requirements of the recorder are? Is the centre pin positive or negative? What are the correct connectors for linking the data recorder to the computers?

Can the Qume LetterPro20's printer be used with the Atari 600/800XL and which would be the most suitable interface to use?

Wee Georgie Woods, Walton, Liverpool

• The BASIC can be upgraded by revision *C BASIC* on cartridge which simply plugs into the ROM cartridge port. Contact Silica Shop on 01 580 4000, which will be able to help.

So you just have the cassette recorder without the serial connection cable or power supply? (Wasn't a very good buy, was it?) Again, Silica Shop should be able to help you with a suitable power supply and a serial cable.

Using the 810 interface you shouldn't experience any difficulty with connecting and using the Qume printer.

HELP!
A loss of memory?

I own an Amiga 500 expanded to one megabyte and recently purchased *War in Middle Earth* by Melbourne House from a local computer shop. Upon getting it home, I found it would not load so I took it around to friend's who owns an Amiga 500. To my surprise, the game loaded and ran on his machine. I understand that some games will not work with the memory expansion fitted. Is this the case with *War in Middle Earth* and if so, how can I play it without physically removing the memory expansion (I had difficulty in finding it in the first place and I do not wish to risk damaging the Amiga). Bearing in mind that all my other games work do you think my Amiga is faulty?

Andrew Yates, Peterborough

• Once again, it's good news and bad news time. There's nothing wrong with either the game or your machine, the problem lies in the expansion. Although that is working perfectly well too, certain commercial games software won't work with the RAM expansion in situ.

To solve the problem there are utilities in the public domain which allow you to 'switch off' the RAM expansion card but unfortunately, they won't work with commercial software (due to the protection systems in use).

It's down to plugging and unplugging I'm afraid.

TIP
Got the blues

I have noticed that it is possible for Amiga *Elite* players who enjoy *The Blue Danube* to listen to it whilst wasting a few Thargoids.

Simply press H to hyperspace then, when the counter is down to 5 or lower engage the docking computer. *The Blue Danube* will now play until you reach the next space station.

David Ovington, Worcester

HELP!
No no no

Three questions:

1. Is the PCW compatible with an IBM-PC such as the Amstrad 1512?

2. Where has the release schedule gone?

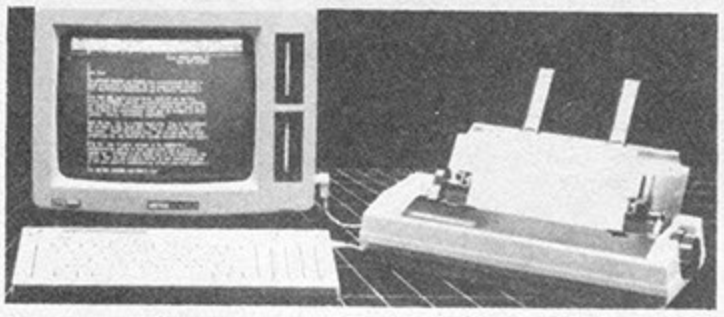
3. Can you start up a Ceefax guide for us proud BBC/IBM teletext (ATS) ROM owners, once a month?

Simon Denton, Taunton, Somerset

• 1. No. (The Amstrad 1512 *is not* an IBM-PC, it is an IBM-PC *compatible* and IBM wouldn't thank you for thinking otherwise!) The only way to transfer data is by connecting the PCW to a PC with a cable. This limits you to ASCII and data files.

2. It was dropped because it was found to be unprofitable for Software Information Services, which collected the information.

3. No.



• Amstrad's PCW: Is it compatible with PCs?

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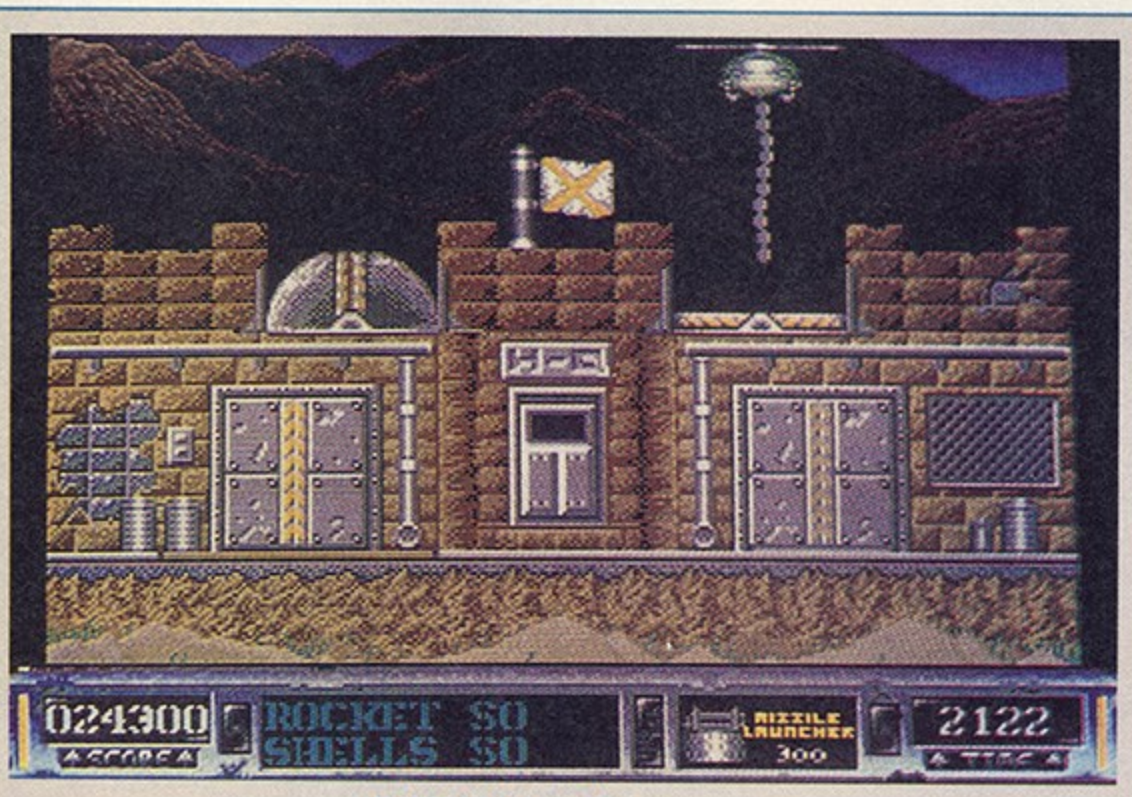
Rik Haynes rides over the latest releases without any need of the six hundred!



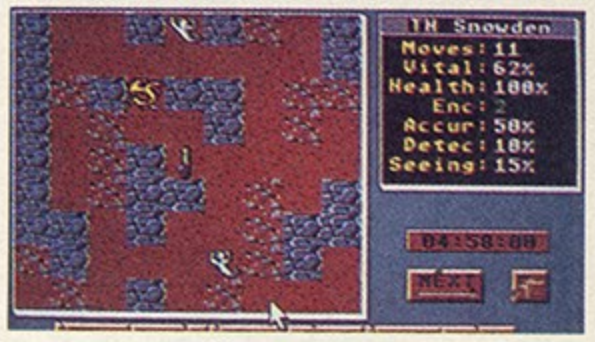
BATTLE VALLEY HEWSON

As a US mercenary, you have to take out some terrorist desert bases in this hectic Hewson shoot-'em-up, already released in budget form on the C64.

The aim is to get back the last two medium range nuclear missiles made before the worldwide arms treaty came into force, and which have been stolen by terrorists. *Battle Valley* is due for Amiga release in August.

PALADIN OMNITREND/ARTRONIC

A mixture of fantasy, strategy and role-playing, *Paladin* throws you into the world of playing Dungeons and Dragons – Knight and day – as you take a party of followers through 10 quests meeting trolls, zombies and sorcerers along the way. Also featured is a Quest Builder for modifying and creating new scenarios. Out soon on ST, Amiga and PC



BARBARIAN II PALACE SOFTWARE

Yes, its finally arrived! *Barbarian II* on the Amiga, complete with Maria Whittaker on cover, and in-game monster decapitation. Music supremo Richard Joseph has again produced the sampled sounds we've all come to love, as you swipe off the head of an opponent with a satisfying swish of sound. Also out on PC next month.

MAZEMANIA HEWSON

A game for all budding maze maniacs, *MazeMania's* blend of puzzle and furious action, coupled with 12-16 levels of play, should help keep you amused. Requiring skill and a lot of co-ordination, *MazeMania* is scheduled for release on Spectrum, C64 and CPC in August, with ST and Amiga versions following shortly afterwards.

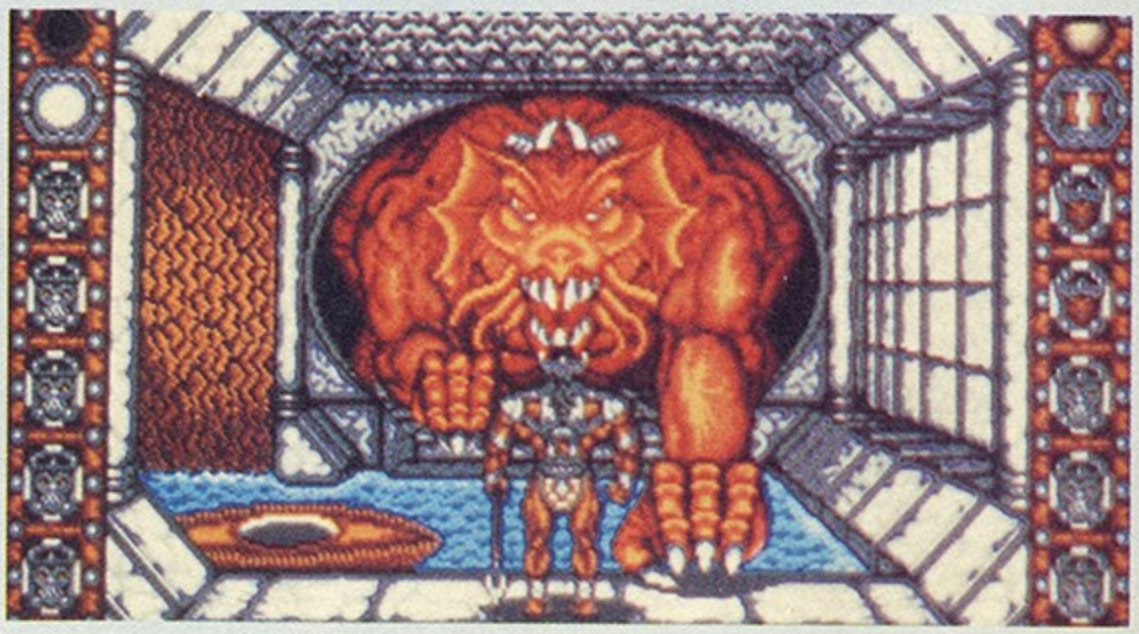
THE AMERICAN CIVIL WAR VOL II STRATEGIC STUDIES GROUP/EA

The latest wargame from US wargamming specialist SSG, *Decisive Battles of The American Civil War Vol. II* may not exactly roll off the tongue but it's packed with features and options including *Warplan* (wargame construction kit) and *WarPaint* (icon editor), and uses the award-winning Decisive Battles Game System. Out shortly on PC.

CASTLE WARRIOR DELPHINE SOFTWARE/PALACE SOFTWARE

Castle Warrior is the follow-up to the critically acclaimed *Bio Challenge* (Reviewed in *Express* 28) from the French software developer Delphine Software.

This arcade adventure places you in the guise of Edelred The Brave on an antidote-finding mission to save your poisoned father, Edelred The Good. Yuk! Out next month on ST and Amiga.



● The heat is on, in more ways than one. In this sweltering heat, tempers aren't sweet. But the show must go on, just like this song.

Dark Side from Microstatus – gameplaying hiatus. *Personal Nightmare* gave us no great scare. Logotron's *Star Ray* shows others the way.

(*And Rik Haynes the bard can pick up his card(s) – Ed*)

STARRAY

LOGOTRON

PC • £29.99dk
Also on ST, Amiga

• VGA: Very Good Attempt – except for the scrolling

After last autumn's CGA PC release comes the EGA/VGA/Hercules update – and a lot better it looks too. So how well does it compare to the other 16-bit outings?

● GAMEPLAY

If you ever played the classic *Defender* in the arcades then you'll know the score with *StarRay* inside out. So much so, that in the States it's going to be released as *Revenge of Defender*. To be fair, there's more to the gameplay than in the original but the aim remains the same: namely to protect installations on the ground while blasting everything that moves – except bonus balls, which will supply you with everything from improved acceleration to invulnerability. There are seven missions to get your teeth into, so by the end of the game your fire finger will be well worn.

● GRAPHICS AND SOUND

Compared to the dreadful CGA version, both VGA and EGA modes deliver good graphics, with VGA winning out of course. Nevertheless, scrolling and sprites aren't really convincing. Parallax scrolling is fast enough but jerky, while the sprites aren't solid enough. Even in VGA they appear as just a bunch of pixels. Sound is as useless as usual on the PC – confined to beeps, beeps and more beeps. When will decent sound cards be bundled as standard?

● OTHER VERSIONS

The Amiga version performs the best, with smooth, fast scrolling and impressive stereo spot-effects and soundtrack. The ST outing is well worth a look too.

● EXPRESS VERDICT

There aren't too many shoot-'em-ups for PCs, so with the appearance of VGA *StarRay* you're probably talking about the best blaster available for that machine – even though it's just a good reworking of a ten year old coin-op game.

✪ ✪ ✪

Andy Storer

DARK SIDE

INCENTIVE/MICROSTATUS

Amiga £24.95dk
Also on ST Spectrum, C64, CPC and PC versions published by Incentive

***Dark Side* is the first game on the new Microstatus label from Microprose, and marks the second conversion of this popular arcade adventure to 16-bit format.**

● GAMEPLAY

Placed in the role of a troubleshooter, you'll have to explore the Dark Side of the moon Tricuspid, in order to find and disable the energy matrix which is feeding Zephyr, a massively destructive weapon designed by the Ketars to destroy your peace-loving people on the planet Evaths. Confused? You certainly should be...

● GRAPHICS AND SOUND

We've obviously been spoilt by *StarGlider II* and its excellent solid 3D graphics, because the Freescaping landscape system on the Amiga seemed far less impressive then when we first witnessed it on the 8-bit micro's. However, they're more colourful, faster and polished than before.

Audio isn't bad either, with either soundtrack or special FX to choose from.

● OTHER VERSIONS

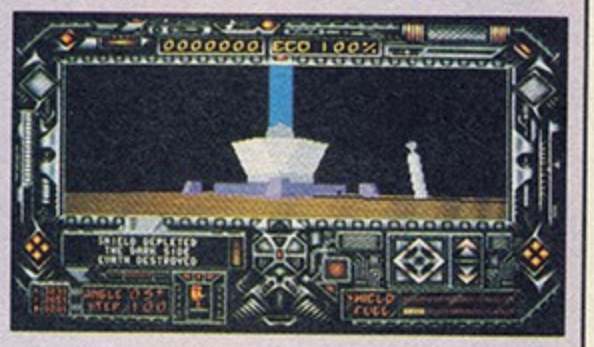
Dark Side on the Spectrum, C64, CPC again proved the classic combination of puzzle-type gameplay and the innovative Freescape technique, a far more remarkable achievement on the 8-bits considering their hardware limitations.

● EXPRESS VERDICT

Although not quite as outstanding as its 8-bit counterparts – perhaps we were expecting too much – Amiga *Dark Side* still manages to produce a playable game thanks to its assorted range of puzzles backed up by the praiseworthy Freescaping visuals.

✪ ✪ ✪ ✪

Rik Haynes



• Take a walk on the Dark Side...

PERSONAL NIGHTMARE

HORRORSOFT/TYNESOFT

Amiga • £29.95dk
Also on ST
Out soon on PC

• Frightening good intro sequence

Making a debut for a new software label based around Horror games, "starring" the Elvira vamp from a popular American TV Horror show, is *Personal Nightmare* horrifically appalling or frighteningly addictive?

● GAMEPLAY

Personal Nightmare is a three-disk menu-driven graphic adventure incorporating many of the standard "adventure" options, with more than a few surprises for the bold adventurer.

● GRAPHICS AND SOUND

A great intro sequence takes you into start of play, all the features of the genre are here: eerie sound spot effects, limited character animation and plenty of locations to explore.

● OTHER VERSIONS

We haven't seen the five-disk ST version yet, and PC *Personal Nightmare* will be released sometime next month.

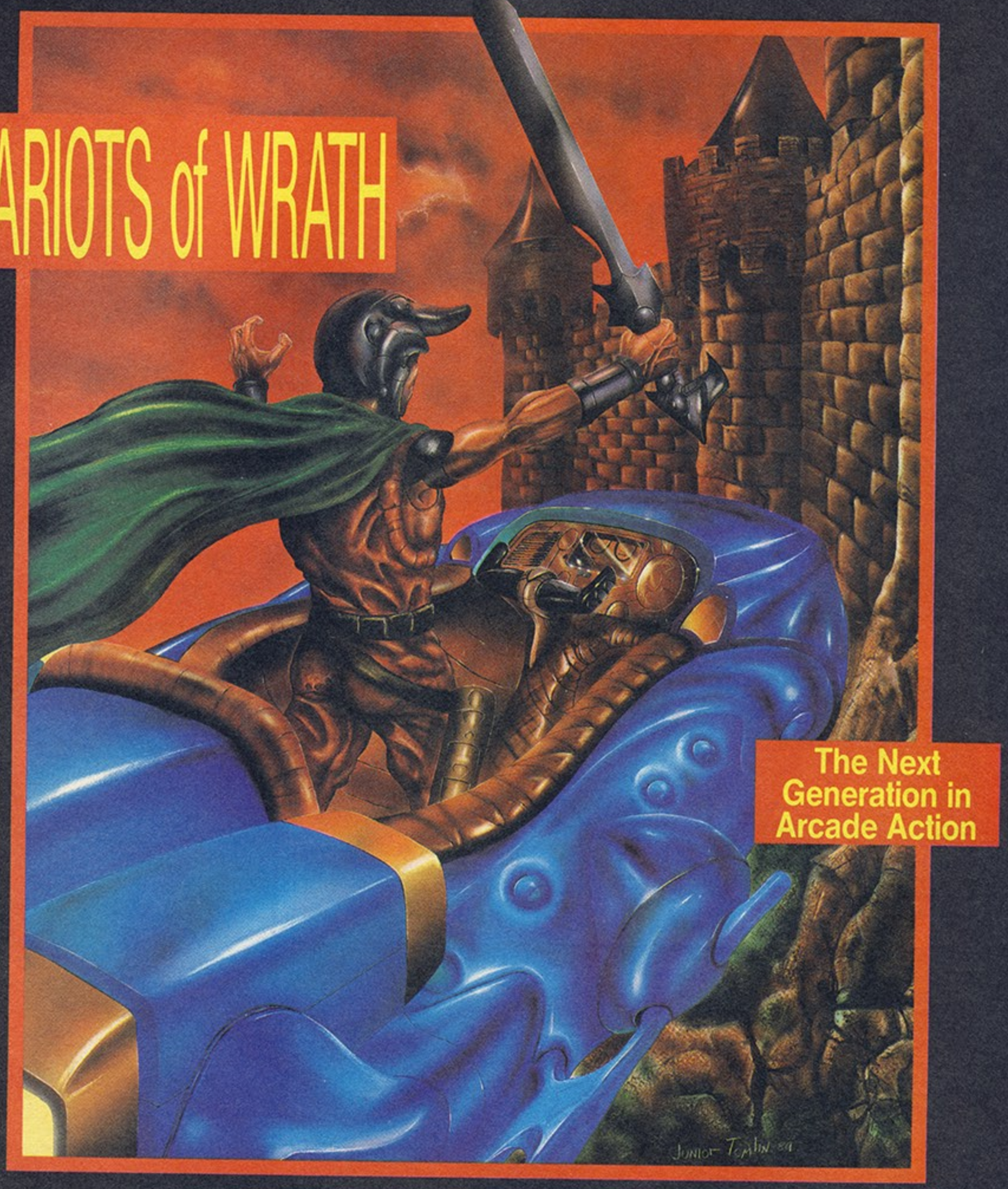
● EXPRESS VERDICT

Personal Nightmare is a promising start to a new-ish software genre, which thankfully owes nothing to the disgusting *Jack The Ripper* style of sensationalism. It's a touch too expensive though.

✪ ✪ ✪

Rik Haynes

• Keeping up with Joneses as you start play



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Rik Haynes gets up-to-date with new versions of games previously reviewed in Express

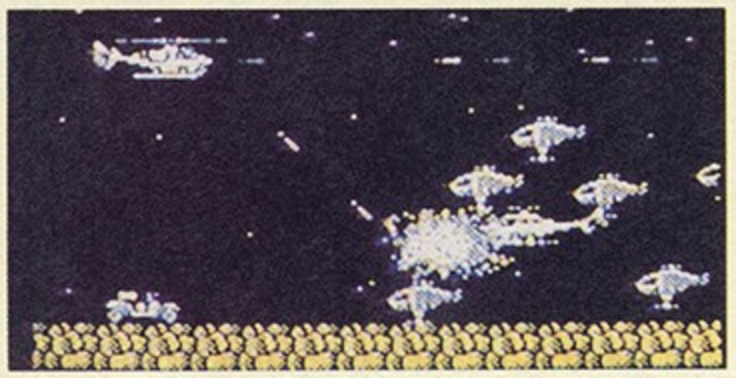
• No pause in the action

FORGOTTEN WORLDS
CAPCOM/US GOLD

CPC ● £9.99cs £14.99dk ● Amiga version reviewed in *Express* 30 ● Also on Spectrum, C64, ST

Like *Silkworm*, a one or simultaneous two-player horizontally-scrolling shoot-'em-up, *Forgotten Worlds* features colourful graphics but falls down a little in the playability and speed departments.

★ ★ ★



• Silk-smooth scrolling on the Spectrum?

SILKWORM VIRGIN GAMES

Spectrum/C64 ● £9.99cs £14.99dk ● Amiga version reviewed in *Express* 32 ● Also on CPC, ST

This standard slice of horizontally-scrolling shoot-'em-up action has been successfully converted over to the Spectrum and C64. Perhaps a tad too easy on the Spectrum, both versions of *Silkworm* are undoubtedly great fun to play.

★ ★ ★

• C64: Jeep thrills – and spills

MICROPROSE SOCCER MICROPROSE

Amiga ● £24.95 ● C64 version reviewed in *Express* 4, Spectrum version reviewed in *Express* 27 ● Also on CPC, ST

Microprose Soccer maybe on top of the C64 and Spectrum footie-sim 1st Division, but we're afraid the Amiga version's relegated to Sunday League when compared to the superlative *Kick-Off* from Anco (Reviewed in last week's *Express*).

★ ★ ★

• Where's this Ruud Gullit geyser then?

BATTLECHESS ELECTRONIC ARTS

ST ● £24.99 ● PC version reviewed in *Express* 10 ● Also on Amiga

A remarkably accurate conversion from the Amiga, ST *Battlechess* contains excellent visuals and even matches the Amiga's sampled sound effects. The game has a great sense of humour, but may not have strong enough play for the hardened chess player. Well worth a look, though.

★ ★ ★ ★

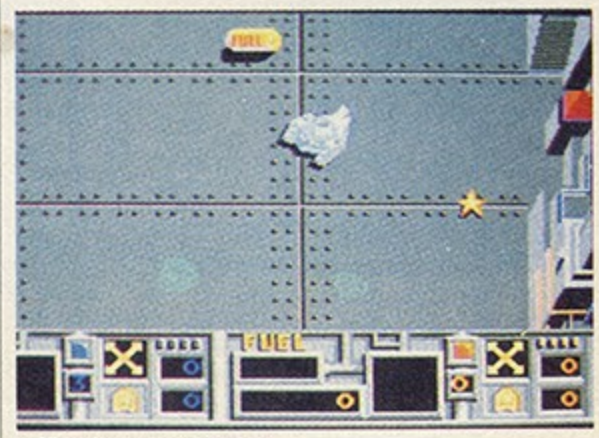
• And Karpov unexpected encountering his opponent's knight to queen's 4 etc etc

VINDICATORS TENGEN/DOMARK

Amiga ● £19.95 ● ST version reviewed in *Express* 23 ● Also on Spectrum, C64, CPC

More or less a straight port over from the ST, *Vindicators* on the Amiga is slightly disappointing in that the Amiga's superior sound quality hasn't been put into effect. That said, it's an accurate conversion of the coin-op.

★ ★ ★



• All tanked up on one star

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FROM RUSSIA WITH... AN INVOICE

Express has been as concerned as anyone about recent reports that Russian KGB agents have been infiltrating UK Computer Shows. In this exclusive report, a Russian KGB agent whom we shall 'Ivan' has smuggled us this highly secre t call from Moscow. It gives a unique insight into the state of the computer in the Soviet Union...

Hello, all my friends in England! How I look forward to coming to one of your computer shows again. The flight from Moscow isn't so good; Ilyushin-4s are like Amigas, I think: they always look about to crash. As you know, quality control isn't a strong point of Soviet manufacturing. Car factories are built on top of hills because that's the only way we can be sure to get them started. And it's the same with our Soviet-made computers: Russian keyboards, you need the muscles like a shotputter to touch-type at all. Our Aeroflot hostesses must have trained as copy typists. And our digital watch batteries made in Leningrad only last two hours – maybe it's so you don't know how long you've been queueing for the bread and potatoes.

Which is why Mikhail Gorbachov was so keen on his last visit to meet Alan Sugar and Clive Sinclair – he thought they must have a lot in common.

System error?

As a Russian, people often ask me what it's like to live in a one-party state with a gagged press ruled over by a virtual dictator and doddering, bumbling old men who are intent only on lining their own pockets. And I tell them: it's actually not bad, and the English don't seem to to mind at all.

We can get most State-of-the-Art technology here. We have all the very latest computers that you have – Jupiter ACEs, Orics, Thors, ZX81s. Rumour has it the CPC and Electron are coming to the next Moscow computer show. Actually I'm joking. We have the MSX too.

My job is going to computer shows and spying. The Soviet Union needs technology and it's my job to come and get it. On my first trip, in my innocence, I obtained some secret details of the computer control systems for your new jet fighters. My KGB boss was so furious! Get me something useful, he said, like Spectrum games, C64 budget cassettes, PD catalogues!

I asked him if he wanted military secrets. 'Sure,' he said, 'I want cheats for *Balance of Power*, *Universal Military Simulator*, *Borodino*, and infinite lives pokes for *F-14 Tomcat* on the PC'.

The reason is our new image. The Evil Empire is out and arms reduction, troops withdrawals, increase in technology etc are in. The soldier boys are coming back from Afghanistan and China and they need something to do. Though it's taking them a while to cotton on to the fact that in computer shoot-'em-ups you don't have to queue and sign out each bullet.

Bring down the wall!

Everyone is delighted about *Tetris* going from the USSR Academy of Science to the West. It's brought in so much money for Alexei, the designer, that he now has three pairs of Chinos! I remember the day when he was caught playing it instead of working on plans for a nuclear reactor tower. Poor Alexei! He was hauled up before the Academic Committee with a face as white as a Gorky Park snowdrift. He thought it was off for a trip away and a taste of salt in the air – in Siberia, not on the Black Sea coast. Imagine his surprise when he was commended for it and told his game was being licensed to the decadent capitalist West!

The thing is, Alexei only wrote it as a protest – a sort of bitter satire on wall-building and iron curtains. (He loves Shostakovich and Mussorgsky). But he thought quickly when they asked him what it was about. 'A symbol of, er, perestroika (reconstruction)', he said. And then, under his breath, 'that is, a load of old blocks'. They swallowed it!

Shopping all over the world

Desktop publishing is really taking off here. The authorities were worried at first about *samizdat* underground counter-revolutionary newsletters organising Solidarity-style campaigns, propagated by supporters of Boris Yeltsin, using Tasword on their Spectrums.

We needn't have worried. By the time anyone has queued for the paper, hacked in to the DTP program to make the alphabet Cyrillic and managed to get a page out of their smuggled budget Citizen printers, the reforms they're calling for have gone through anyway.

Talking of the man in the street, I was interested to hear of your 'home shopping computer terminal' plans. It should revolutionise shopping here, and get rid of all those queues at the Bread Shop and Grocery Store, so it will really bring the USSR into the computer age. I'm on the waiting list for one already and the first will be delivered in June 1996. I hope it isn't the 15th as the plumber is due to come then...■

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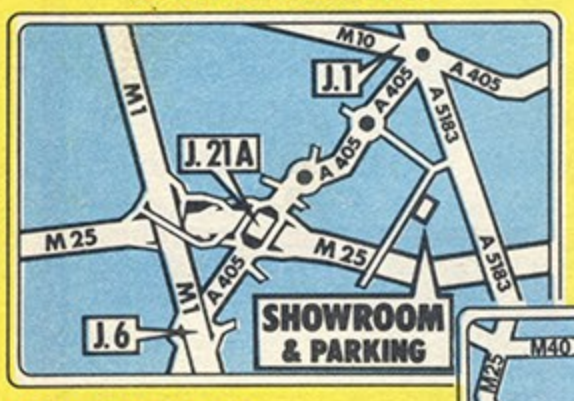

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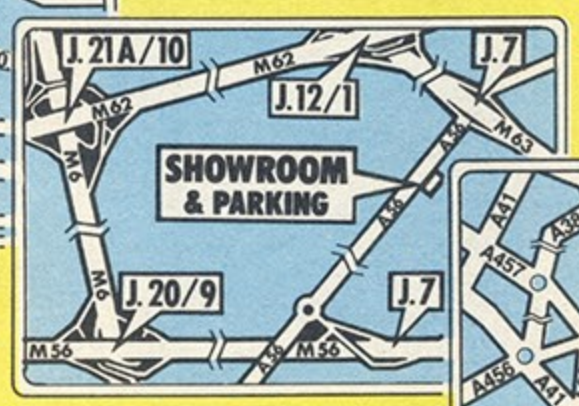

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